DOYLESTOWN TOWNSHIP
BUCKS COUNTY, PENNSYLVANIA

MINOR ACT 537 SEWAGE FACILITIES PLAN UPDATE REVISION COMPONENT 3M PADEP CODE #1-09919-316-3m

FOR
DOYLESTOWN TOWNSHIP
PEBBLE RIDGE/WOOD RIDGE AND VICINITY
GRAVITY SEWER SYSTEM EXTENSION

February 26, 2013
(Revised 6/18/13 to
Incorporate Public Comments)

REFERENCE NO. 7039

CKS ENGINEERS, INC.
88 SOUTH MAIN STREET
DOYLESTOWN, PENNSYLVANIA 18901

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SEWAGE FACILITIES PLANNING MODULE
FOR
MINOR ACT 537 UPDATE REVISION
COMPONENT 3M

(FORM 3800-FM-WSFR0353m)

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

Code No.
1-09919-316-3m

SEWAGE FACILITIES PLANNING MODULE FOR MINOR ACT 537 UPDATE REVISION

Component 3m. Municipal or Authority Sponsored Minor Sewage Collection Project

(Return completed module package to appropriate municipality)

DEP USE ONLY				
DEP CODE #	**CLIENT ID #**	**SITE ID #**	**APS ID #**	**AUTH ID #**
1-09919-316-3m				

This document provides a simplified planning format for municipalities and municipal authorities proposing the construction of a sewer extension primarily serving existing development. Typically, this format would be used for projects involving the extension of sewer service to no more than 100 equivalent dwelling units (EDUs) and where the majority of the project serves existing development. For projects where more than 50 percent of the proposed customers will result from new land development, a Component 3 Sewage Facilities Planning Module would typically be used. For larger projects or if the project would involve the construction or modification of a wastewater treatment facility, then a general Act 537 Update Revision, meeting all of the requirements of Title 25 Pennsylvania Code, Chapter 71 § 72.21, is appropriate.

DEP staff will make a final determination as to the appropriate type of planning for a given project based on the review of a plan of study. Eligibility for a grant to offset the cost of planning will be determined by DEP staff based upon review of a *Task/Activity Report* (3800-FM-WSFR0005). The project sponsor submits both documents. **DO NOT** use this form without coordinating with your local DEP staff. Refer to the instructions.

This planning document, along with any other documents specified in the cover letter, must be completed and submitted to the municipality with jurisdiction over the project site for review and approval. All required documentation must be attached for the Sewage Facilities Planning Module to be complete. Refer to the instructions for help in completing this component.

A. PROJECT INFORMATION (See Section A of instructions)

1. Project Name

   PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION

2. Brief Project Description

   Gravity sewer service will be provided to 252 parcels located in Doylestown Township, bound by Bristol Road, Turk Road, Lower State Road, and Almshouse Road, through the Bucks County Water and Sewer Authority system.

B. CLIENT (MUNICIPALITY) INFORMATION (See Section B of instructions)

Municipality Name	County	City	Boro	Twp
Doylestown Township	Bucks	☐	☐	☒

Municipality Contact - Last Name	First Name	MI	Suffix	Title
Mason	Stephanie	J	Ms.	Township Manager

Additional Individual - Last Name	First Name	MI	Suffix	Title

Municipality Mailing Address Line 1	Mailing Address Line 2
425 Wells Road	

Address Last Line - City	State	ZIP+4
Doylestown	PA	18901

Phone + Ext.	FAX (optional)	Email (optional)
215-348-9915	215-348-8729	sjmason@doylestownpa.org

C. SITE INFORMATION (See Section C of instructions)

Site Name				
Pebble Ridge				

Site Location Line 1	Site Location Line 2
Area bound by Bristol Road, Turk Road, Lower State Road and Almshouse Road **(Refer Exhibit Nos. 4 and 6)**	

Site Location Last Line - City	State	ZIP+4	Latitude	Longitude
Doylestown	PA	18901	40.274810N	-75.148115W

Detailed Written Directions to Site

From PA Turnpike Interchange 343 Willow Grove, take S.R. 611 (Easton Road) north approximately 5 miles and turn left onto S.R. 2025 (Bristol Road), continue approximately 1 mile and turn right onto Turk Road, then turn left onto Pebble Ridge Road into the project Planning Area

Description of Site

Residentially zoned, single family residences with wells and on-lot sewage disposal systems **(Refer Exhibit No. 5)**

Site Contact - Last Name	First Name	MI	Suffix	Phone	Ext.

Site Contact Title	Site Contact Firm (if none, leave blank)

FAX	Email

Mailing Address Line 1	Mailing Address Line 2

Mailing Address Last Line – City	State	ZIP+4

D. PROJECT CONSULTANT INFORMATION (See Section D of instructions)

Last Name	First Name	MI	Suffix
Janetka	Eric	J	

Title	Consulting Firm Name
Project Manager	CKS Engineers, Inc.

Mailing Address Line 1	Mailing Address Line 2
88 South Main Street	

Address Last Line - City	State	ZIP+4	Country
Doylestown	PA	18901	USA

Email	Phone	Ext.	FAX
ejanetka@cksengineers.com	215-340-0600		215-340-1655

E. AVAILABILITY OF DRINKING WATER SUPPLY (See Section E of instructions)

The project will be provided with drinking water from the following source: (Check appropriate box)

☒ Individual wells or cisterns.

☐ A proposed public water supply.

☒ An existing public water supply.

If existing public water supply is to be used, provide the name of the water company and attach documentation from the water company stating that it will serve the project.

Name of water company: No new public water services are proposed – Doylestown Township Municipal Authority

(Refer Narrative Section F – Item 1)

F. PROJECT NARRATIVE (See Section F of instructions)

☒ A narrative has been prepared as described in Section E of the instructions and is attached.

The applicant may choose to include additional information beyond that required by Section E of the instructions.

(Refer to Page No. 2)

☒ G. SEWAGE DISPOSAL NEEDS IDENTIFICATION (See Section G of instructions)

Conduct sanitary and water supply surveys per DEP's publication entitled *Sewage Disposal Needs Identification*. This is highly recommended for all projects. It is required if PENNVEST funding is to be sought for the project, or if required by DEP as indicated by the checked box opposite this item. **(Refer Narrative Section G – Page 4)**

H. EXISTING WASTEWATER FACILITIES (See Section H of instructions)

1. **COLLECTION SYSTEM**

Provide requested information concerning the existing treatment facility.

a. Name of existing collection system Gravity Sewer from Doylestown Knoll to the Castle Valley Interceptor

Clean Streams Law Permit Number # None

b. Name of interceptor Castle Valley Interceptor; Castle Valley Diversion Pump Station

Clean Streams Law Permit Number #0989462; #0995422

2. **WASTEWATER TREATMENT FACILITY**

Provide requested information concerning the existing treatment facility.

Name of existing facility Kings Plaza Sewer Treatment Plan, Green Street Wastewater Treatment Plant

NPDES Permit Number for existing facility PA0051250, PA0021181

I. PROPOSED WASTEWATER FACILITIES (See Section I of instructions)

1. Provide an estimate of the immediate and five year projected flow from the proposed sewer extension. Address the capacity for this flow in the existing conveyance and treatment facilities in terms of the most recent wasteload management annual report for these facilities.

2. **PLOT PLAN (Refer Exhibit Nos. 6, 7, 9, 10, and 11)**

The following information is to be submitted on a plot plan or map of the proposed project that clearly reflects the relationship between the proposed facilities and the identified features.

a. Existing and proposed buildings.

b. Lot lines and lot sizes.

c. Adjacent lots.

d. Existing and proposed sewerage facilities.

e. Show tap-in or sewer extension to the point of connection to existing collection system.

f. Existing and proposed water supplies and surface water (wells, springs, ponds, streams, etc.)

g. Existing and proposed rights-of-way.

h. Existing and proposed streets, roadways, access roads, etc.

i. Any designated recreational or open space area

j. Wetlands - from National Wetland Inventory Mapping and USGS Hydric Soils Mapping.

k. Flood plains or Floodprone area soils, floodways, watercourses, water bodies (from Federal Flood Insurance Mapping)

l. Prime Agricultural Land.

m. Any other facilities (pipelines, power lines, etc.)

n. Orientation to north.

I. PROPOSED WASTEWATER FACILITIES (continued)

3. **WETLAND PROTECTION**

	YES	NO	**(Refer Exhibit No. 10)**
a.	☒	☐	Are there wetlands in the project area? If yes, indicate these areas on the plot plan as shown in the mapping or through on-site delineation.
b.	☐	☒	Are there any construction activities (encroachments, or obstructions) proposed in, along, or through the wetlands? If yes, Identify any proposed encroachments on wetlands and identify whether a General Permit or a full encroachment permit will be required. If a full permit is required, address time and cost impacts on the project. Note that wetland encroachments should be avoided where feasible. Also note that a feasible alternative **MUST BE SELECTED** to an identified encroachment on an exceptional value wetland as defined in Chapter 105. Identify any project impacts on HQ or EV streams and address impacts of the permitting requirements of said encroachments on the project.

4. **PRIMARY AGRICULTURAL LAND PROTECTION**

a.	☐	☒	Will your project involve the disturbance of any prime agricultural lands? If “yes” indicate any alternatives to this disturbance that were considered and the reasons they were not deemed feasible. Identify any primary or secondary impacts of the project on the Commonwealth's prime agricultural lands. Evaluate alternatives to avoid or mitigate undesirable impacts. The selected sewage facilities plan must be consistent with local measures in place to protect prime agricultural lands.

5. **STORMWATER MANAGEMENT IMPACTS:**

a.	☐	☒	Will the project impact an area covered by a DEP approved County Stormwater Management Plan? If yes show that the proposed facilities are consistent with that plan.

6. **PENNSYLVANIA NATURAL DIVERSITY INDEX (PNDI) CONSISTENCY:**

Check one: **(Refer Exhibit No. 3)**

☒ The "Pennsylvania Natural Diversity Inventory (PNDI) Project Environmental Review Receipt" resulting from my search of the PNDI database and all supporting documentation from jurisdictional agencies (when necessary) is/are attached.

☐ A completed "Pennsylvania Natural Diversity Inventory (PNDI) Project Planning & Environmental Review Form," (PNDI Form) available at www.naturalheritage.state.pa.us , and all required supporting documentation is attached. I request DEP staff to complete the required PNDI search for my project. I realize that my planning module will be considered incomplete upon submission to the Department and that the DEP review will not begin, and that processing of my planning module will be delayed, until a "PNDI Project Environmental Review Receipt" and all supporting documentation from jurisdiction agencies (when necessary) is/are received by DEP.

Applicant or Consultant Initials _____

7. **COMPREHENSIVE PLAN CONSISTENCY: (Refer Appendix A)**

☒ A narrative and mapping to show that the proposed project is consistent with any comprehensive plan developed under the Pennsylvania Municipalities Planning Code (Act 247) is attached. Document that the proposed project is consistent with land use and all other requirements stated in the comprehensive plan.

8. **COOPERATION WITH PA. HISTORICAL AND MUSEUM COMMISSION (PHMC): (Refer Exhibit No. 3)**

☒ A copy of DEP’s “Cultural Resource Notice” and map which were sent to the Commission and a copy of the Commission’s response are attached. Note that the Commission may require archeological surveys if federal funds, including PENNVEST, will be used in the project. If PENNVEST funds are to be used, DEP cannot recommend the project to PENNVEST for consideration until any required surveys have been done and the project has been “cleared” by the Commission.

9. **ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS:**

☐ A copy of the additional information is attached. If PENNVEST funding is to be sought for the project,

address these additional items in terms of any project impacts and measures to avoid or mitigate same.

- Cost Effectiveness
- Air quality
- Floodplains
- Wild and scenic rivers
- Coastal zone management
- Socio-economic impacts
- Water supplies
- Other environmentally sensitive areas

J. ALTERNATIVE SEWAGE FACILITIES ANALYSIS (See Section J of instructions)

☒ An alternative sewage facilities analysis has been prepared as described in Section J of the instructions and is attached.

The applicant may choose to include additional information beyond that required by Section J of the instructions.

(Refer Narrative Section J – Page 6)

K. CHAPTER 94 CONSISTENCY DETERMINATION (See Section K of instructions)

☒ Projects that propose the use of existing municipal collection, conveyance or wastewater treatment facilities, or the construction of collection and conveyance facilities to be served by existing municipal wastewater treatment facilities must be consistent with the requirements of Chapter 94 of DEP's rules and regulations (relating to Municipal Wasteload Management). If more than one municipality or authority will be affected by the project, please obtain the information required in this section for each. Additional sheets may be attached for this purpose.

1. Project Flows 64,750 gpd

2. Total Sewage Flows to Facilities

   a. Enter average and peak sewage flows for each proposed or existing facility as designed or permitted.

   b. Enter the present average and peak sewage flows for the critical sections of existing facilities.

   c. Enter the average and peak sewage flows projected for 5 years through the critical sections of existing facilities which includes existing, proposed, or future projects.

   To complete the table, refer to Section K of instructions.

	a. Design and/or Permitted Capacity (gpd)		b. Present Flows (gpd)		c. Projected Flows in 5 years (gpd)	
	Average	**Peak**	**Average**	**Peak**	**Average**	**Peak**
Collection-Gravity Sewer–Doylestown Knoll *[a]*	155,000	620,000	27,000	293,000	62,250	434,000
Conveyance-20" Portion of Castle Valley Interceptor (CVI)	1,132,000	2,830,000	142,600	570,200	212,300	849,200
Conveyance-Castle Valley Diversion Pump Station (CVDPS) *[b]*	288,000	*[d]*	216,000	*[d]*	276,000	*[d]*
Treatment-Kings Plaza STP *[c]*	425,000	None	332,000	375,000*[f]*	357,000	404,000*[f]*
Treatment-Green Street WWTP *[c]*	1,200,000	1,500,000*[e]*	815,000	1,040,000*[f]*	888,000	1,136,000*[f]*

Note: Unless Otherwise noted, peak flows are instantaneous peaks.

Footnotes:

[a] *The projected flows only include 141 EDUs from the Pebble Ridge service area, as only those tributary to the proposed pump station to be located along Lower State Road, would flow through the "Collection System". The rest of the Pebble Ridge EDUs will connect directly to the Castle Valley Interceptor.*

[b] *Present CVDPS flow is based on Year 2011 chapter 94 Report (5-Yr Average). Projected flows are also based on the Year 2011 Chapter 94 Report. Connections from Pebble Ridge Community were not listed on the 2011 Chapter 94 Report as future connections; therefore, they were added to those projections for the purposes of this Table.*

[c] *Present flows are based on Year 2011 Chapter 94 Report (5-Yr Average). Projected flows are also based on the Year 2011 Chapter 94 Report. Connections from the Pebble Ridge Community were not listed on the 2011 Chapter 94 Report as future connections; therefore, they were added to those projections for the purposes of this Table. It is anticipated that 0.025 MGD of the Pebble Ridge flows will be treated at Kings Plaza STP, and the remainder will be treated at the Green Street WWTP via the Castle Valley Diversion Pump Station.*

[d] *CVDPS is operated both on a timer and wet well levels, meaning the pumps will shut down if the maximum daily flow is reached within a 24-hour period. The single pump capacity is 288,000 GPD. Since this Pumps Station is designed for average flows, peak flows are not applicable.*

[e] *Green Street WWTP's Max Month Limit.*

[f] *Peak flows shown for the STP/WWTP's (both present and projected) are the maximum 3-consecutive monthly flows, averaged over the past 5 years (as reported on the Year 2011 Chapter 94 Reports).*

K. CHAPTER 94 CONSISTENCY DETERMINATION (continued)

3. Collection and Conveyance Facilities

The questions below are to be answered by the sewer authority, municipality, or agency responsible for completing the Chapter 94 report for the collection and conveyance facilities. These questions should be answered in coordination with the latest Chapter 94 annual report and the above table.

This project proposes sewer extensions or tap-ins. Will these actions create a hydraulic overload within five years on any existing collection or conveyance facilities that are part of the system? ☐ Yes ☒ No

a. If yes, this sewage facilities planning module will not be accepted for review by the municipality, delegated local agency and/or DEP until all inconsistencies with Chapter 94 are resolved or unless there is an approved plan and schedule granting an allocation for this project. A letter granting allocations to this project under the plan and schedule must be attached to the module package.

b. If no, the sewer authority, municipality, or agency responsible for completing the Chapter 94 report for the collection and conveyance facilities must sign below to indicate that the collection and conveyance facilities have adequate capacity and are able to provide service to the proposed development in accordance with Chapter 94 requirements and that this proposal will not affect this status.

c. Collection System

Name of Agency, Authority, Municipality Bucks County Water and Sewer Authority

Name of Responsible Agent GLENN ARGUE

Agent Signature _____

Date FEB 8, 2013

d. Conveyance System

Name of Agency, Authority, Municipality Bucks County Water and Sewer Authority

Name of Responsible Agent GLENN ARGUE

Agent Signature _____

Date FEB 8, 2013

4. Treatment Facility

The questions below are to be answered by the facility permittee in coordination with the information in the table and the latest Chapter 94 report.

This project proposes the use of an existing wastewater treatment plant for the disposal of sewage. Will this action create a hydraulic or organic overload within 5 years at that facility? ☐ Yes ☒ No

a. If yes, this planning module for sewage facilities will not be reviewed by the municipality, delegated local agency and/or DEP until this inconsistency with Chapter 94 is resolved or unless there is an approved plan and schedule granting an allocation for this project. A letter granting allocations to this project under the plan and schedule must be attached to the planning module.

b. If no, the treatment facility permittee must sign below to indicate that this facility has adequate treatment capacity and is able to provide wastewater treatment services for the proposed development in accordance with Chapter 94 requirements and that this proposal will not impact this status

c. Name of Agency, Authority, Municipality Bucks County Water and Sewer Authority

Name of Responsible Agent GLENN ARGUE

Agent Signature _____

Date FEB 8, 2013

L. INSTITUTIONAL EVALUATION (See Section L of instructions)

☒ An institutional evaluation is attached. Identify the entity which will design, obtain necessary permits, construct, own and operate the proposed facilities. If a low pressure vacuum or effluent sewer are proposed, discuss purchase, installation, operation and maintenance responsibilities for the individual pumping, valves, tanks, etc.

(Refer Narrative Section L – Page 8)

M. PROJECT COST AND FUNDING ANALYSIS (See Section M of instructions)

☒ A detailed cost estimate and present worth analysis for the project is attached. Provide a financing plan for the project, identifying the funding source(s) and identifying estimated tap fees and user rates. For projects proposing the use of PENNVEST funds, see Section I. 9. **ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS**. Complete the following table:

Cost and Funding Information (Estimated)		**(Also refer Exhibit No. 9 and Narrative Section M – Page 8)**
COST		
Construction cost	$ 4,131,030.00	
Administrative, legal, engineering cost	$ 1,126,640.00	
Total project cost	$ 5,257,670.00	
Annual O/M cost	$ N/A	
FUNDING		
Tap-in fees ($ per EDU X no. EDUs)	$ 1,605,800.00	(= $6,200 x 259)
Proceeds from primary funding source	$ 5,257,670.00	
Proceeds from other funding sources	$ N/A	
USER COSTS		
Initial user base	259 EDUs	
Monthly debt service per EDU	$ N/A	
Monthly O/M cost per EDU	$ N/A	
Total estimated monthly user cost per EDU	$ 45	

N. PROJECT IMPLEMENTATION SCHEDULE (See Section N of instructions)

☒ A project implementation schedule showing milestone dates for submission of DEP permit applications, initiation and completion of construction and any other milestones significant to this particular project is attached to this component **(Refer Narrative Section N – Page 9)**

O. PUBLIC NOTIFICATION REQUIREMENT (See Section O of instructions)

☒ Attached is a copy of the public notice. All comments received as a result of the notice are attached.

☒ Municipal response to these comments is attached.

☐ No comments were received. A copy of the public notice is attached.

(Refer Exhibit Nos. 2 and 3)

☐ P. ADDITIONAL CHAPTER 71 PLANNING ELEMENTS (See Section P of instructions)

a. Additional planning elements are required by DEP.

- _____
- _____
- _____
- _____
- _____

Q. PLANNING AGENCY REVIEW (See Section Q of instructions)

☒ Local Planning Commission comments or Component 4a are attached. **(Refer Exhibit No. 3)**

☒ County, Area, Or Region Planning Commission comments or Component 4b are attached.

(Refer Exhibit No. 3)

☒ County or Joint County Health Department comments (if appropriate) or Component 4c are attached.

(Refer Exhibit No. 3)

R. RESOLUTION OF ADOPTION (See Section R of instructions)

☒ An **original**, **signed**, and **sealed** Resolution of Adoption is attached. **(Refer Exhibit No. 1)**

ATTACHMENTS

SEWAGE FACILITIES PLANNING MODULE
FOR MINOR ACT 537 UPDATE REVISION COMPONENT 3M
PEBBLE RIDGE/WOOD RIDGE AND VICINITY
GRAVITY SEWER SYSTEM EXTENSION
DOYLESTOWN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

SECTION F – PROJECT NARRATIVE

1. Nature of the Project

Doylestown Township is currently in the planning phase of the "Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System". The project proposes public sanitary sewer service to a total of two hundred and fifty-two (252) properties bounded by Bristol Road, Turk Road, Lower State Road, and Almshouse Road, including the communities of Pebble Ridge and Wood Ridge, within Doylestown Township, Bucks County, Pennsylvania. This proposed Planning Area is identified in the Township's Act 537 Plan (December 1999) as being within the Kings Plaza Sewer Treatment Plant Service Area, but is presently served by on-lot sewage disposal systems. The Planning Area is also within Neshaminy Basin Sub Region IV. All lots are served by wells with the exception of approximately 10 parcels along Turk Road, Willow Lane, and Doylestown Knoll that are served by public water supplied by the Doylestown Township Municipal Authority. No additional public water mains are to be constructed in conjunction with this project.

The Pebble Ridge/Wood Ridge (and vicinity) community to which public sewer service is to be extended, consists of 202 residentially zoned parcels, most with existing single-family homes served by individual on-lot septic systems and wells. The proposed "Planning Area" is to include these 202 parcels as well as an additional 21 parcels along the path of the proposed gravity sewer system that will convey flow to a pump station at Lower State Road (refer sewer schematic titled "Pebble Ridge Area Sewer Extension" on exhibit No. 9). Similarly, 29 parcels along Militia Hill Road and Doe Run Drive are added to the proposed Planning Area due to their immediate proximity to proposed gravity sewer already required to serve other lots. Including these additional 50 parcels, the proposed Planning Area consists of 252 parcels. Although some larger lots exist within the planning area, most are either limited from future subdivision due to easements or deed restrictions or are limited from subdivision due to location or environmental and physical restrictions; therefore, no EDUs have been allotted as part of this Component 3M for future subdivision. A list of parcels in the Planning Area (refer Exhibit No. 7) and Planning Area Map (refer Exhibit No. 6) are attached.

2. Wastewater Flow Projections

A total of 252 properties are within the project Planning Area and all are zoned for residential use (refer Exhibit No. 5). One of the parcels in the planning area contained a lawful, nonconforming restaurant use and multi-family apartment use,

but the restaurant use has ceased and EDUs have only been allotted for the multi-family apartment use. No additional EDUs have been allotted for future build-out of the properties within the Planning Area, due to current zoning criteria and limited potential subdivision. As a result, with the assignment of one EDU to each parcel and eight (8) EDUs to the multi-family use parcel, 259 EDUs are anticipated, resulting in a total flow of 64,750 gallons per day (gpd) from this sewer extension (based on the definition of 250 gpd per EDU). Based on PADEP definition of 400 gpd per EDU, the proposed additional flow would equate to one hundred and sixty-two EDUs. All lots with failing or malfunctioning OLDS will be required to immediately connect to the gravity system. Doylestown Township is considering the appropriate time for all other lots to connect to the system and will make this determination upon approval of this Planning Module and prior to commissioning engineering design of the proposed system. However, all lots within the Planning Area will be required to equally share the cost to install the sewer system within the public rights-of-way and sewer easement areas.

3. Proposed Collection and Conveyance System

The proposed sewer extension will consist of 8-inch and 10-inch gravity sanitary sewer and a central pump station to be owned and operated by the Bucks County Water and Sewer Authority (BCWSA). Since there is a ridge that traverses the approximate center of the Planning Area, gravity sewer on the east side of the ridge will connect into the Castle Valley Interceptor (CVI) at two locations, one near Doe Run Drive and the other approximately 1,200 feet east of the intersection of Militia Hill Road and Almshouse Road (along the northern boundary of Tax Parcel No. 9-7-110-1). Gravity sewer on the west side of the ridge will connect to a proposed central pump station along Lower State Road (near Tax Parcel No. 9-7-71-2). Effluent collected at this pump station will be discharged to the existing gravity sewer system in Dartmouth Drive (Doylestown Knoll) which flows to the CVI.

The CVI flows to the Castle Valley Diversion Pump Station (CVDPS) which diverts some effluent to the Green Street Waste Water Treatment Plant (GSWWTP). The remainder of the flow continues through the CVI to the Kings Plaza Sewer Treatment Plant (KPSTP). The CVDPS currently has a capacity of 288,000 gpd and a potential future capacity of 480,000 gpd with upgrade of the pump. The interceptor, diversion pump station and both sewer plants are owned and operated by the BCWSA. Pursuant to BCWSA (refer Chapter 94 Wasteload Management Report), the remaining capacity of the CVDPS is 0.040 million gallons per day (mgd); therefore, a portion of the proposed flow generated from the Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension will be conveyed to the GSWWTP (0.040 mgd) with the remainder of the flow being conveyed (by way of the CVI) to the KPSTP (0.025 mgd). This flow diversion is consistent with the Doylestown Township Act 537 Plan and estimate of remaining diversion pump station capacity (based on average flow) as determined by the BCWSA.

SECTION G - SEWAGE DISPOSAL NEEDS IDENTIFICATION

Soils within the project Planning Area are classified as “poorly drained” or “somewhat poorly drained” in the Bucks County Soil Survey and are considered marginal for septic systems under current regulations (refer Exhibit No. 11). Several On-lot Disposal Systems (OLDS) within the project Planning Area are known to have failed and many other malfunctions are suspected based on soil conditions. In 1998, Boucher & James, Inc. completed a visual inspection of OLDS in Pebble Ridge Community, in which 27% of the systems were found to be failing or malfunctioning from a current Pennsylvania Department of Environmental Protection regulatory perspective, meaning, effluent or partially treated effluent was present on the ground surface, effluent backed up into the house, dead grass or excessive grass growth was observed over the drainfield, or very soft ground existed within the drainfield (refer Appendix B - “Plan II – 1998 Survey”).

The Doylestown Township Act 537 Plan (December 1999) divided the areas of the Township without public sewer into two categories, those within the 5-year service plan and those within the 10-year service plan. The 10-year service plan area was created to allow for a comprehensive OLDS Septage Management Program to be initiated, to determine which portions of the service area could remain utilizing OLDS and which areas might require alternative sewage disposal measures. Pebble Ridge/Wood Ridge Community was placed within the 10-year service plan area, despite the 1998 malfunction observations, due to concerns by the residents including cost to upgrade to public sewer service.

A 2004 survey of the residents in the Pebble Ridge/Wood Ridge Community resulted in 123 responses, of which 79 (greater than 64%) indicated the resident was in favor of connection to public sewer (refer Exhibit No. 8). Correspondence dated March 14, 2005 from the Bucks County Department of Health (BCDH) to Doylestown Township recommended the Township explore the possibility of bringing public sewer to the Planning Area due the accumulation of system failures and malfunctions (as documented by BCDH) and due to marginal, poorly drained soil conditions (refer Exhibit No. 3).

In 2008, Boucher & James, Inc. conducted a follow-up study of the Pebble Ridge/Wood Ridge OLDS to determine the effect of the Septage Management Program, which was initiated in 2001, as required by the Act 537 Sewage Facilities Plan (December 1999), as a means of correcting and/or reducing OLDS malfunctions in the Township, including the Pebble Ridge/Wood Ridge Community. The Septage Management Program required that OLDS be pumped out every three years and that the pumper/hauler conducts a visual inspection of the system, with results of such inspection required to be submitted to Doylestown Township. Although 23 of the OLDS that revealed a malfunction or suspected malfunction in 1998, did not reveal any indication of a malfunction or suspected malfunction in 2008, there were 20 other OLDS that revealed a malfunction/suspected malfunction in 2008 that did not reveal the same in 1998. Approximately 25% of the OLDS revealed malfunctions or suspected malfunction as of the 2008 study (refer Appendix A - “Plan I – 2008 Survey”). The Septage Management Program appears to have had a marginal impact on improving/correcting OLDS malfunctions/suspected malfunctions in this community.

In 2010, Conestoga-Rover & Associates, responsible for the Township's NPDES Illicit Discharge Detection and Elimination Program, reported, based on analytical results from the sampling of storm sewer outfalls in and around the Pebble Ridge/Wood Ridge Community, elevated concentrations of fecal coliform, likely from human sources. 57% of the outfalls sampled indicated fecal coliform levels of 200 col/100 ml or greater, strongly suggesting stormwater runoff contamination from human waste, possibly from malfunctioning septic systems (refer Appendix C - "2007 Results Area 2 – Round 2").

Most soils in the area are classified as "poorly drained" or "somewhat poorly drained" in the Bucks County Soil Survey and would be considered marginal for septic systems under current regulations. Many of the existing septic systems in this area have experienced malfunctions and/or failures, dating back greater than 30 years. A list of the classifications and limitations (for on-lot septic systems) for soils within the Planning Area is attached (refer Exhibit No. 11).

SECTION I - PROPOSED WASTEWATER FACILITIES

A total of 252 properties are within the project Planning Area and all are zoned for residential use (refer Exhibit No. 5). One of the parcels in the planning area contained a lawful, nonconforming restaurant use and multi-family apartment use, but the restaurant use has ceased and only eight (8) EDUs have been allotted to this parcel (for the multi-family apartments). No additional EDUs have been allotted for future build-out of the properties within the Planning Area, due to current zoning criteria and limited potential subdivision. As a result, with the assignment of one EDU to each parcel (except as noted for the multi-family use parcel), 259 EDUs are anticipated, resulting in a total flow of 64,750 gallons per day (gpd) from this sewer extension (based on the definition of 250 gpd per EDU). All lots with failing or malfunctioning OLDS will be required to immediately connect to the gravity system. Doylestown Township is considering the appropriate time for all other lots to connect to the system and will make this determination upon approval of this Planning Module and prior to commissioning engineering design of the proposed system. However, all lots within the Planning Area will be required to equally share the cost to install the sewer system within the public rights-of-way and sewer easement areas.

The proposed sewer extension will consist of 8-inch and 10-inch gravity sanitary sewer and a pump station. Gravity sewer on the east side of the Planning Area will connect directly into the Castle Valley Interceptor (CVI) at two locations, and gravity sewer on the west side of the Planning Area will connect to a proposed pump station along Lower State Road. Effluent collected at this pump station will be discharged to the CVI. A portion of the proposed flow generated from the Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension will be conveyed to the GSWWTP with the remainder of the flow being conveyed (by way of the CVI) to the KPSTP.

Project clearance for the proposed schematic sewer layout and lateral connections has been obtained from the Pennsylvania Historical and Museum Commission and is included in the attachments to the Component 3M. A Pennsylvania Natural Diversity

Inventory (PNDI) Environmental review has been conducted and noted one potential impact on a plant species of "special concern" by the Pennsylvania Department of Conservation and Natural Resources (PADCNR), but upon further review by PADCNR, no potential impact was identified (refer correspondence dated December 5, 2012 – Exhibit No. 3). The location of wetlands is shown on the enclosed Exhibit No. 10 based on the National Wetland Inventory and hydric soils (potential wetland indicator soils) are shown based on Natural Resources Conservation Service soil mapping for Bucks County. No impact to wetlands is anticipated with this project; however, the presence of wetlands will be determined at time of completion of engineering design for the sewer system and as each property submits application for connection and construction of their individual lateral connections. Since the proposed gravity sewer mains and related improvements are to be largely constructed on previously developed ground (streets, residential lots, previously graded areas), the presence of wetlands is not anticipated. A copy of the PNDI Environmental Review is attached (refer Exhibit No. 3).

This project is consistent with Doylestown Township's Comprehensive Plan (refer Appendix A). The latest update to the Doylestown Township Comprehensive Plan (originally prepared by Lynn Froehlich, AICP in 1989) was completed by Boucher & James, Inc. in 2008). The plan addresses the problems with on-site septic systems within the Township under the "policies and Implementation Strategies" portion of the Plan. Under this section, the Plan recommends the extension of public sewerage to portions of the Township that are experiencing problems with on-lot septic systems. The proposed project will provide public sewer service to a residential area of the Township served by on-lot sewage disposal systems. Attached is a copy of the Doylestown Township Zoning Map which identifies the project area as residentially zoned (refer Exhibit No. 5). The Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension project is proposed to serve Doylestown Township residents only. No further development is proposed within the area of Doylestown Township which will be served by this project.

SECTION J - ALTERNATIVES ANALYSIS

The Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension will ultimately serve two hundred and fifty-two (252) properties bounded by Bristol Road, Turk Road, Lower State Road, and Almshouse Road, including the communities of Pebble Ridge and Wood Ridge.

The following alternatives for providing sewer service to the proposed Planning Area have been considered:

1. Construction of a Low Pressure Sewer System

   This alternative involves the construction of a low pressure sanitary sewer (LPSS) system with sewer mains ranging in size from 1-1/2 inches to 3 inches. This system would serve 249 parcels within the Pebble Ridge/Wood Ridge and vicinity community, as opposed to the 252 to be served by a gravity system. There is no additional capacity in the LPSS system because of the location of nearby lots

along Bristol Road and Dell Haven area (approximately 120 EDUs) which would have to construct separate force mains and "conveyance" main to the CVI. Due to technical and minimal design flow considerations, all properties would be required to connect to this system immediately in order for it to function properly (refer Appendix D). Annual maintenance cost associated with this type of system (for pumps, electric, etc.) would be substantially greater than a gravity sewer system.

2. Continued Use of On-Lot Sewage Disposal Systems

The continued use of on-lot sewage disposal systems (OLDS) was considered as an alternative for the Planning Area. The existing residential structures within the Planning Area are served by OLDS built under earlier regulations for soil testing and design of septic disposal systems, most, more than 30 years ago. Under current regulations for the design of OLDS, they are not considered a viable option given the environmental restrictions (soils in the project area are mostly classified as "poorly drained" or "somewhat poorly drained" by the Bucks County Soil Survey) and limited lot areas, setback and separation requirements. Since these properties are located in a public sewer service area (Kings Plaza STP Service Area), the continued use of OLDS is not considered technically or economically feasible and connection to public sewer is recommended in the Doylestown Township Comprehensive Plan (refer Appendix A). Cost for installation of replacement OLDS (estimated between $35,000.00 and $40,000.00) is greater than the cost associated with the alternatives discussed herein. Numerous failures and malfunctions of existing OLDS in this community have been reported over the last 10 years, in particular.

3. Small Flow or Community Treatment Facility

The proposed Planning Area is located in close proximity to the Castle Valley Interceptor, Kings Plaza STP and Green Street WWTP; therefore construction of an additional plant(s) is not considered technically or economically feasible.

4. Retaining Tanks

Generally, retaining tanks are only permitted on an interim basis where connection to sanitary sewer is imminent. While they may have some viability on a short-term basis, any reliance on the continued use of retaining tanks is not considered technically feasible. Several parcels within the Planning Area currently utilize retaining tanks and other property owners have reported having to pump their traditional system tanks more frequently than once every three years, with some reporting a pumping rate of 3 times per year, which is indicative that the existing system is unable to process the volume of liquid effluent meant for the absorption area.

5. Do Nothing

This alternative would require that nothing be done to eliminate sewage system failures, malfunctions, or elimination of existing holding tank usage. This alternative would not meet the objectives of the Act 537 Sewage Facilities Plan or Comprehensive Plan for Doylestown Township to provide public sewer service to properties with malfunctioning on-lot sewage disposal systems and is not considered viable.

6. Selected Alternative

Based upon the alternatives considered above, construction of gravity sewer system and pump station has been determined to be the most desirable and cost effective alternative for serving the properties within the Proposed Planning Area in Doylestown Township. This alternative provides a permanent method of sanitary sewage disposal, allows for connection of the greatest number of lots served by OLDS, eliminates material, construction and future maintenance cost associated with grinder pumps (required with a LPSS), eliminates the need for all lots to immediately connect to the system (as is the case with a LPSS due to minimum flow considerations), and limits potential for pollution to the Neshaminy Creek.

SECTION L - INSTITUTIONAL EVALUATION

The proposed gravity sewer system and the portion of the laterals within the public right-of-ways will be owned and maintained by the Bucks County Water and Sewer Authority (BCWSA). Additionally, BCWSA owns, operates and maintains the downstream gravity sewer, Castle Valley Interceptor, Castle Valley Diversion Pump Station, Kings Plaza STP, and Green Street WWTP to which the gravity sewer and pump station will discharge. BCWSA operates as a non-profit public Authority supported by user fees.

SECTION M - PROJECT COST AND FUNDING ANALYSIS

The gravity sewer system and central pump station is to be constructed, operated and maintained by the BCWSA. The cost to install all system components, including the sewer mains, pump station, and force main is estimated to be $5,257,670.00 which equates to a cost of $20,300.00 per EDU. With the inclusion of an estimated private lateral construction cost of $1,500.00 and a tapping fee of $6,200.00 per connection, the total overall project cost of the gravity sewer system is $28,000.00 per EDU (based on a current total of 259 EDUs). A copy of the opinion of probable cost of this project is attached (refer Exhibit No. 9).

SECTION N – PROJECT IMPLEMENTATION SCHEDULE

Pebble Ridge Sanitary Sewer
Implementation Plan (based on gravity sewer option with central pump station)
Prepared 1-12-12

Task Activity	Estimated Time to Complete		Work to be Completed	Specific Items to Evaluate
Act 537 Plan Revision and Approvals	6	Months	Revision to Plan, Evaluate alternatives, implementation schedule, secure properties and easements.	No add'l treatment capacity or pumping capacity is required. To be done concurrently with survey and design below.
Engineering Design				
Survey	2	Months	Proposal for aerial still has $60,000 unpaid, so assumed 2 months of work still left. At same time, CEC would perform utility survey (within the 2 months).	
Design	4	Months	The PS/Gravity option has more piping than the low pressure option, so I used the higher amount for time estimating. [(36,785 LF / 600 LF per sheet + 8 add'l details) / 17 sheets per month)	Sewer and PS designed concurrently.
Obtaining Permits	3	Months	Of the WQP, E&S NPDES, HOP and general permits, say the WQP controls at 3 months typical.	
Bid and Award	2.5	Months		
Construction	15	Months	Assume 3 contracts are let concurrently, one for PS, one for part of gravity (plus offsite FM), and one for other gravity. The gravity+FM contract duration would control.	This is only to substantial completion; does not include restoration or punchlist timing.
Elapsed Time with Concurrent Work	**26.5**	**Months**	Concurrent 537 and design work	Assumed multiple designers/Cadd techs

EXHIBITS

EXHIBIT NO. 1

MUNICIPAL ADOPTING RESOLUTION

PADEP Code No. 1-09919-316-3m

RESOLUTION FOR MINOR ACT 537 PLAN REVISION

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

WHEREAS, Section 5 of the Act of January 24, 1966, P.L. 1535, No. 537, known as the "Pennsylvania Sewage Facilities Act," as amended, and the Rules and Regulations of the Department of Environmental Protection (Department) adopted there under, Chapter 71 of Title 25 of the **Pennsylvania Code**, requires the municipality to adopt an Official Sewage Facilities Plan providing for sewage services adequate to prevent contamination of waters and/or environmental health hazards with sewage wastes, and to revise said plan whenever it is necessary to meet the sewage disposal needs of the municipality in conformance with a comprehensive program of pollution control and water quality management, and

WHEREAS, Doylestown Township has prepared the attached Minor Act 537 Sewage Facilities Plan Update Revision which provides for extension of public sewage facilities to a portion of Doylestown Township, which is within the Kings Plaza Sewer Treatment Plant Service Area, and which includes two hundred and fifty-four (254) properties bound by Bristol Road, Turk Road, Lower State Road, and Almshouse Road, and

WHEREAS, the alternative of choice to be implemented is construction of and connection to a gravity sewer system and central pump station to be owned and operated by the Bucks County Water and Sewer Authority, and

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

NOW, THEREFORE, BE IT RESOLVED that the Doylestown Township Board of Supervisors hereby adopt and submit to the Department of Environmental Protection for its approval as a revision to the "Official Sewage Facilities Plan" of the municipality, the above-referenced Sewage Facilities Planning Module, which is attached hereto. The municipality hereby assures the Department of the complete and timely implementation of the said plan as required by law. (Section 5, Pennsylvania Sewage Facilities Act as amended).

I, Stephanie T. Mason, Secretary, Doylestown Township Board of Supervisors hereby certify that the foregoing is a true copy of the Township Resolution No. 1697 adopted June 18 20 13.

AUTHORIZED SIGNATURE: MUNICIPAL SEAL:

Doylestown Township
425 Wells Road
Doylestown, PA 18901
215-348-9915

EXHIBIT NO. 2

PROOF OF PUBLIC NOTIFICATION

PUBLIC NOTICE

Public Notice is hereby given that Doylestown Township, Bucks County, Pennsylvania proposes to adopt a Minor Act 537 Sewage Facilities Plan Update Revision, Component 3M for the Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension Project, in accordance with Pennsylvania Act 537. This Planning Module provides the planning for two hundred and sixty-one (261) EDUs of sewage flow for connection of residentially zoned properties (known as Pebble Ridge/Wood Ridge Communities) bound by Bristol Road, Turk Road, Lower State Road and Almshouse Road, to a public, gravity sanitary sewer system and central pump station to be owned and operated by the Bucks County Water and Sewer Authority.

The Act 537 Update will allow the connection of the residential properties in the Sewage Facilities Planning Area (bound by Bristol Road, Turk Road, Lower State Road and Almshouse Road) to a public, gravity sanitary sewer system to be extended from the existing Bucks County Water and Sewer Authority collection system. Tapping Fees and User Fees for properties connecting to the gravity sewer system and central pump station are included in the Sewage Facilities Plan Update. The Planning Module will also address comments received during the Public Comment Period and any comments received from Planning Agency and Health Department reviews.

A copy of the Sewage Facilities Planning Module, Component 3M can be reviewed at the Doylestown Township Building at 425 Wells Road, Doylestown Pennsylvania, 18901 weekdays from 8:30 a.m. until 4:00 p.m.

Written comments from the public regarding the Sewage Facilities Planning Module, Component 3M will be received by the Township at the above address for 30 calendar days following the date of publication of this Notice. All comments should be submitted to the attention of Stephanie J. Mason, Township Manager. This Minor Act 537 Sewage Facilities Plan Update Revision Component 3M will become part of Doylestown Township's official Act 537 Sewage Facilities Plan.

_____

Stephanie J. Mason, Township Manager
Doylestown Township

Bucks County, SS.

DOYLESTOWN TOWNSHIP
ATTN: STEPHANIE MASON, TWP MGR
DOYLESTOWN, PA 18901

3-069612001
0006459025-01

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

May 15, 2013

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

Ann Clark

LEGAL BILLING CO-ORDINATOR

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Karen McGovern, Notary Public
Tullytown Boro, Bucks County
My Commission Expires Feb. 19, 2017
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

Affirmed and subscribed to me before me this 15th day of May 2013 A.D.

Karen McGovern

RECEIVED
MAY 23 2013
DOYLESTOWN TOWNSHIP

Ad Content Proof

NOTICE
DOYLESTOWN TOWNSHIP

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Stephanie J. Mason,
Township Manager
Doylestown Township

1t M 15

✓ BofS ___ Traf. Eng. ___ Road
___ PC ___ Police ___ M/A
___ Sol. ___ Code ___ Dir. OP
___ Eng. ___ Finance ___ Dir. P&R
___ Pl. Com ___ Water ___ Asst. M

Com ___
EAC ___
Other ___
File 537 + Adv.

EXHIBIT NO. 3 - PROJECT CORRESPONDENCE

CORRESPONDENCE REGARDING PROJECT ISSUES/FEASIBILITY LOCAL AND COUNTY PLANNING AGENCY REVIEWS; COUNTY HEALTH DEPARTMENT REVIEWS/GUIDANCE, STATE AGENCY REVIEWS; PUBLIC COMMENTS AND OTHER APPLICABLE CORRESPONDENCE

EXHIBIT NO. 3
INDEX

CORRESPONDENCE REGARDING PROJECT ISSUES/FEASIBILITY LOCAL AND COUNTY PLANNING AGENCY REVIEWS; COUNTY HEALTH DEPARTMENT REVIEWS/GUIDANCE, STATE AGENCY REVIEWS; PUBLIC COMMENTS AND OTHER APPLICABLE CORRESPONDENCE.

1. Doylestown Township

   Memorandum dated September 24, 2012 recommending preparation Sewage Facilities Planning Module Component 3M Minor Act 537 Update Revision and summarizing direction given by PADEP on use of Component 3M for Pebble Ridge Community Gravity Sewer Extension.

2. Doylestown Township Public Water and Sewer Advisory Committee

   Meeting minutes dated February 21, 2013 recommending approval of the Planning Module Component 3M and report.

3. Pennsylvania Department of Environmental Protection (PADEP)

   Sewage Facilities Planning Module Application Mailer dated November 15, 2012
   PADEP correspondence dated December 12, 2012 regarding review of the Application Mailer
   Correspondence dated July 17, 2003 to BCWSA approving NPDES Permit No. PA0021181 for the Green Street Wastewater Treatment Plant
   Correspondence dated October 27, 1999 to BCWSA approving NPDES Permit No. PA0051250 for the Kings Plaza Sewer Treatment Plant
   Water Quality Management Permit No. 0995422 dated January 19, 1996 for the Castle Valley Diversion Pump Station (to the “Green Street Sewage Treatment Plant”)

4. Pennsylvania Historical and Museum Commission

   Submission Correspondence of November 14, 2012
   Review Correspondence of November 20, 2012

5. Pennsylvania Natural Heritage Program – Pennsylvania Natural Diversity Inventory (PNDI)

   Correspondence dated November 13, 2012 to Pennsylvania Department of Conservation and Natural Resources requesting review of PNDI
   PNDI Environmental Review Receipt No. 20121108379453 dated November 8, 2012
   Pennsylvania Department of Conservation and Natural Resources “No Impact Anticipated” Correspondence dated December 5, 2012.

6. Doylestown Township Planning Commission

Approved Component 4A dated April 5, 2013

7. Bucks County Planning Commission

Submission Correspondence of February 28, 2013
Review Correspondence of April 2, 2013
Approved Component 4B dated April 2, 2013

8. Bucks County Health Department

Correspondence dated March 15, 2005 to Doylestown Township recommending the Township explore the possibility of extending public sewer service to the Planning Area
Correspondence dated May 24, 2010 to Doylestown Township Public Water and Sewer Advisory Committee summarizing the history of on-lot sewage disposal system malfunctions in the Pebble Ridge Community and poor soils conditions for on-lot sewage disposal systems
Submission Correspondence of February 28, 2013
Review Correspondence of March 28, 2013
Approved Component 4C dated March 28, 2013

9. Public Comments

Comments Received from the Public and response to those comments by Doylestown Township

TO:	Board of Supervisors
FROM:	Stephanie J. Mason, Township Manager
CC:	R.E. John, Director of Operations, S. Zadell, Assistant Manager, E. Harvey, J. Swenson
DATE:	September 24, 2012
SUBJECT:	Pebble Ridge/Woodridge

Please be advised that on September 20, 2012 Mr. John, Mr. Harvey, Mr. Swenson and I met with Beth Mahoney and John Veneziale of DEP regarding the above referenced matter. We had invited them to attend the meeting slated for October 3, 2012. However, they did not believe it is the right time for them to attend a public meeting. Therefore, they requested to meet with us during the day to review the recommendation from the PWSAC. As the Board knows DEP has been monitoring this area and the progress of the Township for the past 14 years. In fact DEP was out in 2009 shortly after Boucher and James submitted their study of the area. At this meeting DEP recommended that it was time for the Township to starting the planning process regarding Pebble Ridge/Woodridge and vicinity.

They suggested that we begin the planning process and submit a Component 3m Sewage Facilities Planning Module for Minor Act 537 Update Revision. (See attached form) They reminded us that our current 537 Plan is over 10 years old and that it is time to review the plan. Therefore they suggested we complete the Component 3m. They indicated that we are not being **ordered** to begin the planning process but that the information provided by our PWSAC does raise concerns. Specifically, they are concerned about the age of the systems, the soil conditions and the high levels of fecal coliform getting into the stream. They mentioned that they believe the Township is being proactive. However, they did indicate that planning is needed at this time. Ignoring the planning process will result in an eventual DEP Order.

The good thing about the planning process with DEP is that it requires us to submit alternatives for DEP to review. It also allows for a 30 day public comment period. This will allow residents to submit comments on the Township's submission as well.

In order to prepare the Component 3m we will need to engage an engineering firm that has experience with 537 Planning Modules. I met with Joe Nolan, PE of CKS Engineers a firm in Doylestown who has experience in this area. Mr. Nolan suggested that CKS Engineers could do this work for us for an estimate of $7,000 to $10,000. If the Board decides to move forward with the Component 3m I'd suggest we obtain a written proposal from CKS. If the Board would like to obtain additional quotes we can seek them out however, for this meeting's purposes I wanted to give you a ball park of the cost associated with completing the Component 3m.

The staff recommendation at this time would be for the Township to begin the Component 3m Sewage Facilities Planning Process. It's anticipated that the process will take about 3 to 4 months to complete.

PUBLIC WATER AND SEWER ADVISORY BOARD
Meeting Minutes
February 21, 2013

In Attendance: Ed Harvey, Chairman; Committee Members: Wally Pattyson, Joe Krumenacker, Joe Van Houten, Gary Munkelt, Bill Lloyd, Jim Dowling and Jim Plummer. Also in attendance: Rick Colello, Board of Supervisors Liaison; Township Staff: Stephanie Mason, Township Manager; Richard John, Director of Operations and Sandra Zadell, Assistant Township Manager.

The committee discussed the meeting minutes from April 19, 2012. On a motion made by Bill Lloyd seconded by Joe Krumenacker the minutes were approved. Mr. Krumenacker commented that he really liked the new format of the minutes.

Review of 3M Planning Module

Ms. Mason presented the 3M Planning Module created by CKS Engineering. She also presented the committee with information from the February 19th Board of Supervisors meeting. Several residents came to the meeting since it was the annual storm water meeting. Mrs. Carroll a resident from Doe Run Road spoke to the Board and presented a petition that several of her neighbors had signed. They would like to be removed from the Pebble Ridge and Vicinity Study area. Ms. Mason forwarded this information to CKS.

Ms. Mason explained the process for the 3 M planning module. It is currently being reviewed by the Bucks County Planning Commission and Health Department. Once those reviews are in, the Board will have the option of forwarding the document to DEP. DEP then has a 120 day comment period.

On a motion made by Mr. Pattyson, seconded by Mr. Lloyd the committee voted to recommend that the Board of Supervisors forward the 3M Planning Module to DEP. The motion passed.

Ms. Mason also informed the committee that a resident from the Windover Lane section of the township also spoke at the Board meeting, and was curious about the future of sewer in his neighborhood.

Chairman and Vice Chairman Election

Mr. Harvey stated that the committee needs to elect a Chairman and Vice Chairman.

Mr. Lloyd made a motion, seconded by Mr. Pattyson to nominate Ed Harvey to be the committee chairman. Motion Passed.

Mr. Pattyson made a motion to nominate Joe Krumenacker as Vice Chairman, Mr. Krumenacker declined the position.

Mr. Lloyd made a motion seconded by Mr. Krumenacker to nominate Jim Dowling as Vice Chairman, the motion passed.

Discussion of Cycle 2 Neighborhood

Mr. Krumenacker stated that he feels the committee should move forward with surveying the residents of Cycle 2 to determine their interest in Public Sewer in their neighborhood. He expressed concern that the PWSAC had already created a survey that was ready to go to the neighborhood but that it never happened. He asked that Ms. Zadell bring that survey to the next meeting. Ms. Zadell stated she would.

Mr. Harvey stated that he preferred that the committee completed the project in Pebble Ridge before they move onto studying a new area. Mr. Van Houten agreed. They both expressed concern that a second sewer study area may muddy the waters regarding the Pebble Ridge project.

After further discussion it was the consensus of the committee to have Mrs. Zadell provide the committee with a map of sewered neighborhoods in the township, a soil map and a copy of the draft survey for the next meeting.

Respectfully Submitted:

Sandra B. Zadell
Assistant Township Manager

CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

November 15, 2012
Ref: #7039

Pennsylvania Department of Environmental Protection
Southeast Region
2 E. Main Street
Norristown, PA 19401

Reference: Sewage Facilities Planning Module Application Mailer
Pebble Ridge Community Gravity Sewer System
Doylestown Township, Bucks County

Dear Sir or Madam:

On behalf of Doylestown Township, Bucks County, enclosed is the Sewage Facilities Planning Module Application Mailer for the possible extension of public sewage facilities to the Pebble Ridge Community (refer to enclosed project planning area exhibit identifying impacted tax parcels). Please confirm a Minor Act 537 Plan Update revision (Planning Module Component 3M) is required to accomplish this extension and assign a PADEP project code. Also enclosed for your reference are U.S.G.S. map exhibit showing the project planning area and a list of tax parcels potentially impacted by the project.

The planning area is presently served by on-lot sewage disposal systems that have experienced numerous malfunctions and failures dating back over 30 years and Doylestown Township is evaluating sewage disposal alternatives in this community, including gravity sanitary sewer extension from nearby sewered areas. By copy of this correspondence, BCDH is notified of this application as directed in the application mailer instructions.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Stephanie J. Mason, Township Manager (w/encl.)
Joseph J. Nolan, P.E., CKS Engineers, Inc. (w/encl. – Application Mailer)
Andrew Schafer, Bucks County Department of Health (w/encl.)
File (w/encl.)

SEWAGE FACILITIES PLANNING MODULE
APPLICATION MAILER

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

For more information, visit DEP's Web site at
www.depweb.state.pa.us, keyword: Act 537.

1. **Development Information**

Name of Development Pebble Ridge Community
Developer Name Doylestown Township, Stephanie J. Mason, Manager
Address 425 Wells Road
Doylestown, PA 18901
Telephone # 215-348-9915
Email sjmason@doylestownpa.org

2. **Location of Development**

a. County Bucks
b. Municipality Doylestown Township
c. Address or Coordinates 40.2705, -75.1511
d. Tax Parcel # Refer attached exhibit
e. USGS Quad Name Doylestown
inches up 3.85 over 3.55
from bottom right corner of map.
f. Located in a High Quality/Exceptional Value watershed?
☐ Yes ☒ No

3. **Type of Development Proposed** (check appropriate box)

☒ Residential ☐ Multi-Residential
Describe PUBLIC SEWER SERVICE EXTENSION TO EXISTING RESIDENTIAL PARCELS
☐ Commercial ☐ Institutional
Describe
☐ Brownfield Site Redevelopment
☐ Other (specify)

4. **Size**

a. # of lots 255 # of EDUs 160
b. # of lots since 5/15/72 255
c. Development Acreage 460
d. Remaining Acreage 460

5. **Sewage Flows** 63,750 gpd

6. **Proposed Sewage Disposal Method** (check applicable boxes)

a. ☒ Sewerage System
☐ Existing (connection only) ☒ New (extension)
☒ Public ☐ Private
☒ Pump Station(s)/Force Main ☒ Gravity
Name of existing system being extended
Bucks County Water and Sewer Authority
Interceptor Name Castle Valley Interceptor
Treatment Facility Name Kings Plaza STP; Green Street WWTP
NPDES Permit # PA0051250; PA 0021181

b. ☐ Construction of Treatment Facility
☐ With Stream Discharge
☐ With Land Application (not including IRSIS)
☐ Other
☐ Repair?
Name of waterbody where point of discharge is proposed (if stream discharge)

c. ☐ Onlot Sewage Disposal Systems (check appropriate box)
☐ Individual onlot system(s) (including IRSIS)
☐ Community onlot system
☐ Large-Volume onlot system

d. ☐ Retaining tanks
Number of Holding Tanks
Number of Privies

7. ☒ **Request Sewage Facilities Planning Module forms in electronic format**

8. **Request for Planning Exemption**

a. Protection of rare, endangered or threatened species
Check one:
☐ The "PNDI Project Environmental Review Receipt" is attached.
or
☐ A completed "PNDI Project Planning & Environmental Review Form," (PNDI Form) is attached. I request DEP staff to complete the required PNDI search for my project. I realize that my planning exemption will be considered incomplete and that the DEP processing of my planning exemption request will be delayed, until a "PNDI Project Environmental Review Receipt" and all supporting documentation from jurisdictional agencies (when necessary) is/are received by DEP.

Applicant or Consultant Initials

b. ☐ Plot Plan Attached ☐ Site Reports Attached

c. Onlot Disposal Systems

(1) I certify that the Official Plan shows this area as an onlot service area.

(Signature of Municipal Official) / Date
Name (Print) / Title
Municipality (must be same as in 2.b.)
Telephone #

(2) I certify that each lot in this subdivision has been tested and is suitable for both a primary and replacement sewage disposal system.

Signature of SEO) / Date
Name (Print) / Certification #
Telephone #

(3) I certify that each lot in this subdivision is at least 1 acre in size

(Signature of Project Applicant/Agent) / Date

d. Public Sewerage Service (i.e., ownership by municipality or authority)

Based upon written documentation, I certify that the facilities proposed for use have capacity and that no overload exists or is projected within 5 years. (Attach documents.)

(Signature of Municipal Official) / Date
Name (Print) / Title
Municipality (must be same as in 2.b.)
Telephone #

Return Correspondence/Forms to:
CKS Engineers, Inc.
Attn: Eric J. Janetka, P.E.
88 South Main Street
Doylestown, PA 18901

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Southeast Region
2 E. Main Street
Norristown, PA 19401

DEP USE	
Components Sent	
Onlot Disposal	☐
Collection and Treatment	☐
Planning Agency Review	☐
Exempt from Planning	☐
Code	
Date	

"Fold Here"

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE

December 12, 2012

Mr. Eric J. Janetka
CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901

Re: Application for Planning Modules
Pebble Ridge
DEP Code 1-09919-316-3m
Doylestown Township
Bucks County

Dear Mr. Janetka:

On November 19, 2012, we received your application for Sewage Facilities Planning Modules for public sewer extension to the Pebble Ridge area. This area includes the entire Pebble Ridge and surrounding neighborhoods in Doylestown Township, Bucks County.

Sewage Facilities Planning Module forms are now available from our eLibrary as MS Word Form Fields files directly from the Department of Environmental Protection's (Department) website address located in the footer below. In the left-hand column, select the Water heading and then select Water Standards and Facility Regulation. In the right-hand column, select Wastewater Management and then select Act 537. Under Act 537, select Act 537 – Planning Authorizations. Under Planning Forms, select the appropriate forms. The link will take you to the eLibrary location for the form.

Please select the following forms for this project and enter the above-referenced DEP Code Number on the first page of each form. Projects submitted without coding may be subject to delays, including the assignment of additional forms or different planning module packages.

Sewage Facilities Planning Module Transmittal Letter, Form 3800-FM-WSWM0355
Sewage Facilities Planning Module Resolution, Form 3800-FM-WSWM0356
Sewage Facilities Planning Module Component 3m, Form 3800-FM-WSFR0353m

- Instructions
- Form

Sewage Facilities Planning Module Component 4

- 4A-Municipal Planning Agency Review, Form 3800-FM-WSFR0362A
- 4B-County Planning Agency Review, Form 3800-FM-WSFR0362B
- 4C-County or Joint Health Department Review, Form 3800-FM-WSFR0362C

Doylestown Township has not submitted a task activity report for this planning activity. Please be advised, without submittal of a task activity report, the Township is not eligible for planning costs reimbursement by the Commonwealth pursuant to Section 6 (a) of Act 537 and 25 Pa. Code Chapter 71 of the Department's regulations.

If you have any questions or if you are unable to print the forms from our website, please call me at 484.250.5175.

Sincerely,

John M. Veneziale
Sewage Planning Specialist 2
Clean Water

cc: Bucks County Health Department
Bucks County Planning Commission
Bucks County Water and Sewer Authority
Doylestown Township
Planning Section
Re 30 (GJS12CLW)347-11

Pennsylvania Department of Environmental Protection

Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428

Southeast Regional Office

Phone: 610-832-6130
Fax: 610-832-6133

July 17, 2003

CERTIFIED MAIL NO. 7001 2510 0005 8145 7792

Mr. John Butler
Director of Operations
Bucks County Water and Sewer Authority
1275 Almshouse Road
Warrington, PA 18976

Re: Green Street Wastewater Treatment Plant
PA0021181 SEW
File Type: NPDES
Doylestown Borough
Bucks County

Dear Mr. Butler:

Your amendment is enclosed.

A Discharge Monitoring Report (DMR) is included. The master DMR will be prepared and distributed by the U.S. Environmental Protection Agency (EPA) in the near future. Use the enclosed DMR Form until you receive a master from EPA. The reporting forms must be submitted to the Department and the EPA Regional Office as instructed in the permit and the enclosed Instruction Sheet.

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 call Mr. Paul Kallus at 610-832-6100.

Sincerely,

James Newbold, P.E.
Regional Manager
Water Management

Enclosures

cc: Permits Chief
Doylestown Borough – Transmittal Letter
EPA 3WP11 – Transmittal Letter
Bucks County Health Department – Transmittal Letter
Operations Section
Permits and Compliance Section
File
Re 30 (RN03)112-15Q

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

NPDES PERMIT NO. PA 0021181
Amendment No. 2

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 et seq. (the "Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq.,

Bucks County Water and Sewer Authority - Client ID No. 93895

is authorized to discharge from a facility located at

Green Street STP - Site ID No. 462760

Green Street and East Bennett Drive, Doylestown, PA 18901

Municipality Doylestown Borough County Bucks

to receiving waters named Unnamed Tributary to Neshaminy Creek – 2-F

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B, and C hereof.

THIS PERMIT SHALL EXPIRE AT MIDNIGHT, March 23, 2005

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.

2. Failure to comply with the terms, conditions, or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

3. Complete application for renewal of this permit, or notification of intent to cease discharging by the expiration date, must be submitted to the Department at least 180 days prior to the above expiration date (unless permission has been granted by the Department for submission at a later date), using the appropriate NPDES permit application form.

   In the event that a timely and complete application for renewal has been submitted and the Department is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports, will be automatically continued and will remain fully effective and enforceable pending the grant or denial of the application for permit renewal.

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED ____________ ISSUED BY [signature]

DATE PERMIT AMENDMENT ISSUED 07/17/03 TITLE: Regional Manager Water Management

DATE EFFECTIVE 08/01/03

Re 30 (RN03)112-15A

70 ... cc & KUL 10/28
ALS 11/2

Pennsylvania Department of Environmental Protection

Lee Park, Suite 6010
555 North Lane
Conshohocken, PA 19428
610-832-6130
Fax 610-832-6133

Southeast Regional Office

11-1-99 Ellen P/s make me a copy of this - doublesided. Andrew

October 27, 1999

Mr. Benjamin Jones
Bucks County Water and Sewer Authority
1275 Almshouse Road
Warrington, PA 18976

RECEIVED
OCT 28 1999
CARROLL ... CORPORATION

Re: Sewage NPDES Permit No. PA0051250
Kings Plaza STP
APS No. 39268, AUTH No. 40888
Doylestown Township, Bucks County

Dear Mr. Jones:

Referenced permit is enclosed.

Please study the permit carefully and direct any questions to the Permits Section of this office.

Please note that there is a new permit limit for Total Residual Chlorine. Sample results on submitted DMR's show that the limit of 0.5 mg/l, monthly average, is currently achievable.

Please take the time to complete the enclosed questionnaire and return it in the pre-addressed stamped envelope. Your response will be taken into account, as we consider ways of improving our service to the public and regulated community.

Thank you for your cooperation.

Sincerely,

James Newbold

James Newbold, P.E.
Regional Manager
Water Management

Enclosures: Permit
Notary Public Certificate

cc: Bucks County Health Department
Doylestown Township (Transmittal letter only)
Permits and Compliance
Permits Chief
EPA
Ms. W. Warren (Transmittal Letter Only)
✓ Mr. Leininger
Mr. O'Neil
Re 30 (RN99)214-10A

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

NPDES PERMIT NO. PA 0051250

In compliance with the provisions of the Clean Water Act, 33 U.S.C. Section 1251 et seq. (the "Act") and Pennsylvania's Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq.,

Bucks County Water and Sewer Authority - Client ID No. 93895

is authorized to discharge from a facility located at

Kings Plaza STP - Site ID No. 458777

1275 Almshouse Road

Warrington, PA 18976

Municipality **Doylestown Township** County **Bucks County**

to receiving waters named **Neshaminy Creek**

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts A, B, and C hereof.

THIS PERMIT SHALL EXPIRE AT MIDNIGHT, October 27, 2004

The authority granted by this permit is subject to the following further qualifications:

1. If there is a conflict between the application, its supporting documents and/or amendments and the terms and conditions of this permit, the terms and conditions shall apply.

2. Failure to comply with the terms, conditions, or effluent limitations of this permit is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

3. Complete application for renewal of this permit, or notification of intent to cease discharging by the expiration date, must be submitted to the Department at least 180 days prior to the above expiration date (unless permission has been granted by the Department for submission at a later date), using the appropriate NPDES permit application form.

   In the event that a timely and complete application for renewal has been submitted and the Department is unable, through no fault of the permittee, to reissue the permit before the above expiration date, the terms and conditions of this permit, including submission of the Discharge Monitoring Reports, will be automatically continued and will remain fully effective and enforceable pending the grant or denial of the application for permit renewal.

4. This NPDES permit does not constitute authorization to construct or make modifications to wastewater treatment facilities necessary to meet the terms and conditions of this permit.

DATE PERMIT ISSUED 10/27/99 ISSUED BY [signature]

DATE PERMIT AMENDMENT ISSUED _____ TITLE: Regional Manager Water Management

DATE EFFECTIVE 11/01/99

Re 30 (RN99)214-10J

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
WATER MANAGEMENT PROGRAM

PERMIT NO. 0995422

AMENDMENT NO. _____

WATER QUALITY MANAGEMENT PERMIT

A. **PERMITTEE (Name & Address):**
Bucks County Water and Sewer Authority
1275 Almshouse Road
Warrington, PA 18976

B. **PROJECT (Name, County, Municipality)**
Castle Valley Interceptor to Green Street Sewage Treatment Plant
Doylestown Township
Bucks County

C. **THIS:** X **Permit** ____ **Permit Amendment**

APPROVES:

X	**The construction/operation of:**	____	**Modification(s) to the construction/operation of:**
____	Sewage Treatment Facilities	____	Industrial Waste Treatment Facilities
____	Land Application Facilities	____	Other: ____
____	Average Design Flow of ____		MGD consisting of: ____
X	Sewers and Appurtenances	X	Pump Station(s)
____	Impoundment(s)	____	Injection Well(s)
X	Soil Erosion & Sedimentation Control Plan		
____	Stream Crossing(s)	____	Outfall & Headwall(s)

D. **APPROVAL GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING CONDITIONS:**

1. a. All construction, operations, and procedures shall be in accordance with the Water Quality Management Permit/Permit Amendment Application dated 10/16/95, its supporting documentation, and addendums dated ____. Such application, its supporting documentation and addendums are hereby made a part of this permit.

   b. Water Quality Management Permit No. ____ dated ____ and conditions, supporting documentation and addendums are (except for any modifications to the original permit herein permitted) also made a part of this permit amendment.

2. Conditions numbered 1-7, 9, 13, 14, 16-18, 20-22 of the sewerage standard conditions dated 09/83 and conditions numbered 1-12 of the erosion control standard conditions dated 08/91 are attached and made part of this permit.

3. Special conditions numbered ____ are attached and made part of this permit.

E. **THE AUTHORITY GRANTED BY THIS PERMIT IS SUBJECT TO THE FOLLOWING FURTHER QUALIFICATIONS:**

1. If there is a conflict between the application or its supporting documents and amendments and the standard or special conditions, the standard or special conditions shall apply.
2. Failure to comply with the rules and regulations of the Department or with the terms or conditions of this permit shall void the authority given to the permittee by the issuance of the permit.
3. This permit is issued pursuant to the Clean Stream law Act of June 22, 1937, P.L. 1987, as amended 35 P.S. §691.1 et seq., and/or the Dam Safety and Encroachments Act of November 26, 1978, P.L. 1375, as amended, 32 P.S. §693.1 et seq. Issuance of this permit shall not relieve the permittee of any responsibility under any other law.
4. Industrial Facilities - If the herein permitted facilities or modifications are not completed with two (2) years of the issue date below, this permit will become null and void and reapplication shall be required.

PERMIT ISSUED:
DATE 1/19/96

AMENDMENT ISSUED:
DATE

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BY: Jack A. Fiala
TITLE: Regional Manager, Water Management

(KAL)341.39

CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

November 14, 2012
Ref: #7039

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

ER No. 13-0401-017-A
The project will have
NO EFFECT
on historic properties
Date 11/20/2012 Reviewer KMH

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

Reference: Cultural Resource Notice
Pebble Ridge Community Minor Act 537 Plan Update
Gravity Sanitary Sewer System
Doylestown Township, Bucks County

Dear Sir or Madam:

On behalf of Doylestown Township, Bucks County, enclosed is an executed Cultural Resource Notice, checklist, narrative, U.S.G.S. quadrangle map showing the project planning area, a schematic diagram of existing and potential public sewer facilities, and PNDI Project Environmental Review receipt for the subject project.

In accordance with the requirements of PADEP Act 537 Planning Approval process, we request that your office determine if the proposed sewage facilities will, or will not impact any archaeological sites or historic structures. No construction is proposed at this time and it is anticipated that future construction activity will have no impact on any existing structures.

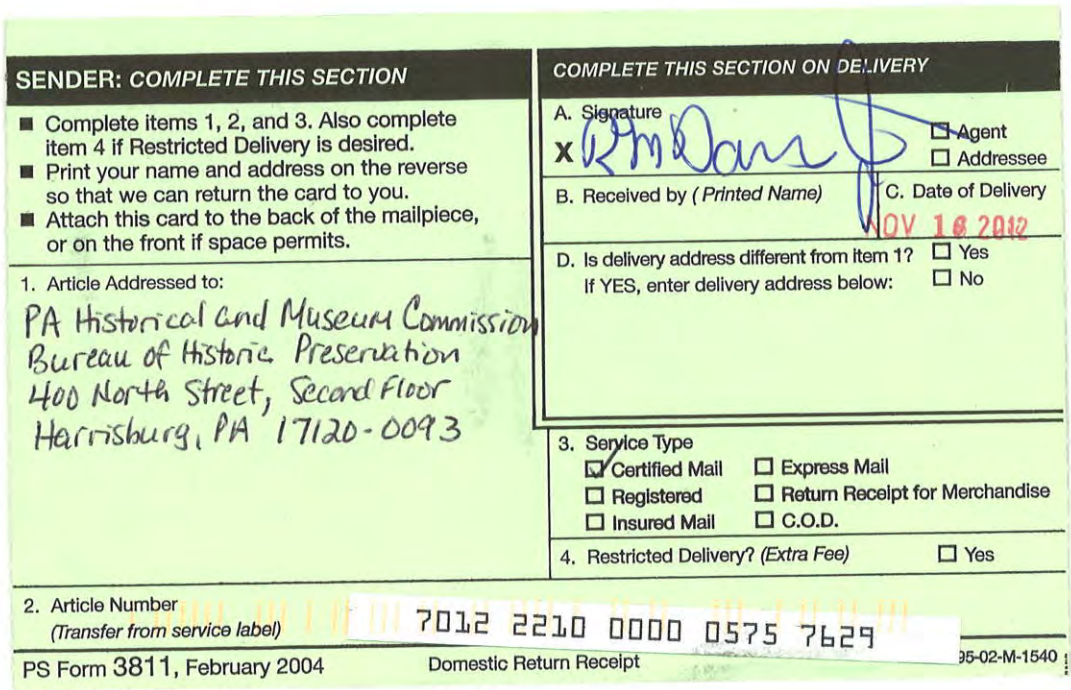
If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Stephanie J. Mason, Township Manager (w/encls.)
Joseph J. Nolan, P.E., CKS Engineers, Inc.
File (w/encls.)



SENDER: *COMPLETE THIS SECTION*

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

1. Article Addressed to:

PA Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X [signature] ☐ Agent ☐ Addressee

B. Received by *(Printed Name)* C. Date of Delivery
NOV 16 2012

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

3. Service Type
☑ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandise
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Transfer from service label) 7012 2210 0000 0575 7629

PS Form 3811, February 2004 Domestic Return Receipt 95-02-M-1540

CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

November 14, 2012
Ref: #7039

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Pennsylvania Historical and Museum Commission
Bureau of Historic Preservation
400 North Street, Second Floor
Harrisburg, PA 17120-0093

Reference: Cultural Resource Notice
Pebble Ridge Community Minor Act 537 Plan Update
Gravity Sanitary Sewer System
Doylestown Township, Bucks County

Dear Sir or Madam:

On behalf of Doylestown Township, Bucks County, enclosed is an executed Cultural Resource Notice, checklist, narrative, U.S.G.S. quadrangle map showing the project planning area, a schematic diagram of existing and potential public sewer facilities, and PNDI Project Environmental Review receipt for the subject project.

In accordance with the requirements of PADEP Act 537 Planning Approval process, we request that your office determine if the proposed sewage facilities will, or will not impact any archaeological sites or historic structures. No construction is proposed at this time and it is anticipated that future construction activity will have no impact on any existing structures.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Stephanie J. Mason, Township Manager (w/encls.)
Joseph J. Nolan, P.E., CKS Engineers, Inc.
File (w/encls.)

0120-PM-PY0003 Rev. 5/2006
Checklist

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CULTURAL RESOURCE NOTICE

APPLICANT'S ✓ CHECKLIST

Please check the following list to make sure that you have included all the required information. Place a checkmark in the column provided for all items completed and/or provided.

Failure to provide all of the requested information will delay the processing of the application and may result in the application being placed on hold with no action, or will be considered withdrawn and the application file closed.

	Requirement	Check ✓ If Included
1.	**Attachments, where appropriate**	
	a) Section B - Additional municipality information.	X
	b) Section B - Additional county information.	X
	c) Section H - 7.5' USGS Map (with defined boundaries of proposed activity).	X
	d) Section H - Narrative description of proposed activity.	X
	e) Section H - Photographs of any buildings over 50 years old. Indicate what is to be done to all buildings in the project area.	N/A
	f) Section H - Total acres in property under review. Of this acreage, total acres of earth disturbance for the proposed activity.	N/A
	g) Return receipt of delivery of Cultural Resource Notice to the Pennsylvania Historical and Museum Commission.	
2.	**Mailings**	
	a) Notice mailed to PHMC on November 14, 2012.	X
	b) Received return receipt from PHMC on _____.	
	c) Submitted application to DEP Regional, Central, District Mining or Oil and Gas Mgmt. Office on _____ with copy of return receipt from PHMC as proof of submittal. or d) Submitted application to County Conservation District Office on _____ with copy of Return Receipt from PHMC as proof of submittal.	
	Requests	**Check ✓ If Included**
3.	**Attachments requested, where appropriate**	
	a) Section H - Photographs of any buildings over 40 years old.	N/A
	b) Section H - Site maps of the proposed activity, if available.	X

0120-PM-PY0003 Rev. 5/2006
NOTICE

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

DEP USE ONLY
Date Received

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

CULTURAL RESOURCE NOTICE

Read the instructions before completing this form.

SECTION A. APPLICANT IDENTIFIER

Applicant Name: Doylestown Township
Street Address: 425 Wells Road
City: Doylestown State: PA Zip: 18901
Telephone Number: 215-348-9915
Project Title: Pebble Ridge Community Minor Act 537 Update Revision

SECTION B. LOCATION OF PROJECT

Municipality: Doylestown Township County Name: Bucks DEP County Code: 09

SECTION C. PERMITS OR APPROVALS

Name of Specific DEP Permit or Approval Requested: Sewage Facilities Planning Module Component 3M

Anticipated federal permits: N/A

- ☐ Surface Mining
- ☐ Army Corps of Engineers
- ☐ 401 Water Quality Certification
- ☐ 404 Water Quality Permit
- ☐ Federal Energy Regulatory Commission
- ☐ Other:

SECTION D. GOVERNMENT FUNDING SOURCES N/A

- ☐ State: (Name)
- ☐ Federal: (Name)
- ☐ Local: (Name)
- ☐ Other: (Name)

SECTION E. RESPONSIBLE DEP REGIONAL, CENTRAL, DISTRICT MINING or OIL & GAS MGMT OFFICE

DEP Regional Office Responsible for Review of Permit Application

- ☐ Central Office (Harrisburg)
- ☒ Southeast Regional Office (Norristown)
- ☐ Northeast Regional Office (Wilkes-Barre)
- ☐ Southcentral Regional Office (Harrisburg)
- ☐ Northcentral Regional Office (Williamsport)
- ☐ Southwest Regional Office (Pittsburgh)
- ☐ Northwest Regional Office (Meadville)
- ☐ District Mining Office:
- ☐ Oil & Gas Office:

SECTION F. RESPONSIBLE COUNTY CONSERVATION DISTRICT, if applicable.

County Conservation District: Bucks County Conservation District
Telephone Number, if known: 215-343-7577

SECTION G. CONSULTANT

Consultant, if applicable: CKS Engineers, Inc., Eric J. Janetka, P.E.
Street Address: 88 South Main Street
City: Doylestown State: PA Zip: 18901
Telephone Number: 215-340-0600

SECTION H. PROJECT BOUNDARIES AND DESCRIPTION

REQUIRED

Indicate the total acres in the property under review. Of this acreage, indicate the total acres of earth disturbance for the proposed activity.

Attach a 7.5' U.S.G.S. Map indicating the defined boundary of the proposed activity.

Attach photographs of any building over 50 years old. Indicate what is to be done to all buildings in the project area.

Attach a narrative description of the proposed activity.

Attach the return receipt of delivery of this notice to the Pennsylvania Historical and Museum Commission.

REQUESTED

Attach photographs of any building over 40 years old.

Attach site map, if available.

SECTION I. SIGNATURE BLOCK

Applicant's Signature ERIC J. JANETKA, P.E., CKS ENGINEERS	November 14, 2012 Date of Submission of Notice to PHMC

CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

November 13, 2012
Ref: #7039

Pennsylvania Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street
PO Box 8552
Harrisburg, PA 17105-8552

Reference: Pebble Ridge Community Minor Act 537 Plan Update
PNDI Project Environmental Review Receipt - 20121108379453
Doylestown Township, Bucks County

Dear Sir or Madam:

On behalf of Doylestown Township, Bucks County, enclosed is PNDI Project Environmental Review Receipt No. 20121108379453 for the subject project, which indicates a "potential impact" to a "Special Concern Species" within the project area. Also enclosed is a project narrative, USGS Location Map showing the project planning area, a schematic diagram of existing and proposed public sanitary sewer facilities, and exhibits showing hydric soils, National Wetland Inventory wetlands, and FEMA Firm 100-year floodplain. A detailed plan of the improvements is not enclosed as preliminary design has not commenced. This PNDI review request is only for the preparation of Sewage Facilities Planning Modules, Minor Act 537 Update (Component 3M) and no construction is proposed.

An additional PNDI project review request will be filed for the specific ground area to be impacted by construction when engineering design is completed in the future, upon approval of the Minor Act 537 Update. The "planning area" is presently served by on-lot sewage disposal systems that have experienced numerous malfunctions and failures dating back over 30 years and Doylestown Township is evaluating sewage disposal alternatives in this community, including gravity sanitary sewer.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.

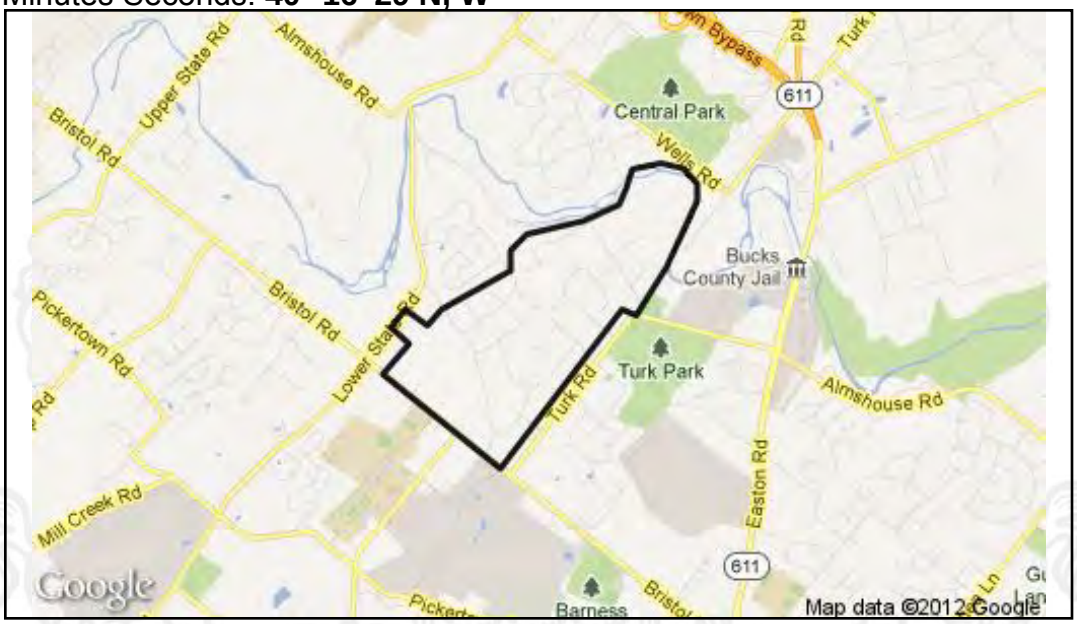
Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Stephanie J. Mason, Township Manager (w/encls.)
Joseph J. Nolan, P.E., CKS Engineers, Inc.
File (w/encls.)

1. PROJECT INFORMATION

Project Name: **Pebble Ridge Planning Module**
Date of review: **11/8/2012 2:26:40 PM**
Project Category: **Waste Transfer, Treatment, and Disposal,Liquid waste/Effluent,Sewage module/Act 537 plan**
Project Area: **510.5** acres
County: **Bucks** Township/Municipality: **Doylestown Twp,Warrington**
Quadrangle Name: **DOYLESTOWN** ~ ZIP Code: **18976,18901,18914**
Decimal Degrees: **40.274810 N, -75.148115 W**
Degrees Minutes Seconds: **40° 16' 29 N, W**



2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
PA Fish and Boat Commission	No Known Impact	No Further Review Required
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

Note that regardless of PNDI search results, projects requiring a Chapter 105 DEP individual permit or GP 5, 6, 7, 8, 9 or 11 in certain counties (Adams, Berks, Bucks, Carbon, Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill and York) must comply with the bog turtle habitat screening requirements of the PASPGP.

RESPONSE TO QUESTION(S) ASKED

Q1: Accurately describe what is known about wetland presence in the project area or on the land parcel. "Project" includes all features of the project (including buildings, roads, utility lines, outfall and intake structures, wells, stormwater retention/detention basins, parking lots, driveways, lawns, etc.), as well as all associated impacts (e.g., temporary staging areas, work areas, temporary road crossings, areas subject to grading or clearing, etc.). Include all areas that will be permanently or temporarily affected -- either directly or indirectly -- by any type of disturbance (e.g., land clearing, grading, tree removal, flooding, etc.). Land parcel = the lot(s) on which some type of project(s) or activity(s) are proposed to occur .
Your answer is: **1. The entire project will occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, or railroad bed.**

Q2: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats
Your answer is: **2. No**

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources

RESPONSE: Further review of this project is necessary to resolve the potential impacts(s). Please send project information to this agency for review (see WHAT TO SEND).

DCNR Species: (Note: The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer species than what is listed below. After desktop review, if a botanical survey is required by DCNR, we recommend the DCNR Botanical Survey Protocols, available

here: http://www.gis.dcnr.state.pa.us/hgis-er/PNDI_DCNR.aspx.)
Scientific Name: Cuscuta polygonorum
Common Name: Smartweed Dodder
Current Status: Special Concern Species*
Proposed Status: Threatened

PA Fish and Boat Commission

RESPONSE: No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

U.S. Fish and Wildlife Service

RESPONSE: No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.* is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

* Special Concern Species or Resource - Plant or animal species classified as rare, tentatively undetermined or candidate as well as other taxa of conservation concern, significant natural communities, special concern populations (plants or animals) and unique geologic features.
** Sensitive Species - Species identified by the jurisdictinal agency as collectible, having economic value, or being susceptible to decline as a result of visitation.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, send the following information to the agency(s) seeking this information (see AGENCY CONTACT INFORMATION).

Check-list of *Minimum* Materials to be submitted:

_✔_**SIGNED** copy of this Project Environmental Review Receipt
_✔_Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
_✔_Project location information (name of USGS Quadrangle, Township/Municipality, and County)
_✔_USGS 7.5-minute Quadrangle with project boundary clearly indicated, and quad name on the map

The inclusion of the following information may expedite the review process.
_✔_A basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
_✔_Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. For cases where a "Potential Impact" to threatened and endangered species has been identified before the application has been submitted to DEP, the application should not be submitted until the impact has been resolved. For cases where "Potential Impact" to special concern species and resources has been identified before the application has been submitted, the application should be submitted to DEP along with the PNDI receipt. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. DEP and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at http://www.naturalheritage.state.pa.us.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a **preliminary** screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552, Harrisburg, PA. 17105-8552
Fax:(717) 772-0271

U.S. Fish and Wildlife Service
Endangered Species Section
315 South Allen Street, Suite 322, State College, PA. 16801-4851
NO Faxes Please.

PA Fish and Boat Commission
Division of Environmental Services
450 Robinson Lane, Bellefonte, PA. 16823-7437
NO Faxes Please

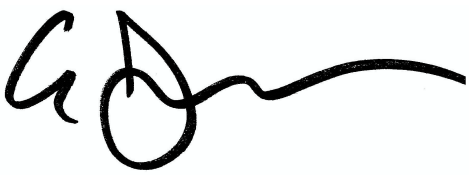
PA Game Commission
Bureau of Wildlife Habitat Management
Division of Environmental Planning and Habitat Protection
2001 Elmerton Avenue, Harrisburg, PA. 17110-9797
Fax:(717) 787-6957

7. PROJECT CONTACT INFORMATION

Name: ERIC J. JANETKA, P.E.
Company/Business Name: CKS ENGINEERS, INC.
Address: 88 S. MAIN STREET
City, State, Zip: DOYLESTOWN, PA 18901
Phone:(215) 340-0600 Fax:(215) 340-1655
Email: ejanetka@cksengineers.com

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.



applicant/project proponent signature

November 8, 2012
date

pennsylvania
DEPARTMENT OF CONSERVATION
AND NATURAL RESOURCES

BUREAU OF FORESTRY

December 5, 2012 **PNDI Number: 20121108379453**

Eric Janetka
CKS Engineers, Inc.
Fax 215-340-1655

Re: Pebble Ridge Community Minor Act 537 Plan Update
Doylestown Township, Bucks County, PA

Dear Mr. Janetka,

Thank you for the submission of the Pennsylvania Natural Diversity Inventory (PNDI) Environmental Review Receipt Number **20121108379453** for review. PA Department of Conservation and Natural Resources screened this project for potential impacts to species and resources of concern under DCNR's responsibility, which includes plants, terrestrial invertebrates, natural communities, and geologic features only.

No Impact Anticipated

PNDI records indicate species or resources of concern are located in the vicinity of the project. However, based on the information you submitted concerning the nature of the project, the immediate location, and our detailed resource information, DCNR has determined that no impact is likely. No further coordination with our agency is needed for this project.

This response represents the most up-to-date review of the PNDI data files and is valid for two years only. If project plans change or more information on listed or proposed species becomes available, our determination may be reconsidered. For PNDI project updates, please see the PNHP website at www.naturalheritage.state.pa.us for guidance. As a reminder, this finding applies to potential impacts under DCNR's jurisdiction only. Visit the PNHP website for directions on contacting the Commonwealth's other resource agencies for environmental review. Should you have any questions or concerns, please don't hesitate to contact me at 717.705.2823 or c-arohrbau@pa.gov.

Sincerely,

Andrew Rohrbaugh, Environmental Review Specialist
Bureau of Forestry, Ecological Services Section
Pennsylvania Natural Heritage Program

Rebecca H. Bowen, Section Chief
Bureau of Forestry, Ecological Services Section
Pennsylvania Natural Heritage Program

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

DEP Code #

SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4A - MUNICIPAL PLANNING AGENCY REVIEW

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this ***Planning Agency Review Component*** should be sent to the existing local municipal planning agency for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name
Doylestown Township Pebble Ridge/Woodridge and Vicinity Gravity Sewer System Extention

SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by municipal planning agency. March 4, 2013
2. Date review completed by agency. March 25, 2013

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes	No		
☒	☐	1.	Is there a municipal comprehensive plan adopted under the Municipalities Planning Code (53 P.S. 10101, *et seq.*)?
☒	☐	2.	Is this proposal consistent with the comprehensive plan for land use? If no, describe the inconsistencies
☒	☐	3.	Is this proposal consistent with the use, development, and protection of water resources? If no, describe the inconsistencies
☒	☐	4.	Is this proposal consistent with municipal land use planning relative to Prime Agricultural Land Preservation?
☐	☒	5.	Does this project propose encroachments, obstructions, or dams that will affect wetlands? If yes, describe impacts
☐	☒	6.	Will any known historical or archaeological resources be impacted by this project? If yes, describe impacts
☐	☒	7.	Will any known endangered or threatened species of plant or animal be impacted by this project? If yes, describe impacts
☒	☐	8.	Is there a municipal zoning ordinance?
☒	☐	9.	Is this proposal consistent with the ordinance? If no, describe the inconsistencies
☐	☒	10.	Does the proposal require a change or variance to an existing comprehensive plan or zoning ordinance?
☒	☐	11.	Have all applicable zoning approvals been obtained?
☒	☐	12.	Is there a municipal subdivision and land development ordinance?

SECTION C. AGENCY REVIEW (continued)

Yes	No		
☒	☐	13.	Is this proposal consistent with the ordinance?
			If no, describe the inconsistencies _____
☒	☐	14.	Is this plan consistent with the municipal Act 537 Official Sewage Facilities Plan?
			If no, describe the inconsistencies _____
☐	☒	15.	Are there any wastewater disposal needs in the area adjacent to this proposal that should be considered by the municipality?
			If yes, describe _____
☐	☒	16.	Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision?
☐	☐		If yes, is the proposed waiver consistent with applicable ordinances?

17. Name, title and signature of planning agency staff member completing this section:

Name: Stephanie J. Mason

Title: Township Manager/Zoning Officer/Secretary/Treasurer

Signature: _____

Date: April 5, 2013

Name of Municipal Planning Agency: Doylestown Township Planning Commission

Address 425 Wells Road, Doylestown, PA 18901

Telephone Number: 215-348-9914

SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)

This Component does not limit municipal planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are desired, attach additional sheets.

The planning agency must complete this Component within 60 days.

This component and any additional comments are to be returned to the project sponsor.

CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

February 28, 2013
Ref: #7039

Bucks County Planning Commission
1260 Almshouse Road
Doylestown, PA 18901

Attention: Lynn T. Bush, Executive Director

Reference: Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension
Sewage Facilities Planning Module Component 3M
Component 4B – County Planning Agency Review
Doylestown Township

Dear Ms. Bush:

On behalf of Doylestown Township, CKS Engineers has prepared a Sewage Facilities Planning Module Component 3M (Minor Act 537 Plan Update Revision) for the Pebble Ridge/Wood Ridge (and vicinity) community in Doylestown Township for extension of gravity sanitary sewer.

This Act 537 Plan Update is required to gain planning approval for the connection of 254 parcels largely within the Pebble Ridge and Wood Ridge communities. This planning area is bound by Bristol Road, Turk Road, Lower State Road, and Almshouse Road. A total of 261 EDUs are proposed and PADEP has assigned this project a code number of 1-09919-316-3M. The "planning area" is presently served by on-lot sewage disposal systems that have experienced numerous malfunctions and failures dating back over 30 years. A detailed plan of the improvements is not included with the Planning Module report as preliminary design has not commenced.

Please review the enclosed Planning Module package, including PADEP Component 3M and supporting documents, and verify the information on the enclosed Planning Module Component 4B – County Planning Agency Review. Please return a signed copy of the Component 4B to this office.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.

Eric J. Janeka, P.E.

EJJ/klk
Enclosures

cc: Stephanie J. Mason, Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
File

BUCKS COUNTY PLANNING COMMISSION

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

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

PLANNING COMMISSION:
Robert M. Pellegrino, *Chairman*
David R. Nyman, *Vice Chairman*
Walter S. Wydro, *Secretary*
Joseph A. Cullen, Esq.
James J. Dowling
Raymond W. Goodnoe
Edward Kisselback
Carol A. Pierce
Evan J. Stone

Lynn T. Bush
Executive Director

April 2, 2013

Eric J. Janetka, P.E.
CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901

RE: Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension Sewage Facilities Planning Module Component 3M.
PaDEP Code #1-09919-316-3M
Doyletown Township, Bucks County, PA

Dear Mr. Janetka:

We have received a copy of the subject planning module[1] regarding the proposal for the Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension. The public sanitary sewer system is proposed to serve 254 properties (a total of 261 EDUs) in the Pebble Ridge and Wood Ridge neighborhoods bounded by Bristol, Turk, Lower State, and Almshouse roads. The proposed sewer extension will consist of an 8- and 10-inch line and a central pump station to be owned and operated by the BCWSA. Effluent will be connected to the Castle Valley Interceptor (CVI) at two locations and flow to the Castle Valley Diversion Pump Station which diverts some effluent to the Green Street Waste Water Treatment Plant and the remainder to the Kings Plaza Sewer Treatment Plant. All lots with failing or malfunctioning OLDS will be required to immediately connect to the sewer system. Other properties may wait until the sale of premises. Section K "Chapter 94 Consistency Determination" of the planning module presents sewage flow calculations (page 6) and sign-offs by the Bucks County Water and Sewer Authority (page 7) confirming that capacity for the additional proposed sewage flows are available in both the collection/conveyance systems and the wastewater treatment facilities.

The *Act 537 Sewage Facilities Plan for Doylestown Township* (Revised December 1999) is the official Act 537 Plan for Doylestown Township. The Plan designates the area along Turk Road as the Pebble Ridge area, which is in the township's 10-year service area. Pages 6-10, 11 and 12 of the plan indicate this area as one of nine within the Kings Plaza STP Service Area which includes 374 EDUs being conveyed to the Castle Valley Interceptor. The Alternative Analysis and Selected Alternative Plan on page 6-29 of the plan state that the 10-year service area was created to allow for a comprehensive OLDS Septage Management Program to be initiated and put into practice to

[1] Under the revised Chapter 71 of the Pennsylvania Department of Environmental Protection's (PaDEP) Title 25, Rules and Regulations, the subject planning module is a revision to the Doylestown Township Sewage Facilities Plan. Therefore, the Bucks County Planning Commission (BCPC) and the Bucks County Department of Health (BCDH) are required to review and comment on the proposed plan revision.

determine which of the service areas can remain utilizing OLDS under proper care and maintenance and which area will require further measures. Since systems are continuing to fail in Pebble Ridge/Wood Ridge area, the proposal to provide public sewerage appears to be timely and consistent with the recommendations in the Act 537 sewage facilities plan.

Although the table in Section M "Project Cost and Funding Analysis" of the Planning Module (page 8) lists "Proceeds from primary funding source" as $5,257,670.00, neither the table nor the narrative for Section M ("Report Attachment Page 8 of 159") state what the primary funding source will be. Two potential funding sources are PENNVEST and "self-financing" coordinated by the BCWSA (e.g., the BCWSA or other entity making low-interest loans available to individual homeowners who qualify). Also, the table in Section M has incomplete information (shown as "N/A") for monthly debt service and monthly O/M cost per EDU, yet shows a total estimated monthly user cost per EDU as $45.

If the municipality approves the planning module and thereby revises the official sewage facilities plan, the completed (signed) resolution and required supporting data (Components 3 and 4; transmittal letter; plans; narrative; copies of the Bucks County Department of Health and Planning Commission review letters) should be sent to Elizabeth Mahoney, Sewage Planning Supervisor, Wastewater Management, Pennsylvania Department of Environmental Protection Southeast Regional Office, 2 East Main Street, Norristown, PA 19401.

If you have any questions regarding this review, please feel free to contact me.

Sincerely,

Cathy Gauthier

Cathy Gauthier
Planner

chg:glg

Attachment

cc: Scott Cressman, BCDH
Elizabeth Mahoney, PaDEP
Stephanie J. Mason, Township Manager
Act 537 file

3800-FM-WSFR0362B 9/2005

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

DEP Code # 1-09919-316-3M

SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4B - COUNTY PLANNING AGENCY REVIEW
(or Planning Agency with Areawide Jurisdiction)

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning package and one copy of this ***Planning Agency Review Component*** should be sent to the existing county planning agency or planning agency with areawide jurisdiction for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name

PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYTEM EXTENSION

SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by county planning agency. 3/3/13
2. Date plan received by planning agency with areawide jurisdiction _____

   Agency name BUCKS COUNTY PLANNING COMMISSION
3. Date review completed by agency 4/2/13

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes	No		
☒	☐	1.	Is there a county or areawide comprehensive plan adopted under the Municipalities Planning Code (53 P.S. 10101 *et seq.*)?
☒	☐	2.	Is this proposal consistent with the comprehensive plan for land use?
☒	☐	3.	Does this proposal meet the goals and objectives of the plan? If no, describe goals and objectives that are not met _____
☒	☐	4.	Is this proposal consistent with the use, development, and protection of water resources? If no, describe inconsistency _____
☒	☐	5.	Is this proposal consistent with the county or areawide comprehensive land use planning relative to Prime Agricultural Land Preservation? If no, describe inconsistencies: _____
☐	☒	6.	Does this project propose encroachments, obstructions, or dams that will affect wetlands? If yes, describe impact None Known
☐	☒	7.	Will any known historical or archeological resources be impacted by this project? If yes, describe impacts None Known
☐	☒	8.	Will any known endangered or threatened species of plant or animal be impacted by the development project? None Known
☐	☒	9.	Is there a county or areawide zoning ordinance?
☒	☐	10.	Does this proposal meet the zoning requirements of the ordinance? If no, describe inconsistencies N/A

Yes	No	SECTION C. AGENCY REVIEW (continued)
☒	☐	11. Have all applicable zoning approvals been obtained? N/A
☐	☒	12. Is there a county or areawide subdivision and land development ordinance?
☒	☐	13. Does this proposal meet the requirements of the ordinance? N/A
		If no, describe which requirements are not met _____
☒	☐	14. Is this proposal consistent with the municipal Act 537 Official Sewage Facilities Plan?
		If no, describe inconsistency Public sewers are recommended if OIDS continue to fail in this area
☐	☒	15. Are there any wastewater disposal needs in the area adjacent to this proposal that should be considered by the municipality?
		If yes, describe _____
☐	☒	16. Has a waiver of the sewage facilities planning requirements been requested for the residual tract of this subdivision?
☐	☐	If yes, is the proposed waiver consistent with applicable ordinances.
		If no, describe the inconsistencies _____
☒	☐	17. Does the county have a stormwater management plan as required by the Stormwater Management Act?
☐	☒	If yes, will this project plan require the implementation of storm water management measures?
		18. Name, Title and signature of person completing this section:
		Name: Cathy Gauthier
		Title: Planner Signature: Cathy Gauthier
		Date: 4/2/13
		Name of County or Areawide Planning Agency: BUCKS COUNTY PLANNING COMMISSION
		Address: 1260 ALMSHOUSE ROAD, DOYLESTOWN, PA 18901
		Telephone Number: 215-345-3400

SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)

This Component does not limit county planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are needed, attach additional sheets.

The county planning agency must complete this Component within 60 days.

This Component and any additional comments are to be returned to the applicant.

COUNTY OF BUCKS

DEPARTMENT OF HEALTH
Health Building, Neshaminy Manor Center, 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. 515 S. West End Blvd., Quakertown, PA 18951 -215- 536- 6500

March 14, 2005

Ms. Stephanie J. Mason, Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901

RE; Potential Public Sewer Area
Doylestown Township

Dear Ms. Mason:

This letter is in response to your fax of February 15, 2005 concerning the potential of bringing public sewers into an area in Doylestown Township. The area in question is bound by Turk Road, Almshouse Road, Lower State Road and Bristol Road. The Department's Sewage Enforcement Officer, Donald Meadows has looked a t the Department's records for any activity concerning complaints, sewage repairs, or system component replacements.

Please find enclosed the map area and tax map listing where the Department has records of involvement on specific properties that are located in this area. They are marked in yellow both on the street map and tax map listing. In general, there have been system failures and complaints from this particular area. Many of the on-lot sewage systems are 25 + years old. Soils in this area are generally marginal, poorly drained with seasonal high water tables. Under today's Act 537 regulations including Chapter 73, Construction & Design Standards, sewage system repairs may be limited.

Since the costs of repairing on-lot sewage systems have increased over he years, $12,000 - $20,000, there are no guarantees how long a repair on-lot sewage system would last in poor soil conditions. The Department recommends that the Township explore the possibility of bringing public sewers into this area. Cost to the individual property owner and the availability of public sewers will be major factors to consider.

Should you have any further questions concerning this matter please contact me in the Doylestown office at 215-345-3335.

Sincerely,

Andrew A. Schafer, Chief
Division of Environmental Sanitation

AAS/jvs
Enclosures:
Cc: G. Ehrlacher, Acting Director
D. Meadows, SEO, EPS II
Central File
District File

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.

May 24, 2010

Ed Harvey
Chairman: Doylestown Township
Public Water and Sewer Advisory Committee
425 Wells Road
Doylestown, PA 18901

Re: Pebble Ridge Area
On-site septic systems

Dear Mr. Harvey

This letter is in response to your inquiry about the on-site septic systems on the Pebble Ridge area. Most of the systems in this neighborhood are the original systems that were installed at the time of house construction. This usually means that at the time of re-sale the systems need to be replaced for the real estate transaction. The systems may not pass the septic inspection that is made by a private inspector. This department is not involved in the real estate inspection but is involved in the replacement process.

Most of the soil in the Pebble Ridge area are rated as poorly drained. This area has a history of malfunctions during seasonal high water table conditions.

A malfunctioning septic system is a system that ponds on the surface of the ground or backs up in the house at any time of the year. A malfunctioning system during high water table conditions is still considered a malfunction. This is a health and safety issue for the residents of the Pebble Ridge area during these conditions. If you have any questions please call me at 215-340 8449.

Sincerely

Brendan O'Boyle

Brendan O'Boyle
SEO # 03380

Cc: District

CKS Engineers, Inc.
88 South Main Street
Doylestown, PA 18901
215-340-0600 • FAX 215-340-1655

David W. Connell, P.E.
Joseph J. Nolan, P.E.
Thomas F. Zarko, P.E.
James F. Weiss
Patrick P. DiGangi, P.E.
Ruth Cunnane

February 28, 2013
Ref: #7039

Bucks County Health Department
Neshaminy Manor Complex
1282 Almshouse Road
Doylestown, PA 18901

Attention: Andrew Schafer, Director, Community Environmental Protection

Reference: Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Extension
Sewage Facilities Planning Module Component 3M
Component 4C – County or Joint Health Department Review
Doylestown Township

Dear Mr. Schafer:

On behalf of Doylestown Township, CKS Engineers has prepared a Sewage Facilities Planning Module Component 3M (Minor Act 537 Plan Update Revision) for the Pebble Ridge/Wood Ridge (and vicinity) community in Doylestown Township for extension of gravity sanitary sewer.

This Act 537 Plan Update is required to gain planning approval for the connection of 254 parcels largely within the Pebble Ridge and Wood Ridge communities. This planning area is bound by Bristol Road, Turk Road, Lower State Road, and Almshouse Road. A total of 261 EDUs are proposed and PADEP has assigned this project a code number of 1-09919-316-3M. The "planning area" is presently served by on-lot sewage disposal systems that have experienced numerous malfunctions and failures dating back over 30 years. A detailed plan of the improvements is not included with the Planning Module report as preliminary design has not commenced.

Please review the enclosed Planning Module package, including PADEP Component 3M and supporting documents, and verify the information on the enclosed Planning Module Component 4C – County or Joint Health Department Review. Please return a signed copy of the Component 4C to this office. Also enclosed is a check for $910.00 required for review of the Component 3M.

If you have any questions regarding the above or should you require additional information, please do not hesitate to contact me.

Sincerely,
CKS ENGINEERS, INC.

Eric J. Janetka, P.E.

EJJ/klk
Enclosures

cc: Stephanie J. Mason, Township Manager
Joseph J. Nolan, P.E., CKS Engineers, Inc.
File

COUNTY OF BUCKS

DEPARTMENT OF HEALTH
Neshaminy Manor Center, 1282 Almshouse Road, Doylestown, PA 18901 - 215-345-3318
FIELD OFFICES
Bucks County Government Services Center, 7321 New Falls Road, Levittown, PA 19055 – 267-580-3510
Bucks County Government Services Center, 261 California Road, Suite #2, Quakertown, PA 18951 – 215-529-7000

County Commissioners
ROBERT G. LOUGHERY, Chairman
CHARLES H. MARTIN, Vice-Chairman
DIANE M. ELLIS-MARSEGLIA, LCSW

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

March 28, 2013

Eric J. Janetka, P. E.
CKS Engineering, Inc.
88 South Main Street
Doylestown, Pa. 18901

Re: Sewage Facility Planning Module Component 4C
Pebble Ridge/Wood Ridge Gravity Sewer System Extension
Doylestown Township, Bucks County
DEP Code# 1-09919-316-3M

Dear Mr. Janetka:

Please find enclosed a copy of the Sewage Facility Planning Module-Component 4C which has been completed by this Department for the above mentioned project in Doylestown Township, Bucks County. The project is consistent with Doylestown Township's Act 537 Sewage Facilities Plan.

Sincerely,

Scott A. Cressman, Supervisor
Quakertown District Office
Bucks County Department of Health

SAC/lk

cc: Stephanie Mason, Twp. Manager
Beth Mahoney, Pa. DEP
Dr. David Damsker, BCDH Health Director
Art Breitinger, BC Planning Comm.
Central File
District File

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF POINT AND NON-POINT SOURCE MANAGEMENT

DEP Code #: 1-09919-316-3M

SEWAGE FACILITIES PLANNING MODULE
COMPONENT 4C - COUNTY OR JOINT HEALTH DEPARTMENT REVIEW

Note to Project Sponsor: To expedite the review of your proposal, one copy of your completed planning module package and one copy of this ***Planning Agency Review Component*** should be sent to the county or joint county health department for their comments.

SECTION A. PROJECT NAME (See Section A of instructions)

Project Name
PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYTEM EXTENSION

SECTION B. REVIEW SCHEDULE (See Section B of instructions)

1. Date plan received by county or joint-county health department. March 1, 2013

   Agency name BUCKS COUNTY HEALTH DEPARTMENT

2. Date review completed by agency March 28, 2013

SECTION C. AGENCY REVIEW (See Section C of instructions)

Yes	No		
☒	☐	1.	Is the proposed plan consistent with the municipality's Official Sewage Facilities Plan?
			If no, what are the inconsistencies?
☐	☒	2.	Are there any waste water disposal needs in the area adjacent to the new land development that should be considered by the municipality?
			If yes, describe
☐	☒	3.	Is there any known groundwater degradation in the area of the proposed subdivision?
			If yes, describe
☒	☐	4.	The county or joint county health department recommendation concerning this proposed plan is as follows: Accept as proposed. The "planned" area has experienced numerous malfunctions in the past and needs public sewers

5. Name, title and signature of person completing this section:

   Name: ~~ANDREW SCHAFER~~ Scott A. Cressman, Supervisor

   Title: ~~BUREAU CHIEF~~ EPS III, Supervisor

   Signature: Scott A Cressman

   Date: March 28, 2013

   Name of County Health Department: BUCKS COUNTY HEALTH DEPARTMENT

   Address: NESHAMINY MANOR CENTER, 1282 ALMSHOUSE ROAD, DOYLESTOWN, PA 18901

   Telephone Number: 215-345-3318 Quakertown District Office 215-529-7355

SECTION D. ADDITIONAL COMMENTS (See Section D of instructions)

This Component does not limit county planning agencies from making additional comments concerning the relevancy of the proposed plan to other plans or ordinances. If additional comments are needed, attach additional sheets.

The county planning agency must complete this Component within 60 days.
This Component and any additional comments are to be returned to the applicant.

Ref: #7039

MEMORANDUM

TO: Stephanie J. Mason, Township Manager

FROM: Eric J. Janetka, P.E., CKS Engineers, Inc.

DATE: June 18, 2013

SUBJECT: Pebble Ridge/Wood Ridge and Vicinity Sewage Facilities Planning Public Comments to Component 3M Planning Module

---

The following are responses to written comments received by the Township during the 30-day public comment period required in conjunction with the subject Sewage Facilities Planning Module, Component 3M, under consideration by Doylestown Township. Each response below is followed by reference to every comment correspondence/email to which the response is applicable:

1. The properties included in the planning area were chosen by the Township based on a recommendation of the BCWSA Engineer, existence of known ground water and surface water pollution and failing/malfunctioning systems, and due to known information about the soil characteristics in the planning area, which are generally poor for traditional on-lot septic disposal, despite that there may be some locations with soils more conducive to certain, traditional or non-traditional types of on-lot disposal. Planning for public sewers is not done on a lot by lot basis since the objective is to mitigate pollution caused by failing systems or systems that may function some of the time, but occasionally do not function in an optimal manner, thus causing pollution, often times, undetected. Further, it is known that systems that are built in areas with poor soil conditions often fail or frequently malfunction, over the long term, even if they have functioned properly at some point in their history, and even if they are properly maintained. It is likely that additional systems in this planning area will fail in the future, possibly exacerbating ground water and surface water pollution. When a significant number of systems in a particular area, that is known to consist of poor soils, demonstrate a history of pollution, malfunctions, and failures over a long period of time, public sewer is typically advisable and recommended by the Health Department and by PADEP, and often mandated by PADEP. Failing septic systems tend to decrease the value of a property and repair and replacement of these systems (if a replacement absorption area can even be found) is expensive.

   Theresa Carroll and Stephen Pierce (45 Doe Run Road) – June 11, 2013
   Gary M. and Sandy A. Ries (1023 Almshouse Road) – not dated (received May 28, 2013)
   David A. Nover (970 Almshouse Road) – June 8, 2013
   Scott and Jill Shaner (16 S. Woodridge Drive) – June 11, 2013

2. Doylestown Township will consider the request of the resident(s) at the time of engineering design of the sewer system.

   Charles N. Fohner (1010 Almshouse Road) – May 20, 2013
   William and Cheryl Hernandez (24 Doe Run Drive) – June 12, 2013
   William and Rita Stephens (39 Doe Run Drive) – June 12, 2013
   Theresa Carroll and Stephen Pierce (45 Doe Run Road) – June 11, 2013
   Scott and Jill Shaner (16 S. Woodridge Drive) – June 11, 2013

3. Financing options will be reviewed and considered by Doylestown Township if and when Planning Modules are approved and an engineering design is undertaken.

   Scott and Jill Shaner (16 S. Wood Ridge Drive) – June 11, 2013
   Wayne H. Sanford, Jr. (59 S. Wood Ridge Drive) – not dated (received May 24, 2013)

4. Septic Management Program results are forwarded to the Bucks County Department of Health for evaluation and action/assistance on troubled septic systems.

   Wayne H. Sanford, Jr. (59 S. Woodridge Drive) – not dated (received May 24, 2013)
   David A. Nover (970 Almshouse Road) – June 8, 2013

5. To further clarify the Planning Modules Document, connection to the system would not be immediately required, except in the case of a property with a failing septic system. Also, those properties that choose to connect may do so, immediately. Each property will be required to equally share the cost of the sewer main installed within the public right-of-way, at time of completion of work and acceptance of the system as complete by the sewer authority.

   Wayne H. Sanford, Jr. (59 S. Woodridge Drive) – not dated (received May 24, 2013)
   Gary M. and Sandy A. Ries (1023 Almshouse Road) – not dated (received May 28, 2013)
   Steven J. and Doris W. Borghi (97 Militia Hill Road) – June 5, 2013
   Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

6. The following parcels will be removed from the Planning Area:

   83 Buck Road – TMP No. 09-042-103
   975 Almshouse Road (Janet K. Hopkins) – TMP No. 09-007-110-006)

7. Your opposition to the planning proposal and comments are noted by Doylestown Township.

   Steven J. and Doris W. Borghi (97 Militia Hill Road) – June 5, 2013
   Marguerite Burke (72 Westaway Lane) – June 3, 2013

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013
Theresa Carroll and Stephen Pierce (45 Doe Run Road) – June 11, 2013

8. Your support of the planning proposal and comments are noted by Doylestown Township.

   Bill and Georgia Ford (address in not noted) – June 4, 2013
   Stephen McCormick (Pebble Ridge Road) – June 14, 2013

9. Water testing completed by Conestoga-Rover and Associates was for dry weather flow observed from outfall (discharge) locations of the Pebble Ridge storm sewer system, which does not collect and convey runoff from the farms surrounding the planning area. Water testing was not for swales, creeks and channels in and around the planning area.

   Kris L. Geller (34 Linda Lane) – June 13, 2013
   Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013
   Scott and Jill Shaner (16 S. Wood Ridge Drive) – June 11, 2013
   David A. Nover (970 Almshouse Road) – June 8, 2013

10. Suspected septic system failures identified in the studies are based on conditions observed at the surface from inspection of the site. Suspected failures are considered in the same category as failures or malfunctions.

    Kris L. Geller (34 Linda Lane) – June 13, 2013
    Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

11. Site soils shown in the report are based on USGS Mapping and GIS location information. Grading and filling of a development site can result in a "mixing" of soil components and soils with limited capacity for percolation (moderate or poor) when "mixed" do not typically result in soil with an improved capacity to percolate septic effluent. Thus, it is probable that any "mixing" of soils at this development site, at the location of a tested system, during construction of the development, resulted in decreased capacity for percolation, as compared to the soil type shown on the map.

    Kris L. Geller (34 Linda Lane) – June 13, 2013

12. Larry Hepner, A Professor at Delaware Valley College, expert in soils and agronomy and alternative on-lot septic systems such as drip irrigation, consulted with the Public Water and Sewer Advisory Committee and agreed that soils in the planning area, in combination with average lot sizes, are largely not compatible with alternative sewage disposal systems that would be approved by PADEP. Non-traditional on-lot sewage disposal systems, such as stream discharge system, are typically only approved by PADEP as a last resort to sewage treatment, if site soils do not permit traditional systems.

    Kris L. Geller (34 Linda Lane) – June 13, 2013

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013
David A. Nover (970 Almshouse Road) – June 8, 2013

13. The Component 3M was available for review by any resident on the Township website (main page) and at the Township Building.

    David A. Nover (970 Almshouse Road) – June 8, 2013

14. A Sewage Facilities Planning Module Application Mailer was submitted to PADEP who indicated, pursuant to correspondence dated December 12, 2012, a Component 3M is required for the proposed sewer extension based on 261 EDUs (refer copy of letter and mailer attached to the Component 3M Report).

    David A. Nover (970 Almshouse Road) – June 8, 2013

15. The engineering design of the public sewer system has not commenced. Environmental considerations will be addressed at time of engineering design. The system shown on the schematic plan in the Component 3M is largely within improved areas such as those described in the report.

    David A. Nover (970 Almshouse Road) – June 8, 2013

16. Pennsylvania Department of Environmental Protection and the Bucks County Department of Health review and approve septic system design and testing, not Doylestown Township.

    David A. Nover (970 Almshouse Road) – June 8, 2013

17. The costs shown in the report are estimates, only. Specific cost will be determined at the time of engineering design and public bid for construction of the public sewer system. The cost to decommission existing septic systems was not included in the estimate since this cost is largely dependent on the type of existing system and this varies from lot to lot. The cost to decommission an existing system is a small fraction of the cost to replace a traditional on-lot septic system.

    David A. Nover (970 Almshouse Road) – June 8, 2013
    Scott and Jill Shaner (16 S. Wood Ridge Drive) – June 11, 2013

18. From the 1998 OLDS survey (and after commencement of the Septage Management Program) to the 2008 OLDS survey, there was little if no improvement in the percentage of existing septic systems that were observed to be malfunctioning or failing. Several of the systems found to be malfunctioning or failing in 1998 were found to be improved in 2008, but a nearly equal amount of systems were found to be malfunctioning or failing in 2008 that were found not to be failing or malfunctioning in 1998.

    David A. Nover (970 Almshouse Road) – June 8, 2013
    Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

19. In 2001, the Septage Management Program was started as a means to improve sewage disposal in the Township and the planning area, but the program is not considered to be an "alternative" disposal method.

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

20. The correct percentage is 64% based on those residents that responded to the survey. A non-response is neither an indication of support or opposition to the proposed planning.

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

21. Charles and Joy Doneson indicate "*there was a period when my system was creating wet spots in my back-yard. I volunteered to have an analysis performed that showed that effluent was reaching the surface of my lawn. The only solution Brendon O'Boyle of the Health Department could determine was to build a Sand Mound. After considerable time and energy, and cost, I discovered the cause of the problem and corrected it. Now, my field is as dry as the rest of my lawn*". The Township requests the property owner clarify how they were able to repair their reported malfunctioning/failing septic system, without implementing the recommendations of the Health Department.

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

22. On-lot septic system design is based on soil testing to determine percolation rate. Contemporary testing requirements for OLDS is more stringent now than it was 30 years ago and system design is only as effective as the testing completed in conjunction with the system.

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

23. A Septage Management Program is not considered an "alternative" means of sewage disposal and a tank that temporarily holds effluent is not considered by PADEP as a desirable alternative to disposal of sewage, particularly compared to public sewer. Septic tanks should only need to be pumped once every two years or so. Excessive pumping of septic tanks, 2 to 3 times per year likely indicates that a system is unable to dispose of the liquid portion of the effluent, consistent with contemporary disposal system requirements.

Charles and Joy Doneson (11 S. Wood Ridge Drive) – June 14, 2013

24. As indicated in the Component 3M Report, there are 261 EDUs proposed for 254 properties, of which includes an apartment building, requiring 8 EDUs, to serve 8 units.

Scott and Jill Shaner (16 S. Wood Ridge Drive) – June 11, 2013

25. Storm sewer outfall (dry weather flow) testing will continue in conjunction with the Township's NPDES General Permit for their MS4, Municipal Separate Storm Sewer System.

    Scott and Jill Shaner (16 S. Wood Ridge Drive) – June 11, 2013

26. A majority of the homes in the planning area are much less than 200 feet from the public right-of-way and as such, an average distance of 75 feet was utilized to "estimate" the cost for connection to the sewer system.

    Scott and Jill Shaner (16 S. Wood Ridge Drive) – June 11, 2013

27. The resident's comments and suggestions are noted by the Township.

    Brian W. Tilton (156 Pebble Ridge Road) – June 18, 2013

If you have any questions concerning the above, please do not hesitate to contact me.

EJJ

cc: Joseph J. Nolan, P.E., CKS Engineers, Inc.
File

1010 Almshouse Rd.

Warrington, PA 18976

May 20, 2013

Ms. Stephanie Mason

Township Manager, Doylestown Township

425 Wells Rd.

Doylestown, PA 18901

✓ BofS	___ Traf. Eng.	___ Road	Com ___
___ PC	___ Police	___ M/A	EAC ___
___ Sol.	___ Code	___ Dir. OP	Other PWSA & CKS
___ Eng.	___ Finance	___ Dir. P&R	File 3M
___ Pl. Com	___ Water	___ Ast. M	537 Pl

Re: Minor Act 537 Sewage Facilities Plan Update Revision Component 3M for Doylestown Township Pebble Ridge/Woodridge and Vicinity

Dear Ms. Mason,

This is in response to your invitation for public comments on the referenced Sewage Facilities Plan Update.

Please refer to the attached exhibits A and B. There are eleven (11) properties, including our own, in the area roughly bounded by Almshouse Rd., Pebble Crest Dr., Pebble Ridge Rd., and Shady Brook Circle. I believe ten (10) of these properties have their septic connections behind (opposite the street side) the house and/or are located considerably below street level. This would probably necessitate each property owner having to install a pump to carry sewage to the sewer line in the street.

I propose that the Engineer consider an alternate that eliminates the northern section of the sewer line in Almshouse Rd. and replaces it with a gravity line that runs at the rear of the properties in question as indicated on Exhibit B. This proposed line could follow the contour of the stream that originates near Pebble Crest Drive. The two (2) properties on the opposite corners of Almshouse Rd. and Pebble Crest Drive could be served by a short spur of this sewer line as indicated on Exhibit B.

Could you please forward this to the Engineer for evaluation.

Thank you.

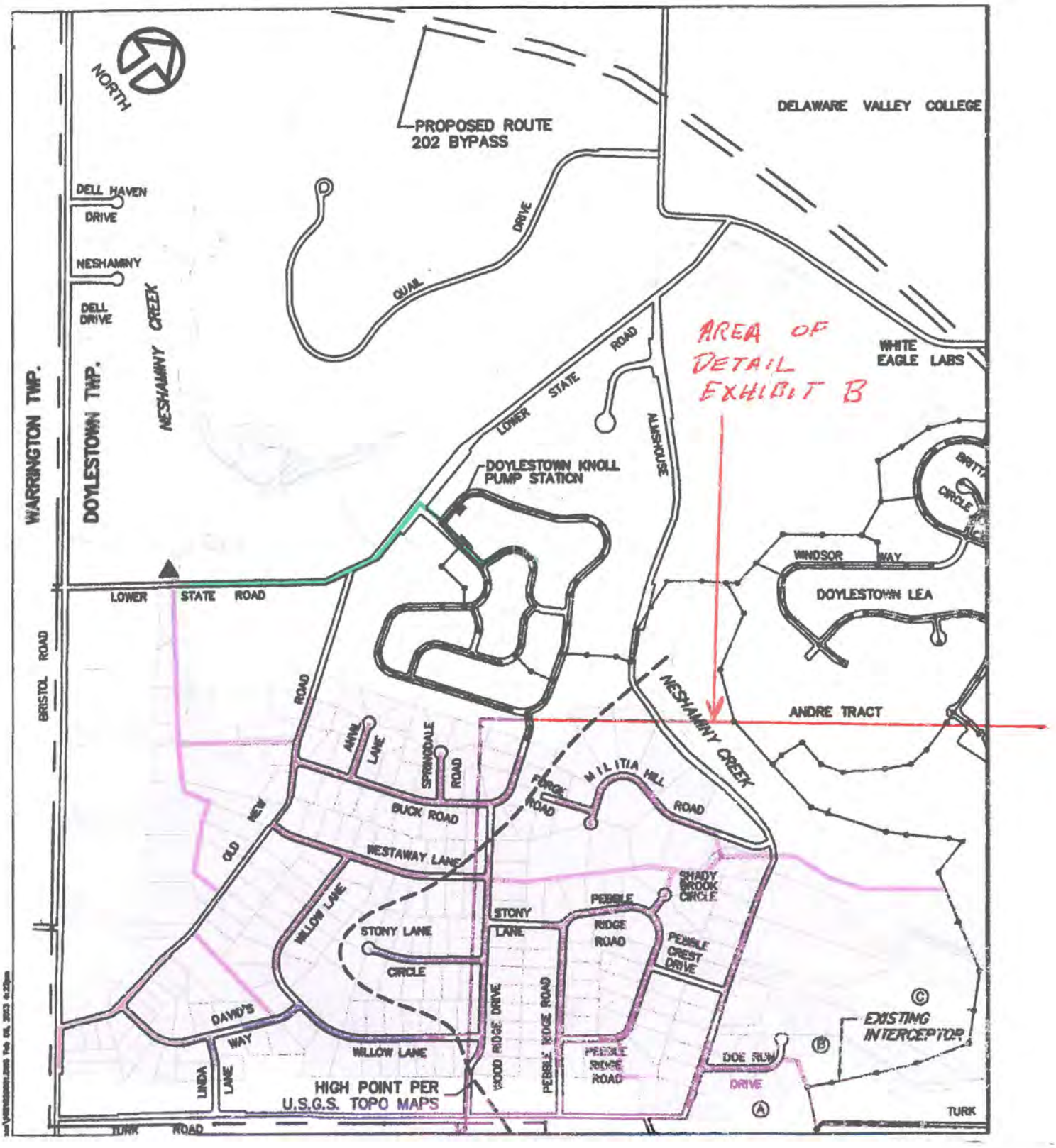
Very truly yours,

Charles N. Fohner

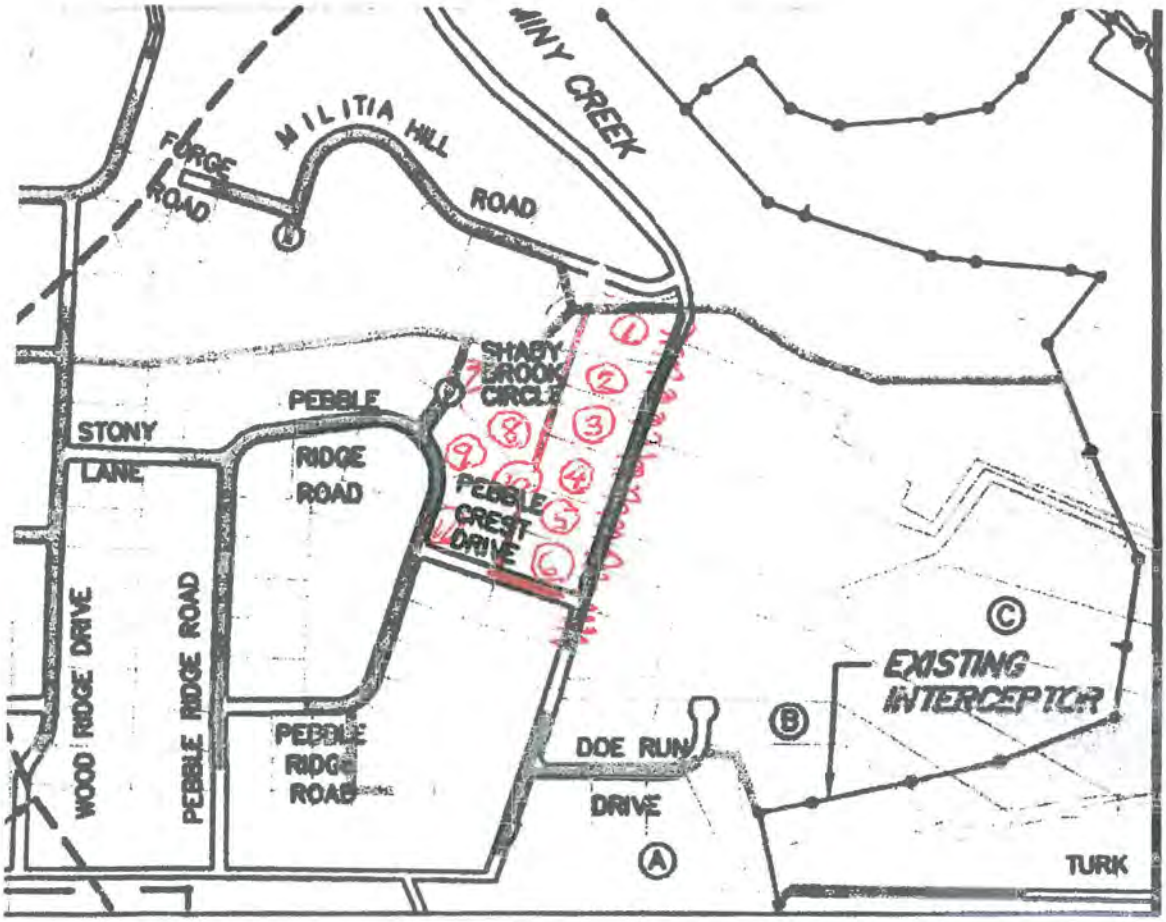
RECEIVED

MAY 23 2013

DOYLESTOWN TOWNSHIP



Fohner 5/20/2013 letter – Exhibit A



PEBBLE RIDGE AREA SEWER EXTENSION
DATED 6-21-12
REVISED 2-5-13

ERVICE AREA

UMP STATION

:T, BUT EXCLUDED SINCE ALREADY CONNECTED TO BCWSA SEWER.

ROJECT, BUT ADDED SINCE NOT YET CONNECTED TO BCWSA SEWER.

chments Page 81 of 173

T, BUT VISUAL EVIDENCE SUGGESTED IT IS ALREADY CONNECTED.

Fohner 5/20/2013 letter – Exhibit B

Dear Stephanie,

On June 27, God willing, I will be 90 years old. I have lived at 59 S. Wood Ridge Dr. for 42 years. We moved here in 1971. Ever since the Septic System Maintenance Program was started, our septic system has checked out OK. The testing of well water for pollution from the septic system has shown no pollution every two years when tested.

As I understand it, only about 30 per cent of the systems in this area have failed or are failing. It does not seem right that all of us should be forced to pay for sewers. Why have those people with failed systems not been required to have theirs brought up to standards? And if you do force us to have sewers, whey must we connect to it if our septic system is working satisfactorily. And if we are forced to use the sewers, why make us pay the enormous cost of doing it all at once? Why not float a Bond Issue and let us and future owners pay for it monthly with a manageable payment?

Thanks for letting me tell you my views on this.

Sincerely,

Wayne H. Sandford, Jr.

Wayne H. Sandford, Jr.

59 S. Wood Ridge Dr.

Warrington, Pa. 18976

✓ BofS ___ Traf. Eng. ___ Road
___ PC ___ Police ___ M/A
___ Sol. ___ Code ___ Dir. OP
___ Eng. ___ Finance ___ Dir. P&R
___ Pl. Com ___ Water ___ Ast. M

Com ___
EAC ___
Other CKS & PWSA
File 3M 532

RECEIVED

MAY 28 2013

DOYLESTOWN TOWNSHIP

Reference to Minor Act 537

Gary and Sandy Ries
1023 Almshouse Rd
Warrington, PA

✓ BofS ___ Traf. Eng. ___ Road
___ PC ___ Police ___ M/A
___ Sol. ___ Code ___ Dir. OP
___ Eng. ___ Finance ___ Dir. P&R
___ Pl. Com ___ Water ___ Asst. M

Com ___ Warrington, PA
EAC ___
Other CKS & PWSAE
File 3 m Pebble Ridge

Doylestown Township
Board of Supervisors,

This letter is in regards to Minor Act 537 Facilities Plan which is being forced upon us. We are part of a group of homes on the north side of Almshouse Rd between Doe Run Road and Militia Hill Road. Most of these homes were built in the last 25 years.

Our home was built early 1990 and at the time, our builder was instructed to put in a very costly sand mound system with three holding tanks. Besides being very costly and taking up a large portion of our 1.72 acres, we had no choice but to comply do to no public sewer.

Now 23 years later we are being told to destroy perfectly good working systems which we were told by Doylestown Township to put in and pay at least $25000(+) for the right to hook up plus the cost to run it to our home systems which will not be cheap do to the fact that we all live a considerable distance from the street, and then also the cost to destroy the old system.

We were never part of a study, there is no proof that we have poor systems, rather according to our tank pumping contractor, our type of systems are consider very good if not excellent.

Our feelings are that if we need to hook up at any time, that we should be reimbursed for the cost of the original systems as well as the cost to destroy it since that was the direction the township directed us in the first place.

Again it seems crazy that we should be punished for problems that existed in an old neighborhood build in the 60's that we just happen to be across the street from. I am sure if it was one of you, you would be outraged as well.

We are considering taking legal action as well do to the complete unfairness of this action by our Supervisors as well as Doylestown Township.

We would like for all homes outside of the problem area that have proper working septic systems to be removed from this proposal.

Sincerely, Gary M Ries

Gary M Ries

Sandy A. Ries

Sandra A. Ries

A. VICTOR MEITNER, JR., P. C.
ATTORNEYS AT LAW
564 SKIPPACK PIKE
BLUE BELL, PENNSYLVANIA 19422

A. VICTOR MEITNER, JR.
PATRICK J. MCMONAGLE

(215) 540-0575
FAX (215) 542-0259
E-MAIL: vmeitner@meitnerlaw.com
E-MAIL: pmcmonagle@meitnerlaw.com

May 28, 2013

Stephanie Mason, Township Manager
Township of Doylestown
425 Wells Road
Doylestown, PA 18901

Re: Janet K. Hopkins, 975 Almshouse Road, Township of Doylestown
Minor Act 537 Sewage Facilities Plan Update Revision Component
3M for Doylestown Township Pebble Ridge/Woodridge and Vicinity

Dear Ms. Mason:

I represent Janet K. Hopkins with regard to the proposed Facilities Plan Update and the proposed sewers along Almshouse Road, where Mrs. Hopkins property is located. Mrs. Hopkins is already served by public sewer service having connected to the public sewer on 1/9/12, Account Number 308500600. The EDU that was used for that hookup was reserved for Mrs. Hopkins in connection for the Grant of Right of Way back in 1990. For this reason, Mrs. Hopkins should not be required to pay for the new proposed sewer service extension, since she has already borne the expense of connecting her residence to the existing sewer system that presently serves her property. Please remove her from the new sewer extension plan and advise me accordingly. Thank you.

Yours very truly,

A. VICTOR MEITNER, JR.

C: Doylestown Township Municipal Authority (Mr. Glenn Argue)

6-3-13

To: Doylestown Twsp Admin.

Re: Minor Act 537 Sewage

Please be advised we are opposed to bringing public water and sewage here. We have no problem with the septic system as we have it serviced yearly and have done so for many, many years.

Yours truly,
The Burke Family

Marguerite Burke
72 Westaway Ln.
Warrington, PA 18976-1022

Eric Janetka

From: Stephanie Mason <sjmason@doylestownpa.org>
Sent: Tuesday, June 04, 2013 12:40 PM
To: Jackie Rowand; Eric Janetka (ejanetka@cksengineers.com)
Subject: FW: Public Sewers

For June 18 and file

Stephanie J. Mason
Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901
215-348-9915
Fax: 215-348-8729
sjmason@doylestownpa.org

From: Doylestown Township Information
Sent: Tuesday, June 04, 2013 9:55 AM
To: Stephanie Mason
Subject: FW: Public Sewers

Doylestown Township
425 Wells Road
Doylestown, PA 18901
(215) 348-9915
Fax (215) 348-8729

From: Georgia Ford [gford7@att.net]
Sent: Tuesday, June 04, 2013 9:30 AM
To: Doylestown Township Information
Subject: Public Sewers

Ms. Mason --
Both Bill and I strongly support the public sewer initiative for Pebble Ridge Road and the surrounding subdivisions being considered. Many of our immediate neighbors including Bill Lloyd, Jamie Dubuque and Jay Becker also feel the same way. We've been residents since 1986 and have tried to maintain our onsite system according to the best sewer management protocols suggested by the Health Department. However, our septic tank tile field system is not adequate. It requires constant pumping. All of the recent properties sold in our neighborhood when inspected by the Health Department, did not pass their test. The homeowner had to decrease the price of the property significantly in order to complete the sale.

We would encourage the Board of Supervisors to support moving forward on this project.

Bill and Georgia Ford

Georgia Ford

215.343.0321
215.593.5039 (mobile)
Warrington, PA 18976

Steven J. Borghi
Doris W. Borghi
97 Militia Hill Road
Warrington, PA 18976
215-343-5855

Township of Doylestown
425 Wells Road
Doylestown, PA 18901

June 5, 2013

Att: Stephanie Mason, Twp. Manager

Dear Stephanie,

Thank you for your invitation to present comments regarding Minor Act 537. Please accept this letter in response to same.

Having attended initial and subsequent meetings regarding the proposed sewer update, we would like it publically noted that we are strongly opposed to Militia Hill Road being included in this project.

We purchased our property in 1998, at which time we responsibly had our septic system checked and re-built. It has been pumped and checked according to township ordinance and deemed to be in fine working order. Should the need arise for us to rethink our system, we have five acres on which to locate as large a sand mound as could be needed. All of the residents of Militia Hill have this option, as we chose purchasing here (and not in a development) due to the acreage. For this reason, we see absolutely no reason to be burdened with such a large and unnecessary expense.

Sincerely,

Steven J. Borghi Doris W. Borghi

Public Comment on

Minor Act 537 Sewage Facilities Plan Update Revision, Component 3M for the Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Expansion Project

Ms. Stephanie J. Mason, Township Manager
425 Wells Rd.
Doylestown, PA 18901

PDF, Transmitted via email June 8, 2013 and by USPS

My wife, Elizabeth Nover, and I, David Nover, are the owners of 970 Almshouse Road in Doylestown Township. Our home is located in the area for proposed public sewers. It is our contention that we should not be included in this project and should be exempt from any fees or regulations on the resale of our home with regard to the installation of a public sewer system. Furthermore, it is my belief that the scope of this project is extremely large given the number of homes with defective waste water management systems and that a more thorough identification of homes which do not meet health department and environmental protection standards must be done. Once identified, an expert in on lot disposal should attest as to which properties have systems which cannot be remediated to code. I further contend that conclusions about the storm water coliform counts do not prove a causal relationship with defective on lot septic systems.

Regarding access to information on the Township website, the 185 page document, MINOR ACT 537 SEWAGE FACILITIES, PLAN UPDATE REVISION, COMPONENT 3M PADEP CODE #1-09919-316-3m did not have a link on the "Sewer Information" page but was rather at the bottom of the Home page of the Township website. Three hyperlinks on the Sewer Information page were not properly made (Septic System Brochure; DEP; and Proposed Sewer Feasibility Study Area Map).

The planning format the township used for Minor Act 537 is stated to "be used for projects involving the extension of sewer service to no more than 100 equivalent dwelling units." However, it is being used for a project of over 250 EDU's. This major project is being proposed as an addition to an extension of existing sewer service, in reality it is a much more extensive project.

In the 185 page official document, there are statements that are incorrect about the location of the construction and impact on the environment. On or near my own property, sewer lines will go through wooded areas and near waterways. However, on page 54 (page 2 of 5 in the PNDI Project Environmental Review Receipt prepared by CKS Engineers) it states: "1. The entire project will occur in or on an existing building, parking lot, driveway, road, road shoulder, street, runway, paved area, or railroad bed."

Regarding our home:

1) Our home was constructed in 1989, decades after many of the homes in the neighborhood. The township seemingly approved the septic management system functioning at our home based on standards more contemporary than homes built in the 1960's and 1970's where the defective systems have been found.

2) We have an on lot permitted stream discharge system, inspected by the township and state and maintained by a licensed septic company. Our system consists of a tank, an on lot aeration system and chlorination system. The effluent goes into a stream which flows into the Neshaminy Creek and is cleaner (lower in coliforms) than the stream water.

3) Our home was not included in any of the surveys presented: The two Boucher and James surveys of 1998 and 2008 nor the soil studies. According to the soil studies, properties near our home on Almshouse Road have reasonably good soil conditions.

4) From the 6/21/12 map of the proposed gravity sewer system, a large area of our property will be affected by the sewer line: a long line along the western border of our property which bifurcates to reach Militia Hill Road and Shady Brook Circle. Construction of the project will undoubtedly have an impact on our landscaping and the natural privacy barriers of wooded areas which cannot be easily restored.

5) The distance from our waste line to the street is far in excess of the estimated distance of 75 feet used for private cost calculations. It is more than twice that distance.

As our house was not in the neighborhood initially considered (neither were the homes on Militia Hill Road or the north side of Almshouse Road), the addition of our home is a capricious way to increase the number of homes to pay for the "public" cost of the sewer. We should be no more required to contribute to this than the other property owners in Doylestown Township outside of the Pebble Ridge area.

Regarding the entire project:
It is our contention that a more scientific investigation of the properties be conducted with more evidence than visual inspection to deem a septic system to be malfunctioning. The township should not allow systems which can be repaired persist in being neglected – we have taken our responsibilities seriously in maintaining our on lot system and our neighbors should as well (by law and because of their civic duty). The township and health department have been negligent in allowing situations not to be remedied (e.g., a holding tank existing for ten or more years).

Storm water can be tested to see if the bacteria are from human sources or animal (dog, cat, fowl, farm animal) sources. This genetic testing is commercially available. Given the large number of deer, birds, racoons, foxes, groundhogs and other animal life in our neighborhood which contains woods and waterways and is located near farms, this seems to be a prudent step. Microbial Source Tracking can be performed by Source Molecular Corporation, 4985 SW 74th Court, Miami, Florida 33155 (sourcemolecular.com).

Regarding costs, the reports are deceptive in that it seems to be extremely unlikely that there are government funding sources to help defray the cost of the project unlike what is suggested in a presentation posted on the Township website. The private costs of running a hook up, potentially adding a grinder, and decommissioning an existing on lot system are likely gross underestimates. The cost of financing was not mentioned and the assumption of being able to obtain a 30-year loan is unrealistic. Given that there is a quarry less than a mile from our neighborhood, it is likely that

substantial rock formations will be encountered and blasting or other highly disruptive measures will need to be taken to install sewer lines. What will the impact of this construction be on our well water?

Have smaller waste management systems, placed on the few undeveloped lots within the neighborhood, been considered as an option?

New technology waste management systems exist, such as A/B Soil Systems and Perc-Rite Micromound drip system. The cost of installing these in homes whose conditions do not allow for traditional on lot systems should be weighed against the cost of this project of over $5 millon and the disruption of the properties and streets of our neighborhood. After years of maintaining our on lot disposal systems, we will now have monthly sewer charges in addition to the debt or financial loss associated with funding the public sewer system.

Of the 257 properties involved in this project, only 203 lots were a part of the 1998 and 2008 surveys. Over fifty homeowners have been added to the project. Those of us whose homes were not initially considered a public safety hazzard will now incur costs without a rational explanation. With 75% of the properties having properly functioning systems, and many systems which were malfunctioning in 1998 becoming functional in the ensuing ten years (suggesting there is a conservative solution for many of the malfunctioning systems) the burden of this project is being forced upon homeowners the vast majority of whom have well-functioning systems . In fact, only 8% of homes in the survey had malfunctioning systems in 2008. If the new denominator of 257 is used, this percentage drops further.

In conclusion, it is my opinion that our property should be excluded from the proposed project. Furthermore, it is my opinion that alternatives to the public sewer system have not been properly investigated and the costs associated with the proposed project are unrealistically low. In the public meeting, the Township supervisors had essentially made up their minds to move forward on the project rather than truly listening to the people they serve. They were callous to the fact that some homeowners will incur costs exceeding 10% of the value of their home and more than they paid in a down payment on the purchase. In addition, some homeowners have invested over $20,000 in building sand mounds or other on lot systems only now to be told they will have to decommission them and pay an even larger sum for a public system. The township had approved all of the homes that were built in our neighborhood with the existing septic systems. It is unfair for the responsibility for changing the waste disposal systems to fall upon the homeowners because of the mistake made by the township in permitting these systems on land they now find to be inadequate.

David A. Nover, M.D.
970 Almshouse Road
Warrington, PA 18976
(Doylestown Township)

To: Stephanie Mason
From: Scott and Jill Shaner
Date: June 11, 2013
Re: Written Comments, Sewage Facilities Plan for Pebble Ridge/Woodridge

A properly managed septic system is one of the most environmentally friendly ways of managing wastewater treatment, PERIOD. With regard to the MINOR ACT 537 SEWAGE FACILITIES PLAN UPDATE REVISION FOR DOYLESTOWN TOWNSHIP PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION, we offer the following comments and questions:

First and foremost, we disagree with the conclusion that the current residents of this neighborhood should have to pay the full and complete cost of this public sewer project. As it states on p. 175, "…installation of sewer systems in this area would mitigate the potential of failing septic systems in the long term and begin to improve the STORMWATER QUALITY AND LESSEN THE IMPACT ON LOCAL WATERWAYS OF THE COMMONWEALTH." (Capitalization added for emphasis.) Barbara Lyons also stated at the October 3 meeting that "Whether you have a working system or not…these homes in this area…are polluting the waterways…in other areas of the township; other areas of Pennsylvania…" Therefore the Commonwealth should be assisting with the costs of this project in some responsible fashion.

ALTERNATE FUNDING

On page 6 there is information about procedures that must be followed if PENNVEST funding will be sought, yet nowhere in the report are any of the steps to try to obtain this financial aid for our neighborhood fulfilled (see also p. 64 of the PDF, where the Bucks County Planning Commission points out this negligence). Why not!? Many residents have made it abundantly clear at township meetings that going ahead with this project may cause them to LOSE THEIR HOMES.

FINANCIAL INFORMATION

The financial ramifications in this study are woefully incomplete. Per the October 3, 2012 Doylestown Township Supervisors' meeting, the supervisors stated that true costs could not be ascertained until the project is approved and bids received, so:

a) What is the threshold above the totals in the Opinion of Probable Costs Report whereby the supervisors will reject this project?

b) If the supervisors approve ANY project with costs above those outlined in the Opinion of Probable Costs Report, who bears the costs of these increases?

HOW MANY EDUs?

The number of EDUs in the report is inconsistent. Page 14 lists 254 parcels. That was revised to 261 EDUs, which is what the cost breakdown is based upon. A letter from Carroll Engineering on page 179 references 257 EDUs. On p. 32 it appears the Doe Run Road residents are asking to be removed from consideration, which will alter the cost implications. Possibly just as significant with regard to EDUs, if in the future properties attached to this line are subdivided, will residents who are currently paying for this extension out of their pockets be reimbursed by the property owner(s) who are financially benefitting from the subdivision?

OPINION OF PROBABLE COSTS

Within this breakdown of costs, there are multiple problems in addition to the inconsistent number of EDUs cited noted above:

1) 30% of costs are Engineering, Legal, Administration and Easements. This is absurd. How can administrative overhead costs be 30% of the total project? Each EDU is paying roughly $6,000.00 in overhead. The residents deserve a complete breakdown of these costs within this report.
2) What of the 10% construction contingency? What happens to those funds if not needed?
3) On page 11, debt service cost, monthly maintenance and other costs are deemed "N/A." What does that mean? Will someone else maintain the sewer? Will BCWSA or Doylestown Township pay homeowners' interest costs?
4) Septic system deconstruction costs are not included in the probable costs, yet are required by the state.
5) What about road repair costs? Who is paying for that after our peaceful neighborhood is completely torn up?
6) If repairs to the line in the street are required, who pays for those?

<u>OTHER IMPORTANT CONSIDERATIONS</u>

1) Is the township going to continue to monitor the waterways they say are now polluted? We want continued testing. Our own well has always been pristine. What if, when we test our water after being forced to connect to public sewer, our well is contaminated?
2) If adjacent streams remain polluted years after this project, how will we get 100% of our money back from the township, as we will have paid for an UNNECESSARY project?

<u>PERSONAL ISSUES</u>

1) Reasonable connections to sewer system are not apparent for our property and possibly others. For instance, based on the sewer main map on page 93, we see no practical method of tying our property into the line. The main needs to be extended beyond the property line on Willow Lane into our property. Otherwise, our private line will become an ~200 foot pipe with all of the associated long-term problems. A simple extension of a small distance on Willow Lane will eliminate that problem.
2) Related to the above, ineffective connections affect other properties, so why is 75 feet used in the "Pebble Ridge Area Sewer Extension Opinion of Probable Costs – Updates on 2/5/2013" document upon which most of this plan is based? 200 feet is a more accurate average length for most properties in this neighborhood and will triple the estimated line cost per homeowner. 75 feet provides a misleadingly low cost estimate to all concerned.

In conclusion, it seems obvious that despite this "improvement" being on the Doylestown Township Supervisors' radar for decades now, there are still a multitude of questions and concerns that have not yet been addressed. No organization should sign up for a project without first knowing the complete costs, and yet we as private citizens are expected to blithely pay whatever these costs end up being, with no help or assistance from our township. At the October 2, 2012, Barbara Lyons even stated, "We don't have the time to debate and add the figures to determine who's paying for what…"

Thank you for consideration, and we look forward to you addressing concerns.

Sincerely,
Scott and Jill Shaner
16 S. Woodridge Drive

To: Doylestown Township Board of Supervisors and Pennsylvania Department of Environmental Protection

From: 45 Doe Run Road Warrington, PA 18976

Date: June 11, 2013

Re: Public Comment on Minor Act 537 Sewage Facilities Plan 3M Component for Pebble Ridge/Woodridge and Vicinity

For 14 years, many residents of the Pebble Ridge section of Doylestown Township have been in a contentious situation with the Township Board of Supervisors (BOS) over failing On Lot Septic Systems (OLDS) and the Pebble Ridge Sewer project. Studies were done by Boucher and James in 1998 and 2008 of the OLDS of 204 properties in the Pebble Ridge/Woodridge developments to determine which ones were failing or suspected of failing.

In 2010, the Doylestown Township Public Water and Sewer Advisory committee (PWASAC) proposed to the BOS that ***additional*** homes, that are *located near* the study area, be included in the project. *These properties that are now included in the proposal, but have not been tested, and* ***are compliant with the township's current septic regulations,*** include the north side of Almshouse road, Doe Run Road, the West side of New Road, Militia Hill Road, and Forge Lane. *OLDS on these lots were never studied, nor found to be (potentially) contributing to the contamination of the waterways in the township. Furthermore, many of these homes that are clustered above the Neshaminy Creek have soils that drain quite well. The township* ***has not*** *precluded lots where homeowners they have their own septic treatment permit with the state, those that have access to the Castle Valley main on their property, and one homeowner currently tied into the Castle Valley main.*

The township supervisors, under advisement from its Public Water and Sewer Advisory committee (PWASAC), are proposing to install public sewers to serve the homes in Pebble Ridge, and Woodridge developments and to the adjacent roads (Almshouse, Doe Run, Militia Hill, Forge, and New Road). The home owners will be REQUIRED to pay for the FULL COST of the *installation of the* public main

(*currently* estimated at $25,000 per household), regardless of the age and *performance* of their systems. Cost for the lateral hook up is in addition to this fee.

At the recommendation of the township manger, I asked the chair of the PWASAC, Ed Harvey, why my lot is included in the project area, if it had not been studied, nor found to be failing. On 10/15/12, in a phone conversation, he indicated it was an "engineering need", but later recanted that in an email communication (11/13/12). On February 19, 2013, when I asked the BOS, and Board liason to the PWASAC, Rick Colello, I was told that these properties will be included in the project, regardless of my concerns. According to Mr. Colello, "If the main runs in front of your house, we are required to give you access. If you have access, you must pay for it."

At the February 19, 2013 meeting of the BOS, I presented a petition from my neighbors, Citizens Opposed to the Pebble Ridge project, asking that undersigned be excluded from the project, on the grounds that we have ***not been found to have failing systems***, nor shown to be contributing to the contamination of water. I was told it would be taken under advisement. My request was taken to the PWASAC on February 21st, and no comments or responses were made. For those Board members for whom I have contact information, I sent email requests, asking for a response to the petition. I have heard nothing until I received the notice from the township on May 15, 2013, about the public comment period for the Minor Act 537 Sewage Facilities Plan 3M component for Pebble Ridge/Woodridge and Vicinity, and scheduled date to consider the resolution for the Minor Act 537 Plan Revision.

We feel strongly that there is no justification to mandate that our property, *or any property north of Almshouse Road be included in this project, if the on lot septic systems are compliant with the township's testing and inspection requirements and have not been shown to be adversely affecting human health and the environment*. We can only conclude that these properties were added to help finance the project and to expand the paying customer base for BCWAS.

We would like the township to make the following corrections to their draft plan to the state:

1. No requirement that properties with functioning systems be required to finance any part of this project until such time that their septic system is found to be non-compliant with the township's current requirements for testing & inspection.
2. No requirement that properties with functioning systems be required to finance any part of this project until such time that their septic system is found to be affecting human health & the environment by sampling which shows fecal coliform present from that lot's system.
3. Properties that have the Castle Valley main and easement should permitted to hook up directly to that main, at their own expense, when their current on lot septic system has not met the township's requirements for testing & inspection or the current or future owner decides on their own to access the Castle Valley main.
4. The township should not place any encumbrance on the title of any lot with a septic system that is compliant with the township's requirements for testing & inspection and is shown to not be a source of fecal coliform affecting human health and the environment, until the system can be shown otherwise.
5. There should be no time limit set for a lot's onsite septic system to be replaced unless the lot's system can be shown to be non-compliant with the township's requirements for testing and inspection.
6. Any lot with an existing NPDES permit or an existing easement to a sewer main should not be charged or have an encumbrance attached to the lot's title because of this project, if the lot's system is compliant with the terms of the permit or the township's requirements for testing and inspection.

Teresa Carroll and Stephen Pierce

45 Doe Run Road

Warrington, PA 18976

June 12, 2013

Ms. Stephanie Mason, Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901

RE: Minor Act 537 Facilities Plan Update Revision Component 3M for Doylestown Township Pebble Ridge/Woodridge and Vicinity

Dear Ms. Mason:

Our concern with the installation of the public sewer system in the referenced area is the impact on Doe Run Drive and its residents. Because the Castle Valley Interceptor is located along the creek behind Doe Run Drive, the plans indicate the pipe to connect to the CVI as coming down our street and across certain properties. We would like to be part of and included with the final planning for this project as it impacts Doe Run Drive and its residents. We are available to meet with the architects, engineers, township personnel, BCSWA, etc to assist in the process.

Sincerely,

William & Cheryl Hernandez

William and Cheryl Hernandez
24 Doe Run Drive

June 12, 2013

Ms. Stephanie Mason, Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901

RE: Minor Act 537 Facilities Plan Update Revision Component 3M for Doylestown Township Pebble Ridge/Woodridge and Vicinity

Dear Ms. Mason:

Our concern with the installation of the public sewer system in the referenced area is the impact on Doe Run Drive and its residents. Because the Castle Valley Interceptor is located along the creek behind Doe Run Drive, the plans indicate the pipe to connect to the CVI as coming down our street and across certain properties. We would like to be part of and included with the final planning for this project as it impacts Doe Run Drive and its residents. We are available to meet with the architects, engineers, township personnel, etc to assist in the process.

Sincerely,

William & Rita Stephens

William and Rita Stephens
39 Doe Run Drive

June 13, 2013
Kris L. Geller
34 Linda Lane
Warrington, PA 18976

RECEIVED

JUN 18 2013

DOYLESTOWN TOWNSHIP

To: Stephanie J. Mason
Doylestown Township Manager

Dear Ms. Mason:

I am writing this letter in response to the proposed sewer plan RESOLUTION FOR MINOR ACT 537 PLAN REVISION.

First of all, my situation, I have spent the last 17 years at my current address raising and educating three daughters as well as providing weddings for each of them (all this to say my savings are not that robust but not due to lavish living). I am considering retiring in the next year. Now I look at this new formidable expense you are proposing to levy on me and it changes my entire future. I will have to delay my retirement so I can fund an unnecessary sewer that the township has resolved to install. There seems to be no consideration for the hardship that the Township is imposing on its residents.

A few points about the research that I take issue with:

1. The committee chair is possibly in the worst situation regarding his onsite septic system. I sympathize with his circumstance, but given the fact that he essentially has no onsite disposal options, I can't see how he would conclude any other solution than a connection to the county sewer system.
2. There were only a handful of sites where actual failing systems were identified. The other locations where suspected failures were identified from the streets or by soil maps may or may not have failing systems. If only the observed failing systems are entered into the equation the situation is not really that bad.
3. One of the research studies found elevated levels of fecal coliform in some of the streams around the area, and concluded the source was likely from failed systems. I would propose that the local goose, deer and farms are a more likely or equally likely source of the fecal coliform.
4. I don't know if the soil profiles in the maps in the report are accurate. I would think that during construction so much soil would be moved around the lots as to disrupt the mapped units.
5. No creative or innovative solutions were considered. At one of the meetings a resident offered to have a professor from Penn State address the Board and provide alternative solutions to the one the Board was proposing. I do not see any serious consideration of these innovative alternative solutions in the report. I don't know if the board ever heard these alternative solutions.

My background is in biology (BA) and geology (MS). I have worked for the New Jersey Department of Environmental Protection for the last 24 years so I am not ignorant of these matters. I plead with you to reconsider this proposal first because it is based on flawed conclusions and second because of the onerous financial hardship it will incur on the local citizens.

Sincerely,

CHARLES & JOY DONESON
11 SOUTH WOOD RIDGE DRIVE
WARRINGTON, PA 18976
(215) 343-4132

June 14, 2013

Ms. Stephanie J. Mason, Township Manager
For the Township Supervisors
425 Wells Rd.
Doylestown, PA 18901 info@doylestownpa.org

Re : Public Comment on Minor Act 537 Sewage Facilities Plan Update Revision, Component 3m for the Pebble Ridge/Wood Ridge and Vicinity Gravity Sewer System Expansion Project

We live on Wood Ridge Drive in Doylestown Township in an area identified in the proposed installation of a Public Sewer System. We would like for you to consider our reasoning as to why this project should NOT go forward, and that you should vote NO for implementation of the project in favor of an alternative solution of the current Septage Management Plan.

1. When we purchased our house back in 1980, included in the cost of the property was a fully functioning septic system. That system is working today. Should this proposal become a reality, we will be asked, no - demanded to destroy a working system and be forced to incur an additional debt possibly in excess of $ 25,000 to purchase what amounts to our portion of a street-laden pipeline that will be of no use or recognition to us.

2. It is our belief that neither the Engineers and Consultants, nor the Advisory Committee have proven the case for the last 15 years beyond supposition and generalities that there is anything more than a 5 to 8% failure rate among the systems operating in this community. This compares to a 20% average statewide according to DEP. This is no more than and possibly less than the average failure rate of public sewer systems. The problem of overflowing sewage does not go away when one discharges to a public sewer.

"PADEP has reported that wastewater handling and treatment, which includes municipal point source discharges,… waste water treatment and combined sewer overflows, are implicated in the impairment of 744 stream miles. Nationwide there are 9,471 combined sewer outfalls (CSO) nationwide in 32 states—1,569 of which are in Pennsylvania, making it the state with the most CSOs. The PADEP has identified 152 communities in the commonwealth that are currently operating with CSO discharges." (Source: Wastewater, 2010 Report Card for Penna's Infrastructure)

3. Since 1998, whenever a resident, or residents have proposed a possible alternative, or other suggestion to the Committee, or the Supervisors, they have received nothing more than a deaf ear, or lip service. There are residents in our community who have legitimate reasons for being truly against this proposal; however, they become so intimidated by the terms thrown around at them that they don't know how to technically respond. I listened to the videos of the past meetings and heard the desperation in their voices. I saw them crying out to you for help and a compassionate ear, but all you did was cast them aside like you couldn't be bothered. So, we will respond for them.

4. The Board of Supervisors has managed the following regarding On-Lot Disposal Systems in our community:

   a. Renamed the Septage Management Committee to the Public Water and Sewer Committee
   b. Not one Supervisor opting to vote on the above proposal lives in the area in question.
   c. The Public Water and Sewer Committee is a hand-picked group composed solely of residents in the community with known failed OLDS, or those residents of the township not residing in the area in question.

5. Around 2004, before there was a Public Water and Sewer Committee, the now Chairman of that Committee moved into a house with a failing system and assumed that because he wanted public sewers, so did everyone else. So, he took it upon himself and his cronies to send out a disingenuously worded fright report telling about the differences between OLDS and public sewers and asking the 264 residents to respond to a survey about whether they wanted public sewers. By their own admission, 123 responded of which 79 were in favor. The Chairman took this to mean that 64% of the population were in favor. In fact, since there are 264 properties, and we can naturally assume that the remaining residents, like myself, who were not interested in his folly would also have responded negatively if required to do so. The correct calculation is 79/264, or 29.9% Therefore, the latest survey taken showed that less than 30% of the residents of Pebble Ridge/ Wood Ridge are in favor of public sewers!! This rate would have been much higher had there actually have been the amount of failing systems he wrongly believes there are. (Source: Act 537 Proposal).

6. The same, or similar problems you identify in the Proposal were identified in 1998, and there has not been a significant change in 15 years. In fact, the situation has vastly improved as many of the residents who were unaware of the need to pump their tanks have since done so and the improvement shows. There was a period when my system was creating wet spots in my back-yard. I volunteered to have an analysis performed that showed that effluent was reaching the surface of my lawn. The only solution Brendon O'Boyle of the Health Department could determine was to build a Sand Mound. After considerable time and energy, and cost, I discovered the cause of the problem and corrected it. Now, my field is as dry as the rest of my lawn. I should mention that when I moved here 31 years ago from Philadelphia, I researched about OLDS maintenance/use and care and have had my system pumped/inspected at least every 3 years, sometimes more, when needed whether required to, or not. I was not adverse to having my tank pumped within a year should it have been necessary. During that time, I have received many mailings from your office advising me of meetings, your proposed revisions to septage plans, etc. but in all that time, not once, not even once did I ever receive anything from your office, or the Health Department offering to educate the population regarding OLDS and proper maintenance, usage and repair. People neglected their systems for years. Now you claim you are being proactive by penalizing those who took care of their systems. Proper education of the population would probably have eliminated the lion's share of the problem you claim.

7. I would suppose that in the southeastern region of Pennsylvania there are many, possibly hundreds of engineering firms with at least as much education/experience in OLDS systems. Many from rural areas with significantly more private disposal properties than are located in Doylestown Twp. And yet, for all the studies over all the years that I can remember, the same firms, the only firms contracted were Boucher & James and Carroll Engineering. Strangely, these are the same firms that designed and installed many, if not all of the OLDS that you now claim were improperly built. It is not surprising that each study came back with similar findings. I would like to see what another, totally independent Engineering firm's study would reveal. If the work was put out properly to bids, I doubt that the that the findings would be the same, or similar to the "rollover rubber stamp regurgitations" received from the current firms.

8. Conestoga Rover & Associates performed water studies for runoff for feeds to the Neshaminy Creek. By their own admission, they have stated that their testing cannot prove if the coliform bacteria was due to humans, wild animals, livestock, or domesticated pets. In all of their paper-work, maps and statistics, I saw no mention anywhere of the animals at Winding Brook Farm, over 800 acres on Bristol and Turk Roads, just 2 blocks south of our neighborhood, or Delaware Valley College's cattle farm off Lower State Road a few blocks north of us. Winding Brook has a herd of over 100 milk cows and calves on 208 acres.. Where there are cows there is cow manure. Thousands of pounds of cow manure!! What do they do with all this manure? They spread it over the 600 acre farm especially on the cornfield that borders our community. They sell it to the neighbors in the Pebble Ridge/ Wood Ridge neighborhoods for their lawns, flower beds and vegetable gardens. When they water the fields, or when it rains all that manure mixes with the water and travels from the fields and lawns and enters the waterways that travel on Bristol Road, Turk Road and through our neighborhood. This same, or similar action happens just north of us at the college farms. The odors people smell when they walk through our neighborhood is the distinct rural odor that comes from these farms depending on how the wind is blowing. I know that smell intimately. Also, I reviewed the map(s) that accompanied their study and noticed that many of the yellow and red dots identifying higher levels of fecal coliform were shown in public sewer areas. Results of their study? Inconclusive!!

9. During the Township meeting of October 3, 2012, a question was raised by Mr. Mark Farrington as to whether yearly pumping of septic tanks could improve the problem systems. Ms. Zadell responded that it would be an option explored during the 3m Planning Module…Mrs. Lyons added the independent engineer hired by the Township will also objectively look into that option as a possible resolution.

I have reviewed both the Planning Module and the available engineer's reports. There is no mention of the Annual Pumping Option anywhere in the Planning Module, or in any available Engineer's Report.

This option must be explored in depth if a viable alternative and properly reported upon before any major construction work is voted on.

10. The idea was raised regarding the percolation, or lack of it on the properties in our community. There is no doubt that some properties in the neighborhood did not adequately perc and no houses were constructed on those lots. The majority of the houses built in this area are over 30 years old, maybe more. To complain about an OLDS that has been operating properly for over 30 years that the soil does not perc is preposterous and best, and foolish at worst. The typical daily household water usage that goes through the OLDS is over 400 gallons. That would extrapolate to almost 150,000 gallons a year. Over 30 years it amounts to almost 5,000,000 gallons. Where do you think that water is going? If it rolled out into the street at that level, it sure would be noticeable. And coming out of 20 houses? 8,000 gallons a day flowing down a street where the OLDS does not perc because the soil is too hard. Are you kidding me? Think about it. This is just utter nonsense. I'd have to ride down my street in an ark, not a car.

11. Even if you should move forward with this folly, all that could be accomplished is that you will have incurred the wrath and hatred of at least 250 residents of this community, maybe more and the majority who by virtue of statistical analysis would be forced to pay the exorbitant rate for street piping. Since there is no current obligation for anyone to hook up to the sewer lines, those who cannot afford to hook up to the main line will, by definition, not have the funds to connect, or retrofit to their private line. The ridiculous contention that human waste is flowing down the streets and waterways of Doylestown Twp like a Tsunami from overloaded OLDS to storm sewers would not be alleviated by this method as the homeowners would continue to use their original septic system.

In summary, we have found the following:

We, like most of our neighbors, have no intention of currently "hooking up" to a sewer line, making it a useless project in our neighborhood.

The failure rate of septic systems in our community compares favorably with the state average as well as public sewer failures according to the DEP.

Our elected officials and committee members need to listen to the resident's concerns more deeply before initiating a major project such as this.

In summary, (cont)

The last survey of residents shows that less than 30% are in favor of public sewers. I would submit that if those same residents were given the actual statistics, and the actual costs to connect and maintain, that number would decrease dramatically.

Education of the population is the key to their maximum participation. This has been sadly lacking in the community. Making the residents aware by methods they can understand in a proper, simple and truthful manner goes a long way. Nothing discussed at any of the meetings, minutes, or videos has convinced me that this is anything other than a group pretending to be experts trying to deceive a population into believing they are in danger of a disaster that really does not exist. I see this as nothing more than an expensive, unnecessary solution in search of a problem.

If the land in our community did not perc, based on water usage, there would be a constant flow of water running off the lawns down our streets. This is just not happening.

The vast majority of the residents have stated that they do not intend to hook-up to any public sewer at this time.

You are asking the residents to take money that we really don't have to make a major purchase for something that we really don't need. By voting for this, you are not properly addressing the needs of the constituents in this community. You are merely taking the easy way out.

Respectfully Submitted,

Charles & Joy Doneson

Charles & Joy Doneson

c_d6@yahoo.com

Eric Janetka

From: Stephanie Mason <sjmason@doylestownpa.org>
Sent: Monday, June 17, 2013 5:19 PM
To: Eric Janetka (ejanetka@cksengineers.com); Jackie Rowand
Subject: FW: Sewage Facilities Plan for Pebble Ridge/Woodridge Area

Stephanie J. Mason
Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901
215-348-9915
Fax: 215-348-8729
sjmason@doylestownpa.org

-----Original Message-----
From: Doylestown Township Information
Sent: Monday, June 17, 2013 5:15 PM
To: Stephanie Mason
Subject: FW: Sewage Facilities Plan for Pebble Ridge/Woodridge Area

Stephanie,

FYI -
Printed and gave to Jackie.

Joanna

Doylestown Township
425 Wells Road
Doylestown, PA 18901
(215) 348-9915
Fax (215) 348-8729

From: Stephen McCormick [mccormick51@msn.com]
Sent: Friday, June 14, 2013 5:34 PM
To: Doylestown Township Information
Subject: Sewage Facilities Plan for Pebble Ridge/Woodridge Area

Stephanie,

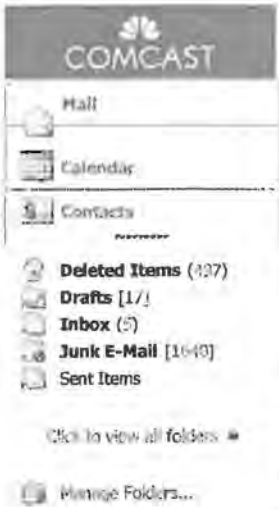
I have resided on Pebble Ridge Rd for over 23 years and had given up any hope of ever having the Township do the right thing and mandate public sewers . All the soil is the same...clay and shale, with no perk. There are numerous homes in the area that are pumping laundry water into the storm drains in order not to have the water overload their systems. These homes should never have been built with on site systems in our neighborhood.

When we purchased the property in 1989 we thought the reason the downstairs toilet didn't flush properly was because of the paint bristles the painters put in the toilet. As the years went by we began to realize the magnitude of the problem. The ONLY solution for the problem is public sewer systems. While a lot of neighbors are opposing them due to the cost, they are failing to realize public sewer will increase the value of the property. I don't want to be put in the situation of my next door neighbor who GAVE her house away for $75,000 less than it was worth because of a defunct system when she went to sell in June of 2012.

I am surprised that Doylestown Twnshp. has not been found negligent by the EPA for knowing that sewage has found it's way into area streams, yet has done nothing about the situation.

Please do the right thing and get this project moving ahead.

Betsy McCormick



This Folder

Reply | Reply to All | Forward | Move | Delete | Junk | Close

Concerns About the Proposed Sewer for Pebble Ridge Area

Brian Tilton [Brian@millhamco.com]

The sender of this message has requested a read receipt. Click here to send a receipt.

Sent: Tuesday, June 18, 2013 2:49 PM

To: Doylestown Township Information

Dear Stephanie Mason-

I recently received the notice from the Township of Doylestown regarding the possibility of sewers in the Pebble Ridge/Woodridge location, and the offer to make comments to your attention. I just want to add my personal story regarding our septic system at 156 Pebble Ridge Rd. Since we moved into our home back in 1994, we have had minor "wet areas" which would appear for a few weeks in the Spring, and then disappear in the summer. We had advice from our septic pumpers to "redirect" the open drain field every 2-3 years so that the overflow would be directed to one drainfield area or another. They would open one drainfield and close another, and then change it every few years. This would work for a while and then the "wet area" would just move from one location to another. After continuing to have issues, we then suggested to just open all the drain fields (rather than trying to "direct" it), and low & behold we had no problems since then. We have had zero wet areas since we made that change about 5-6 years ago - the yard is bone dry. I want to share this information in case this would help anyone else having similar problems.

The point of this illustration is to suggest that maybe there are individual solutions for different property owners, and maybe with proper one-on-one counseling & solutions, including some sand mounds, the huge expense of all new sewers could be avoided. Please share these thoughts with others, if you think it may be helpful.

Thank you,
-Brian

Brian W. Tilton
156 Pebble Ridge Rd
Warrington, PA 18976
(Doylestown Twp)

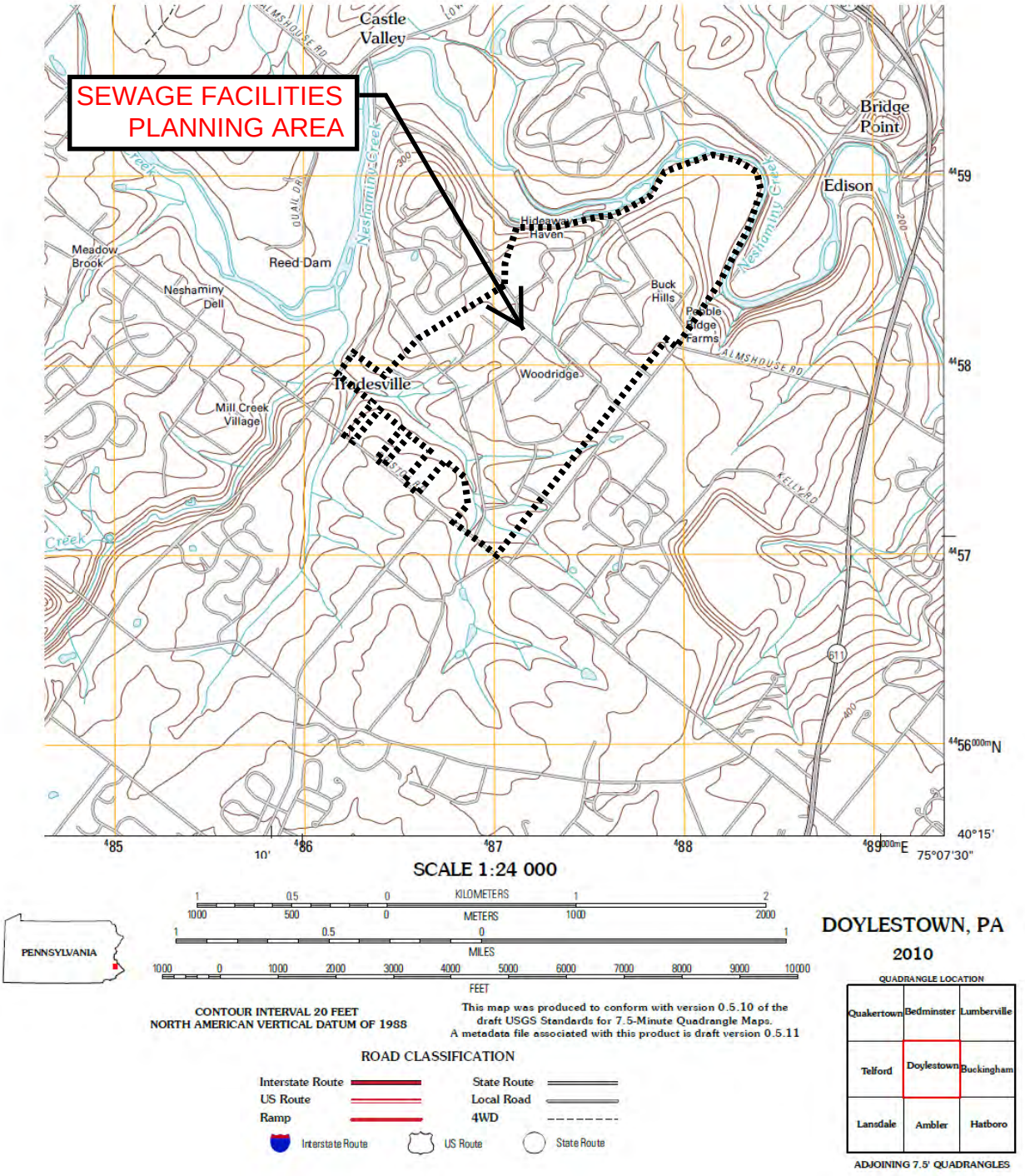
215-491-2129

EXHIBIT NO. 4

U.S.G.S. QUADRANGLE MAP

PEBBLE RIDGE COMMUNITY MINOR ACT 537 PLAN UPDATE - GRAVITY SANITARY SEWER
DOYLESTOWN TOWNSHIP, BUCKS COUNTY, PENNSYLVANIA

USGS PROJECT LOCATION MAP

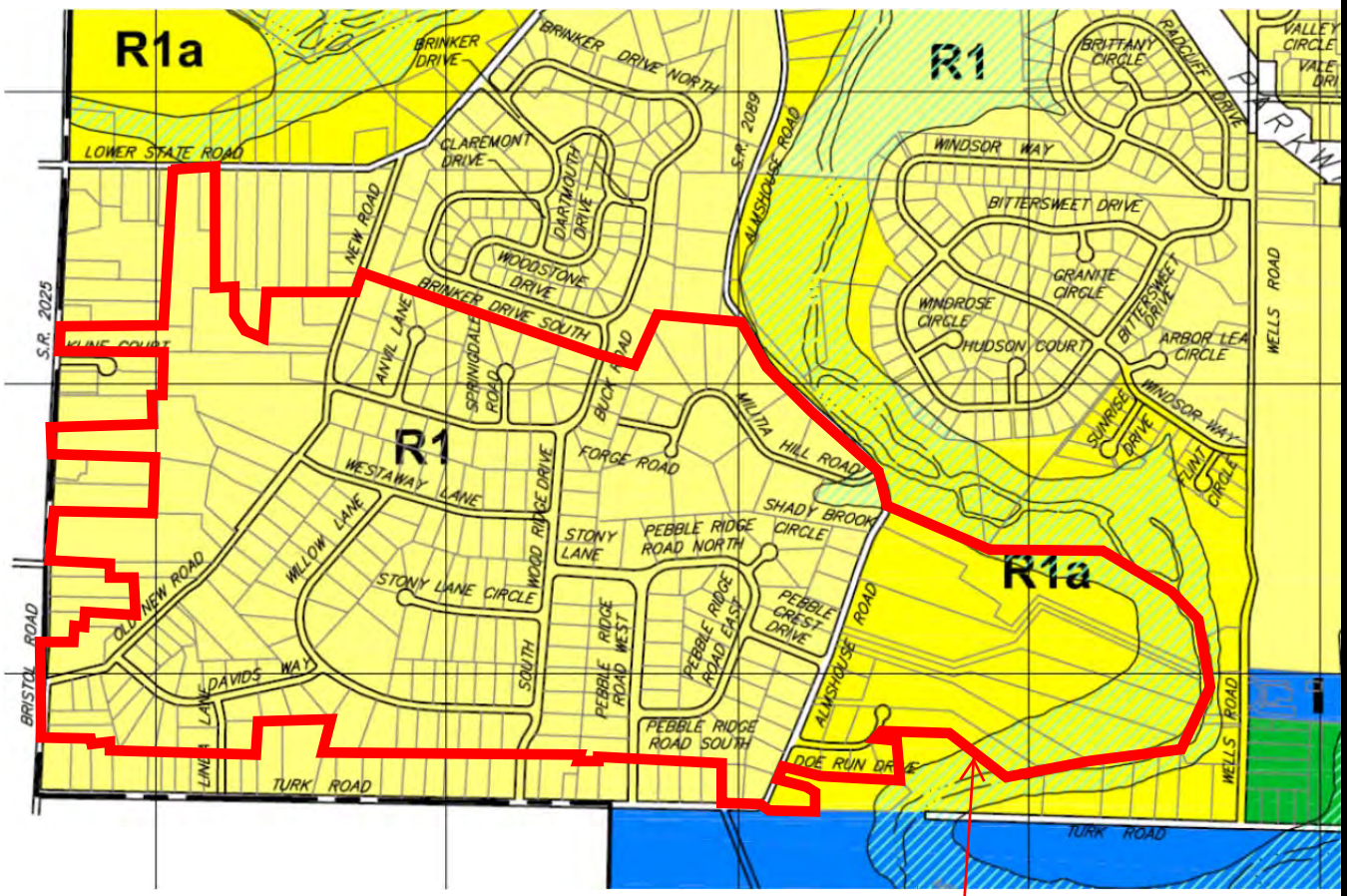


QUADRANGLE NAME: DOYLESTOWN
PROJECT LOCATION LATITUDE/LONGITUDE: 40° 16' 29.316"N, -75° 8' 53.214"W

CKS Engineers, Inc.
88 South Main Street, Doylestown, PA 18901
(215) 340-0600

EXHIBIT NO. 5

DOYLESTOWN TOWNSHIP
ZONING MAP



SEWAGE FACILITIES PLANNING AREA

ZONING DISTRICTS

- C1 - Commercial District
- C2 - Commercial District
- C3 - Commercial District
- C4 - Commercial District
- CR - Commercial District
- I - Institutional District
- I2 - Institutional District
- LI - Limited Industrial District
- Q - Quarry
- R1 - Residential District
- R1a - Residential District
- R2 - Residential District
- R2a - Residential District
- R2b - Residential District
- R4 - Residential District
- VC - Village Center

OVERLAY DISTRICTS

- - Airport
- - Floodplain
- - Outdoor Advertising

ZONING DISCLAIMER:
Zoning Districts shown on this map are representative only. For official zoning district boundaries see map entitled " Doylestown Township Zoning Map".

STREET MAP

TOWNSHIP OF DOYLESTOWN

Bucks County, Pennsylvania

Issued : AUG. 12, 1996

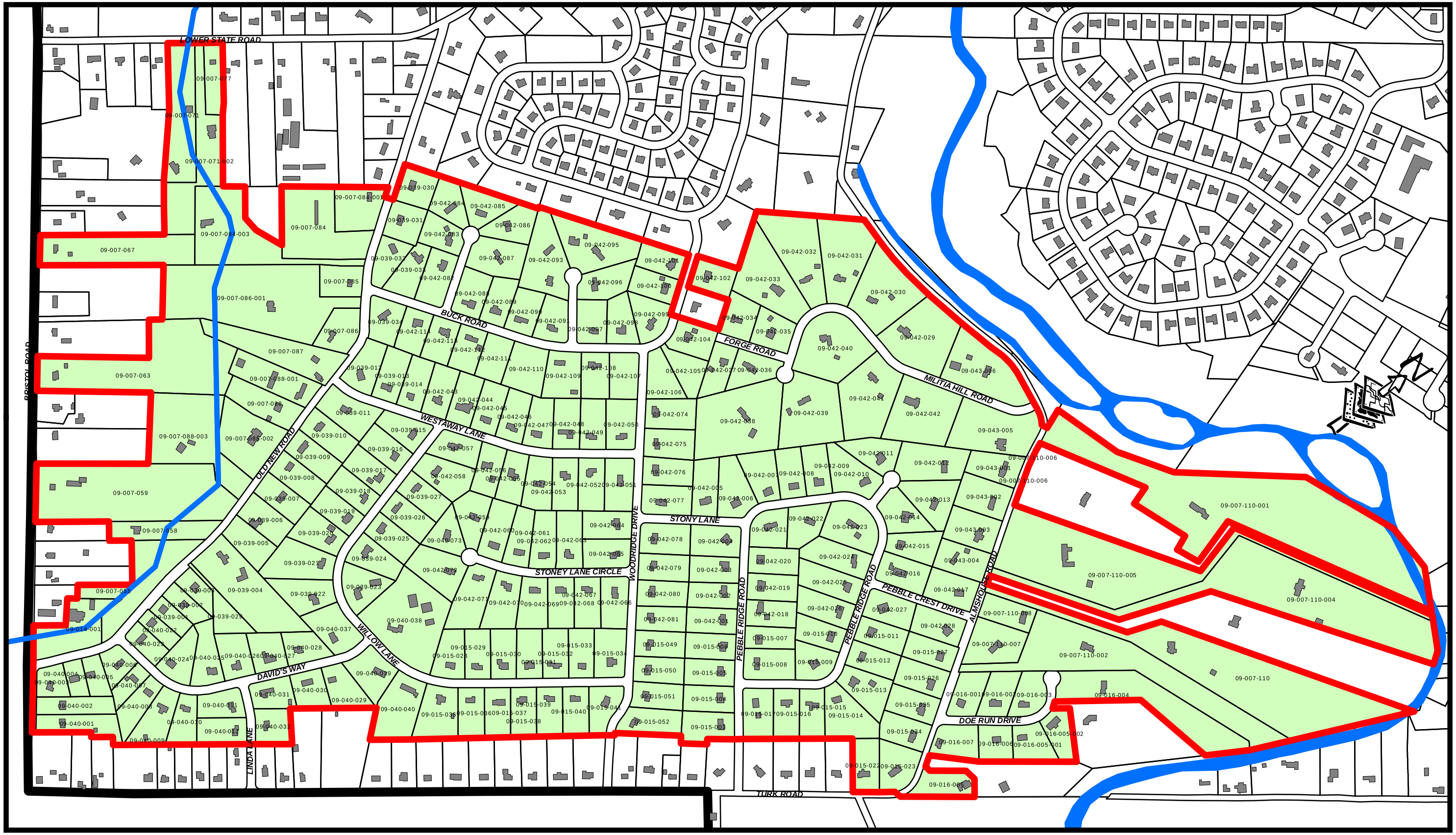
REVISED: NOVEMBER 1, 2012

SCALE

1200 0 1200 2400

EXHIBIT NO. 6

PEBBLE RIDGE/WOOD RIDGE AND VIVINITY GRAVITY SEWER SYSTEM EXTENSION PROJECT PLANNING AREA MAP



CKS Engineers, Inc.
88 South Main Street, Doylestown, PA 18901
(215) 340-0600

Legend

- Streams
- Pebble Ridge Planning Area
- MAJOR RIVER
- Parcels
- Existing Buildings
- Township Boundary
- Parcels within Planning Area

SEWAGE FACILITIES PLANNING AREA
PEBBLE RIDGE/WOOD RIDGE AND VICINITY
GRAVITY SEWER SYSTEM EXTENSION PROJECT
SEWAGE FACILITY PLANNING MODULE
MINOR ACT 537 UPDATE REVISION
DATE: JUNE 18, 2013

EXHIBIT NO. 7

PROPERTY LISTING

PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION PROJECT
MINOR ACT 537 UPDATE REVISION
PLANNING AREA PARCELS

No.	PARCEL NUM	DEED ACRES	ZONING	SUBDIV	USECODE	LANDUSE	STREET
1	09-007-055	3.83	R1	INDIVIDUAL LOT	2102	RES,1.001-4.99 ACRES	OLD NEW ROAD
2	09-007-058	1.42	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
3	09-007-059	8.78	R1	INDIVIDUAL LOT	1050	RES,RESIDENCE,5-10 ACRES	BRISTOL ROAD
4	09-007-063	7.2	R1	INDIVIDUAL LOT	1050	RES,RESIDENCE,5-10 ACRES	BRISTOL ROAD
5	09-007-067	3.77		INDIVIDUAL LOT			BRISTOL ROAD
6	09-007-071	3.255	R1	INDIVIDUAL LOT	1016	RES,UNIQUE RESIDENCE	LOWER STATE ROAD
7	09-007-071-002	3.745		INDIVIDUAL LOT			LOWER STATE ROAD
8	09-007-077	1	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	LOWER STATE ROAD
9	09-007-084	3.179	R1	INDIVIDUAL LOT	2102	RES,1.001-4.99 ACRES	OLD NEW ROAD
10	09-007-084-001	2.492	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
11	09-007-084-003	3.851	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
12	09-007-085	1.03	R1	INDIVIDUAL LOT	1002	RES,RANCH RESIDENCE	OLD NEW ROAD
13	09-007-086	1.116	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
14	09-007-086-001	8.498	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
15	09-007-087	3.01		INDIVIDUAL LOT			OLD NEW ROAD
16	09-007-088	1.549	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
17	09-007-088-001	1.88	R1	INDIVIDUAL LOT	1002	RES,RANCH RESIDENCE	OLD NEW ROAD
18	09-007-088-002	2.48	R1	INDIVIDUAL LOT	2132	RES,MISC IMPROVMENT,1.001-4.99 AC	OLD NEW ROAD
19	09-007-088-003	4.441	R1	INDIVIDUAL LOT	1004	RES,BI-LEVEL RESIDENCE	OLD NEW ROAD
20	09-007-110	10.002	R1A	RKD	1050	RES,RESIDENCE,5-10 ACRES	ALMSHOUSE ROAD
21	09-007-110-001	17.2	R1A	INDIVIDUAL LOT	1051	RES,RESIDENCE,10-20 ACRES	ALMSHOUSE ROAD
22	09-007-110-002	7.2	R1A	RKD	1050	RES,RESIDENCE,5-10 ACRES	ALMSHOUSE ROAD
23	09-007-110-004	10	R1A	RKD	1050	RES,RESIDENCE,5-10 ACRES	ALMSHOUSE ROAD
24	09-007-110-005	10.001	R1A	RKD	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
25	09-007-110-007	1.76	R1A	INDIVIDUAL LOT	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
26	09-007-110-008	1.17	R1A	INDIVIDUAL LOT	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
27	**09-014-001**	**2.506**	**R1**	**INDIVIDUAL LOT**	**4281**	**APARTMENTS**	**BRISTOL ROAD**
28	09-015-003	1.16	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
29	09-015-004	1.016	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
30	09-015-005	1	R1	INDIVIDUAL LOT	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
31	09-015-006	0.998	R1	PEBBLE RIDGE FARMS	1005	RES,SPLIT LEVEL RESIDENCE	PEBBLE RIDGE ROAD
32	09-015-007	1	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
33	09-015-008	1.07	R1	PEBBLE RIDGE FARMS	1005	RES,SPLIT LEVEL RESIDENCE	PEBBLE RIDGE ROAD
34	09-015-009	1.07	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
35	09-015-010	1.02	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
36	09-015-011	1	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
37	09-015-012	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
38	09-015-013	1.38	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
39	09-015-014	1.66	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
40	09-015-015	1.03	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
41	09-015-016	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
42	09-015-017	1.13	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
43	09-015-022	1.04	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	TURK ROAD
44	09-015-023	1.41	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
45	09-015-024	1.158	R1	PEBBLE RIDGE FARMS	1002	RES,RANCH RESIDENCE	ALMSHOUSE ROAD
46	09-015-025	1.11	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
47	09-015-026	1.11	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
48	09-015-027	1.11	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	ALMSHOUSE ROAD
49	09-015-028	1.05	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
50	09-015-029	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
51	09-015-030	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE

PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION PROJECT
MINOR ACT 537 UPDATE REVISION
PLANNING AREA PARCELS

No.	PARCEL NUM	DEED ACRES	ZONING	SUBDIV	USECODE	LANDUSE	STREET
52	09-015-031	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
53	09-015-032	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
54	09-015-033	1	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE
55	09-015-034	1.185	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	SOUTH WOODRIDGE DRIVE
56	09-015-035	1.63	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	WILLOW LANE
57	09-015-036	1.16	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE
58	09-015-037	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
59	09-015-038	1	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	WILLOW LANE
60	09-015-039	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
61	09-015-040	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
62	09-015-041	1.085	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	SOUTH WOODRIDGE DRIVE
63	09-015-049	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	SOUTH WOODRIDGE DRIVE
64	09-015-050	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	SOUTH WOODRIDGE DRIVE
65	09-015-051	1.03	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	SOUTH WOODRIDGE DRIVE
66	09-015-052	1.26	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	SOUTH WOODRIDGE DRIVE
67	09-016-001	1	R1A	BUCK HILLS	1005	RES,SPLIT LEVEL RESIDENCE	DOE RUN DRIVE
68	09-016-002	1.08	R1A	BUCK HILLS	1002	RES,RANCH RESIDENCE	DOE RUN DRIVE
69	09-016-003	0.97	R1A	BUCK HILLS	1002	RES,RANCH RESIDENCE	DOE RUN DRIVE
70	09-016-004	4.083	R1A	BUCK HILLS	1001	RES,CONVENTIONAL RESIDENCE	DOE RUN DRIVE
71	09-016-005	1.203	R1A	BUCK HILLS	1010	RES,COLONIAL RESIDENCE,NEW	ALMSHOUSE ROAD
72	09-016-005-001	1.05	R1A	BUCK HILLS	1002	RES,RANCH RESIDENCE	DOE RUN DRIVE
73	09-016-005-002	1.09	R1A	BUCK HILLS	1002	RES,RANCH RESIDENCE	DOE RUN DRIVE
74	09-016-006	1	R1A	BUCK HILLS	1002	RES,RANCH RESIDENCE	DOE RUN DRIVE
75	09-016-007	1.13	R1A	BUCK HILLS	1001	RES,CONVENTIONAL RESIDENCE	ALMSHOUSE ROAD
76	09-039-001	0.57	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
77	09-039-002	0.64	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
78	09-039-003	0.74	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	OLD NEW ROAD
79	09-039-004	3.857	R1	INDIVIDUAL LOT	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
80	09-039-005	1.22	R1	WOOD RIDGE	2101	RES,.5-1 ACRES	OLD NEW ROAD
81	09-039-006	1.05	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
82	09-039-007	1.05	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	OLD NEW ROAD
83	09-039-008	1.05	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	OLD NEW ROAD
84	09-039-009	1.043	R1	WOOD RIDGE	1002	RES,RANCH RESIDENCE	OLD NEW ROAD
85	09-039-010	1.05	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	OLD NEW ROAD
86	09-039-011	1.43	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
87	09-039-012	1.09	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WESTAWAY LANE
88	09-039-013	1	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WESTAWAY LANE
89	09-039-014	1.02	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
90	09-039-015	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
91	09-039-016	1	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	WILLOW LANE
92	09-039-017	0.998	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE
93	09-039-018	1	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE
94	09-039-019	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
95	09-039-020	1.25	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
96	09-039-021	1.75	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE
97	09-039-022	1.167	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE
98	09-039-023	1.17	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
99	09-039-024	1.03	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
100	09-039-025	0.998	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
101	09-039-026	1	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
102	09-039-027	1	R1	WOOD RIDGE	1001	RES,CONVENTIONAL RESIDENCE	WILLOW LANE

PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION PROJECT
MINOR ACT 537 UPDATE REVISION
PLANNING AREA PARCELS

No.	PARCEL NUM	DEED ACRES	ZONING	SUBDIV	USECODE	LANDUSE	STREET
103	09-039-029	0.81	R1	INDIVIDUAL LOT	2100	RES,UNDER .5 ACRES	OLD NEW ROAD
104	09-039-030	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	OLD NEW ROAD
105	09-039-031	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	OLD NEW ROAD
106	09-039-032	0.96	R1	SPRINGDALE	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
107	09-039-033	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
108	09-039-034	1.22	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
109	09-040-001	1.27	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	BRISTOL ROAD
110	09-040-002	1.13	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	BRISTOL ROAD
111	09-040-003	0.72	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	BRISTOL ROAD
112	09-040-004	0.55	R1	TWIN BROOKS ESTATE	1002	RES,RANCH RESIDENCE	OLD NEW ROAD
113	09-040-005	0.67	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	OLD NEW ROAD
114	09-040-006	0.73	R1	TWIN BROOKS ESTATE	1002	RES,RANCH RESIDENCE	DAVIDS WAY
115	09-040-007	0.67	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	DAVIDS WAY
116	09-040-008	1	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	DAVIDS WAY
117	09-040-009	1.31	R1	TWIN BROOKS ESTATE	1002	RES,RANCH RESIDENCE	DAVIDS WAY
118	09-040-010	0.96	R1	TWIN BROOKS ESTATE	1010	RES,COLONIAL RESIDENCE,NEW	DAVIDS WAY
119	09-040-011	0.93	R1	TWIN BROOKS ESTATE	1010	RES,COLONIAL RESIDENCE,NEW	LINDA LANE
120	09-040-012	1	R1	TWIN BROOKS ESTATE	1010	RES,COLONIAL RESIDENCE,NEW	LINDA LANE
121	09-040-022	0.57	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	OLD NEW ROAD
122	09-040-023	0.66	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	OLD NEW ROAD
123	09-040-024	1	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	DAVIDS WAY
124	09-040-025	1.22	R1	TWIN BROOKS ESTATE	1001	RES,CONVENTIONAL RESIDENCE	DAVIDS WAY
125	09-040-026	1.07	R1	TWIN BROOKS ESTATE	1010	RES,COLONIAL RESIDENCE,NEW	DAVIDS WAY
126	09-040-027	1.04	R1	TWIN BROOKS ESTATE	1002	RES,RANCH RESIDENCE	DAVIDS WAY
127	09-040-028	1.03	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	DAVIDS WAY
128	09-040-029	1.22	R1	TWIN BROOKS ESTATE	1005	RES,SPLIT LEVEL RESIDENCE	DAVIDS WAY
129	09-040-030	0.96	R1	TWIN BROOKS ESTATE	1002	RES,RANCH RESIDENCE	DAVIDS WAY
130	09-040-031	0.95	R1	TWIN BROOKS ESTATE	1002	RES,RANCH RESIDENCE	DAVIDS WAY
131	09-040-032	0.97	R1	TWIN BROOKS ESTATE	1010	RES,COLONIAL RESIDENCE,NEW	LINDA LANE
132	09-040-037	1.333	R1	WOOD RIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
133	09-040-038	4.4	R1	WOOD RIDGE	1018	RES,FARM HOUSE	WILLOW LANE
134	09-040-039	1.16	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	WILLOW LANE
135	09-040-040	1.96	R1	WOOD RIDGE	1005	RES,SPLIT LEVEL RESIDENCE	WILLOW LANE
136	09-042-001	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
137	09-042-002	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
138	09-042-003	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
139	09-042-004	1.1	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
140	09-042-005	1.16	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE
141	09-042-006	1.4	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
142	09-042-007	1.23	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
143	09-042-008	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
144	09-042-009	0.998	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
145	09-042-010	1.37	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
146	09-042-011	1.13	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	SHADY BROOK CIRCLE
147	09-042-012	1.77	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	SHADY BROOK CIRCLE
148	09-042-013	1.62	R1	PEBBLE RIDGE FARMS	1021	RES,TUDOR RESIDENCE	SHADY BROOK CIRCLE
149	09-042-014	1.22	R1	PEBBLE RIDGE FARMS	1005	RES,SPLIT LEVEL RESIDENCE	SHADY BROOK CIRCLE
150	09-042-015	1.15	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
151	09-042-016	1.12	R1	PEBBLE RIDGE FARMS	1005	RES,SPLIT LEVEL RESIDENCE	PEBBLE CREST DRIVE
152	09-042-017	1.21	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE CREST DRIVE
153	09-042-018	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD

PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION PROJECT
MINOR ACT 537 UPDATE REVISION
PLANNING AREA PARCELS

No.	PARCEL NUM	DEED ACRES	ZONING	SUBDIV	USECODE	LANDUSE	STREET
154	09-042-019	1	R1	PEBBLE RIDGE FARMS	1005	RES,SPLIT LEVEL RESIDENCE	PEBBLE RIDGE ROAD
155	09-042-020	1	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
156	09-042-021	1	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
157	09-042-022	1.09	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
158	09-042-023	1.63	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
159	09-042-024	1.32	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
160	09-042-025	1.33	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
161	09-042-026	1.16	R1	PEBBLE RIDGE FARMS	1010	RES,COLONIAL RESIDENCE,NEW	PEBBLE RIDGE ROAD
162	09-042-027	1.11	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	PEBBLE RIDGE ROAD
163	09-042-028	1.18	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	ALMSHOUSE ROAD
164	09-042-029	2.99	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
165	09-042-030	2.99	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
166	09-042-031	3.012	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
167	09-042-032	3.2	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
168	09-042-033	3.001	R1	HIDEAWAY HAVEN	2101	RES,.5-1 ACRES	MILITIA HILL ROAD
169	09-042-034	1.04	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	FORGE ROAD
170	09-042-035	1.05	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
171	09-042-036	1.04	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	FORGE ROAD
172	09-042-037	1.05	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	FORGE ROAD
173	09-042-038	4.32	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
174	09-042-039	3.01	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
175	09-042-040	3.01	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
176	09-042-041	2.96	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD
177	09-042-042	2.99	R1	HIDEAWAY HAVEN	1001	RES,CONVENTIONAL RESIDENCE	MILITIA HILL ROAD
178	09-042-043	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
179	09-042-044	1	R1	WOODRIDGE	1001	RES,CONVENTIONAL RESIDENCE	WESTAWAY LANE
180	09-042-045	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
181	09-042-046	1	R1	WOODRIDGE	1001	RES,CONVENTIONAL RESIDENCE	WESTAWAY LANE
182	09-042-047	1.02	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
183	09-042-048	1	R1	WOODRIDGE	1002	RES,RANCH RESIDENCE	WESTAWAY LANE
184	09-042-049	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
185	09-042-050	1.17	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
186	09-042-051	1.16	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
187	09-042-052	1.05	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
188	09-042-053	1.05	R1	WOODRIDGE	1001	RES,CONVENTIONAL RESIDENCE	WESTAWAY LANE
189	09-042-054	1.1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
190	09-042-055	1.01	R1	WOODRIDGE	1002	RES,RANCH RESIDENCE	WESTAWAY LANE
191	09-042-056	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WESTAWAY LANE
192	09-042-057	1.07	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
193	09-042-058	1.24	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WILLOW LANE
194	09-042-059	1.09	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
195	09-042-060	1.14	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
196	09-042-061	0.97	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
197	09-042-062	1.04	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
198	09-042-063	1.14	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
199	09-042-064	1.04	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
200	09-042-065	1.04	R1	WOODRIDGE	1001	RES,CONVENTIONAL RESIDENCE	STONY LANE CIRCLE
201	09-042-066	1.06	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
202	09-042-067	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
203	09-042-068	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
204	09-042-069	1.13	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE

PEBBLE RIDGE/WOOD RIDGE AND VICINITY GRAVITY SEWER SYSTEM EXTENSION PROJECT
MINOR ACT 537 UPDATE REVISION
PLANNING AREA PARCELS

No.	PARCEL NUM	DEED ACRES	ZONING	SUBDIV	USECODE	LANDUSE	STREET
205	09-042-070	1.34	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
206	09-042-071	1.64	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
207	09-042-072	1.52	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE
208	09-042-073	1.04	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE CIRCLE
209	09-042-074	1.18	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
210	09-042-075	1.06	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
211	09-042-076	1.04	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
212	09-042-077	1.11	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	STONY LANE
213	09-042-078	1.12	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
214	09-042-079	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
215	09-042-080	1	R1	WOODRIDGE	1010	RES,COLONIAL RESIDENCE,NEW	WOOD RIDGE DRIVE
216	09-042-081	1	R1	WOODRIDGE	1001	RES,CONVENTIONAL RESIDENCE	WOOD RIDGE DRIVE
217	09-042-082	1.2	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	ANVIL LANE
218	09-042-083	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	ANVIL LANE
219	09-042-084	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	ANVIL LANE
220	09-042-085	1.07	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	ANVIL LANE
221	09-042-086	1.07	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	ANVIL LANE
222	09-042-087	1.3	R1	INDIVIDUAL LOT	1018	RES,FARM HOUSE	ANVIL LANE
223	09-042-088	1.001	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	ANVIL LANE
224	09-042-089	1.074	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
225	09-042-090	1.023	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
226	09-042-091	1.031	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	SPRINGDALE ROAD
227	09-042-093	1.178	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	SPRINGDALE ROAD
228	09-042-095	1.318	R1	SPRINGDALE	1001	RES,CONVENTIONAL RESIDENCE	SPRINGDALE ROAD
229	09-042-096	1.215	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	SPRINGDALE ROAD
230	09-042-097	1.001	R1	SPRINGDALE	1001	RES,CONVENTIONAL RESIDENCE	BUCK ROAD
231	09-042-098	1.017	R1	SPRINGDALE	1001	RES,CONVENTIONAL RESIDENCE	BUCK ROAD
232	09-042-099	1.175	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
233	09-042-100	1	R1	SPRINGDALE	1001	RES,CONVENTIONAL RESIDENCE	BUCK ROAD
234	09-042-101	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
235	09-042-102	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
236	09-042-104	1.004	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
237	09-042-105	1.025	R1	SPRINGDALE	2101	RES,.5-1 ACRES	BUCK ROAD
238	09-042-106	1.017	R1	SPRINGDALE	2101	RES,.5-1 ACRES	WOOD RIDGE DRIVE
239	09-042-107	1.011	R1	SPRINGDALE	2101	RES,.5-1 ACRES	BUCK ROAD
240	09-042-108	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
241	09-042-109	1.274	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
242	09-042-110	1.391	R1	SPRINGDALE	2101	RES,.5-1 ACRES	BUCK ROAD
243	09-042-111	1	R1	SPRINGDALE	2101	RES,.5-1 ACRES	BUCK ROAD
244	09-042-112	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
245	09-042-113	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
246	09-042-114	1	R1	SPRINGDALE	1010	RES,COLONIAL RESIDENCE,NEW	BUCK ROAD
247	09-043-001	1.11	R1	PEBBLE RIDGE FARMS	1005	RES,SPLIT LEVEL RESIDENCE	ALMSHOUSE ROAD
248	09-043-002	1.39	R1	PEBBLE RIDGE FARMS	1002	RES,RANCH RESIDENCE	ALMSHOUSE ROAD
249	09-043-003	1.39	R1	PEBBLE RIDGE FARMS	1001	RES,CONVENTIONAL RESIDENCE	ALMSHOUSE ROAD
250	09-043-004	1.22	R1	PEBBLE RIDGE FARMS	1018	RES,FARM HOUSE	ALMSHOUSE ROAD
251	09-043-005	2.98	R1	HIDEAWAY HAVEN	1003	RES,CONTEMPORARY RESIDENCE	ALMSHOUSE ROAD
252	09-043-006	3.16	R1	HIDEAWAY HAVEN	1010	RES,COLONIAL RESIDENCE,NEW	MILITIA HILL ROAD

EXHIBIT NO. 8

PROPERTY OWNER SURVEY

Public Sewers

Our Sewer Systems are 33 years old and are failing. New septic systems are ranging from $15,000.00 to $30,000.00. The ground is not ideal for these types of systems and will not last. Township representatives are very open to working with us as a group to install public sewers. The township is willing to make this happen very quickly if the majority of homeowners want this and we push as a group. For ***safety*** reasons and also increased values of our homes I hope we can do this.

Doylestown Township Public Sewers

Township states that installation of public sewer will be no more than $15,000.00 and we as a group can negotiate price, with the ability for a low interest loan. Hookup to your house from the street box (township box) will be from your own personal plumber.

Hopefully with a majority of signatures we can have both water and sewer at a very reasonable price and we as a group can also negotiate a very special price for hookups from the township box to our homes. **For *safety* reasons and *increased values* of our properties my personal goal is to have public water and public sewer for homeowners of Willow Lane within a very short period of time.**

Summary

The township is willing to work with us ***now*** with very reasonable prices for both water and sewer and also low interest loans. I will do all the leg work and fight very hard to lower these prices. As a large group we will have the power to keep the costs down. They are bringing water and sewer down Turk Road very shortly (now) and this is when we should hook up. We can also make this happen very quickly as a group, once we finalize the price.

Please really think about this. Your property value will increase; you will be able to drink safer monitored water, you will be able to have a garbage disposal, able to flush anytime with no backup, no more gurgling, able to walk around your yard without sinking, wash clothes whenever you want, longer showers, no more hard water, no more water softeners, appliances & water heaters will last longer, you will be able to have people over for parties, etc (without *johnny-on the spot*) standing in your back yard.

We have 7 residents that already signed as of 9/11/04. All residents who sign on will have complete access to copies of all the petitions or any other information I gather. Please read the attached groundwater Contamination report. If you have an opportunity to speak with an independent lab you will really discover what your contamination is or what it could be down the road. Start asking your neighbors who have MTBE or other contaminants in their wells! (find out how bad and how long it stays).This stuff keeps seeping in the ground.

Let's act now before this opportunity passes us by.

Please call at the number below with any questions or to ***sign up to end this problem!***

Regards,

Ed Harvey
34 Willow Lane
Warrington, Pa.18976
215-343-8797

Peeble Ridge Residents/Neighbors 9/2004

Reason's why we should have public water system

- Safer drinking water for you and *your children/grandchildren*
- No more water treatment systems/filters/replacements etc.
- Water system is monitored by township, water reports available to you
- Increased value to your home
- Water pressure (wow, whats that?)
- Washers, refrigerators, ice makers, dishwashers, and hot water heaters last longer
- No more hard water stains on glasses, showers, etc.

Reason's why we should have public sewers

- Safety first for you and your children/grandchildren
- Systems are 33 years old-systems only lasts 25-30 years
- Our properties are not suited for septic systems. The ground does not take the water. They will make you replace your system very shortly anyway. **Why do you think the township is asking for yearly septic checkups with the reports going to the township??**
- If you sell your house before we get the public system, your system will fail; you will have to deduct $25,000.00 to $35,000.00 off your selling price.
- We can get low interest government loans with reasonable terms
- If you sell your home your realtor will be able to negotiate/payoff with buyers on the balance on loan
- Increased value of your home/Investment
- Ability to walk on your grass and cut your grass without sinking
- Ability to flush and not worry
- Ability to entertain/party with family, friends and neighbors with no worry of the plumbing issue. No portable *johns*
- You can actually have and use a garbage disposal.
- No gurgling in the pipes
- No more backups unless you create them
- No septic systems to have drained/serviced
- Able to use washer, dishwasher when you want to
- Long Showers with plenty of water pressure (did I say pressure?)

Some worries/concerns

- Limited budgets: I will be working on that. Hopefully we will be able to reduce the total amount of costs and also have a very low interest rate with extended terms.
- Just purchased new septic system: I feel your pain. You probably had no choice and hopefully you will be staying in your home for some time. The ground has always been a problem. With our large property size and the addition of public water and sewer our property values will increase significantly. How long will your system survive? How much will maintenance cost?

Home hookups to water and sewer from township box

- Homeowners responsibility
- Hopefully we can work out a deal with some contractors/plumbers **as a group** to minimize the cost of the hookups.
- Hopefully we can hook up to the sewer and water at the same time to keep cost the costs down.

Please read all the information. If you are unsure have your water fully tested now. The larger the group he more savings we will have with this project. This is a great investment for you and your property. Please consider this carefully. We really need to act now to make this happen and to keep the cost down.

PUBLIC SEWER SURVEY

Name: _____

Address: _____

Phone number: _____ Email: _____

We are interested in getting public sewers for our residence at the address shown above.

YES _____ NO _____

Existing system: Septic or sand mound? _____

Signature: _____

COMMENTS: _____

_____

_____

NOTE: Please drop off or mail completed survey to one of your neighbors listed below.

Bert Eck
48 Pebble Ridge Rd.
Warrington, PA 18976
215-343-2776
berteck@comcast.net

Ed Harvey
34 Willow Lane
Warrington, PA 18976
215-343-4718
edharvey1367@comcast.net

Bill Lloyd
218 Pebble Ridge Rd
Warrington, PA 18976
215-343-1463
wmlloyd5594@MSN.com

EXHIBIT NO. 9

GRAVITY SANITARY SEWER FEASIBILITY STUDY, SCHEMATIC DIAGRAM OF PROPOSED SEWER SERVICE (PEBBLE RIDGE AREA SEWER EXTENSION), AND OPINION OF PROBABLE COST

Carroll Engineering Corporation

August 4, 2006

RECEIVED
AUG 07 2006
DOYLESTOWN TOWNSHIP

Stephanie Mason, Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901

Dear Ms. Mason,

Subject: Feasibility Study - Doylestown Township

We are finalizing the study requested by Mr. Berry in his June 21, 2006 letter to Mr. Jones, and want to assure that we have accurately recorded the requested study areas based on our recent telephone conversation.

Attached is a highlighted map showing the study areas outlined in blue. We specifically omitted the 30 EDUs which were recently serviced along Turk Road in the Pebble Ridge service area. We also did not include the Route 611 Corridor in the Pebble Hill/Sugarbottom service areas since it was the subject of a previous feasibility study.

Also, we have utilized ultimate EDUs as determined in the Township 537 Plan in the subject study areas for purposes of estimating the number of services and the project cost distribution per EDU. If the Township has any other information with respect to these counts, please let us know so we can finalize our cost figures.

Very truly yours,

CARROLL ENGINEERING CORPORATION

John A. Swenson, P.E.

JAS:jd
Enclosure
cc: Benjamin W. Jones, Executive Director, BCWSA
Jeffrey P. Garton, Esquire, Begley, Carlin & Mandio
Harry J. Barford, Jr., P.E., Chairman

Carroll Engineering Corporation

January 17, 2012

John Butler, Chief Operating Officer
Bucks County Water & Sewer Authority
1275 Almshouse Road
Warrington, PA 18976

Dear Mr. Butler:

Subject: Pebble Ridge On-Lot System Area-Sewer System Feasibility Study

We have updated the cost estimates (copies attached) associated with this study, paying particular attention to those affected by oil prices as requested. The first option is to provide sewer service to this area by installation of gravity sewers and a centralized pump station. The pump station would be located along Lower State Road in the approximate location shown on the attached figure for Option No. 1. This location of the pump station was selected so that it could service the entire Pebble Ridge Area, when necessary. Although the initial area intended by the Township for sewer service included only 203 EDU's, an additional 21 EDU's were added as a result of placing the pump station at this location. In addition, there were 33 EDU's along Militia Hill Road and Doe Run Drive that were added due to their close proximity to proposed sewer lines already required to serve other lots. The additional 54 EDU's allowed the costs of the pump station, gravity sewers and other related work to be distributed over a larger number of users, thereby reducing the cost per user by about 20%. We estimate the Public Construction Cost of this option to be $5,262,150 (or $20,480 per EDU) for the 257 EDU's serviced. It should be noted that Private Costs for a service lateral and connection (approximately $1,500 for each customer, based on several assumptions) are not included since these are customer costs.

The second option is to provide sewer service to this area by the installation of a low pressure sanitary sewer system as shown in the attached figure for Option No. 2. The low pressure mains range in size from 1-1/2 to 3 inches. Similar to what we did for Option No. 1 above, we included additional lots outside the Township's initial defined service area which could be connected to the proposed facilities by reasonable means. This increases the potential customers from 203 EDU's to 251 EDU's. There is no additional capacity built into this low pressure sewer system option for future expansion to additional service areas for properties along Bristol Road and the Dell Haven area (approximately 120 EDU's). When and if these areas are serviced in the future, they would need to install their own force mains and a "conveyance" main to the Castle Valley Interceptor. We estimate the Public Construction Cost of Option No. 2 to be $1,981,830 (or $7,900 per EDU) for the 251 EDU's serviced. It should be noted that Private Costs for a service lateral and grinder pump (approximately $5,760 for each customer) are not included since these are customer costs.

In both Options above, only State Road restoration costs are included, since we were advised that the Township will cover the costs of repaving all Township Roads. In addition, tapping fees of $4,700 would be added to each "per EDU" cost.

For planning purposes, we have included an approximate schedule for the design, permitting and construction of the gravity sewer and pump station project (Option No. 1). The construction timing is based on multiple sewer contracts being let simultaneously. We do expect that the construction of the low pressure system would be slightly shorter in time, but this was not separately scheduled at this time.

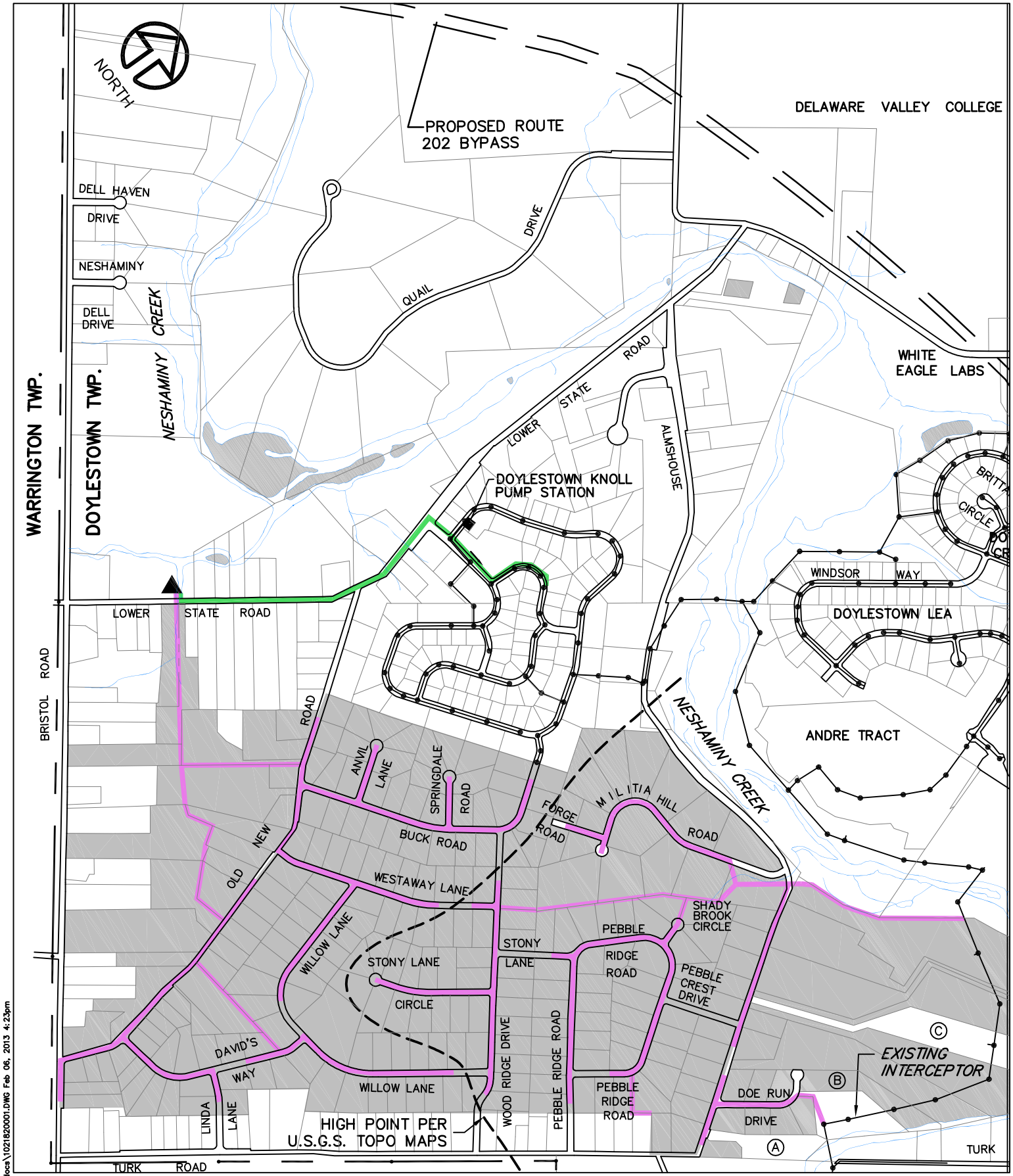
If you have any questions on this information, please do not hesitate to call.

Very truly yours,

CARROLL ENGINEERING CORPORATION

John A. Swenson, P.E.
Vice President

JAS:ja
Enclosures
cc: Benjamin W. Jones, CEO, BCWSA
Steven M. Hartman, P.E., CEC



S:\mydocs\1021820001.DWG Feb 06, 2013 4:23pm

LEGEND

- PROPOSED GRAVITY SEWER
- PROPOSED FORCE MAIN
- EXISTING GRAVITY SEWER
- PROPOSED SERVICE AREA
- PROPOSED PUMP STATION

PEBBLE RIDGE AREA SEWER EXTENSION
DATED 6-21-12
REVISED 2-5-13

Ⓐ PROPERTY WAS TO BE SERVED BY THIS PROJECT, BUT EXCLUDED SINCE ALREADY CONNECTED TO BCWSA SEWER.
Ⓑ PROPERTY WAS NOT TO BE SERVED BY THIS PROJECT, BUT ADDED SINCE NOT YET CONNECTED TO BCWSA SEWER.
Ⓒ PROPERTY WAS TO BE SERVED BY THIS PROJECT, BUT VISUAL EVIDENCE SUGGESTED IT IS ALREADY CONNECTED.

PEBBLE RIDGE AREA SEWER EXTENSION
OPINION OF PROBABLE COSTS
(UPDATED ON 2/5/13 - ADJUSTED # OF EDU's AND TAPPING FEE COST)

NO.	ITEM	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
1	10" DIP	LF	6,860	$ 53.00	$ 363,580.00
2	8" DIP	LF	3,000	$ 48.00	$ 144,000.00
3	8" PVC	LF	23,000	$ 21.00	$ 483,000.00
4	6" PVC (laterals)	LF	5,080	$ 18.00	$ 91,440.00
5	Manholes	EA	70	$ 1,800.00	$ 126,000.00
6	MH Frames & Covers	EA	70	$ 421.00	$ 29,470.00
7	Cleanout Fittings	EA	254	$ 235.00	$ 59,690.00
8	Stone Bedding	LF	41,440	$ 8.50	$ 352,240.00
9	Stone Backfill	LF	30,885	$ 14.00	$ 432,390.00
10	Concrete Encasement	LF	1,500	$ 45.00	$ 67,500.00
11	Rock Excavation	CY	7,392	$ 75.00	$ 554,400.00
12	Temporary Pavement Restoration	LF	30,100	$ 10.00	$ 301,000.00
13	Permanent Pavement Restoration	LF	4,217	$ 55.00	$ 231,935.00
14	Lawn Restoration	LF	10,555	$ 5.00	$ 52,775.00
15	Silt Fence	LF	10,555	$ 1.00	$ 10,555.00
16	Creek Crossing	EA	4	$ 7,000.00	$ 28,000.00
17	Pump Station	LS	1	$ 300,000.00	$ 300,000.00
18	6" Force Main	LF	3,500	$ 21.00	$ 73,500.00
19	Air Release Chamber	EA	3	$ 4,240.00	$ 12,720.00
20	Connect to Existing Manhole	EA	2	$ 2,120.00	$ 4,240.00
21	Driveway Restoration	LF	785	$ 37.00	$ 29,045.00
22	6' Doghouse Manhole at Interceptor	LS	1	$ 8,000.00	$ 8,000.00
	Subtotal (Public Construction Cost)				$ 3,755,480.00
	Construction Contingency (10%)				$ 375,550.00
	Engineering, Legal, Administration and Easements (30%)				$ 1,126,640.00
	Total Public Construction Cost				$ 5,257,670.00
	Public Cost per EDU (based on 261 EDU's)				$ 20,140.00
	Private Cost per EDU (Lateral and Connection)				$ 1,500.00
	Collection Sewer System Tapping Fee (per EDU)				$ 6,200.00
	Total Overall Project Cost per EDU				$ 27,840.00

Notes:

a) Private Construction Costs (lateral installation) based on estimate of 75 feet between right-of-way and house.

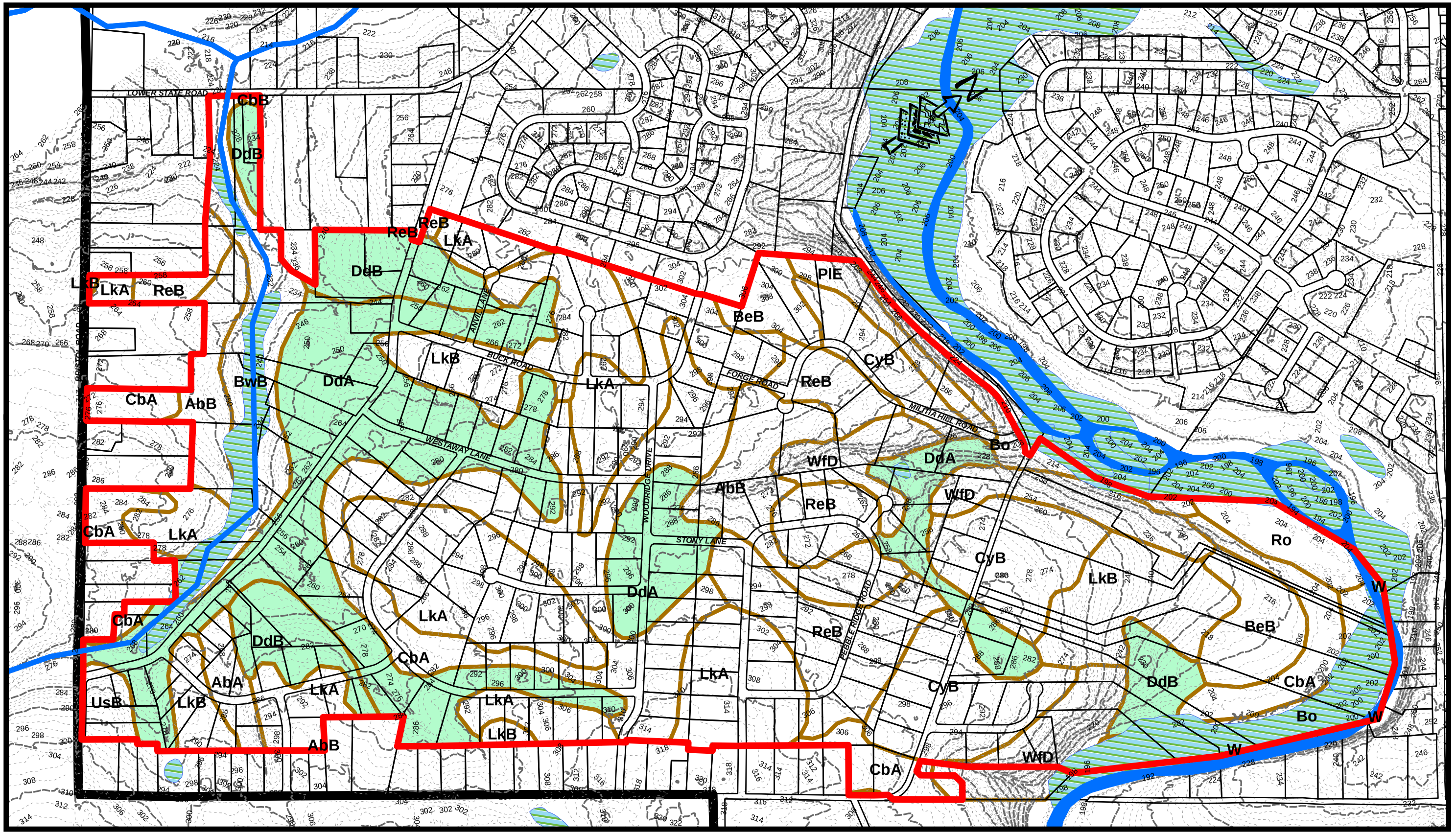
b) Only permanent road restoration of state-owned roads is included. It is understood the Township will perform repaving of all other roads.

c) Costs for additional conveyance/treatment capacity are not included, due to following:

0.065 MGD (261 edu x 250 gpd/edu) is required in available treatment capacity for this project. Green St. WWTP has ample capacity, but is limited by Castle Valley Diversion Pump Station (CVDPS). CVDPS has 0.04 MGD available pumping capacity based on average flow. The extra 0.025 MGD can be treated at Kings Plaza WWTP. No costs are included for CVDPS upgrade at this time.

EXHIBIT NO. 10

NATIONAL WETLANDS INVENTORY (NWI) WETLAND AND HYDRIC SOIL MAP



Legend

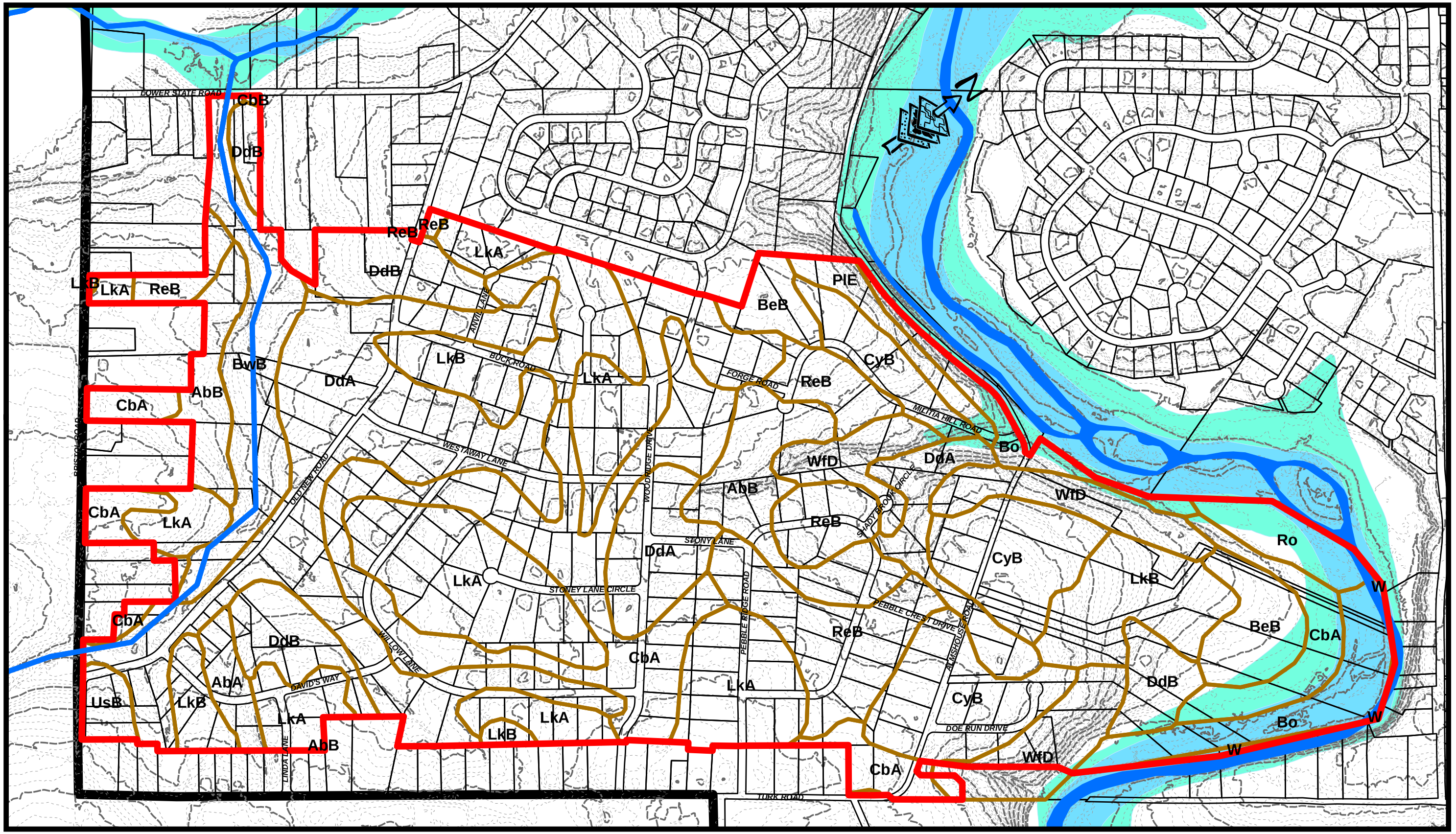
- Streams
- Pebble Ridge Planning Area
- MAJOR RIVER
- NWI Wetlands
- Soils Clipped to Planning Area
- Parcels
- hydric
- Intermediate Contours
- Index Contours
- Doylestown_Township_Boundary_Stateplane_South

CKS Engineers, Inc.
88 South Main Street, Doylestown, PA 18901
(215) 340-0600

NWI WETLANDS, HYDRIC SOILS, AND TOPOGRAPHY EXHIBIT
PEBBLE RIDGE COMMUNITY GRAVITY SEWER SEWAGE FACILITY PLANNING MODULE MINOR ACT 537 UPDATE

EXHIBIT NO. 11

SOILS AND FEMA FLOODPLAIN INFORMATION



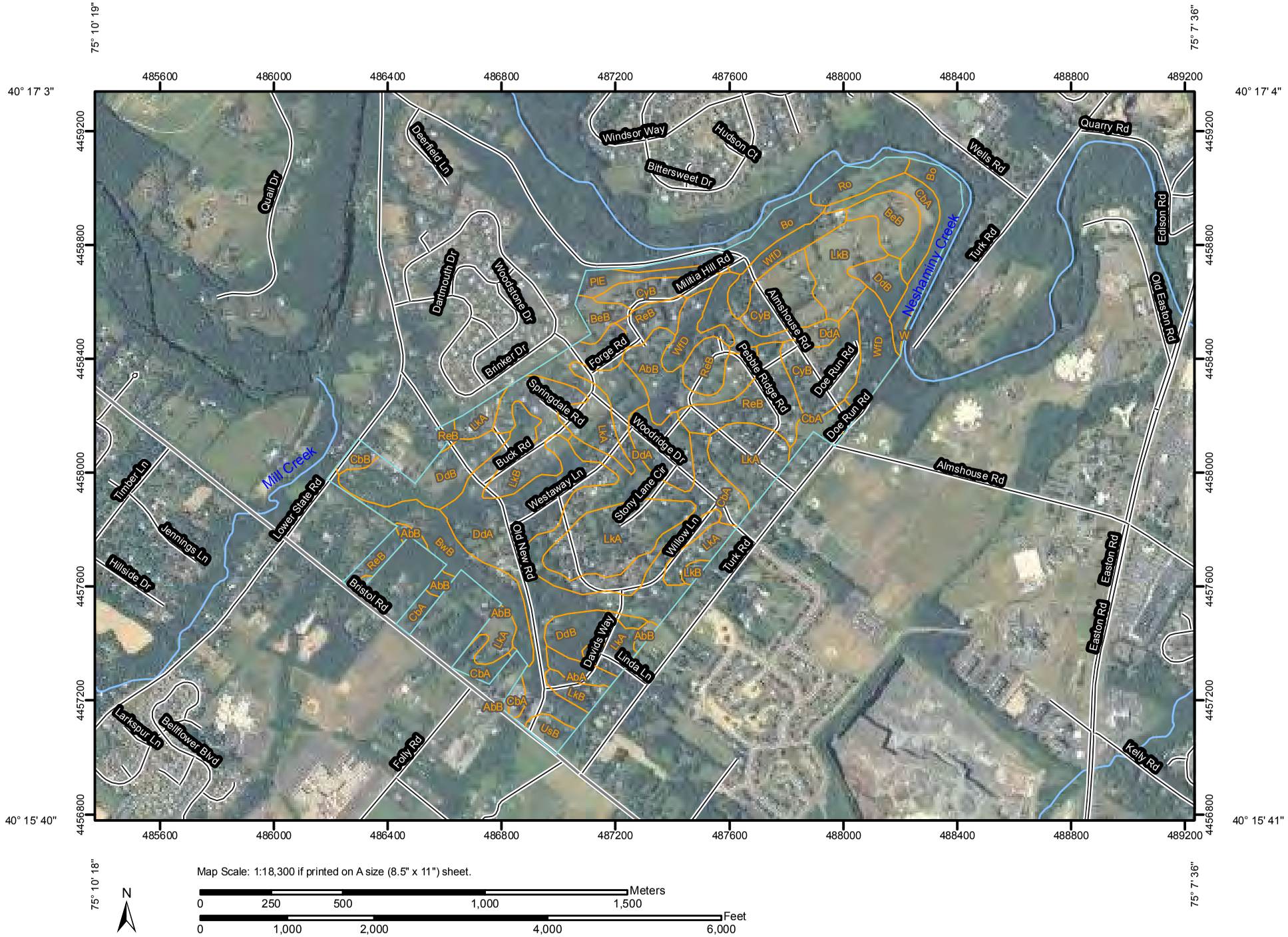
Legend

- Streams
- Pebble Ridge Planning Area
- Soils Clipped to Planning Area
- MAJOR RIVER
- Parcels
- Intermediate Contours
- Index Contours
- FEMA FIRM ZONE A
- FEMA FIRM ZONE AE
- FEMA FIRM FLOODWAY

CKS Engineers, Inc.
88 South Main Street, Doylestown, PA 18901
(215) 340-0600

SOILS AND FLOODPLAIN EXHIBIT
PEBBLE RIDGE COMMUNITY GRAVITY SEWER
SEWAGE FACILITY PLANNING MODULE
MINOR ACT 537 UPDATE REVISION

Soil Map—Bucks County, Pennsylvania
(Pebble Ridge Community, Doylestown, Pennsylvania)



Map Scale: 1:18,300 if printed on A size (8.5" x 11") sheet.

N

Meters
0 250 500 1,000 1,500

Feet
0 1,000 2,000 4,000 6,000

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:18,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 7, Oct 6, 2008

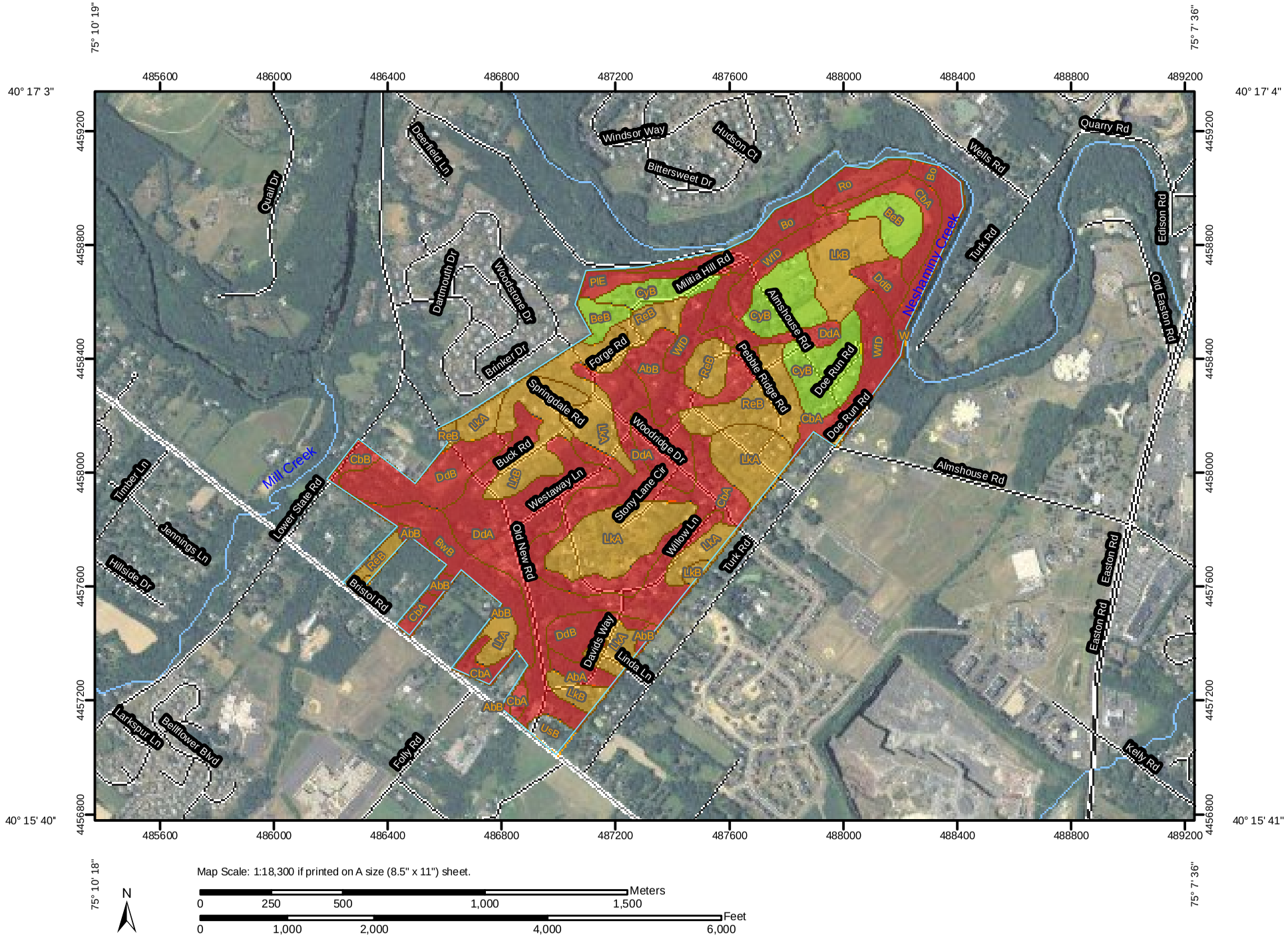
Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Bucks County, Pennsylvania (PA017)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
AbA	Abbottstown silt loam, 0 to 3 percent slopes	4.0	0.8%
AbB	Abbottstown silt loam, 3 to 8 percent slopes	19.0	4.0%
BeB	Bedington channery silt loam, 3 to 8 percent slopes	12.9	2.7%
Bo	Bowmansville-Knauers silt loams	22.2	4.7%
BwB	Buckingham silt loam, 3 to 8 percent slopes	16.8	3.6%
CbA	Chalfont silt loam, 0 to 3 percent slopes	61.1	13.0%
CbB	Chalfont silt loam, 3 to 8 percent slopes	2.3	0.5%
CyB	Culleoka-Weikert channery silt loams, 3 to 8 percent slopes	36.8	7.8%
DdA	Doylestown silt loam, 0 to 3 percent slopes	81.9	17.4%
DdB	Doylestown silt loam, 3 to 8 percent slopes	31.7	6.7%
LkA	Lawrenceville silt loam, 0 to 3 percent slopes	71.5	15.2%
LkB	Lawrenceville silt loam, 3 to 8 percent slopes	36.8	7.8%
PlE	Penn-Klinesville channery silt loams, 25 to 45 percent slopes, extremely stony	5.8	1.2%
ReB	Readington silt loam, 3 to 8 percent slopes	32.6	6.9%
Ro	Rowland silt loam	6.9	1.5%
UsB	Urban land-Lawrenceville complex, 0 to 8 percent slopes	3.4	0.7%
W	Water	0.1	0.0%
WfD	Weikert-Culleoka complex, 15 to 25 percent slopes	25.9	5.5%
Totals for Area of Interest		**471.6**	**100.0%**

Septic System Sand Mound Bed or Trench (PA)—Bucks County, Pennsylvania
(Pebble Ridge Community, Doylestown, Pennsylvania)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

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

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:18,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

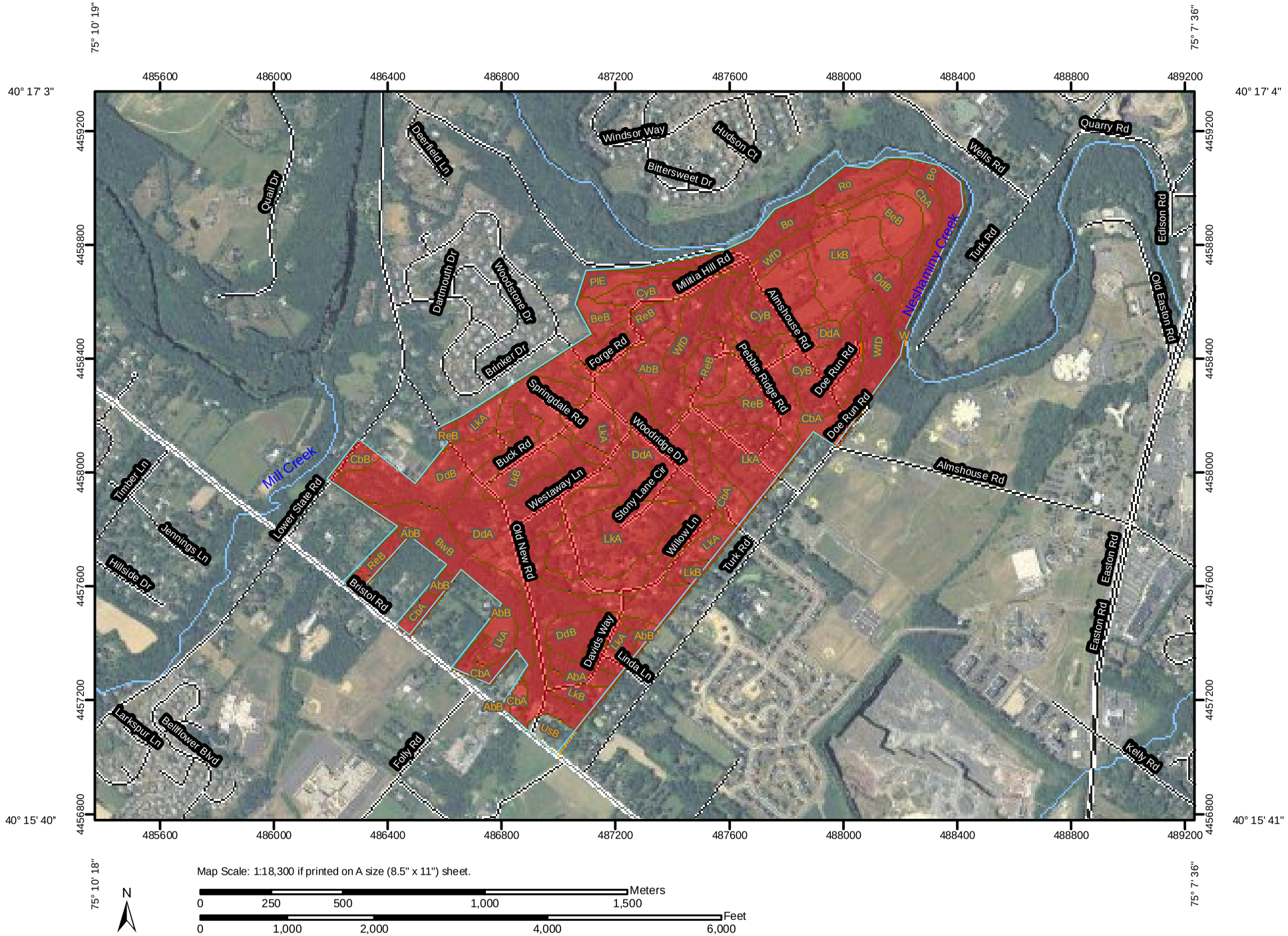
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 7, Oct 6, 2008

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Septic System Subsurface Sand Filter Trench (Standard) (PA)—Bucks County, Pennsylvania
(Pebble Ridge Community, Doylestown, Pennsylvania)



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

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

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:18,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

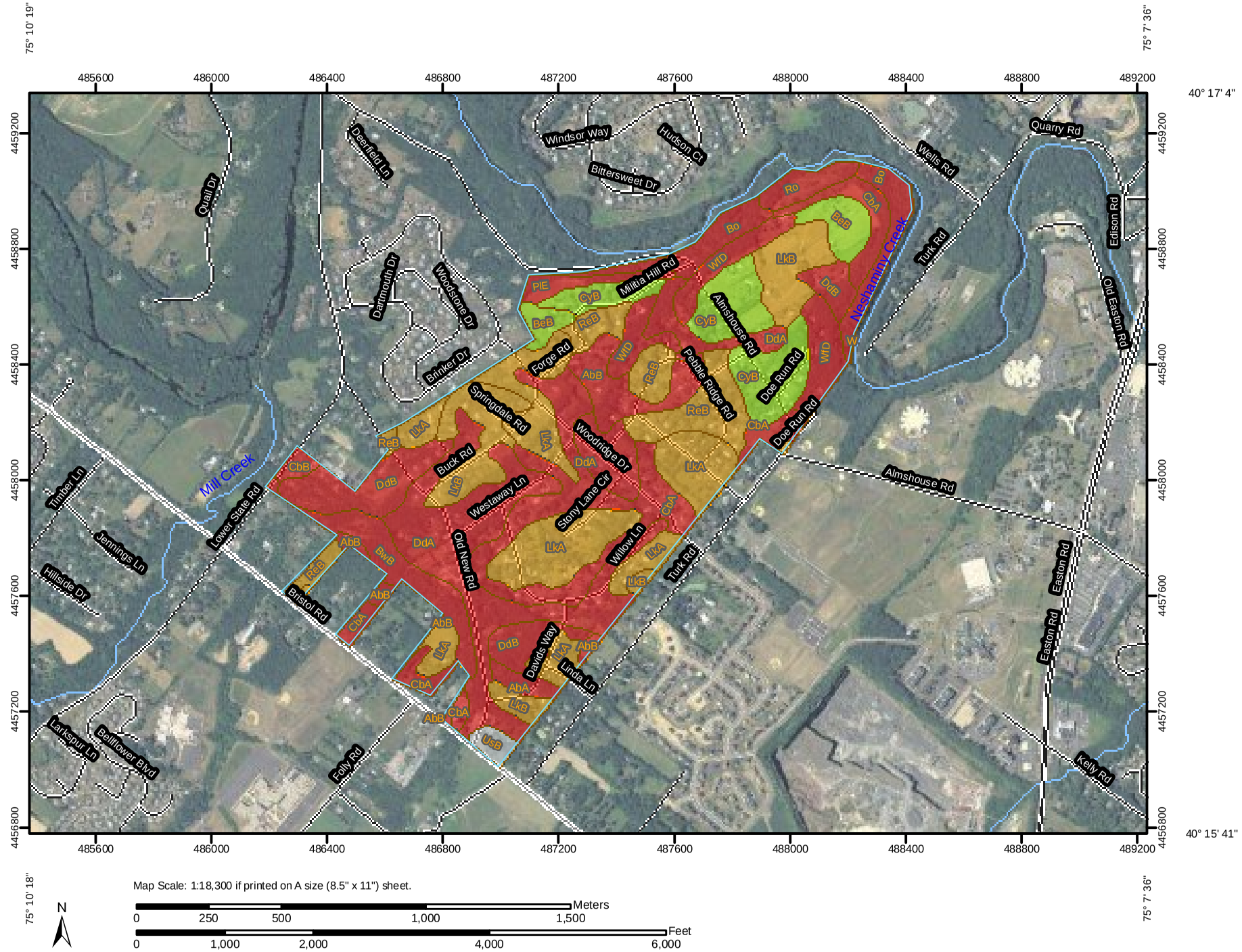
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 7, Oct 6, 2008

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Septic System Drip Irrigation (Alternate) (PA)—Bucks County, Pennsylvania
(Pebble Ridge Community, Doylestown, Pennsylvania)



Map Scale: 1:18,300 if printed on A size (8.5" x 11") sheet.

N

Meters
0 250 500 1,000 1,500

Feet
0 1,000 2,000 4,000 6,000

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Units

Soil Ratings

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

Political Features

- Cities

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:18,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

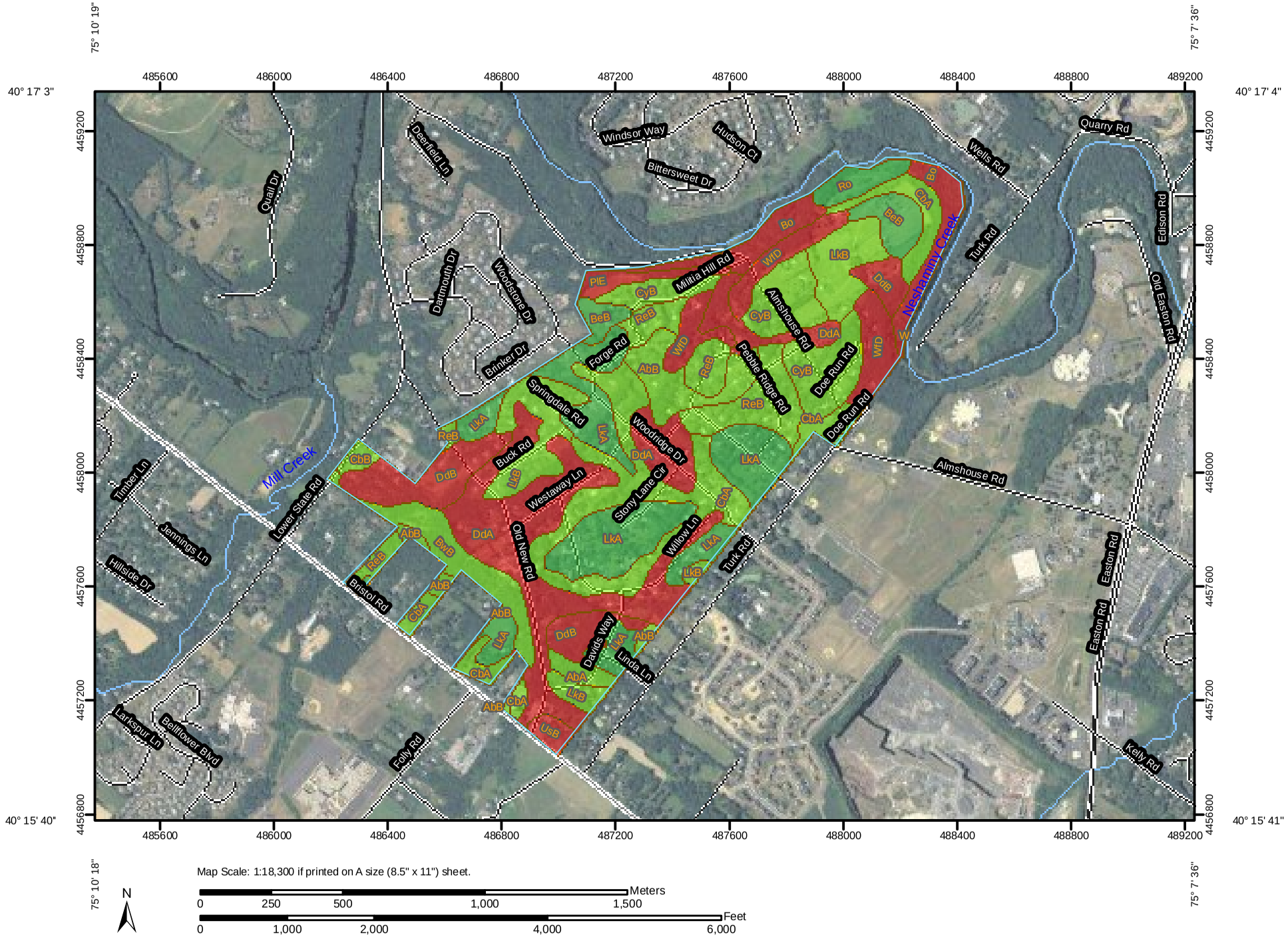
This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 7, Oct 6, 2008

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Farmland Classification—Bucks County, Pennsylvania
(Pebble Ridge Community, Doylestown, Pennsylvania)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Soil Ratings
- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:18,300 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 18N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 7, Oct 6, 2008

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Sewage Disposal

Bucks County, Pennsylvania

[The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The columns that identify the rating class and limiting features show no more than five limitations for any given soil. The soil may have additional limitations. This report shows only the major soils in each map unit]

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 zone	1.00	Slope	0.92
		Depth to bedrock	0.86	Depth to hard bedrock	0.61
				Seepage	0.53
BeB:					
Bedington	85	Somewhat limited		Somewhat limited	
		Slow water movement	0.46	Slope	0.92
				Seepage	0.53
Bo:					
Bowmansville	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Knauers	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Slow water movement	0.46		

Sewage Disposal

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
BwB:					
Buckingham	88	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00	Slope	0.92
				Seepage	0.53
CbA:					
Chalfont	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
CbB:					
Chalfont	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92
				Seepage	0.53
CyB:					
Culleoka	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.92
Weikert	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.92
DdA:					
Doylestown	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Depth to bedrock	0.07		
DdB:					
Doylestown	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.92
		Depth to bedrock	0.07	Seepage	0.53

Sewage Disposal

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
LkA:					
Lawrenceville	81	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Slow water movement	1.00	Depth to saturated zone	0.44
LkB:					
Lawrenceville	83	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.92
		Slow water movement	1.00	Seepage	0.53
				Depth to saturated zone	0.44
PlE:					
Penn, extremely stony	65	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
Klinesville, extremely stony	20	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
ReB:					
Readington	80	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Slope	0.92
		Slow water movement	1.00	Seepage	0.53
		Depth to bedrock	0.36	Depth to saturated zone	0.44
				Depth to hard bedrock	0.01
Ro:					
Rowland	82	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	1.00
		Slow water movement	0.72		
UsB:					
Urban land	65	Not rated		Not rated	

Sewage Disposal

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
UsB:					
Lawrenceville	25	Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Seepage	0.53
		Slow water movement	1.00	Depth to saturated zone	0.44
				Slope	0.32
W:					
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

Septic System Sand Mound Bed or Trench (PA)

Septic System Sand Mound Bed or Trench (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	4.0	0.8%
				Slope (0.18)		
			Croton (5%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.18)		
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	19.0	4.0%
				Slope (0.40)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.40)		
BeB	Bedington channery silt loam, 3 to 8 percent slopes	Slightly limited	Bedington (85%)	Slope (0.40)	12.9	2.7%
Bo	Bowmansville-Knauers silt loams	Very limited	Bowmansville (40%)	Seasonal high water table (1.00)	22.2	4.7%
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		
			Knauers (40%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		

Septic System Sand Mound Bed or Trench (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
BwB	Buckingham silt loam, 3 to 8 percent slopes	Very limited	Buckingham (88%)	Seasonal high water table (1.00)	16.8	3.6%
				Slope (0.40)		
			Croton (2%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.18)		
			Knauers (2%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		
CbA	Chalfont silt loam, 0 to 3 percent slopes	Very limited	Chalfont (90%)	Seasonal high water table (1.00)	61.1	13.0%
				Slope (0.18)		
			Doylestown (7%)	Seasonal high water table (1.00)		
				Slope (0.18)		
CbB	Chalfont silt loam, 3 to 8 percent slopes	Very limited	Chalfont (90%)	Seasonal high water table (1.00)	2.3	0.5%
				Slope (0.40)		
			Doylestown (5%)	Seasonal high water table (1.00)		
				Slope (0.18)		
CyB	Culleoka-Weikert channery silt loams, 3 to 8 percent slopes	Slightly limited	Culleoka (65%)	Slope (0.40)	36.8	7.8%
DdA	Doylestown silt loam, 0 to 3 percent slopes	Very limited	Doylestown (85%)	Seasonal high water table (1.00)	81.9	17.4%
				Slope (0.18)		
DdB	Doylestown silt loam, 3 to 8 percent slopes	Very limited	Doylestown (85%)	Seasonal high water table (1.00)	31.7	6.7%
				Slope (0.40)		
LkA	Lawrenceville silt loam, 0 to 3 percent slopes	Moderately limited	Lawrenceville (81%)	Low potential seasonal high water table (0.67)	71.5	15.2%
				Slope (0.18)		
LkB	Lawrenceville silt loam, 3 to 8 percent slopes	Moderately limited	Lawrenceville (83%)	Low potential seasonal high water table (0.67)	36.8	7.8%
				Slope (0.40)		

Septic System Sand Mound Bed or Trench (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
PIE	Penn-Klinesville channery silt loams, 25 to 45 percent slopes, extremely stony	Very limited	Penn, extremely stony (65%)	Too steep (1.00)	5.8	1.2%
				Potential bedrock near 20" (0.13)		
			Klinesville, extremely stony (20%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
				Slight voided fragments (0.14)		
			Croton (1%)	Seasonal high water table (1.00)		
				Slow percolation 12-20" (1.00)		
				Slope (0.31)		
ReB	Readington silt loam, 3 to 8 percent slopes	Moderately limited	Readington (80%)	Low potential seasonal high water table (0.67)	32.6	6.9%
				Slope (0.40)		
Ro	Rowland silt loam	Very limited	Rowland (82%)	Flooding (1.00)	6.9	1.5%
				Low potential seasonal high water table (0.86)		
				Slope (0.18)		
			Knauers (8%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-20" (0.50)		
				Slope (0.18)		
UsB	Urban land-Lawrenceville complex, 0 to 8 percent slopes	Not rated	Urban land (65%)		3.4	0.7%
W	Water	Not rated	Water (99%)		0.1	0.0%
WfD	Weikert-Culleoka complex, 15 to 25 percent slopes	Very limited	Weikert (60%)	Bedrock, above 20" (1.00)	25.9	5.5%
				Too steep (1.00)		
				Slight voided fragments (0.08)		
			Culleoka (30%)	Too steep (1.00)		
Totals for Area of Interest					**471.6**	**100.0%**

Septic System Sand Mound Bed or Trench (PA)— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Very limited	277.4	58.8%
Moderately limited	140.9	29.9%

Septic System Sand Mound Bed or Trench (PA)— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Slightly limited	49.8	10.6%
Null or Not Rated	3.6	0.8%
Totals for Area of Interest	**471.6**	**100.0%**

Description

This is a system of pressurized lines that distribute effluent from a septic tank into a mound with sand under aggregate. The mound is placed on top of the mineral soil surface. About 1 to 4 feet of sand could be placed on the mineral soil surface in a sand mound system. Only the part of the soils between depths of 0 and 20 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

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 the specified use. "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. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat 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 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).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart

site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Septic System Subsurface Sand Filter Trench (Standard) (PA)

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	4.0	0.8%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
			Croton (5%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.10)		
				Slope (0.01)		
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	19.0	4.0%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
				Potential bedrock near 72" (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
BeB	Bedington channery silt loam, 3 to 8 percent slopes	Very limited	Bedington (85%)	Slow percolation 12-36"; see criteria (1.00)	12.9	2.7%
				Slow percolation 36-60" (0.97)		
				Bedrock, above 72" (0.83)		
				Slope (0.12)		
Bo	Bowmansville-Knauers silt loams	Very limited	Bowmansville (40%)	Seasonal high water table (1.00)	22.2	4.7%
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (0.98)		
				Slope (0.01)		
			Knauers (40%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential fast percolation 36-60" (0.18)		
				Slight voided fragments (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
BwB	Buckingham silt loam, 3 to 8 percent slopes	Very limited	Buckingham (88%)	Seasonal high water table (1.00)	16.8	3.6%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Croton (2%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.10)		
				Slope (0.01)		
			Knauers (2%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential fast percolation 36-60" (0.18)		
				Slight voided fragments (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
CbA	Chalfont silt loam, 0 to 3 percent slopes	Very limited	Chalfont (90%)	Seasonal high water table (1.00)	61.1	13.0%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.44)		
				Slope (0.01)		
			Doylestown (7%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
CbB	Chalfont silt loam, 3 to 8 percent slopes	Very limited	Chalfont (90%)	Seasonal high water table (1.00)	2.3	0.5%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Potential bedrock near 72" (0.44)		
				Slope (0.12)		
			Doylestown (5%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
CyB	Culleoka-Weikert channery silt loams, 3 to 8 percent slopes	Very limited	Culleoka (65%)	Bedrock, above 72" (1.00)	36.8	7.8%
				Slow percolation 12-36"; see criteria (1.00)		
				Slow percolation 36-60" (0.49)		
				Slope (0.12)		
			Weikert (25%)	Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; see criteria (0.94)		
				Slope (0.12)		
				Slight voided fragments (0.08)		
DdA	Doylestown silt loam, 0 to 3 percent slopes	Very limited	Doylestown (85%)	Seasonal high water table (1.00)	81.9	17.4%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
DdB	Doylestown silt loam, 3 to 8 percent slopes	Very limited	Doylestown (85%)	Seasonal high water table (1.00)	31.7	6.7%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
LkA	Lawrenceville silt loam, 0 to 3 percent slopes	Very limited	Lawrenceville (81%)	Seasonal high water table (1.00)	71.5	15.2%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
			Doylestown (4%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		
LkB	Lawrenceville silt loam, 3 to 8 percent slopes	Very limited	Lawrenceville (83%)	Seasonal high water table (1.00)	36.8	7.8%
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Doylestown (3%)	Seasonal high water table (1.00)		
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.01)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
PIE	Penn-Klinesville channery silt loams, 25 to 45 percent slopes, extremely stony	Very limited	Penn, extremely stony (65%)	Bedrock, above 72" (1.00)	5.8	1.2%
				Too steep (1.00)		
				Slow percolation 12-36"; see criteria (0.96)		
				Slight voided fragments (0.02)		
			Klinesville, extremely stony (20%)	Bedrock, above 72" (1.00)		
				Too steep (1.00)		
				Slow percolation 12-36"; see criteria (0.94)		
				Slight voided fragments (0.14)		
			Croton (1%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.05)		
ReB	Readington silt loam, 3 to 8 percent slopes	Very limited	Readington (80%)	Seasonal high water table (1.00)	32.6	6.9%
				Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Slow percolation 36-60" (1.00)		
				Slope (0.12)		
				Potential bedrock near 72" (0.10)		

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
Ro	Rowland silt loam	Very limited	Rowland (82%)	Seasonal high water table (1.00)	6.9	1.5%
				Flooding (1.00)		
				Slow percolation 12-36"; see criteria (1.00)		
				Slow percolation 36-60" (0.98)		
				Slope (0.01)		
			Knauers (8%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slow percolation 12-36"; can not use system (1.00)		
				Potential fast percolation 36-60" (0.18)		
				Slight voided fragments (0.10)		
UsB	Urban land-Lawrenceville complex, 0 to 8 percent slopes	Not rated	Urban land (65%)		3.4	0.7%
W	Water	Not rated	Water (99%)		0.1	0.0%
WfD	Weikert-Culleoka complex, 15 to 25 percent slopes	Very limited	Weikert (60%)	Bedrock, above 72" (1.00)	25.9	5.5%
				Slow percolation 12-36"; see criteria (0.94)		
				Too steep (0.92)		
				Slight voided fragments (0.08)		
			Culleoka (30%)	Bedrock, above 72" (1.00)		
				Slow percolation 12-36"; see criteria (1.00)		
				Too steep (0.92)		
				Slow percolation 36-60" (0.49)		
Totals for Area of Interest					**471.6**	**100.0%**

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Very limited	468.0	99.2%

Septic System Subsurface Sand Filter Trench (Standard) (PA)— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Null or Not Rated	3.6	0.8%
Totals for Area of Interest	**471.6**	**100.0%**

Description

This is a subsurface system of lines that distribute effluent from a septic tank into a sand filter above the natural soil. The distribution lines are at a minimum depth of 36 to 60 inches. The part of the soils between depths of 0 and 72 inches is considered when the soils are rated. Only the soils with slopes of less than 25 percent are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

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 the specified use. "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. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat 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 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).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart

site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie.

The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Septic System Drip Irrigation (Alternate) (PA)

Septic System Drip Irrigation (Alternate) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
AbA	Abbottstown silt loam, 0 to 3 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	4.0	0.8%
				Slope (0.01)		
			Croton (5%)	Seasonal high water table (1.00)		
				Slope (0.01)		
AbB	Abbottstown silt loam, 3 to 8 percent slopes	Very limited	Abbottstown (93%)	Seasonal high water table (1.00)	19.0	4.0%
				Slope (0.12)		
			Croton (6%)	Seasonal high water table (1.00)		
				Slope (0.12)		
BeB	Bedington channery silt loam, 3 to 8 percent slopes	Slightly limited	Bedington (85%)	Slope (0.12)	12.9	2.7%
Bo	Bowmansville-Knauers silt loams	Very limited	Bowmansville (40%)	Seasonal high water table (1.00)	22.2	4.7%
				Flooding (1.00)		
				Slope (0.01)		
			Knauers (40%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.01)		

Septic System Drip Irrigation (Alternate) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
BwB	Buckingham silt loam, 3 to 8 percent slopes	Very limited	Buckingham (88%)	Seasonal high water table (1.00)	16.8	3.6%
				Slope (0.12)		
			Croton (2%)	Seasonal high water table (1.00)		
				Slope (0.01)		
			Knauers (2%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.01)		
CbA	Chalfont silt loam, 0 to 3 percent slopes	Very limited	Chalfont (90%)	Seasonal high water table (1.00)	61.1	13.0%
				Slope (0.01)		
			Doylestown (7%)	Seasonal high water table (1.00)		
				Slope (0.01)		
CbB	Chalfont silt loam, 3 to 8 percent slopes	Very limited	Chalfont (90%)	Seasonal high water table (1.00)	2.3	0.5%
				Slope (0.12)		
			Doylestown (5%)	Seasonal high water table (1.00)		
				Slope (0.01)		
CyB	Culleoka-Weikert channery silt loams, 3 to 8 percent slopes	Slightly limited	Culleoka (65%)	Slope (0.12)	36.8	7.8%
DdA	Doylestown silt loam, 0 to 3 percent slopes	Very limited	Doylestown (85%)	Seasonal high water table (1.00)	81.9	17.4%
				Slope (0.01)		
DdB	Doylestown silt loam, 3 to 8 percent slopes	Very limited	Doylestown (85%)	Seasonal high water table (1.00)	31.7	6.7%
				Slope (0.12)		
LkA	Lawrenceville silt loam, 0 to 3 percent slopes	Moderately limited	Lawrenceville (81%)	Low potential seasonal high water table (0.67)	71.5	15.2%
				Slope (0.01)		

Septic System Drip Irrigation (Alternate) (PA)— Summary by Map Unit — Bucks County, Pennsylvania (PA017)						
Map unit symbol	**Map unit name**	**Rating**	**Component name (percent)**	**Rating reasons (numeric values)**	**Acres in AOI**	**Percent of AOI**
LkB	Lawrenceville silt loam, 3 to 8 percent slopes	Moderately limited	Lawrenceville (83%)	Low potential seasonal high water table (0.67)	36.8	7.8%
				Slope (0.12)		
PlE	Penn-Klinesville channery silt loams, 25 to 45 percent slopes, extremely stony	Very limited	Penn, extremely stony (65%)	Too steep (1.00)	5.8	1.2%
				Potential bedrock near 20" (0.13)		
			Klinesville, extremely stony (20%)	Bedrock, above 20" (1.00)		
				Too steep (1.00)		
				Slight voided fragments (0.14)		
			Croton (1%)	Seasonal high water table (1.00)		
				Slope (0.05)		
ReB	Readington silt loam, 3 to 8 percent slopes	Moderately limited	Readington (80%)	Low potential seasonal high water table (0.67)	32.6	6.9%
				Slope (0.12)		
Ro	Rowland silt loam	Very limited	Rowland (82%)	Flooding (1.00)	6.9	1.5%
				Low potential seasonal high water table (0.86)		
				Slope (0.01)		
			Knauers (8%)	Seasonal high water table (1.00)		
				Flooding (1.00)		
				Slope (0.01)		
UsB	Urban land-Lawrenceville complex, 0 to 8 percent slopes	Not rated	Urban land (65%)		3.4	0.7%
W	Water	Not rated	Water (99%)		0.1	0.0%
WfD	Weikert-Culleoka complex, 15 to 25 percent slopes	Very limited	Weikert (60%)	Bedrock, above 20" (1.00)	25.9	5.5%
				Too steep (0.92)		
				Slight voided fragments (0.08)		
Totals for Area of Interest					**471.6**	**100.0%**

Septic System Drip Irrigation (Alternate) (PA)— Summary by Rating Value		
Rating	**Acres in AOI**	**Percent of AOI**
Very limited	277.4	58.8%
Moderately limited	140.9	29.9%
Slightly limited	49.8	10.6%
Null or Not Rated	3.6	0.8%
Totals for Area of Interest	**471.6**	**100.0%**

Description

This system is currently listed as an alternate system in the Pennsylvania regulations. It is a subsurface system of drip tubing that distributes effluent from a septic tank, intermittent sand filter tank, and hydraulic filtration unit into the natural soil. The maximum depth of the drip tubing is 12 inches. Only the part of the soils between depths of 0 and 20 inches is considered when the soils are rated.

The soil properties and site features considered are those that affect absorption of the effluent and construction and maintenance of the system and those that may affect public health. These include depth to a water table, depth to bedrock, content of rock fragments, flooding, slope, and saturated hydraulic conductivity (Ksat). Flooding is a serious problem because it can result in improper treatment of the effluent and contamination of ground water or surface water. If Ksat is too fast or too slow, if the content of rock fragments is too high, or if the water table is too close to the surface, the effluent can contaminate the ground water. If this system is improperly installed on the steeper slopes, the effluent could flow along the surface of the soils. Additional grading may be needed in areas downslope from the system.

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 the specified use. "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. "Slightly limited" indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. "Moderately limited" indicates that the soil has features that are somewhat 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 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).

These ratings do not preclude the need for onsite investigation to determine the limitations affecting system placement. This septic system requires a soil morphological evaluation, which must be conducted by a qualified soil scientist.

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen, which is displayed on the report. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the Selected Soil Interpretations report with this interpretation included from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie.

The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Map Unit Description

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. Soils of a given series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Additional information about the map units described in this report is available in other soil reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the soil reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description

Bucks County, Pennsylvania

AbA—Abbottstown silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 200 days

Map Unit Composition

Abbottstown and similar soils: 93 percent
Minor components: 5 percent

Description of Abbottstown

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Acid reddish brown residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 10 inches: Silt loam
10 to 20 inches: Silt loam
20 to 39 inches: Channery loam
39 to 48 inches: Channery silt loam
48 to 49 inches: Bedrock

Minor Components

Croton

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

AbB—Abbottstown silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 40 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 160 to 200 days

Map Unit Composition

Abbottstown and similar soils: 93 percent

Minor components: 6 percent

Description of Abbottstown

Setting

Landform: Hillslopes
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Acid reddish brown residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 40 to 60 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 10 inches: Silt loam
10 to 20 inches: Silt loam
20 to 39 inches: Channery loam
39 to 48 inches: Channery silt loam
48 to 49 inches: Bedrock

Minor Components

Croton

Percent of map unit: 6 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

BeB—Bedington channery silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 300 to 1,300 feet
Mean annual precipitation: 35 to 48 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 190 days

Map Unit Composition

Bedington and similar soils: 85 percent

Description of Bedington

Setting

Landform: Hills
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Acid residuum weathered from sedimentary rock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 60 to 80 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 9 inches: Channery silt loam
9 to 29 inches: Channery silty clay loam
29 to 72 inches: Very channery silt loam

Bo—Bowmansville-Knauers silt loams

Map Unit Setting

Elevation: 150 to 900 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 150 to 210 days

Map Unit Composition

Knauers and similar soils: 40 percent
Bowmansville and similar soils: 40 percent

Description of Bowmansville

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

Parent material: Recent alluvial deposits weathered from sandstone and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Moderate (about 8.2 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Silt loam
7 to 26 inches: Silty clay loam
26 to 43 inches: Fine sandy loam
43 to 65 inches: Stratified gravel to sand

Description of Knauers

Setting

Landform: Flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Recent alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: Occasional
Frequency of ponding: Frequent
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 8 inches: Silt loam
8 to 17 inches: Silt loam
17 to 24 inches: Gravelly sandy loam
24 to 60 inches: Stratified sand to gravelly sandy loam

BwB—Buckingham silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 150 to 450 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Buckingham and similar soils: 88 percent
Minor components: 4 percent

Description of Buckingham

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Fine-loamy colluvium and old alluvium derived from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to fragipan; 80 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.60 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.5 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 7 inches: Silt loam
7 to 30 inches: Silt loam
30 to 44 inches: Silty clay loam
44 to 70 inches: Gravelly silt loam

Minor Components

Croton

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

Knauers

Percent of map unit: 2 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear

CbA—Chalfont silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Chalfont and similar soils: 90 percent
Minor components: 7 percent

Description of Chalfont

Setting

Landform: Upland slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 42 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 10 inches: Silt loam
10 to 21 inches: Silt loam
21 to 57 inches: Channery silt loam
57 to 70 inches: Very channery silt loam

Minor Components

Doylestown

Percent of map unit: 7 percent
Landform: Drainageways
Landform position (two-dimensional): Backslope, toeslope, footslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

CbB—Chalfont silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Chalfont and similar soils: 90 percent
Minor components: 5 percent

Description of Chalfont

Setting

Landform: Upland slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 42 to 99 inches to lithic bedrock
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability (nonirrigated): 3w

Typical profile

0 to 10 inches: Silt loam
10 to 21 inches: Silt loam
21 to 57 inches: Channery silt loam
57 to 70 inches: Very channery silt loam

Minor Components

Doylestown

Percent of map unit: 5 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

CyB—Culleoka-Weikert channery silt loams, 3 to 8 percent slopes

Map Unit Setting

Elevation: 500 to 1,600 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 120 to 200 days

Map Unit Composition

Culleoka and similar soils: 65 percent
Weikert and similar soils: 25 percent

Description of Culleoka

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 10 inches: Channery silt loam
10 to 31 inches: Channery silt loam
31 to 38 inches: Very channery silt loam
38 to 48 inches: Bedrock

Description of Weikert

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability (nonirrigated): 3e

Typical profile

0 to 8 inches: Channery silt loam
8 to 15 inches: Very channery silt loam
15 to 18 inches: Extremely channery silt loam
18 to 28 inches: Bedrock

DdA—Doylestown silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 170 to 200 days

Map Unit Composition

Doylestown and similar soils: 85 percent

Description of Doylestown

Setting

Landform: Drainageways
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Eolian deposits over residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 60 to 72 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 6 inches: Silt loam
6 to 28 inches: Silt loam
28 to 65 inches: Silt loam

DdB—Doylestown silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 170 to 200 days

Map Unit Composition

Doylestown and similar soils: 85 percent

Description of Doylestown

Setting

Landform: Drainageways
Landform position (two-dimensional): Backslope, toeslope, footslope
Landform position (three-dimensional): Head slope
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Parent material: Eolian deposits over residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 30 inches to fragipan; 60 to 72 inches to lithic bedrock
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability (nonirrigated): 4w

Typical profile

0 to 6 inches: Silt loam
6 to 28 inches: Silt loam
28 to 65 inches: Silt loam

LkA—Lawrenceville silt loam, 0 to 3 percent slopes

Map Unit Setting

Elevation: 200 to 1,500 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Lawrenceville and similar soils: 81 percent
Minor components: 4 percent

Description of Lawrenceville

Setting

Landform: Depressions, upland slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 24 to 38 inches to fragipan; 48 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Typical profile

0 to 12 inches: Silt loam
12 to 26 inches: Silt loam
26 to 47 inches: Silt loam
47 to 75 inches: Silt loam

Minor Components

Doylestown

Percent of map unit: 4 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope, backslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

LkB—Lawrenceville silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,500 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 140 to 200 days

Map Unit Composition

Lawrenceville and similar soils: 83 percent
Minor components: 3 percent

Description of Lawrenceville

Setting

Landform: Upland slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 24 to 38 inches to fragipan; 48 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.5 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 12 inches: Silt loam
12 to 26 inches: Silt loam
26 to 47 inches: Silt loam

47 to 75 inches: Silt loam

Minor Components

Doylestown

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope, backslope, toeslope
Landform position (three-dimensional): Head slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

PIE—Penn-Klinesville channery silt loams, 25 to 45 percent slopes, extremely stony

Map Unit Setting

Elevation: 300 to 1,300 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 130 to 200 days

Map Unit Composition

Penn, extremely stony, and similar soils: 65 percent
Klinesville, extremely stony, and similar soils: 20 percent
Minor components: 1 percent

Description of Penn, Extremely Stony

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 25 to 45 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.2 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 5 inches: Very channery silt loam

5 to 21 inches: Channery silt loam
21 to 34 inches: Very channery silt loam
34 to 44 inches: Bedrock

Description of Klinesville, Extremely Stony

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Properties and qualities

Slope: 25 to 45 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.4 inches)

Interpretive groups

Land capability (nonirrigated): 7s

Typical profile

0 to 5 inches: Very channery silt loam
5 to 14 inches: Very channery silt loam
14 to 18 inches: Extremely channery silt loam
18 to 28 inches: Bedrock

Minor Components

Croton

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave

ReB—Readington silt loam, 3 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 900 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 160 to 200 days

Map Unit Composition

Readington and similar soils: 80 percent

Minor components: 6 percent

Description of Readington

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, head slope, side slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Residuum weathered from shale and siltstone

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 36 inches to fragipan; 40 to 70 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.0 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 8 inches: Silt loam
8 to 29 inches: Silt loam
29 to 58 inches: Channery silt loam
58 to 68 inches: Bedrock

Minor Components

Croton

Percent of map unit: 6 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Ro—Rowland silt loam

Map Unit Setting

Elevation: 150 to 600 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 150 to 200 days

Map Unit Composition

Rowland and similar soils: 82 percent

Minor components: 8 percent

Description of Rowland

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Alluvium derived from sandstone and shale

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 12 to 36 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Available water capacity: Moderate (about 8.0 inches)

Interpretive groups

Land capability (nonirrigated): 2w

Typical profile

0 to 12 inches: Silt loam
12 to 34 inches: Silty clay loam
34 to 46 inches: Silty clay loam
46 to 61 inches: Stratified gravel to sand

Minor Components

Knauers

Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear

UsB—Urban land-Lawrenceville complex, 0 to 8 percent slopes

Map Unit Setting

Elevation: 200 to 1,000 feet
Mean annual precipitation: 38 to 48 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 140 to 215 days

Map Unit Composition

Urban land: 65 percent
Lawrenceville and similar soils: 25 percent

Minor components: 5 percent

Description of Urban Land

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Pavement, buildings and other artifically covered areas

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 99 inches to lithic bedrock
Available water capacity: Very low (about 0.0 inches)

Interpretive groups

Land capability (nonirrigated): 8s

Typical profile

0 to 6 inches: Variable

Description of Lawrenceville

Setting

Landform: Depressions, upland slopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loess over residuum weathered from shale and siltstone

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 24 to 38 inches to fragipan; 48 to 99 inches to lithic bedrock
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability (nonirrigated): 2e

Typical profile

0 to 9 inches: Silt loam
9 to 25 inches: Silt loam
25 to 44 inches: Silt loam
44 to 74 inches: Silt loam

Minor Components

Doylestown

Percent of map unit: 5 percent

Landform: Drainageways
Landform position (two-dimensional): Toeslope, footslope, backslope
Landform position (three-dimensional): Head slope
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear

W—Water

Map Unit Setting

Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 214 days

Map Unit Composition

Water: 99 percent

Description of Water

Setting

Parent material: Rivers streams ponds

Properties and qualities

Frequency of ponding: Frequent

WfD—Weikert-Culleoka complex, 15 to 25 percent slopes

Map Unit Setting

Elevation: 500 to 1,600 feet
Mean annual precipitation: 36 to 50 inches
Mean annual air temperature: 46 to 57 degrees F
Frost-free period: 120 to 200 days

Map Unit Composition

Weikert and similar soils: 60 percent
Culleoka and similar soils: 30 percent

Description of Weikert

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 1.5 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 8 inches: Channery silt loam
8 to 15 inches: Very channery silt loam
15 to 18 inches: Extremely channery silt loam
18 to 20 inches: Bedrock

Description of Culleoka

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability (nonirrigated): 6e

Typical profile

0 to 10 inches: Channery silt loam
10 to 31 inches: Channery silt loam
31 to 38 inches: Very channery silt loam
38 to 48 inches: Bedrock

Data Source Information

Soil Survey Area: Bucks County, Pennsylvania
Survey Area Data: Version 7, Oct 6, 2008

APPENDICES

APPENDIX A

COMPREHENSIVE PLAN – POLICIES AND IMPLEMENTATION STRATEGIES (EXCERPT)

COMPREHENSIVE PLAN

as amended, 2008

DOYLESTOWN TOWNSHIP
BUCKS COUNTY, PA

COMPREHENSIVE PLAN
as amended, 2008

DOYLESTOWN TOWNSHIP OFFICIALS

Board of Supervisors

Barbara N. Lyons	Chairman
E. Thomas Scarborough, Jr.	Vice Chairman
Barbara Eisenhardt	
Cynthia M. Philo	
Jeffrey A. Bennett	

Planning Commission

Rick Colello	Chairman
Edward W. Redfield, II	Vice Chairman
George Lowenstein	
Thomas Kelso	
Donald S. Page	

Township Manager

Stephanie J. Mason

Professional Planning Consultant

Judith Stern Goldstein
Boucher & James
1456 Ferry Road, Bldg. 500
Doylestown, PA 18901

COMPREHENSIVE PLAN

DOYLESTOWN TOWNSHIP
BUCKS COUNTY • PA

1989

Comprehensive Plan

Doylestown Township Officials
Board of Supervisors

Walter J. Conti, Jr. - Chairman
John T. Carson, Jr. - Vice-Chairman
Gregory Dubas
Richard Gaver
Jeffrey M. Williams

Planning Commission

George Lowenstein - Chairman
Andrew Cervelli - Vice-Chairman
Susan Heckler
Thomas Kelso
Carolyn Waltz

Township Manager

David R. Jones

Township Assistant Manager

Stephanie J. Mason

Professional Planning Consultant

Lynn Froehlich, AICP
23 Chestnut Drive
Doylestown, Pennsylvania

As the township takes on more responsibility, the need for additional space arises. For example, the pace of development has created the need for a larger police force, road crew, and administrative staff.

Pennsylvania's mandatory recycling program has created a new role for the township. Required to have mandatory curbside recycling in place by November 1, 1990, the township has taken a leadership role in coordinating recycling in the Central Bucks area. The township will provide a place for recyclables, which will then be transferred to a county facility.

This new responsibility will require further development of the township building facilities to accommodate the collection of recycled materials.

Policies and Implementation Strategies

Coordinate the Planning of Water and Sewer Facilities with Land Use Planning • The Future Land Use Plan sets certain goals for density and intensity of development based upon the overall concept of community growth and development. The township's planning policies have allowed for higher densities where public sewers are provided, so it is important that the plans for land use and sewerage be compatible. The requirement that centralized sewerage be provided for higher density uses has a clear basis in public health and safety. However, the existence of nearby public sewer lines should not in and of itself dictate that higher densities be permitted. All the other factors discussed in this plan -- natural resource protection, traffic impacts, compatibility with surrounding land uses, providing for a range of housing types -- must be given equal consideration with sewage facilities in determining appropriate densities.

The township must, under state law, prepare a Sewage Facilities Plan (Act 537 Plan) which specifies the overall plan for sewage facilities: which areas are to be served by public sewers, which areas are to be served by on-site systems, and the proposed phasing of the development of public sewer systems. This plan should reflect the land use policies of this Comprehensive Plan so that they do not work at cross purposes.

The Comprehensive Plan recommends the following sewage facilities policies:

1. Do not plan for public sewerage in areas designated for low density development. Public sewerage in these areas will create pressure for higher density development. The low-density development patterns

recommended are based upon the natural features of the areas and upon the need for accommodating a certain level of growth.

2. Public sewerage should be extended to portions of the township which are already developed and which have problems with on-lot septic systems. This includes the area between the Route 202 bypass and Edison-Furlong Road (the Pebble Woods area), the Lynbrook/ Willowbrook area; the Pebble Ridge neighborhood between Lower State Road and Almshouse Road at the western edge of the township; and the neighborhood at the eastern corner of the township lying off of Sugar Bottom Road.

Encourage the Maintenance of On-site Septic Systems • The widespread use of on-site septic systems can result in health and safety problems if such systems are not adequately maintained. Possible roles for the township are: to help educate residents about the need for regular maintenance and provision for the disposal of septage (residue from on-lot septic systems) at proposed sewage treatment facilities.

Undertake a Comprehensive Groundwater Study • The water supply plan is based on the assumption that the groundwater supplies will be adequate to meet future population growth. This assumption, in turn, is based upon the historical yields of the major geological formations underlying the township. There is some uncertainty about the long-term reliability of this supply, especially with the reduction in aquifer recharge which will result with the construction of centralized sewage treatment facilities. A comprehensive groundwater supply study should be done.

Continue to Meet Township Facility and Staff Needs • The township must continue to keep pace with the added pressures of growth by planning for the expansion of township facilities, personnel and police. The present location of the township headquarters is well-suited to township needs because of its central location.

APPENDIX B

ON-SITE SEPTIC SYSTEM EVALUATION
PEBBLE RIDGE COMMUNITY

MAY 2008
BOUCHER & JAMES, INC.

ON-SITE SEPTIC SYSTEM EVALUATION
PEBBLE RIDGE COMMUNITY
DOYLESTOWN TOWNSHIP, BUCKS CO. PA

May 2008
Project No. 082527

Prepared for:

Doylestown Township Board of Supervisors
425 Wells Road
Doylestown, PA 18901

Boucher & James, Inc.
CONSULTING ENGINEERS

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Doylestown, PA 18901
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EXECUTIVE SUMMARY

The Doylestown Township Board of Supervisors retained **Boucher & James, Inc.** to conduct an on-site observation of the single lot septic systems within the Pebble Ridge area of the Township. The study was conducted in part to provide the Board of Supervisors with the relative number of private septic system malfunctions within the study area. A similar study was conducted by **Boucher & James, Inc.** in 1998. This report also provides a comparison of the 1998 findings with current septic system status. The comparative information is of primary interest in light of the septic system maintenance program mandated for the study area in response to the 1998 findings.

Current research work performed by **Boucher & James, Inc.** involved two components. The first was research of the Bucks County Health Department Sewage files to search for system repairs and replacements since 1998. The second aspect of the investigation involved on-site observations of each lot for signs of system malfunction. Technically, from a Pennsylvania Department of Environmental Projection (PA DEP) regulatory perspective, a malfunctioning system is one which has sewage present on the ground surface. We have added a second category "suspected malfunctioning system" to include drain fields which exhibit indications that they may have or will fail at some time during the year when our observer was not present. These would include very soft ground and areas with dead or excessive growths of grass.

File research was undertaken to document system repairs or violations issued by the Bucks County Health Department since 1998. The on-site observation was a visual inspection performed between April 14 and 17, 2008.

The study area consists of 203 single lot, residential properties; 199 which are currently occupied by residential structures. One resident did not allow us to inspect their property; resulting in 198 total inspections. A total of 15 properties (8%) contained malfunctioning septic systems. Another 35 properties (18%) had systems suspected of malfunctioning at some point within the year. The remaining 148 properties (74%) had systems that did not reveal indications of malfunction concern.

Comparing the results of the 1998 to 2008 field surveys revealed that 104 properties or did not have malfunctioning or indications of malfunction during either the 1998 or 2008 inspections. Of the properties that revealed a malfunction or suspected malfunction in 1998, 23 were still experiencing indications of problems in 2008. Correspondingly, 23 of the properties that revealed a malfunction or suspected malfunction in 1998 did not reveal any indications of problems in 2008. A total of 20 properties that did not reveal problems in 1998 were found to be malfunctioning or revealed signs of a suspected malfunction during the 2008 inspection.

I. INTRODUCTION

In 1998, Doylestown Township requested the Bucks County Water & Sewer Authority to update the Township's Act 537 Sewage Facilities Plan to address Township growth and on-lot system failures. As a result, a revised draft 537 Plan was presented to the Board of Supervisors by the Water & Sewer Authority at a public meeting on October 28, 1997. Residents had several questions and concerns regarding the draft plan. In response to the residents' concerns, the Board of Supervisors appointed a Sewer Study Committee. The Committee was comprised of Township residents charged to provide further review and comment on the draft plan and to provide input on how to best serve the Township's five and ten year sewer needs.

One of the Sewer Committee's primary concerns in 1997 was to identify areas where private on-site septic system failures most often occur. The Sewer Committee mailed a questionnaire to homeowners to identify critical areas where system failures were most often found. The goal was to ensure that the septic systems in the critical areas could be addressed within the five year period. Based upon the results of the questionnaire and other background information, the Committee identified three areas which should be addressed within a five year period. These areas were the Pebble Ridge, Tedwill Road and Wilkshire Road developments. A public meeting was held to discuss the recommendations of the Sewer Study Committee. At that meeting, residents expressed their concern that additional information was needed by the Board of Supervisors prior to deciding which areas (neighborhoods) may need to be connected to public sewers within the next five years.

The Board of Supervisors retained **Boucher & James, Inc**. in 1998 to conduct on-site observations of the areas located within the Pebble Ridge and Tedwill Road areas of the Township. This information was requested to assist the Supervisors to determine the relative number of system malfunctions within the study areas. The results of the study were presented to Doylestown Township in July of 1998.

This current study involved follow-up inspection of the septic systems of the properties within the Pebble Ridge subdivision. This report presents the results of the current study as well as a comparison of the current findings to the 1998 results.

II. SCOPE OF WORK

Current research work performed by **Boucher & James, Inc.** involved two components. The first was research of the Bucks County Health Department Sewage files to search for system repairs and replacements since 1998. The second aspect of the investigation involved on-site observations of each lot for signs of system malfunction.

File research was undertaken to document system repairs or violations issued by the Bucks County Health Department since 1998. The on-site observation was a visual inspection performed between April 14 and 17, 2008.

Professional observers of **Boucher & James, Inc.** used a "checklist" and available information obtained from Bucks County Health department, to look for the following signs of system malfunction or suspected malfunction: 1) effluent on lawn surface, 2) the presence of by-pass pipes discharging to storm water swales or adjacent streams, 3) dead grass, 4) excessive grass growth, 5) soft soils, and 6) sewage odors.

The checklist also provided a category for the observer to comment on unusual situations or conditions encountered and any information volunteered by the home owner if present at the time of observation. The observation did not involve any of the following: entry into the residence, dye testing, inspection of septic tanks or distribution boxes, excavation of drain fields, or any other intensive evaluation method. If signs of malfunction were found, photographs were taken and site specific notes produced describing the malfunction. A compilation of the field forms and Health Department file information has been provided to Doylestown Township as an addendum to this report.

A "malfunctioning septic system" was defined by the observer, using the Pennsylvania Department of Environmental Protection's (PA DEP) criteria of a malfunctioning system. PA DEP defines a malfunctioning system as one which reveals effluent or partially treated effluent is present on the ground surface. **Boucher & James, Inc.** added a second category which we termed a "Suspected malfunctioning septic system". This included properties where conditions over the drainfield did not reveal conditions worthy of being classified as a malfunctioning system but exhibited one of more of the following: dead grass, excessive grass growth or soft soils within the drainfield. To make a valid comparison of the 2008 findings with the 1998 inspection findings, the 1998 observations were reviewed and reclassified according to the 2008 rating system.

Three properties observed in 2008 which contained holding tanks were classified as malfunctions. This is because the tanks were installed because of serious problems with their on-lot septic drainfields. Also, holding tanks are not considered a permanent sewage disposal method.

Five properties installed new septic systems from 1998 to 2008. Three of the five systems replaced existing on-lot septic systems that were malfunctioning. The remaining two systems were installed for new home construction.

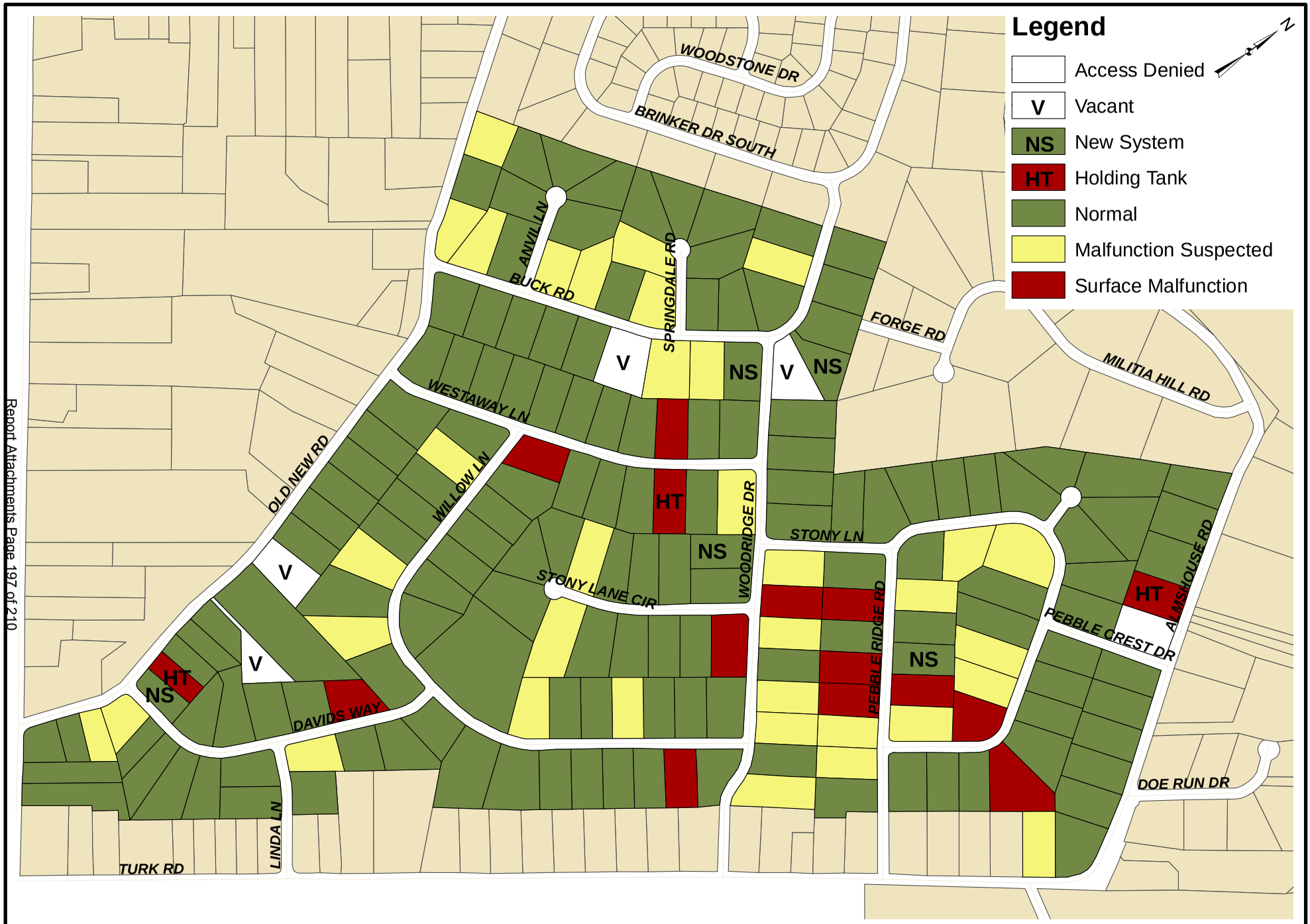
III. SUMMARY OF FINDINGS

The study area consisted of 203 single lot residential properties; 199 which are currently occupied by single family residential structures. One resident did not allow us to inspect their property which resulted in 198 total inspections conducted in 2008.

Plan I provides a visual summary of the 2008 field observation findings for the entire study area. In 2008, a total of 15 properties (8%) revealed confirmed malfunctioning septic systems. Another 35 properties (18%) had systems that were suspected of malfunctioning at some time during the year. The remaining 148 properties (74%) appeared to not have a malfunction or did not show signs of a malfunction.

Plan II provides a visual summary of the 1998 field observations for the entire study area. The 1998 findings depicted on Plan II employ the same criteria to define a "malfunctioning" and "suspect malfunctioning" septic system as the 2008 study.

Plan III provides a visual comparison of the 1998 findings to the 2008 inspection results. Comparing the 1998 results to 2008 reveals that 104 properties did not reveal a malfunction or indication of a malfunction during either the 1998 or 2008 inspections. Of the properties that revealed a malfunction or suspected malfunction in 1998, 23 were still experiencing a malfunction or suspected malfunction in 2008. Correspondingly, 23 of the properties that revealed a malfunction or suspected malfunction in 1998 did not reveal any indication of a malfunction or suspected malfunction in 2008. A total of 20 properties that did not reveal a malfunction or suspected malfunction in 1998 were found to be malfunctioning or revealed signs of a suspected malfunction during the 2008 inspection.

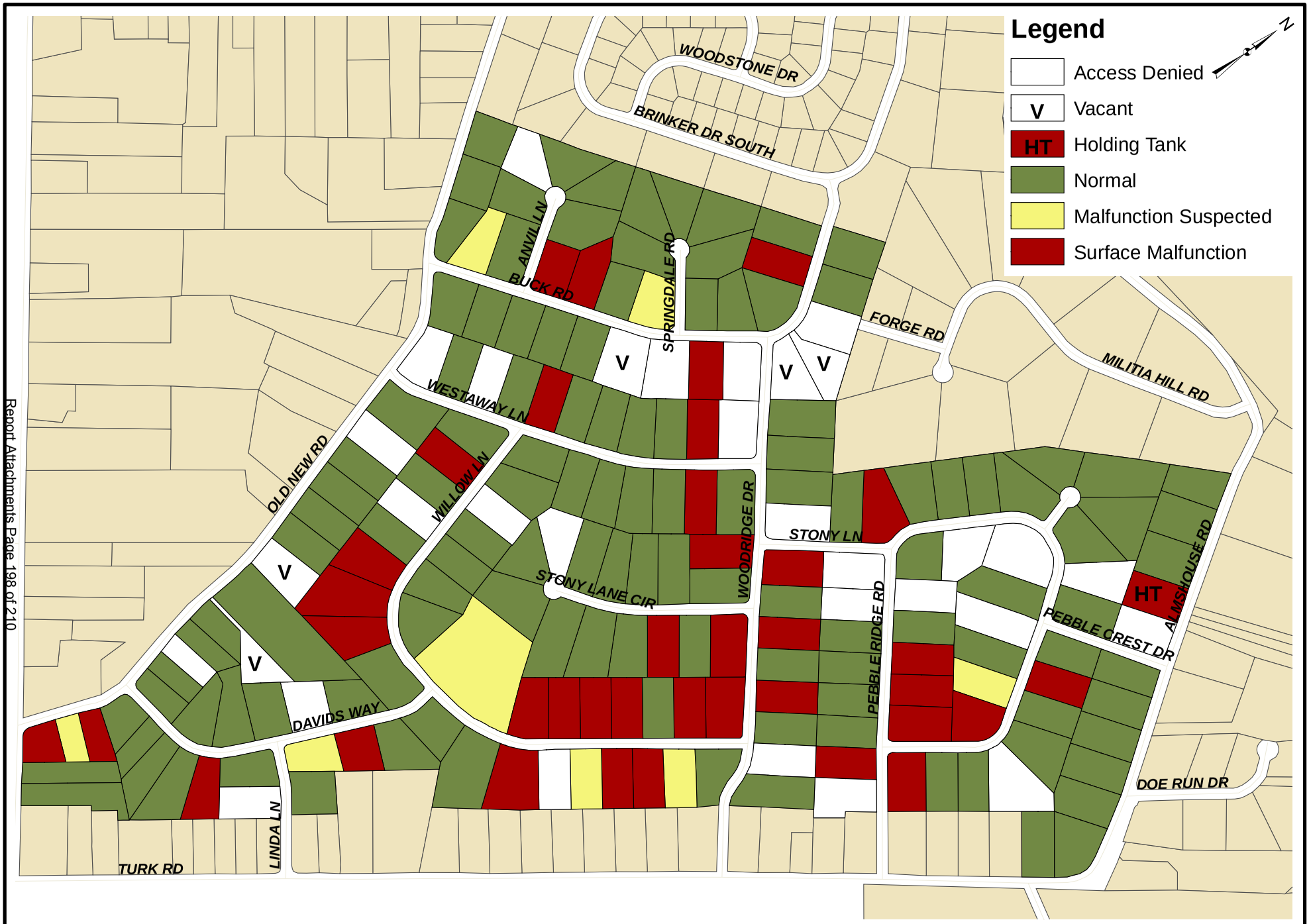


Boucher & James, Inc.
CONSULTING ENGINEERS
www.bjengineers.com
April 30, 2008 #082527

0 300 600 1,200 1,800 2,400 Feet

1 inch equals 600 feet

Plan I - 2008 Survey



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April 30, 2008 #082527

0 300 600 1,200 1,800 2,400 Feet

1 inch equals 600 feet

Plan II - 1998 Survey

APPENDIX C

NPDES ILLICIT DISCHARGE, DETECTION AND ELIMINATION PROGRAM – PEBBLE RIDGE/WOOD RIDGE DEVELOPMENTS AND MAP OF 2007 RESULTS AREA 2 ROUND 2

May 27, 2010 Reference No. 042452

Mr. Richard John
Director of Operations
Doylestown Township
425 Wells Road
Doylestown, Pennsylvania

Re: Discussion of Pebble Ridge/Woodridge Developments
Doylestown Township NPDES IDDE Program
Doylestown, Pennsylvania

Dear Mr. John:

Conestoga-Rovers & Associates (CRA) is pleased to provide the Doylestown Township with this discussion of the NPDES Illicit Discharge, Detection & Elimination (IDDE) program and the Pebble Ridge/Woodridge Developments.

Background

Doylestown Township has retained CRA to assist in the completion of its IDDE program. CRA completed routine inspections and sampling in 2005 through 2009, provided annual reports for submission to the PADEP, and assisted with community outreach via public presentations. Based on conversations with the PADEP, Doylestown Township is in full compliance with its IDDE program.

Discussion

Based on analytical results from the IDDE sampling program, the outfalls sampled in/around the Pebble Ridge/Woodridge neighborhoods have indicated elevated concentrations of fecal coliform. CRA has identified these neighborhoods as an Area of Concern. Additional analytical testing of fecal streptococci in conjunction with fecal coliform indicates the fecal coliform is more likely from human waste rather than animal sources. Elevated fecal coliform may be impacting the quality of the nearby unnamed tributary to the Neshaminy Creek. Television surveying of storm sewers in this area indicated several laterals which may be illegal hookups and/or potential sources of illicit discharges to the Township's stormwater system. Dye tracing events conducted in a few residences in this area have not identified an illicit discharge to date. However, Township records show septic system failures in this area and installation of sand mound systems and holding tank(s) are being utilized as replacements for the standard in-ground systems. As presented by CRA in several Township presentations, the geology and soils of this area do not afford ideal drainage for septic systems.

Additional dye tracing is proposed (late spring/early summer 2010) in approximately 6 to 8 residences in this area to evaluate potential for failing septic systems and illicit discharges. Until the sources of the illicit discharge are identified and corrected, the quality of stormwater and potentially the local streams will continue to be degraded.

CRA believes that installation of sewer systems in this area would mitigate the potential impact of failing septic systems in the long term and begin to improve the stormwater quality and lessen the impact on local waterways of the Commonwealth.

CRA wishes to thank Doylestown Township for the opportunity to support the township NPDES IDDE program. If you have any questions or need additional assistance please call Russ Mehalick at 610-321-1800 (ext. 19) or myself at 610-321-1800 (ext. 29).

Sincerely,
Conestoga-Rovers & Associates

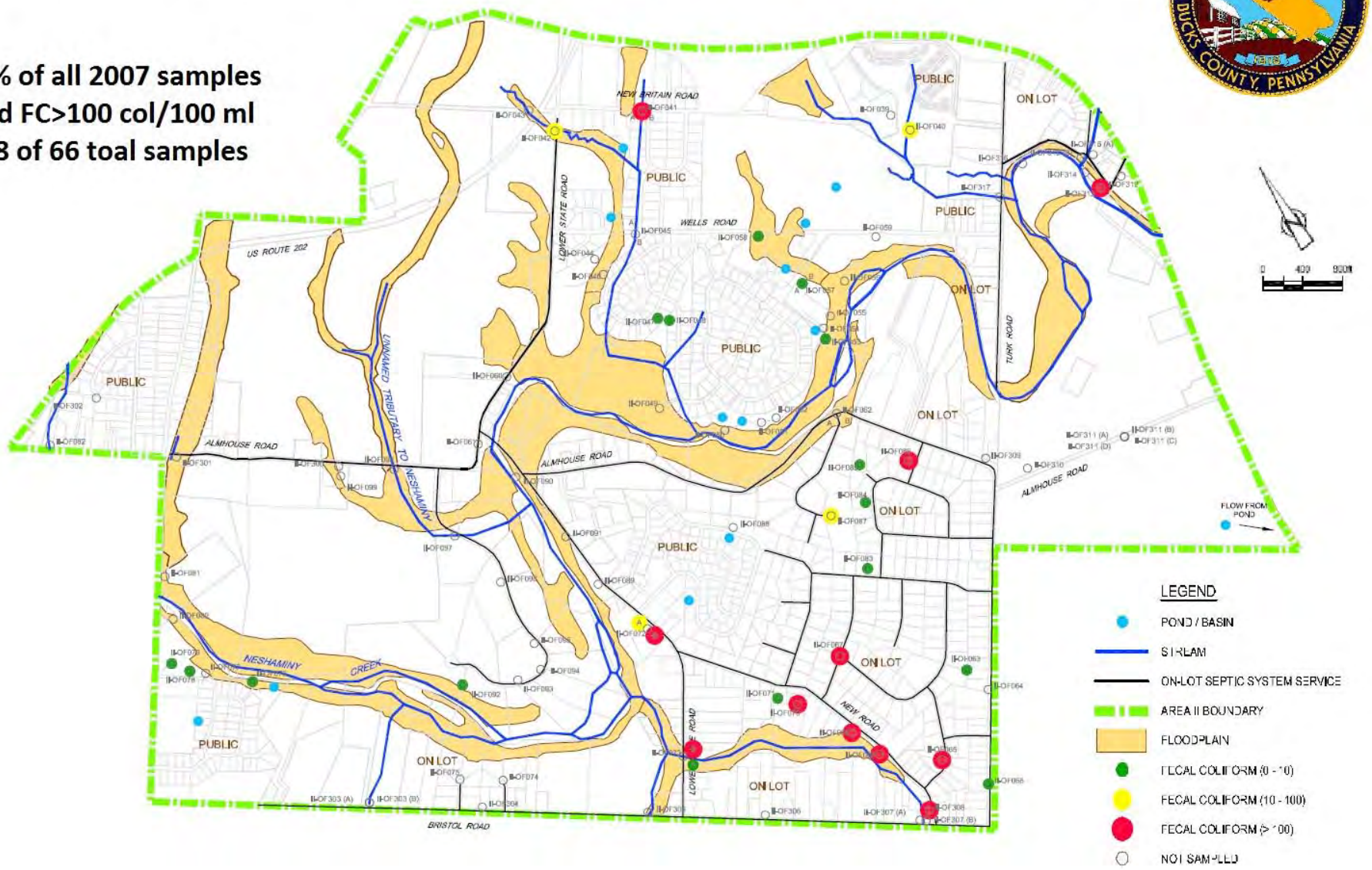
Richard J. Burns, P.G.

RJB/rjb/7

c.c.: Russ Mehalick, CRA
John Garges, CRA

FECAL COLIFORM - 2007 RESULTS - AREA II, ROUND 2

42% of all 2007 samples had FC>100 col/100 ml
28 of 66 toal samples



APPENDIX D

PEBBLE RIDGE ON-LOT SYSTEM AREA
SEWER SYSTEM FEASIBILITY STUDY
QUESTIONS AND ANSWERS
DATED MARCH 12, 2012
PREPARED BY CARROLL ENGINEERING CORPORATION

March 12, 2012

Stephanie J. Mason, Township Manager
Doylestown Township
425 Wells Road
Doylestown, PA 18901

Dear Ms. Mason:

Subject: Pebble Ridge On-Lot System Area – Sewer System Feasibility Study

In response to the questions posed in an email dated February 24, 2012, we offer the following responses:

Option #1 – Gravity Sewer with Central Pump Station

Question #1: How many people will have to hook up for this to work? Please explain in detail.

Response #1:

- In terms of costs: The "Public Cost per EDU" value is based on all 257 lots connecting to the public sewer. These 257 lots are shaded on the exhibit for Option #1. The Public Cost per EDU would increase as the connected lot number decreases, unless all lots share in the public improvement costs regardless of whether they connect.

- In terms of sizing the gravity sewer: The majority of the proposed gravity sewer (about 80%) is 8" diameter, which is the recommended minimum size per the Department of Environmental Protection. So this would remain 8" diameter pipe no matter how many connections were made. The other 20% is to be 10" diameter sewer pipe. If a small number of lot connections were made, more frequent maintenance flushing of the mains would be necessary to avoid blockages and backups.

- In terms of sizing the central pump station: The sizing of the pumps is dependent on the number of tributary connections. If the pumps were sized to handle the ultimate number of connections, but only a small percentage of the expected connections were made, it is possible the pumps would be harmed by too many start and stop cycles. In this case, all attempts would be made to size the pumps for the currently anticipated flows, but to allow for a pump impeller upgrade that could handle the ultimate flow. The wet well and the force main would also be sized for the ultimate flow, although attention would have to be paid to not oversize the wet well to the point where the maximum detention time would be exceeded, nor oversize the force main to the point where the velocity would drop below 2 feet per second.

Question #2: Is the Private Cost per EDU (Lateral & Connection) of $1,500.00 done by BCWSA when pipe is placed in the road?

Response #2: No, it is anticipated that this would be done outside the public bid project. BCWSA's contractor would install the "wye" fitting in the sewer main for each lateral, and also install the lateral piping up to and including the cleanout at the property's right-of-way line. The $1,500 is an estimated cost for the property owner to hire a private plumber to install lateral piping from the residence to the cleanout at the right-of-way line. This would include, but not necessarily be limited to, trenching, backfill and surface restoration. The private lateral shall be installed in the presence of an Authority inspector, and in accordance with Authority specifications. Please note that the $1,500 estimate was based on a straight run directly from the property line to the front of the house.

Question #3: What is the responsibility of the resident for maintenance, of any kind, for the gravity system after it is installed?

Response #3: The resident would be responsible for the lateral from the residence to the cleanout at the right-of-way line. While no regular maintenance is normally required, any clogs, leaks, or other future issues with the lateral piping from the right-of-way line to the residence will be the responsibility of that resident, unless the property owner takes advantage of the Authority's lateral maintenance program at a price of $5.00 per month.

Question #4: What is BCWSA responsibility after all is installed?

Response #4: BCWSA will be responsible for monitoring and maintaining all facilities within the public right-of-way or easements, unless the optional lateral maintenance program is purchased.

Option #2 – Low Pressure Sewer System

Question #1: How many people will have to hook up for this to work? Please explain in detail.

Response #1:

- In terms of costs: The "Public Cost per EDU" value is based on all 251 lots connecting to the public sewer. These 251 lots are shaded on the exhibit for Option #2. The Public Cost per EDU would increase as the connected lot number decreases, unless all lots share in the public improvement costs regardless of whether they connect.

- In terms of sizing the low pressure main: There are formulas that utilize the number of grinder pump stations, per branch of low pressure main, to estimate how many are likely to operate at the same time. This is used to size all the branches of the low pressure main. The velocity in each branch of the low pressure mains must remain above 2 feet per second to keep solids from settling and causing maintenance issues. Additional calculations would be required to determine the minimum number of connections required to utilize pipe diameters that can provide for ultimate capacity, but less connections would mean lower velocities in the pipes.

Question #2: Will this system work better if everyone is hooked up?

Response #2: Yes, for the reasons stated in Response #1 directly above.

Question #3: Is the Private Cost per EDU (*Grinder Pump Station Procurement*) of $2,760.00 done by BCWSA when pipe is placed in the road?

Response #3: This cost is to be paid by the resident. In the past, sewer authorities in similar situations have contracted out the procurement of individual grinder pump stations, with an agreement that the cost will be reimbursed by the resident. The individual grinder pump stations being procured all at one time should ensure the best cost, and that the appropriate equipment is purchased.

Question #4: Is the Private Cost per EDU (*Grinder Pump Station Installation & Lateral*) of $3,000.00 done by BCWSA when pipe is placed in the road?

Response #4: At the moment, this responsibility would fall on the property owner. However, it is possible that the Authority's contractor could install the grinder pump station for the residents. If this is desired, the Authority would have to include this work in their public bid project, under the agreement that the costs will be reimbursed by the residents. If this is the case, the Authority's contractor would also install the lateral pressure piping and valves from the property right-of-way line to the grinder pump station, and the gravity lateral piping from the grinder pump station to the residence's existing plumbing.

Question #5: Where is this grinder pump going to be located?

Response #5: Typically this grinder pump station is located in the front yard of the residence. The exact location can be negotiated with the property owner, as long as the location does not create a hardship with installing the lateral pressure piping from the grinder pump station to the low pressure main in the roadway. The pump could also be located within the residence, if space is available.

Question #6: What is the resident required to do to hook up to this grinder unit?

Response #6: The resident would be required to pay the current tapping fee, which is currently $4,700 per equivalent dwelling unit (EDU). The following items would be required to install and hook up to the grinder pump station. If the installation of the grinder pump station is to be included in the Authority's construction contract, the resident would be obligated to reimburse the Authority for the following costs:

- Transportation of the grinder pump station from common storage location to the residential property. (This presumes the grinder units are purchased under a procurement contract with the Authority.)
- Obtaining all certificates and permits required by the Township, including plumbing permits and electrical certificates.

- Installation of the grinder pump station.
- Installation of the gravity lateral from existing plumbing to the grinder pump station.
- Installation of the lateral pressure piping and valves between the grinder pump station and the right-of-way line.
- Electrical connections (possibly including house wiring) from the main residential electrical panel to the pump station control panel, and from the pump station control panel to the grinder pump station.
- Testing and startup of the grinder pump station.
- Decommissioning of the resident's existing septic system.

Question #7: What are the power requirements?

Response #7: The typical grinder pump voltage would be 240 volts. The amp draw for the pump at a standard flow rate would be 15 amps. The pump station control circuit voltage would be 115 Volts. The amp draw of the control circuit would be 0.054 amps.

Question #8: Will electrical system need to be upgraded to 200 amp service?

Response #8: Not necessarily. A 25 or 30 amp circuit for the pump and a 10 or 15 amp circuit for separate alarm circuit would be required. For example, the Tedwill project only had three (3) properties that required an electric upgrade. In those cases, the electric service was upgraded to 100 amp service.

Question #9: What is the life of the grinder pumps?

Response #9: A resident could expect a proper installation to perform 13 to 15 years (per CW Sales) before possibly needing a pump replacement. The manufacturer representative that was asked to provide this information indicated that they have some installations that were less than this time frame, but the vast majority were greater than it.

Question #10: Who handles warranty repair on the grinders?

Response #10: Typically, the pump station would be covered under standard manufacturer's warranty for 24 months from installation or 27 months from shipment. A manufacturer representative indicated that most warranty issues are concerning the level controls, not the pumps. Beyond the warranty period, the customer may purchase a grinder pump station maintenance program with BCWSA at a cost of $10 per month, which covers replacement of the grinder pump when needed.

Question #11: What happens if/when we have power loss outage at times of storms, etc?

Response #11: During power outages, appliances that send water into the grinder pump station's storage tank will be inoperable. Furthermore, any residence that is on private wells will have no water service while the power remains out. For properties with public water service, water use should be minimized during a power outage (such as flushing toilet, taking showers, etc.). There is some "extra" storage capacity provided in the pump station. In the worst case scenario, the power would go out just before the pump station reaches its "pump on" elevation. The standard pump station would have 15 to 18 gallons of storage between the "pump on" elevation and the alarm elevation, then another 15 gallons between the alarm elevation and the inlet. Some manufacturers can customize the storage tank to provide additional storage capacity, but they would lose some standard features, such as the type that come with a rock on the lid as camouflage.

Question #12: What happens when everyone's power comes back on at the same time from a long power outage? Please explain all issues that could happen.

Response #12: There are generally two types of pumps to use in individual grinder pump stations. They are progressive cavity and centrifugal. Each would have a slightly different way of handling such a situation, as described below:

- Progressive Cavity Pump: After a power outage, assuming many of the pump stations have been filled above the "pump on" elevation, all of them will turn on at the same time. The pumps furthest from the common discharge point of the force main will see the highest pressure, and they will quickly shut off due to high temperature. The pumps closest to the discharge point will continue to pump. When they have finished pumping (usually in a matter of minutes), the next set of pumps closest to the discharge point will turn on, as their temperatures will have dropped in the meantime. This process repeats until all the pump stations have gone through a pumping cycle.

- Centrifugal Pump: This process is similar to the one above, except these pumps will not shut off immediately due to high temperature. All the pumps will turn on after the power outage. The pumps furthest from the discharge point will operate near their shutoff point, at a lower pumping rate than normal. The farther pumps will eventually hit their overtemp point, and shut down. The pumps closest to the discharge rate will operate at a lower-than-normal pumping rate, but higher than the others, as they have to fight less friction loss. The pumps closest to the discharge point will run through their pumping cycle first, followed by the next closest set, and so on.

Question #13: What is the responsibility of the resident for maintenance, of any kind, for the low pressure system? Please explain all.

Response #13: There is typically no regular recommended maintenance. If issues arise outside of warranty coverage, it would depend if the resident executed a maintenance agreement with BCWSA, or obtained a maintenance agreement with a 3rd party. DEP requires that all grinder pump systems be covered by a municipal or private maintenance agreement.

Question #14: What is BCWSA responsibility after all is installed on low pressure system?

Response to #14: This depends if a maintenance agreement is executed between the resident and BCWSA. If it is, then BCWSA would be responsible for not only the facilities installed in the public right-of-way (mains in roadway, laterals up to the property line, etc.), but also the resident's grinder pump station and force main between pump station and property line. Under such an agreement, BCWSA would handle any required regular maintenance, repairs and service calls.

General Question: Besides the costs difference, please explain the pros and cons of the low pressure system?

Pros:

- Smaller diameter mains are required, both in the roadway and laterals to the houses, allowing for faster construction than gravity sewers.
- Pressure mains can be installed shallower than gravity sewer, meaning less excavation and earth disturbance.
- A centralized pump station would not be required.

Cons:

- Instead of just having to maintain a pipe between the house and the right-of-way line, there are many parts to a pump station (pumps, controls, valves, and piping) that could need maintenance and repair.
- At times, odor from the pump station could be an issue. Although, odors with gravity sewers can occur as well.
- Property owners should be more careful of what they allow into their drains, as certain objects could damage the grinder mechanism of the pump.
- Low pressure systems cannot be designed for future needs. Their operation is directly affected by the number of customers initially connected to the system. It is best that the system be sized for the ultimate capacity now, so that redundant parallel piping does not need to be installed later for future extensions of the system service area.

If you have any questions on these comments, please do not hesitate to call.

Very truly yours,

CARROLL ENGINEERING CORPORATION

John A. Swenson, P.E.
Vice President

JAS:cam
cc: Benjamin Jones, CEO, BCWSA
John Butler, Chief Operating Officer, BCWSA
Steve Hartman, P.E., CEC