SEWAGE FACILITIES PLAN

HAYCOCK TOWNSHIP BUCKS COUNTY, PENNSYLVANIA

February 7, 2011

APPROVED BY PADEP ON OCTOBER 6, 2011

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APPENDIX A – CORRESPONDENCES

- Haycock Township correspondence dated January 13, 2009 RE: Act 537 Sewage Facilities Plan Update (with Task/Activity Report).
- PADEP correspondence dated February 12, 2009 RE: Act 537 Plan of Study.
- C. Robert Wynn Associates, Inc. correspondence dated April 29, 2009 to BCHD RE: Existing Sewage Facilities issues.
- C. Robert Wynn Associates, Inc. Memo to File dated May 13, 2009 RE: BCHD response to request for information.
- C. Robert Wynn Associates, Inc. correspondence dated November 19, 2009 RE: Sewage Needs Survey (including survey form).
- Haycock Township correspondence dated February 18, 2011 RE: Transmittal of Sewage Facilities Plan to PADEP.
- PADEP correspondence dated June 15, 2011 RE: Review of Sewage Facilities Plan.
- Haycock Township correspondence dated August 8, 2011 RE: Response to PADEP review comments.
- Haycock Township correspondence dated September 14, 2011 RE: Supplemental documentation requested by PADEP.

APPENDIX B – ORDINANCES/AGREEMENTS

- Ordinance 92 IRSIS
- Ordinance 106 SLDO Amendment for reserve sewage system requirements
- Proposed Sewage Management Ordinance
- Sample Operation and Maintenance Agreement
- Sample Operation and Maintenance Agreement for Holding Tanks

APPENDIX C – SUPPLEMENTAL DATA

- NRCS Bucks County Soil Suitability for Sewage Disposal
- NRCS Bucks County Hydric Soils
- NRCS Bucks County Prime and Other Important Farmlands Soils
- PADEP Alternate Sewage System Summary/Siting Criteria

APPENDIX D - AGENCY REVIEWS & PUBLIC COMMENT

- Bucks County Planning Commission Review Memorandum dated September 1, 2010.
- Haycock Township Planning Commission Meeting Minutes of September 13, 2010.
- Bucks County Department of Health Review correspondence dated October 15, 2010.
- C. Robert Wynn Associates correspondence dated November 3, 2010 responding to agency review comments.
- Proof of Publication of advertisement of the plan on December 7, 2010 in The Intelligencer for public comment.
- Correspondence dated January 17, 2011 from the Township Secretary, Nancy Yodis, certifying that the Township received no written comments from the public during the advertised thirty-day review period ending January 5, 2011.
- Haycock Township Resolution 2011-04, adopted on February 7, 2011, which approves the Sewage Facilities Plan.



SOUTHEAST REGIONAL OFFICE

OCT 0 6 2011

Ms. Nancy M. Yodis, Secretary Haycock Township 640 Harrisburg School Road Quakertown, PA 18951

Re: Act 537 Plan Update Status: ISSUED APS ID 743481, AUTH ID 869869 Haycock Township Bucks County

Dear Ms. Yodis:

We have completed our review of your municipality's updated official sewage facilities plan titled "Sewage Facilities Plan" (Plan), as prepared by C. Robert Wynn Associates, Inc., dated February 7, 2011. The plan was supplemented with additional information dated August 8, 2011, and September 14, 2011. The review was conducted in accordance with the provisions of the Pennsylvania Sewage Facilities Act.

Approval of the Plan is hereby granted. This approval provides for the following:

- 1. Haycock Township (Township) will implement a sewage management program, which will involve an educational component and requirements for system maintenance. The Township will adopt the "Haycock Township Sewage Management Ordinance." A draft copy of this ordinance was provided in Appendix B of the Plan. This ordinance will assure the proper operation and maintenance of all sewage disposal systems within the Township and will compliment Ordinance 92, relating to IRSIS, and Ordinance 106, relating to replacement sewage disposal areas.
- 2. The Township will implement a sewage facilities alternative selection process that will include a hierarchy of sewage disposal system alternatives. The wastewater system hierarchy is listed on page 7-6 of the plan.
- 3. The Township will evaluate the future needs for sewage disposal within high density areas, including the villages of Applebachsville, Strawntown, and the Old School Road neighborhood. These areas are depicted on Figure 3-4, High Density Areas of Concern. The Township will work with the Bucks County Health Department to monitor system malfunctions that require absorption area replacement in each of the high density areas of concern. The Township will initiate additional planning to evaluate the needs of a given area when its malfunction rate reaches 25 percent. The Township has committed to providing status reports to the Department of Environmental Protection (Department) every three years that identify the status of system malfunctions in each area of concern.

www.depweb.state.pa.us

Please provide the Department with a copy of the Haycock Township Sewage Management Ordinance upon its finalization.

Any person aggrieved by this action may appeal, pursuant to Section 4 of the Environmental Hearing Board Act, 35 P.S. Section 7514, and the Administrative Agency Law, 2 Pa.C.S. Chapter 5A, to the Environmental Hearing Board, Second Floor, Rachel Carson State Office Building, 400 Market Street, P.O. Box 8457, Harrisburg, PA 17105-8457, 717.787.3483. TDD users may contact the Board through the Pennsylvania Relay Service, 800.654.5984. Appeals must be filed with the Environmental Hearing Board within 30 days of receipt of written notice of this action unless the appropriate statute provides a different time period. Copies of the appeal form and the Board's rules of practice and procedure may be obtained from the Board. The appeal form and the Board's rules of practice and procedure are also available in braille or on audiotape from the Secretary to the Board at 717.787.3483. This paragraph does not, in and of itself, create any right of appeal beyond that permitted by applicable statutes and decisional law.

IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS, YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.

IMPORTANT LEGAL RIGHTS ARE AT STAKE, HOWEVER, SO YOU SHOULD SHOW THIS DOCUMENT TO A LAWYER AT ONCE. IF YOU CANNOT AFFORD A LAWYER, YOU MAY QUALIFY FOR FREE PRO BONO REPRESENTATION. CALL THE SECRETARY TO THE BOARD (717.787.3483) FOR MORE INFORMATION.

If you have any questions, please contact Ms. Linda Swagzdis of this office at 484.250.5179.

Sincerely,

Jenifer Fields, P.E. Regional Manager Water Management

cc: Bucks County Planning Commission Bucks County Health Department
C. Robert Wynn Associates, Inc.
Ms. Swagzdis
Ms. Moore
Ms. Vollero – RCSOB, 11th Floor, Sewage Facilities Planning Section Re 30 (dh11wq)276

RESOLUTION 2011-04

A RESOLUTION FOR ACT 537 SEWAGE FACILITIES PLAN REVISION

WHEREAS, Section 5 of the Act of January 24, 1996, P.L.1535, No. 537, known as the "Pennsylvania Sewage Facilities Act", as amended, and the Rules and Regulations of the Pennsylvania Department of Environmental Protection, the Department adopted thereunder, Chapter 71 of Title 25 of the Pennsylvania Code, requires Haycock Township to adopt an official Sewage Facilities Plan for the provision of adequate sewage systems, and to revise said plan from time to time as may be necessary, and

WHEREAS, Haycock Township has prepared the said plan and has found it adequate for the wastewater disposal and management needs of the entire Township.

NOW, THEREFORE, BE RESOLVED that Haycock Township hereby adopts the plan known as the Haycock Township Sewage Facilities Plan for wastewater and management needs as the Official Plan of the municipality. The Township hereby assures the Department of the proper and timely implementation of the said plan as set forth therein:

The alternatives of choice to be implemented for the Township are as follows:

- 1. Increased level of municipal involvement in sewage facilities planning and maintenance via implementation of a public education program for on-lot disposal systems (OLDS).
- 2. Adoption of an Ordinance to implement an on-lot disposal system management program.
- 3. Implementation of a sewage facilities alternative selection process and hierarchy of permitted system alternatives for all developments to ensure installation of the most environmentally sensitive disposal/treatment facility consistent with Township goals and policies.
- 4. Continued use of on-lot disposal systems and individual/community treatment facility systems (where appropriate) to increase groundwater recharge potential, and protect natural resources, including special protection watersheds and impaired waterways.
- 5. Limit the use of small flow treatment facilities for those properties requiring replacement of existing on-lot failed septic systems (where land application methods are no longer viable); and incorporate design requirements for stream discharge based sewage disposal facilities including use of tertiary treatment of effluent via constructed wetland areas.
- 6. Revise the Zoning Ordinance to include protection of Prime Agricultural Soils and Soils of Statewide Importance, and riparian buffer requirements within the natural resource protection section of the Zoning Ordinance.
- 7. Evaluate the future needs for sewage disposal within high density zoned areas, including the Village Center-1 and Suburban Residential High Zoning Districts.

SO RESOLVED this ______ day of <u>*Hebricur*</u> AD 2011 by the Board of Supervisors of Haycock Township, Bucks County, Pennsylvania.

HAYCOCK TOWNSHIP BOARD OF SUPERVISORS

LATEROOR Chairwoman Kathleen M. Babb.

Michael Lennard, Vice Chairman

Henry DePlue, Member

Attest:

Rancy m. Gadis

PLAN SUMMARY

RECOMMENDED PLAN

Recommended plan for sewage facilities within Haycock Township include the following key elements:

- 1. Increased level of municipal involvement in sewage facilities planning and maintenance via implementation of a public education program for OLDS.
- 2. Adoption of an Ordinance to implement a Management Program.
- 3. Implementation of a sewage facilities alternative selection process and hierarchy of permitted system alternatives for all developments to ensure installation of the most environmentally sensitive disposal/treatment facilities consistent with Township goals and policies.
- 4. Continued use of on-lot disposal systems and individual/community treatment facility systems (where appropriate) to increase groundwater recharge potential, and protect natural resources, including special protection watersheds and impaired waterways.
- 5. Limit the use of small flow treatment facilities for those properties requiring replacement of existing on-lot failed septic systems (where land application methods are no longer viable); and incorporate design requirements for stream discharge based sewage disposal facilities including use of tertiary treatment of effluent via constructed wetland areas.
- 6. Revise the Zoning Ordinance to include protection of Prime Agricultural Soils and Soils of Statewide Importance, and riparian buffer requirements within natural resource protection section of the Zoning Ordinance.
- 7. Evaluate the future needs for sewage disposal within high density areas, including the villages of Applebachsville and Strawntown, and the Old School Road neighborhood. Evaluation must be accomplished when, and if, more than 25% on-lot sewage disposal system failure is documented in any one high density area.

IMPLEMENTATION SCHEDULE

•	PADEP approval of Act 537 Plan	Time 0
•	Adoption of Sewage Management Ordinance	+2 months
•	Adoption of Agricultural Soils Zoning Ordinance and riparian buffer revision	+6 months
•	Preparation of educational materials for distribution	+7 months
•	Commence septic tank pumping program	+1 year
•	Assist homeowners as requested	Ongoing

• Further evaluate needs for sewage disposal within high density areas

-	Threshold of 25% failed systems in study area is exceeded	Time 0
-	Setup Plan of Study Meeting w/PADEP	+1 month
-	Prepare analysis of study area and adoption of plan amendment to address area of failures	+1 year

PROJECT FINANCING

Private ownership/operation and maintenance of on-lot sewage disposal systems will continue, with costs associated with maintenance and operation of the systems to be the responsibility of the individual property owner. Township costs for implementation of public education and on-lot system maintenance programs will be financed with a combination of general tax revenues, user fees, and PADEP reimbursement. Township costs for inspection/monitoring and verification of report compliance for alternate systems will be user financed. Costs associated with design and installation of community sewer collection/treatment facilities (if proposed) will be borne by the project developer.

CHAPTER 1 INTRODUCTION

A. STUDY PURPOSE AND SCOPE

This Sewage Facilities Plan has been prepared in accordance with requirements of Act 537, enacted by the Pennsylvania Legislature in 1966, as amended, which requires that every municipality in the Commonwealth develop and maintain an updated Sewage Facilities Plan. The main purpose of the Sewage Facilities Plan is to protect the health, safety, and welfare of the citizens living within the municipality. Sewage Facilities Plan provides a comprehensive planning mechanism to identify and resolve existing sewage disposal problems, avoid potential sewage problems resulting from new land development, and to provide for future sewage disposal needs within the community. The existence of untreated or improperly treated sewage on the surface of the ground, or in the groundwater, allows disease organisms to reach people through drinking water, through insects or other animals, and through direct contact. The plan also serves as means for coordination with other related local, county, and state programs that regulate development and the impact of development on the environment and natural resources within the community.

As directed by the Pennsylvania Department of Environmental Protection (PADEP), the current update of the Haycock Township Sewage Facilities Plan was undertaken to meet State requirements under Act 537, and to address changes that have taken place in the Township. These changes include increased residential development; the increased usage of non-land application methods of sewage disposal; adoption of new Zoning Ordinance and Subdivision Regulations regarding protection of natural resources and sewage disposal; and adoption of a comprehensive Stormwater Management Plan (Act 167 Plan). These changes require review and update of the Haycock Township Sewage Facilities Plan to provide adequate facilities for existing and future development, and to support the Township's Comprehensive Plan and Zoning Ordinance.

B. PREVIOUS WASTEWATER FACILTIES PLANNING

In 1985, Haycock Township adopted the "Wastewater Facilities Component of the Quakertown Area Comprehensive Plan", dated August 1985, prepared by Bucks County Planning Commission for the Quakertown Region. The Quakertown Region includes Haycock, Milford, and Richland Townships; and Quakertown, Richlandtown, and Trumbauersville Boroughs. The 1985 Plan addresses sewage facilities needs of the entire Township, with special emphasis placed on existing areas of higher density, including the area of Lakewood Drive/Schoolhouse Road and the Village of Applebachsville. The 1985 Plan also evaluates the possible development of commercially zoned areas of the Township.

The 1985 Plan also discusses the existing Nockamixon State Park Treatment Facility (located along the south side of Lake Nockamixon within Bedminster Township), which had a design capacity of 50,000 gpd.

The 1985 Plan formulated several policy statements, including the following:

1. Sewage facilities planning for new subdivision/land developments will be prepared in accordance with PADEP Chapter 71 Regulations (Planning Module Procedure).

- 2. Township will continue to allow rural residence exceptions for residential development, provided that the application for rural residence exception complies with Bucks County Department of Health Rural Residency Certification Procedures. Additionally, the plan recommended that the Township incorporate in the Zoning Ordinance and Subdivision/Land Development Ordinance a set of performance standards for installation of on-lot systems on lots of 10 acres or more.
- 3. Holding tanks will be limited to use for correction of failing on-lot sewage disposal systems only after all reasonable corrective measures have been taken.
- 4. Policies concerning existing development:
 - A. The Township will continue to search for sources of funding to lower the cost of a permanent solution to on-lot sewage disposal system failures in unsewered areas of concentrated housing.
 - B. The Township will institute as a minimum an On-Lot Sewage Disposal System (OLDS) Management Program. Such a program will include a public information/education program stressing water conservation and better maintenance of OLDS.
 - C. If problems cannot be corrected on an individual basis, the use of community subsurface absorption systems are recommended whenever it is physically and economically feasible.
- 5. Policies concerning future development:
 - A. Individual subsurface on-lot sewage disposal systems will be the most acceptable method of wastewater disposal throughout the Township. Any wastewater disposal system proposed other than individual subsurface on-lot system will be considered a plan revision and, as such, a complete evaluation of wastewater facility alternatives will be required as detailed by Act 537 planning requirements.
 - B. Cluster developments will be encouraged to use community subsurface systems.
 - C. All new community systems serving Township residents will be required to be offered for dedication to the Township or an authority designated by it.

In general, the 1985 Plan recognizes the major village centers within the Township as the most problematic areas of onsite septic systems. The 1985 Plan anticipated that there would be minimal growth in the Township's population, and no anticipation of the need for public sanitary sewer facilities to serve proposed developments was noted. Although the 1985 Plan generally discusses the possible use of centralized sewage disposal facilities to address possible sewage disposal needs in village and commercial areas, no detailed analysis of these options (such as areas available for placement of these systems, construction of required collection facilities, or possible funding sources to offset costs of the individual residents) were discussed. The plan also does not discuss the possibility of utilizing a community system constructed for new development to serve existing failing systems in the Township.

Subsequent to the 1985 Plan, the Township adopted various site specific sewage facilities plan revisions to permit development of tracts throughout the Township. In general, all revisions were consistent with the continued use of onsite sewage disposal systems, except as follows:

- 1. Rabenold Subdivision proposed three single family detached dwelling lots (one remaining vacant as of this date) to be served by small flow treatment facilities with discharge to Dimple Creek.
- 2. Demoreland (a.k.a. Gill) property was approved for use of a small flow treatment facility to replace an existing substandard on-lot sewage disposal facility serving existing single family detached dwelling.
- 3. Replogle Subdivision was approved for service of three single family detached dwelling lots (one remaining vacant as of this date) to be served by small flow treatment facilities.
- 4. Keep property was approved for use of a small flow treatment facility to replace a holding tank serving an existing single family detached dwelling. The Township has no record that the small flow treatment facility was ever installed by the property owner, and it is believed that the holding tank may remain in use.
- 5. Ames/Wolfe property (a.k.a. Yerger) was approved for use of a small flow treatment facility to serve a new single family detached dwelling (not yet constructed). Facility was proposed to discharge to an unnamed tributary to Tohickon Creek.
- 6. Gambol (a.k.a. Marrone) property was approved for use of a small flow treatment facility to serve a new single family detached dwelling with discharge to an unnamed tributary to Tohickon Creek.
- 7. Kemmerer property was approved for use of a small flow treatment facility to serve a new single family detached dwelling.
- 8. Nockamixon State Park received approval for use of a small flow treatment facility (with spray irrigation) to replace existing "comfort station" facilities serving the fishing pier and boat launch areas along the north side of Lake Nockamixon.
- 9. Freedom Valley Girl Scout Camp was approved for use of a wastewater treatment facility to serve Camp Tohikanee, also located in East Rockhill Township. Facility is designed for an anticipated flow of 15,000 gpd, such that effluent is treated by constructed wetlands and discharges to Tohickon Creek.
- 10. Landgreen property was approved for subdivision into two lots to be served by A/B systems (which have not yet been constructed). A small flow treatment facility was originally proposed to serve the same parcel, but this system was also never installed. (The parcel remains vacant as of this date).
- 11. Morgan (a.k.a. Billera) property was approved for use of a small flow treatment facility to replace an existing substandard on-lot facility serving an existing single family detached dwelling.

CHAPTER 2 PHYSICAL AND DEMOGRAPHIC ANALYSIS

Preparation of the updated Sewage Facilities Plan for Haycock Township includes an update of the inventory and analysis of various natural and manmade features, characteristics, and components of Haycock Township which influence sewage facility planning. An examination of regional influences, natural features, population, water supply, and sewage treatment facilities is conducted in this chapter to provide a basis for establishing study areas and identifying appropriate alternatives for evaluation. Most of the following information has been obtained from the Quakertown Area Comprehensive Plan Update, dated 2007, prepared by Bucks County Planning Commission.

A. Municipal Boundaries/Service Areas

Haycock Township is located in northeastern Bucks County and is bounded to the north by Springfield Township, to the east by Nockamixon Township, to the south by Bedminster Township/Lake Nockamixon, and west by East Rockhill and Richland Townships. The Township encompasses 19.719 square miles (refer Figure 2-1).

There are no Municipal Authority/management agency service areas within the Township. All water supply and sewage disposal facilities throughout the Township are on the property they serve and are privately owned and operated. The Quakertown Area School District operates an elementary school (Haycock Elementary) at the intersection of Sawmill Road and Old Bethlehem Road, which is served by an on-lot sewage disposal facility. For the purposes of this plan, the Township shall be considered one planning area in its entirety.

According to the 2000 Census, Haycock Township's estimated population was 2,191, only 26 more residents than 1990 (1.2% increase). Overall, the county population continued to grow with a 10.4 percent increase in total population. Although the Township's density also increased since 1980, Haycock Township has one of the lowest densities in the County. Haycock Township's population is divided into 805 households, which are defined by the US Census as all the people living in a housing unit. The average household size in Haycock Township is declining – down slightly from 2.89 persons per household in 1990 to 2.71 in 2000. The Township's average household size is comparable to the county average of 2.69.

B. Physical Characteristics (Watersheds and Streams)

Haycock Township contains two primary watersheds: the Delaware River (North) and the Tohickon Creek. The Tohickon Creek Watershed covers almost 95% of the Township and includes all major streams and unnamed tributaries that flow to the Tohickon Creek and Lake Nockamixon. The Tohickon Creek Watershed originates in the northern portion of Bucks County, includes Lake Nockamixon, and discharges its stream flow to the Delaware River at Point Pleasant in Plumstead Township.

The Delaware River (North) Watershed encompasses a small area in the northwest corner of the Township, such that runoff within this watershed drains in a northerly direction into Springfield Township, tributary to Cooks Creek, an Exceptional Value (EV) Watershed.

As illustrated in Figure 2-2, a network of small streams, including Haycock Creek, Dry Branch Creek, and Kimple/Dimple Creek, contain headwaters of the primary watersheds. These headwaters contain the source of all that flows downstream. As a result, the health of larger streams and rivers depends upon an intact primary stream network, including intermittent and





year-round streams. When properly maintained, headwaters provide the greatest potential for protecting the quality and quantity of the entire watershed.

The Pennsylvania Department of Environmental Protection established five stream quality designations. In order of increasing water quality standards, the stream quality classifications include: Warm Water Fishes (WWF), Cold Water Fishes (CWF), Trout Stocking (TSF), High Quality-Cold Water Fishes (HQ-CWF), and Exceptional Value (EV). The following tributaries within Haycock Township have received quality designations from PADEP:

Creek Name	WWF	CWF	TSF	HQ-CWF	EV
Dry Branch Creek			х		
Kimple/Dimple Creek			х		
Haycock Creek			х		
Tohickon Creek		x	х		
Delaware River	x				
Cooks Creek					х

Figure 2-3: Stream Quality Designations

SOURCE: Pennsylvania Department of Environmental Protection

The Tohickon Creek is included in the National Wild and Scenic Rivers Program. The National Wild & Scenic Rivers Act is the nation's primary river conservation law. The National Wild and Scenic Rivers Program identifies waterways that are in excellent environmental condition and aims to maintain that status. The goal of the program is to preserve the quality and health of rivers with important scenic, recreational, fish, and wildlife values. There are 156 rivers totaling nearly 11,000 miles in the national system. In addition to promoting compatible land use and development along river areas, the Act prohibits the Federal Energy Regulatory Commission from licensing construction of a dam, water conduit, reservoir, powerhouse, transmission line, or other project works under the Federal Power Act on, or directly affecting, a river designated as an actual or potential system component.

The Tohickon Creek has also been recognized at the state level through the Pennsylvania Rivers Conservation Program, which was developed to protect and enhance river resources through the preparation and implementation of local planning. Components of the Rivers Conservation Program include: the Rivers Registry, technical assistance, and grants for planning, implementation, development, and acquisition. The Rivers Registry recognizes rivers in communities that have completed river conservation plans. Registry status must be achieved to qualify for implementation, development, and acquisition grants. The Lower Delaware River Conservation Plan has also been accepted into the Pennsylvania River Registry. As a result, the Lower Delaware River and all of its tributaries are included.

The extreme northwest corner of the Township contains the headwaters of the Cooks Creek Watershed, which is classified as an Exceptional Value (EV) watershed by PADEP.

Several streams flow through Haycock Township and into neighboring communities, making it the responsibility of the Township to protect groundwater and surface water quality not only for its own residents, but also for those in adjacent communities. Tohickon Creek forms a portion of the western and southern boundaries common with East Rockhill Township and Bedminster Township. Haycock Creek forms the eastern boundary common with Nockamixon Township. In addition to the watercourses discussed above, there are two significant lakes within the Township. A portion of Lake Nockamixon lies along the southern Township boundary common with Bedminster Township, and Lake Towhee is located within Lake Towhee County Park in the central portion of the Township.

Lake Nockamixon is located within a State Park operated by Pennsylvania Department of Conservation and Natural Resources (DCNR). Tohickon Creek, including the lake, has been identified as an impaired water body and associated Total Maximum Daily Load (TMDL) for nutrients (phosphorous) have been established by US EPA. The source for impairment was identified by US EPA as agriculture, municipal point sources, and onsite wastewater discharges. The TMDL established a total allowable load, as well as individual Waste Load Allocations (WLA) and Load Allocations (LA). All known existing/permitted point sources to Tohickon Creek/Lake Nockamixon have an established effluent phosphorous concentration limit of 0.5 mg/L.

Lake Towhee is within the Lake Towhee County Park, and is located within the Kimple/Dimple Creek Subwatershed.

C. Soils

Soils are classified according to specific characteristics, including drainage capabilities, depth to bedrock, and fertility. Based on the capabilities and limitations of a given soil type, consideration should be given to its suitability for different land uses. Soil identification and mapping should guide the Township's future land use planning decisions, such as the placement of infrastructure, selection of on-lot systems, and preservation of natural resources. However, improper management of soil resources can lead to erosion and sedimentation, decreased crop yields, nutrient loading of water bodies, and decreased water quality and quantity.

The underlying soils within Haycock Township have historically played a significant role in determining land use patterns. Areas with good agricultural soils have been farmed, while areas that have limited agricultural potential have remained wooded. In addition to agricultural productivity, the ability of soils to renovate wastewater from on-site sewage disposal systems remains one of the most significant influences on land use planning. In 1996, USDA's Natural Resource Conservation Service revised the "Soil Survey of Bucks County". As a result, soil map units have been added, deleted, or reclassified. The predominate soils in Haycock Township are listed in Figure 2-4. There have also been technological advances in wastewater facilities that permit a wider range of disposal options on previously limited soil types.

Without public sanitary sewer systems in the Township, development can occur only where soil conditions allow for safe onsite disposal of wastewater, either through conventional sewage disposal systems, elevated sandmound systems, other systems specially designed to overcome certain soil limitations, or land application or spray irrigation systems. Several conditions can preclude the use of conventional sewage disposal systems because of the potential for groundwater and surface water contamination. Typical limiting characteristics include impermeable soils, a high water table, steep slopes, and the presence of hydric and alluvial soils. A list of soils mapped within Haycock Township by U.S.D.A. NRCS is contained in Appendix C, which references limitations specific to sewage disposal.

Determining the proper location for development using on-lot sewage disposal systems will not only safeguard the population against water contamination, but will also help to protect the Township's supply of groundwater and preserve natural hydrologic cycles. Whereas



conventional sewage plants treat wastewater and discharge it into streams, onsite systems treat and discharge wastewater into the soil where it may help to recharge the groundwater supply.

Most of Haycock Township soils are unsuitable for conventional inground on-lot sewage disposal systems (refer Figure 2-5). As shown on Figure 2-6, Haycock Township contains areas of soils suitable for sandmound and at grade beds (generally comprised of Mount Lucas, Neshaminy, Abbottstown, and Amwell soils), which are located throughout the Township, especially near roadway corridors. Most of these soils fall within areas of the Township that have already been developed, although a few larger concentrations of these soils are located within undeveloped areas of the Township (such as State Game Lands and the Towhee County Park), which are effectively preserved from future development.

In addition to soils suitable for sandmound and elevated bed sewage disposal systems, the Township contains significant areas of suitable soils for spray irrigation and drip irrigation systems, as illustrated in Figures 2-7 & 2-8. Soils suitable for spray irrigation and drip irrigation systems generally expand upon areas suitable for sandmound systems, and include additional areas in the northwest, southwest, and eastern portions of the Township. Additional information on the suitability and limitations of specific soil types for sandmound and IRSIS sewage systems is contained in Appendix C.

In addition to conventional subsurface, sand mound, and spray irrigation systems, alternate onsite systems are beginning to be proposed more often in other areas of the country to overcome significant soil limitations. Systems such as drip irrigation and peat systems are being used in areas of slow or fast permeability, shallow depth to bedrock, seasonal high water table, or stoniness. Although soil survey mapping may be useful to guide the evaluation of suitability for use of various sewage disposal systems, it should not be considered a substitute for onsite soil testing methods that will definitively determine whether a site is suitable for use of on-lot sewage disposal facilities. In some cases, onsite soil testing has revealed that county soil mapping may not be fully accurate, such that onsite sewage disposal systems may be suitable in areas that are mapped as unsuitable. Additionally, onsite soil testing could reveal additional constraints restricting use of various on-lot sewage disposal facilities that were not evaluated by the county soil survey.

Erodibility is an additional concern with respect to soils. Erodible soils are most susceptible to erosion when the earth and vegetation are disturbed during cultivation or construction activities. Highly erodible soils in Haycock Township are generally unsuitable for conventional onsite sewage disposal systems, but some may be suitable for sandmound systems. Many other soils in Haycock Township found on steep slopes are also considered highly erodible and are generally unsuitable for any onsite sewage disposal system.

The U.S. Department of Agriculture – Natural Resources Conservation Service (NRCS) recently certified the soils in Bucks County and has identified and mapped important farmlands. Generally, farmlands in Bucks County include soil capability Classes I through IV and are grouped into two classifications – Prime Farmland (Class I and II soils) and Additional Farmland of Statewide Importance (Class III and IV soils). A list of these soils mapped within Bucks County is contained in Appendix C.

NRCS defines Prime Farmland as land that has the best combination of physical and chemical characteristics for producing feed, forage, fiber, and oilseed crops, and is also available for these uses (the land could be cropland, pastureland, rangeland, forest land or other land, but not urban built-up land or water). As shown in Figure 2-9, Haycock Township contains areas of











Prime Farmland and Farmland of Statewide Importance, generally located along the southern portion of the Township nearest to Lake Nockamixon, and in the northwest portion of the site nearest to Richland and Springfield Townships.

Additional Farmland of Statewide Importance generally includes those lands that are nearly prime farmland and economically produce high yields of crops when treated and managed according to acceptable farming methods. As a result of the NRCS reclassification, a few soil types were removed from the Statewide Importance category. While the actual productivity of the land may remain unchanged, the new classification may possibly reduce the eligibility of some parcels for enrollment in certain preservation programs. Haycock Township contains large areas of Farmland of Statewide Importance soils along the southern side of Route 563, nearest to Lake Nockamixon (refer Figure 2-9).

Although Haycock Township does not contain extensive areas of actively farmed property, areas that are suitable for farming (generally located in the northwest portion of the site of the Township), and may be actively farmed, are identified by the Township and Bucks County as desirable for farmland preservation programs. Over the years, several large parcels utilized for farming within Haycock Township have been preserved via easements (including the Isaac, Siefert-Didonoto, and Ahlum parcels), with several others identified for possible future preservation. The goal of the farmland preservation is to preserve agriculturally viable properties from development, such that same remain as working, productive farms, while compensating the landowner for restrictions placed on the property such that the landowner retains private ownership of the farm.

D. Geology

The underlying geology of an area largely impacts future planning and land use decisions based on existing water supply, topography, and soil characteristics. Haycock Township's major geological features are the Brunswick formation and diabase, as shown on the Geology Map (Figure 2-10). These features can be characterized as follows:

- 1. <u>Brunswick Formation</u> The Brunswick formation composes a majority of the Township south of the Route 563, and along the eastern property boundary common with Nockamixon Township; as well as portions of the northwest corner of the Township. A sedimentary rock consisting mostly of red to reddish-brown shale, gray to greenish-gray mudstone, and siltstone, Brunswick shale is nonporous rock moderately resistant to erosion and weathering. Because it is highly fractured, the Brunswick formation is considered a reliable source of groundwater, with well yields often greater than 100 gallons per minute (gpm). The Brunswick formation underlies more than one-third of the land area of Bucks County and is used as a source of water for domestic and industrial land uses.
- 2. <u>Diabase</u> The Diabase that forms a majority of Haycock Township (including a large area in the central portion of the Township) is the poorest source of groundwater in Bucks County. Most diabase is too dense and its fractures too narrow to provide reliable well water on a large scale. The average well yield is 5 gpm or less. The shallow depth to bedrock also presents difficulties for excavation of onsite septic systems. Diabase consists of a dense, erosion-resistant crystalline, which is the primary rock type underlying many wooded ridges, steep slopes, and narrow stream valleys.



E. Topography

Topography has played an important role in the historical development of Haycock Township, influencing present-day development patterns and transportation networks. Haycock Creek and Tohickon Creek form on Township boundaries, and roadways have been developed to avoid significant topographic features (such as Haycock Mountain). Areas that have traditionally been used for farming are those with level terrain, as well as good soils. The rocky, rougher terrain of a majority of the Township has remained wooded and less developed (refer Figure 2-11).

Of particular concern in planning for future growth and sewage facilities are the areas of extreme topography where slopes are steep (refer Figure 2-12). Steep slopes are generally located adjacent to streams and are often heavily wooded. This combination of slope, vegetation, and stream valley establishes a corridor that should be highly valued for its aesthetic and environmental value. Inappropriate or insensitive development on steep slopes, especially in areas that contain erodible soils, may result in erosion and sedimentation to adjacent waterways, as well as the destruction of sensitive flora and fauna habitat. In addition to steep slopes found along stream corridors, other areas of notable steep slopes include the area in the vicinity of Haycock Mountain, found within State Game Lands in the central portion of the Township.

Haycock Township's Zoning Ordinance includes the following regulations protecting steep slopes:

Slope Classification	Protection Ratio
8 to 15%	60%
15 to 25%	70%
> 25%	85%

Figure 2-13: Zoning Regulations for Steep Slopes

Source: Haycock Township Zoning Ordinance of 1975, as amended.

The environmental impacts of conventional single-family development practices on steep slopes can be significant. Any disturbance of existing groundcover and topsoil can produce increased rates of erosion and sediment loading. Without established vegetation cover, steep slopes yield greater volumes and more rapid rates of stormwater runoff, which contribute to more frequent flooding. Sediment produced from erosion can also pollute surface waters. Because of these severe on and off site impacts, development on steep slopes must be carefully regulated through land use planning and performance standards.

8 to 15 percent grades are moderate slopes and construction activity will produce moderate rates of erosion and sediment loading if not controlled. Slopes of 15 to 20% are considered steep and disturbed areas will yield heavy sediment loads, while very steep slopes over a 25% grade produce heavy erosion and sediment loading when disturbed.

F. Potable Water Supplies

Groundwater is the only source of potable water in Haycock Township. It is also used for a variety of other residential, agricultural, commercial, and industrial uses. There are no public water supply systems or service areas within the Township. The availability of water is largely a product of the underlying geology. Although the groundwater supply has been adequate to serve the existing population, the Brunswick and Diabase formations of Haycock Township





provide the lowest groundwater yields of any formations in Bucks County. In the Bucks County Water Supply Plan and Wellhead Protection Study – Technical Report (Bucks County Planning Commission, 1997), water source information, including the estimated average yield of underlying formation, was reported. Figure 2-14 presents the yields of the main formations within the Township. However, it should be noted that well yield report data from recently drilled wells in Township reveal significantly less yields than identified in this report.

Formation	Average Yield of Wells in Aquifer
Brunswick	60 gal./min.
Diabase	5 gal./min.

Source: Bucks County Water Supply Plans, Bucks County Planning Commission, 1997.

The value of groundwater supply and groundwater recharge is extremely significant to a municipality that depends solely on groundwater for its general water supply. If development exceeds the carrying capacity of the groundwater supplies (i.e. water supply cannot satisfy intensity of development), or if development is insensitive to prime aquifer recharge areas, the Township may ultimately be forced to address water supply shortages. Careless development practices can seriously reduce groundwater recharge potential by increasing the impermeability of the land surface, reducing the supply to underground aquifers, and discharging wastewater into streams and rivers. Increased withdrawals may also cause declines in stream flow.

As groundwater is constantly withdrawn, aquifers must recharge in order to maintain a reliable supply of water. Precipitation provides the major source of water for recharge. On-lot sewage disposal systems may also serve to aid in groundwater recharge. The potential for recharge depends on several factors, including the permeability of surface and underlying rock formations, topography, and the presence of areas that can absorb and hold water, such as wetlands and floodplains. As areas become more developed, there is an increasing demand for water along with a corresponding reduction in the amount of groundwater recharge as land is paved and built upon.

G. Wetlands

Wetlands are areas that are typically saturate or where the seasonal high-water table is close to or at the surface. Typically, wetlands occur as marshes, swamps, and bogs. Wetlands are invaluable resources that function to filter stormwater runoff, enhance water quality, reduce potential flooding, and increase groundwater recharge. They also provide excellent habitat for wildlife and recreational opportunities for humans. Hydric soils are typical indicators of wetlands due to characteristics including poor drainage, high seasonable water table, and slow permeability rates. A list of hydric soils mapped within Bucks county is included in Appendix C.

Wetlands are regulated by the US Army Corps of Engineers under the authority of the Clean Water Act. Some preliminary mapping of wetlands has been done by the US Fish and Wildlife Service, but these are not definitive maps, and field investigations are needed to identify wetlands. The US Army Corps of Engineers uses three factors – soils, vegetation, and hydrology – to make a definitive identification of wetlands.

Haycock Township contains significant areas of wetlands (including Lake Nockamixon and Lake Towhee) as illustrated on Figure 2-15. Additional areas of wetlands are noted to exist predominately along stream corridors, as well as in areas of poor surface drainage. Additionally, a substantial area of the Township is mapped as being underlain by soils classified



as hydric (or containing soils having hydric inclusions), which necessitate further investigation to verify the presence/absence of regulated waters and wetlands prior to undertaking development activity.

H. Demographics

According to the 2000 Census, Haycock Township's estimated population was 2,191, only 26 more residents than in 1990 (1.2% increase). Overall, the county population continued to grow, with a 10.4 percent increase in total population.

Haycock Township is the least populated Township in the Quakertown region. Nockamixon State Park, State Game Lands, preserved open space, and other park lands count for a significant percentage of the Township's land area, a factor which greatly limits growth in the rural community.

The Township's population is divided into 805 households. The average household size in Haycock Township is declining – down from 2.8 persons per household in 1990 to 2.71 in 2000. The Township's average household size is comparable to the county average of 2.69.

Haycock Township can be characterized as open and very rural. A unique feature of the Township is the prevalence of public lands. In addition to State Game Lands, Nockamixon State Park, and Bucks County Lake Towhee Park, approximately 11% (1,430 acres) of the Township is classified as vacant, much of which is wooded area. Residential uses comprise slightly over 40% of Township, approximately 32% of which is classified as rural residential – lots with a residential use on five acres or more. A very small percentage of the Township is utilized for commercial and industrial uses. Agricultural land, consisting of 7% of the Township's land area, is generally located in the western part of the Township near the Richland Township border.

The Delaware Valley Regional Planning Commission (DVRPC) provides population projections by municipality for the nine county regions it serves. Projections to 2020 for Haycock Township are noted in the following table:

Year	Population Projection
2000	2,191
2005	2,380
2010	2,570
2015	2,770
2020	3 210

Figure 2-16: Haycock Township Population Projections 2005-2020

Source: Quakertown Area Comprehensive Plan Update, August 2007.
CHAPTER 3 EXISTING SEWAGE FACILITIES

A. SEWAGE TREATMENT FACILITIES

There are no public sanitary sewer facilities (operated by the Township or a municipal authority) within the Township. All properties utilize onsite sewage disposal, primarily inground systems, except as noted below. All sewage systems other than conventional inground and elevated sandmound systems are identified on Figure 3-1. Privately owned sewage treatment plants existing or proposed within the Township include the following:

- 1. Freedom Valley Girl Scout Camp Freedom Valley Girl Scout Camp wastewater treatment facility is located along the western side of Richlandtown Road, north of the Tohickon Creek. The plant treats sewage flow from the Camp Tohikanee, also located partially in East Rockhill Township, which can accommodate a maximum of 300 campers and staff during resident operation between June and August. NPDES permit number for the plant is PA 0058564, and the plant is permitted for a flow rate of 15,000 gpd. Actual flows to the facility vary depending on the time of year and camp usage. The camps treatment facility is designed to discharge effluent to four constructed wetland treatment areas, prior to discharge to the Tohickon Creek. The Township and property owner have executed an Operation and Maintenance Agreement to guarantee the property owner maintains the sewage disposal facilities in perpetuity, which includes deposit of escrow funds by the applicant to ensure compliance with the agreement.
- 2. Nockamixon State Park DCNR operates a small flow sewage treatment facility with spray irrigation to serve three separate areas of Nockamixon State Park. Facility is designed to treat effluent generated from the Haycock, Tohickon, and fishing pier locations within the park. Facility is designed for a maximum flow of 1,400 gpd, although actual flows to the facility vary depending on the park usage and time of year. There is no maintenance agreement between the Township and DCNR for this facility.
- 3. Keough (a.k.a. Rabenold Subdivision Lot 1) Property The [±]6 acres parcel located along the south side of Roundhouse Road, west of Old School Road, contains an existing single family detached dwelling served by a small flow treatment facility with stream discharge to Dimple Creek. NPDES permit number for the plant is PA 0056383, and the plant is designed for a maximum flow rate of 400 gpd. The Township executed an Operation and Maintenance Agreement with the property owner, including deposit of escrow funds, to guarantee that the property owner maintains the sewage disposal facility in perpetuity.
- 4. Rabenold (a.k.a. Rabenold Subdivision Lot 2) Property The [±]2 acres parcel located along the west side of Old School Road (south of the intersection with Roundhouse Road) contains a single family detached dwelling served by a small flow treatment facility with stream discharge to Dimple Creek. PADEP permit number is PAG 040030, and the facility is designed for a maximum flow of 400 gpd. The property owner has entered into an Operation and Maintenance Agreement with the Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the small flow treatment facility constructed on Lot 2, as well as a

future small flow treatment facility to be constructed on Lot 3 (± 2 acres vacant parcel immediately south of Lot 2).

- 5. Rabenold (a.k.a. Rabenold Subdivision Lot 3) Property The [±]2.0 acres parcel located along the west side of Old School Road (south of the intersection with Roundhouse Road) is currently vacant, but is proposed for future development of a single family detached dwelling to be served by a small flow treatment facility with stream discharge to Dimple Creek. An Operation and Maintenance Agreement has been executed between the lot owner and Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the future small flow treatment facility to be constructed on Lot 3.
- 6. Gill (a.k.a. DeMoreland) Property The [±]3 acres parcel located at the northeast corner of the intersection with Old Bethlehem Road and Thatcher Road contains a small flow treatment facility to serve an existing single family detached dwelling, which was installed to replace an existing substandard on-lot sewage disposal facility. NPDES permit number for the facility is PA 0057649, and the facility is designed for a maximum flow of 500 gpd with stream discharge to a tributary of Dimple Creek. The Township has executed an Operation and Maintenance Agreement with the property owner, including deposit of escrow funds, to guarantee that the owner maintains the sewage disposal facility in perpetuity.
- 7. Keller (a.k.a. Replogle Subdivision Lot 3) The [±]5.5 acres parcel located along the west side of Old Bethlehem Road north of the intersection with Sawmill Road contains a small flow treatment facility serving an existing single family detached dwelling. NPDES permit number for the facility is PA 0057957, and the facility is designed for a maximum flow of 500 gpd, which discharges to existing natural wetlands with ultimate discharge to an unnamed tributary to Dimple Creek. The Township has executed an Operation and Maintenance Agreement with the property owner, including deposit of escrow funds, to guarantee that the property owner maintains the sewage disposal facility in perpetuity.
- 8. Moyer (a.k.a. Replogle Subdivision Lot 2) The [±]5.4 acres parcel contains a small flow treatment facility serving an existing single family detached dwelling. NPDES permit number for the facility is PA 0057941, and the facility is designed for a maximum flow of 500 gpd, which discharges to a natural wetland area on the lot with ultimate discharge to an unnamed tributary of Dimple Creek. The Township has executed an Operation and Maintenance Agreement with the property owner, including deposit of escrow funds, to guarantee that the property owner maintains the sewage disposal system in perpetuity.
- 9. Gibson (a.k.a. Replogle Subdivision Lot 1) The [±]2.8 acres parcel contains an existing barn and sheds, but has not been utilized as a residence since the time of subdivision plan approval. Therefore, the small flow treatment facility intended to serve a residence on this lot has not been installed to date. However, an NPDES permit number PA 0057932 has been issued for the proposed facility, which is designed for a maximum flow of 500 gpd, and will discharge to natural wetlands within the site with ultimate discharge to an unnamed tributary of Dimple Creek. An Operation and Maintenance Agreement was executed between the applicant and Township for the future small flow treatment facility, to guarantee that the property owner maintains the sewage disposal facility in perpetuity.

- 10. Kemmerer Property The [±]3.9 acres parcel located along the west side of Haycock Run Road contains an existing single family detached dwelling served by a small flow treatment facility, which is designed to discharge treated effluent via a "safety dispersion trench" to a dry channel within the watershed of Haycock Run. NPDES permit number for the facility is PA 0058734, and facility is designed for a maximum flow of 500 gpd. The Township has executed an Operation and Maintenance Agreement, including deposit of escrow funds, with the applicant to guarantee that the property owner maintains the sewage disposal facility in perpetuity.
- 11. Marone (a.k.a. Gambol) Property The [±]5 acres parcel located along the north side of Mountain View Drive (S.R. 563), west of Top Rock Trail, contains an existing single family detached dwelling served by a small flow treatment facility with discharge to a dry channel tributary to the Tohickon Creek. NPDES permit number for the facility is PA 0058165, and the facility has been designed for a maximum flow of 500 gpd. Township and property owner have executed an Operation and Maintenance Agreement, including deposit of escrow funds, to guarantee that the property owner maintains the sewage disposal facility in perpetuity.
- 12. Yerger (a.k.a. Ames/Wolfe/Adams/Landis) Property The [±]13 acres parcel located along the south side of Woodland Drive (between Creamery Road and Applebachsville Road) contains a small flow treatment facility, which is intended to serve a future dwelling (dwelling has not yet been constructed). Facility is designed for a maximum flow of 500 gpd, and will discharge to an unnamed tributary of Tohickon Creek. The Township has executed an Operation and Maintenance Agreement, including deposit of escrow funds, with the property owner to guarantee that the property owner maintains the sewage disposal facility in perpetuity.
- 13. Billera (a.k.a. Morgan) Property The [±]13 acres parcel located along the south side of Cobbler Road contains an existing single family detached dwelling served by a small flow treatment facility, which was installed to replace an existing substandard on-lot sewage disposal system. PADEP permit number is PAG 040032, and facility is designed for a maximum flow of 600 gpd, which discharges within the property to an unnamed tributary of Tohickon Creek. The Township has executed an Operation and Maintenance Agreement with the property owner, including deposit of escrow funds, to guarantee that the property owner maintains the sewage disposal facility in perpetuity.
- 14. Keep (a.k.a. DeKrane) Property The [±]76 acres parcel located along the east side of Beck Road (south of Sawmill Road) contains a single family detached dwelling which was proposed to be served by a small flow treatment facility to replace an existing holding tank. PADEP has issued NPDES permit number PA 0058319 for the facility, which was designed to treat a maximum of 500 gpd of effluent from the existing dwelling. An Operation and Maintenance Agreement including deposit of escrow funds, was to be executed between the property owner and Township; however, the status of agreement execution and installation of the system is unknown, according to Township records.
- 15. Beck Property The [±]0.95 acres parcel located along the south side of East Sawmill Road contains an existing single family detached dwelling and garage that were illegally constructed without an approved method of sewage disposal. Dwelling is

unoccupied, and current property owner intends to renovate this dwelling for habitation, and install a small flow treatment facility with discharge to a dry channel tributary to an unnamed tributary to Lake Towhee and Dimple Creek. Sewage Facilities Planning Module has been submitted to PADEP, and is currently pending.

- 16. Landgreen Property The [±]5.5 acres parcel located at the southeast corner of the intersection of Bethlehem Road and East Sawmill Road is currently vacant, but was subject of a prior application for use of a small flow treatment facility to serve a proposed single family detached dwelling. The small flow treatment facility was never constructed; and instead, the property owner proposes to subdivide the property into two lots, with each lot containing an At Grade Bed (A/B) system to treat a maximum of 500 gpd of effluent from each lot. Approval of the Sewage Facilities Planning Module was received from PADEP on March 5, 2007; however, no further development activity has occurred.
- 17. Helverson Property The [±]10.3 acres lot to be created from the parent tract located along the east side of Covered Bridge Road south of the intersection with Thatcher Road is currently vacant, but is proposed for future development of a single family detached dwelling to be served by a small flow treatment facility with stream discharge to Dimple Creek. Sewage Facilities Planning Module (DEP Code #1-09923-165-3s) is currently pending before PADEP. An Operations and Maintenance Agreement will be executed between the lot owner and the Township, including deposit of escrow funds, upon recordation of the subdivision plan.
- 18. Sicher Property The [±]7.7 acres parcel located along the west side of Old Bethlehem Road contains a single family detached dwelling served by a drip irrigation system. The Township has no record of an Operation and Maintenance Agreement being executed between the lot owner and Township to guarantee long term ownership and maintenance of the system.
- 19. Vogt Property The [±]4.6 acres parcel located along the west side of Creamery Road is currently vacant, but is proposed for construction of a single family detached dwelling to be served by an Individual Residential Spray Irrigation System (IRSIS). An Operation and Maintenance Agreement has been executed between the lot owner and Township to guarantee long term ownership and maintenance of the future IRSIS.
- 20. White Property The [±]5.8 acres parcel located along the east side of Beck Road contains a single family detached dwelling served by an Individual Residential Spray Irrigation System (IRSIS). An Operation and Maintenance Agreement has been executed between the lot owner and Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the facility.
- 21. Menta Property The [±]4.5 acres parcel located along the east side of Beck Road contains a single family detached dwelling served by an Individual Residential Spray Irrigation System (IRSIS). An Operation and Maintenance Agreement has been executed between the lot owner and Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the facility.
- 22. Bohrer Property The [±]2.1 acres parcel located along the northeast corner of the intersection of West Thatcher Road and Richlandtown Road contains a single family

detached dwelling served by an Individual Residential Spray Irrigation System (IRSIS). An Operation and Maintenance Agreement has been executed between the lot owner and Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the facility.

- 23. O'Neill Property The [±]25.7 acres parcel located at the end of Hickory Lane contains a single family detached dwelling served by an A/B Sewage Disposal System with peat filter. An Operation and Maintenance Agreement has been executed between the lot owner and Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the facility.
- 24. Winters Property The [±]10.0 acres parcel located along the north side of West Sawmill Road contains a single family detached dwelling proposed to be served by an A/B Sewage Disposal System. An Operation and Maintenance Agreement has been executed between the lot owner and Township, including deposit of escrow funds, to guarantee long term ownership and maintenance of the facility.

Since the late 1990's, the Township has routinely executed Operation and Maintenance Agreements with property owners to guarantee the long term maintenance of various on-lot sewage disposal facilities, including small flow treatment plants, spray irrigation systems, At Grade Bed systems, and sewage disposal systems on sites deemed marginal for long term use of on-lot sewage disposal facilities. Execution of Operation and Maintenance Agreements also requires the deposit of escrow funds by the property owner, which are used to reimburse the Township's costs incurred during the enforcement of the terms of the agreement, and any future inspections accomplished by the Township related to the sewage disposal facility. In most cases, the Township has received annual monitoring and maintenance reports from property owners having small flow sewage treatment facilities; and in some cases, the Township has inspected the condition of certain disposal facilities to ensure that the property owner is maintaining same in accordance with requirements of PADEP and the executed Operation and Maintenance Agreement.

According to Township records, and information received from Bucks County Department of Health, there are no known existing holding tanks within the Township.

Existing onsite sewage systems and land application methods serve the remaining property owners in the Township. Many existing onsite systems were installed prior to a formal permitting process, or are located on large parcels that met the criteria for rural residency at the time of permit application. Unpermitted systems and/or systems on lots that met the criteria for rural residency are required to be replaced by Bucks County Department of Health and the Township as the properties are redeveloped, or the dwellings are substantially expanded.

B. SEWAGE DISPOSAL NEEDS

Sewage disposal needs for the Township were reviewed utilizing Act 537 Sewage Disposal Needs Identification publication from PADEP as a guide. As was strongly recommended by PADEP, the Township initiated a survey of property owners to determine information regarding the existing methods of sewer disposal utilized in the Township. Approximately 660 survey forms were mailed to property owners within the Township in late November 2009. A sample copy of the survey form is included in Appendix A. The Township also posted a copy of the form on its website, and forms were electronically mailed to various residents that are included on the Township's e-mail database. The Township received

excellent response to the survey request, with a total of 236 responses received (including 12 indicating that the property in question is vacant). Property owners were asked to identify whether any problems associated with sewage system on their property were noted, and whether any other sewage issues related to the property or surrounding area were observed. Although many property owners responded that there were no apparent problems associated with sewage disposal within their property or the surrounding area, several respondents identified observed conditions on their property that may indicate a potential problem related to sewage disposal. The location of the parcels that may contain a possible issue related to sewage disposal are shown on Figure 3-2.

The Township also sent correspondence dated April 29, 2009 (refer Appendix A) to the Bucks County Department of Health requesting information on all known or suspected onsite sewage disposal system failures within the Township. The Township received response from the Bucks County Department of Health (as documented in memorandum dated May 13, 2009, which is included in Appendix A) indicating the areas of known substandard sewage disposal facilities, as well as the location of a permitted drip irrigation system that was not documented in Township records. The locations of the identified substandard sewage disposal systems are shown on Figure 3-2.

In general, all existing types of on-lot sewage systems throughout the Township are consistent with the general soil and geologic conditions where they are located.

Although a specific individual water supply survey has not been completed within the Township, numerous water samples at various wells throughout the Township have been analyzed for recent development projects. Figure 3-3 identifies locations of wells for which the Township has available water quality data. None of the tested well locations exhibited levels of nitrates exceeding 5 mg/l, or fecal coliform. All available water quality results have been generally consistent with PADEP/EPA water quality requirements.

All sewage systems developed on marginal soils, spray irrigation systems, holding tanks, small flow treatment facilities, or other alternate sewage systems installed in the Township are required to execute an Operation and Maintenance Agreement. A typical agreement is included in Appendix B.

In consideration of concerns regarding existing high density areas contained within the villages of Applebachsville and Strawntown, and the Old School Road neighborhood (refer Figure 3-4), the Township agrees to work with the Bucks County Department of Health to more closely monitor the status of existing on-lot sewage disposal facilities in these high density areas. Specifically, the Township will inventory the number of on-lot sewage disposal system malfunctions in each particular area of concern, which may be brought to the attention of the Township and/or Bucks County Department of Health via complaint, property owner self reporting, real estate transaction inspection, or other means. Evidence of system malfunctions may include, but are not limited to, odor, general wetness, illegal gray water discharge, and green lush grass in the vicinity of the septic field. In the event that the malfunction requires replacement of the system with a new sewage disposal system (as opposed to replacement or repair of a damaged or malfunctioning component of the system), the number of system replacements will be documented within each area of concern on an annual basis, for comparison with the total number of parcels existing within each area of concern. In the event that the ratio of parcels containing a malfunctioning system (requiring replacement of the system) to the total number of parcels in a particular area of concern exceeds 25%, the Township shall initiate further evaluation of the method for long term sewage disposal for that





DATA SOURCE:

State University, US Fish & Wildlife Service, US Geological Service, National Resources Conservation Service, Heritage Conservancy, US Department of Agriculture, National Wetlands Inventory. Soil Queries derived from USDA Soil Survey Data Viewer.





DATA SOURCE:

Agriculture, National Wetlands Inventory. Soil Queries derived from USDA Soil Survey Data Viewer.

The information depicted on this plan is regional in nature and not suited for site specific studies.

particular area of concern, as directed by PADEP. A report identifying the status of system malfunctions within each area of concern will be filed with PADEP every three years, beginning three years from the approval of this plan by PADEP.

C. WASTEWATER DISPOSAL

All wastewater (sludge or septage from septic tanks, holding tanks, and wastewater treatment facilities) within the Township is collected and hauled by private operators contracted by individual property owners. Quantities of material generated are unknown due to the numerous individual sources. Disposal of the sludge or septage is via transportation in pumper tank trucks to regional sewage treatment plants, with the closest being Quakertown Area Sewage Treatment Facility. Sewage haulers are licensed by Bucks County Department of Health.

CHAPTER 4 FUTURE GROWTH AND LAND DEVELOPMENT

A. PLANNING DOCUMENTS

Havcock Township has adopted several planning documents pursuant to Pennsylvania Municipalities Planning Code (Act 247). These documents include the Haycock Township Zoning Ordinance of 1975, amended as of September 26, 1994; Haycock Township Subdivision and Land Development Ordinance (adopted August 7, 2000), as amended; and the Quakertown Area Comprehensive Plan Update of August 2007 (of which Haycock Township is a part). Haycock Township has been divided into seven distinct zoning districts, as shown on the Township Zoning Map (refer Figure 4-1). Each zoning district contains regulations relative to the type of uses permitted within the zoned area, minimum lot sizes, maximum densities, and other general criteria associated with land development and site usage. As public sewer facilities do not exist within Haycock Township, all zoning and subdivision regulations are based on the assumption of the use of on-site sewage disposal facilities. In certain zoning districts. cluster type development (residential development including smaller lot sizes and larger open space areas) are permitted, which anticipate the use of onsite sewage disposal facilities or community sewage disposal facilities, depending on site conditions. Zoning Ordinance also contains floodplain regulations consistent with FEMA regulations. Stormwater management regulations were established by Ordinance 91 (adopted October 7, 2002), as amended, and address all watersheds within the Township. Stormwater regulations are consistent with PADEP Act 167 planning.

All proposed development within the Township is required to be consistent with the above planning documents. Based on land use specifications shown in Figure 4-2, land use within Haycock Township is generally consistent with the underlying zoning districts, as well as the Comprehensive Plan.

Additionally, Ordinance 106, adopted on August 6, 2007, requires that all lots created that are not serviced or intended to be served by public sewers contain a replacement area for all on-lot sewage systems, which must be tested and protected to ensure viability for use as replacement on-lot sewage disposal systems in the event of failure of the primary sewage disposal system. Holding tanks, small flow treatment facilities, or other non-land application methods are not considered to meet requirements for replacement areas or systems.

B. ZONING REGULATIONS

Figure 4-3

Zoning Districts

Zone	Description	Minimum Lot Area (SF - cluster)	Maximum Density Du/Ac
RP	Resource Protection	2 acres – 1 acre	0.44
RA	Rural Agriculture	2 acres – 30,000 SF	0.55
VC - 1	Village Center - 1	20,000 SF	1.9
SFH	Suburban Residential High	12,000 – 10,000 SF	4.5
PC	Planned Commercial	1 acre	N/A
SC	Select Commercial	1 acre	N/A
PI	Planned Industrial	1 acre	N/A





Purpose and Intents of Districts

- 1. Resource Protection (RP). The purpose of the RP District is to protect areas consisting largely of sensitive natural features such as woodlands, steep slopes, scenic areas, wetlands, floodplains, lakes, and ponds. Intensities are such as to ensure that these resources are permanently protected.
- 2. Rural Agriculture (RA). The purpose of the RA District is to provide standards for low intensity development in rural areas until these areas are both needed for development and provided with utilities. The intensity of the use is intended to be such that development which does occur will not require urban services and will not be present or create problems for future development.
- 3. Village Center 1 (VC-1). The purpose of the VC 1 District is to protect the character of existing villages in rural areas. A variety of residential and small scale commercial uses are permitted to continue the existing land use pattern. The intensities are to allow infill development that is compatible with existing conditions in the villages.
- 4. Suburban Residential High (SRH). It is the purpose of the SRH District to provide higher intensities of residential development. A variety of residential uses are encouraged. The higher intensities relate to similar uses in adjacent developed areas of easy access and few natural limitations or other appropriate locations.
- 5. Planned Commercial (PC). It is the purpose of the PC District to provide for the creation and continuation of commercial development in appropriate areas. Highway-oriented businesses may be required to provide an access road which is intended to lessen traffic congestion and hazardous by reducing the number of access points.
- 6. Select Commercial (SC). It is the purpose of the SC District to provide for the creation and continuation of low intensity commercial and office development in appropriate areas where its affect on adjacent residential land uses must be minimized. Highway oriented businesses may be required to provide an access road which is intended to lessen traffic congestion and hazards by reducing the number of access points.
- 7. Planned Industrial (PI). It is the purpose of the PI District to encourage planned industrial, heavy commercial, office, or laboratory uses in appropriate areas. Such development shall be planned as a whole with all uses fronting on an internal street. The intent is to encourage high quality industrial and commercial development which relates to adjacent residential areas as a good neighbor, with design standards which avoid adverse impacts on neighboring residential developments.

The Resource Protection (RP) and Rural Agricultural (RA) Zoning Districts comprise a majority of the Township's area, including the most rural parts of the Township. RP and RA Districts are zoned to provide the lowest maximum density and largest minimum lot size of all the zoning districts in the Township. The main uses permitted in the RP and RA Districts are agricultural and residential in nature. Although several large tracts are vacant in the RP and RA Districts, the predominance of natural resources requiring protection limit the viability of large scale development. Additionally, many large parcels are part of the State or County park systems, or are otherwise encumbered by conservation easements in favor of the Township and/or Bucks County. Figure 4-4 identifies the extent of protected open space areas, including anticipated future preservation.



The Village Center – 1 (VC-1) District comprises the existing villages of Applebachsville and Strawntown, which are predominately residential in nature, although some commercial and institutional uses also exist. Village zoning permits higher density and smaller minimum lot sizes than the RP and RA Districts, and includes other permitted uses (twin homes, limited commercial uses) that are typical of a village. According to the Quakertown Area Comprehensive Plan Update, both village zoned areas in Haycock Township are identified as "limited growth villages", and are intended to accommodate modest infill development at a less intensive level. The minimal number of large contiguous vacant parcels greatly reduces the potential for high-density development, other than development of infill lots or small scale (2-3 lot) subdivisions.

The Suburban Residential High (SRH) District is comprised of two parcels totaling [±]40 acres along the south side of Thatcher Road near the border with Richland Township. The SRH District permits the smallest minimum lot size and highest maximum density of any zoning district in Haycock Township. In addition to many traditional residential uses, the SRH District also permits development of several types of higher density residential uses, including single family detached dwelling cluster, performance standard subdivision, mobile home park, and planned residential development (PRD). The high permitted density and variety of housing types satisfy the Township's responsibility to accommodate its fair share of multifamily residential development.

The Planned Commercial (PC) District is comprised of a small number of parcels totaling ± 12 acres located around the intersection of Old Bethlehem Road and Mountain View Drive (Route 563). The PC District currently contains a tavern/restaurant, and several residential parcels. Uses permitted in the PC District include a wide variety of office and commercial uses, and some limited (low impact) industrial uses.

The Select Commercial (SC) District is located in two separate areas along the west side of Old Bethlehem Road. The larger (southern) area contains approximately seven parcels, and is located south of Dogwood Lane to just below the Cobbler Road intersection with Old Bethlehem Road. Nearly all the parcels are in residential use. The smaller (northern) area is comprised of several parcels straddling Thatcher Road. Currently, one 4.5 acres parcel is vacant. According to the Quakertown Area Comprehensive Plan Update of 2007, it is recommended that Haycock Township consider rezoning the existing SC Districts into the adjoining RP District, as the SC District is mostly comprised of existing nonconforming residential uses, and the VC-1 and PC Districts already accommodate a range of nonresidential uses.

The Planned Industrial (PI) District is comprised of two vacant parcels totaling [±]63 acres along the north side of Thatcher Road, near the border with Richland Township. Intensive nonresidential uses, including office, some commercial, and a majority of industrial uses, are permitted in the PI District. Considering the long standing availability of land in the PI District, it is not anticipated that the PI District will require expansion in the foreseeable future.

As noted above, a majority of the Township is encompassed by natural resources (forest, steep slopes, lakes, ponds, wetlands, stream/floodplain) that severely limit future development potential. Most of the developed land within the Township is in residential and agricultural use, with some limited commercial uses found along the Old Bethlehem Pike corridor. The presence of large tracts of State Game Lands, State/County parks, and preserved land further reduces the viability for future development. The Land Use Classification Map (refer Figure 4-2) identifies the major land use types existing within the Township. The Township's current land

use ordinances are intended to protect and preserve the current rural character of the community, while promoting some carefully planned development to satisfy the Township's obligation to accommodate its fair share of certain types of housing and uses.

C. PROPOSED DEVELOPMENT

Listed below are proposed subdivision and land development projects within the Township that have received Township approval but have not yet been completed/constructed. All proposed projects will utilize onsite sewage disposal methods except as noted. Due to current economic conditions, it is anticipated that several proposed developments are on hold, while awaiting an upturn in the real estate market and/or construction funding. Location of pending development projects are shown on the Proposed Development Map (Figure 4-5).

Approved by PADEP	Residential/ Commercial	Name	Location	Lot/EDU	Sewage Disposal	PADEP CODE NO.
Y	1. R	Deerwood Estates	Deerwood Lane	8	Onsite (sandmound)	1-09923-156-2
Y	2. R	Cope/Bilger II	Richlandtown Road	5	Onsite (sandmound)	1-09923-155-2
Y	3. R	Cobbler Road	Cobbler Road	6	Onsite (sandmound)	1-09923-159-1
Y	4. R/C	Landgreen	Old Bethlehem Road/ Sawmill Road	2	Onsite (A/B systems)	1-09923-150-2
N	5. R	Helverson	Covered Bridge Road	2	SFTF	1-09923-165-35
Y	6. R	Bartsch	East Sawmill Road	2	Onsite (sandmound)	1-09923-167-1
Y	7. R	Baumner-Deininger	Pullen Station Road	4	Onsite (sandmound)	1-09923-169-1
Ý	8. R	Hood	Roundhouse Road	2	Onsite (sandmound)	1-09923-168-3

As depicted in Figure 4-5, the development locations are generally dispersed throughout the western and central area of the Township. All proposed residential development consists of relatively large (2+) acres sizes, although future subdivision potential for the newly created lots is minimal, due to site constraints, zoning regulations, and/or deed restrictions for further subdivision.

Sewage planning for proposed developments that follow will provide adequate wastewater disposal for the projected growth in the Township. It is anticipated that onsite sewage disposal methods will continue to be the principal method to provide sewage disposal for new commercial and residential development within the Township. In the event that high density residential and/or intensive commercial/industrial development is proposed, it is anticipated that centralized sewage disposal facilities may be required to appropriately serve theses uses.



DATA SOURCE:

CHAPTER 5 WASTEWATER ALTERNATIVES

This section identifies various wastewater alternatives available for use within Haycock Township. The dispersed population and largely rural nature of the Township, large-lot development, and extensive natural features present both engineering and economic difficulties for traditional wastewater facilities. Wastewater disposal/treatment facilities contained in this section were selected for evaluation due to environmental constraints; and construction, operation, and maintenance costs. These wastewater alternatives will be considered when planning wastewater management systems for on-lot sewage disposal throughout the Township, as well as future development. Community sewer facilities may also be considered where appropriate.

Wastewater alternative selection should include consideration of the following:

- 1. protection of public health;
- 2. prevention/abatement of surface water pollution;
- 3. prevention/abatement of groundwater pollution;
- 4. environmental impact;
- 5. compatibility with agricultural operations (where applicable);
- 6. construction cost;
- 7. ease and cost of operation and maintenance;
- 8. disposal of treatment residuals.

A wastewater management system is made up of three (3) major components: collection, treatment, and disposal which must be designed, constructed, operated, and maintained properly to protect public health and prevent pollution. The planning policies of Haycock Township encourage the use of wastewater disposal alternatives which will recharge groundwater, protect surface and groundwater quality, protect and improve wetland habitats, are compatible with agricultural operations (where applicable), and improve tributary headwater environments. Where on-lot disposal systems are not feasible, and planning is consistent with policies established within the Comprehensive Plan and Zoning Ordinance, community sewage facilities may be considered for certain properties. Public sewage facilities are currently not available in the Township.

A. STAGES OF WASTEWATER TREATMENT

Various stages involved in wastewater treatment include the following:

- 1. <u>Primary Treatment</u> is the separation of solids and particulate matter from the wastewater. This is a physical process accomplished in a settling chamber, and it is most always the first stage of treatment.
- 2. <u>Secondary Treatment</u> is the reduction of organic compounds in the wastewater. This is a biological process that occurs when bacteria digest these compounds. The secondary stage is important because it reduces the demand for oxygen in the wastewater.

- 3. <u>Tertiary Treatment</u> is any stage where the water is polished through a filtering process, or nutrients are removed through biological or chemical processes. Polishing is the removal of very fine particles from the water. Nutrients, such as nitrogen and phosphorus, that are not removed can become a significant pollution problem. When in surface water, nitrogen and phosphorus act to fertilize algae, a process known as nutrient enrichment. The algae flourish and block out the sun to the detriment of other aquatic vegetation. When the algae begin to die off, bacteria start digesting it. This process reduces dissolved oxygen levels in the water to the detriment of aquatic animals.
- 4. <u>Disinfection</u> is the removal of any possibly harmful pathogens before the effluent is discharged. This is typically accomplished by first chlorinating the effluent and then removing the chlorine before discharging. Ultraviolet light is another method for disinfecting wastewater.

B. INDIVIDUAL ON-LOT SYSTEMS:

The most common on-lot sewage system is the septic tank/sub-surface absorption area combination. Generally, these systems consist of a concrete tank and a network of perforated, sub-surface pipes; however, there are many variations and alternatives to this system. The following discussion describes various individual on-lot sewage treatment and disposal methods, maintenance procedures, and improvements. Due to soil constraints, areas available for use of conventional on-lot sewage systems are limited (refer Figures 2-5 & 2-6).

Primary Wastewater Treatment Options:

1. <u>Conventional Septic Tank</u>

A conventional method of wastewater treatment is the use of a buried watertight container typically constructed of pre-cast concrete. Septic tanks can be of various sizes with typical single family on-lot tanks about 1,000 gallons (depending on the size of the dwelling). When wastewater flows into the septic tank, solid material separates from the liquid. After settling, the solid matter forms a layer of sludge on the bottom of the tank. The sludge blanket experiences anaerobic decomposition (decomposition by bacteria and other micro-organisms that live in the absence of oxygen) which changes some of the organic matter into liquid and gaseous substances. Consequently, the bacterial action reduces the quantity of sludge requiring disposal. On the top of the liquid, floatable solids and greases create a scum layer. When the liquid effluent (treated wastewater) reaches the level of the outlet baffle, it then flows out of the septic tank into the effluent disposal system.

Septic systems function properly when the sludge and scum in the septic tank are removed periodically. Yearly inspection of the tank for examination of accumulated solids (sludge and scum) is recommended. If the results of the inspection indicate that the scum layer is within three inches of the lower end of the inlet and/or the sludge layer is one-third or more of the liquid depth, the tank should be pumped out and checked for possible structural problems. Without this periodic maintenance, the tank fills with solids, reducing the detention time and forcing some solids to leave the tank and clog the effluent disposal system.

2. <u>Aerobic Treatment</u>

An alternative to the conventional septic tank is a tank equipped to aerate the wastewater. In an aeration system, aerobic bacteria and other aerobic microorganisms (micro-organisms that are only active in the presence of oxygen) are utilized to break down organic pollutants. Aeration produces a higher quality effluent and can reduce clogging in subsurface absorption areas. Oxygen is provided either through a diffused aeration device (using compressed air) or a mechanical device such as a propeller that churns the sewage. Following this stage, wastewater flows into a settling chamber where the biomass sediment is recycled back to the aeration chamber.

Although aerobic units provide greater sewage treatment than conventional systems, increased maintenance and operating costs are associated with the more complex systems. Additionally, sludge build-up and bulking (sludge is too light to settle properly) may affect the effluent quality.

Effluent Treatment and Disposal Options:

There are five basic types of on-lot systems permitted by the Pennsylvania Department of Environmental Protection (PADEP):

- in-ground trench
- in-ground seepage bed system
- subsurface sand filter
- elevated sandmound
- spray irrigation

The type of system selected and permitted depends on the site conditions and type of soil.

Conventional systems usually consist of subsurface distribution pipes (laterals) placed in an absorption area where the soil provides additional treatment before the effluent enters the groundwater. The size of the absorption area depends on the type of treatment tank to be installed; number of bedrooms in the home; and an evaluation of soil conditions on the site, including a soil-profile inspection and percolation tests. These types of systems require at least forty-eight inches between the bottom of the absorption area and any limiting zone (e.g., seasonal high water table or rock formations with extremely slow or fast permeability), and in the cases of in-ground systems, may not be installed deeper than thirty-six inches (except for subsurface sand filters) or shallower than twelve inches below the soil surface (except for shallow placement trenches and beds). A distribution box divides the effluent equally within perforated piping system in the absorption area, preventing one line from becoming overloaded while another remains unused. All on-lot sewage systems for new subdivisions and land developments require that a primary and reserve disposal area be tested and approved by Bucks County Department of Health pursuant to Township Ordinance 106 adopted on August 6, 2007 (refer Appendix B).

1. <u>In-ground Trench:</u>

The standard trench method of effluent disposal utilizes an absorption area consisting of two or more trenches which are twelve to thirty-six inches deep; a maximum of one hundred feet in length; one to six feet in width; and adequately spaced apart (a minimum of five feet) to allow for the uniform spreading of effluent over the entire absorption area. Perforated plastic pipe which distributes the effluent is placed over a minimum of six inches of aggregate material (gravel) with an additional two inches of aggregate covering the pipe. Later, a layer of untreated building paper or two inches of hay or straw is placed over the top of the aggregate. The trenches are then backfilled with a minimum of twelve inches of soil suitable for the growth of vegetation. The soil cover must be extended beyond the sides of the trenches by three feet when the top of the aggregate is less than twelve inches from the natural soil surface (shallow placement).

The standard trench system is adaptable to situations that may prohibit the use of other systems in that the trenches can conform to the contours of the land. In addition, trenches, if designed and installed properly, can be placed on slopes of up to twenty-five percent. However, pressure dosing may be necessary to assure proper distribution of effluent into the trenches if the percolation rate is greater than sixty minutes per inch.

2. In-ground Seepage Bed System:

Seepage bed systems differ from standard trenches in that the entire absorption area is excavated and lined with aggregate. The distribution pipes, or laterals, are placed over the aggregate (depth of six inches) and spaced no more than six feet apart. Laterals are covered with a minimum of two inches of aggregate and a layer of untreated building paper or two inches of hay or straw. Similar to standard trenches, seepage beds are backfilled with twelve inches of suitable soil except where the top of the aggregate is less than twelve inches from the soil surface (shallow placement). In such cases, the soil cover is extended beyond the sides of the seepage bed by three feet. Seepage beds require less area but nearly level ground.

3. <u>Subsurface Sand Filter:</u>

Although subsurface sand filters are similar to seepage beds, sand filters are constructed with a layer of sand fill material (below the layer of aggregate) at least twelve inches in depth. The system is appropriate for sites where a limiting zone occurs six feet or more from the soil surface, and the first three feet of soil have an unsuitably slow percolation rate (greater than ninety minutes per inch). The soil between the top, slowly percolating soil, and the limiting zone must supply a suitable percolation rate (three to ninety minutes per inch). Thus, the top soil layer, having slow permeability, is removed and enough sand is placed on top of the suitable soil (a minimum of twelve inches) so that a minimum of four feet of suitable material remains between the bottom of the aggregate and the limiting soil. The maximum depth of the excavation (sand fill, aggregate, and soil cover) can only be five feet.

4. <u>Elevated Sandmound:</u>

Elevated sandmounds are suitable in areas where the soils have a permeability of three to one hundred and eighty minutes per inch, and the limiting zone is twenty inches or more from the soil surface. The shallow depth to limiting zone requires that the system be built above ground level. In addition, an elevated sandmound using a seepage bed distribution can be used on slopes up to twelve percent, while elevated sandmounds are permitted as an Alternate System on slopes between twelve percent and fifteen percent.

The elevated sandmound system consists of a level layer of sand between the surface of the natural soil and the aggregate distribution area to ensure adequate effluent renovation. This layer of sand must be a minimum of twelve inches in depth (the downslope portion of the system may need a greater depth so that the system is level), though the total depth of suitable material - sand and soil - between the aggregate and the limiting zone must be at least four feet. The sides of the sand layer should have a slope of fifty percent.

In addition, the system must include a pressurized distribution network which lies within the gravel aggregate (six inches of aggregate below the laterals, and two inches of aggregate above the laterals). Next, the aggregate is covered within a minimum of one foot of good soil after untreated building paper or hay is applied. The sides of the system are also covered with good soil (a minimum of three feet in width at the top of the aggregate), forming a berm with a slope of fifty percent.

Other modifications to the preceding four subsurface soil absorption systems include dosing systems, alternating absorption areas, serial distribution systems, and oversized beds.

Dosing systems are trenches or beds which receive effluents from a pump or a siphon. This provides an even release of effluents from all points in the pipes. Distribution boxes are not needed in these systems.

Alternating absorption areas are actually two systems in one. One field is dosed and then rested, but the next field is dosed. They require distribution boxes and fields are usually switched every 6 to 12 months.

Serial distribution systems apply effluent by pump through absorption trenches which follow topographic contours. The trenches are in tiers, one above another. Drop boxes regulate liquid flow so the highest trench fills first, second trench fills next, etc. These systems are conductive to severely sloped land.

Oversized beds are absorption beds that are sized larger than normal due to low soil percolation rates. Otherwise, the oversized bed is designed as an absorption bed.

5. <u>Spray Irrigation:</u>

Individual residential spray irrigation systems (IRSIS) for small flows utilize a fixed sprinkler irrigation system, similar to those used on golf courses, to spray treated effluent over the surface of the land. These systems require approval from the Bucks County Department of Health and Haycock Township in

accordance with Ordinance 92 adopted on November 4, 2002 (refer Appendix B). Prior to spraying, effluent must be processed through an aerobic tank or septic tank/sand filter system for secondary treatment of effluent (about ninety percent removal of the principal pollutants). In addition, a holding facility with a storage capacity for five days flow (2,000 gallons minimum) must be included to avoid spraying during adverse conditions such as heavy rainfall, extreme cold, high winds, or deep snow. Finally, disinfection of the treated effluent is required before it is applied to the land.

The sprinkler irrigation system is generally designed to spray for a short period of time (ten minutes) each day. This is usually done at night to avoid contact with people and domestic animals. Depending on the amount of treated effluent that must be applied over the surface of the land, the wetted perimeter area may be large, which requires a sufficient lot size to maintain required buffers to adjacent properties, while providing a sufficient area for effluent disposal.

Alternate Systems:

There are several alternate and experimental methods PADEP has approved where a lot does not qualify for an on-lot disposal system. Alternate systems include the following:

- elevated and sandmound bed on slopes between 12 and 15%
- separation of black water/grey water sewage flows
- flow equalization (commercial only)
- subsurface sand filter (trenches)
- shallow absorption area with pressure distribution
- drip irrigation system
- leaching field chambers
- alternate peat based systems
- A/B soil system
- non-infiltration, evapotranspiration bed contained within a greenhouse

The following is a brief description of alternate system types. PADEP "Alternate System Guidance" document and regulations of PADEP Title 25, Chapter 73 should be consulted for complete information related to types, uses, design, and siting of alternate systems. (Refer Appendix C for a summary of alternate systems and siting criteria).

1. <u>Elevated Sandmound Bed on Slopes Between 12 and 15%:</u>

These systems require a PADEP soil scientist or water quality specialist to confirm that site characteristics comply with requirements of the Pennsylvania Sewage Facilities Act, Title 25, Chapter 73. Because this is an experimental system design, an acceptable on-lot sewage disposal system (non-experimental) replacement area must be designated and reserved. Where viable, small flow treatment facilities are acceptable as replacement systems.

2. Separation of Black Water/Grey Water Flows:

The primary purpose of grey water systems is to separate household effluent. Wastewater from toilets or kitchen sinks with garbage disposals is referred to as black water and requires thorough treatment before it can be discharged. Water from sources such as the laundry, tub, or bathroom sink is known as grey water and can be discharged with a minimum of treatment. The household effluent is partitioned through the installation of separate plumbing systems. Typically, grey water is delivered to a septic tank or sand filter where it is treated before being delivered to its own drainfield. Grey water can be routed to a holding tank where it is stored until needed for flushing the toilet. Black water is still required to undergo the necessary treatment stages before it can finally be discharged in a drainfield. The benefit of this type of system is that it allows for a greater amount of treatment time in the septic tank for the black water. Grey water systems can be incorporated into the plans of a house being built with little additional cost. However, altering the plumbing of an already existing house could be expensive.

3. Flow Equalization (Commercial Only):

Facilities with regular, predictable, fluctuating flows (alternating high and low flows) may benefit from flow equalization design. Tanks, controls, and dosing equipment are used to equalize peak flows. The system designer has flexibility regarding where in the treatment process the flow equalization will occur (preceding or following the treatment tank). If flow equalization occurs before the treatment tank, the treatment tank capacity may be reduced appropriately. If equalization is to occur following the treatment tank, all flows must be treated in a septic or aerobic tank system that is designed to peak flow (no size reduction) and must be discharged to an equalization tank specifically designed to meet the needs of the proposed facility. The effluent is discharged from the tank in a timed, controlled volume that is lower than the peak flow for the facility but sufficient to balance inflow and outflow over an extended period. The equalization tank and discharge rate is designed and established based upon the flow pattern of the facility; discharging a stabilized daily rate to the absorption area allows for reduction of the absorption area.

4. <u>Subsurface Sand Filter:</u>

Subsurface sand filters are an alternative that may be used by individual property owners when an adequate drainfield is not available. These filters are located below ground, depending on the site conditions, and can be used in conjunction with a septic tank or an aerobic treatment unit. As with a normal system, wastewater first enters a septic tank for the primary treatment stage. It then passes from the tank to a sand filter for further treatment. The filter is actually a bed of sand, which acts to reduce the amount of suspended solids and dissolved organic material present in the water. Microorganisms attached to the sand particles are able to aerobically digest the organic material within the wastewater. Underneath the sand bed is layer of gravel that serves to prevent the sand from being washed out of the system and also acts to further treat the effluent. The bottom of the sand filter is underdrain piping which carries the effluent away from the filter. If the effluent is discharged to a drainfield, the use of a sand filter can result in the reduction of the field size. If the effluent is directly discharged, it must be disinfected after treatment in the sand filter.

5. <u>Shallow Absorption Area With Pressure Distribution:</u>

This modification of the in-ground pressure dosed system is used on sites where a limiting zone is identified at depths greater than or equal to fifty-eight inches. The primary advantage of this design is to allow for the installation of a system at a depth shallower than twelve inches. Some sites which would normally require the installation of an elevated sandmound (due to a slope that caused the bottom of the installation to violate the forty-eight inch vertical separation requirement) may qualify for use of this system.

6. <u>Drip Irrigation:</u>

Drip irrigation (subsurface drip dispersal) is a land application technology suitable for well drained or moderately well drained soils. The drip irrigation system is installed in the active soil zone, thus providing wastewater for utilization by landscape plants and groundcover. The uniform application of the water distributes the reclaimed water through the landscape. Subsurface drip irrigation systems may have less of a vertical separation distance to both groundwater and restrictive horizons. PADEP regulations permit installation of a drip irrigation system on soils where the depth to seasonal high water table from the subsurface of the ground be greater than or equal to twenty inches. A minimum vertical isolation distance of twenty inches must be maintained between the depth of installation of drip irrigation tubing in the most shallow indication of rock that is defined as a limiting zone.

These systems include treatment of sewage utilizing a treatment tank and intermittent sand filter or aerobic treatment unit. Drip lines are installed at a depth of six to twelve inches with no lines being installed at a depth greater than twelve inches. Drip tubing is susceptible to freezing when sufficient turf cover is not established in non-wooded areas prior to winter operation.

7. <u>Leaching Field Chambers:</u>

Leaching field chambers are an alternative to the conventional network of distribution pipes used in a drainfield. Depending on the drainfield size requirements, one or more chambers can be used, each being connected to form a large underground cavity. The chambers are usually made of a sturdy plastic and do not require gravel fill around them. The sides and bottom of each chamber have a network of openings to allow for the seepage of wastewater into the soil. These systems allow more of the soil profile to be used since the effluent is distributed not only to the ground below, but also to the soil surrounding the chamber. This allows leaching chambers to work more effectively than traditional drainfields, especially when the drainfield must be located on a steep slope. Leaching chambers do not require any more maintenance than a conventional distribution system.

8. <u>Alternate Peat Based System</u>:

Alternate peat based system configurations of an aerobic or septic tank, followed by a peat filter and an absorption area. Septic tank installations must consist of either a two-compartment rectangular tank or two rectangular tanks in series. All peat systems must also include a Zabel A-300 solids retainer or equivalent NSF approved filter on the preceding septic or aerobic tank. Disinfection by use of a UV system is required prior to discharge to the absorption area.

9. <u>A/B Soil System (ABS System)</u>:

This system consists of a septic tank(s), dosing tank, recirculating subsurface sand filter, and UV disinfection, with final treatment and disposal using an atgrade absorption area. The minimum vertical isolation distance is ten inches between the aggregate and the seasonal high water table or sixteen inches between the aggregate and a rock formation. These systems require increased monitoring and maintenance to ensure proper operation. ABS systems are not permitted for new land development or subdivisions.

10. <u>Non-Infiltration, Evapotranspiration Bed Contained Within a Greenhouse</u>:

This technology consists of low flow plumbing fixtures inside the home, an aerobic treatment tank, and specially modified passive solar greenhouse beds where the wastewater is eliminated through the process of evapotranspiration. These systems are often used where site limitations, such as shallow depth to seasonal high water table or excessive slope, make the use of other soil based absorption systems difficult. The bed must be contained in an enclosed, walled structure (usually cinder blocks) and insulated on the exterior to avoid contact with frozen ground. The bed must be lined to retain all effluent and avoid infiltration with the underlying soil. These systems require regularly scheduled maintenance and monitoring to ensure the long-term reliability of their performance.

11. <u>American PERC-RITE® Micromound Drip Irrigation System:</u>

This treatment system configuration consists of using PERC-RITE micromound drip irrigation components in conjunction with initial treatment component(s), a pump tank(s), a hydraulic unit(s), and a final discharge to a drip irrigation micromound absorption area. This system may be used on sites where soils range between greater than or equal to ten inches to evidence of high water table and greater than or equal to sixteen inches to rock. The micromound must follow the contour of the land, and a minimum of two inches of sand must be placed over the tubing. The minimum sand depth below the tubing is twelve inches for primary pretreatment and eight inches with secondary pretreatment tapered or incorporated into the berm (basal) area.

Additional On-lot Technology:

1. <u>Small Flow Treatment Facility (SFTF):</u>

In areas of seasonal high water table and/or shallow depth to limiting zone, where the soils will not support any conventional effluent disposal method, a small flow treatment facility (SFTF) with direct discharge may be installed. Since these systems discharge to surface water, they require a National Pollution Discharge Elimination System (NPDES) permit and must provide improved effluent quality to meet the standards established for discharges to surface

waters. The discharge limits are established by PADEP, and are specific to the proposed SFTF and receiving waterway. These systems are generally not permitted to discharge to special protection watersheds (i.e. High Quality, Exceptional Value). The higher quality effluent is produced by intermittently dosing the effluent from a septic tank or aerobic tank into a bed of granular material (a layer of a specific type of sand, twenty-four to thirty-six inches deep) to allow for additional filtration and treatment. The treated effluent is collected by underdrain pipes (placed in a layer of aggregate below the sand bed) and disinfected before being discharged. In addition, the system is enclosed by an impermeable barrier, such as concrete walls and floor or plastic liners, to protect the groundwater. Increased maintenance of SFTF systems are required; therefore, execution of an Operation and Maintenance Agreement with the Township is required.

In some cases, small flow treatment facilities are proposed to discharge to dry stream channels, which may not be permitted in areas of hazardous geology, or with discharge in areas of high nitrate-nitrogen. A proposal for the use of a small flow treatment facility with a discharge to a dry stream channel in areas of hazardous geology, or existing background nitrate-nitrogen concentrations exceeding five mg/L, requires, at a minimum, a preliminary hydrogeologic study to determine the potential impact of the SFTF discharge on water supplies in the estimated area of impact to groundwater. In either case, the proposal may be disapproved if adverse impacts are projected and supported by further evaluation.

2. Holding Tanks:

Holding tanks are watertight receptacles which receive and retain sewage and are designed and constructed to facilitate ultimate disposal of sewage at another site such as a municipal treatment plant or land application site.

Holding tanks are constructed similar to septic tanks, except that they are sealed and retain both black water (toilet wastes) and grey water (bath, laundry, and kitchen wastes). They must have a minimum capacity to hold one thousand gallons of sewage or three days sewage flow, whichever is larger; and must be equipped with an audible and visible warning alarm to indicate when the tank has reached seventy-five percent capacity.

Holding tanks may be used to remedy the failure of existing on-site systems, as a temporary means of sewage disposal pending the installation of public sewers as indicated by an official wastewater facilities plan, or as a permanent facility for use by an institutional, recreational, industrial, or commercial establishment with a wastewater flow of eight hundred gallons per day or less. Holding tank installation must be approved by Bucks County Department of Health.

The major disadvantage with holding tanks is that they require regular service and maintenance (they must be pumped out once or twice a week) to prevent malfunction or overflow. Hence, the yearly pumping costs of a holding tank can be expensive. Frequency of pumping can be reduced by installation of water conservation devices to reduce the amount of wastewater generated.

C. COMMUNITY WASTEWATER SYSTEMS:

Systems that serve more than one residence or EDU can collectively be called community systems. When evaluating the use of alternative wastewater treatment or collection systems, the technical feasibility, environmental impact, and reliability of the possible alternatives must be evaluated; and the costs of installation, management, and maintenance must be considered.

The first step in wastewater processing involves the accumulation and transport of sewage from each home and non-residential site to the treatment site. The most common method is the use of gravity sewers that convey sewage flows from each parcel to the treatment facility. In areas of hilly or excessively flat terrain, sewage flow is assisted by pumps. This step can account for sixty to eighty percent of the total cost of a wastewater management system. Due to the high capital costs, lower cost alternatives for collection systems have been developed.

Wastewater Collection and Conveyance Options

1. <u>Gravity Sewers (Conventional)</u>

The conventional gravity sewer is most commonly constructed of PVC pipe and has been the most popular method used for the collection and conveyance of wastewater. Wastewater flows by gravity from the development site to the treatment facility. Pipes are usually eight inch in diameter and installed at a minimum depth of thirty-six inches. Manholes are located a maximum of four hundred feet apart, or at changes of direction or significant changes in elevation.

2. <u>Small Diameter Gravity Sewers</u>

A small diameter gravity sewer collects effluent from septic tanks at each service connection and transports it by gravity to a treatment plant or a gravity sewer. In addition to removing grit, settleable solids, and grease, septic tanks significantly reduce peak flows. Both the horizontal and vertical alignments of the pipes can be curvilinear. Sections of the sewer pipe can be laid upgradient, provided there is enough elevation head to maintain flow, and there is no backflow into any service connection. Plastic pipe is typically used with a minimum diameter of two inches. Manholes are provided at major junctions of main lines with cleanouts installed at sufficient intervals to permit maintenance. Air release risers are required at, or slightly downgradient of, high points in the sewer profile. Because of the small diameters and flexible slope and alignment of small diameter gravity sewers, excavation depths are significantly reduced compared to conventional sewers, greatly reducing excavation costs.

3. <u>Low Pressure Sewers</u>

This system utilizes a small diameter plastic pipe and pressurizing inlet located at each dwelling. Sewage enters the line under pressure and is conveyed to a treatment facility; or to a gravity sewer system and eventually to a treatment facility. Sewage is pressurized through either a septic tank effluent pump or grinder pump. The septic tank effluent pump system utilizes a pump chamber to force effluent from the septic tank into a small diameter plastic line. Thus, the septic tanks must be pumped out to remove accumulated solids. Additionally, the pump chamber must be cleaned periodically to remove any solids which may have carried over from the septic tank.

The grinder pump is a device which receives sewage directly from the dwellings, grinds up the sewage solids and forces the sewage mixture into a small diameter pipe network. An existing septic tank may be utilized as an emergency overflow receptacle in case of grinder pump malfunction.

Low pressure sewer systems are generally less expensive than conventional gravity sewers and may be useful in those areas that are experiencing septic system malfunctions.

An effective variation on the two systems mentioned above is the cluster system, which conveys sewage generated by a group of homes through a small diameter effluent sewer to one large septic tank. Clustered service connections, however, have led to disputes over billing and responsibility for nuisance conditions and service calls.

4. <u>Vacuum Sewers</u>

A vacuum sewer system has three major subsystems: the central collection station, the collection network, and the on-site facilities. Vacuum is generated at the central collection station and is transmitted by the collection network throughout the area being served. Sewage from conventional plumbing fixtures flows by gravity to an on-site holding tank. When about ten gallons of sewage has been collected, the vacuum interface valve, which operates automatically using pneumatic controls, opens for a few seconds allowing the sewage and a volume of air to be sucked through the service pipe and into the main. The difference between the atmospheric pressure behind the sewage and the vacuum ahead provides the primary propulsive force. Both air and sewage flow simultaneously produce high velocities and prevent blockages. Following the valve closure, the system returns to equilibrium and the sewage comes to rest at the low points of the collection network. After several valve cycles, the sewage reaches the central collection tank, which is under vacuum. When the sewage in the central collection tank reaches a certain level, a conventional non-clog sewage pump discharges it through a force main to a treatment plant or gravity interceptor.

Wastewater Treatment Options

Unlike densely populated areas, scattered development within rural areas cannot be easily or economically connected to centralized municipal wastewater treatment plants. These areas require wastewater technologies that are capable of handling larger flows than individual on-lot systems, but are less expensive to construct, operate, and maintain than municipal systems. Appropriate wastewater treatment alternatives include: community septic and aerobic tanks, recirculating sand filters, aerated lagoons, package treatment plants, marsh/pond/meadow systems, and drip/spray irrigation.

1. <u>Community Septic Tank:</u>

In a community septic tank system, wastewater is conveyed from individual residences or establishments to the treatment facility. This facility may consist of large septic tank(s) or aerobic tank(s). The size and/or number of tanks must have the capacity to handle the estimated wastewater flows. Generally, these types of facilities are used for treating up to ten thousand gallons per day (gpd) when soils are suitable, and require the same operation and maintenance as individual on-lot septic tanks and aerobic tanks.

2. Sand Filtration:

In a sand filtration system, effluent from existing on-lot septic and/or aerobic tanks is pumped to a centralized settling tank. After this additional settling, the effluent flows into a recirculating tank and finally to an underdrain sand filter bed. The effluent may be recirculated through the sand filter several times before being disinfected and discharged to a stream, depending on the water quality levels that have to be met.

3. Lagoons/Pond:

An aerated lagoon system consists of a series of wide, shallow pools. Sewage flows into the first pool, where the solids are separated from the liquid; the liquid flows into a second pool, into which air is pumped to aid the micro-biological purification process. When the liquid flows into a third pool, additional settling of solids takes place. The treated effluent can be disposed of by stream discharge (following chlorination) or by land application (spray/drip irrigation). Aerated lagoon systems require substantial land area for the series of pools, and are not feasible in areas where open space is not available to the community.

4. <u>Package Treatment Plant:</u>

Package treatment plant is a wastewater treatment alternative which can be utilized for single family dwellings, commercial/industrial establishments, or community systems. Plants are usually small, prefabricated units that are available commercially to provide treatment for sewage flows of 500 gallons per day (500 gpd) to one million gallons per day (1 mgd); however, they are generally more appropriate for sewage flows not exceeding two-hundred thousand gallons per day (200,000 gpd). When designed, operated, and maintained properly, treatment plants can provide a high level of wastewater treatment.

A small package plant is usually one large tank consisting of two compartments: the larger compartment contains some type of biological or physical/chemical treatment process, while the smaller compartment provides for settling and flotation of solids and scum and disinfection of effluent. There may be a third compartment for sludge digestion. Usually, provisions are not made for primary settling before treatment so that screening and/or communication (grinding up) the raw wastewater must be provided within the facility. In addition, other physical or chemical equipment is available as add-on modules for better treatment results (i.e., when removal of nutrients - phosphorus and nitrogen - is necessary before discharging to a stream with high water quality standards).

Most package treatment plants provide some type of activated sludge process. This process is similar to that of the aerobic tank for an individual on-lot system. Raw wastewater is aerated (in the first compartment) by an aeration device. These devices supply dissolved oxygen to microorganisms which decompose the organic matter; the source of oxygen is compressed air and/or large propellers that churn the water. During the aeration process, the micro-organisms come together and form clusters which settle out with other particles to form an activated sludge (teeming with micro-organisms) in the second compartment. Some of the activated sludge is wasted (removed), where the "hungry" micro-organisms in the activated sludge decompose more organic matter. Thus, a high quality effluent can be produced by this process.

There are several variations to the activated sludge process. The most commonly used method is extended aeration. In this process, a small organic load is treated for a long period of time (twenty-four hours to thirty-six hours). As a result, the plant can accept intermittent loads (which commonly occur in small communities) without upsetting the treatment process.

5. <u>Marsh-Pond-Meadow:</u>

In this system, wastewater usually flows into a settling basin which may or may not be aerated. The basin allows for the separation of the solids and liquids. The wastewater then flows into a marsh area where vegetation assimilates available nutrients. The next processing point is a fish-stocked pond where the effluent is further renovated by settling and biological action. In the final step, wastewater flows through a meadow-area where the removal of organics and suspended solids takes place via biological oxidation, sedimentation, and grass filtration. Nitrogen is removed through denitrification (process where nitrates and nitrates are oxidized to nitrogen gas by bacteria) and plant uptake. The runoff from the meadow is collected in a drainage ditch and then is chlorinated before discharge to a stream or subsurface absorption area.

The marsh-pond-meadow system requires a substantial amount of land, yet minimal amounts of labor and energy. In addition, this type of system could support crop production (i.e., marsh vegetation and meadow grasses for animal feed supplements) and provide habitats for fish and wildlife. The system may be a feasible alternative where soils conditions are not suitable for septic tank systems.

6. <u>Constructed Wetlands:</u>

Wastewater enters the constructed wetland where it is distributed evenly across the width of the first cell by a series of plastic valves or PVC tees. The first cell contains gravel. A waterproof liner is used on the sides and bottom of the first cell to conserve water and provide more effective treatment. Cattails and bulrushes are usually planted in the first cell. The roots of these marsh plants form a dense mat among the gravel. Here, chemical, biological and physical processes take place, which purify the water. Water from the first cell passes into the second cell through a perforated pipe embedded in large stone. The water level within each cell is regulated by swivel standpipes located in concrete tanks at the end of each cell. Wastewater in the second cell is distributed evenly across this cell through another perforated pipe. Cell 2 has a layer of gravel covered with topsoil and then mulch. This cell is planted with a variety of ornamental wetland plants such as iris, elephant ear and arrowhead. The water in Cell 2 eventually seeps into the soil below or passes into another perforated pipe where it is released into a drainfield similar to those used with conventional septic tanks.

Treated Effluent Disposal Options

Options for disposal of treated effluent include land application and stream discharge. Stream discharge requires disinfection of treated wastewater prior to disposal. When the receiving stream exhibits low flow, or are identified as impaired waterways, extensive treatment is necessary. That may not be cost-effective when compared with other methods requiring less treatment. Additionally, stream discharge is generally not permitted to special protection watersheds (High Quality and Exceptional Value). However, stream discharge does not require large land area which is typically required for spray or drip irrigation. The primary potential impact of stream disposal of wastewater is degradation of stream water quality.

Land application of wastewater can be accomplished through two methods when soil conditions are suitable: community subsurface disposal and irrigation. According Township Soils Mapping, areas exist within the Township that contain soil suitable for use of these systems (refer Figures 2-7 & 2-8). Community subsurface disposal method is similar to individual on-lot septic systems in that it utilizes a large network of subsurface pipes, and includes a pumping system that assures equal distribution of the effluent throughout the pipe network. Disinfection with chlorine is not required for subsurface disposal. However, for large volume systems, multiple subsurface areas are utilized so that flow may be alternated to "rest" the beds and provide reserve capacity in case of failure on one bed. Although more sophisticated than the standard septic system, proper design and construction are essential for proper performance. In those areas with restrictive environmental factors, the subsurface absorption network can be modified in a way similar to that described for the individual septic systems. While subsurface disposal encourages replenishment of the groundwater supply, groundwater contamination may result if the system is not properly designed and operated.

The second method of land application is through irrigation. Irrigation systems are similar to drainfields in that they use the land's natural assimilative capacity to dispose of wastewater. The principal difference is that irrigation systems are designed to allow the water and nutrients to be used by plants. A vegetative ground cover extracts nutrients such as nitrogen from the effluent and also serves to reduce soil erosion and maintain soil permeability. The uptake of water through the roots of the plants reduces the amount of water that percolates through the soil, lessening the possibility of oversaturation problems. The roots also introduce oxygen, allowing aerobic microorganisms at the top of the soil profile to digest some of the organic matter in the effluent. An additional benefit that comes with the use of irrigation systems is that non-food crops can be grown on the land.

Irrigation systems can be classified into two basic types, depending on how the wastewater is delivered to the soil. Spray irrigation systems use sprinklers to distribute the effluent over the surface of the ground. Drip irrigation systems distribute the effluent just below the surface of the ground. With spray irrigation, the effluent is distributed more evenly over the surface area, which allows for a greater amount of evaporation to occur. Spraying the effluent also exploits the entire assimilative capacity of the soil profile, since it enters the soil at the

surface. Because the effluent is distributed through the air, a potential exists for pathogens to be carried by the wind, causing a possible health hazard. Wastewater must first be treated by either an aerobic treatment unit or a septic tank-sand filter combination, and then disinfected through a chlorination process before it can be sprayed. It is recommended that these fields be enclosed by a fence to ensure that children and animals will not wander into the area. The greater amount of treatment prior to spraying and the large field size can make this an expensive system to employ.

Drip irrigation systems utilize pressure compensated drip tubing to slowly and evenly disperse the wastewater just below the soil surface, but still within the root zone of the vegetation. After first being treated by a septic tank, the wastewater enters a dosing chamber. The dosing chamber then periodically sends effluent through a series of disk filters before delivering it to the network of tubing. The system regularly back flushes effluent through the filters to prevent them from becoming clogged. The pressure compensated tubing is designed to distribute wastewater uniformly over the entire drainfield. Since the effluent is never airborne, drip systems do not allow for as much evapotranspiration to occur as with the spray irrigation. However, because the wastewater is never exposed to the air, aerobic treatment and disinfection are not always necessary with drip irrigation. This also enables the system to avoid the potential problem of odors. Both irrigation systems require an outside power source for the operation of the dosing chamber.

These systems require proper monitoring by the owner/operator. An Operation and Maintenance Agreement executed with the Township is required.

A comparison of commonly utilized disposal option for community sewage systems (sandmound, spray irrigation, drip irrigation, and surface discharge) is presented within Figure 5-1.

Figure 5-1 COMMUNITY SYSTEMS COMPARISON OF EFFLUENT DISPOSAL OPTIONS

	Sandmound	Spray Irrigation	Drip Irrigation	Treatment Facility w/Surface Discharge
1.	Soils limit feasibility	Soils limit feasibility	Soils limit feasibility	No limitation due to soil characteristics
2.	Subsurface application/increased infiltration	Surface application/reduced infiltration	Subsurface application/reduced infiltration	Surface application/minor infiltration
3.	Small land area required dependent on soil conditions	Large land area may be required	Large land area may be required	Small land area required
4.	Incompatible w/agriculture but requires only a relatively small area of site allowing agriculture to continue	Limited compatibly w/agriculture	Incompatible w/traditional farming operations	Requires only small site area allowing agriculture to continue
5.	Incompatible w/active recreational uses but requires only a relatively small site area	Limited compatibility w/active recreational uses. May be coordinated w/passive recreational uses	Incompatible w/active recreational uses. May be coordinated w/passive recreational uses	Incompatible w/active recreational uses but requires only very small land area. May be coordinated w/passive recreational/educational uses when discharged to constructed wetland area
6.	Mound is usually aesthetically unattractive	"Aesthetics" poorly received by adjacent owners	No established reaction but likely less controversial than spray irrigation	Requires public education – typical concerns w/odor.
7.	Subsurface appl./no runoff	Compatible w/stormwater regulations	Subsurface appl./no runoff	Compatible w/stormwater regulations and may be utilized to further enhance wetlands and base stream flow
8.	Design criteria established	Design criteria established	Uniform design criteria not established	Design criteria established
9.	Reliability expected	Reliability expected	Reliability unknown	Reliability expected
10.	O&M requires treatment facility maintenance	O&M requires treatment facility maintenance plus maintenance of spray field equipment which may clog or be damaged by deer or man operations	O&M requires treatment facility maintenance plus maintenance of drip fields	O&M requires treatment facility maintenance
CHAPTER 6 SEWAGE FACILITIES MANAGEMENT

Management of sewage facilities is critical to successful long-term operation of properly designed and installed systems. Management functions include actions or activities to ensure achievement of the management program objectives. Management functions include public education, environmental/public service programs, planning assistance, site evaluation, system design review, installation or construction supervision, operation and maintenance certification, financing, rehabilitation assistance, and monitoring/enforcement.

Historically, on-lot systems (OLDS) have been operated by individual homeowners who are generally unaware of the maintenance requirements of these systems. The best designed and properly installed on-lot sewage disposal system can still malfunction if the homeowner does not properly operate and maintain the system. A major force for installation of public sewers is the failure of on-lot systems which occur in areas of concentrated development. Typically, little effort is given to rehabilitation of on-lot disposal systems once problems exist. This is unfortunate, since public sewers may be extended into an area to solve on-lot disposal problems experienced by only a small percentage of homeowners, which reduces groundwater recharge and encourage urban sprawl.

Currently, execution of Operation and Maintenance Agreements between the Township and property owners occur for the following situations:

- 1. Marginal conditions.
- 2. Holding tanks.
- 3. Spray irrigation.
- 4. Small flow treatment facility (SFTF).
- 5. Community sewage systems.
- 6. Alternate sewage systems.

Homeowners can help prevent malfunctions and ensure long term use of their on-lot system by doing the following:

- Conserving water and reducing waste flow into the septic tank.
- Having the septic tank pumped at least once every three years, depending upon tank size and household size.
- Avoiding putting chemicals in the septic system.
- Not using the toilet to dispose of bulky, slowly decomposing wastes.
- Inspecting the septic tank, pipes, and drainage field annually.
- Maintaining accurate records of the septic system (design, installation, location, inspections, pumpings, malfunctions, repairs).
- Preventing run-off from downspouts, sump pumps, and paved surfaces from getting into the septic system.
- Keeping heavy vehicles, equipment, and livestock away from the septic system.
- Not planting trees and shrubs over, or close to, the septic system.

Many of the management functions necessary to ensure long-term successful operation of on-lot sewage disposal systems are performed by three separate levels of government: Commonwealth of Pennsylvania (Pennsylvania Department of Environmental Protection), Bucks County (Bucks County Health Department), Haycock Township; and the system owner/user.

Figure 6-1 identifies responsibility and performance of these management functions by the various entities, including the property owner/user. As indicated in Figure 6-1, some of these functions are not currently performed.

Many problems associated with on-lot sewage systems can be avoided and/or corrected through implementation of a management plan. To be effective, an on-lot management plan must include the following:

- Educate users on the necessity for proper operation and maintenance of on-lot systems.
- Encourage repair, replacement, or upgrading of a malfunctioning system.
- Provide technical assistance to users, including rehabilitation or remedial action.
- Provide assurance that systems are properly operated and maintained.
- Require use of water conservation devices.

Further detail concerning the administrative, technical, and enforcement aspects of certain above mentioned management functions are listed in Figure 6-2.

Figure 6-1 ONSITE MANAGEMENT FUNCTIONAL RESPONSIBILITIES

	Management Issue			Responsibili	ty	Requirements/Comments			
			BCHD	Township	Private	Not Done			
DESIGN	Design Standards	*					State set standard.		
	Designer Prerequisite		*				Designer shall be registered engineer or supervisor or other approved professional.		
	Office Preconference		*				County reviews site feasibility and provide education material to builder.		
	Site Feasibility Analysis		*				Site analysis witnessed by County.		
JNNNG	Plan Review of OLDS		*						
	Construction Permit		*						
Ъ	As-Built Plan of OLDS		*				Done by County during construction inspection.		
NOI	Installer Registration					*			
STRUCT	Performance Bond or Escrow Fund			*			Required by Township for certain types of OLDS.		
CON	Inspection prior to placement of backfill		*						
ATION	Occupancy Permit issued when OLDS is completed			*			Township will not issue occupancy permit until County approval of OLDS.		
OPER	Routine Inspection			*	*		Township involvement for certain types of OLDS and new systems.*		
ш	Pumping			*	*		Township requires verification for new systems.*		
NG MAINTENANO	Pumping Registration		*						
	Record Keeping			*			Pursuant to Ordinance and agreements.*		
	Surface Water Quality Testing					*			
NITOR	Groundwater Quality Testing					*			
IOM	Site Inspection		*	*			Pursuant to Ordinance and agreements*		
AB.	Enforcement		*	*					
REF	Repairs				*				
ŋ	Permit		*	*			Township requires permit for holding tanks, alternate systems, new systems		
FINANCIN	Performance Bond or Escrow Fund			*			Required for holding tanks & alternate systems.		
	Cost of Maintenance				*				
	Design		*						
3LIC ATION	Operation		*	*					
PUE	Maintenance		*	*			Literature is made available		
ш	Rehabilitation		*	*					

*Subsequent to adoption of Sewage Management Ordinance by the Township.

Figure 6-2

MANAGEMENT FUNCTIONS AND ACTIVITIES

Site Evaluation System Design			inistrative/Technical Activities	Regulatory/Enforcement Activities					
1.	Determine most feasible wastewater system to be applied on a community case-by-case (e.g. individual lot or subdivision) basis.	a.	Conduct site suitability analysis by evaluating physical characteristics (soils, topography, hydrology, geology) of an area, lot or disposal site under construction.		Establish guidelines and procedures for soil suitability and site selection. Develop criteria for determining lot size.				
		b.	Identify and evaluate alternative wastewater systems.	b.	Develop cost-effectiveness guidelines and procedures.				
2.	Develop program for septage pumping, hauling, treatment, and disposal.	a.	Develop policies toward regulating septage haulers and disposal sites.	a.	License septage haulers and set standards for hauling equipment. Inspect pumping trucks. Regulate and inspect operations of septage treatment and disposal facilities and locations.				
		b.	Record hauler activities as part of the operation and maintenance program.	b.	Require septage hauler to record pumping activities as a condition of license or certification renewal.				
3.	Develop procedures for identifying and correcting system failure.	a.	Provide opportunity to hear complaints concerning system malfunctions. Respond to complaints on a case-by-case basis.	a.	Obtain legal authority to require system repair/replacement where malfunctions are discovered. Consider following regulatory mechanisms: liens on property, injunctions, and fines.				
		b.	Define system failure, and initiate program to identify failing system.	b.	Incorporate system rehabilitation program as part of operation and maintenance effort, issue violation and abatement notice.				
<u>Finar</u>	ncing								
1.	Secure funds for the planning, design, construction, and operation of noncentral systems.	a.	Obtain grants and loans from state, federal, and other sources.	a.	Obtain legal authority to accept grants and incur debt.				
		b.	Set and collect equitable user fees to cover program administration, and system design, installation, maintenance, and repair/replacement costs. Outline specific fiscal responsibilities of homeowner and management entity.	b.	Set user fees based on number of units served, age of system, ability to pay, O&M required, service life, and debt costs. Collect fees through property assessments, permit fees, periodic service changes, costs of repairs, liens on property for repair costs, etc.				
Wate	r Quality Monitoring								
1.	Monitor surface water and groundwater near noncentral systems for compliance with permit conditions.	a.	Conduct periodic water quality/sampling and analysis.	a.	Define effluent standards, discharge limitations, performance requirements, and sampling frequency.				
		b.	Investigate potential system failures.	b.	Issue violation notice. Require replacement/repair of failing systems.				
<u>Publi</u>	c Education								
1.	Inform public of noncentral system maintenance requirements and homeowner responsibilities.	a.	Provide information to public of water conservation methods, system inspections, maintenance procedures, and maintenance program requirements.	a.	Disseminate booklets, pamphlets, etc., discussing maintenance practices and homeowner responsibilities.				
		b.	Coordinate with agencies (e.g., public utilities, regulating agencies, etc.) and act as a liaison between homeowners and agencies.	b.	Establish communication mechanisms with homeowner to inform them of maintenance responsibilities and to help identify failing systems.				
		C.	Developer and property owner should be made aware of siting considerations and alternative wastewater management opportunities prior to development planning.	C.	Prepare detailed guidelines (e.g., design examples) relating to planning review and permit approval process. Initiate predevelopment planning sessions with developer/property owner.				
2.	Initiate training and certification programs for site evaluators, enforcement officials, installers, designers, and haulers.	a.	Sponsor workshops and training course for contractors, engineers, and regulatory staff on technical aspects of site evaluation, system design, and installation.	a.	Require and enforce certification of contractors, septage haulers, and inspectors, preferably with testing programs.				

When onsite systems are not properly sited or installed, they can be a potential risk to public health and a source of environmental degradation. The most common reason for onsite systems to fail, and become a potential threat to public health or the environment, is placement of systems in soils that do not have adequate capacity for wastewater renovation. A second common reason for system failure is installing a system in such a manner that only a small percentage of the soil available for renovation is actually used. When properly designed and constructed, onsite system failure can occur due to lack of proper maintenance of the system components. Onsite system failure can result in problems that include direct exposure to improperly treated sewage, surface water pollution, and groundwater contamination.

This contamination results in increased health risks to persons exposed to polluted waters, degradation of recreation and drinking water quality, and movement of nutrients such as nitrogen and phosphorus into ground and surface waters. Diseases that can be spread by exposure to improperly treated wastewater include salmonellosis, viral hepatitis A, viral gastroenteritis, and amoebic dysentery.

On-site management function may require that some agency be responsible for a specific geographical area. An "on-site management district" is a delineated area within which sewage facility needs are met through the use of community and/or individual on-site facilities. Installation of new facilities and operation and maintenance of all facilities is handled by an operating agency. The agency is responsible for future sewage facilities planning for the district. The agency serves to disseminate public information responsible for educating homeowners to properly maintain and prolong the life expectancy of their systems.

An on-site management district could be formed at any one of the following levels:

- Township-wide to include all on-lot disposal systems within the Township.
- Specific management district which would serve only areas identified with on-lot disposal system problems or concentrated on-lot systems.

Administrative and regulatory responsibilities for OLDS management could be assumed by an existing public, quasi-public, or private entity. Additionally, a new Municipal Authority could be established by the Township Board of Supervisors. Some advantages to creation of an Authority include: (1) improving opportunity for outside financing; (2) insulating projects from electoral politics; and (3) protecting the Township from legal action. However, an Authority made up of appointed members creates another "level" of bureaucracy and may be less responsive to the needs of the community than the elected members of the Board of Supervisors.

In addition, Haycock Township may investigate coordination with adjacent municipalities to implement a joint management program, particularly with respect to inspections. Currently, Bucks County Department of Health is responsible for onsite sewage permitting and enforcement throughout the County. As individual Township management programs become more developed, opportunities to share responsibilities, such as hiring a sewage enforcement officer, will increase.

Participating homeowners using individual systems would be charged a fee, which could be based on the age of their system (i.e., older systems which require more maintenance would have higher monthly fee). Homeowners served by community on-site facilities would pay an annual fee based on the number of units served by the system in a yearly operational cost.

To properly implement a full fledged OLDS management program, sufficient administrative, technical, financial, and legal capabilities must be in place or created to perform the selective functions from the above list. These functions are intended to ensure adequate public service and performance of the OLDS. However, the degree to which the Township becomes involved with OLDS and management thereof can vary from total management of OLDS by the Township or an Authority, to a public education program administered by the Township or an Authority to a public education program administered by the Township or an agency of their choice. A range of OLDS management options are presented in Figure 6-3.

FIGURE 6-3 SEWAGE DISPOSAL SYSTEMS MANAGEMENT <u>OWNERSHIP/MAINTENANCE OPTIONS</u>

- 1. Public Ownership/Public Operation and Maintenance.
 - a. Township ownership of all community wastewater treatment and disposal systems;
 - b. Operation and maintenance function is the responsibility of the Township not the property owner. Community disposal systems would be designed in accordance with standards established by PADEP and Haycock Township;
 - c. Property owner is a customer of the system and pays a user fee; and
 - d. Township administers Public Education Program.
- 2. Private Ownership/Public Operation and Maintenance.
 - a. System ownership by the property owner or homeowner's association;
 - b. Township is responsible for operation and maintenance functions;
 - c. Property owner is a customer of the system and pays a user fee; and
 - d. Township administers Public Education Program.
- 3. Private Ownership/Private Operation and Maintenance with Public Assurance Program.
 - a. System ownership by the property owner or homeowner's association;
 - b. Property owner responsible for system operation and maintenance;
 - c. Township requires a permit, inspects and monitors operation, and requires proof of pump-out of septage once every three years for individual on-lot disposal systems. Maintenance agreements with financial security, periodic Township inspection, and annual reporting would be required for all holding tanks, individual spray irrigation systems (spray and drip), small flow treatment facilities, and alternate systems permitted by PADEP.
 - d. Township administers Public Education Program.
- 4. Private Ownership/Private Operation and Maintenance.
 - a. System ownership by the property owner;
 - b. Property owner is responsible for system operation and maintenance;
 - c. Township administers a Public Education Program to inform residents of the need for system maintenance and water conservation.
 - d. Township requires proof of pump out of septage once every three years.

Haycock Township policies concerning OLDS management shall be as follows:

- 1. The Township OLDS management program will be based on Option #3 for holding tanks, individual irrigation systems (spray and drip), small flow treatment facilities, alternate systems, and all community systems; and Option #4 for existing and new on-lot sewage disposal systems. As shown in Figure 6-3, the program will include a public information/education campaign to encourage homeowners to use sound maintenance practices, and public assurance for certain types of disposal systems.
- 2. Alleviation of failing septic tank problems should first be attempted through public education programs, mandatory water conservation devices, and required maintenance. Installation of alternative systems should be utilized only if these methods fail to solve the problems. All alternative systems which are the most suitable for the particular soils should be considered.
- 3. The Township will adopt a Sewage Management Ordinance for all systems, permitting Township inspection and requiring routine maintenance by the property owner. In order to ensure proper operation of existing on-lot systems, routine maintenance must be accomplished. While the homeowner has the sole responsibility for operation and maintenance, the Township will require use of water conservation devices on all new construction, and administer a public education program to disseminate information on proper operation and maintenance of on-lot sewage disposal facilities. Refer Appendix B for the proposed Ordinance.
- 4. Alternate systems utilized for on-site sewage disposal in areas of poor soils, irrigation systems (spray and drip), holding tanks, small flow treatment facilities, and community sewage collection and treatment systems present increased and/or complex levels of operation and maintenance, requiring additional municipal involvement:
 - A. Individual on-lot alternative disposal systems (i.e. irrigation: spray and drip, small flow treatment system, etc.) will be required through municipal ordinance to include public assurance of proper operation and maintenance via execution of an appropriate agreement with financial security. Requirements specific to IRSIS are authorized by Ordinance 92 (refer Appendix B).
 - B. A holding tank permit will be required to be obtained from Haycock Township in addition to permit requirements of the Bucks County Health Department and/or Pennsylvania Department of Environmental Protection. The Township permit requirements will be authorized by Section 15 of the Sewage Management Ordinance (refer Appendix B), which provides for public assurance of proper operation and maintenance via execution of an appropriate agreement with financial security.
 - C. Community sewage disposal systems will be permitted only when designed in accordance with specifications of the Bucks County Health Department, Pennsylvania Department of Environmental Protection, and Haycock Township, and owned and maintained by a commercial property owner or association. Haycock Township does not maintain the personnel, expertise, or financing to own and operate sewage facilities. However, the Township will provide for public

assurance of proper operation and maintenance via execution of an appropriate agreement with financial security.

D. On an annual basis, Township personnel will inspect the property containing small flow treatment facilities to verify that systems are being maintained in general conformance with requirements of the Operation and Maintenance Agreement executed between the Township and property owner. Inspections will be scheduled to generally coincide with receipt of annual monitoring and maintenance reports for small flow sewage treatment facilities, and any notice of malfunction or other issues not in accordance with PADEP permit requirements will be brought to the attention of the Bucks County Department of Health and/or PADEP, as applicable.

CHAPTER 7 ALTERNATIVES ANALYSIS

For the purposes of this plan, the entire Township was considered as one study area. Nearly all of the Township is located within the Tohickon Creek/Lake Nockamixon Watershed, which is identified to be impaired by US EPA. Additionally, the remaining area of the Township (northwest corner) is located within the Cooks Creek Watershed, which is a special protection (EV) watershed. These limitations were considered in the alternatives analysis.

The Township contains significant natural resources including woodlands, steep slopes, wetlands, and watercourses, which require protection in accordance with the Township Zoning Ordinance. The extent of natural resources, and regulations pertaining to same, severely limit the potential for new development. Additionally, large tracts of the Township are preserved as part of the state/county park program, or by the conservation easement program administered by Haycock Township and Bucks County, which further limits the development potential in the Township.

With the exception of village areas, the Township primarily consists of large lot single family home development, agriculture, and open space. In village areas, due to the lack of large contiguous parcels available for development, low development potential exists, which may be restricted to infill development. Low density, large lot residential development is anticipated within the majority of the remaining area of the Township (zoned in the RP and RA Districts). Due to the relatively small area zoned for high density residential and commercial/industrial uses, very limited potential exists for future development that would require large scale sewage disposal methods.

Based on the current pending development proposals, only single family detached dwellings on large (+2 acres) lots are common to most development proposals in recent history. Development is dispersed throughout the Township and is not centralized.

The following alternatives were analyzed:

- 1. No action alternative.
- 2. Public education and technical assistance.
- 3. On-lot disposal system (OLDS) management program.
- 4. Individual/community sewage treatment facilities.
- 5. Public sewage collection and treatment.

A. REVIEW OF ALTERNATIVES

Alternative #1 – No Action Alternative.

<u>Description:</u> A no action plan for the Township would result in no change in the current situation. This type of "status quo" approach would mean no new sewage facilities, and the property owners would continue to be responsible for their own on-site system. The property owners would receive no technical assistance from Haycock Township regarding operation and maintenance of onlot systems, and sewage management would not be coordinated.

Advantages:

- 1. No increase in Township administrative responsibilities or cost.
- 2. No additional cost/responsibilities required of property owner.

Disadvantages:

- 1. Possible health hazards due to failure of existing on-lot sewage disposal systems.
- 2. Possible surface water and groundwater contamination.
- 3. Possible nuisance problems.
- 4. Potential violation of the Clean Streams Law.
- 5. Property values could be suppressed.

Alternative #2 – Public Education and Technical Assistance.

<u>Description:</u> Research has shown that on-lot sewage disposal systems have a finite life expectancy and require basic maintenance practices which can extend the life of the system. Most homeowners are not aware of the maintenance needs of their on-lot sewage disposal systems. Typically, when faced with the problem of a malfunctioning system (e.g. – surfacing septic effluent), the homeowner usually just "lives with it". One way the municipality can help prevent further problems with on-site systems would be to administer a public education program.

With this type of program, the responsibility for operation and maintenance of an on-lot system remains with the property owner. However, the property owner is advised of the need for maintenance, repair, or rehabilitation, and water conservation through dissemination of written material. This may be followed by an active program such as public presentation of various options available to the homeowner.

Obtaining technical assistance for the repair or replacement of on-lot sewage disposal systems would be the homeowner's responsibility. Options available include local plumbers, septage haulers, contractors, and engineers, depending upon the severity of the problem. The representative Sewage Enforcement Officer from the Bucks County Department of Health is a good contact for technical advice.

Advantages:

- 1. Potential and severity of pollution and public health problems from failure of on-lot sewage disposal systems would decrease through continued system education, maintenance, and rehabilitation.
- 2. Township involvement/cost is minimal.

3. No additional cost/responsibility required of property owner.

Disadvantages:

- 1. Possible health hazards due to failure of existing on-lot sewage disposal systems, while potentially reduced, will likely continue as property owners disregard educational information.
- 2. Continued possible surface/groundwater contamination.
- 3. Continued potential violation of Clean Streams Law.

Alternative #3 – On-Lot Disposal System (OLDS) Management Program.

<u>Description:</u> On-lot sewage disposal systems (OLDS) can provide reliable service at a reasonable cost while preserving environmental quality. Failure of on-lot systems, however, can create public health hazards and water quality problems, or, at the very least, a public nuisance. If OLDS are to perform successfully over a reasonable lifetime, a sound on-lot management program, as discussed in Chapter 6, with sufficient provision for technical assistance, education, and enforcement, should be provided. An effective management program functions to assure proper design, construction, operation, and maintenance of these systems.

Advantages:

- 1. Potential and severity of pollution and public health problems from failure of on-lot sewage disposal systems would decrease through continued system maintenance and rehabilitation; and Township oversight of operation and maintenance.
- 2. Township administrative responsibilities may be minimal dependent on requirements of the management program, and can be administered with current staff with some additional technical training.
- 3. Township cost may be minimal dependent on requirements of the management program, and reimbursement by PADEP.

Disadvantages:

- 1. Township administrative responsibilities could be excessive dependent on requirements of the management program and may require hiring additional staff with specialized skills.
- 2. While costs are partially reimbursed by PADEP, there will be an increased financial burden to the Township to administer a management program.
- 3. Increased reporting requirements/cost to Township property owners.

- 4. Public resistance to increased local bureaucracy and encroachment on private property rights.
- 5. Varying degrees of administrative and legal issues/problems may be encountered.

Alternative #4 – Individual/Community Sewage Treatment Facilities.

Description: This option would provide for construction of new treatment facilities planned, designed, and constructed to standards established by PADEP and the Bucks County Department of Health. Operation and maintenance would be the responsibility of the property owner, with guarantee for operation and maintenance provided by the Township in the form of an Operation and Maintenance Agreement. Design of the treatment facilities could incorporate innovative technologies to enhance the quality of treated effluent, while utilizing methods to encourage groundwater recharge, wetland development, and improvement of base flow within stream headwaters. There is no initial cost to the Township for this option, as design, approvals, and construction cost are borne by the developer. However, these systems will increase Township oversight responsibility and costs in the future, as the Township may be required to take a more active role in ensuring that the operation and maintenance of the systems conform to requirements of PADEP and the Bucks County Department of Health, which could ultimately include the Township assuming the operation and maintenance responsibilities for these systems. Use of a significant number of these systems in a small watershed area may also contribute to degradation of surface and groundwater quality, if systems are not designed and maintained properly.

Advantages:

- 1. Ability to provide sewage disposal facilities to cluster type residential development where small lot sizes do not allow for on-lot sewage treatment systems; and for large industrial, commercial, or institutional development.
- 2. Ability to provide a means to serve existing and proposed uses where onsite soil conditions do not support use of conventional OLDS methods of sewer disposal.
- 3. Where properly designed and maintained, treated effluent from the sewage disposal facilities may improve base flow within stream headwaters, and may enhance groundwater recharge to underlying aquifers where on-lot land application of effluent is utilized.
- 4. No Township costs are incurred in the design, approval, or construction of sanitary sewer treatment facilities.

Disadvantages:

1. This option will require increased involvement by the Township in oversight and monitoring of sewage treatment facilities. Operation and maintenance costs, while paid by "customers" served by the treatment

facility, must be monitored by the Township to ensure satisfactory long term operation.

- 2. Special protection and impaired watersheds within the Township limit available locations for discharge from treatment facilities and increase treatment costs to meet higher effluent limits.
- 3. Not consistent with the Township's desire to encourage land based disposal options as a means to recharge underlying aquifers.

Alternative #5 – Public Sewage Collection and Treatment.

<u>Description:</u> This option would provide for construction of public sewage collection and conveyance facilities, and construction of a public sewage treatment facility to serve new development and/or connect existing dwellings which may have failing or marginal on-lot sewage systems. As there are no existing public sewage systems in the Township, a completely new system would be required to be designed and constructed. Additionally, an entity, such as a municipal authority, would be necessary to be created to own and operate the facility.

Advantages:

- 1. Ability to provide reliable sewer service in areas where onsite sewage facilities are restricted due to lot size and soil conditions.
- 2. Single source ownership and maintenance may improve quality and reduce the burden on individual property owners.

Disadvantages:

- 1. Excessive cost of design and construction, particularly as there is no existing collection system base from which to build/extend.
- 2. Development is dispersed throughout the Township, which would require an extensive collection system or require numerous individual collection/treatment systems, both of which would increase cost of construction, operation, and maintenance.
- 3. The special protection and impaired watersheds within the Township limit available locations for discharge from a public treatment facility and increase treatment costs to meet higher effluent limits.
- 4. Township does not maintain the personnel, expertise or financing to own and operate sewage collection and treatment facilities.
- 5. Creation and operation of a municipal authority would add expense to the Township.

B. RECOMMENDED ALTERNATIVE

The following recommendations are based on Township objectives to protect surface and groundwater sources, including special protection and impaired waterways, while providing appropriate and cost effective means to serve existing and proposed uses:

- 1. The recommended alternative for Township sewage needs is continuing use of on-lot sewage disposal with an On-Lot Disposal System (OLDS) Management Program as discussed in Alternative #3. Proposed use of on-lot sewage disposal facilities for new subdivisions must include provision for, and protection of, an approved and tested reserve sewage disposal system area to facilitate replacement of a failed on-lot sewage disposal system in the future.
- 2. Use of individual/community sewage treatment facilities referenced in Alternative #4 shall be permitted to serve existing uses having a failed/substandard sewage disposal facility; and, where the Township deems appropriate, to address sewage needs for high-density (cluster) residential development by use of individual/community sewage treatment facilities. Discharge of treated effluent shall be limited to land application via subsurface disposal or spray/drip irrigation; or where soil conditions are not conducive to use of land application disposal methods, treated effluent shall discharge to existing and/or constructed wetland areas for tertiary treatment of effluent prior to discharge to surface Waters of the Commonwealth.

In conjunction with adoption of the OLDS Management Program, 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 Haycock Township:

- 1. Individual on-lot sub-surface sewage disposal.
- 2. Individual on-lot elevated or at grade sandmound.
- 3. Individual on-lot residential spray (IRSIS)/drip irrigation system.
- 4. Individual on-lot alternate system.
- 5. Community on-lot subsurface sewage disposal.
- 6. Community on-lot elevated sandmound.
- 7. Community on-lot spray/drip irrigation system.
- 8. Small flow treatment facility with stream discharge.
- 9. Experimental system or other system not listed above, as approved thought the Technology Verification Program.
- 10. Holding tank (residential repair or commercial, institutional, industrial).

Further, all land application sewage systems for newly created lots or land development, must provide replacement sewage disposal areas which shall be identified by soils testing and protected for future use pursuant to Ordinance 106.

The above hierarchy will be implemented, as follows:

1. For proposed subdivisions and land development, as well as any other project requiring Sewage Facilities Planning Module approval, applicants shall be required to

submit an "Alternatives Analysis" for review, which contains supporting documentation to discount use of higher ranked systems on the list as a condition of selecting a lower ranked system.

2. For repair situations and other applications involving permit issuance by the Bucks County Department of Health, the Township will provide the required hierarchy to the Health Department upon approval of this plan by PADEP, so that the Health Department may utilize same when evaluating a proposed sewage disposal facility installation/repair for issuance of a permit.

C. NON-STRUCTURAL COMPREHENSIVE PLANNING

In support of the above recommended alternatives, Haycock Township has implemented, or plans to implement, the following non-structural alternatives:

- 1. Adoption of Ordinance 92 (refer Appendix B) to regulate the installation and operation of individual residential spray irrigation systems (IRSIS).
- 2. Adoption of Ordinance 106 (refer Appendix B) requiring provision for, and protection of, on-lot sewage disposal system replacement areas on new lots created by subdivision.
- Township proposes to adopt an OLDS Management Program Ordinance (refer Appendix B) to establish a program to support improved monitoring/maintenance of onsite systems.

The Township must evaluate the need for additional personnel/expertise and/or pursue technical or administrative training to administer the OLDS Management Program, which may also include additional oversight of operation and maintenance of small flow treatment facilities. In the interim, consultants may be utilized in the transitional startup period. The Township must also initiate a public awareness campaign to alert Township residents of the necessity to maintain on-lot sewage disposal facilities through dissemination of written material, and coordinating efforts to raise awareness of on-lot sewage disposal facilities with efforts already being undertaken by the Bucks County Department of Health and PADEP.

CHAPTER 8 EVALUATION OF ALTERNATIVES

A. CONSISTENCY REQUIREMENTS

Prior to implementation, the selected wastewater facilities alternatives must be evaluated for consistency with existing plans and programs. Coordination of sewage facilities alternatives and other programs at the planning stage permits resolution of potential problems before committing municipal resources. This section identifies any amendments/revisions which may be necessary to ensure this coordination. Not all revisions can be made within the Wastewater Facilities Plan, and other plans may require amendment. Recommendations for such changes are included in this chapter.

Comprehensive Wastewater Quality Management Plans

In 1978, the Delaware Valley Regional Planning Commission (DVRPC) prepared the COWAMP/208 Water Quality Management Plan for Southeastern Pennsylvania. The purpose of the COWAMP/208 Plan is to develop an area-wide waste treatment management plan to protect surface water and groundwater from pollution. The policies and recommendations included within the Haycock Township Sewage Facilities Plan conform to basic water quality goals and objectives of the Water Quality Management Plan.

Municipal Wasteload Management Plan (Chapter 94 Reports)

Chapter 94, Municipal Wasteload Management, was promulgated under 25 PA Code to require owners and operators of sewage facilities to manage wasteloads discharged to sewage facilities in order to prevent overloading, limit extensions to overloaded sewer systems or treatment plants, and prevent the introduction of pollutants into sewage treatment plants that will interfere with treatment plant operation or pass through the plants untreated. This is accomplished each year by treatment plant owner preparing a comprehensive report evaluating the status of the treatment plant and pump stations, interceptors, and collector sewers tributary to the treatment plant. There are no public sewer collection or treatment facilities within Haycock Township; and therefore, there are no Chapter 94 reports for consideration.

Township Comprehensive Plan

Haycock has adopted the Quakertown Area Comprehensive Plan Update, dated 2007, of which Haycock Township is a part of the Quakertown Area. The Sewage Facilities Plan has been developed in consideration of goals and objectives contained within the Quakertown Area Comprehensive Plan Update of 2007. The Comprehensive Plan recommends that Havcock Township update its official Sewage Facilities Plan, and adopt or update an OLDS Management Program to include a public education component and operation and maintenance standards for on-lot sewage disposal facilities. Additionally, it is recommended that the Township prepare a feasibility study to determine the degree of OLDS malfunctions, potential wastewater facility alternatives to address areas of concentrated malfunctions, and funding sources to offset the This evaluation may be utilized when developments proposing cost of any construction. community wastewater systems near the onsite problem areas are proposed, such that an areawide evaluation of wastewater management includes remediation of these problems. The Township's Sewage Facilities Plan Update is generally consistent with the recommendations contained in the Comprehensive Plan Update of 2007, noting that the Township is updating its Sewage Facilities Plan, is proposing to adopt an OLDS Management Program, and is evaluating the use of individual/community treatment facilities to replace malfunctioning on-lot sewage disposal facilities.

Plans Developed Under Title II of the Clean Water Act and Titles II and VI of the Water Quality Act of 1987

Plans developed under the Clean Water Act (Title II) contain waste treatment management plan information, and support the application of best practicable waste treatment technology before discharging into receiving waters. Examples of technologies include reclaiming and recycling wastewater, and consideration of advanced waste treatment technologies that confine pollutants. The Township's goals of continuing to utilize on-lot sewage disposal facilities, and minimizing the use of stream discharges where possible, are consistent with the Water Quality Act of 1987.

Township Zoning Ordinance

The Haycock Township Zoning Ordinance of 1975, amended as of September 26, 1994, provides regulatory support of goals and objectives of the Comprehensive Plan relative to preservation of agricultural lands and activities, preservation of natural resources, and accommodating future development. Section 504.m of the Zoning Ordinance addresses sewage disposal, in that all sewage disposal systems, regardless of type, are required to meet the standards and procedures of the Township's Sewage Facilities Plan, Bucks County Department of Health, and PADEP. Applicants are required to demonstrate compliance with sewage disposal provisions of the Zoning Ordinance for all applications associated with zoning or building permits. Several other sections of the Zoning Ordinance address sewage facilities and include specific requirements concerning wastewater facilities for proposed developments. The Sewage Facilities Plan is consistent with wastewater facilities requirements contained within the Zoning Ordinance.

Township Subdivision and Land Development Ordinance

The sewage facilities planning process mandated under Act 537 and the land development review process must be consistent for effective sewage facilities planning. Section 407 of the Subdivision and Land Development Ordinance, adopted on August 7, 2000, requires compliance with the Act 537 planning procedures contained in 25 PA Code, Chapter 71. Section 520 requires consistency with the Township's Official Sewage Facilities Plan; design approval from the appropriate regulatory agencies; and the recent Subdivision and Land Development Ordinance Amendment (Ordinance 106) provides for replacement on-lot sewage disposal system areas on each new lot created as part of a subdivision and land development proposal. The Sewage Facilities Plan is consistent with provisions of the Subdivision and Land Development Ordinance related to sewage disposal.

Stormwater Management Ordinance

The Haycock Township Stormwater Management Ordinance (Ordinance 91) adopted on October 7, 2002, was prepared in accordance with requirements of the Bucks County Planning Commission and Pennsylvania Department of Environmental Protection as promulgated under Act 167. Stormwater Management Ordinance 91 is a Township-wide Stormwater Management Ordinance regulating activities which increase the rate and volume of stormwater runoff. Design standards contained within the Stormwater Management Ordinance require consideration of infiltration techniques to encourage groundwater recharge, and development of constructed wetlands to improve water quality, wildlife habitat, and base flow of streams. The Sewage Facilities Plan is consistent with requirements contained within the Township Stormwater Management Ordinance.

Township Open Space Plan

The Haycock Township Open Space Plan recognizes that remaining open space areas are vulnerable to development, and farms and natural areas may disappear completely unless action is taken. The Sewage Facilities Plan is consistent with policies and recommendations of the Township Open Space Plan relating to protection of natural areas and agricultural land/activities.

Anti-degradation Requirements (PA Code, Title 25, Chapters 93, 95 and 102)

Sewage Facilities Plan requires use of on-lot sewage disposal facilities utilizing land application methodologies as a first option, and also seeks to minimize use of stream discharge sewage disposal facilities unless necessary to replace existing failed on-lot sewage disposal facilities. Sewage Facilities Plan also proposes to implement operation and maintenance procedures to reduce the potential number of failed sewage disposal facilities, and ensure that property owners are properly maintaining facilities to minimize the potential for degradation of the surface Waters of the Commonwealth. Effluent limits established by NPDES Permits will be based upon technology based effluent limits to maximize the level of treatment of pollutants. Development of new treatment facilities will be consistent with PADEP established technology based permitting effluent limits; and be consistent with special protection and impaired waterway regulations. Sewage Facilities Plan is consistent with antidegradation requirements of PA Code, Title 25, Chapters 93, 95, and 102.

PA Prime Agricultural Land Policy (PA Code Title 4, Chapter 7)

Policies established within the Haycock Township Sewage Facilities Plan are consistent with natural resource protection requirements of the Zoning Ordinance. The Township should consider amending the Zoning Ordinance to specifically protect prime agricultural soils and soils of statewide importance. Additionally, riparian corridors, which are referenced in the Township Stormwater Management Ordinance, should be included in natural resource protection requirements of the Zoning Ordinance. The recommended alternatives are consistent with goals and objectives of the Township and State to promote continuation of agricultural activity and preservation of agricultural land.

Wetland Protection (PA Code Title 25, Chapter 105)

The construction and operation of wastewater systems proposed in the Haycock Township Sewage Facilities Plan are not anticipated to adversely impact any wetland areas identified on National Wetland Inventory Maps. In the event that sewage treatment facilities are proposed pursuant to the Township's Sewage Facilities Plan, discharge of treated effluent from the facilities is required to pass through a tertiary treatment area designed as constructed wetlands, or otherwise discharge directly to wetlands, to enable creation and enhancement of wetland areas within the Township. Additionally, the Sewage Facilities Plan, coordinated with the Township Zoning Ordinance and Subdivision and Land Development Ordinance, requires additional protection of wetlands not identified on the National Wetland Inventory Maps and promotes development of new constructed wetlands for both stormwater management and wastewater facilities.

Pennsylvania Natural Diversity Inventory (PA Code, Title 25, Chapter 71.21)

No potential conflict with ecological resources of special concern is anticipated. Haycock Township is not proposing construction of new facilities as part of the Act 537 Plan Update. A PNDI Search is required for all developments, including sewage treatment facilities to be constructed in Haycock Township.

Pennsylvania Historic Preservation Act (P.C.S. Title 37, Section 507)

No potential impact on historic or archeological resources is anticipated, as no new facilities are proposed to be constructed as part of the Act 537 Plan. All proposed development is required to contact the PHMC in conjunction with site specific sewage facilities planning.

National Wild and Scenic Rivers Program

In October 2000, 65.6 miles of the Lower Delaware River were designated as a component of the National Wild and Scenic Rivers System. This stretch of river is now eligible for federal funds for conservation efforts. The designation also means that federally financed dams, highways, and other infrastructure projects are now prohibited. The selected sewage alternative proposes no impact to the Delaware River.

State Water Plans

State Water Plans are management tools developed to conserve water, develop drinking water sources, and to administer water and land resources in Pennsylvania. The State Water Plan advocates water conservation, protection of floodplains, containment of floodwaters, and limiting pollution from areas experiencing sewage disposal malfunctions. The entire Township relies on onsite wells for water supply. The Sewage Facilities Plan is consistent with the State Water Plan, considering the plan emphasizes the use of land application methods of sewage treatment, the development of an OLDS Management Program to reduce the number of malfunctioning sewage disposal systems, and the proper planning and minimization of sewage treatment facilities with stream discharge assist in protecting the groundwater supply and quality of surface water discharge.

<u>Summary</u>

The selected sewage disposal alternatives identified in Chapter 7 require use of onsite or land application individual and community sewage disposal systems, implementation of a Sewage Management Program, and use of sewage treatment plants with stream discharge when necessary to replace failed on-lot systems. Revisions to the Zoning Ordinance are recommended to ensure protection of prime agricultural land and riparian corridors. All sewage disposal alternatives will be consistent with the above programs and all applicable technical and legislative requirements.

B. FINANCIAL ALTERNATIVES

As no structural improvements such as public sewer extension or new sewage treatment facilities are proposed, cost estimates for construction are not necessary. However, various funding mechanisms are discussed below to assist in reducing or offsetting costs associated with development of new sewage facilities and ongoing operation and maintenance. The programs highlighted are state programs available to individual property owners, municipalities, and municipal authorities. There may be other state and federal programs available depending on the project scope. Based on selected sewage alternatives in the plan, individual property owners are responsible for new sewage system construction and repair/replacement of existing systems as needed. As such, the Township will provide property owners with information regarding available funding, as appropriate.

With respect to Township OLDS Management Program, ongoing administrative costs will be incurred by the Township. Specific costs will be finalized upon determination of the structure of the program. The Township will investigate use of PADEP Sewage Enforcement Reimbursement Grants to offset costs of the program.

Community Development Block Grant (CDBG)

This program provides grant assistance and technical assistance to aid communities in their community and economic development efforts. There are two components: the entitlement program which provides annual funding to 27 third class cities, 127 boroughs and townships, and 54 counties; and a competitive program which is available to all nonfederal entitlement municipalities in Pennsylvania.

Eligibility – Local governments that are not designated by HUD as urban counties or entitlement municipalities.

Eligible Uses – Housing and rehabilitation, public services, community facilities, infrastructure improvements, development, and planning.

Where to Apply – Entitlement Program: Scott Dunwoody at 717-720-7402 or e-mail <u>sdunwoody@state.pa.us</u>; Competitive Program: Tom Brennan at 717-720-7403 or e-mail <u>tbrennan@state.pa.us</u>.

Amounts – Entitlement Program – Set by formula; Competitive Program - \$500,000.00 maximum.

Terms/Conditions – 70 percent of each grant must be used for activities that benefit lowand moderate-income persons. Refer to the Program Guidelines.

Pennsylvania Infrastructure Investment Authority (PENNVEST)

This program provides low-interest loans for the design, engineering, and construction of publicly and privately owned drinking water distribution and treatment facilities, stormwater conveyance and wastewater treatment and collection systems.

Eligibility – Communities or private firms needing clean drinking water distribution and treatment facilities and/or safe sewage and stormwater conveyance and treatment facilities.

Eligible Uses – Design, engineering, and construction of publicly and privately owned drinking water distribution and treatment facilities, stormwater conveyance, and wastewater treatment systems.

Contact Telephone Number - 717-787-8137

Amounts – Loans up to \$11 million per project for one municipality; up to \$20 million for more than one municipality; up to \$2 million for design and engineering; up to 100% of the total project costs.

Terms/Conditions – 1 percent to 5 percent interest rate, depending upon the resulting user rates in the community.

Section 108 Loan Guarantee Programs

This program provides loan guarantees as security for federal loans.

Eligibility – Local governments that are not designated by HUD as urban counties or entitlement municipalities.

Eligible Uses – Acquisition, rehabilitation, relocation, clearance, site preparation, special economic development activities for certain public facilities, and housing construction.

Where to Apply – Scott Dunwoody at 717-720-7402 or e-mail <u>sdunwoody@state.pa.us;</u> Tom Brennan at 717-720-7403 or e-mail <u>tbrennan@state.pa.us</u>.

Amounts – Varies depending on applicant.

Terms/Conditions – Refer to the Program Guidelines.

Land Use Planning and Technical Assistance Program (LUPTAP)

This program provides grant funds for the preparation of community comprehensive plans and the Ordinances to implement them. It promotes cooperation between municipalities in making sound land use decisions that follow or adhere to the Governor's Executive Order on Land Use.

Eligibility – Priority is given to any county government acting on behalf of its municipalities, any group of two or more municipalities, or a body authorized to act on behalf of two or more municipalities.

Eligible Uses – Preparing and updating of comprehensive community development plans, policies, and implementing mechanisms such of Zoning Ordinances, Subdivision Regulations, functional plans, such as downtown revitalization, water resource plans, and land development regulations.

Where to Apply – Kerry Wilson at 1-888-223-6837 or e-mail kerwilson@state.pa.us.

Amounts – Applicants are to provide a minimum of 50 percent match consisting of cash or in-kind services. There are no minimum or maximum amounts.

Terms/Conditions – Contracts for assistance are generally given for a two- to three-year period. Refer to the Program Guidelines.

Local Government Capital Projects Loan Program

This program provides low-interest loans for the equipment and facility needs for small local governments.

Eligibility – Local governments with populations of 12,000 or less.

Eligible Uses – Rolling stock and data processing equipment purchases or the purchase, construction, renovation, or rehabilitation of municipal facilities.

Where to Apply – Sharon Grau at 1-888-223-6837 or e-mail sgrau@state.pa.us.

Amounts – 50 percent of the total cost of purchasing equipment up to a maximum of \$25,000.00, or 50 percent of the total cost for purchase, construction, or renovation of municipal facilities up to a maximum of \$50,000.00.

Terms/Conditions – Loans are 2 percent and are repaid over a period not to exceed 10 years or the useful life of the equipment of facility. Refer to the Program Guidelines.

Shared Municipal Services

This program provides funds that promote cooperation among municipalities. The program also encourages more efficient and effective delivery of municipal services on a cooperative basis.

Eligibility – Two or more local governments or Councils of Governments (COGs).

Eligible Uses – Combined police administration, shared personnel activities, joint ownership of equipment, shared data processing operations, joint sign making, and COG start-up funding.

Where to Apply – Fred Reddig at 1-888-223-6837 or e-mail freddig@state.pa.us.

Amounts – There is no minimum or maximum amounts. Grants range from \$10,000.00 to \$25,000.00.

Terms/Conditions – Applicants are to provide a minimum of 50 percent match consisting of cash or in-kind services. Refer to the Program Guidelines.

DEP Act 537 Sewage Facilities Planning Grants

Grants are awarded for 50 percent of the costs associated with the preparation of sewage facilities plans required by the PA Sewage Facilities Act (Act 537).

Eligibility – PA cities, towns, boroughs, townships, counties, and municipal authorities are eligible.

Eligible Uses – Financial assistance is provided for the preparation of official sewage facilities plans and revisions to official plans as required by the Act.

Where to Apply – Contact the PADEP Regional Office. All planning documents, reports, schedules, and studies will be reviewed and analyzed by PADEP. Projects are selected on the basis of need and are prioritized with regard to the extent of planning is required.

DEP Act 537 Sewage Enforcement Reimbursement Grants

Annual grants fund 50 percent of the eligible expenses for performing the on-lot sewage system permitting provisions of Act 537, the Sewage Facilities Act. These grants are funded by annual appropriations of state funds.

Eligibility – PA cities, towns, boroughs, townships, and other entities created by law for enforcing the Sewage Facilities Act shall receive reimbursement for expenses incurred pursuant to department regulations.

Eligible Uses – This program enables applicants to minimize the application costs for permits to install new or repair existing on-lot sewage systems.

Where to Apply – PADEP maintains a mailing list and sends applications through a mass mailing. Contact PADEP to request an application. Applications must be submitted by March 1 for the preceding calendar year's eligibility.

C. IMPLEMENTATION/ADMINISTRATIVE EVALUATION

Based on the chosen sewage disposal alternative to continue reliance on onsite/land application systems, the primary need for implementation is the adoption of a Sewage Management Program. This program will assist in preventing malfunctions, identifying required repairs, and protection of surface and groundwater resources. The program does not require phasing, except for establishing schedules for initial septic tank pumping. The Township must also coordinate a public education and technical assistance program to facilitate dissemination of information to property owners on the importance of properly maintaining on-lot sewage disposal systems.

PADEP and Bucks County Health Department will continue to control design and permitting of sewage disposal systems. The Township will increase its involvement by adoption of the Sewage Facilities Plan and a Sewage Management Program. The Township may require additional personnel/expertise and/or technical/administrative training to administer the OLDS Management Program, which may also include additional oversight of operation and maintenance of small flow treatment facilities. As discussed in Chapter 6, as more municipalities develop similar programs, joint or cooperative administration of the Sewage Management Program may be investigated.

It is not anticipated that a municipal authority will be necessary to administer the Sewage Management Program. Enforcement of the terms of the various operation and maintenance agreements executed between the Township and property owners will be financed by the deposit of nonrefundable escrow funds by the applicant at the time of agreement execution, which will subsidize the Township's cost to ensure implementation of any required repairs, inspections, and enforcement proceedings incurred by Township staff, consultants, or legal counsel. Cost for preparation of the required operation and maintenance agreements is borne by the applicants for the proposed sewage disposal facility, and cover the cost for engineering review and legal costs associated with the preparation and recordation of legal documents.

CHAPTER 9 PLAN RECOMMENDATIONS AND IMPLEMENTATION SCHEDULE

A. RECOMMENDED PLAN

Recommended plan for sewage facilities within Haycock Township include the following key elements:

- 1. Increased level of municipal involvement in sewage facilities planning and maintenance via implementation of a public education program for OLDS.
- 2. Adoption of an Ordinance to implement an OLDS Management Program.
- 3. Implementation of a sewage facilities alternative selection process and hierarchy of permitted system alternatives for all developments to ensure installation of the most environmentally sensitive disposal/treatment facilities consistent with Township goals and policies.
- 4. Continued use of on-lot disposal systems and individual/community treatment facility systems (where appropriate) to increase groundwater recharge potential, and protect natural resources, including special protection watersheds and impaired waterways.
- 5. Limit the use of small flow treatment facilities for those properties requiring replacement of existing on-lot failed septic systems (where land application methods are no longer viable); and incorporate design requirements for stream discharge based sewage disposal facilities including use of tertiary treatment of effluent via constructed wetland areas.
- 6. Revise the Zoning Ordinance to include protection of Prime Agricultural Soils and Soils of Statewide Importance, and riparian buffer requirements within natural resource protection section of the Zoning Ordinance.
- 7. Evaluate the future needs for sewage disposal within high density areas, including the villages of Applebachsville and Strawntown, and the Old School Road neighborhood. Evaluation must be accomplished when, and if, more than 25% on-lot sewage disposal system failure is documented in any one high density area.

IMPLEMENTATION SCHEDULE

•	PADEP approval of Act 537 Plan	Time 0
•	Adoption of Sewage Management Ordinance	+2 months
•	Adoption of Agricultural Soils Zoning Ordinance and riparian buffer revision	+6 months
•	Preparation of educational materials for distribution	+7 months
•	Commence septic tank pumping program	+1 year
•	Assist homeowners as requested	Ongoing

• Further evaluate needs for sewage disposal within high density areas

-	Threshold of 25% failed systems in study area is exceeded	Time 0
-	Setup Plan of Study Meeting w/PADEP	+1 month
-	Prepare analysis of study area and adoption of plan amendment to address area of failures	+1 year

C. PROJECT FINANCING

Private ownership/operation and maintenance of on-lot sewage disposal systems will continue, with costs associated with maintenance and operation of the systems to be the responsibility of the individual property owner. Township costs for implementation of public education and on-lot system maintenance programs will be financed with a combination of general tax revenues, user fees, and PADEP reimbursement. Township costs for inspection/monitoring and verification of report compliance for alternate systems will be user financed. Costs associated with design and installation of community sewer collection/treatment facilities (if proposed) will be borne by the project developer.

APPENDIX A

Correspondences

Haycock Townshi

Bucks County, Fennsylvania Office of the Secretary 640 Harrisburg School Road Quakertown, Pa. 18951

January 13, 2009

Mr. Clinton Cleaver Water Management Pennsylvania Department of Environmental Protection 2 East Main Street Norristown, PA 19401-4915

Subject: Act 537 Sewage Facilities Plan Update Haycock Township, Bucks County File No. 63-017

Dear Mr. Cleaver,

At their regularly scheduled meeting held on January 5, 2009, the Haycock Township Board of Supervisors approved a motion to authorize preparation of an update to the Township Sewage Facilities Plan. The official plan update will conform to requirements of Chapter 71 of the Department of Environmental Protection Rules and Regulations promulgated under the Pennsylvania Sewage Facilities Act; and "Sewage Facilities Planning, a Guide for Preparing Act 537 Update Revisions", dated February 4, 1998, latest revision date January 7, 2003, as published by PADEP. As you may recall, the Township representatives met with your staff on September 24, 2008, to discuss issues related to the Act 537 Plan Update. Pursuant to that meeting, enclosed is a "Task/Activity Report", which includes an estimate of project costs relative to engineering/administrative/legal tasks that must be completed by the Township in conjunction with the Act 537 Plan Update. Task activities referenced on the enclosed report are based on numbering of required items contained within the "Act 537 Plan Content and Environmental Assessment Checklist" form prepared by PADEP. The following is a summary of items that will be completed in conjunction with the Act 537 Plan Update:

- 1. Review and identification of prior Township Act 537 Planning, including amendments for new land development, planning "exemptions", and status of plan implementation.
- 2. Review of available mapping, and preparation of updated mapping, showing required plan components associated with natural resources and Township demographics, which is based on available data and supplemented, as necessary, with field inspection.
- 3. Identification of existing sewage facilities needs, by research of Township, Bucks County Department of Health, and PADEP records relative to locations and types of permitted sewage disposal facilities. Documentation of existing sewage disposal facilities Operation and Maintenance Agreements will be provided. Locations of documented malfunctioning on-lot sewage disposal systems will also be inventoried, as may be determined based on research of available Bucks County Department of Health and Township records, and supplemented by mail survey and field inspection, if determined to be necessary.
- 4. Analysis of future growth and land development, documented based on existing zoning and land uses within the Township; and identification of areas anticipated for future growth based on existing

liga Alba

Mr. Clinton Cleaver Subject: Act 537 Sewage Facilities Plan Update January 13, 2009 Page 2

data, projections, and Township comprehensive planning.

- 5. Identification of alternatives to provide new/improved sewage disposal, including implementation of sewage management programs to assure the future operation and maintenance of sewage facilities.
- Evaluation of alternatives for sewage disposal based on the effectiveness to satisfy existing and future needs considering physical/demographic features, cost, and compliance with water quality requirements of PADEP.
- 7. Evaluation of Township financial and administrative capabilities to implement proposed alternatives.
- 8. Determination of an implementation schedule and justification for selecting technical and institutional alternatives, which best meet the needs of the Township, and provision of a financing plan.
- 9. Miscellaneous costs itemized in the Task/Activity Report include development of the Task/Activity Report; preparation of an adoption resolution/advertisement; completion of the PADEP Checklist; submission to, and evaluation of comments from, state, county, local agencies, and general public; preparation of reimbursement requests; attendance at committee/public meetings; secretarial costs; miscellaneous reproduction and copying costs; and Township administrative/legal costs.

The entire Township will be considered as one study area for the purposes of the Sewage Facilities Plan, noting special considerations associated with village areas and areas planned for future high density residential and industrial development. Enclosed is a map of the Township for your reference.

Please advise if you require additional information to complete your review. Haycock Township will not commence preparation of the Sewage Facilities Plan Update revision until written concurrence of the proposed plan content is received from PADEP.

If you have any questions or require additional information, do not hesitate to contact this office.

Very Truly Yours.

Timothy Fulmer, P.E. Township Engineer

TAF/ajp

Enclosures

cc: Board of Supervisors (w/o enclosures)

Nancy Yodis, Township Secretary/Treasurer (w/enclosures) Courtney Vanous, PADEP (w/enclosures)

Fax 215-536-7211

3800-FM-WSFR0005 9/2005

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

TASK/ACTIVITY REPORT

Haycock Townshi

Bucks County

Proposed Planning Area (Attach Map) ENTIRE TOWNSITH

11/08 Date of Report

Use Additional Sheets if Necessary Column Headings May Be Changed To Suit The Needs of the Planning Effort 0102 Date Completed plan will be submitted to DEP

Sheet_ 65,000,00

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Estimated Cost of Plan

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TWP. ENERNEER

TIMOTHY A. FULMER Name of Person Completing Report

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	63-017 Pennsylvania Department of Environmental Protection									
	2 East Main Street Norristown, PA 19401 February 12, 2009	WINIS.								
Southeast Regional Office	RECEIVED Phone: 44 MAR 1 5 2008	84-250-5970 84-250-5971								
Ms. Nancy M. Yodis, Secretary Haycock Township 640 Harrisburg School Road	C. ROBERT WYNN ASSOCIATES. INC.									

Re: Act 537 - Plan of Study Haycock Township Plan of Study Haycock Township Bucks County

Dear Ms. Yodis:

Ouakertown, PA 18951

The Department of Environmental Protection (Department) has completed its review of your municipality's proposed Plan of Study, as prepared by C. Robert Wynn Associates, Inc., dated January 13, 2009.

The Plan of Study proposes the development of a plan that will evaluate the sewage disposal needs of the entire township. Approval of this proposed Plan of Study is hereby granted. The estimated cost of the plan is \$65,000.

Please note, however, that this Plan of Study approval does not constitute a final action by the Department. When a completed plan is submitted, the Department will act upon it consistent with Pa. Code Title 25, Chapter 71.

Please consider the following comments as your municipality prepares its Act 537 official plan update:

- 1. Please note that the USDA Web Soil Survey has the capability to compile a soil suitability report consistent with Pennsylvania requirements for on-lot systems. This website can be accessed at http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx .
- 2. Due to the age of the township's current plan, the Department strongly recommends that a mail survey be conducted to determine the township's sewerage needs and more accurately document malfunctioning on-lot systems. Please consult the Department's publication titled *Sewage Disposal Needs Identification* for guidance.

Ms. Nancy M. Yodis, Secretary

Haycock Township's Act 537 Official Plan Update is to be formatted as suggested in "A Guide for Preparing Act 537 Update Revisions," including the necessary items listed in the "Act 537 Plan Content and Environmental Assessment Checklist." All necessary items must be included, and a copy of the completed checklist must be included with your Act 537 Plan. This form is available on our website at: http://www.dep.state.pa.us/dep/deputate/watermgt/wqp/Forms/Act537/Forms_537Plan.htm .

This plan may affect municipalities other than Haycock Township. We urge you to coordinate with these municipalities early in the planning process in order to facilitate the review of your plan.

Also, please be advised that the Department will not pay grants under the act for planning costs incurred prior to the date of this Plan of Study approval or for information that has been completed previously under local, state, or federal funding programs.

If a public sewerage system such as a wastewater treatment plant or a municipal spray irrigation system is chosen through the sewage facilities plan, new land developments in the proposed connection area will not be eligible for exemptions from sewage facilities planning under Chapter 71, Section 71.51(b)(2) until after the receiving facilities have been constructed. Applicants proposing projects that will coordinate new development construction with the construction of municipal conveyance or treatment facilities must submit Sewage Facilities Planning Modules for adoption by the municipality and approval by the Department.

If you have any questions, please contact me at 484-250-5133.

Sincerely, Courtney Vanous

Courtney Vanous Environmental Trainee Water Management

cc: Bucks County Planning Commission Bucks County Health Department C. Robert Wynn Associates, Inc. Mr. McHale - RCSOB Planning Section Re 30 (joh09wqm)042-14

C. OBERT WYNN ASSOCIATES, IN.



MUNICIPAL & CIVIL ENGINEERING

211 West Broad Street • Quakertown • PA • 18951 (215) 536-7336 · FAX (215) 536-5361

April 29, 2009

Mr. Robert Diegle Bucks County Department of Health 261 California Road Quakertown, PA 18951

Act 537 Sewage Facilities Plan Update Subject: Havcock Township File No. 63-017

Dear Mr. Diegle,

PADEP has determined that Haycock Township must update its official Sewage Facilities Plan, which is over 25 years old. Accordingly, this office is researching information relative to the location and status of existing holding tanks, spray irrigation systems, small flow treatment facilities, and other sewage treatment facilities within the Township. Enclosed is a list of known small flow treatment facilities, individual residential spray irrigation systems, and other treatment facilities within the Township. Please compare this information with your files, and advise of any discrepancies or additions. Also, it is requested that you advise this office of any areas of the Township where there are known or suspected onsite sewage disposal system failures, for inclusion in the proposed Act 537 Plan Update.

Your anticipated cooperation in the above matter is greatly appreciated. If you have any questions, or require additional information, do not hesitate to contact this office.

> Verv Trulv Yours. Immitty G, Filmer, P.E.

TAF/ajp Enclosure cc: Nancy Yodis, Township Secretary/Treasurer (w/enclosure)

IRSIS

Jill Vogt 735 Creamery Road Quakertown, PA 18951 14-001-009-006

Randall and Michele White 798 Beck Road Quakertown, PA 18951 14-001-014

Louis Menta 790 Beck Road Quakertown, PA 18951 14-001-014-002

SMALL FLOW

David Keough 1241 Roundhouse Road Quakertown, PA 18951 14-002-072-005

Bryan Gill 506 Old Bethlehem Road Quakertown, PA 18951 14-007-084-001

Edward and Lois Keller 1059 Old Bethlehem Road Quakertown, PA 18951 14-002-039-009

Lon and Stacy Moyer 1071 Old Bethlehem Road Quakertown, PA 18951 14-002-039-008

Thomas and Michelle Kemmerer 829 Haycock Run Road Kintnersville, PA 18930 14-010-058

Thomas and Stephanie Marrone 2141 Mountain View Drive Quakertown, PA 18951 14-013-025-006

Sandra Rabenold 1187 Old School Road Quakertown, PA 18951 14-002-072-004

SMALL FLOW

Richard and Paulette Yerger 1172 Doylestown Pike Quakertown, PA 18951 14-001-012

Alan Morgan 1392 Cobbler Road Quakertown, PA 18951 14-007-126

Courtney Keep 932 Beck Road Quakertown, PA 18951 14-002-023

Newton Beck 1248 East Sawmill Road Quakertown, PA 18951 14-009-003

Replogle (barn) 1079 Old Bethlehem Road Quakertown, PA 18951 14-002-039

Sandra Rabenold Old School Road Quakertown, PA 18951 14-002-072-006 lot 3
OTHER (A/B Systems, STP, etz)

Joseph and Vickie O'Neill 1186 Hickory Lane Quakertown, PA 18951 14-002-016

Earl Winters 923 West Sawmill Road Quakertown, PA 18951 14-002-021-001

Richard Landgreen lot 1 Richard Landgreen lot 2 $\int Tmr \neq 14-4-1$

Thomas Murray 1132 West Sawmill Road Quakertown, PA 18951 14-002-057-006

OTHER

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Freedom Valley Girl Scout 14-006-

Nockamixon State Park

C. KOBERT WYNN ASSOCIATES, IN...



MUNICIPAL & CIVIL ENGINEERING 211 West Broad Street - Quakertown · PA · 18951 (215) 536-7336 · FAX (215) 536-5361

Memo to File Act 537 Revision Haycock Township May 13, 2009 File No. 63-017

On May 12, 2009, this office received a telephone call from Robert Diegle, Bucks County Department of Health, who advised that he reviewed Health Department records relative to the existence of active sewage disposal system malfunctions and other alternate sewage disposal systems within the Township, in response to correspondence dated April 29, 2009 from this office. Mr. Diegle advised of the following:

- 1. TMP #14-7-28 (Sicher) contains a permitted drip irrigation system.
- 2. TMP #14-11-3-2 and TMP #14-7-71 contain active malfunctioning sewage disposal systems, which are currently under order to be repaired by the property owners; or in the alternate, property owners must vacate the premises. Mr. Diegle also advised that the Haycock Elementary School parcel currently contains an inadequate sewage disposal system, which is being investigated by the Quakertown Area School District for repair/replacement.

(TAF/ajp)

C. -- OBERT WYNN ASSOCIATES, IN-

MUNICIPAL & CIVIL ENGINEERING 211 West Broad Street - Quakertown - PA - 18951 (215) 536-7336 - FAX (215) 536-5361



Haycock Township Property Owner

Subject: Haycock Township Sewage Facilities Plan Amendment Sewage Needs Survey File No. 63-017

Dear Property Owner,

This office serves as Municipal Engineer for Haycock Township. Haycock Township has recently been directed by the Pennsylvania Department of Environmental Protection (PADEP) to complete a comprehensive update of the Township's Official Sewage Facilities (Act 537) Plan, which was originally adopted by the Township in 1985. The Sewage Facilities Plan is a document that outlines the Township's plan to satisfy existing and proposed needs for sewage disposal within the Township.

In order to complete preparation of the Sewage Facilities Plan Update pursuant to PADEP regulations, the Township is seeking input from property owners regarding the current method of sewage disposal and water service for each property in Haycock Township. Enclosed is a "Haycock Township Sewage Needs Survey" form, which contains several questions related to your property, water supply system, and sewage disposal system, to assist the Township in compiling information for preparation of the Sewage Facilities Plan Update mandated by PADEP.

Please complete the enclosed survey form, and return the form to Haycock Township at your earliest convenience. The survey form may also be found on the Township's website (<u>www.haycocktwp.com</u>). If your property is currently vacant (e.g. does not contain any structures or uses that require sewage disposal facilities), return the form with the printed phrase "vacant property" on top of the form.

Haycock Township thanks you for your help in this survey effort.

V<u>erv. Tru</u>ly Yours U. Kulmer

MINIS

Timothy Fulmer, P.E

TAF/ajp Enclosure cc: Nancy Yodis, Township Secretary/Treasurer

HAYCOCK TOWNSHIP SEWAGE NEEDS SURVEY

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	(Property owner)
e	et Address:
	(Property)
	How many people live in your home?
	Approximately how large is your lot?
	less than ¼ Ac ½ Ac to 1 Ac 2 Ac to 5 Ac
	¼ Ac to ½ Ac 1 Ac to 2 Ac greater than 5 Ac
	What kind of water supply system do you have?
	wellspringother (please specify)
	What kind of sewage system do you have?
	inground bed/trench spray irrigation system
	elevated sandmoundsmall flow treatment plant
	holding tank cesspool
	other (please specify)
	How old is your sewage system? Was a Bucks County Health Department permit issued ? (y/n)
	Was your septic tank ever pumped out? (y/n) If so, how often?
	Was your sewage system ever repaired? (y/n) If so, when?
	Have you ever noticed any of the following near your sewage system? (check all that apply)
	green lush grass wetness or spongy areas
	odors water ponding or surfacing
	sluggish drains wastewater backing into the home
	system overflow other (please specify)
	Are you aware of any other sewage issues related to your property, or the surrounding area?



Bucks County, Pennsylvania Office of the Secretary 640 Harrisburg School Road Quakertown, Pa. 18951

February 18, 2011

CERTIFIED/RETURN RECEIPT

Elizabeth Mahoney, Supervisor Water Management PADEP 2 East Main Street Norristown, PA 19401-4915

Subject: Sewage Facilities Plan Update Haycock Township, Bucks County File No. 63-017

Dear Ms. Mahoney,

As you are aware, PADEP has notified Haycock Township (within correspondence dated August 22, 2008 regarding the Planning Module for Land Development pertaining to the Newton Beck property) that the Township must update its existing Sewage Facilities Plan, which is over 25 years old. Accordingly, Township representatives met with representatives of PADEP on September 24, 2008 to discuss a "Plan of Study" relative to updating the Township's Sewage Facilities Plan. Enclosed for your review is a copy of PADEP's "Act 537 Plan Content and Environmental Assessment Checklist", and three copies of the Sewage Facilities Plan, dated February 7, 2011, which was adopted by Resolution of the Board of Supervisors on February 7, 2011. (A copy of the Plan Adoption Resolution is included in Appendix D of the Sewage Facilities Plan)

Correspondence dated February 12, 2009 from PADEP approved the Township's "Plan of Study" under which the Sewage Facilities Plan Update was prepared. As referenced within the PADEP correspondence, the Township has completed a mail survey to assess the existing sewage needs of the Township. Additionally, plan also includes a draft "Sewage Management Ordinance" (found in Appendix B of the plan), which is intended to be adopted by the Township upon approval by PADEP so that the Township may undertake a more active role in ensuring that property owners are maintaining sewage disposal systems in accordance with requirements of PADEP.

Please review the enclosed plan and documentation, and advise the Township of any concerns at your earliest convenience.

Timothy Fulmer, P.E. Township Engineer

TAF/ajp Enclosures cc: Nancy Yodis, Township Secretary/Treasurer (w/enclosures)

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Phone 215-536-3641

nyodis@haycocktownship.com

63-017



SOUTHEAST REGIONAL OFFICE

DECEIVE JUN 1 7 2011 C. Robert Wynn Associates, Inc.

June 15, 2011

Ms. Nancy M. Yodis, Secretary Haycock Township 640 Harrisburg School Road Quakertown, PA 18951

Re: Act 537 Plan Update APS ID 743481, AUTH ID 869869 Haycock Township Bucks County

Dear Ms. Yodis:

On February 23, 2011, this office received your Proposed Official Sewage Facilities Plan Update (Plan) for Haycock Township (Township), Bucks County entitled "Sewage Facilities Plan" as prepared by C. Robert Wynn Associates, Inc., dated February 7, 2011. This Plan is being submitted to the Department of Environmental Protection (Department) in accordance with the provisions set forth by Section 5 of the Pennsylvania Sewage Facilities Act and Chapter 71, the Administration of Sewage Facilities Program.

A preliminary review has indicated that the plan update is incomplete and not in accordance with the provisions set forth in Chapter 71 for the following reasons:

- 1. Please provide an up-to-date implementation schedule. We recommend that the revised schedule not include specific dates but rather start with Act 537 Sewage Facilities Planning approval as "Time Zero." Each subsequent milestone should be listed as occurring days or months from Time Zero in accordance with estimated dates of submission and regulatory time limits for reviewing applications. Please include a time frame for Item 7.
- 2. Please provide page 2 of the Bucks County Planning Commission review of this plan.
- 3. The Haycock Elementary School was identified by the Bucks County Health Department's Sewage Enforcement Officer as currently containing an inadequate sewage disposal system; please expand on and clarify this subject. The Township should consider the area of concern that includes a confirmed malfunction and suspected malfunctions on the small lots situated along Old Bethlehem Road in close vicinity of the school as indicated in Figure 3-2, Mail Survey Results Map and their inclusion in any update to the existing inadequate system that currently serves the school.

- 4. Previous planning efforts that involved the Township identified the major village centers as the most problematic areas of on-site septic systems. Although the use of centralized sewage disposal facilities to address possible sewage disposal needs in the village and commercial areas was considered, no detailed analysis of the location or placement of these systems, construction of collection facilities, or possible funding sources to offset costs of the individual residents were discussed for this option. Please include the above in your evaluation of Item 7 of the Resolution of Adoption.
- 5. Please update Figure 3-1, Sewage Facilities Map to include any parcels that currently depend upon the use of holding tanks for their sewage disposal needs. Please indicate if their use is residential or commercial.
- 6. Please include an Operation and Maintenance Agreement for holding tanks in your resubmission.
- 7. It was indicated in your submission that a water supply survey to identify possible contamination by malfunctioning on-lot sewage disposal systems was not completed. Mention was made of samples that have been analyzed for recent development projects and that the Bucks County Health Department has been monitoring several existing township wells. Please provide this data.

When the necessary revisions have been completed, as listed above, this Department will initiate a review in accordance with the provisions of Chapter 71, Administration of the Sewage Facilities Program.

If there are any questions concerning the information required, please contact me at 484.250.5179.

Swagzais Sincerely. inda

Linda Swagzdis Sewage Planning Specialist 1 Water Management

cc: Bucks County Planning Commission Bucks County Health Department C. Robert Wynn Associates, Inc. Planning Section Re 30 (joh11wqm)165-7

Haycock Township

Bucks County, Pennsylvania Office of the Secretary 640 Harrisburg School Road Quakertown, Pa. 18951

August 8, 2011

Certified Mail/Return Receipt

Linda Swagzdis, Sewage Planning Specialist I Water Management of PADEP 2 East Main Street Norristown, PA 19401-4915

Subject: Act 537 Plan Update Supplemental Information Haycock Township, Bucks County File No. 63-017

Dear Ms. Swagzdis,

As a follow-up to your review correspondence dated June 15, 2011, and subsequent conference held at your office on July 21, 2011, Haycock Township is submitting the enclosed supplemental information for your review to address comments raised by PADEP during review of the Sewage Facilities Plan, dated February 7, 2011, prepared by C. Robert Wynn Associates, Inc. The Township offers the following responses to your comments, which are numbered consistent with the comment numbering contained in your June 15, 2011 correspondence:

- 1. The Township has revised the Implementation Schedule (contained in the Plan Summary, Page S-1; and Chapter 9, Page 9-1) to eliminate reference to specific dates, and instead contains a timeline beginning with the approval of the Sewage Facilities Plan as "Time Zero". Implementation Schedule has also been revised to include reference to the possible future evaluation of sewage disposal needs with high-density zoned areas, including the Village Center - 1 and Suburban Residential High Zoning Districts, which will occur when, and if, a 25% on-lot sewage disposal system malfunction rate is achieved within any high-density zoned area.
- Page 2 of the September 1, 2010 Bucks County Planning Commission review correspondence, which was omitted from the original Sewage Facilities Plan, is enclosed for inclusion in Appendix D of the Sewage Facilities Plan. (A copy of Page 2 was also submitted to you at our conference held on July 21, 2011).
- 3. As discussed at our conference held on July 21, 2011, Haycock Elementary School has been closed by the Quakertown Community School District, due to a redistricting plan that is being implemented by the School District. Previously, the School District was requested to permit use of the existing on-lot sewage disposal system on the premises to potentially serve additional properties in the vicinity of the school that may have failing sewage disposal systems. However, the School District declined this request, since the School District parcel also has been noted to have an inadequate sewage disposal system by the Bucks County Department of Health. In the event that the school will be reopened, or in the event that the property will be redeveloped for another use, the property owner is required address the inadequate sewage disposal system situation in a manner satisfactory to the Bucks County Department of Health and Township. The Township and Bucks County Department of Health will coordinate efforts to ensure that the

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Linda Swagzdis, Sewage Planning Specialist I Subject: Act 537 Plan Update August 8, 2011 Page 2

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sewage disposal system inadequacy is addressed in accordance with PADEP requirements, prior to issuance of occupancy permits for the new use.

- 4. The Township intends to further analyze areas of high-density zoning (including Village Center 1 and Suburban Residential High Zoning Districts) if, and when, the percentage of on-lot sewage disposal system failures exceeds 25% within a particular high-density area. In the event that the triggering threshold is reached to initiate further study of the specific area of concern, the Township will contact PADEP to schedule a meeting to discuss the scope of the additional study, which will be confined to the area of interest meeting the triggering threshold criteria. Furthermore, as requested by PADEP, the Township agrees to provide PADEP with a report once every three years from the date of approval of the Sewage Facilities Plan, which outlines the status of malfunctioning/failed on-lot sewage disposal facilities within each high-density area of the Township. It is understood that the purpose of this report is to monitor the rate of malfunctions in critical village and high-density areas to ensure that the Township and PADEP may adequately plan for implementation of the additional area-specific study in the event that the malfunctioning rate exceeds 25%.
- 5. According to available Township records, and information obtained from the Bucks County Department of Health, there are no known existing/permitted holding tanks within Haycock Township. Page 3-5 (copy enclosed) has been amended to include a statement to this effect.
- 6. Enclosed is a copy of an Operation and Maintenance Agreement for holding tanks, as prepared by the Township Solicitor, which will be included in Appendix B of the Sewage Facilities Plan.
- 7. As discussed at our conference held on July 21, 2011, the Township has evaluated available water quality testing information received by the Township in conjunction with new well installation within the Township, to verify whether water quality testing reveals elevated levels of nitrates and/or fecal coliform, which may be indicators of failing sewage disposal facilities. Enclosed is a copy of Figure 3-3, which identifies locations of water quality testing. Based on available water quality testing information for the noted water supply locations, there is no location that exceeds 5 mg/l of nitrates. Additionally, none of the tested locations exhibits evidence of fecal coliform contamination. Page 3-6 (copy enclosed) has been revised to reference Figure 3-3, and documentation relative to water quality testing within the Township.

If you have any questions, do not hesitate to contact me.

Timothy Fulmer, P.E.

TAF/slf v Enclosures cc: Nancy Yodis, Township Secretary/Treasurer (w/enclosures)

Haycack Township

Bucks County, Pennsylvania Office of the Secretary 640 Harrisburg School Road Quakertown, Pa. 18951

September 14, 2011

Linda Swagzdis, Sewage Planning Specialist I Water Management of PADEP 2 East Main Street Norristown, PA 19401-4915

Subject: Act 537 Plan Update Supplemental Information Haycock Township, Bucks County File No. 63-017

Dear Ms. Swagzdis,

As a follow-up to our recent telephone conversation, it is the understanding of Haycock Township that PADEP requests additional clarification relative to high density areas of concern within the Township. Specifically, PADEP requests clarification of areas to be analyzed in the future for failing septic systems, and the criteria utilized to analyze failed systems. Enclosed are revised pages of the Sewage Facilities Planning Module, which have been amended to address the following items:

- "Plan Summary" Pages S-1 and S-2 and "Plan Recommendations and Implementation Schedule" Pages 9-1 and 9-2 have been revised to clarify that the Township intends to evaluate the future needs of sewage disposal within high density areas, including the villages of Applebachsville and Strawntown, and the Old School Road neighborhood. Please note that the Township has now identified specific villages and neighborhoods, as opposed to the previously mentioned Village Center - 1 and Suburban Residential High Zoning Districts.
- 2. Pages 3-6 and 3-7 have been revised to include a new paragraph (beginning at the bottom of Page 3-6 and continuing on the top of Page 3-7) to clarify how the Township intends to monitor the rate of sewage disposal system failure within high density areas of concern. Additionally, "High Density Areas of Concern Map" (Figure 3-4) has been added, which identifies the location of the three high density areas intended to be further evaluated by the Township. As shown on Figure 3-4, the number of parcels contained in each specific area is identified for reference. Please note that the areas of the Village of Applebachsville and the Village of Strawntown are not identical to the VC-1 zoned areas, as the village areas shown on the High Density Areas of Concern Map have been expanded to include other small sized parcels that may be problematic relative to future sewage disposal system failures.

Additionally, upon consultation with Bucks County Department of Health, it is the understanding of the Township that the Health Department identifies sewage system failures (which require replacement of the system with a new sewage disposal system) separately from malfunctioning sewage disposal systems that require replacement/repair of an individual component (but not replacement of the entire system). The Township desires to track the number of sewage disposal system failures requiring replacement of the system in each high density area of concern, such that if the rate of system failure in any one high density areas exceeds 25% of the total number of

Linda Swagzdis, Sewage Planning Specialist I Subject: Act 537 Plan Update September 14, 2011 Page 2

parcels in that area, the Township will initiate (upon direction of PADEP) further analysis of the sewage facilities needs within that particular area of concern. As previously noted, the Township agrees to file reports with PADEP every three years, which identify the status of system malfunctions within each area of concern. The Township will coordinate this effort with Bucks County Department of Health, who will assist the Township in providing information on documented system failures/malfunctions on an ongoing basis.

"Table of Contents" page and "Tables and Maps" page have also been revised to reflect new page 3. numbering and the inclusion of a new figure (Figure 3-4)

Please review the enclosed information at your earliest convenience, and advise the Township of any issues.

Timothy Fulmer, P.E.

TAF/slf Enclosures cc: Nancy Yodis, Township Secretary/Treasurer (w/enclosures)

APPENDIX B

Ordinances/Agreements

ORDINANCE NO. 92

AN ORDINANCE OF HAYCOCK TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA, REGULATING THE INSTALLATION AND OPERATION OF INDIVIDUAL RESIDENTIAL SPRAY IRRIGATION SYSTEMS AND REPEALING ORDINANCE NO. 57

The Haycock Township Board of Supervisors hereby ordains:

Section 1. Purpose:

The purpose of this Ordinance is to establish procedures for the installation, use, and maintenance of individual residential spray irrigation systems (IRSIS) within Haycock Township when the system is permitted through the Bucks County Department of Health.

Section 2. <u>Supplemental Standards:</u>

This Ordinance, by reference, hereby incorporates the individual residential spray irrigation system standards of the Department of Environmental Protection, Title 25. Environmental Protection, Chapter 73, dated April 18, 1998, as amended pertaining to design, construction, maintenance, and operation. If the referenced standard is less restrictive, requires a smaller setback, or in any other way is modified by design requirements of Section 3 of this Ordinance, the design requirements of Section 3 of this Ordinance shall govern.

Section 3. Design Requirements:

- A. No component of an IRSIS (including the wetted perimeter of the spray field) shall encroach within the required front, side, or rear yard area designated by the Township Zoning Ordinance.
- B. Whenever the wetted perimeter of the spray irrigation field is located within fifty (50) feet of a property boundary, a fence at least four (4) feet in height of material approved by the Township (such as split rail fencing with wire backing) shall be installed along the property line. Fence shall extend at least twenty-five (25) feet beyond the limits of the spray field.
- C. Buffering
 - 1) Whenever the wetted perimeter of the spray irrigation field is located within one hundred (100) feet, but not less than fifty (50) feet of a property boundary, buffering shall be required as follows:

Buffer plantings shall include a minimum of one (1) evergreen tree per. thirty (30) feet and one (1) canopy tree per forty (40) feet arranged along and within twenty-five (25) feet of the property boundary.

2) Whenever the wetted perimeter of the spray irrigation field is located within fifty (50) feet of a property boundary, buffering shall be required as follows:

Buffer plantings shall include a minimum of one (1) evergreen tree per twenty (20) feet arranged along and within twenty-five (25) feet of the property boundary.

- 3) Buffer plant material shall conform to requirements of the Subdivision and Land Development Ordinance.
- 4) Where natural features/vegetation exist on the site which duplicate or essentially duplicate requirements for buffering, buffer requirements may be waived by the Board of Supervisors.
- D. Spray irrigation of the chlorinated effluent shall be permitted only between the hours of 11:00 PM to 5:00 AM.
- E. Spray nozzles located within fifty (50) feet of a property boundary shall be directed toward the interior of the lot and away from the adjacent property boundary.

Section 4. Procedure for Obtaining an Individual Spray Irrigation System Permit:

- A. Before an IRSIS permit may be issued, the property owner shall:
 - 1) Obtain verification from the Bucks County Department of Health indicating that the site is generally suitable for installation of an IRSIS.
 - 2) File copy of the site plan and design of the proposed IRSIS with the Township.
 - 3) Submit such additional information on size, location, or otherwise as the Township may require in order to complete a review.
 - 4) Pay a fee to the Township for the IRSIS permit in accordance with the appropriate Resolution as adopted by the Board of Supervisors from time to time.
 - 5) Execute an agreement for maintenance and hold the Township harmless in the event of a claim against the Township arising from the operation of the IRSIS.
 - 6) Deposit and/or post the sum of money for security in the form and/or amount as provided by the IRSIS Maintenance Agreement. These funds are to 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 the IRSIS. Board of Supervisors shall have the right to claim the entire escrow deposit as reimbursement for Township expenses.
- B. Permit issued under the terms of this agreement shall become null and void if the IRSIS installation has not been completed to the satisfaction of the Township within two (2) years of the date of issuance.

Section 5. IRSIS Maintenance Agreement:

The owner of a property that utilizes an IRSIS shall execute a maintenance agreement approved by Township to ensure compliance with the regulations and standards of operation and maintenance of the system. The escrow or other security shall be sufficient to cover the cost of future operation and maintenance of the system over its design life up to a maximum of 50% for each of the first two (2) years of operation and not more than 10% for each year thereafter of the equipment and installation cost of the system.

Section 6. Public Sewer Connection:

If public sewage service becomes available to any property utilizing an IRSIS, each and every owner of such properties shall be required to make the necessary connection to the abutting or adjoining sewer line. The IRSIS must be disconnected and disposed of in accordance with applicable Pennsylvania Department of Environmental Protection regulations and connection to the public sewer system shall be made upon notice by the Township and in accordance with the applicable standards of the servicing municipal authority. All authority costs relative to the public sewer connection shall be the responsibility of the property owner.

Section 7. Abatement of Nuisances:

In addition to any other remedies provided by this Ordinance, any violation of the Ordinance shall constitute a nuisance and may be abated by the Township through equilable or legal relief from the Bucks County Court of Common Pleas.

Section 8. <u>Violations:</u>

Any person who violates any provision of this Ordinance shall, upon conviction thereof and summary proceedings, be sentenced to a fine of not more than five-hundred dollars (\$500.00) in costs, or to undergo an imprisonment in the Bucks County Prison for a period not in excess of fifteen (15) days. Each day that a violation of this Ordinance continues shall constitute a separate offense.

Section 9. <u>Repealer:</u>

All Ordinances or parts of Ordinances which are inconsistent herewith are hereby repealed. The following Ordinance is specifically repealed:

Ordinance 57.

Section 10. 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 part of this Ordinance. It is hereby declared that the intent of the Board of Supervisors of Haycock Township that this Ordinance would have been adopted had such unconstitutional, illegal, or invalid sentence, clause, section, or part thereof not been included therein. Section 11. Effective Date:

This Ordinance shall become effective five (5) days after its adoption.

ENACTED AND ORDAINED into an ordinance this 4^{rh} day of <u>NovEmber</u>, A.D., 2002, by the Board of Supervisors of Haycock Township and lawful session fully assembled.

HAYCOCK TOWNSHIP BOARD OF SUPERVISORS

athleen M. Babb, Chair

Michael Lennard, Vice Chair

Henry Depue, Member

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ORDINANCE NO. 106

AN ORDINANCE OF THE TOWNSHIP OF HAYCOCK, BUCKS COUNTY, PENNSYLVANIA AMENDING SECTION 520 OF THE SUBDIVISION AND LAND DEVELOPMENT ORDINANCE OF HAYCOCK TOWNSHIP TO REQUIRE ON-LOT SEWAGE SYSTEMS REPLACEMENT AREAS FOR LOTS TO BE CREATED

A. Whereas, by Ordinance No. 86, enacted August 7, 2000, as amended, Haycock Township Board of Supervisors ("<u>Board</u>") has enacted a Subdivision and Land Development Ordinance ("<u>SALDO</u>") pursuant to its statutory authority, the Pennsylvania Municipalities Planning Code ("<u>MPC</u>"), Act 247 of 1968, as amended (53 P.S. §10101 et seq.);

B. Whereas, the failure of the primary sewage disposal area of an on-lot sewer system presents a significant threat to human health; and through careful study, the Board, with the assistance of its committees, recognizes the benefit of requiring areas designated for replacement on-lot sewage disposal systems for newly created lots and land developments with primary on-lot sewage disposal systems;

C. Whereas, disregard of potential areas that could otherwise provide suitable replacement site for on-lot sewage systems could allow disturbance of soils that would render them unsuitable; and the Board also recognizes that by requiring dedicated areas on each newly created lot or land development for both the primary and replacement systems, each property will have sufficient area to accommodate both the sewage disposal systems and the proposed use;

D. Whereas, the requirement for and protection of replacement locations provide minimum standards for the prevention and suppression of disease and health risks associated with the use of private sewage disposal systems and to otherwise promote continuing public safety, maintain the present and future welfare of residents of Haycock Township, and protection of the environment; and

E. Whereas, the proposed amendment has been advertised, considered and reviewed in accordance with MPC Section 505 and 506 (53 P.S. §10505 and 10506).

NOW, THEREFORE, it is hereby **ENACTED** and **ORDAINED** by the Board of Supervisors of Haycock Township and by authority of same as follows:

Section 01: A new subsection 9 is added to Section 520, of the SALDO, and shall read in full as follows:

- 9. Replacement area for on-lot sewage system.
 - A. Replacement Location Required. A replacement area for the on-lot sewage system shall be required for all lots to be created that are not

serviced or intended to be serviced by public sewers. Where a proposed subdivision includes existing houses, replacement areas must be provided for those houses in addition to all other proposed lots in accordance with the provisions of this ordinance. A minimum isolation distance of twenty (20) feet shall be established between any and all absorption areas of onlot sewage systems and any and all proposed replacement on-lot sewage system absorption areas. However, if the replacement system is to be located down gradient of the primary system, the minimum isolation distance between the primary system absorption area and the replacement system absorption area shall be fifty (50) feet.

Should Pennsylvania Department of Environmental Protection (DEP) or its designated agencies establish isolation distances greater than those established herein by the Township, then DEP's requirements shall supersede said Township requirements and DEP's minimum isolation distance shall be complied with.

- 8. Replacement System. The proposed lot must have sufficient suitable area for the proposed initial sewage disposal system, as well as 100% reserve replacement area. The replacement area shall be in an appropriate location, and sized to allow the installation of an approved sewage disposal area in the event of malfunction of the initial system. Minimum size of the replacement area must equal, or be greater than, the size of the initial system. If the size of the initial system is increased in the future to accommodate additional sewer flows, documentation must be submitted to the Township to verify that the size of the replacement area is sufficient to equal, or exceed, the capacity of the modified initial system. The area shall be protected and reserved for future use as an absorption area with similar design and configuration as the initial system so the reserve area may be utilized for repair or replacement. This replacement area must meet the criteria required by DEP regulations and local ordinances, be tested, and receive soil suitability approval by the Bucks County Department of Health. A holding tank, small flow treatment facility. or other non land application method shall not be designated as a replacement system.
- C. Replacement Area Disturbance Prohibited. Areas reserved for the original and replacement disposal sites may not have driveways, parking areas or structures over them. A Declaration of Restrictions shall be recorded in the Office of 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 matter. A plan depicting the replacement area shall be recorded with the Declaration of Restrictions. If the lot for which the replacement area is required is part of a new subdivision, the

Record Plan shall bear a note stating the restrictions recited above and identifying the lot to which they pertain.

D. Substitution of an Alternate Area. Any person who desires to construct improvements within the replacement area shall demonstrate to the satisfaction of the Bucks County Department of Health and Haycock Township that an alternate replacement location, which complies with all Township and Department of Environmental Protection rules and regulations, exists upon the lot. If such an alternate replacement location shall be identified, the alternate replacement location may be considered to be the replacement location required by this ordinance and shall be designated as the replacement location. A Declaration of Restrictions shall be executed by the parties and shall be recorded in the Office of the Recorder of Deeds Office designating the new replacement area location and vacating the old one.

Section 02: In addition, all inconsistent provisions of other ordinances or resolutions are repealed to the extent of the inconsistency. All other provisions of the ordinances of Haycock Township shall remain in full force and effect.

Section 03: The provisions of this ordinance are declared to be severable. If any provision of this ordinance is declared to be invalid or unconstitutional by a court of competent jurisdiction, such determination shall have no effect on the remaining provisions of this ordinance.

Section 04: Effective Date. This Ordinance shall take effect five (5) days after enactment.

ENACTED and ORDAINED this 6 day of August 2007

ATTEST:

Maners m. Jodia Nancy M. Wodis //

Township Secretary

BOARD OF SUPERVISORS OF HAYCOCK TOWNSHIP

athleen M. Babb, Chair

Michael Lennard, Vice Chair

Henry Depue, Member

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HAYCOCK TOWNSHIP

ORDINANCE NO.

AN ORDINANCE OF THE TOWNSHIP OF HAYCOCK, BUCKS COUNTY, PENNSYLVANIA, REGULATING THE MANAGEMENT AND MAINTENANCE OF INDIVIDUAL AND COMMUNITY SANITARY SEWAGE DISPOSAL FACILITIES WITHIN THE TOWNSHIP.

WHEREAS, the Board of Supervisors of Haycock Township has adopted an update of the Township Sewage Facilities Plan (Act 537), and,

WHEREAS, the Sewage Facilities Plan includes adoption of a sewage management program consistent with the requirements of PA Code, Title 25, Chapter 71.73 program for onlot sewage disposal systems,

NOW, THEREFORE, be it ORDAINED and ENACTED by the Board of Supervisors of Haycock Township as follows:

SECTION 1. Short Title; Introduction; Purpose

- A. This Ordinance shall be known as the "Haycock Township Sewage Management Ordinance."
- B. This Ordinance is adopted pursuant to the authority set forth in the Second Class Township Code, the Pennsylvania Clean Streams Law (35 P.S. §§ 699.1 – 699.1001), and the Pennsylvania Sewage Facilities Act (Act of January 24, 1966), P.L. 1535, as amended, 35 P.S. §750.1, et seq, also known as Act 537. This Ordinance is also adopted pursuant to the official Sewage Facilities Plan adopted for Haycock Township pursuant to Act 537.
- C. This Ordinance is intended to prevent and abate groundwater and surface water pollution and the hazards to public health caused by the improper treatment and disposal of sanitary sewage. This Ordinance is further intended to provide for the inventory and inspection of individual and community sanitary sewage disposal systems within the Township, which said inventory and inspections are designed to provide for the adequate maintenance, management, rehabilitation/repair/ replacement and construction of sewage disposal systems; to permit the Township to intervene in events which are public nuisances or hazards to the public health; and, to establish penalties and appeal procedures necessary for the appropriate administration of the Haycock Township Sanitary Sewage Disposal System Program.
- D. All Ordinances or parts of Ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

SECTION 2. Definitions.

A. <u>Act 537:</u> The Act of January 4, 1966, P.L. 1535, as amended, 35 P.S. Section 750.1 et. seq. known as the Pennsylvania Sewage Facilities Act.

B. <u>Evidence of Malfunction:</u>

- 1. Wet, murky conditions (not resulting from surface water runoff or ponding) in areas designated as the absorption area of an on-lot sanitary sewage disposal system. These conditions are typically accompanied by high grass and/or increased growth in warm, dry months. In the winter, these areas generally do not freeze and the area is typically spongy and soft. Snow does not normally accumulate in these areas.
- 2. There is a discharge of effluent directly or indirectly to the surface of the ground through ponding, surface breakout or damp soils above the disposal area or to a surface water of the Commonwealth.
- There is backup of sewage into the facility served by the system or any component of the system as a result of an overloaded and/or clogged soil absorption system or cesspool.
- 4. The static liquid level in the distribution box is above the level of the outlet invert.
- 5. The liquid depth in a cesspool is less than six (6) inches from the inlet pipe invert or the remaining available volume within a cesspool above the liquid depth is less than ½ of one day's design flow.
- 6. The septic tank or cesspool requires pumping more than four times a year.
- 7. Septic tank and/or the tight tank is cracked or is otherwise structurally unsound, indicating that substantial infiltration or exfiltration is occurring or is imminent.
- 8. Indications of previous repairs and/or extensions of the system not permitted by the Bucks County Health Department, and/or evidence of recently placed soil and/or dirt in the vicinity where the absorption area is located.
- C. <u>Alternate Sewage Disposal System</u>: A method of demonstrated on-lot sewage treatment and disposal not described in Section 7 of the Pennsylvania Sewage Facilities Act, which may be permitted by the Pennsylvania Department of Environmental Protection pursuant to Chapter 73, Section 73.72 of the Sewage Facilities Act, as amended.
- D. <u>Authorized Agent</u>: Any representative of the Township authorized by the Board of Supervisors to carry out the provisions of this Ordinance.
- E. <u>BCHD</u>: Bucks County Health Department.
- F. <u>Board:</u> The Board of Supervisors of Haycock Township.
- G. <u>Cesspool:</u> A covered pit with open jointed lining which receives sanitary sewage or other organic wastes directly from a building drain or building sanitary sewer. It retains and allows liquid waste to pass through the bottom and sides. This is an

antiquated system which predates PADEP standards (Chapter 73, Title 25 PA Code).

- H. <u>Code Enforcement Officer (CEO)</u>: An individual employed by the Township to administer and enforce Ordinances in the Township.
- I. <u>Community On-lot Sewage System</u>: 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.
- J. <u>Community Sewage System:</u> Any system, whether publicly or privately owned, for the collection of sanitary 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 lots or at any other site.
- K. <u>Community Sewerage System:</u> 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.
- L. <u>Conventional Sewage System:</u> A system employing the use of demonstrated on-lot sewage treatment and disposal technology in a manner specifically recognized by the regulations promulgated under Act 537. The term includes individual and community on-lot sewage systems, including sandmounds.
- M. <u>Department</u>: Department of Environmental Protection of the Commonwealth of Pennsylvania (PADEP).
- O. <u>Equivalent Dwelling Unit (EDU)</u>: An amount of sewage equal to the amount usually and typically produced in a single family dwelling unit, in volume, strength, and character. 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 under this chapter, that part of a multiple family dwelling or commercial or industrial establishment with flows equal to 400 gpd. These flow figures are not intended to be used for the calculation of flows for the design of community sewage systems or for the allocation of flows related to community sewage systems. Community sewage system flows for design and permitting purposes shall be calculated using the procedures established in the Department's *Domestic Wastewater Facilities Manual* (DEP-1357).
- P. <u>Experimental Sewage Disposal System</u>: A method of on-lot sewage treatment and disposal not described in the Sewage Facilities Act, which is proposed for the purpose of testing and observation.
- Q. <u>Experimental Onlot Wastewater Technology Verification Program</u> PADEP program to evaluate concepts or technologies new to Pennsylvania that are applicable to onlot wastewater disposal, as outlined in PADEP document #331-2208-001.
- R. <u>Gray Water:</u> Domestically generated liquid wastes, including kitchen and laundry wastes that do not contain sewage.

- S. <u>Health Department:</u> Bucks County Health Department (BCHD).
- T. <u>Individual On-lot Sewage System</u>: An individual sewage system which 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.
- U. <u>Holding Tank:</u> A watertight receptacle that receives and retains sewage and is designed and constructed to facilitate ultimate disposal of the sewage at another site.
- V. <u>Individual Residential Spray Irrigation System (IRSIS)</u>: An individual sewage system permitted under Section 7 of the Sewage Facilities Act, which serves a single dwelling and which treats and disposes of sewage utilizing a system of piping, treatment tanks, and soil application through spray irrigation.
- W. <u>Individual Sewage System</u>: 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 disposal.
- X. <u>Individual Sewerage System:</u> 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.
- Y. <u>Licensed Sewage Hauler:</u> A sewage hauler licensed by the Bucks County Department of Health.
- Z. <u>Lot</u>: 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.
- AA. <u>Maintenance:</u> Those actions required to provide for the long term proper functioning of any sanitary sewage disposal system, including, but not limited to the pumping of septage from a septic tank, cesspool, or dry well and pump tank; cleaning, pumping and/or leveling of a distribution box; removal of trees or growth affecting the operation of an on-lot sanitary sewage disposal system; diversion of surface water away from an on-lot sanitary sewage disposal system; and, reduction of flow from the structure being served (e.g., installation of water conservation devices).
- BB. <u>Malfunction:</u> The condition which occurs when on on-lot sanitary sewage disposal system discharges untreated or inadequately treated sewage onto the surface of the ground, into groundwater, or into surface waters of the Commonwealth. Malfunction also occurs when sanitary sewage backs up into the building connected to the system, or otherwise causes a nuisance or hazard to the public health, pollution of the ground or surface water or contamination of any public and/or private drinking water wells.
- CC. <u>Marginal conditions for Long term On-lot Sewage Disposal:</u> Conditions of a site for use of on-lot sewage disposal facilities, as determined by the Pennsylvania Department of Environmental Protection and/or the Bucks County Department of Health, which may include soil profile examinations which document areas of suitable soil intermixed with areas of unsuitable soils; site evaluation which documents soils generally suitable for elevated sandmounds, with some potential

lots with slopes over 12%; site evaluation which documents soils generally suitable for inground systems, with some potential lots with slopes in excess of 20%; or lot density of more than one EDU/acre.

- DD. <u>Municipal Sewage System</u>: A sanitary sewer system and/or the treatment facility owned, operated, or maintained by a municipality or municipal authority approved by the Department under a permit issued to the Clean Streams Law, 35 P.S. 691.1, et seq., as hereafter amended, supplemented, modified, or reenacted by the General Assembly of Pennsylvania.
- EE. <u>Municipality:</u> Haycock Township, Bucks County, Pennsylvania.
- FF. <u>New System:</u> The installation of an on-lot sewage disposal system on a property where a system does not currently exist, or the installation of a larger on-lot sewage disposal system in conjunction with the expanded use of an existing structure after the effective date of this Ordinance. A new system does <u>not</u> include replacement systems installed on properties with existing on-lot sewage disposal systems where rehabilitation/repair efforts are required to correct an existing malfunction.
- GG. <u>Official Sewage Facilities Act 537 Plan:</u> The plan adopted by the Township and approved by the Pennsylvania Department of Environmental Protection in furtherance of the requirements as set forth in the Pennsylvania Sewage Facilities Act.
- HH. <u>On-Lot Sanitary Sewage Disposal System (OLDS)</u>: Individual on-lot sewage systems and community on-lot sewage systems.
- II. <u>PADEP:</u> Department of Environmental Protection of the Commonwealth of Pennsylvania.
- JJ. <u>Person:</u> Any individual, company, association, public or private corporation for profit or not for profit, partnership, firm, trust, estate, department, board, bureau or agency of the Commonwealth, political subdivision, municipality, district, authority, or any other legal entity whatsoever which is recognized by law as having rights and duties. Whenever used in any clause prescribing and imposing a penalty or imposing a fine, 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.
- KK. <u>Pumper/Hauler:</u> Any person, as that term is defined in this Ordinance, who engages in cleaning community or individual sanitary sewage systems and transports the septage removed from these systems for disposal, and, is licensed by the Bucks County Health Department.
- LL. <u>Pumper's Report:</u> Form used by licensed pumper/haulers to report pumping of an on-lot sanitary sewage disposal system.
- MM. <u>Registration Form:</u> Form which shall be made available by the Township for property owners to register their on-lot sanitary sewage disposal system with the Township.

- NN. <u>Rehabilitation or Repair.</u> Work completed pursuant to a permit issued by BCHD to modify, alter, or repair an existing on-lot sanitary sewage disposal system or individual components thereof, including the enlargement of the total absorption area, provided the flows from the structure being served are unchanged or reduced.
- OO. <u>Replacement Area:</u> An area of a lot or property reserved for the installation of a replacement sanitary sewage system in the event of the malfunction of the originally installed on-lot sewage disposal system.
- PP. <u>Replacement System:</u> An on-lot sanitary sewage disposal system which replaces a previously installed on-lot sanitary sewage disposal system which cannot be repaired or rehabilitated to a condition acceptable to the Bucks County Health Department.
- QQ. <u>Septage:</u> The residual scum and sludge pumped from septic systems.
- RR. <u>Sewage:</u> Any substance that contains any of the waste products or excrement or other discharge from the bodies of human beings or animals, and any noxious or deleterious substance 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, or which constitutes pollution under the Act of June 22, 1937 (P.L. 1987, No. 394), known as "The Clean Streams Law", as amended.
- SS. <u>Sewage Enforcement Officer (SEO)</u>: A person certified by the Pennsylvania Department of Environmental Protection who issues and reviews permit applications and/or conducts such investigations and inspections as are necessary to implement the Sewage Facilities Act (Act 537) and the rules and regulations promulgated thereunder.
- TT. <u>Sewage Facilities:</u> A system of sewage collection, conveyance, treatment, and disposal which will prevent the discharge of untreated or inadequately treated sewage or other waste into Waters of the Commonwealth or otherwise provide for the safe and sanitary treatment and disposal of sewage or other waste.
- UU. <u>Sewage Management Program</u>: A comprehensive set of legal and administrative requirements encompassing the requirements of this Ordinance and other administrative requirements adopted by the Township to effectively enforce and administer the Ordinance, and to implement the Sewage Facilities Plan.
- VV. <u>Small Flow Treatment Facility</u>: An individual or community sewage system design to adequately treat sewage flows not greater than two thousand (2,000) gallons per day for final disposal using a stream discharge or discharge to the surface of the ground.
- WW. <u>Subdivision</u>: As defined in the Pennsylvania Municipalities Planning Code, Act of July 31, 1968, P.L. 805, No. 247, as amended.
- XX. <u>Subdivision, Lot Line Adjustment:</u> A lot line adjustment subdivision involves relocation of one or more existing boundary line(s) between two adjacent lots, or the shifting of boundary lines to increase the area of an existing lot; provided; however, that the lot line adjustment subdivision results in the same or fewer number of lots than existed prior to the lot line adjustment subdivisions.

- YY. <u>Subdivision, Major</u>: Any subdivision not classified as a minor subdivision.
- ZZ. <u>Subdivision, Minor:</u> The division or redivision of a lot, tract, or parcel of land by any means into not more than two (2) lots; or a lot line subdivision.
- AAA. <u>Township:</u> Haycock Township, Bucks County, Pennsylvania.
- BBB. <u>Waters of the Commonwealth</u>: Any and all rivers, streams, creeks, rivulets, impoundments, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.
- CCC. <u>Zoning Officer:</u> An individual employed by the Township to administer and enforce the Township Zoning Ordinance.

All definitions included in Act 537 and the Clean Streams Act, as amended, are hereby incorporated by reference into this Ordinance.

SECTION 3. Applicability.

- A. The provisions of this Ordinance shall apply to all existing and proposed individual and community sewage disposal systems within the Township after the effective date of this Ordinance.
- B. All new individual and community sewage systems shall be required to file a Registration Form with the Township prior to the issuance of a Building Permit for the use of the structure being served by the on-lot sanitary sewage disposal system.

SECTION 4. Permit Requirements.

- A. No person shall install, award a contract for construction or construct an individual or community on-lot sewage system, or install, construct, occupy, or use a building or structure to be served by that system without first obtaining a permit from Bucks County Health Department (BCHD) confirming that the system complies with the provisions of the Pennsylvania Sewage Facilities Act, and any and all regulations adopted pursuant to said Act.
- B. A permit must be obtained from the Bucks County Department of Health for alterations or connections to an existing individual or community on-lot sewage disposal system when the alteration or connection requires the repair, replacement or enlargement of a treatment tank or retention tank, or the repair, replacement, disturbance, modification or enlargement of a soil absorption area or spray field, or the soil within or under the soil absorption area or spray field.
- C. No system or structure designed for individual or community sanitary sewage disposal or for rehabilitation, repair and/or replacement to or of an existing sewage disposal system shall be covered from view until final inspection and approval by BCHD.

- D. Applicants for individual or community sanitary sewage disposal system permits shall notify BCHD of the schedule for construction or rehabilitation, repair and/or replacement of the permitted sewage disposal system so the appropriate inspection(s) may be scheduled and performed by the BCHD.
- E. No building permit shall be issued by the Township for a new building which will utilize individual or community sanitary sewage disposal system, until a valid sanitary sewer permit has been obtained from BCHD, and a Registration Form is filed with the Township.
- F. No building permit shall be issued by the Township for any building addition, alteration, or change in use which may result in increased sewage flows until approval of use of the existing sewage system has been received from BCHD. The Township must receive notification by BCHD of all permits issued and final inspections performed in Haycock Township.
- G. No occupancy permit shall be issued by the Township for any new building until BCHD has informed the Township that the newly constructed sanitary sewage system has been completed, and has had a final inspection.
- H. Individual or Community Sewage Disposal System permits may only be issued by BCHD or PADEP as applicable.
- I. All new structures served by individual or community sewage systems shall install water conservation devices and fixtures, in compliance with the provisions of the Unified Construction Code.

SECTION 5. Right of Entry.

- A. Authorized persons acting on behalf of the Township shall, upon presentation of proper credentials and identification, be permitted to enter upon the outside of the property that contains an individual or community sanitary sewage disposal system for the purpose of inspecting, observing, photographing, and sampling the sewage disposal system, in accordance with the provisions of this Ordinance.
- B. The Township shall provide advance notice to the property owner of the individual or community sewage disposal system prior to inspection.

SECTION 6. Sewage System Maintenance.

A. All Sewage Systems shall be pumped out by a licensed sewage hauler selected by the property owner, at least once every three (3) years or whenever inspection reveals that the treatment tanks are filled with solids in excess of 1/3 of the liquid depth of the tank or with scum in excess of 1/3 of the liquid depth of the tank. The three (3) year time period shall begin when the system is approved as complete by BCHD. For systems existing on the effective date of this Ordinance, the three (3) year time period shall begin on the effective date of this Ordinance. Property owner shall provide the Township with a receipt documenting the date on which the septic tank was cleaned within thirty (30) days of the occurrence.

- B. Surface contouring (grades) and other measures consistent with PA Code Title 25, Chapter 73, shall be maintained to divert stormwater away from treatment facilities and absorption areas and protect absorption areas from physical damage.
- C. Sand filters included within IRSIS, SFTF, or other approved sewage system shall also be inspected by the property owner and repaired if necessary at least once every year.
- D. Where applicable pursuant to Section 19.A of this Ordinance, the sewage system shall be maintained in accordance with provisions of the Operation and Maintenance Agreement executed for the system.
- E. Emergency repair or replacement of system components without prior approval/permit from BCHD shall be limited to pumping of a septic tank, tight tank or cesspool as frequently as necessary to prevent backup or breakout.
- F. All emergency repairs other than pumping shall be in accordance with requirements, and where applicable permit approval, from BCHD.
- G. Any non-routine maintenance or repairs required to the system must be reported to the Bucks County Department of Health and Township by the property owner for approval/permit.

SECTION 7. Inspections.

- A. All individual and community sanitary sewage disposal systems regulated by this Ordinance shall be inspected by an authorized agent of the Township as established by separate Resolution of the Board of Supervisors. The inspection may include the taking of samples from surface water, wells, or other groundwater sources, and/or the sampling of the contents of the sanitary sewage disposal system. A copy of the report of the inspection shall be furnished to the property owner.
- B. In the event inspection is denied by the property owner, 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. Steps shall include, but not be limited to, the seeking of an administrative search warrant from the appropriate judicial official.

SECTION 8. Operation.

- A. No property owner shall operate and maintain an individual or community sanitary sewage disposal system in such a manner that it malfunctions. No system shall discharge untreated or partially treated sanitary sewage to the surface of the ground or into the Waters of the Commonwealth, as defined herein.
- B. All property owners with gray water discharges to the ground surface shall correct such discharges and route the gray water to the sanitary sewer disposal system. All rerouting and connections of gray water discharge to the sanitary sewage disposal system shall be in accordance with requirements of BCHD. Gray water discharges are a violation of Section 73.11 of the Pennsylvania Code, Title 25, Environmental Protection, and may also be a violation of Sections 202 and 207 of the Pennsylvania

Clean Streams Law, if the discharge is to any Waters of the Commonwealth (as defined herein). All violations shall be referred to BCHD.

SECTION 9. Sewage Management Priority.

- All lots, existing or proposed, on which sewage is generated must employ individual Α. or community sewage disposal. The highest priority method of sewage disposal set forth in the following table that can be technically and administratively implemented on the subject property must be utilized for new systems and repair situations. If disposal cannot be provided by higher-ranked 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. А 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 that the higher rank methods of sewage disposal will not function upon the subject property; and must demonstrate that the proposed system will not degrade surface or groundwater for its intended use for drinking water or wildlife habitat before proposing to employ a lower-ranked method.
- B. Sewage Management Priority Table
 - 1. Individual on-lot sub-surface sewage disposal.
 - 2. Individual on-lot elevated or at grade sandmound.
 - 3. Individual on-lot residential spray (IRSIS)/drip irrigation system.
 - 4. Individual on-lot alternate system.
 - 5. Community on-lot subsurface sewage disposal.
 - 6. Community on-lot elevated sandmound.
 - 7. Community on-lot spray/drip irrigation system.
 - 8. Small flow treatment facility with stream discharge.
 - 9. Experimental system or other system not listed above, as approved through the Technology Verification Program.
 - 10. Holding tank (residential repair, commercial, institutional, or industrial).

SECTION 10. System Rehabilitation/Repair/Replacement.

- A. If BCHD determines that any individual or community sewage disposal system is malfunctioning and, further, if the property abuts or fronts an existing municipal sewer, then BCHD shall require that property be connected to the municipal sewer, at the property owner's sole cost and expense. Under those circumstances, BCHD will not issue a permit for the repair of a malfunctioning on-lot sewage disposal system.
- B. If any individual or community sewage disposal system is observed to be malfunctioning, the Township will notify BCHD. The Township must be notified by BCHD of all permits issued for repair of the system, and final inspections performed.

- C. Should BCHD indicate that it is not possible to repair or modify the system to comply with PADEP's standards for sewage disposal systems, then the property owner shall be required to have a replacement individual or community sewage disposal system designed for the property. The highest priority method of sewage disposal as listed above shall be utilized for the replacement system. Design shall conform to current regulations as promulgated by the PADEP and these regulations.
- D. BCHD may require the repair/rehabilitation/replacement of any malfunction by the following methods; cleaning, repair or replacement of components of the existing system, adding capacity or otherwise altering or replacing the system's treatment tank, expanding the existing disposal area, replacing the existing disposal area, replacing a gravity distribution system with a pressurized system, and such other alternatives as appropriate for the specific site, including use of reservation areas.

SECTION 11. Disposal of Septage.

- A. All septage pumper/haulers operating within the Township shall be licensed by BCHD/PADEP, as applicable.
- B. All septage originating within the Township shall be disposed of at sites or facilities approved by PADEP.
- C. Septage shall be handled consistent with the provisions of the Pennsylvania Solid Waste Management Act (Act 97 of 1980, 35 P.S., Sections 6018.101-6018.1003), and Regulations adopted pursuant to such ACT.

SECTION 12. In Ground, Drip Irrigation, and Sand Mound Sewage Systems.

- A. The owner of a property that utilizes a drip irrigation or sandmound systems shall comply with the following:
 - 1. Construct and maintain the system in conformance with this Ordinance and any other Ordinance of the Township, the Sewage Facilities Act, the rules and regulations of the BCDH and PADEP, and all applicable regulations and statues of the Commonwealth of Pennsylvania.
 - 2. For drip irrigation systems, and other systems on lots deemed marginal for long term on-lot disposal as defined by PADEP, execute an agreement with the Township to hold the Township harmless in the event of a claim against the Township arising from the operation and maintenance of the system, and furthermore, pay a nonrefundable fee to the Township for Township costs of administration, compliance monitoring, and enforcement of this Ordinance.
- B. No portion of the sewage system property line or easement horizontal isolation distance, required pursuant to PA Code Title 25 Chapter 73 (Standards for Sewage Disposal facilities), may be located on any lot or property other than the parcel containing that system.
- C. No livestock or any type or equipment heavier than a common riding mower/garden tractor shall be allowed upon the absorption area of any sewage system.

SECTION 13. Individual Residential Spray Irrigation Systems (IRSIS).

- A. The owner of a property utilizing an Individual Spray Irrigation System (IRSIS) shall:
 - 1. Construct and maintain the system in conformance with this and any other, applicable ordinance of the Township, the act and rules and regulations of the Bucks County Department of Health and Pennsylvania Department of Environmental Protection, and all applicable statutes of the Commonwealth of Pennsylvania.
 - 2. Execute an agreement with the Township to hold the Township harmless in the event of a claim against the Township arising from the operation and maintenance of the system, and furthermore, pay a nonrefundable fee to the Township for Township costs of administration, compliance monitoring, and enforcement of this Ordinance.
- B. Design requirements:
 - 1. The wetted perimeter of the primary spray field shall not encroach within the required minimum front, side, or rear yard setback designated by the Township Zoning Ordinance, except in the case of a repair of an existing system.
 - 2. No portion of the sewage system property line or easement horizontal isolation distance, required pursuant to PA Code Title 25 Chapter 73 (Standards for Sewage Disposal facilities), may be located on any lot or property other than the parcel containing the IRSIS.
 - 3. No portion of the sewage system may encroach within a floodplain, riparian buffer, or wetland.
 - 4. Buffering:
 - a. Whenever the wetted perimeter of the spray irrigation field is located within 50 feet of the property boundary, buffer plantings, including a minimum of one (1) evergreen tree per twenty (20) feet arranged along and within twenty five (25) feet of the property boundary, are required.
 - b. Buffer plant material shall conform to requirements of Section 515 of the Subdivision and Land Development Ordinance, as amended.
 - c. Where natural features/vegetation exist on the site, which duplicate, or essentially duplicate, requirements for buffering, buffer requirements may be waived or reduced by the Board of Supervisors.
 - 5. Spray irrigation of the treated effluent shall be permitted only between the hours of 11:00 PM to 5:00 AM.

SECTION 14. Small Flow Treatment Facilities (SFTF).

- A. The owner of a property that utilizes a small flow treatment facility shall:
 - 1. Construct and maintain the system in conformance with this and any other, applicable ordinance of the Township, the Act, and the rules and regulations of the Bucks County Department of Health, and the Pennsylvania Department of Environmental Protection, and all applicable statutes of the Commonwealth of Pennsylvania.

- 2. Execute an agreement with the Township to hold the Township harmless in the event of a claim against the Township arising from the operation and maintenance of the system, and furthermore, pay a nonrefundable fee to the Township for Township cost of administration, compliance monitoring, and enforcement of this Ordinance.
- B. No component of a SFTF, including discharge line, may be located on any lot or property other than the parcel containing the facility unless authorized by the Board of Supervisors.
- C. If municipal sewer service becomes available for a property utilizing a small flow treatment facility, each and every owner of such property shall be required to make the necessary connection to the abutting or adjoining sewer lines. Small flow treatment facility must be disconnected and disposed of in accordance with applicable Pennsylvania Department of Environmental Protection and the Bucks County Department of Health rules and regulations.

SECTION 15. Holding Tanks.

- A. Every person who owns a property within the Township on which a holding tank is located and every person who applies for a building permit to construct a new residence or other building which is to be serviced by a holding tank for which a Bucks County Department of Health permit is issued after the effective date of this Ordinance, shall comply with the provisions of this Section 15 as hereafter set forth.
- B. Every person who owns a property within the Township on which a holding tank is located shall:
 - 1. Have the holding tank of the property pumped prior to or when the holding tank has reached 75% of designed capacity.
 - 2. Annually provide the Township with proof of a pumping and/or hauling contract with a DEP certified hauler licensed by the Bucks County Health Department.
- C. Procedure for Obtaining a Holding Tank Permit; Rehabilitation of a Holding Tank or Change in Ownership of a Holding Tank:
 - 1. Prior to the issuance of a Use and Occupancy Permit involving new construction, and in the case where no prior security has been posted to secure the costs of future operation and maintenance of a holding tank, then also involving rehabilitation of a holding tank, resale of the property, or change of tenants in a dwelling using a holding tank, the owner shall:
 - a. Obtain verification from the Bucks County Development of Health indicating that the site is generally suitable for installation of a holding tank.
 - b. File copy of the site plan and design of the proposed holding tank with the Township.

- c. Submit such additional information on size, location, or otherwise as the Township may require in order to complete a review.
- d. Pay a fee to the Township for the holding tank permit in accordance with the appropriate Resolution as adopted by the Board of Supervisors from time to time.
- e. Execute an agreement for maintenance and hold the Township harmless in the event of a claim against the Township arising from the operation of the holding tank. (Refer Section15.D of this Ordinance)
- f. Deposit and/or post permanent escrow funds in the form and/or amount as provided by the holding tank Maintenance Agreement. These funds are to 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 the holding tank. Board of Supervisors shall have the right to claim the entire escrow deposit as reimbursement for Township expenses.
- 2. Permit issued under the terms of this agreement shall become null and void if the holding tank installation has not been completed to the satisfaction of the Township within two (2) years of the date of issuance.
- D. Holding Tank Maintenance Agreement: The owner of a property that utilizes a holding tank shall execute a maintenance agreement approved by the Township to ensure compliance with the regulations and standards of operation and maintenance of the system. The escrow or other security shall be sufficient to cover the cost of the future operation and maintenance of the system over its design life up to a maximum of 50% for each of the first two (2) years of operation and not more than 10% for each year thereafter of the equipment and installation cost of the system.

SECTION 16. Alternate and Experimental Systems.

The owner of a property that utilizes an alternate system shall comply with the following:

- A. Construct and maintain the system in conformance with this Ordinance and any other Ordinance of the Township, the Sewage Facilities Act, the rules and regulations of the BCDH and PADEP, and all applicable regulations and statues of the Commonwealth of Pennsylvania.
- B. Execute an agreement with the Township to hold the Township harmless in the event of a claim against the Township arising from the operation and maintenance of the system, and furthermore, pay a nonrefundable fee to the Township for Township cost of administration, compliance monitoring, and enforcement of this Ordinance.

SECTION 17. Community Sewage Systems.

All community sewage systems shall comply with the following, along with any specific requirements of the sewage system type listed in the above sections:

A. Construct and maintain the system in conformance with this Ordinance and any other Ordinance of the Township, the Sewage Facilities Act, the rules and

regulations of the BCDH and PADEP, and all applicable regulations and statues of the Commonwealth of Pennsylvania.

- B. Execute an agreement with the Township to hold the Township harmless in the event of a claim against the Township arising from the operation and maintenance of the system, and furthermore, pay a nonrefundable fee to the Township for Township cost of administration, compliance monitoring, and enforcement of this Ordinance.
- C. Seepage bed(s) (including toe of sandmound slope) or the wetted perimeter of a spray field shall not encroach within the required minimum front, side, or rear yard setback designated by the Township Zoning Ordinance or within one hundred (100) feet of a property boundary, whichever setback distance is greater.
- D. No portion of the sewage system property line or easement horizontal isolation distance required pursuant to PA Code Title 25 Chapter 73 (Standards for Sewage Disposal facilities), may be located on any lot or property other than the lot containing the system.
- E. Buffering. All community sewage systems shall be buffered as follows:
 - 1. Buffer plantings, including a minimum of one (1) evergreen tree per twenty (20) feet and one (1) canopy tree per twenty (20) feet arranged along and within twenty five (25) feet of the perimeter of the system, are required around the perimeter of the Community Sewage System including the disposal area.
 - 2. A fence at least four (4) feet in height of material approved by the Township installed along the entire length of the property line.
 - 3. Buffer plant materials shall conform to requirements of Section 515 of the Subdivision and Land Development Ordinance, as amended.
 - 4. Where full grown trees exist on the site which duplicates the requirements for buffering, the buffering requirements of this Ordinance may be waived or reduced by the Board of Supervisors.
- F. No livestock of any type or equipment heavier than a common riding mower/garden tractor shall be allowed upon the absorption area of any community sewage system.
- G. Replacement sewage disposal area is required and shall be in accordance with Section 18 of this Ordinance.

SECTION 18. Replacement Areas.

- A. Where replacement sewage disposal areas are required by the Subdivision and Land Development Ordinance or this Ordinance, the following requirements shall be met:
 - 1. Any proposed replacement area shall comply with this Ordinance, any other Township Ordinance, the Sewage Facilities Act, the rules and regulations of the BCDH and PADEP, and all applicable regulations and statutes of the Commonwealth of Pennsylvania, including, but not limited to, isolation distances.

- 2. Allowance of open land for the replacement area, without the performance of appropriate soil testing to verify suitability of the land for a replacement area, shall not constitute compliance with the requirements of this section.
- 3. Every replacement area shall be protected by a deed restriction or recorded easement that contains the following restrictions:
 - a. No grading or other improvements, whether permanent or temporary, shall be permitted upon or within the replacement area.
 - b. No permanent or temporary alterations, grading, excavation, stockpiling of any soil or any other material shall take place on or in the replacement area.
 - c. During any construction or other activities, the replacement area shall be marked and blocked off by construction fencing to prevent equipment with greater wheel loadings than a common riding mower/garden tractor from traveling over or operating upon the surface of the replacement area.
 - d. The final cover or improvement to every replacement area shall be limited to shallow rooted plant material.
 - e. Replacement area shall be protected from livestock pasture/grazing.
- B. Identification of replacement area.
 - 1. Any applicant who proposes to install an individual or community sewage system shall demonstrate to the satisfaction of the Township that a suitable replacement area exists on the same lot as the proposed sewage system. The Township or BCDH shall observe all tests required to identify the proper location for the replacement area.
 - 2. The location of the replacement area, as confirmed by the Township, shall be identified on the plot plans and diagrams submitted as part of any permit, subdivision, land development, or planning module application.
 - 3. Replacement areas for individual sewage systems may encroach with front, side, and rear yard setbacks as established by the Zoning Ordinance; however, must be consistent with environmental protection standards of the Zoning Ordinance.
 - 4. Replacement areas for community sewage systems shall not encroach within the required minimum front, side, or rear yard setbacks designated by the Township Zoning Ordinance or within fifty (50) feet of a property boundary, whichever setback is greater.
 - 5. Any revisions to a permit or plan affecting a previously approved replacement area shall be reviewed for approval by the Board of Supervisors or its authorized representative.
 - 6. If a replacement area has been already identified upon a lot or parcel, an applicant may attempt to identify, to the Township's satisfaction, an alternate replacement area upon the lot or parcel. The alternate replacement area shall comply with this Ordinance. When an alternate replacement area is identified, the alternate replacement area may be considered as such for the purposes of this Ordinance, as long as it meets all the requirements and protections of this Ordinance.
- C. Subdivision/Land Development Restrictions.
 - 1. All applications for subdivision or land development shall provide for a replacement area(s) upon its plan(s) and shall place a note upon the approved record plans stating that no improvements shall be constructed upon and no alterations shall be made to any replacement area. The applicant shall also execute and record new or corrected deeds for each lot created by or a part of the subdivision or land development that contain language protecting the replacement area within the lots boundaries.
 - 2. The subdivision/land development plan shall also note and specifically require the replacement area be marked and physically blocked off to prevent equipment with greater wheel loadings than a common riding mower/garden tractor from traveling over or operating upon the surface of the replacement area. The plan shall require the final cover or improvement to every replacement area to be limited to shallow rooted plant matter.

SECTION 19. Sewage Maintenance Agreements; Fees.

- A. All owners of property or persons who propose utilizing an individual spray irrigation system, small flow treatment facility, community on-lot sewage disposal facility, alternate or experimental sewage disposal facility, or sewage disposal facility on sites containing marginal conditions for on-lot sewage disposal, shall execute a sewage facilities Operation and Maintenance Agreement with the Township. The agreement shall provide for deposit of a nonrefundable fee to the 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 Act, which may include cash, Letter of Credit, or other Township approved financial security. The amount of financial security to guarantee the proper operation and maintenance of the proposed facility is separate resolution of the Board of Supervisors, as amended from time to time.
- B. Prior to execution of an Operation and Maintenance Agreement by the Township, the property owner shall accomplish the following items:
 - 1. Applicant shall obtain verification from the Bucks County Department of Health indicating that the site is generally suitable for installation of an on-lot sewage disposal facility as proposed.
 - 2. Three copies of the site plan and design of the proposed sewage disposal system shall be filed with the Township, unless the property is subject of a subdivision or land development plan currently being processed by the Township.
 - 3. Any additional information, such as information on size, location, or as otherwise required by the Township, shall be submitted to the Township for review.
 - 4. A fee in an amount established by separate resolution of the Board of Supervisors, as amended from time to time, shall be paid to the Township for review of submitted documentation, and preparation of the Operation and Maintenance Agreement.

5. Applicant shall deposit financial security as required by the Operation and Maintenance Agreement, to be held by the Township and used only in the event that the Township is required to perform any services, or pay for any services, relative to administering terms of the Operation and Maintenance Agreement. Financial security amount for community sewage systems shall be established by the Township based on the size of the system and an estimate of annual operation and maintenance costs submitted by the design engineer and approved by the Township.

SECTION 20. Administration.

- A. The Township shall be authorized to exercise the powers conferred upon it pursuant to the terms and conditions of this Ordinance or any other applicable laws of the County, State and Federal government.
- B. The Board of Supervisors may establish a fee, by resolution, the purpose of which is to defray the cost of inspections and other aspects of the sewage management program as set forth in this Ordinance.

SECTION 21. Appeals.

- A. Any property owner aggrieved by the written decision of a Township employee or other authorized agent of the Township pursuant to this Ordinance may appeal the decision by written notification to the Board of Supervisors, provided that the Appeal notification shall be filed within thirty (30) days from the date of the decision at issue.
- B. The property owner and/or person filing an Appeal shall be entitled to a hearing before the Board of Supervisors, or its designee, within thirty (30) days of receipt of the Appeal. Either party, by good cause shown, may extend the time for a hearing but a decision shall be left to the discretion of the Board of Supervisors, or its designee. A hearing shall be conducted in accordance with the provisions of the Pennsylvania Local Agency Act and a decision shall be rendered, in writing, within forty five (45) days of the conclusion of the hearing and all proceedings related thereto. If the Board of Supervisors or its designee shall fail to render a decision within forty five (45) days following the conclusion of all proceedings related to the hearing, then the relief sought by the property owner and/or person filing the appeal shall be deemed granted. Any property owner and/or person aggrieved by a decision of the Board of Supervisors or its designee may, within thirty (30) days after such decision of the Board, file an appeal to the Court of Common Pleas of Bucks County.

SECTION 22. Penalties.

A. Any property owner and/or person who has violated or permitted the violation of the provisions of this Ordinance, upon being found liable therefore in a civil enforcement proceeding commenced by the Township, shall pay a judgment of not more than \$500.00 plus all court costs, including reasonable attorney's fees incurred by the Township as a result thereof. No judgment shall commence or be imposed, levied or payable until the date of the determination of the violation by the District Justice. If the responsible party neither pays judgment nor files a timely appeal, the Township may enforce the judgment pursuant to the applicable Rules of Civil Procedure. Each day that a violation continues shall constitute a separate violation. All judgments,

costs and reasonable attorney's fees collected for the violation of this Ordinance shall be paid over to the Township.

B. In addition to the rights as set forth in this paragraph, the Township may take such other rights as are available to it to enforce the provisions of this Ordinance including resort to the courts of equity to seek compliance with the provisions of this Ordinance.

SECTION 23. Severability.

Should any section of this Ordinance or part thereof be declared invalid by a court of competent jurisdiction, such invalidity shall not affect the balance of the Ordinance since it was the intent of the Board of Supervisors that said Ordinance would have been adopted even if such invalid provision had not been included.

This Ordinance was duly ORDAINED and ENACTED this _____ day of _____, 2010. This Ordinance shall take effect in five (5) days.

HAYCOCK TOWNSHIP BOARD OF SUPERVISORS

Kathleen M. Babb, Chairwoman

Michael Lennard, Vice Chairman

Henry DePue, Member

PREPARED BY: Clemons Richter Walsh & Reiss, P.C. 107 East Oakland Avenue Doylestown, PA 18901 (215) 348-1776

RETURN TO: Clemons Richter Walsh & Reiss, P.C. 107 East Oakland Avenue Doylestown, PA 18901 (215) 348-1776

CPN#

OPERATION AND MAINTENANCE AGREEMENT

 THIS OPERATION AND MAINTENANCE AGREEMENT (the "Agreement") is

 made this _____day of ______, 200_ by and between HAYCOCK

 TOWNSHIP, BUCKS COUNTY, 640 Harrisburg School Road, Quakertown,

 Pennsylvania 18951 (the "Township"); and ______, _____,

 Pennsylvania _____, their heirs, successors and assigns (collectively the "Owner").

BACKGROUND

A. The Owner is the legal owner in fee simple of a certain tract of land located on ______, in Haycock Township, Bucks County, Pennsylvania, identified as Bucks County Tax Map Parcel No. ______ (the "Property").

B. The word "Owner" shall mean each successive owner of the Property and each Property owner shall be bound by the terms and provisions of this Agreement.

C. The word "Owner" as used in this Agreement shall be construed to mean "Owners" in all cases where there is more than one owner (and in such case the liability of such owners shall be joint and several), and the necessary grammatical changes required to make the provisions hereof apply to corporations, partnerships or individuals, men or women, shall in all cases be assumed as though in each case fully expressed.

D. The Owner proposes that the sewage disposal and treatment needs of the Property be met by a small flow treatment system with a stream discharge (the "System").

E. Applicable Pennsylvania, Bucks County and Township law, rules and regulations, including but not limited to technical guidance documents promulgated by any of the foregoing (collectively the "<u>Codes</u>"), authorize and require that municipalities, prior to approval by any governing agency of all permit applications for the System, take action to ensure that the System, if properly operated and maintained, will function according to and comply with the Codes and all permits issued by any of the foregoing for the System.

F. In connection with and/or for the System, the Pennsylvania Department of Environmental Protection ("DEP") and/or the Bucks County Department of Health (the "BCDH") have issued the following permits:

(collectively the "Permits"). The Permits are incorporated by reference as if fully set forth herein at length, and are made express conditions of this Agreement.

G. The Township is willing to allow the installation of the System upon the Property provided that the Owner agrees to install, operate and maintain the System upon certain terms and conditions more particularly set forth in this Agreement.

H. This Agreement is entered into by and between the Owner and the Township for the purpose of assuring the long-term operation and maintenance of the System proposed by the Owner.

I. The Owner agrees to install, operate and maintain the System proposed for the Property upon the terms and conditions more particularly set forth in this Agreement.

J. This Agreement is to be binding upon the Owner, Owner's heirs, administrators, executors, successors, and assigns, including the Owner's successor in title, it being the express understanding of the parties that any and all duties and obligations of the Owner with respect to the operation of the System set forth in this Agreement also "run with the land" and remain that obligation of the Owner's successors in title of the Property.

NOW THEREFORE, for and in consideration of the covenants and conditions contained herein, the Owner and the Township agree as follows:

A. ESCROW.

1. Prior to recording this Agreement, the Owner shall deposit with the Township IN ESCROW in cash or certified funds only, the total amount of two thousand, five hundred (\$2,500.00) dollars, to be used to secure the performance of the obligations contained in the Codes, the Permits and as set forth in this Agreement.

2. The escrow funds shall be deposited by the Township in an interestbearing escrow account and the interest thereon shall be paid to the Township to offset the costs of administering this Agreement.

3. The Township shall have the right to apply the respective escrow principal, together with any interest accruing thereon, to pay inspection, engineering, or consulting fees or any costs or repair the System or the cost of hauling any waste, incurred by the Township in the case of default by the Owner of any of the provisions of this Agreement.

4. The escrow funds shall be held and maintained by the Township for the life of the System. At such time as the System no longer services the Property and the System has been shut down, closed, secured and/or removed in accordance with regulations of DEP then in effect, the Township shall refund the balance of escrow funds then held on deposit to the then record owner of the Property. However, if the System is shut down because the Property it services is being connected to a public sewer system, the balance in the escrow account shall be applied to the connection fees for connecting the Property to the public sewer system with the balance, if any, thereafter returned to the then owner of the Property at that time.

5. In the event that the specific escrow balance for the System on the Property falls below one thousand, five hundred (\$1,500.00) dollars, the Owner agrees, upon written request by the Township, to replenish the escrow account to the full amount of two thousand, five hundred (\$2,500.00) dollars within ten (10) calendar days of such request.

B. SYSTEM DESIGN, CONSTRUCTION AND INSTALLATION.

1. All plans, reports, design, construction specifications, shop drawings, construction schedules and planning modules for the System, the operation and maintenance manual, and all other pertinent documents submitted to DEP and/or the BCDH in connection with the Permits shall be submitted to the Township for review by the Township Engineer within fifteen (15) days following submission to DEP and/or BCDH. The submission to the Township shall include but are not limited to the following information:

- a. All information previously provided in Act 537 plan and planning module, if applicable.
- b. Elevations of all tanks and piping in System.
- c. Hydraulic profile of System from house to discharge point.
- d. Calculations of head curves for all pumps used in System.
- e. Maintenance forms to be used by homeowner or contractor servicing System.
- f. Installation and component specifications and requirements.
- g. an Operation and Maintenance Manual (the "<u>Manual</u>") for the System together with a pamphlet or other document in form satisfactory to the Township summarizing the operation and maintenance requirements of the System and including the estimated annual cost of operating and maintaining same.
- h. Any other item(s) that DEP, BCDH and/or Township deem necessary now or in the future to obtain the Permits or any other permit for a System.

2. Township may require additional System design and construction specifications, including without limitation outside monitoring and/or controls, that are consistent with the Codes, the Permits and any interim or permanent rules and regulations established by DEP, BCDH, BCCD and/or the Township.

3. No improvements, construction or installation to the System may commence until the BCDH and/or DEP has issued the Permits, the Township has

issued all Township related construction permits for the System, and the Owner has satisfied all other conditions of this Agreement.

4. The Owner shall obtain all necessary erosion control permit(s) or waiver from same from Bucks County Conservation District ("<u>BCCD</u>") prior to any construction relating to the System on the Property and prior to the Township issuing any Township related construction permits for the System.

5. The System shall be designed and installed by the Owner of the Property, in accordance with the manufacturer's specifications, the Codes, Permits and any interim or permanent rules and regulations established by the DEP, the BCDH, the BCCD and/or the Township.

6. The Owner shall retain an installation contractor trained and authorized by the System manufacturer to install the System (the "<u>installation Contractor</u>").

7. Prior to installation, the Owner agrees to provide to the Township a complete set of "As-Built" System plans as finally approved by the DEP, BCDH and/or Township.

8. Before the initial start-up of the System, the Owner and Maintenance Contractor (defined below) shall meet with the Installation Contractor (if different) and review the operation and maintenance of the System. The Installation Contractor shall provide the Owner and Maintenance Contractor with the following:

- a. Verbal and detailed written operation and maintenance instructions.
- Detailed "As-Built" drawings showing the location, size, material type, and depth of all components of the System per the design engineer's and manufacturer's drawings as installed.
- c. A complete review of the System indicating the location of all buried components of the System including provision of a caution notice regarding the disturbance near and within the absorption area that would cause damage to the System, such as excavation for trees or fencing.
- d. A complete explanation of the System's automatic alarm system, a contact name, and telephone number to contact during an active alarm.

9. Prior to the issuance of any occupancy permit by the Township and operation of the System, the Owner shall provide certification from the Installation Contractor to the Township and the DEP and/or BCDH that the design, construction and installation of the System and its "start up" have been completed in accordance with the permit granted by the DEP and/or BCDH. Any deficiencies found affecting the quality of effluent shall be corrected prior to System startup.

10. The Owner shall annually renew, for the life of the System, and shall annually provide to the Township a copy of the System maintenance contract with an authorized Maintenance Contractor (the "<u>Maintenance Contractor</u>"). The Maintenance Contractor shall be a private independent contractor who has been given special training by the original System equipment manufacturer(s) and is authorized by the manufacturer(s) to service the System equipment, and is approved by the Township to provide such services with the Township's municipal limits. The maintenance contract is to be transferable to the new homeowner, if the dwelling is sold.

11. Prior to the issuance of any Certificate of Occupancy permit by the Township and operation of the System on the Property, the Owner shall provide satisfactory evidence to the Township of an executed service contract for the System with a Maintenance Contractor providing for on-site inspection of all components of the System in accordance with the maintenance schedule for the System as provided in the Operation and Maintenance Manual.

C. OWNER'S CONTINUING OBLIGATIONS.

1. <u>Inspections, testing and repairs</u>

a. The Owner shall provide access to the Property to the Township, DEP and/or BCDH to inspect the System and ensure the System and all components are working properly. Township, DEP and/or BCDH may inspect during normal business hours for routine inspections, and at any time for emergencies.

b. Owner shall operate and maintain the System under the general and specific parameters for the System as set forth in this Agreement, the Operation and Maintenance Manual and comply with any and all required parameters and/or testing as required by DEP specific to the components of the System.

c. Unless required differently by DEP, during the first year of operation of the System, the System shall be inspected at least quarterly by an authorized factory representative or registered professional engineer (hereinafter "Engineer") retained by the Owner. The inspection shall include the testing of the discharge effluent to confirm that the discharge meets or exceeds the required levels of treatment of the System by the DEP, the Codes and the Permits, as applicable. Testing shall occur at the stream discharge and shall include testing for fecal coliform, chlorine residual for those systems using chlorine for disinfection, CBOD, total suspended solids, and ammonia. Sampling and testing of the effluent shall be conducted by an EPA approved lab. The first year shall begin at startup inspection or at occupancy of residence whichever occurs last. The first testing shall occur on or about two (2) months after above date and then every three (3) months for a total of four (4) samplings and testings.

d. The inspection shall include annual testing of the effluent for fecal coliform plus any other testing that BCHD or DEP shall impose now or in the future. If the System employs chlorine for disinfection, the Owner shall also be required to have the chlorine residual test monthly and recorded. Any test of chlorine residual of zero (0) shall be retaken the following day. Owner is responsible to maintain a chlorine residual in the effluent at all times. This testing shall remain in effect for as long as System is in use.

e. After the first year of operation, the Owner shall have the Maintenance Contractor inspect the System annually or more frequently if required by the maintenance program and/or Manual, and have the Maintenance Contractor provide the Owner, BCHD and Township with copies of a report signed by the Maintenance Contractor certifying that the System is operating in accordance with the Codes, Permits and all terms and conditions of this Agreement. The inspection and maintenance program will include at a minimum the manufacturers' recommended services and inspections for each separate component of the System. The Maintenance Contractor's report shall include the average daily flow from water meter readings, if available. The report shall also indicate resolution of any deficiencies noted in the Maintenance Contractor's inspection or in any service or alarm call during the past twelve (12) months. If a repair, revision, or modification to the System is required, the Owner shall

obtain a permit from DEP before the Maintenance Contractor or other qualified contractor performs the repairs, revisions, or modifications. Copies of the permit and amended and revised drawings detailing any revision or modification shall be retained by the Owner and provided to the Township and BCHD.

f. A water meter shall be installed on house water supply, and such meter shall be read on a daily basis for the first year and then monthly thereafter. The recording of daily water usage along with the effluent test results will allow the Engineer, factory representative, Maintenance Contractor and/or Owner to determine System efficiency and possibly adjust the System for maximum efficiency.

g. Owner shall ensure that the Township and BCHD receive a copy of all maintenance, inspection and test reports.

h. If any inspection indicates a repair, revision, or modification of any component part or all of the System is required to bring the System into compliance with DEP regulations, the Codes, the Permits or any other terms and conditions of this Agreement, any and all repairs and/or replacements shall be made within thirty (30) days of the date of the inspection evidencing a need for the repairs and/or replacements. The Owner shall pay all costs of such repair, replacement and/or additional maintenance. Copies of the invoices, reports or other documents of the repairs and/or replacements and amended or revised drawings detailing any revision or modification and a certification that the repairs and/or replacements have been made in accordance with DEP regulations shall be retained by the Owner and filed with the Township and the BCDH within fourteen (14) days of any and all repairs and/or replacements.

i. The Township shall have the right to inspect the System on an annual basis or at any other time as deemed reasonable to assure a pollution free System operation. If the Owner fail to comply with the recommendations of its Maintenance Contractor, the Township, BCDH and DEP with respect to any repair, revision, or modification of any component part or all of the System, the Township shall have the right to enter upon the Property, conduct an inspection and/or testing, and/or perform any repair, revision, or modification with respect to the System, all of which shall be made at the cost and expense of the Owner. So long as an emergency situation does

not exist, prior to entering upon the Property and conducting its own inspection or performing any testing repair, revision, or modification, the Township shall provide the Owner five (5) calendar days advance written notice of its inspection to enter upon the Property for any of these purposes. The Owner shall have the right to comply with the terms of this Agreement within that five (5) day period.

j. In the event that the Owner fails to timely submit to the Township a copy of the annual renewal of the System maintenance contract or any other report required under this Agreement, the Owner shall pay the Township a fine in an amount set by Resolution of the Township for each month or portion of each month after which the required receipt was due and continuing until a proper receipt is provided to the Township.

3. Owner's Responsibility.

a. Following installation, absent express prior written approval from Township and BCDH, unless otherwise permitted by this Agreement, the System and all areas appurtenant thereto shall be one hundred percent (100%) protected against any alteration, grading, regrading, disturbance or modifications. Further, the grazing of livestock is prohibited on the System and the areas appurtenant thereto.

b. The Owner shall provide an adequate supply of electrical power with the proper phase, frequency, and voltage as recommended by the equipment manufacturers of the various components of the System.

c. The Owner agrees not to plant trees or shrubs or allow vehicular traffic on or over System components.

d. The Owner agrees not to build any structures, including swimming pools and sprinkler systems, on or within 10 feet of any components of the System.

e. The Owner agrees to use water conservation devices (including such as low flow toilets, showerheads, dishwashers, and clothes washers) and to promptly repair any leaking plumbing fixtures.

f. The Owner agrees not to introduce into the System harmful chemicals (including without limitation oils and grease, gasoline, antifreeze, pesticides, paints and thinners, industrial soaps and detergents, harsh drain and toilet bowl cleaners) and clogging bulky items (including without limitation sanitary napkins, diapers, paper

towels, cigarette filters, cat litter, plastics, egg shells, bones, coffee grounds.) The Owner shall not connect a garbage disposal or any similar device to the System.

g. Owner agrees to make the components of the System accessible to Township or its agent to perform inspections in accordance with this Agreement.

4. Owner's Responsibility at Change of Ownership.

a. In the event of change of ownership of the Property, the Owner shall review the operation and maintenance of the System with the prospective owner before settlement and provide the prospective owner with a complete copy of this Agreement, the Operation and Maintenance Manual, the current maintenance contract, all inspection reports, and all maintenance and monitoring requirements regarding the System. Owner shall procure the prospective owner's written acknowledgement of receipt of the same at settlement, and return a copy of the acknowledgement to Township within fourteen (14) days of settlement.

b. In the event of change of ownership of the Property, the Owner shall, within fourteen (14) calendar days of the change of ownership, notify the Township by letter of the name and address of the new owner and include a copy of the new owner's acknowledgement of receipt of the items listed in the above section. Upon receipt of such letter by the Township, Owner shall be released from any further obligations arising under this Agreement, except as to any violations which occurred during Owner's ownership of the Property.

D. INOPERABILITY OR NONCOMPLIANCE OF SYSTEM.

1. During any period of time when the System is inoperable and/or incapable of treating the discharged effluent so as to meet and/or exceed DEP and/or BCDH standards, the Owner shall make arrangements to remove the effluent and arrange for its appropriate disposition at a properly certified and licensed sewage disposal facility.

2. The Owner shall, upon request of the Township, provide an agreement with a hauler providing for the removal of effluent. The Owner agrees to continue hauling effluent until such time as the Township Engineer or BCDH has properly certified the System as being operable.

3. In the event the Owner shall fail to make the necessary arrangements for the removal of the effluent, the Township and/or BCDH shall have the right, within 48

hours following the deposit of written notice to the Owner into first-class mail or delivering or posting written notice to or on the Property, to enter upon the Property and cause the effluent to be removed.

E. <u>AGREEMENT AND RECORDING FEES.</u> The Owner shall reimburse the Township for legal, administrative and recording costs incurred by the Township in preparing this Agreement and recording this Agreement in the Office of the Recorder of Deeds of Bucks County.

F. <u>FINANCIAL RESPONSIBILITY.</u> It is understood and agreed that in the event the Owner shall fail to pay fines as provided in this Agreement or any costs incurred by the Township, or its designee, for inspections, repairs, and/or replacement of the System or its component parts or in the removal of effluents in accordance with the terms of this Agreement, shall be recoverable by the Township from the Owner. In the event the Owner fails to pay the Township for such costs or expense, then the Township shall have the right to: (a) withdraw the amount of such costs from the Escrow established pursuant to paragraph 1 hereof; (b) sue the Owner in a civil action for reimbursement of its costs; and/or (c) cause a municipal claim and/or lien to be placed on the Property in the manner provided by law in the amount of the expense or both, and to collect such claim/lien as provided by law.

G. <u>ENFORCEMENT.</u>

1. The Township shall have the right and the obligation to enforce this Agreement and to bring an action to abate any measure resulting from the operation of the System and to exercise such other powers reasonably available to the Township. It is expected that the BCDH will oversee and enforce regulations concerning sewage discharges that are nuisances and health hazards.

2. The Owner shall reimburse the Township for all reasonable costs incurred in the enforcement of this Agreement including court costs, engineering, legal and administrative fees and costs.

H. RECORDING OF AGREEMENT AND OBLIGATIONS OF SUCCESSORS.

1. This Agreement shall be recorded by the Township in the Office of the Recorder of Deeds in the County of Bucks, Pennsylvania.

2. This Agreement shall be binding upon the Owner, Owner's heirs, administrators, executors, successors, and assigns, including the Owner's successor in title, it being the express understanding of the parties that any and all duties and obligations of the Owner with respect to the operation of the System set forth in this Agreement also "run with the land" and remain that obligation of the Owner's successors in title as to the System that is located on the Property.

I. <u>NOTICE.</u> Any notice required by the terms of this Agreement shall be sufficient if sent to the Owner's last known address by first-class mail. The Owner has the obligation to forward Township any and all address and/or ownership changes; and Township shall not be responsible for failure to give notice should Owner not provide Township with the appropriate address information.

J. INDEMNITY; DUTY TO DEFEND.

1. Owner shall at times defend and hold the Township, or its designee, harmless from any claims, suits, legal expenses or judgments which may arise from, or are in any way connected with, the operation, maintenance or repair of the System described herein including, but not limited to, claims related to the failure of the System to properly function, the performance of any inspections by the Township, or its designee, the determination of any work required to be performed to maintain, repair or replace components of the System, and/or the adequacy of any repair or maintenance of the System. The indemnification provided for herein shall extend to claims by Owner as well as claims by third parties. The indemnification is such that the Owner shall have no cause of actions against the Township, or its designee, or against officials and employees of same arising out of the obligations set forth herein or any claim that the Township, or its designee, has failed to properly perform obligations set forth herein.

2. As to claims by third parties, the aforesaid indemnification shall be conditioned upon notification of the Owner by the Township or its designee, within thirty (30) days of receipt of a claim and/or suit. The Owner shall have the duty to defend the Township and its designee, its officials and employees against any claim or suit made by any third party which alleges any claim arising from or in any way connected with, the approval, inspection, operation, maintenance and/or repair of the System.

In the event the Owner fails to undertake the defense of the Township, 3. and/or its designee, as the case may be, as to any such claim and any such entity or person is required to enter upon its own defense, the Owner shall reimburse such person or entity for any expenses it or they may incur, including legal fees, engineering fees and other expert witness fees and shall pay any judgment rendered against the Township, or its designee, its officials and employees as a result of such suit. As to damages alleged to have been caused to any third party by reason of approval of the inspection, operation, maintenance or repair of the System, the Owner shall have the right and option to join the Township and/or its designee in the defense and/or compromise of such claim. In the event the Owner fails to pay the costs, legal fees, other expenses or damages as herein provided and the Township and/or its designee, is required to pay same, such entity shall have the right to recover the monies it has expended: (a) by withdrawing the amount of said costs from the Escrow provided in section I hereof; (b) by suing the Owner in assumpsit, and/or (c) by causing a municipal claim and/or lien to be placed on the Property in the manner provided by law in an amount equal to the sums required to be expended.

K. <u>MISCELLANEOUS.</u>

1. <u>Other Ordinances</u>. It is expressly understood and agreed that nothing contained herein shall be construed to waive or affect or alter any requirements of the Zoning, Building, Land Development or Subdivision Ordinances or other Ordinances of the Township and nothing contained herein empowers any Township officer or employee to waive any requirements of such Ordinances.

2. <u>Captions</u>. The captions in this Agreement are intended solely to facilitate the reading of, and reference to, the sections and provisions of this Agreement; such captions shall not affect the meaning or interpretation of this Agreement.

3. <u>Governing Law.</u> This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Pennsylvania.

4. <u>Jurisdiction</u>. Owner agrees to submit to the jurisdiction of the Court of Common Pleas of Bucks County in the event Township institutes a suit and Owner agrees not to contest jurisdiction of the Court of Common Pleas of Bucks County for any reason.

5. <u>Counterparts.</u> This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, and Owner and Township may become a party hereto by executing a counterpart of this Agreement.

6. <u>Interpretation.</u> Owner agrees that this Agreement is the result of negotiations between Township and Owner and that if an ambiguity or ambiguities should be claimed by either Owner or Township or a Court of competent jurisdiction should determine that an ambiguity or ambiguities exist, such ambiguity or ambiguities shall be resolved without resorting to the principle of construing any ambiguity or ambiguities against the party who prepared the Agreement.

7. <u>Entire Agreement; Amendment.</u> This document contains the entire agreement between the parties hereto with respect to the transactions contemplated hereby and supersedes all prior or contemporaneous agreements, understandings, representations and warranties between the parties, and may not be amended except by written instrument executed by the duly authorized officers of the parties hereto.

8. <u>Severability</u>. In the event any term, provision or clause of this Agreement is determined by a court of competent jurisdiction to be unenforceable, the remainder of this Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have set their hands and seal the day and year first above written.

BOARD OF SUPERVISORS HAYCOCK TOWNSHIP

ATTEST:

OWNER:

COMMONWEALTH OF PENNSYLVANIA

SS.

COUNTY OF BUCKS

ON THIS, the _____day of ______, 200_, before me the undersigned officers, personally appeared ______, known to be the person whose name is subscribed to the within instrument and who acknowledged himself/herself to be the ______ of the Board of Supervisors of Haycock Township and that as such officer, being authorized to do so, executed the same for the purposes therein contained.

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

Notary Public

COMMONWEALTH OF PENNSYLVANIA	:	
	:	SS.
COUNTY OF BUCKS	:	

On this _____ day of _____, 200_ before me, a Notary Public for the Commonwealth of Pennsylvania, personally appeared ______ and ______ and ______, known to me (or satisfactorily proven) to be the persons whose names are subscribed to the within instrument, and acknowledged that they executed the same for the purposes therein contained.

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

Notary Public

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PREPARED BY: Clemons Richter & Reiss, P.C. 107 East Oakland Avenue Doylestown, PA 18901 (215) 348-1776

RETURN TO: Clemons Richter & Reiss, P.C. 107 East Oakland Avenue Doylestown, PA 18901 (215) 348-1776

CPN#

OPERATION AND MAINTENANCE AGREEMENT

HOLDING TANK FOR TAX MAP PARCEL NO. _____ HAYCOCK TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

THIS OPERATION AND MAINTENANCE AGREEMENT (the "Agreement") is
made this day of, 201 by and between HAYCOCK
TOWNSHIP, 640 Harrisburg School Road, Quakertown, Pennsylvania 18951 (the
" <u>Township</u> "); and,,
heirs, executors and assigns,,
Bucks County, Pennsylvania (collectively the " <u>Owner</u> ").
BACKGROUND
A. Owner is the legal owner of certain real estate located
in Haycock Township,

Bucks County, Pennsylvania, identified as Bucks County Tax Map Parcel Number (the "Property").

B. The word "Owner" shall mean each successive owner of the Property and each Property owner shall be bound by the terms and provisions of this Agreement.

C. The word "Owner" as used in this Agreement shall be construed to mean "Owners" in all cases where there is more than one owner (and in such case the liability of such owners shall be joint and several), and the necessary grammatical changes required to make the provisions hereof apply to corporations, partnerships or individuals, men or women, shall in all cases be assumed as though in each case fully expressed.

D. The existing on-lot sewage facilities servicing the Property have failed and the Owner has requested that the Township permit an on-lot holding tank to be utilized for temporary storage of residential dwelling use sewage effluent (the "<u>Holding Tank</u>") prior to such sewage effluent being transported for ultimate disposal at another site.

E. Applicable Pennsylvania, Bucks County and Township law, rules and regulations, including but not limited to technical guidance documents promulgated by any of the foregoing (collectively the "<u>Codes</u>") authorize and require that municipalities, prior to the issuance of a permit for a holding tank by the Bucks County Department of Health (the "<u>BCDH</u>"), take action to ensure compliance with the operation and management requirements for the holding tank prescribed by the Pennsylvania Department of Environmental Protection (the "<u>DEP</u>"), for the operation and maintenance of the holding tank.

F. The Township is willing to allow the installation of the Holding Tank upon the Property provided that the Owner agrees to install, operate and maintain the holding tank upon certain terms and conditions more particularly set forth in this Agreement.

G. This Agreement is entered into by and between the Owner and the Township for the purpose of assuring the operation and maintenance of the Holding Tank proposed by the Owner.

H. The Owner agrees to install, operate and maintain the Holding Tank proposed for the Property upon the terms and conditions more particularly set forth in this Agreement.

1. This Agreement is binding upon the Owner, Owner's heirs, administrators, executors, successors, and assigns, including the Owner's successor in title, it being the express understanding of the parties that any and all duties and obligations of the Owner with respect to the operation of the Holding Tank set forth in this Agreement also "run with the land" and remain that obligation of the Owner's successors in title of the Property.

NOW THEREFORE, for and in consideration of the covenants and conditions contained herein, the Owner and the Township agree as follows:

A. <u>ESCROW.</u>

1. Property Owner has deposited with Township the sum of Ome Thousand Dollars (\$1,000:00) IN ESCROW to secure the costs of future operation and maintenance of the Holding Tank in compliance with the Codes, terms and provisions as set forth herein. Township shall maintain said escrow in an interest-bearing escrow account. Township shall have the right to apply the escrow principal and/or any interest accruing thereon, to pay inspection, testing, engineering or consulting fees or any costs of repair or replacement of the Holding Tank or the cost of hauling any effluent, incurred by Township in the case of default by Property Owner of any of the provisions of this Agreement.

2. In the event that the escrow balance falls below Five Hundred Dollars (\$500.00), upon written request by Township, Property Owner agrees to replenish the escrow to the full amount of One Thousand Dollars (\$1,000.00) within ten (10) calendar days of such request.

3. The escrow funds shall be maintained with Township so long as Holding Tank services the Property. At such time as the Holding Tank no longer services the Property and the Holding Tank has been shut down in accordance with regulations of the DEP or BCDH then in effect, the balance of escrow funds then held on deposit shall be returned to the then Property Owner. However, if the Holding Tank is shut down because the Property is being connected to a public sewer system, the balance in the escrow account shall be applied to the connection fees for connecting the Property to the public sewer system with the balance, if any, thereafter returned to the then Property Owner.

B. HAULING CONTRACT.

Prior to installation of the Holding Tank, Owner shall provide Township with a copy of the fully-executed contract ("Contract") that has been entered between Owner and a hauler approved by the DEP or BCDH ("Hauler") providing for the pumping of the Holding Tank and disposal of the Holding Tank effluent to a DEP or BCDH approved site for a period of one year from the date of the Contract which Contract shall be renewed annually and proof thereof provided to the Township. The Contract shall also name the Township as an additional party.

C. HOLDING TANK APPROVAL, PERMITTING AND INSTALLATION.

1. No installation of a Holding Tank shall commence until the holding tank has been approved by DEP and/or a permit has been issued by the BCDH for the holding tank. Owner shall provide Township with satisfactory evidence of the approval and/or permit prior to installation of the Holding Tank and shall also provide satisfactory evidence indicating that BCDH has approved the completed installation of the Holding Tank.

2. The Holding Tank shall be designed, installed, operated and maintained by the Owner of the Property, in accordance with the Codes and any interim or permanent rules and regulations established by the DEP, the BCDH, the BCCD and/or the Township.

3. The Holding Tank shall be equipped with a warning device to indicate when the tank is filled to within seventy-five percent (75%) of its capacity. The warning device shall include an alarm as well as a visual signal at a location frequented by Owner and approved by BCDH.

4. Simultaneously with submission of the Holding Tank application to the BCDH, the Owner shall submit to the Township for review an Operation and Maintenance Manual for the Holding Tank in form satisfactory to the Township summarizing the operation and maintenance requirements of the Holding Tank.

5. Prior to the initial operation of the Holding Tank, the Owner and shall meet with the Holding Tank manufacturer representative and/or installation contractor and review the operation and maintenance of the Holding Tank. The Owner shall obtain information from the Holding Tank manufacturer representative and/or installation contractor regarding the following:

a. verbal and detailed written operation and maintenance instructions;

b. detailed drawings showing all components of the holding tank; and

c. a complete explanation of the holding tank's automatic alarm holding tank, a contact name, and telephone number to contact during an active alarm.

6. Prior to the operation of the holding tank on the Property, the Owner shall provide satisfactory evidence to the Township and the DEP and/or BCDH that the

installation of the holding tank and its "start up" have been completed in accordance, with the permit granted by the DEP and/or BCDH.

D. OWNER'S CONTINUING OBLIGATIONS.

1. Inspections, testing and repairs

a. The Owner agrees to provide access to the Property to the Township, DEP and/or BCDH to inspect the Holding Tank and ensure the Holding Tank and all components are working properly. Township, DEP and/or BCDH may inspect during normal business hours for routine inspections and at any time for emergencies.

b. Owner shall operate and maintain the Holding Tank under the general and specific parameters for the Holding Tank as set forth in this Agreement and the Operation and Maintenance Manual specific to the components of the Holding Tank.

c. If any inspection indicates a repair, revision, or modification of any component part or all of the Holding Tank is required to bring the Holding Tank into compliance with DEP regulations, any and all repairs and/or replacements shall be made within thirty (30) days of the date of the inspection evidencing a need for the repairs and/or replacements. The Owner further agrees to pay all costs of such repair, replacement and/or additional maintenance. Copies of the invoices, reports or other documents of the repairs and/or replacements and amended or revised drawings detailing any revision or modification and a certification that the repairs and/or replacements have been made in accordance with DEP regulations shall be retained by the Owner and filed with the Township and the BCDH within fourteen (14) days of any and all repairs and/or replacements.

d. The Township shall have the right to inspect the Holding Tank on an annual basis or at any other time as deemed reasonable to assure a pollution free Holding Tank operation. If the Owner fails to comply with the recommendations of the Township, BCDH and DEP with respect to any repair, revision, or modification of any component part or all of the Holding Tank, the Township shall have the right to enter upon the Property, conduct an inspection and/or testing, and/or perform any repair, revision, or modification with respect to the Holding Tank, all of which shall be made at the cost and expense of the Owner. So long as an emergency situation does not exist,

prior to entering upon the Property and conducting its own inspection or performing any testing repair, revision, or modification, the Township shall provide the Owner five (5) calendar days advance written notice of its inspection to enter upon the Property for any of these purposes. The Owner shall have the right to comply with the terms of this Agreement within that five (5) day period.

2. <u>Removal and Disposal of Effluent ; Hauling Contract; Reporting</u>

a. Owner shall maintain in effect at all times a Contract to ensure the effluent is removed from the Holding Tank by a hauler approved by DEP or BCDH ("Hauler") whenever the tank reaches 75% of its capacity or as indicated by the alarm and/or visual warning signal and the effluent removed to a DEP or BCDH approved site. The Contract shall also name the Township as an additional party.

b. Owner shall keep current all payment for hauling services.

c. "Reporting year" is defined as September 30th of one year through September 30th of the next year.

d. On or before the first October 30th after this Agreement is executed and each year thereafter on or before October 30th, Owner shall provide Township with receipts from the approved Hauler showing the dates and amounts of effluent which have been removed at any time during the reporting year ending on September 30th or any part of that reporting year.

e. On or before the first October 30th after this Agreement is executed and each year thereafter for the duration of the utilization of the Holding Tank by the Owner, Owner shall provide the Township with a copy of fully-executed annual Contract with an approved Hauler for the subsequent year hauling services.

f. On or before the first October 30th after this Agreement is executed and each year thereafter for the duration of the utilization of the Holding Tank by the Owner, Owner shall have the Holding Tank's warning device, consisting of the alarm and visual warning signal, inspected by a licensed electrician and provide Township with a report of a licensed electrician certifying that the device is in proper working condition.

3. Owner's Responsibility.

a. The Owner shall provide an adequate supply of electrical power with the proper phase, frequency, and voltage as recommended by the equipment manufacturers of the various components of the Holding Tank.

b. The Owner agrees to use water conservation devices (including such as low flow toilets, showerheads, dishwashers, and clothes washers) and to promptly repair any leaking plumbing fixtures.

4. Owner's Responsibility at Change of Ownership.

a. In the event of change of ownership of the Property, the Owner shall review the operation and maintenance of the Holding Tank located on the Property with the prospective owner before settlement and provide the prospective owner with a complete copy of this Agreement, the Operation and Maintenance Manual and all inspection reports, and all maintenance and monitoring requirements regarding the Holding Tank and procure the prospective owner's written acknowledgement of receipt of the same at settlement.

b. In the event of a pending change of ownership of the Property, the Owner not less than shall fourteen (14) calendar days prior to the settlement date shall notify the Township by letter of the name and address of the new owner. Upon receipt of that letter by the Township, Owner shall be released from any further obligations arising under this Agreement, except as to any violations which occurred during Owner's ownership of the Property.

E. <u>AGREEMENT AND RECORDING FEES.</u> The Owner agrees to reimburse the Township for recording this Agreement in the Office of the Recorder of Deeds of Bucks County.

F. <u>FINANCIAL RESPONSIBILITY.</u> It is understood and agreed that in the event the Owner shall fail to pay fines as provided in this Agreement or any costs incurred by the Township, or its designee, for inspections, repairs, and/or replacement of the Holding Tank or its component parts or in the removal of effluents in accordance with the terms of this Agreement, shall be recoverable by the Township from the Owner. In

the event the Owner fails to pay the Township for such costs or expense, then the Township shall have the right to: (a) sue the Owner in a civil action for reimbursement of its costs; and/or (b) cause a municipal claim and/or lien to be placed on the Property in the manner provided by law in the amount of the expense or both, and to collect such claim/lien as provided by law.

G. ENFORCEMENT.

1. The Township shall have the right to enforce this Agreement and to bring an action to abate any measure resulting from the operation of the Holding Tank and to exercise such other powers reasonably available to the Township. It is expected that the BCDH will oversee and enforce regulations concerning sewage discharges that are nuisances and health hazards.

2. The Owner agrees to reimburse the Township for all reasonable costs incurred in the enforcement of this Agreement including court costs, engineering, legal and administrative fees and costs.

H. RECORDING OF AGREEMENT AND OBLIGATIONS OF SUCCESSORS.

1. This Agreement shall be recorded by the Township in the Office of the Recorder of Deeds in the County of Bucks, Pennsylvania.

2. This Agreement shall be binding upon the Owner, Owner's heirs, administrators, executors, successors, and assigns, including the Owner's successor in title, it being the express understanding of the parties that any and all duties and obligations of the Owner with respect to the operation of the Holding Tank set forth in this Agreement also "run with the land" and remain that obligation of the Owner's successors in title as to the Holding Tank that is located on the Property.

I. <u>NOTICE.</u> Any notice required by the terms of this Agreement shall be sufficient if sent to the Owner's last known address by first-class mail. The Owner has the obligation to forward Township any and all address and/or ownership changes; and Township shall not be responsible for failure to give notice should Owner not provide Township with the appropriate address information.

J. INDEMNITY; DUTY TO DEFEND.

1. Owner shall at times defend and hold the Township, or its designee, harmless from any claims, suits, legal expenses or judgments which may arise from, or are in any way connected with, the operation, maintenance or repair of the Holding Tank described herein including, but not limited to, claims related to the failure of the holding tank to properly function, the performance of any inspections by the Township, or its designee, the determination of any work required to be performed to maintain, repair or replace components of the Holding tank, and/or the adequacy of any repair or maintenance of the holding tank. The indemnification provided for herein shall extend to claims by Owner as well as claims by third parties. The indemnification is such that the Owner shall have no cause of actions against the Township, or its designee, or against officials and employees of same arising out of the obligations set forth herein or any claim that the Township, or its designee, has failed to properly perform obligations set forth herein.

2. As to claims by third parties, the aforesaid indemnification shall be conditioned upon notification of the Owner by the Township or its designee, within thirty (30) days of receipt of a claim and/or suit. The Owner shall have the duty to defend the Township and its designee, its officials and employees against any claim or suit made by any third party which alleges any claim arising from or in any way connected with, the approval, inspection, operation, maintenance and/or repair of the Holding Tank.

3. In the event the Owner fails to undertake the defense of the Township, and/or its designee, as the case may be, as to any such claim and any such entity or person is required to enter upon its own defense, the Owner shall reimburse such person or entity for any expenses it or they may incur, including legal fees, engineering fees and other expert witness fees and shall pay any judgment rendered against the Township, or its designee, its officials and employees as a result of such suit. As to damages alleged to have been caused to any third party by reason of approval of the inspection, operation, maintenance or repair of the Holding Tank, the Owner shall have the right and option to join the Township and/or its designee in the defense and/or compromise of such claim. In the event the Owner fails to pay the costs, legal fees,

other expenses or damages as herein provided and the Township and/or its designee, is required to pay same, such entity shall have the right to recover the monies it has expended: (a) by withdrawing the amount of said costs from the Escrow provided in section I hereof; (b) by suing the Owner in assumpsit, and/or (c) by causing a municipal claim and/or lien to be placed on the Property in the manner provided by law in an amount equal to the sums required to be expended.

K. MISCELLANEOUS.

1. <u>Other Ordinances.</u> It is expressly understood and agreed that nothing contained herein shall be construed to waive or affect or alter any requirements of the Zoning, Building, Land Development or Subdivision Ordinances or other Ordinances of the Township and nothing contained herein empowers any Township officer or employee to waive any requirements of such Ordinances.

2. <u>Captions</u>. The captions in this Agreement are intended solely to facilitate the reading of, and reference to, the sections and provisions of this Agreement; such captions shall not affect the meaning or interpretation of this Agreement.

3. <u>Governing Law.</u> This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Pennsylvania.

4. <u>Jurisdiction</u>. Owner agrees to submit to the jurisdiction of the Court of Common Pleas of Bucks County in the event Township institutes a suit and Owner agrees not to contest jurisdiction of the Court of Common Pleas of Bucks County for any reason.

5. <u>Counterparts.</u> This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, and Owner and Township may become a party hereto by executing a counterpart of this Agreement.

6. <u>Interpretation</u>. Owner agrees that this Agreement is the result of negotiations between Township and Owner and that if an ambiguity or ambiguities should be claimed by either Owner or Township or a Court of competent jurisdiction should determine that an ambiguity or ambiguities exist, such ambiguity or ambiguities shall be resolved without resorting to the principle of construing any ambiguity or ambiguities against the party who prepared the Agreement.

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7. Entire Agreement; Amendment. This document contains the entire agreement between the parties hereto with respect to the transactions contemplated hereby and supersedes all prior or contemporaneous agreements, understandings, representations and warranties between the parties, and may not be amended except by written instrument executed by the duly authorized officers of the parties hereto.

8. <u>Severability</u>. In the event any term, provision or clause of this Agreement is determined by a court of competent jurisdiction to be unenforceable, the remainder of this Agreement shall remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have set their hands and seals on the day and year first above written.

ATTEST:

BOARD OF SUPERVISORS HAYCOCK TOWNSHIP

Township Secretary

, Chair

PROPERTY OWNER:

COMMONWEALTH OF PENNSYLVANIA

. : SS.

COUNTY OF BUCKS

On this _____ day of _____, 20__, before me, a Notary Public, personally appeared _____, Chair, Board of Supervisors of Haycock Township, known, to me and acknowledged that he executed the same for the purposes therein contained.

:

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

Notary Public

COMMONWEALTH OF PENNSYLVANIA : : ss.

COUNTY OF BUCKS

On this _____ day of ______ 20__, before me, a Notary Public, personally appeared ______, known, to me (or satisfactorily proven to be the person whose name is subscribed to the within Maintenance Agreement for Holding Tank), and acknowledged that ____[he/she] executed the same for the purposes therein contained.

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

Notary Public

COMMONWEALTH OF PENNSYLVANIA : : ss. : county of bucks :

On this ______day of ______20_, before me, a Notary Public, personally appeared ______, known, to me (or satisfactorily proven to be the person whose name is subscribed to the within Maintenance Agreement for Holding Tank), and acknowledged that ____[he/she] executed the same for the purposes therein contained.

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

Notary Public

U:\TWC Clients\HAYCOCK\Forms\Sewage Facilities Operation and Maintenance Agreements\O&M - Holding Tank form with escrow..08.08.11.docx

APPENDIX C

Supplemental Data

Bucks County, Pennsylvania

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
AbA:					
Abbottstown	93	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to hard bedrock	0.61
		Depth to bedrock	0.86	Seepage	0.53
AbB:					
Abbottstown	93	Very limited		Very limited	
		Slow water movement	1,00	Depth to saturated zone	1.00
		Depth to saturated	1.00	Slope	0,92
		zone Depth to bedrock	0.86	Depth to hard bedrock	0.61
				Seepage	0.53
AmA:					
Amwell	90	Very limited		Very limited	
		Slow water movement	1.00	Seepage Depth to saturated	1.00 0.94
		Depth to saturated zone	1.00	zone	
		Seepage, bottom layer	1.00		
AmB:					
Amweli	90	Very limited		Very limited	
		Slow water	1.00	Seepage	1.00
		Depth to saturated	1.00	Depth to saturated zone	0.94
		zone	4.00	Slope	0.92
		Seepage, bottom layer	1.00		
Bo:					
Bowmansville	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage Depth to saturated	1.00 1.00
		Seepage, bottom layer	1.00	zone	
		Slow water movement	1.00		



Conservation Service

This report shows only the major soils in each map unit. Others may exist. Tabular Data Version: 7

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Bucks County, Pennsylvania

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
Bo:					
Knauers	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Zone	1.00	Seepage Depth to saturated	1.00
		Seepage, bottom layer	1.00	zone Ponding	1.00
		Ponding	1.00		
		Slow water movement	0.46		
BrB:					
Brecknock	93	Somewhat limited		Very limited	
		Depth to bedrock	0.99	Seepage	1.00
		Slow water movement	0.46	Depth to hard bedrock	0.99
				Slope	0.92
BwB:) ()			
Buckingham	88	very limited	4.00	very limited	4 00
		zone	1.00	Zone	1.00
		Slow water	1.00	Slope	0.92
		movement		Seepage	0.53
CwA:					
Croton	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
CwB:					
Croton	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated	1.00	Ponding	1.00
		Ponding	1.00	Slope	0.92
Quer De		-			
Croton, oxtromoly story	0 E	Very limited		Very limited	
Croton, exitency stony	00	Slow water	1.00	Depth to saturated	1.00
		Depth to enturated	1 00	Slope	032
		ZONE	1.00	olohe	0.32



USDA Natural Resources **Conservation Service**

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Bucks County, Pennsylvania

Map symbol	Pct. of	Septic tank absorptior	n fields	Sewage lagoons	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value
СуВ:					
Culleoka	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Seepage Slope	1.00 0.92
Weikert	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom	1.00	Seepage	1.00
		layer		Slope	0.92
CyC:					
Culleoka	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom	1.00	Slope	1.00
		layer	0.00	Seepage	1.00
		Siope	0.03		
Weikert	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom	1.00	Slope	1.00
		layer		Seepage	1.00
		Slope	0.63		
FI:					
Fluvaquents	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Ha:					
Hatboro	95	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated	1.00	Seepage	1.00
		zone Seepage, bottom	1.00	Depth to saturated zone	1.00
		layer Slow water movement	0.46		
KIB:					
Klinesville	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom	1.00	Seepage	1.00
		layei		Siope	0.92

JSDA Natural Resources

Conservation Service

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Bucks County, Pennsylvania

Map symbol and soil name	Pct. of	Septic tank absorption fields		Sewage lagoons	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value
LmB:					
Lehigh	90	Very limited	4.00	Very limited	4.00
		Slow water movement	1.00	Seepage Dopth to poturated	1.00
		Depth to saturated	1.00	zone	0.99
		Depth to bedrock	0.63	Siope Double to bourd	0.92
		Depin to bedrock	0.00	bedrock	0.18
LmC:					
Lehigh	90	Very limited		Very limited	
		Slow water	1.00	Slope	1.00
		movement Dopth to naturated	1.00	Seepage	1.00
		zone	1.00	zone	0.99
		Depth to bedrock	0.63	Depth to hard	0.18
		Slope	0.63	bedrock	
LnD:	90	Ven/ limited		Very limited	
Lenigh, extremely story	90	Slowwator	1.00	Sione	1.00
		movement	1.00	Seenage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.99
		Slope	1.00	Depth to hard	0.18
		Depth to bedrock	0.63	bedrock	
MIA:) (!!	
Mount Lucas	93	Very limited	4.00	very limited	4 00
		Depth to saturated	1.00	Seepage	1.00
		Slow water movement	1.00	zone	0.94
		Seepage, bottom layer	1.00		
MIB:					
Mount Lucas	· 94	Very limited		Very limited	
		Depth to saturated	1.00	Seepage	1.00
		ZORE Slow weter	1.00	Depth to saturated	0.94
		movement	1.00	Slope	0 02
		Seepage, bottom layer	1.00	Clobe	0.32

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Bucks County, Pennsylvania

		1			
Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
MIC:			-		
Mount Lucas	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope Seepage	1.00 1.00
		Slow water movement	1.00	Depth to saturated zone	0.94
		Seepage, bottom layer	1.00		
		Slope	0.63		
MmB:					
Mount Lucas, extremely stony	91	Very limited		Very limited	
		Depth to saturated	1.00	Seepage	1.00
		Slow water	1.00	zone	0.94
		movement		Slope	0.32
		Seepage, bottom layer	1.00		
MmD:					
Mount Lucas, extremely stony	91	Very limited	4.00	Very limited	4 00
		Zone	1.00	Slope Dopth to saturated	1.00
		Slow water	1.00	zone	1.00
		movement		Seepage	1.00
		Slope	1.00		
		Seepage, bottom layer	1.00		
NbB:					
Neshaminy	97	Very limited		Somewhat limited	
		Slow water	1.00	Slope	0.92
		Depth to bedrock	0.59	Seepage Dooth to hard	0.28
				bedrock	0.15
NbC:					
Neshaminy	95	Very limited		Very limited	
		Slow water	1.00	Slope	1.00
		Slope	0.63	Seepage Depth to bard	0.28
		Depth to bedrock	0.59	bedrock	0.15

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Bucks County, Pennsylvania

Map symbol	Pct. of	Septic tank absorptior	n fields	Sewage lagoons	
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value
NhB:	1		•		
Neshaminy, extremely bouldery	95	Very limited		Somewhat limited	
		Slow water	1.00	Slope	0.32
		Depth to bedrock	0.50	Seepage	0.28
		Depth to bedrock	0.53	bedrock	0.13
				Large stones content	0.01
NhD:					
Neshaminy, extremely bouldery	97	Very limited		Very limited	
		Slow water	1.00	Slope	1.00
		movement	4.00	Seepage	0.28
		Slope Depth to bedrock	0.50	Depth to hard	0.13
		Departo Beardok	0.03	Large stones content	0.01
NhF:					
Neshaminy, extremely bouldery	97	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water	1.00	Seepage	0.28
		movement	0.50	Depth to hard	0.13
		Depth to bearook	0.59	Large stones content	0.01
NU-A .				5	
NKA: Nackamiyon	00	Very limited		Very limited	
NUCKAITIKOIT	90	Denth to saturated	1.00	Denth to saturated	1.00
		zone		zone	1.00
		Slow water movement	1.00	Seepage	0.53
NkB:					
Nockamixon	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water	1.00	Slope	0.92
		movement		Seepage	0.53
NKC:					•
Nockamixon	95	Very limited		Very limited	
		Depth to saturated	1.00	Slope	1.00
		zone	1 00	Depth to saturated	1.00
		movement	1.00	Seepage	0.53
		Slope	0.63		

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Bucks County, Pennsylvania

Map symbol	Pct. of	Septic tank absorption	n fields	Sewage lagoons	3
	unit	Rating class and limiting features	Value	Rating class and limiting features	Value
PeB:					
Penn	87	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard	1.00
	•	laver	1.00	Seepage	1.00
				Slope	0.92
PeC:					
Penn	87	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard	1.00
		Seepage, bottom	1.00	bedrock	1 00
		Sione	0.63	Seenage	1.00
		olope	0.00	occpage	1.00
Pr: Dita guarrian	90	Not rated		Not rated	
⊢its, quantes	00	Nothaleo		Horraco	
RIA:	00	Varylimitad		Verylimited	
Keaville	90	Slow water	1.00	Depth to hard	1.00
		movement	1.00	bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Seepage	0.21
RIB:					
Reaville	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to bedrock	1.00	Slope	0.92
				Seepage	0.21
ToA:					
lowhee	96	very limited	4.00	Very limited	4 00
		movement	1.00	zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
ТоВ:	~~) (
rowhee	88	very limited	4.00	very limited	1 00
		movement	1.00	zone	1.00
		Depth to saturated	1.00	Slope	0.92
		zone		Seepage	0.53

USDA Natural Resources

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Bucks County, Pennsylvania

Map symbol	Pct. of	Septic tank absorptior	n fields	Sewage lagoons	
and soil hame	unit	Rating class and limiting features	Value	Rating class and limiting features	Value
TrB:					
Towhee, extremely stony	88	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage Slope	0.53 0.32
Ub:					
Udorthents, loamy	95	Very limited		Very limited	
· · · · · · ,		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom laver	1.00	Seepage	1.00
		,		Зоре	0.52
UfuB:					
Urban land	85	Not rated		Not rated	
UvB:					
Urban land	65	Not rated		Not rated	
Neshaminy	30	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.32
		Depth to bedrock	0.27		
10.5					
Water	99	Not rated		Not rated	
WfD:					
Weikert	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Culleoka	30	Very limited		Very limited	
		Slope	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

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This report shows only the major soils in each map unit. Others may exist. Tabular Data Version: 7

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This table shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

"Septic tank absorption fields" are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches or between a depth of 24 inches and a restrictive layer is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

"Sewage lagoons" are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, saturated hydraulic conductivity (Ksat), depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Saturated hydraulic conductivity (Ksat) is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagcons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a Ksat rate of more than 14 micrometers per second are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Natural Resources **Conservation Service**

This report shows only the major soils in each map unit. Others may exist. Tabular Data Version: 7

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Bucks County, Pennsylvania

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
AbA: Abbottstown silt loam, 0 to 3 percent slopes	Croton	5	Depressions	Yes	2B3
AbB: Abbottstown silt loam, 3 to 8 percent slopes	Croton	6	Depressions	Yes	2B3
AmA: Amwell silt loam, 0 to 3 percent slopes	Croton	3	Depressions	Yes	2B3
	Doylestown	3	Drainageways	Yes	2B3
AmB: Amwell silt loam, 3 to 8 percent slopes	Croton	3	Depressions	Yes	2B3
	Doylestown	1	Drainageways	Yes	2B3
Bo: Bowmansville-Knauers silt loams	Knauers	40	Flood plains	Yes	2B3, 3
BwB: Buckingham silt loam, 3 to 8 percent slopes	Croton	2	Depressions	Yes	2B3
	Knauers	2	Flood plains	Yes	2B3, 3
CwA: Croton silt loam, 0 to 3 percent slopes	Croton	90	Depressions	Yes	2B3
CwB: Croton silt loam, 3 to 8 percent slopes	Croton	90	Depressions	Yes	2B3
CwxB: Croton silt loam, 0 to 8 percent slopes, extremely stony	Croton, extremely stony	85	Depressions	Yes	2B3
	Knauers	5	Flood plains	Yes	2B3, 3
	Fluvaquents	2	Flood plains	Yes	2B3
FI: Fluvaquents	Fluvaquents	85	Flood plains	Yes	2B3
	Towhee	5	Depressions	Yes	2B3
	Nanticoke	1	Tidal flats	Yes	2B3, 3



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Bucks County, Pennsylvania

Man symbol and		Percent		Hydric	Hydric
map unit name	Component	of map unit	Landform	rating	criteria
			1	J	I.,
На:					
Hatboro silt loam	Hatboro	95	Flood plains	Yes	2B3
KIB:	· ·		D		
Klinesville very channery silt loam, 3 to 8 percent slopes	Croton	1	Depressions	res	283
LmB:					
Lehigh channery silt loam, 3 to 8 percent slopes	Croton	3	Depressions	Yes	2B3
	Doylestown, extremely stony	1	Drainageways	Yes	2B3
LmC:					
Lehigh channery silt loam, 8 to 15 percent slopes	Croton	2	Depressions	Yes	2B3
	Doylestown	1	Drainageways	Yes	2B3
LnD:					
Lehigh channery silt loam, 8 to 25 percent slopes, extremely stony	Croton, extremely stony	1	Depressions	Yes	2B3
MIA:					
Mount Lucas silt loam, 0 to 3 percent slopes	Towhee	7	Depressions	Yes	2B3
MIB:					
Mount Lucas silt loam, 3 to 8 percent slopes	Towhee	6	Depressions	Yes	2B3
MIC:					
Mount Lucas silt loam, 8 to 15 percent slopes	Towhee	5	Depressions	Yes	2B3
MmB:					
Mount Lucas silt loam, 0 to 8 percent slopes, extremely stony	Towhee, extremely stony	9	Depressions	Yes	283
MmD:					
Mount Lucas silt loam, 8 to 25 percent slopes, extremely stony	Towhee, extremely stony	9	Depressions	Yes	2B3
NbB:					
Neshaminy silt loam, 3 to 8 percent slopes	Townee	3	Depressions	Yes	2B3
NbC:					
Neshaminy silt loam, 8 to 15 percent slopes	Towhee	5	Depressions	Yes	2B3
NhB:					
Neshaminy gravelly silt loam, 0 to 8 percent slopes, extremely bouldery	Towhee, extremely stony	5	Depressions	Yes	2B3



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Bucks County, Pennsylvania

Map symbol and map unit name	Component	Percent of map unit	Landform	Hydric rating	Hydric criteria
NhD:					
Neshaminy gravelly silt loam, 8 to 25 percent slopes, extremely bouldery	Towhee, extremely stony	3	Depressions	Yes	2B3
NhF;					
Neshaminy gravelly silt loam, 25 to 60 percent slopes, extremely bouldery	Towhee, extremely stony	3	Depressions	Yes	2B3
NKA:					
Nockamixon silt loam, 0 to 3 percent slopes	Croton	1	Depressions	Yes	2B3
NkB:					
Nockamixon silt loam, 3 to 8 percent slopes	Croton	1	Depressions	Yes	2B3
NkC:					
Nockamixon silt loam, 8 to 15 percent slopes	Croton	1	Depressions	Yes	283
PeB:					
Penn channery silt loam, 3 to 8 percent slopes	Croton	3	Depressions	Yes	2B3
PeC:					
Penn channery silt loam, 8 to 15 percent slopes	Croton	3	Depressions	Yes	2B3
RIA:					
Reaville channery silt loam, 0 to 3 percent slopes	Croton	1	Depressions	Yes	2B3
	Knauers	1	Flood plains	Yes	2B3, 3
RIB:					
Reaville channery silt loam, 3 to 8 percent slopes	Croton	1	Depressions	Yes	2B3
	Knauers	1	Flood plains	Yes	2B3, 3
ToA:					
Towhee silt loam, 0 to 3 percent slopes	Towhee	96	Depressions	Yes	2B3
ТоВ:					
Towhee silt loam, 3 to 8 percent slopes	Towhee	88	Depressions	Yes	2B3
	Watchung, silt loam	2	Depressions	Yes	2B3
TrB.					
Towhee silt loam, 0 to 8 percent slopes, extremely stony	Towhee, extremely stony	88	Depressions	Yes	2B3
UvB:					
Urban land-Neshaminy complex, 0 to 8 percent slopes	Towhee	5	Depressions	Yes	2B 3



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Explanation of hydric criteria codes:

- 1. All Histels except for Folistels, and Histosols except for Folists.
- 2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:
 - A. are somewhat poorly drained and have a water table at the surface (0.0 feet)
 - during the growing season, or
 - B. are poorly drained or very poorly drained and have either:
 - 1.) a water table at the surface (0.0 feet) during the growing season if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - 2.) a water table at a depth of 0.5 foot or less during the growing season if permeability is equal to or greater than 6.0 in/hr in all layers within a depth of 20 inches, or
 - 3.) a water table at a depth of 1.0 foot or less during the growing season if permeability is less than 6.0 in/hr in any layer within a depth of 20 inches.
- 3. Soils that are frequently ponded for long or very long duration during the growing season.
- 4. Soils that are frequently flooded for long or very long duration during the growing season.

This table lists the map unit components that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and Vasilas, 2006).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The criteria for hydric soils are represented by codes in the table (for example, 2B3). Definitions for the codes are as follows:

1. All Histels except for Folistels, and Histosols except for Folists.

2. Soils in Aquic suborders, great groups, or subgroups, Albolls suborder, Historthels great group, Histoturbels great group, Pachic subgroups, or Cumulic subgroups that:

- A. are somewhat poorly drained and have a water table at the surface (0.0 feet) during the growing season, or
- B. are poorly drained or very poorly drained and have either:
 - 1) a water table at the surface (0.0 feet) during the growing season
 - if textures are coarse sand, sand, or fine sand in all layers within a depth of 20 inches, or
 - a water table at a depth of 0.5 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is equal to or greater than 6.0 in/hr
 - in all layers within a depth of 20 inches, or
 - a water table at a depth of 1.0 foot or less during the growing season if saturated hydraulic conductivity (Ksat) is less than 6.0 in/hr in any layer within a depth of 20 inches.



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3. Soils that are frequently ponded for long or very long duration during the growing season.

4. Soils that are frequently flooded for long or very long duration during the growing season.

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Prime and other Important Farmlands

Bucks County, Pennsylvania

Map symbol	Map unit name	Farmland classification
BrB	Brecknock channery silt loam, 3 to 8 percent slopes	All areas are prime farmland
Lm8	Lehigh channery silt loam, 3 to 8 percent slopes	All areas are prime farmland
MIA	Mount Lucas silt loam, 0 to 3 percent slopes	All areas are prime farmland
MIB	Mount Lucas silt loam, 3 to 8 percent slopes	All areas are prime farmland
NbB	Neshaminy silt loam, 3 to 8 percent slopes	All areas are prime farmland
PeB	Penn channery silt loam, 3 to 8 percent slopes	All areas are prime farmland
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Farmland of statewide importance
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Farmland of statewide importance
AmA	Arnwell silt loam, 0 to 3 percent slopes	Farmland of statewide importance
AmB	Arnwell silt loam, 3 to 8 percent slopes	Farmland of statewide importance
BwB	Buckingham silt loam, 3 to 8 percent slopes	Farmland of statewide importance
СуВ	Culleoka-Weikert channery silt loams, 3 to 8 percent slopes	Farmland of statewide importance
СуС	Culleoka-Weikert channery silt loams, 8 to 15 percent slopes	Farmland of statewide importance
KIB	Klinesville very channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance
LmC	Lehigh channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance
MIC	Mount Lucas silt loam, 8 to 15 percent slopes	Farmland of statewide importance
NbC	Neshaminy silt loam, 8 to 15 percent slopes	Farmland of statewide importance
NKA	Nockamixon silt loam, 0 to 3 percent slopes	Farmland of statewide importance
NkB	Nockamixon silt loam, 3 to 8 percent slopes	Farmland of statewide importance
NKC	Nockamixon silt loam, 8 to 15 percent slopes	Farmland of statewide importance
PeC	Penn channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance
RIA	Reaville channery silt loam, 0 to 3 percent slopes	Farmland of statewide importance
RIB	Reaville channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance

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Prime and other Important Farmlands

This table lists the map units in the survey area that are considered important farmlands. Important farmlands consist of prime farmland, unique farmland, and farmland of statewide or local importance. This list 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, 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 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 U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or 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, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate guality. 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 during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 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 in the table 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 some 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, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable 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 nearly meet the requirements for 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.



System Summary Alternate Systems*

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SYSTEM		SITING CRITERIA		
Peat Based Systems				
	Depth to Rock	≥ 20 inches		
	Depth to Water Table	≥ 20 inches		
Peat Based System	Slope	0-12 percent		
Limiting Zone ≥ 20 Inches	Percolation Rates	3-180 min/in.		
Option 1	Other	May reduce size of absorption area by up to		
		40 percent with perc rate up to 60 min/in.		
	Depth to Rock	≥ 16 inches		
	Depth to Water Table	≥ 10 inches		
Peat Based System	Slope	0-12 percent		
Limiting Zone < 20 Inches	Percolation Rates	None - Soil morphological testing.		
Option 1	Other	Need soil scientist to evaluate soils and		
		provide design criteria.		
	Disinfection	UV Disinfection Required.		
	Depth to Rock	≥ 16 inches		
Peat Based System Option 2 (IRSIS)	Depth to Water Table	≥ 10 inches		
	Slope	0-25 percent		
	Percolation Rates	None		
	Other	Use in place of sand filter in IRSIS.		
	Depth to Rock	≥ 72 inches		
Peat Based System	Depth to Water Table	\geq /2 inches		
Limiting Zone ≥ 72 Inches	Slope	0-12 percent		
Option 3	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		
	Depth to Rock	2 20 Inches		
Free Access Gravity	Depth to Water Table			
Sand Filter (with options	Slope			
other than IRSIS)	Percolation Rates	5-160 mm/m.		
	Depth to ROCK	\geq 10 mones		
Free Access Gravity	Depth to water Table	∠ IU INCRES		
Sand Filter (with IRSIS)	Slope Democlation Dates			
	Percolation Rates			
	Depth to Mater Table	≥ 20 inches		
	Depth to water Table	20 and 25 percept		
Limiting Zone 2 20 inches	Siope Derector	3 480 min/in		
	Percolation Kates	11/ Disinfection Permitted		
	DISINTECTION			

* Refer to complete listing for specific conditions related to each system.

System Summary Alternate Systems*

(continued)				
SYSTEM		SITING CRITERIA		
	Depth to Rock	≥ 16 inches		
	Depth to Water Table	≥ 10 inches		
CO-OP RFS III	Slope	0-12 percent		
Limiting Zone < 20 Inches	Percolation Rates	None - Soil morphological testing.		
	Other	Need soil scientist to evaluate soils and		
		provide design criteria.		
	Disinfection	UV Disinfection Required.		
	Depth to Rock	≥ 16 inches		
	Depth to Water Table	≥ 10 inches		
CO-OP RFS III System	Slope	0-25 percent		
(with IRSIS)	Percolation Rates	None		
	Depth to Rock	≥ 48 inches		
At-grade Bed System	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	Soil Depth	2 /2 inches and additional criteria		
Sand Filter for Fast	Slope	≤ 8 inches		
Percolation Shallow	Percolation Rates	< 3 min/in. at 12-30 inches		
Bedrock Sites with No				
	Depth to Rock	> 58 inches		
Shallow Blacomont	Depth to Water Table	≥ 58 inches		
Pressure Doeed Systems	Sione			
Flessule Dosed Systems	Percolation Rates	3-180 min/in.		
	Depth to Rock	≥ 20 inches		
Drip Irrigation System	Depth to Water Table	≥ 20 inches		
Enpinigation eyetein	Slope	0-25 percent		
	Percolation Rates	None unless soil scientist requests		
	Other	Need soil scientist to evaluate soils and		
		provide design criteria.		
1	Depth to Rock	≥ 20 inches		
Steep slope ESM (Slope	Depth to Water Table	≥ 20 inches		
12-15%, Perc Rate 3-30	Slope	≥ 12 percent and ≤ 15 percent		
min/in.)	Percolation Rates	3-130 min/in.		
	Other	≤ 600 gpd		

* Refer to complete listing for specific conditions related to each system.

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System Summary Alternate Systems*

(continued)					
SYSTEM	SITING CRITERIA				
	Depth to Rock	≥ 20 inches			
	Depth to Water Table	≥ 20 inches			
A/B Soil System	Slope	≤ 12 percent			
Limiting Zone ≥ 20 Inches	Percolation Rates	3-180 min/in.			
	Other	Conditions dependent on final treatment			
		option chosen.			
	Depth to Rock	≥ 16 inches			
	Depth to Water Table	≥ 10 inches			
A/B Soil System	Slope	0-25 percent			
Limiting Zone < 20 Inches	Percolation Rates	None			
	Other	Need soil scientist to evaluate soils and			
		provide design criteria.			
	Disinfection	UV Disinfection Required.			
Non-Infiltration.	Depth to Rock	Any - Non-soil-based-System			
Evapotranspiration Bed	Depth to Water Table	Any - Non-soil-based-System			
Contained Within a	Slope	Any - Non-soil-based-System			
Greenhouse	Percolation Rates	Any - Non-soil-based-System			
	Depth to Rock	≥ 16 inches			
Micromound Drip	Depth to Water Table	≥ 10 inches			
Irrigation System	Slope	0-15 percent			
	Percolation Rates	None unless soil scientist requests			
	Other	Need soil scientist to evaluate soils and			
		provide design criteria.			

* Refer to complete listing for specific conditions related to each system.

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APPENDIX D Agency Reviews & Public Comment

3-017





BCPC #14-10-WS1

COUNTY COMMISSIONERS: Charles H. Martin, Chairman James F. Cawley, Eso., Vice Chairman Diane M. Ellis-Marseglia, Losw

PLANNING COMMISSION: Darrin Hoffiman, Chairman David R. Nyman, Vice Chairman Walter S. Wydro, Scentary Joseph A. Cullen Raymond W. Goodhoe H. Paul Kester Edward Kisselback Carol A. Pierce David H. Plat

MEMORANDUM

TO: Haycock Township Board of Supervisors Haycock Township Planning Commission

FROM: Bucks County Planning Commission

SUBJECT: Proposal for a Revision to the Official Act 537 Sewage Facilities Plan Applicant: Haycock Township Date Received: August 13, 2010 Hearing Date: October 4, 2010

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 its meeting on September 1, 2010.

GENERAL INFORMATION

Proposed Action: Update the Sewage Facilities Plan of Haycock 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 population projections to determine the ability of existing sewage facilities to meet future collection, conveyance, treatment, and disposal needs. The plan is intended to be a tool for the township to use in the land development planning process to determine the most effective and environmentally sound method of wastewater management throughout the township given the existing constraints.

A summary of the proposed sewage facilities plan findings include the following:

Wastewater Facilities Needs—Haycock Township relies solely on individual sewage disposal systems for its wastewater needs. The proposed plan identifies the geographic and environmental limitations with the current system for future growth. The plan recommends that the Township broaden its involvement in management of private ownership/private operation and maintenance for an on-lot disposal system (OLDS). This would include a

BCPC #14-10-WS1

Commission in accordance with Section 306(b) of the Pennsylvania Municipalities Planning Code.

AAF:mjw

cc: Nancy Yodis, Township Secretary/Treasurer.
C. Robert Wynn Associates, Inc., Municipal Engineer
Clemons, Richter, Walsh & Reiss PC, Municipal Solicitor
Peter Noll, Bucks County Department of Health
Elizabeth Mahoney, PADEP SERO

HAYCOCK TOWNSHIP PLANNING COMMISSION MINUTES OF MEETING Monday, September 13, 2010 Haycock Township Municipal Building 640 Harrisburg School Road Quakertown, Pennsylvania 18951

The meeting was called to order at 7:30 P.M. by Chairman Rusty Taft with members Pat DeWald, Henry DePue, Clint Searl, Scott Freeman, Engineer Tim Fulmer and Secretary Kathy Babb in attendance. Member Jeff Rittenhouse was absent.

ACT 537: Tim Fulmer gave the Board an overview on the new Act 537 being prepared for Haycock Township. The update is a DEP mandate to replace our current Act 537 which was last updated in the 1980's. DEP had some concerns when they saw the number of small flow treatment facilities in Haycock Township. Henry DePue and Tim Fulmer met with representatives of DEP and got some information on an outline and requirements that we would have to meet. Part of the requirements for the plan are review and recommendations from both the Haycock Township Planning Commission and the Bucks County Planning Commission. We have received recommendations from the Bucks County Planning Commission on the draft plan but have not yet received any comments from the Bucks County Department of Health. Bucks County Planning Commission wants to see some of the existing systems shown in the narrative. Some systems were inadvertently left out of the first draft.

Tim Fulmer then explained the process of the new Act 537 Plan. The Haycock Township Board of Supervisors will have to hold public hearings after an advertised public comment period during which the plan will be available to the public. If the Board of Supervisors adopts the plan, it will then go to DEP for their review. If DEP approves the plan, we will have a final plan but will then have to implement certain procedures to maintain the systems. One of the new requirements will be to make sure all existing systems are pumped at least once every 3 years. This is a requirement under Chapter 71 in DEP regulations. Another requirement is a priority table for use of different systems. Haycock Township is not looking at any future public systems but basing our new Act 537 on individual on-lot systems. Tim Fulmer went over the 10 different systems addressed in the Sewage Management Priority Table. Scott Freeman asked if these would require a 2nd back-up system. Any new systems being put in under our Land Use and Subdivision Development Ordinance would require the second site. Tim Fulmer also found a section which requires the 2nd site in the current plan being discussed.

There was a discussion on Alternate/Experimental/Technology Verification program. The Board discussed the survey sent out to all township residents regarding their sewage systems, how DEP would police the township monitoring requirements and penalties for homeowners not in compliance with new regulations. Also discussed were current requirements for escrow funds for alternate systems that can be used should a system fail. Wording will be added to the new plan to include systems other than in-ground or

HAYCOCK TOWNSHIP PLANNING COMMISSION MINUTES OF MEETING Monday, September 13, 2010 Page 2

elevated systems. The wording in the heading for alternate systems will also be changed to include marginal soils. Section A2 will have some clarification added.

Some new mapping was required to complete the plan. Tim Fulmer advised the Board that the Township owns all the new maps generated for this plan.

DEP is looking for the township to take a more active role in the maintenance of systems. The Township will consider advantages and disadvantages of alternate systems, will implement some public education to keep residents informed on how they should/can take care of their septic systems, holding tanks only as a last resort for a failing system. This will also add some tools when reviewing designs for land use.

There was some discussion on permit requirements, building permits, right of entry and inspections under the new plan. Definitions will be added for Technology Verification Program. The township was advised we would be eligible for a 50% reimbursement for plan costs but with the declining economy, we do not know if Harrisburg will honor their commitment or when the monies will be released. The original cost of the plan was approx. \$60 to 65,000.00.

Future systems, either alternate or experimental, that might not be listed in the Sewage Management Priority list were discussed. They will be addressed. Some changes and additions will be added to include some Open Space properties added after the initial draft was done.

Clint Searl made a motion to accept the plan as presented with the township engineer verifying whether a micro mound system is considered an alternate system, a clarification of Section 12 to exclude sand mound systems unless they have marginal conditions, a definition for the Technology Verification Program into the plan and to address the comments raised by the Bucks County Planning Commission. Scott Freeman seconded the motion which was approved by a unanimous vote of those present.

MINUTES: Pat DeWald made a motion, seconded by Henry DePue to approve the minutes of the meeting of June 14th as they were presented. The motion was approved by a unanimous vote of those present.

Scott Freeman made a motion, seconded by Pat DeWald to adjourn the meeting at 8:53 P.M. Motion was approved by a unanimous vote of those present.

Respectfully submitted:

Kathleen M. Babb Recording Secretary



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 - 215-949-5805 Bucks County Government Services Center, 261 California Road, Quakertown, PA 18951 – 215-529-7000

County Commissioners CHARLES H. MARTIN, Chairman JAMES F. CAWLEY, ESQ., Vice-Chairman DIANE M. ELLIS-MARSEGLIA, LCSW



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

October 15, 2010

Haycock Township Supervisors 640 Harrisburg School Rd. Quakertown, Pa. 18951

> Re: Haycock Township Sewage Facilities Plan Draft July 2010

Dear Supervisors:

Please find enclosed comments from Bucks County Health Department review. Generally, this Plan is well prepared. The following are several items to review:

- P. 5-5, Elevated Sand Mounds
- The slopes allowed are up to 15% as an Alternate system. I would eliminate the trench distribution statement due to trench installations are non-existent since mounds are permissible up to 15% slope.
- P.5-6 Add Drip Micromound.
- P.8-5 Pennvest contact Phone # 717-787-8137

If you should have any questions, I can be reached at (215)529-7322, Monday – Friday, between 8:00 ann & 9:30 am.

Sincerely,

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Robert Diegel 0 Sewage Enforcement Officer#02029 Bucks County Department of Health

RD/lk

cc: Robert Wynn Assoc. c/o Tim Fulmer Central File District File

C. ROBERT WYNN ASSOCIATES, INC.

MUNICIPAL & CIVIL ENGINEERING 211 West Broad Street • Quakertown • PA • 18951 (215) 536-7336 • FAX (215) 536-5361

November 3, 2010

Ms. Nancy Yodis, Township Secretary/Treasurer Haycock Township 640 Harrisburg School Road Quakertown, PA 18951

Subject: Sewage Facilities Plan Update Agencies Reviews File No. 63-017

Dear Ms. Yodis,

As you are aware, the Board of Supervisors authorized this office to forward the draft Sewage Facilities Plan, dated July 14, 2010, to the Township Planning Commission, Bucks County Planning Commission, and Bucks County Department of Health for review and comment pursuant to requirements of Act 537. Subsequently, the Township Planning Commission offered comments at their meeting held on September 13, 2010; Bucks County Planning Commission review memorandum dated September 1, 2010 was received; and correspondence dated October 15, 2010 was received from Bucks County Department of Health, which contained several comments related to the plan. Upon review of the comments offered by the various reviewing entities, appropriate revisions to the Sewage Facilities Plan were made as follows:

- 1. <u>Township Planning Commission Review:</u>
 - A. The draft Sewage Management Ordinance included in Appendix B of the Sewage Facilities Plan has been revised to include a definition of "experimental on-lot wastewater technology verification program" (refer Section 2, Subitem 2), as this terminology is stated in the sewage management priority table contained in Section 9, Subitem B.9 of the Ordinance.
 - B. Section 12.A.2 of the draft Sewage Management Ordinance has been amended to eliminate reference to sandmound systems as systems requiring a maintenance agreement with the Township. Instead, this section has been amended to reference that drip irrigation systems, and other systems on lots deemed marginal for long term on-lot disposals as defined by PADEP, require execution of an agreement with the Township.
 - C. The Planning Commission suggests that a drip micromound system be specified on the Sewage Management Priority Table contained in the Sewage Facilities Plan and draft Ordinance. Upon investigation, it was determined that the drip micromound system is an approved alternate system by PADEP, which falls under Category 4 of the Priority Table. However, a description of the drip micromound system has now been included in Chapter 5 of the Sewage Facilities Plan, under the section titled "Alternate Systems", which was also requested by Bucks County Department of Health.

II. Bucks County Planning Commission Review:

Bucks County Planning Commission review noted that the narrative in Chapter 3 of the Sewage Facilities Plan does not include all identified privately owned sewage treatment systems shown on Figure 3-1. Chapter 3 of the Sewage Facilities Plan has been revised to include a narrative of each missing property containing (or planned for) a sewage disposal system other than a standard inground system or elevated sandmound. Numbering of properties containing these systems coincides with the numbering of properties shown in plan view on Figure 3-1.

Ms. Nancy Yodis, Township Secretary/Treasurer Subject: Sewage Facilities Plan Update October 28, 2010 Page 2

III. Bucks County Department of Health:

- A. Bucks County Department of Health notes that information pertaining to elevated sandmounds contained in Chapter 5 of the Sewage Facilities Plan (refer Paragraph 4 under "Effluent Treatment and Disposal Options") should be revised to eliminate "trench distribution" referenced in the last sentence of the first paragraph, and should also clarify that sandmounds may be utilized on slopes up to 15% if permitted as an alternate system by PADEP. The affected paragraph has been revised accordingly by this office.
- B. As noted above, a description of the drip micromound system has been added to the listing of alternate systems contained in Chapter 5 of the Sewage Facilities Plan. (Refer Subitem 11 under the "Alternate Systems" section).
- C. Information for Pennsylvania Infrastructure Investment Authority (PENNVEST) contained in Chapter 8 Subsection 5 of the Sewage Facilities Plan has been revised to include a contact telephone number as provided by the Bucks County Department of Health.

Enclosed are two copies of the revised Sewage Facilities Plan, dated October 28, 2010, which may now be advertised for public hearing in a newspaper of general circulation within the Township, if so authorized by the Board of Supervisors. By copy of this correspondence, a copy of the Sewage Facilities Plan is also being provided to each Supervisor for review.

As we discussed previously, plan must be advertised in a newspaper of general circulation within Haycock Township (the Intelligencer is recommended) so that the general public has thirty (30) days from the date of advertisement to review the plan, and offer written comments on the contents of the plan to the Township. At the end of the thirty day comment period, any written comments received by the Township must be reviewed and responded to by the Township prior to adoption of the plan and submission to PADEP. Additionally, a public hearing must be scheduled at an upcoming Board of Supervisors meeting to discuss, and potentially adopt by Resolution, the Sewage Facilities Plan prior to submission of the plan to PADEP. As we discussed, it appears that the February 7, 2001 Board of Supervisors meeting may be an appropriate time to schedule the hearing, which provides sufficient time to solicit public comment and address any written comments received during the advertised thirty day review period.

When advertisement of the Sewage Facilities Plan is authorized by the Board of Supervisors, please notify this office so that an advertisement may be prepared an filed with the Intelligencer in November/December, 2010.

If you have any questions, do not hesitate to contact me.

Verv.Truly Yours. Timothy Fulmer, P.E.

TAF/ajp Enclosure cc: Board of Supervisors (w/Sewage Facilities Plan)

Bucks County, SS.





HAYCOCK TWP 640 HARRISBURG SCHOOL RD QUAKERTOWN, PA 18951

3-012712000 0005988425-01

Christina Murphy being duly affirmed according to law, depose 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 facsimile of the printed notice which is exactly as printed and published in said newspaper on _

December 07, 2010

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

BILLING CO

Affirmed and subscribed to me before me this 7th day of December 2010 A.D.

COMMONWEALTH OF PENNSYLVANIA Noterial Seal Karen McGovern, Notary Public Tullytown Boro, Bucks County My Commission Expires Feb. 19, 2013 Member, Pennsvivania Association of Notaries orer 12n

Haycack Township

Bucks County, Fennsylvania Office of the Secretary 640 Harrisburg School Road Quakertown, Pa. 18951

January 17. 2011

C. Robert Wynn Associates, Inc. 211 W. Broad Street Quakertown, Pa. 18951

Re: Act 537 Update

Attention: Tim Fulmer

This letter is to inform you that Haycock Township did not receive any public comment regarding the Act 537 Update..

Sincerely,

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Nancy M. Yodis Secretary