

**Engineering**

**Environmental**

**Surveying**

## **OFFICIAL ACT 537 PLAN UPDATE**

**REGIONAL SEWAGE FACILITIES PLAN  
FOR STROUD TOWNSHIP, STROUDSBURG  
BOROUGH, POCONO TOWNSHIP, AND HAMILTON  
TOWNSHIP, MONROE COUNTY, PENNSYLVANIA**

**MAY, 2009**

**PREPARED FOR:  
BRODHEAD CREEK REGIONAL AUTHORITY  
410 STOKES AVENUE  
EAST STROUDSBURG, PA 18301**

**PREPARED BY:  
REILLY ASSOCIATES  
CONSULTING ENGINEERS  
49 S. MAIN STREET, SUITE 200  
PITTSBURGH, PENNSYLVANIA 15222**



## TABLE OF CONTENTS

### **ADMINISTRATIVE ITEMS**

PA Department of Environmental Protection Checklist	SECTION 1
Municipalities' Resolutions of Adoption	SECTION 2
Plan Summary	SECTION 3
Schedule of Implementation	

### **PA DEP ACT 537 PLANNING SECTIONS** SECTION 4

I. Previous Wastewater Planning	4-1
II. Physical and Demographic Analysis	4-3
III. Existing Sewage Facilities in the Planning Area	4-8
IV. Future Growth and Land Development	4-11
V. Alternatives for New or Improved Wastewater Disposal Facilities	4-14
VI. Evaluation of Alternatives	4-19
VII. Institutional Evaluation	4-36
VIII. Implementation Schedule and Justification for Selected Technical & Institutional Alternative	4-40

Planning Commission Comments and Responses (PENDING)	SECTION 5
--	-----------

DRAFT Public Notice	
Public Comment and Responses (PENDING)	SECTION 6

Consistency Documentation	SECTION 7
---------------------------	-----------

Uniform Environmental Review	SECTION 8
------------------------------	-----------

## APPENDICES

## SECTION 9

- A. Study Area General Plan/Topography Map
- B. Soils Map
- C. Hydrological Features Map
- D. Slope Analysis Map
- E. BCRA Water Service Area Map
- F. Service Area Map
- G. Soil Suitability for Land Disposal Documents
- H. Present Worth Analysis
- I. Estimated User Rate Analysis
- J. Flow Projections
- K. Memorandum of Understanding Document
- L. Stroudsburg WWTP 2007 Chapter 94 Report
- M. Evaluation of Wastewater Treatment Plant Upgrade for the Borough of Stroudsburg – Draft Report, January 2007
- N. Capital Cost and O&M Cost Supporting Documentation
- O. Task Activity Report Approved by DEP and Municipalities

# SECTION 1



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

## Instructions for Completing Act 537 Plan Content and Environmental Assessment Checklist

Remove and recycle these instructions prior to submission

### CHECKLIST INSTRUCTIONS

These instructions are designed to assist the applicant in completing the Act 537 Plan Content and Environmental Assessment Checklist.

This checklist is composed of three parts: one for "General Information," one for "Administrative Completeness," and one for "General Plan Content". A plan must be "administratively complete" in order to be formally reviewed by DEP. The General Plan Content portion of the checklist identifies each of the issues that must be addressed in your Act 537 Plan Update based on the pre-planning meeting between you and/or your consultant and DEP.

Use the right-hand column blanks in the checklist to identify the page in the plan on which each planning issue is found or to reference a previously approved update or special study (title and page number).

If you determine a planning issue is not applicable even though it was previously thought to be needed, please explain your decision within the text of the plan (or as a footnote) and indicate the page number where this documentation is found.

When information required as part of an official plan update revision has been developed separately or in a previous update revision, incorporate the information by reference to the planning document and page.

For specific details covering the Act 537 planning requirements, refer to Chapters 71 and 73 of DEP's regulations.

Wastewater projects proposing funding through the following sources must prepare an "Environmental Report" as described in the Uniform Environmental Review Process (UER) and include it with the plan submission designated as "Plan-Appendix A". The following funding programs use the UER process.

- The Clean Water State Revolving Loan Fund (PENNVEST, DEP, EPA)
- The RUS Water and Waste Disposal Grant and Loan Program (USDA-RD)
- The Community Development Block Grant Program (DCED, HUG)
- Other Federal Funding Efforts (EPA)

The checklist items or portions of checklist items required in the Act 537 Plan Update revision and that are also included in the UER process are indicated by shading. Most of the "Environmental Report" document may be constructed from the Act 537 Official Plan Update revision by using "copy & paste" techniques. The technical guidance document *Uniform Environmental Review Process* (UER) (DEP ID. 381-5511-111) is available electronically on DEP's website at [www.depweb.state.pa.us](http://www.depweb.state.pa.us).

After Municipal Adoption by Resolution, submit three copies of the plan, any attachments or addenda and this checklist to DEP.

A copy of this completed checklist must be included with your Act 537 plan. DEP will use the "DEP USE ONLY" column during the completeness evaluation of the plan. This column may also be used by DEP during the pre-planning meeting with the municipality to identify planning elements that are not required to be included in the plan.



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

## Act 537 Plan Content and Environmental Assessment Checklist

### PART 1 GENERAL INFORMATION

#### A. Project Information

1. Project Name Official Act 537 Regional Sewage Facilities Plan for Stroud Township, Stroudsburg Borough, Pocono Township, and Hamilton Township, Monroe County, PA
2. Brief Project Description The Official Act 537 Regional Sewage Facilities Plan addresses the wastewater treatment and disposal needs for the properties along SR 611 corridor in Pocono and Hamilton Townships and the wastewater treatment capacity issues of Stroud Township and Stroudsburg Borough, Monroe County, Pennsylvania.

#### B. Client (Municipality) Information

Municipality Name	County	City	Boro	Twp
Brodhead Creek Regional Authority	Monroe	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Municipality Contact Individual - Last Name	First Name	MI	Suffix	Title
Brown	Kenneth			
Additional Individual Last Name	First Name	MI	Suffix	Title

Municipality Mailing Address Line 1	Mailing Address Line 2		
110 Stokes Avenue			
Address Last Line -- City	State	ZIP+4	
East Stroudsburg	PA	18301-1604	
Phone + Ext.	FAX (optional)	Email (optional)	
570-421-3232	570-421-2322		

#### C. Site Information

Site (or Project) Name	(Municipal Name) Act 537 Plan
Official Act 537 Regional Sewage Facilities Plan	
Site Location Line 1	Site Location Line 2
Pocono Township, Hamilton Township, Stroud Township; and Stroudsburg Borough	

#### D. Project Consultant Information

Last Name	First Name	MI	Suffix
Nelson	Jeremy		
Title	Consulting Firm Name		
Project Engineer	Reilly Associates		
Mailing Address Line 1	Mailing Address Line 2		
49 South Main Street, Suite 200			
Address Last Line -- City	State	ZIP+4	Country
Pittston	PA	18640	
Email	Phone + Ext.	FAX	
nelson@reillyengineering.com	570-654-2473	570-654-6880	

**PART 2 ADMINISTRATIVE COMPLETENESS CHECKLIST**

DEP Use Only	Indicate Page #(s) in Plan	In addition to the main body of the plan, the plan must include items one through eight listed below to be accepted for formal review by the department. Incomplete Plans will be returned unless the municipality is clearly requesting an advisory review.
--------------	----------------------------	--

- |       |                     |  |
|-------|---------------------|--|
| _____ | <u>TOC 1,2</u>      | 1. <b>Table of Contents</b>  |
| _____ | <u>3-1</u>          | 2. <b>Plan Summary</b>   |
| _____ | <u>App F.</u>       | A. Identify the proposed service areas and major problems evaluated in the plan. (Reference - Title 25, §71.21.a.7.i).   |
| _____ | <u>3-2</u>          | B. Identify the alternative(s) chosen to solve the problems and serve the areas of need identified in the plan. Also, include any institutional arrangements necessary to implement the chosen alternative(s). (Reference Title 25 §71.21.a.7.ii).   |
| _____ | <u>3-3</u>          | C. Present the estimated cost of implementing the proposed alternative (including the user fees) and the proposed funding method to be used. (Reference Title 25, §71.21.a.7.ii).  |
| _____ | <u>3-5</u>          | D. Identify the municipal commitments necessary to implement the Plan. (Reference Title 25, §71.21.a.7.iii).   |
| _____ | <u>3-4</u>          | E. Provide a schedule of implementation for the project that identifies the MAJOR milestones with dates necessary to accomplish the project to the point of operational status. (Reference Title 25, §71.21.a.7.iv).   |
| _____ | <u>3-6</u>          |  |
| _____ | <u>Section 2.3.</u> | 3. <b>Municipal Adoption: Original</b> , signed and sealed Resolution of Adoption by the municipality which contains, at a minimum, alternatives chosen and a commitment to implement the Plan in accordance with the implementation schedule. (Reference Title 25, §71.31.f) Section V.F. of the Planning Guide.  |
| _____ | <u>Section 5</u>    | 4. <b>Planning Commission / County Health Department Comments:</b> Evidence that the municipality has requested, reviewed and considered comments by appropriate official planning agencies of the municipality, planning agencies of the county, planning agencies with area wide jurisdiction (where applicable), and any existing county or joint county departments of health. (Reference-Title 25, §71.31.b) Section V.E.1 of the Planning Guide.   |
| _____ | <u>Section 6</u>    | 5. <b>Publication:</b> Proof of Public Notice which documents the proposed plan adoption, plan summary, and the establishment and conduct of a 30 day comment period. (Reference-Title 25, §71.31.c) Section V.E.2 of the Planning Guide.  |
| _____ | <u>Section 6</u>    | 6. <b>Comments and Responses:</b> Copies of ALL written comments received and municipal response to EACH comment in relation to the proposed plan. (Reference-Title 25, §71.31.c) Section V.E.2 of the Planning Guide.   |
| _____ | <u>4-32</u>         | 7. <b>Implementation Schedule:</b> A complete project implementation schedule with milestone dates specific for each existing and future area of need. Other activities in the project implementation schedule should be indicated as occurring a finite number of days from a major milestone. (Reference-Title 25, §71.31.d) Section V.F. of the Planning Guide. Include dates for the future initiation of feasibility evaluations in the project's implementation schedule for areas proposing completion of sewage facilities for planning periods in excess of five years. (Reference Title 25, §71.21.c). |
| _____ | <u>Section 7</u>    | 8. <b>Consistency Documentation:</b> Documentation indicating that the appropriate agencies have received, reviewed and concurred with the method proposed to resolve identified inconsistencies within the proposed alternative and consistency requirements in 71.21.(a)(5)(i-iii). (Reference-Title 25, §71.31.e) Appendix B of the Planning Guide.   |

**PART 3 GENERAL PLAN CONTENT CHECKLIST**

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

- \_\_\_\_\_ 4-7 G. Wetlands-Identify wetlands as defined in Title 25, Chapter 105 by description, analysis and mapping. Include National Wetland Inventory mapping and potential wetland areas per USDA, SCS mapped hydric soils. Proposed collection, conveyance and treatment facilities and lines must be located and labeled, along with the identified wetlands, on the map. (Reference-Title 25, §71.21.a.1.v). Appendix B, Section II.I of the Planning Guide.
  
- \_\_\_\_\_ 4-8 III. Existing Sewage Facilities in the Planning Area - Identifying the Existing Needs
- \_\_\_\_\_ 4-8 A. Identify, map and describe municipal and non-municipal, individual and community sewerage systems in the planning area including:
  - \_\_\_\_\_ 4-8 1. Location, size and ownership of treatment facilities, main intercepting lines, pumping stations and force mains including their size, capacity, point of discharge. Also include the name of the receiving stream, drainage basin, and the facility's effluent discharge requirements. (Reference-Title 25, §71.21a.2.i.A).
  - \_\_\_\_\_ 4-9 2. A narrative and schematic diagram of the facility's basic treatment processes including the facility's NPDES permitted capacity, and the Clean Streams Law permit number. (Reference-Title 25, §71.21.a.2.i.A).
  - \_\_\_\_\_ 4-10 3. A description of problems with existing facilities (collection, conveyance and/or treatment), including existing or projected overload under Title 25, Chapter 94 (relating to municipal wasteload management) or violations of the NPDES permit, Clean Streams Law permit, or other permit, rule or regulation of DEP. (Reference-Title 25, §71.21.a.2.i.B).
  - \_\_\_\_\_ N/A 4. Details of scheduled or in-progress upgrading or expansion of treatment facilities and the anticipated completion date of the improvements. Discuss any remaining reserve capacity and the policy concerning the allocation of reserve capacity. Also discuss the compatibility of the rate of growth to existing and proposed wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.i & ii).
  - \_\_\_\_\_ N/A 5. A detailed description of the municipality's operation and maintenance requirements for small flow treatment facility systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).
  - \_\_\_\_\_ N/A 6. Disposal areas, if other than stream discharge, and any applicable groundwater limitations. (Reference-Title 25, §71.21.a.4.i & ii).
- \_\_\_\_\_ N/A B. Using DEP's publication titled *Sewage Disposal Needs Identification*, identify, map and describe areas that utilize individual and community onlot sewage disposal and, unpermitted collection and disposal systems ("wildcat" sewers, borehole disposal, etc.) and retaining tank systems in the planning area including:
  - \_\_\_\_\_ N/A 1. The types of onlot systems in use. (Reference-Title 25, §71.21.a.2.ii.A).
  - \_\_\_\_\_ N/A 2. A sanitary survey complete with description, map and tabulation of documented and potential public health, pollution, and operational problems (including malfunctioning systems) with the systems, including violations of local ordinances, the Sewage Facilities Act, the Clean Stream Law or regulations promulgated thereunder. (Reference-Title 25, §71.21.a.2.ii.B).
  - \_\_\_\_\_ N/A 3. A comparison of the types of onlot sewage systems installed in an area with the types of systems which are appropriate for the area according to soil, geologic conditions, topographic limitations sewage flows, and Title 25 Chapter 73 (relating to standards for sewage disposal facilities). (Reference-Title 25, §71.21.a.2.ii.C).

- \_\_\_\_\_ N/A 4. An individual water supply survey to identify possible contamination by malfunctioning onlot sewage disposal systems consistent with DEP's *Sewage Disposal Needs Identification* publication. (Reference-Title 25 §71.21.a.2.ii.B).
- \_\_\_\_\_ N/A 5. Detailed description of operation and maintenance requirements of the municipality for individual and small volume community onlot systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).
- \_\_\_\_\_ 4-10 C. Identify wastewater sludge and septage generation, transport and disposal methods. Include this information in the sewage facilities alternative analysis including:
  - \_\_\_\_\_ 4-10 1. Location of sources of wastewater sludge or septage (Septic tanks, holding tanks, wastewater treatment facilities). (Reference-Title 25 §71.71).
  - \_\_\_\_\_ 4-10 2. Quantities of the types of sludges or septage generated. (Reference-Title 25 §71.71).
  - \_\_\_\_\_ 4-10 3. Present disposal methods, locations, capacities and transportation methods. (Reference-Title 25 §71.71).
- \_\_\_\_\_ 4-11 **IV. Future Growth and Land Development**
  - A. Identify and briefly summarize all municipal and county planning documents adopted pursuant to the Pennsylvania Municipalities Planning Code (Act 247) including:
    - \_\_\_\_\_ 4-11 1. All land use plans and zoning maps that identify residential, commercial, industrial, agricultural, recreational and open space areas. (Reference-Title 25, §71.21.a.3.iv).
    - \_\_\_\_\_ 4-11 2. Zoning or subdivision regulations that establish lot sizes predicated on sewage disposal methods. (Reference – Title 25§71.21.a.3.iv).
    - \_\_\_\_\_ N/A 3. All limitations and plans related to floodplain and stormwater management and special protection (Ch. 93) areas. (Reference-Title 25 §71.21.a.3.iv) Appendix B, Section II.F of the Planning Guide.
  - B. Delineate and describe the following through map, text and analysis.
    - \_\_\_\_\_ 4-12 1. Areas with existing development or plotted subdivisions. Include the name, location, description, total number of EDU's in development, total number of EDU's currently developed and total number of EDU's remaining to be developed (include time schedule for EDU's remaining to be developed). (Reference-Title 25, §71.21.a.3.i).
    - \_\_\_\_\_ N/A 2. Land use designations established under the Pennsylvania Municipalities Planning Code (35 P.S. 10101-11202), including residential, commercial and industrial areas. (Reference-Title 25, §71.21.a.3.ii) Include a comparison of proposed land use as allowed by zoning and existing sewage facility planning. (Reference-Title 25, §71.21.a.3.iv).
    - \_\_\_\_\_ 4-12 3. Future growth areas with population and EDU projections for these areas using historical, current and future population figures and projections of the municipality. Discuss and evaluate discrepancies between local, county, state and federal projections as they relate to sewage facilities. (Reference-Title 25, §71.21.a.1.iv). (Reference-Title 25, §71.21.a.3.iii).

N/A

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

4-13

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

4-14

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

**A. Conventional collection, conveyance, treatment and discharge alternatives including:**

4-14

- 1. The potential for regional wastewater treatment. (Reference-Title 25, §71.21.a.4).

N/A

- 2. The potential for extension of existing municipal or non-municipal sewage facilities to areas in need of new or improved sewage facilities. (Reference-Title 25, §71.21.a.4.i).

4-17

- 3. The potential for the continued use of existing municipal or non-municipal sewage facilities through one or more of the following: (Reference-Title 25, §71.21.a.4.ii).

4-17

a. Repair. (Reference-Title 25, §71.21.a.4.ii.A).

4-17

b. Upgrading. (Reference-Title 25, §71.21.a.4.ii.B).

N/A

c. Reduction of hydraulic or organic loading to existing facilities. (Reference-Title 25, §71.71).

N/A

d. Improved operation and maintenance. Reference-Title 25, §71.21.a.4.ii.C).

N/A

e. Other applicable actions that will resolve or abate the identified problems. (Reference-Title 25, §71.21.a.4.ii.D).

N/A

- 4. Repair or replacement of existing collection and conveyance system components. (Reference-Title 25, §71.21.a.4.ii.A).

N/A

- 5. The need for construction of new community sewage systems including sewer systems and/or treatment facilities. (Reference-Title 25, §71.21.a.4.iii).

N/A

- 6. Use of innovative/alternative methods of collection/conveyance to serve needs areas using existing wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.ii.B).

N/A

**B. The use of individual sewage disposal systems including individual residential spray irrigation systems based on:**

N/A

- 1. Soil and slope suitability. (Reference-Title 25, §71.21.a.2.ii.C).

N/A

- 2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).

N/A

- 3. The establishment of a sewage management program. (Reference-Title 25, §71.21.a.4.iv). See also Part "F" below.

N/A

- 4. The repair, replacement or upgrading of existing malfunctioning systems in

areas suitable for onlot disposal considering: (Reference-Title 25, §71.21.a.4).

N/A

a. Existing technology and sizing requirements of Title 25 Chapter 73. (Reference-Title 25, §73.31-73.72).

N/A

b. Use of expanded absorption areas or alternating absorption areas. (Reference-Title 25, §73.16).

N/A

c. Use of water conservation devices. (Reference-Title 25, §71.73.b.2.iii).

4-18

C. The use of small flow sewage treatment facilities or package treatment facilities to serve individual homes or clusters of homes with consideration of: (Reference-Title 25, §71.64.d).

N/A

1. Treatment and discharge requirements. (Reference-Title 25, §71.64.d).

N/A

2. Soil suitability. (Reference-Title 25, §71.64.c.i).

N/A

3. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.64.c.2).

N/A

4. Municipal, Local, Agency or other controls over operation and maintenance requirements through a Sewage Management Program. (Reference-Title 25, §71.64.d). See Part "F" below.

4-18

D. The use of community land disposal alternatives including:

N/A

1. Soil and site suitability. (Reference-Title 25, §71.21.a.2.ii.C).

N/A

2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).

N/A

3. Municipality, Local Agency or Other Controls over operation and maintenance requirements through a Sewage Management Program (Reference-Title 25, §71.21.a.2.ii.C). See Part "F" below.

N/A

4. The rehabilitation or replacement of existing malfunctioning community land disposal systems. (See Part "V", B, 4, a, b, c above). See also Part "F" below.

4-18

E. The use of retaining tank alternatives on a temporary or permanent basis including: (Reference- Title 25, §71.21.a.4).

N/A

1. Commercial, residential and industrial use. (Reference-Title 25, §71.63.e).

N/A

2. Designated conveyance facilities (pumper trucks). (Reference-Title 25, §71.63.b.2).

N/A

3. Designated treatment facilities or disposal site. (Reference-Title 25, §71.63.b.2).

N/A

4. Implementation of a retaining tank ordinance by the municipality. (Reference-Title 25, §71.63.c.3). See Part "F" below.

N/A

5. Financial guarantees when retaining tanks are used as an interim sewage disposal measure. (Reference-Title 25, §71.63.c.2).

4-18

F. Sewage Management Programs to assure the future operation and maintenance of existing and proposed sewage facilities through:

N/A

1. Municipal ownership or control over the operation and maintenance of individual onlot sewage disposal systems, small flow treatment facilities, or other traditionally non-municipal treatment facilities. (Reference-Title 25, §71.21.a.4.iv).

N/A

2. Required inspection of sewage disposal systems on a schedule established by the municipality. (Reference-Title 25, §71.73.b.1.).

N/A

3. Required maintenance of sewage disposal systems including septic and aerobic treatment tanks and other system components on a schedule

established by the municipality. (Reference-Title 25, §71.73.b.2).

\_\_\_\_ N/A

4. Repair, replacement or upgrading of malfunctioning onlot sewage systems. (Reference-Title 25, §71.21.a.4.iv) and §71.73.b.5 through:

\_\_\_\_ N/A

a. Aggressive pro-active enforcement of ordinances that require operation and maintenance and prohibit malfunctioning systems. (Reference-Title 25, §71.73.b.5).

\_\_\_\_ N/A

b. Public education programs to encourage proper operation and maintenance and repair of sewage disposal systems.

\_\_\_\_ N/A

5. Establishment of joint municipal sewage management programs. (Reference-Title 25, §71.73.b.8).

\_\_\_\_ N/A

6. Requirements for bonding, escrow accounts, management agencies or associations to assure operation and maintenance for non-municipal facilities. (Reference-Title 25, §71.71).

\_\_\_\_ 4-18

G. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs including: (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

1. Modification of existing comprehensive plans involving:

\_\_\_\_ N/A

a. Land use designations. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

b. Densities. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

c. Municipal ordinances and regulations. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

d. Improved enforcement. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

e. Protection of drinking water sources. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

2. Consideration of a local comprehensive plan to assist in producing sound economic and consistent land development. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

3. Alternatives for creating or changing municipal subdivision regulations to assure long-term use of on-site sewage disposal that consider lot sizes and protection of replacement areas. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ 4-18

H. A no-action alternative which includes discussion of both short-term and long-term impacts on: (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

1. Water Quality/Public Health. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

2. Growth potential (residential, commercial, industrial). (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

3. Community economic conditions. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

4. Recreational opportunities. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

5. Drinking water sources. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ N/A

6. Other environmental concerns. (Reference-Title 25, §71.21.a.4).

\_\_\_\_ 4-19

VI. Evaluation of Alternatives

A. Technically feasible alternatives identified in Section V of this check-list must be evaluated for consistency with respect to the following: (Reference-Title 25, §71.21.a.5.i.).

\_\_\_\_ 4-19

1. Applicable plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act (33 U.S.C.A. 1288). (Reference-Title 25, §71.21.a.5.i.A). Appendix B, Section II.A of the

## Planning Guide.

4-19

2. **Municipal wasteload management Corrective Action Plans or Annual Reports** developed under PA Code, Title 25, Chapter 94. (Reference-Title 25, §71.21.a.5.i.B). The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report. Appendix B, Section II.B of the Planning Guide.

4-19

3. Plans developed under **Title II of the Clean Water Act** (33 U.S.C.A. 1281-1299) or **Titles II and VI of the Water Quality Act of 1987** (33 U.S.C.A. 1251-1376). (Reference-Title 25, §71.21.a.5.i.C). Appendix B, Section II.E of the Planning Guide.

4-20

4. **Comprehensive plans** developed under the Pennsylvania Municipalities Planning Code. (Reference-Title 25, §71.21.a.5.i.D). The municipality's comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan. Appendix B, Section II.D of the Planning Guide.

4-20

5. **Antidegradation requirements** as contained in PA Code, Title 25, Chapters 93, 95 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act. (Reference-Title 25, §71.21.a.5.i.E). Appendix B, Section II.F of the Planning Guide.

4-20

6. **State Water Plans** developed under the Water Resources Planning Act (42 U.S.C.A. 1962-1962 d-18). (Reference-Title 25, §71.21.a.5.i.F). Appendix B, Section II.C of the Planning Guide.

4-20

7. **Pennsylvania Prime Agricultural Land Policy** contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils. (Reference-Title 25, §71.21.a.5.i.G). Appendix B, Section II.G of the Planning Guide.

4-21

8. **County Stormwater Management Plans** approved by DEP under the Storm Water Management Act (32 P.S. 680.1-680.17). (Reference-Title 25, §71.21.a.5.i.H). Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the county Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exists. Appendix B, Section II.H of the Planning Guide.

4-21

9. **Wetland Protection.** Using wetland mapping developed under Checklist Section II.G, identify and discuss mitigative measures including the need to obtain permits for any encroachments on wetlands from the construction or operation of any proposed wastewater facilities. (Reference-Title 25, §71.21.a.5.i.I) Appendix B, Section II.I of the Planning Guide.

4-21

10. **Protection of rare, endangered or threatened plant and animal species** as identified by the Pennsylvania Natural Diversity Inventory (PNDI). (Reference-Title 25, §71.21.a.5.i.J). Provide DEP with a copy of the completed Request For PNDI Search document. Also provide a copy of the response letter from the Department of Conservation and Natural Resources' Bureau of Forestry regarding the findings of the PNDI search. Appendix B, Section II.J of the Planning Guide.

4-21

11. **Historical and archaeological resource protection** under P.C.S. Title 37, Section 507 relating to cooperation by public officials with the Pennsylvania Historical and Museum Commission. (Reference-Title 25, §71.21.a.5.i.K). Provide the department with a completed copy of a Cultural Resource Notice

request of the Bureau of Historic Preservation (BHP) to provide a listing of known historical sites and potential impacts on known archaeological and historical sites. Also provide a copy of the response letter from the BHP. Appendix B, Section II.K of the Planning Guide.

4-21

B. Provide for the resolution of any inconsistencies in any of the points identified in Section VI.A. of this checklist by submitting a letter from the appropriate agency stating that the agency has received, reviewed and concurred with the resolution of identified inconsistencies. (Reference-Title 25, §71.21.a.5.ii). Appendix B of the Planning Guide.

4-22

C. Evaluate alternatives identified in Section V of this checklist with respect to applicable water quality standards, effluent limitations or other technical, legislative or legal requirements. (Reference-Title 25, §71.21.a.5.iii).

4-24

D. Provide cost estimates using present worth analysis for construction, financing, on going administration, operation and maintenance and user fees for alternatives identified in Section V of this checklist. Estimates shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of plan submission. (Reference-Title 25, §71.21.a.5.iv).

4-29

E. Provide an analysis of the funding methods available to finance the proposed alternatives evaluated in Section V of this checklist. Also provide documentation to demonstrate which alternative and financing scheme combination is the most cost-effective; and a contingency financial plan to be used if the preferred method of financing cannot be implemented. The funding analysis shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of the plan submission. (Reference-Title 25, §71.21.a.5.v).

4-31

F. Analyze the need for immediate or phased implementation of each alternative proposed in Section V of this checklist including: (Reference-Title 25, §71.21.a.5.vi).

N/A

1. A description of any activities necessary to abate critical public health hazards pending completion of sewage facilities or implementation of sewage management programs. (Reference-Title 25, §71.21.a.5.vi.A).

4-33

2. A description of the advantages, if any, in phasing construction of the facilities or implementation of a sewage management program justifying time schedules for each phase. (Reference-Title 25, §71.21.a.5.vi.B).

4-34

G. Evaluate administrative organizations and legal authority necessary for plan implementation. (Reference - Title 25, §71.21.a.5.vi.D.).

4-35

**VII. Institutional Evaluation**

A. Provide an analysis of all existing wastewater treatment authorities, their past actions and present performance including:

4-35

1. Financial and debt status. (Reference-Title 25, §71.61.d.2).

4-35

2. Available staff and administrative resources. (Reference-Title 25, §71.61.d.2)

4-36

3. Existing legal authority to:

4-36

a. Implement wastewater planning recommendations. (Reference-Title 25, §71.61.d.2).

4-36

b. Implement system-wide operation and maintenance activities. (Reference-Title 25, §71.61.d.2).

4-36

c. Set user fees and take purchasing actions. (Reference-Title 25, §71.61.d.2).

4-36

d. Take enforcement actions against ordinance violators. (Reference-Title 25,

§71.61.d.2).

4-34

e. Negotiate agreements with other parties. (Reference-Title 25, §71.61.d.2).

4-35

f. Raise capital for construction and operation and maintenance of facilities. (Reference-Title 25, §71.61.d.2).

4-37

B. Provide an analysis and description of the various institutional alternatives necessary to implement the proposed technical alternatives including:

4-37

1. Need for new municipal departments or municipal authorities. (Reference-Title 25, §71.61.d.2).

4-37

2. Functions of existing and proposed organizations (sewer authorities, onlot maintenance agencies, etc.). (Reference-Title 25, §71.61.d.2).

4-37

3. Cost of administration, implementability, and the capability of the authority/agency to react to future needs. (Reference-Title 25, §71.61.d.2).

4-37

C. Describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative including:

N/A

1. Incorporation of authorities or agencies. (Reference-Title 25, §71.61.d.2).

4-37

2. Development of all required ordinances, regulations, standards and inter-municipal agreements. (Reference-Title 25, §71.61.d.2).

N/A

3. Description of activities to provide rights-of-way, easements and land transfers. (Reference-Title 25, §71.61.d.2).

N/A

4. Adoption of other municipal sewage facilities plans. (Reference-Title 25, §71.61.d.2).

4-37

5. Any other legal documents. (Reference-Title 25, §71.61.d.2).

4-37

6. Dates or timeframes for items 1-5 above on the project's implementation schedule.

4-38

D. Identify the proposed institutional alternative for implementing the chosen technical wastewater disposal alternative. Provide justification for choosing the specific institutional alternative considering administrative issues, organizational needs and enabling legal authority. (Reference-Title 25, §71.61.d.2).

4-39

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

4-39

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

4-39

1. Existing wastewater disposal needs. (Reference-Title 25, §71.21.a.6).

4-39

2. Future wastewater disposal needs. (five and ten years growth areas). (Reference-Title 25, §71.21.a.6).

4-39

3. Operation and maintenance considerations. (Reference-Title 25, §71.21.a.6).

4-39

4. Cost-effectiveness. (Reference-Title 25, §71.21.a.6).

4-39

5. Available management and administrative systems. (Reference-Title 25, §71.21.a.6).

4-39

6. Available financing methods. (Reference-Title 25, §71.21.a.6).

4-39

7. Environmental soundness and compliance with natural resource planning and preservation programs. (Reference-Title 25, §71.21.a.6)

4-39

B. Designate and describe the capital financing plan chosen to implement the selected alternative(s). Designate and describe the chosen back-up financing plan. (Reference-Title 25, §71.21.a.6)

4-39

C. Designate and describe the implementation schedule for the recommended alternative, including justification for any proposed phasing of construction or implementation of a Sewage Management Program. (Reference - Title 25 §71.31d)

**IX. Environmental Report (ER) generated from the Uniform Environmental Review Process (UER)**

Section 8

A. Complete an ER as required by the UER process and as described in the DEP Technical Guidance 381-5511-111. Include this document as "Appendix A" to the Act 537 Plan Update Revision. Note: *An ER is required only for Wastewater projects proposing funding through any of the funding sources identified in the UER.*

**ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS**

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

DEP Use Only	Indicate Page #(s) in Plan	Item Required
_____	Section 8	1. Environmental Impact Assessment. (Planning Phase) The Uniform Environment Review (UER) replaces the Environmental Impact Assessment that was a previous requirement for PENNVEST projects.
_____	4-24 thru 4-31	2. Cost Effectiveness (Planning Phase) The cost-effectiveness analysis should be a present-worth (or equivalent uniform annual) cost evaluation of the principle alternatives using the interest rate that is published annually by the Water Resources Council. Normally, for PENNVEST projects the applicant should select the most cost-effective alternative based upon the above analysis. Once the alternative has been selected the user fee estimates should be developed based upon interest rates and loan terms of the selected funding method.
_____		3. Second Opinion Project Review. (Design Phase)
_____		4. Minority Business Enterprise/Women's Business Enterprise (Construction Phase)
_____		5. Civil Rights. (Construction Phase)
_____		6. Initiation of Operation/Performance Certification. (Post-construction Phase)

## **A TECHNOLOGIES**

### **PARTIAL LISTING OF INNOVATIVE AND ALTERNATIVE TECHNOLOGIES**

#### **TREATMENT TECHNOLOGIES**

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

#### **SLUDGE TREATMENT TECHNOLOGIES**

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

#### **ENERGY RECOVERY TECHNOLOGIES**

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

#### **INDIVIDUAL & SYSTEM-WIDE COLLECTION TECHNOLOGIES**

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

# SECTION 2

**OFFICIAL ACT 537 REGIONAL SEWAGE FACILITIES PLAN**  
**For**  
**STROUD TOWNSHIP, STROUDSBURG BOROUGH, POCONO TOWNSHIP,**  
**AND HAMILTON TOWNSHIP**  
**MONROE COUNTY, PENNSYLVANIA**

POCONO TOWNSHIP BOARD OF SUPERVISORS  
RESOLUTION NO. \_\_\_\_\_

**ADOPTION OF ACT 537 OFFICIAL SEWAGE PLAN REVISION**

RESOLUTION OF THE BOARD OF SUPERVISORS OF POCONO TOWNSHIP,  
MONROE COUNTY, PENNSYLVANIA (hereinafter "the Municipality").

WHEREAS, Section 5 of the Act of January 24, 1996, P.L. 1535 No. 537, known as the "Pennsylvania Sewage Facilities Act", as amended, and the Rules and Regulations of the 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 wastewater treatment and disposal services adequate to prevent contamination of waters and/or environmental health hazards with wastewater wastes, and to revise said plan whenever it is necessary to meet the wastewater disposal needs of the municipality, and

WHEREAS, Reilly Associates, has prepared the Official Act 537 Regional Sewage Facilities Plan which provides for wastewater treatment and disposal facilities in a portion of Pocono Township, and

WHEREAS, Pocono Township finds that the Official Act 537 Regional Sewage Facilities Plan described above conforms to applicable zoning, subdivision, and other municipal ordinances and plans and a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED, that the Pocono Township Board of Supervisors hereby adopts and submits to the Pennsylvania Department of Environmental Protection for its approval as a revision to the "Official Plan" of the Municipality, the above referenced Official Act 537 Regional Sewage Facilities Plan. The municipality hereby commits to the timely implementation of the said plan as required by law (Section 5, Pennsylvania Sewage Facilities Act as amended).

THE CHOSEN ALTERNATIVE is summarized as follows:

The Act 537 Regional Sewage Facilities Plan evaluated two (2) alternatives consisting of two (2) separate projects each. The following is a brief description of the recommended alternative:

**Alternative 1 – Regional 4.5 MGD Wastewater Facilities**

**PROJECT 1 - COLLECTION & CONVEYANCE PROJECT**

The Pocono Township/Hamilton Township collection and conveyance system project will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, the exception being that the 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. The proposed collection system consists of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, and four (4) additional pump stations. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton sewers will be pumped through a combination conveyance force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new Regional WWTP. The force main is approximately seven (7) miles long. Odor control facilities will be provided at a location approximately half way to the new WWTP at an existing BCRA property and at the new WWTP as needed. The conveyance line will be a force main for most of the route and then will be gravity through the final portion through Stroudsburg Borough.

**PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION**

The 4.5 MGD WWTP project entails the existing 2.5 MGD Stroudsburg Borough WWTP to be upgraded and expanded to a 4.5 MGD WWTP. The treatment process involves a pumping station, air grit removal, sequential batch reactors, air blowers, equalizations, sludge treatment, sand filters, and UV disinfection. The adjacent southwest parcel of the Stroudsburg Borough WWTP is in the process of being acquired for the expansion. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township/Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

**Schedule of Implementation:**

The schedule calls for a phased implementation. The 2.5 MGD WWTP must be upgraded to handle the flows from Pocono Township by November 2011. This can be done under the current planning and permit approvals. The 4.5 MGD WWTP permitting will take longer because it takes, planning, Part I permitting and Part II permitting approvals. The following is the schedule for the Act 537 planning and permitting of the phased implementation of the project.

<u>Milestone</u>	<u>Completion</u>
Revised Act 537 Plan	October 2009
2.5 MGD Upgrade Part II Permit	July 2009
4.5 MGD Upgrade Part II Permit	July 2010

The schedule for upgrade and expansion of the existing 2.5 MGD WWTP to 4.5 MGD WWTP is established by the dates set in the Memorandum of Understanding (MOU) as amended. The milestone schedule for the major elements of the construction of the recommended project are presented below:

<u>Milestone</u>	<u>Completion</u>
Design and Permitting	January 2010
Advertise for Bids	February 2010
Contract Award	April 2010
Preconstruction Meeting	May 2010
2.5 MGD Upgrade	November 2011
4.5 MGD Upgrade/Expansion	November 2012

The above schedule may be accelerated to allow for the construction of the full 4.5 MGD WWTP project without the intermediate step of constructing the 2.5 MGD WWTP upgrade.

RESOLVED THIS \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_

ATTEST:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**OFFICIAL ACT 537 REGIONAL SEWAGE FACILITIES PLAN**  
**For**  
**STROUD TOWNSHIP, STROUDSBURG BOROUGH, POCONO TOWNSHIP,**  
**AND HAMILTON TOWNSHIP**  
**MONROE COUNTY, PENNSYLVANIA**

HAMILTON TOWNSHIP BOARD OF SUPERVISORS  
RESOLUTION NO. \_\_\_\_\_

ADOPTION OF ACT 537 OFFICIAL SEWAGE PLAN REVISION

RESOLUTION OF THE BOARD OF SUPERVISORS OF HAMILTON TOWNSHIP,  
MONROE COUNTY, PENNSYLVANIA (hereinafter "the Municipality").

WHEREAS, Section 5 of the Act of January 24, 1996, P.L. 1535 No. 537, known as the "Pennsylvania Sewage Facilities Act", as amended, and the Rules and Regulations of the 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 wastewater treatment and disposal services adequate to prevent contamination of waters and/or environmental health hazards with wastewater wastes, and to revise said plan whenever it is necessary to meet the wastewater disposal needs of the municipality, and

WHEREAS, Reilly Associates, has prepared the Official Act 537 Regional Sewage Facilities Plan which provides for wastewater treatment and disposal facilities in a portion of Hamilton Township, and

WHEREAS, Hamilton Township finds that the Official Act 537 Regional Sewage Facilities Plan described above conforms to applicable zoning, subdivision, and other municipal ordinances and plans and a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED, that the Hamilton Township Board of Supervisors hereby adopts and submits to the Pennsylvania Department of Environmental Protection for its approval as a revision to the "Official Plan" of the Municipality, the above referenced Official Act 537 Regional Sewage Facilities Plan. The municipality hereby commits to the timely implementation of the said plan as required by law (Section 5, Pennsylvania Sewage Facilities Act as amended).

THE CHOSEN ALTERNATIVE is summarized as follows:

The Act 537 Regional Sewage Facilities Plan evaluated two (2) alternatives consisting of two (2) separate projects each. The following is a brief description of the recommended alternative:

## **Alternative 1 – Regional 4.5 MGD Wastewater Facilities**

### PROJECT 1 - COLLECTION & CONVEYANCE PROJECT

The Pocono Township/Hamilton Township collection and conveyance system project will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, the exception being that the 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. The proposed collection system consists of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, and four (4) additional pump stations. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton sewers will be pumped through a combination conveyance force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new Regional WWTP. The force main is approximately seven (7) miles long. Odor control facilities will be provided at a location approximately half way to the new WWTP at an existing BCRA property and at the new WWTP as needed. The conveyance line will be a force main for most of the route and then will be gravity through the final portion through Stroudsburg Borough.

### PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION

The 4.5 MGD WWTP project entails the existing 2.5 MGD Stroudsburg Borough WWTP to be upgraded and expanded to a 4.5 MGD WWTP. The treatment process involves a pumping station, air grit removal, sequential batch reactors, air blowers, equalizations, sludge treatment, sand filters, and UV disinfection. The adjacent southwest parcel of the Stroudsburg Borough WWTP is in the process of being acquired for the expansion. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township/Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

#### Schedule of Implementation:

The schedule calls for a phased implementation. The 2.5 MGD WWTP must be upgraded to handle the flows from Pocono Township by November 2011. This can be done under the current planning and permit approvals. The 4.5 MGD WWTP permitting will take longer because it takes, planning, Part I permitting and Part II permitting approvals. The following is the schedule for the Act 537 planning and permitting of the phased implementation of the project.

<u>Milestone</u>	<u>Completion</u>
Revised Act 537 Plan	October 2009
2.5 MGD Upgrade Part II Permit	July 2009
4.5 MGD Upgrade Part II Permit	July 2010

The schedule for upgrade and expansion of the existing 2.5 MGD WWTP to 4.5 MGD WWTP is established by the dates set in the Memorandum of Understanding (MOU) as amended. The milestone schedule for the major elements of the construction of the recommended project are presented below:

<u>Milestone</u>	<u>Completion</u>
Design and Permitting	January 2010
Advertise for Bids	February 2010
Contract Award	April 2010
Preconstruction Meeting	May 2010
2.5 MGD Upgrade	November 2011
4.5 MGD Upgrade/Expansion	November 2012

The above schedule may be accelerated to allow for the construction of the full 4.5 MGD WWTP project without the intermediate step of constructing the 2.5 MGD WWTP upgrade.

RESOLVED THIS \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_

ATTEST:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**OFFICIAL ACT 537 REGIONAL SEWAGE FACILITIES PLAN**  
**For**  
**STROUD TOWNSHIP, STROUDSBURG BOROUGH, POCONO TOWNSHIP,**  
**AND HAMILTON TOWNSHIP**  
**MONROE COUNTY, PENNSYLVANIA**

STROUD TOWNSHIP BOARD OF SUPERVISORS  
RESOLUTION NO. \_\_\_\_\_

ADOPTION OF ACT 537 OFFICIAL SEWAGE PLAN REVISION

RESOLUTION OF THE BOARD OF SUPERVISORS OF STROUD TOWNSHIP,  
MONROE COUNTY, PENNSYLVANIA (hereinafter "the Municipality").

WHEREAS, Section 5 of the Act of January 24, 1996, P.L. 1535 No. 537, known as the "Pennsylvania Sewage Facilities Act", as amended, and the Rules and Regulations of the 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 wastewater treatment and disposal services adequate to prevent contamination of waters and/or environmental health hazards with wastewater wastes, and to revise said plan whenever it is necessary to meet the wastewater disposal needs of the municipality, and

WHEREAS, Reilly Associates, has prepared the Official Act 537 Regional Sewage Facilities Plan which provides for wastewater treatment and disposal facilities in a portion of Stroud Township, and

WHEREAS, Stroud Township finds that the Official Act 537 Regional Sewage Facilities Plan described above conforms to applicable zoning, subdivision, and other municipal ordinances and plans and a comprehensive program of pollution control and water quality management.

NOW, THEREFORE, BE IT RESOLVED, that the Stroud Township Board of Supervisors hereby adopts and submits to the Pennsylvania Department of Environmental Protection for its approval as a revision to the "Official Plan" of the Municipality, the above referenced Official Act 537 Regional Sewage Facilities Plan. The municipality hereby commits to the timely implementation of the said plan as required by law (Section 5, Pennsylvania Sewage Facilities Act as amended).

THE CHOSEN ALTERNATIVE is summarized as follows:

The Act 537 Regional Sewage Facilities Plan evaluated two (2) alternatives consisting of two (2) separate projects each. The following is a brief description of the recommended alternative:

## **Alternative 1 – Regional 4.5 MGD Wastewater Facilities**

### PROJECT 1 - COLLECTION & CONVEYANCE PROJECT

The Pocono Township/Hamilton Township collection and conveyance system project will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, the exception being that the 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. The proposed collection system consists of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, and four (4) additional pump stations. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton sewers will be pumped through a combination conveyance force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new Regional WWTP. The force main is approximately seven (7) miles long. Odor control facilities will be provided at a location approximately half way to the new WWTP at an existing BCRA property and at the new WWTP as needed. The conveyance line will be a force main for most of the route and then will be gravity through the final portion through Stroudsburg Borough.

### PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION

The 4.5 MGD WWTP project entails the existing 2.5 MGD Stroudsburg Borough WWTP to be upgraded and expanded to a 4.5 MGD WWTP. The treatment process involves a pumping station, air grit removal, sequential batch reactors, air blowers, equalizations, sludge treatment, sand filters, and UV disinfection. The adjacent southwest parcel of the Stroudsburg Borough WWTP is in the process of being acquired for the expansion. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township/Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

#### Schedule of Implementation:

The schedule calls for a phased implementation. The 2.5 MGD WWTP must be upgraded to handle the flows from Pocono Township by November 2011. This can be done under the current planning and permit approvals. The 4.5 MGD WWTP permitting will take longer because it takes, planning, Part I permitting and Part II permitting approvals. The following is the schedule for the Act 537 planning and permitting of the phased implementation of the project.

<u>Milestone</u>	<u>Completion</u>
Revised Act 537 Plan	October 2009
2.5 MGD Upgrade Part II Permit	July 2009
4.5 MGD Upgrade Part II Permit	July 2010

The schedule for upgrade and expansion of the existing 2.5 MGD WWTP to 4.5 MGD WWTP is established by the dates set in the Memorandum of Understanding (MOU) as amended. The milestone schedule for the major elements of the construction of the recommended project are presented below:

<u>Milestone</u>	<u>Completion</u>
Design and Permitting	January 2010
Advertise for Bids	February 2010
Contract Award	April 2010
Preconstruction Meeting	May 2010
2.5 MGD Upgrade	November 2011
4.5 MGD Upgrade/Expansion	November 2012

The above schedule may be accelerated to allow for the construction of the full 4.5 MGD WWTP project without the intermediate step of constructing the 2.5 MGD WWTP upgrade.

RESOLVED THIS \_\_\_\_\_ day of \_\_\_\_\_, 200\_\_\_\_\_

ATTEST:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# SECTION 3

## PLAN SUMMARY - SECTION 3

### PURPOSE OF THE UPDATE

The four (4) municipalities in this plan have existing approved sewage facilities planning which will remain in effect with this Update. The only modification being proposed with this Update is for the conversion to a regional 4.5 MGD wastewater treatment for the four (4) municipalities. Therefore, most of the other sewage planning sections in the existing approved plans were not required to be updated in this plan and remain as described in the previously approved plans.

### PLAN SUMMARY

The Act 537 Regional Sewage Facilities Plan addresses the wastewater treatment and disposal needs for the properties along the S.R. 611 Corridor in Pocono and Hamilton Townships and the wastewater treatment capacity issues of Stroud Township and Stroudsburg Borough, Monroe County, Pennsylvania.

In order to meet the existing and proposed wastewater disposal needs of the study area, two (2) wastewater treatment and disposal alternatives were considered.

Each of the alternatives was considered based upon the following criteria:

1. Environmental Considerations
2. Regulatory Requirements
3. Implementation Time
4. Ability to be Implemented
5. Cost of Implementation
6. Present Worth Costs
7. Reliability
8. Expandability

The above criteria were used to evaluate each of the alternatives and the results are presented in this study in the form of a Total Project Cost, Operation and Maintenance cost, Present Worth Costs for the system, and the resultant user charge. Regulatory requirements, ability to be implemented, reliability, expandability, and environmental considerations are evaluated in the narrative of each alternative and in the consistency review of regulations.

### ***A LISTING OF THE ALTERNATIVES INVESTIGATED FOLLOWS:***

The Act 537 Regional Sewage Facilities Plan evaluated two (2) alternatives consisting of two (2) separate projects each. The following is a brief description of each alternative:

## **Alternative 1 – Regional 4.5 MGD Wastewater Facilities**

### **PROJECT 1 - COLLECTION & CONVEYANCE PROJECT**

The Pocono Township/Hamilton Township collection and conveyance system project will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, the exception being that the 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. The proposed collection system consists of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, and four (4) additional pump stations. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton sewers will be pumped through a combination conveyance force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new Regional WWTP. The conveyance force main consists of a single 20" diameter pipe and is approximately seven (7) miles long. Odor control facilities will be provided at a location approximately half way to the new WWTP and at the new WWTP. The conveyance line will be a force main for most of the route and then will be gravity through the final portion through Stroudsburg Borough.

### **PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION**

The 4.5 MGD WWTP project requires the existing 2.5 MGD Stroudsburg Borough WWTP to be upgraded and expanded to a 4.5 MGD WWTP. The treatment process includes a pumping station, air grit removal, sequential batch reactors, air blowers, equalizations, sludge treatment, sand filters, and UV disinfection. The adjacent southwest parcel of the Stroudsburg Borough WWTP is in the process of being acquired for the expansion. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township/Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

## **Alternative 2 – Separate Wastewater Systems**

### **PROJECT 1 – POCONO/HAMILTON TOWNSHIP PROJECT**

Pocono Township and Hamilton Township will follow the plan in their recently approved Pocono Township Regional Act 537 Special Study. This plan entails the construction of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, a 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and a force main to convey treated effluent to the Brodhead Creek in Stroud Township.

**PROJECT 2 – STROUD TOWNSHIP/STROUDSBURG BOROUGH PROJECT**

Alternatively, Stroudsburg Borough and Stroud Township will follow the Amended 201 Facilities Plan implemented by SEMSA in 1985. This plan requires Stroudsburg Borough and Stroud Township to keep the existing Borough of Stroudsburg WWTP and upgrade it to its permitted capacity of 2.5 MGD. This upgrade would require improved treatment technology to meet more stringent discharge limits proposed by the Delaware River Basin Commission (DRBC) based on DRBC's no measurable change requirements. Brinjac Engineering provided alternatives to meet these new conditions in a Draft Report dated January 2007. The recommended treatment process was to convert the existing treatment facility to an ultra-filtration Membrane Bioreactor (MBR) facility.

The following tables provide the Total Capital Cost, Operations and Maintenance Cost, and Present Worth Cost for each alternative.

Table 1  
Alternative 1 – Regional 4.5 MGD WWTP Facility

Project	Capital Cost	Annual O&M Cost	Present Worth Cost
1-Pocono & Hamilton Sewers	\$48,198,000	\$434,000	\$42,878,530
2- 4.5 MGD WWTP Expansion	\$33,740,000	\$2,965,000	\$69,017,488
Total Costs	\$81,938,000	\$3,399,000	\$111,896,018

Table 2  
Alternative 2 – Separate Wastewater Systems

Project	Capital Cost	Annual O&M Cost	Present Worth Cost
1-Pocono & Hamilton Sewers and 2.0 MGD WWTP	\$77,738,000	\$1,462,000	\$82,658,738
2- Stroud/Stroudsburg 2.5 MGD WWTP Upgrade	\$17,109,000	\$1,350,000	\$33,655,109
Total Costs	\$94,847,000	\$2,812,000	\$116,313,848

A comparison of the Present Worth Analysis between the alternatives show that Alternative 1 - Regional 4.5 MGD WWTP Alternative has a lower Present Worth Cost.

***THE INSTITUTIONAL ORGANIZATION AND RESPONSIBILITIES WILL CONSIST OF THE FOLLOWING:***

The Brodhead Creek Regional Authority (BCRA) has received resolutions from its five (5) municipality board allowing it to serve as general manager to assist in the planning, design, and construction of the 4.5 MGD regional wastewater treatment plant serving Pocono Township, Stroud Township, Hamilton Township and Stroudsburg Borough. These Resolutions anticipate changes to the BCRA's Articles of Incorporation, Bylaws, Indentures, etc, so as to fully authorize the BCRA to own and operate the WWTP facilities. Separate agreements for sewage service will be established between the BCRA and Pocono and Stroud Townships, and Stroudsburg Borough. Hamilton Township will be connecting its sewage collection system into the Pocono Township collection system, and will enter into either a management or service agreement with Pocono Township. It is expected that these agreements will be for bulk sewage service based on flows provided by the respective municipality to the BCRA facilities.

Pocono Township will construct, own and operate its respective sewage collection system. Pocono Township will develop sewer ordinances and set rates payable by individual users within its boundaries for sewage collection, conveyance, and treatment.

Hamilton Township's sewage collection system will be constructed at the same time as and will connect to the Pocono Township system. Hamilton Township will own its respective sewage collection system and will be responsible for operation of its facilities. Hamilton Township will develop sewer ordinances and set rates payable by individual users within its boundaries for sewage collection, conveyance, and treatment.

Stroud Township has a management agreement dated May 1989 with the Stroud Township Sewer Authority for the Township to conduct daily operations and maintenance of the collection system. The Stroud Township Sewer Authority has the ability to set rates payable by individual users within its boundaries for sewage collection, conveyance, and treatment.

Stroudsburg Borough owns and operates its collection system. Stroudsburg Borough has the ability to set rates payable by individual users within its boundaries for sewage collection, conveyance, and treatment.

Any municipality may elect to contract with BCRA for billing, management, and operation services regarding its collection system under separate agreement.

***PROJECT FINANCING:***

Two conventional funding options were explored for construction of the recommended alternative. The primary financing option includes Pennsylvania Infrastructure Investment Authority (PENNVEST) loans, with the remainder of the project costs financed with a combination of connection fees, grants, bonds, and local loans. The alternate financing option is for a combination of connection fees, grants, bonds, and

local loans.

PENNVEST is the typical agency involved in funding community development projects such as sewage collection and disposal systems. PENNVEST can fund infrastructure projects regardless of location and community populations. The maximum PENNVEST Loan Amount for each project is \$20,000,000 for a 20 year term (for multi-municipality projects). The annual interest rate for Monroe County is 1.3% for the first 5 years and 2.6% per year for the last 15 years. These interest rates are equivalent to an annual interest rate of 2.275% over the 20 year payback period.

Conventional bond financing is typical for large municipal projects and based on the financial stability of all the municipalities and authorities involved, this project should be able to secure bond financing with competitive interest rates. For the purposes of this study an annual interest rate of 4.75% was used for a 20 year term.

The recommended financing plan is to apply to Pennvest for \$20 million loans for both the Pocono Township collection and conveyance project and for the BCRA 4.5 MGD WWTP expansion. The remainder of project costs for the Pocono Township project would be paid with grants, tapping fees, and bond financing. The remainder of the project costs for the BCRA 4.5 MGD WWTP expansion would be financed with bonds.

Pocono Township and Hamilton Township will impose a connection fee and annual user rates to pay for the financing of the project. The estimated rates for the Pocono Township and Hamilton Township portions of the cost (assuming 2% non-payment for annual user rates) are as follows:

Estimated Connection Fee	\$2,500 per EDU
Estimated Annual User Rate	\$1,295 per EDU

Stroud Township and Stroudsburg Borough will need to adjust their annual user rates to pay for the financing of their portion of the project. The estimated rates for the Stroud Township and Stroudsburg Borough portions of the cost (assuming 2% non-payment for annual user rates) are as follows:

Stroud Township Estimated Annual User Rate	\$863 per EDU
Stroudsburg Borough Estimated Annual User Rate	\$481 per EDU

Ultimate project financing will also pursue new grant funding sources through PENNVEST and the Department of Community and Economic Development (DCED) and Commonwealth Financing Authority (CFA) for both projects of the recommended Alternative 1-Regional 4.5 MGD WWTP. The grants were not included in the user rate analysis because they have not yet been awarded. If grants are awarded, they will be applied directly to the project costs to lower the user rates in all the municipalities included in this project. Also, Stroud Township may elect out of PENNVEST to pursue other funding options if it would reduce their user rates.

***SCHEDULE OF IMPLEMENTATION:***

The schedule calls for a phased implementation. The 2.5 MGD WWTP must be upgraded to handle the flows from Pocono Township by November 2011. This can be achieved under the current planning and permit approvals. The 4.5 MGD WWTP permitting will take longer because it requires, planning, Part I permitting and Part II permitting approvals. The following is the schedule for the Act 537 planning and permitting of the phased implementation of the project:

<u>Milestone</u>	<u>Completion</u>
Revised Act 537 Plan	October 2009
2.5 MGD Upgrade Part II Permit	July 2009
4.5 MGD Upgrade Part II Permit	July 2010

The schedule for upgrade and expansion of the existing 2.5 MGD WWTP to 4.5 MGD WWTP is established by the dates set in the Memorandum of Understanding (MOU). The milestone schedule for the major elements of the construction of the recommended project are presented below:

<u>Milestone</u>	<u>Completion</u>
Design and Permitting	January 2010
Advertise for Bids	February 2010
Contract Award	April 2010
Preconstruction Meeting	May 2010
2.5 MGD Upgrade	November 2011
4.5 MGD Upgrade/Expansion	November 2012

The above schedule may be accelerated to allow for the construction of the full 4.5 MGD WWTP project without the intermediate step of constructing the 2.5 MGD WWTP upgrade.

***RECOMMENDED ALTERNATIVE***

The recommended alternative is the 4.5 MGD Regional WWTP for the following reasons:

- It was found to be the most cost effective, technically feasible alternative.
- It is consist with local municipal planning.
- It will provide compliance with state water quality regulations.
- The institutional mechanism for designing, constructing, operating and maintaining the facilities for this project are already in place.
- Its implementation schedule meets the timeline requirements of all the member municipalities.

***SCHEDULE OF IMPLEMENTATION***

## Recommended 4.5 MGD Regional WWTP Project

<u>ACT 537 Planning</u>	<u>Start</u>	<u>Duration (Days)</u>	<u>Finish</u>
Prepare Draft Plan			1/30/2009
Draft Plan Circulated for Comment	1/30/2009		
Draft Plan Comments Received		30	3/1/2009
Agency Notifications DEP, PNDI, USF&W, PAF&B PADCNR, PHMC, etc.	6/15/2008		
Agency Responses - Address Potential Conflicts		180	12/12/2008
Submit to Planning Commissions for Comment	2/2/2009	56	3/30/2009
Address Planning Commission Comments	3/30/2009	14	4/13/2009
Municipalities Advertise Plan	5/28/2009		
Public Comment Period	5/28/2009	30	6/27/2009
Respond to Public Comments	6/27/2009	16	7/13/2009
<b>Adopt Plans</b>	<b>7/13/2009</b>	<b>14</b>	<b>7/27/2009</b>
Submit to DEP	7/30/2009		
DEP Review and Advertisement	7/30/2009	62	9/30/2009
Waiting period after Publication by DEP	9/30/2009	28	10/28/2009
<b>Act 537 Plans Approved</b>			<b>10/28/2009</b>

<u>WWTP 2.5 Upgrade Design</u>	<u>Start</u>	<u>Duration (Days)</u>	<u>Finish</u>
Sign MOU			6/15/2008
Select/Contract Engineer	6/15/2008	60	8/14/2008
Design Plant 60%	8/14/2008	180	2/10/2009
Submit Part II Permit and DRBC Docket	2/10/2009		
Complete Plant Design and Bid	2/10/2009	120	6/10/2009
Bid plant	6/10/2009	30	7/10/2009
<b>Receive Permit for 2.5 MGD upgrade</b>	<b>2/10/2009</b>	<b>150</b>	<b>7/10/2009</b>

WWTP 4.5 MGD Upgrade Design

	<u>Start</u>	<u>Duration</u> <u>(Days)</u>	<u>Finish</u>
Approval of Act 537 Planning			10/28/2009
Submit for NPDES Part I	8/16/2009	7	8/23/2009
Receive NPDES Part I Permit	8/23/2009	180	2/19/2010
Design Plant 60%	8/16/2009	180	2/12/2010
Submit Part II Permit and DRBC Docket	2/19/2010		
Complete Plant Design and Bid	2/12/2010	120	6/12/2010
Bid plant	6/12/2010	30	7/12/2010
<b>Receive Part II Permit for 4.5 MGD Upgrade</b>	<b>2/19/2010</b>	<b>150</b>	<b>7/19/2010</b>

Construction Schedule

Finish

Design and Permitting	1/1/2010
Advertise for Bids	2/1/2010
Contract Award	4/1/2010
Preconstruction Meeting	5/1/2010
2.5 MGD WWTP Upgrade	11/1/2011
4.5 MGD WWTP Upgrade	11/1/2012

The above schedule may be accelerated to allow for the construction of the full 4.5 MGD WWTP project without the intermediate step of constructing the 2.5 MGD WWTP upgrade.

# SECTION 4

## SECTION I – PREVIOUS WASTEWATER PLANNING

### A. EXISTING WASTEWATER PLANNING

#### Stroudsburg Borough and Stroud Township

Sewage facilities planning in the study area began with the September 1975 Monroe County General Authority Metropolitan Region Wastewater (201) Facilities Plan. This report provided an overall plan for the collection and treatment of sewage generated by the Stroudsburg Metropolitan Region and other surrounding areas of Monroe County. The Monroe County General Authority (MCGA) recommended implementation of Alternative 3 of the 201 Facilities Plan, and this plan was subsequently approved by the Delaware River Basin Commission (DRBC), the Environmental Protection Agency (EPA) and the Pennsylvania Department of Environmental Resources (DER).

In 1981, the Southeast Monroe County Sewage Authority (SEMSA) was formed to replace MCGA and to implement the 201 Facilities Plan. In 1985, SEMSA submitted an amendment to the approved 201 Facilities Plan. This amendment was implemented and created the current 2.5 MGD Stroudsburg and Stroud Township Wastewater Treatment Plant (WWTP) and the Stroud Township Collection System.

Subsequent Act 537 Plan updates have been implemented for specific areas in Stroud Township. In 1998, an update provided a new low pressure sewage collection system along SR 447 and adjacent roads with conveyance and treatment to East Stroudsburg Borough. In 2000, an update provided for a new gravity collection system and pump station along SR 611 with conveyance and treatment at the Stroudsburg/Stroud Township WWTP. This update also included the former AM BEST Truckstop at the intersection of SR 611 and RT 33. This truckstop, though partially in Hamilton Township and partially in Stroud Township was previously served by the Bartonsville WWTP that was owned and operated by Stroud Township. By connecting this site to the Stroud Township system, and making it a customer of the Stroud Township Sewer Authority, the WWTP was no longer needed and was demolished. Currently this site and several adjoining properties are being re-developed as a retail development under the name Crossroads II Development. Sewage planning for this development has been approved by Stroud Township for connection to the Stroud Township Sewer Authority system.

Stroudsburg Borough has not had an update to the amended 201 Facilities Plan until this plan.

### Pocono Township and Hamilton Township

Sewage facilities planning in the study area follow the Pocono Township Regional Act 537 Special Study, Route 611 Corridor, June 2, 2006. This Special Study provided the construction of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, a 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and a force main to convey treated effluent to the Brodhead Creek in Stroud Township. This plan was approved by the Department of Environmental Protection (DEP) in December of 2006. The Pennsylvania Department of Environmental Protection approved this plan with the following conditions for further development in Pocono and Hamilton Townships:

*".....In order to promote water reuse and to encourage the use of on-lot wastewater disposal as much as practical, the Plan requires that any developed lot in the service area may connect to the system for its existing flow. If a developed lot proposes a change in flow of more than 800 gallons per day, either by conversion of an existing use or redevelopment, sewage planning on an individual basis is required. This shall include an alternatives analysis for potential and possible land disposal opportunities. Any undeveloped lot within the service area may connect to the system if its proposed flow is 800 gallons per day or less. If its proposed flow is more than 800 gallons per day, individual sewage planning will be required including an evaluation of the potential to accommodate all or a portion of the lot's wastewater needs through onsite disposal."*

This plan recommends that this condition still apply only to development in Pocono and Hamilton Townships.

## B. MUNICIPAL AND COUNTY PLANNING DOCUMENT SUMMARY

Municipal sewage facilities planning as found in the September 1994 Stroud Township Comprehensive Plan: 1994-2020 includes provisions for centralized sewer service. The following are the conclusions from the Comprehensive Plan with regards to sewage facilities (copies of relevant sections included):

1. Based on anticipated population growth and housing needs, the township will need to provide for residential development. The plan recommends new residential development to take place as infill development in areas with existing central water and sewer facilities. Also, Planned Residential Development (PRD) and cluster developments are to be encouraged with central sewage facilities provided by the developer.
2. Extend central sewage service to the proposed medium density residential development land use areas and commercial and industrial areas.
3. Require the developers to extend and provide the central sewage systems for their developments.

Previous sewage planning has addressed these goals and this update to the

planning does not change these areas or extend into areas that were not intended for central sewage. Therefore, the Act 537 Regional Sewage Facilities Plan is consistent with the Stroud Township Comprehensive Plan: 1994-2020.

The Monroe 2020 – Summary of the Plan dated April 2002 states, “The Comprehensive Plan calls for municipal and county efforts to consolidate, interconnect, and expand existing water and sewer systems and to encourage linkage of new residential and economic development to those systems.” The Act 537 Regional Sewage Facilities Plan is consistent with this objective.

The Act 537 Regional Sewage Facilities Plan is consistent with the previously approved Pocono Township Regional Act 537 Special Study Route 611 Corridor. The zoning in the approved service area consists of commercial, industrial, and dense residential areas which are best served by a central collection system and wastewater treatment plant.

## SECTION II – PHYSICAL AND DEMOGRAPHIC ANALYSIS

- A. The planning area encompassed by this Act 537 Plan is the new proposed sewage conveyance service area in Pocono Township and Hamilton Township, and the existing sewage collection area in Stroud Township and Stroudsburg Borough. All four (4) municipalities will convey sewage to an expanded WWTP in Stroudsburg Borough. Maps defining the general study area and municipal boundaries can be found in Appendix A.

### Stroud Township

Stroud Township is located in Monroe County approximately 35 miles southeast of Wilkes-Barre. The Township is bordered on the east by Smithfield Township, on the south by Upper Mount Bethel Township, on the west by Hamilton Township, on the northwest by Pocono Township and on the north by Price Township.

Stroud Township is characterized by rural surroundings with moderately dense residential areas primarily centered around Stroudsburg Borough. The primary commercial areas are along S.R. 611 north of Stroudsburg Borough with some smaller areas on West Main Street (Business 209) and S.R. 447.

A significant amount of the land area is steep hillside and mountainous terrain. A number of creeks and streams are located in the township.

### Stroudsburg Borough

Stroudsburg Borough is located in southeastern Monroe County. It is bordered by East Stroudsburg to the north, Smithfield Township to the east, and Stroud Township to the west and south. Stroudsburg Borough is about 30 miles north of

Easton and approximately 5 miles from Delaware Water Gap; it has an area of approximately 1.8 square miles. Stroudsburg is characterized by its dense residential development (approximately 3250 people/sq/mi). Stroudsburg also has a commercial district along Main Street (Business 209) and is the Monroe County Seat.

#### Pocono Township

Pocono Township is located in central Monroe County. It is bordered by Paradise Township and Mt. Pocono Borough to the north, Tobyhanna Township and Tunkhannock Township to the west, Coolbaugh Township to the northwest, Stroud Township to the east, Jackson Township to the southwest, and Hamilton Township to the south. Pocono Township covers approximately 35 square miles. Pocono Township is characterized by rural surroundings with moderately dense residential areas. The primary commercial areas are along S.R. 611. The leading company in the area is Sanofi Pasteur, a vaccine research, manufacturing and distribution facility.

A significant amount of the land area is steep hillside and mountainous terrain. A number of creeks and streams are located in the township.

#### Hamilton Township

Hamilton Township is located in south central Monroe County. It is bordered by Jackson Township to the northwest, Stroud Township to the east, Pocono Township to the north, Chestnuthill and Ross Townships to the west, and Northampton County to the south. Hamilton Township covers approximately 38.5 square miles.

Hamilton Township is characterized by rural surroundings with some residential areas. The primary commercial areas are along S.R. 611.

A significant amount of the land area is steep hillside and mountainous terrain with various flat areas. Pocono Creek is located in the township.

### B. PHYSICAL CHARACTERISTICS

The topography of the S.R. 611 Corridor is generally down grade towards Stroudsburg Borough with low points as a result of stream crossings. Topography within the study area is shown on the Study Area General Plan/Topography Map and Slope Analysis Map. The Slope Analysis Map was prepared using the Monroe County GIS Database. Please see Appendix A for the Study Area General Plan/Topography Map and Appendix D for the Slope Analysis Map.

Surface waters within the proposed conveyance alignment are shown on the Hydrological Features Map (Appendix C); the map shows floodplains, wetlands, lakes, streams, and watersheds.

Brodhead Creek flows on the east side of the study area and joins the McMichael Creek in Stroudsburg Borough near the existing WWTP. Brodhead Creek is categorized by the Pennsylvania Department of Environmental Protection as a high-quality, cold water fishery from its source to S.R. 2022 (Stokes Avenue). From S.R. 2022 to the confluence with the Delaware River, the stream existing use is CWF-MF (cold water fishery - migratory fishery) and its designated use is TSF-MF (trout-stocking fishery - migratory fishery).

McMichael Creek flows south of the study area. It is categorized by the Pennsylvania Department of Environmental Protection as a, TSF, trout-stocking fishery at the discharge point of the expanded WWTP in Stroudsburg Borough.

Additional surface waters include Pocono Creek and several tributaries including Wigwam Run, Flagler Run, and Big Meadow Run. They are categorized by the Pennsylvania Department of Environmental Protection as high-quality, cold water fisheries.

The following stream crossings are found along the proposed conveyance alignment:

1. Pocono Creek in Pocono Township (2)
2. Pocono Creek tributary in Stroud Township
3. Wigwam Run in Stroud Township (potential wetlands impact)
4. Flagler Run in Stroud Township
5. Big Meadow Run in Stroudsburg Borough (potential wetlands impact)

(See the Hydrological Features Map for stream crossing locations in Appendix C.)

## C. SOIL CHARACTERISTICS

The soils along the proposed sewer conveyance line were located using GIS data for Monroe County; the soils series were defined using the Natural Resources Conservation Service (NRCS) website. The most abundant soils found along the proposed conveyance line are shown below:

- MaB - Mardin channery silt loam, 2 to 8 % slopes
- MaC - Mardin channery silt loam, 8 to 15% slopes
- MbB - Mardin very stony silt loam, 0-8% slopes
- VxB - Volusia extremely stony silt loam, 0 to 8% slopes
- VoB - Volusia gravelly silt loam, 3-8% slopes
- WyB - Wyoming gravelly sandy loam, 3 to 8% slopes
- WyE - Wyoming gravelly sandy loam, 25-70% slopes
- LxC - Lordstown extremely stony silt loam, 8-25% slopes
- LxB - Lordstown extremely stony silt loam, 0-8% slopes
- LsC - Lordstown channery silt loam, 8-15% slopes
- LsB - Lordstown channery silt loam, 3-8% slopes

BbC - Bath very stony silt loam, 8-25 % slopes  
 BaC - Bath channery silt loam, 8-15% slopes  
 ChA - Chenango gravelly loam, 0-3 % slopes  
 Ph - Philo silt loam  
 WpB - Wellsboro extremely stony loam, 0-8% slopes  
 SwC - Swartswood channery sandy loam, 8-15%

Soils mapping for the study area may be found in Appendix B.

### Prime Agricultural Soils

- 1) The following soils found along the proposed sewage conveyance line are classified as prime farmland in Monroe County:

Soil	Description
BaB	Bath channery silt loam, 3-8 percent slopes
Brb	Braceville gravelly loam, 3-8% slopes
ChA	Chenango gravelly loam, 0-3% slopes
ChB	Chenango gravelly loam, 3-8% slopes
LsB	Lordstown channery silt loam, 3-8% slopes
MaB	Mardin channery silt loam, 2-8% slopes
Pp	Pope silt loam, high bottom
Swb	Swartswood channery sandy loam, 3-8% slopes
WmB	Wellsboro channery loam, 3-8% slopes

- 2) The following soils found along the proposed sewage conveyance line are classified as additional farmland of statewide importance:

Soil	Description
BaC	Bath channery silt loam, 8-15%
ChC	Chenango gravelly loam, 8-15% slopes
LsC	Lordstown channery silt loam, 8-15% slopes
MaC	Mardin channery silt loam, 8-15% slopes
OkC	Oquaga-Lackawanna channery loams, 8-15% slopes
ReB	Rexford gravelly silt loam, 3-8% slopes
SwC	Swartswood channery sandy loam, 8-15% slopes
VoA	Volusia gravelly silt loam, 0-3% slopes
VoB	Volusia gravelly silt loam, 3-8% slopes
WyB	Wyoming gravelly sandy loam, 3-8% slopes
WyC	Wyoming gravelly sandy loam, 8-15% slopes

#### D. GEOLOGIC FEATURES

Monroe County is divided into two physiographic provinces. The northern two-thirds of the county is in the Pocono Plateau section and Glaciated Low Plateau section of the Appalachian Mountain section of the Valley and Ridge province. Each province reflects different topographic and geologic features, which influence formation of the soils.

The northern nine-tenths of the survey area is underlain by Devonian rocks, and the southern one-tenth is underlain primarily of older Silurian rocks.

#### E. TOPOGRAPHY

Topography within the proposed study area is generally sloping with some moderately sloped hills along the alignment. The topography mapping for all areas within the study area may be found in Appendix D - Slope Analysis Map. The slope analysis is based on the slope values associated with each soil series symbol and description. The majority of the slopes range from 0% - 25%. The existing grade elevation near the start of the proposed conveyance line in Pocono Township is approximately 780 feet and the elevation near the proposed WWTP in Stroudsburg Borough is approximately 420 feet; therefore the elevation difference along the proposed conveyance line is approximately 360 feet. No soil types within the proposed study area are suitable for on-lot sewage disposal or spray irrigation as per information obtained from the NRCS Soil Data Mart. (See Appendix G- Soil Suitability for Land Disposal.)

#### F. POTABLE WATER SUPPLIES

The vast majority of residences and industries located within the study area are currently serviced by public water service provided by the Brodhead Creek Regional Authority. The BCRA Water Service Area Map can be found in Appendix E.

#### G. WETLANDS

The following wetlands as defined by the National Wetlands Inventory Mapping are located within the study area.

POWZh - Palustrine, Open water, Unknown bottom, Intermittently Exposed/permanent, Diked/Impounded  
(Located at Big Meadow Run)

PFO1E - Palustrine, Forested, Broad-leaved deciduous, Seasonal saturated  
(Located East of Big Meadow Run)

PEM5E - Palustrine, Emergent, Seasonally saturated  
(Located at Wigwam Run)

### SECTION III – EXISTING SEWAGE FACILITIES IN THE PLANNING AREA

#### A. EXISTING SEWAGE FACILITIES

##### Pocono and Hamilton Township

There are no central public sewage facilities within the study area of Pocono or Hamilton Township. However, the previously approved Pocono Township Regional Act 537 Special Study Route 611 Corridor requires the construction of a central collection system and a 2.0 million gallons per day wastewater treatment plant for the SR 611 corridor in Pocono and Hamilton Townships. The remainder of the areas in these townships are either served by on-lot systems or private wastewater treatment facilities.

##### Borough of Stroudsburg and Stroud Township

The central portion of Stroud Township and Stroudsburg Borough are currently served by a central collection system and 2.5 MGD wastewater treatment facility jointly owned by both municipalities and located in Stroudsburg Borough. The remainder of the area in Stroud Township is either served by on-lot systems or private wastewater treatment facilities.

##### Stroudsburg Wastewater Treatment Plant

The Borough of Stroudsburg Wastewater Treatment Plant (WWTP) is located at the confluence of McMichael Creek and Brodhead Creek in the eastern portion of Stroudsburg Borough and discharges into McMichael Creek just upstream of the confluence with the Brodhead Creek. The Brodhead Creek flows to the Delaware River at river mile 212. The treatment plant is located within the 1147 acre Brodhead Creek drainage basin. The Borough of Stroudsburg and Stroud Township have joint ownership of the wastewater treatment plant. The Borough of Stroudsburg is responsible for daily operations and maintenance of the plant.

The permitted capacity of the Stroudsburg/Stroud plant is 2.5 MGD, (NPDES Permit No. PA0029289.) The average monthly discharge limits for the Stroudsburg WWTP are as follows:

<u>Parameter</u>	<u>Discharge Limit</u>
Flow	2.5 MGD
CBOD <sub>5</sub>	25 mg/L
Total Suspended Solids	30 mg/L
Ammonia-Nitrogen (May through Oct.)	10 mg/L
Fecal Coliform (summer)	200 mpn/100mL
Fecal Coliform (winter)	2,000 mpn/100mL
Residual Chlorine	1.0 mg/l
pH	6.0 – 9.0

The plant consistently provides a high level of treatment regularly complying with its permit limits.

The existing WWTP is a Schreiber Process facility. The facility's basic treatment processes is described as follows:

Headworks – The existing headworks consist of a sewage grinder and influent screen sized to manage the current permitted flow.

Influent Pump Station – The existing influent pump station consists of submerged pumps sized to discharge to the elevated grit removal facility.

Grit Removal – The existing aerated grit removal system removes inorganic waste materials from the wastewater for disposal after washing at a permitted landfill.

Schreiber Biologic Treatment Tanks – The Schreiber biologic treatment tanks receive flow by gravity from the grit removal system. The Schreiber system uses the activated sludge treatment process to reduce BOD in the wastewater.

Final Clarifiers – Flow from the biologic treatment tanks flows by gravity to the final clarifiers where mixed liquor and suspended solids settle out of the wastewater.

Disinfection – Flow from the Final Clarifier Overflow is disinfected by the addition of chlorine gas.

Post Aeration – The treated wastewater dissolved oxygen concentration is raised by aeration prior to discharge.

Flow Measurement – Flow measurement is made by a Parshall flume.

Plant Outfall – Under normal operating conditions, the plant discharges by gravity to the McMichaels Creek. During flood stage on the McMichaels, the flow is pumped to the creek.

Sludge Holding and Digestion – The outer ring of the existing clarifiers are used for sludge holding and sludge digestion.

Sludge Dewatering – A belt filter press is located in the sludge dewatering building. Pressed solids are conveyed to a covered sludge dumpster loading area where the sludge is periodically hauled off-site for disposal at a properly permitted facility.

Stroud Township contains the bulk of the easily developed land surrounding the Borough of Stroudsburg. In 2007, the Township provided approximately 50.7% (0.696 MGD) and Stroudsburg Borough provided 49.3% (0.677 MGD) of the total 1.37 MGD annual average flow.

The Borough of Stroudsburg WWTP has a permitted capacity to treat 2.5 million gallons per day of wastewater. However, engineering studies have determined that operationally it only has the capability to treat approximately 2.0 million gallons per day of wastewater. This is inconsistent with the SEMSA Amended 201 Facilities Plan and its current NPDES permit to treat 2.5 MGD; therefore the wastewater treatment plant will need to be upgraded in the near future to meet the capacity needs of the borough and the township.

- B. The study area for the Act 537 Regional Sewage Facilities Plan includes the following four municipalities: Pocono Township, Hamilton Township, Stroudsburg Borough, and Stroud Township. A Service Area Map is included in Appendix F showing the boundary of the service area in these municipalities. As noted in the previously approved Pocono Township Regional Act 537 Special Study, June 2, 2006, the proposed Pocono Township WWTP which provides service for Pocono Township and Hamilton Township would have a capacity of 2.0 million gallons per day. The Borough of Stroudsburg WWTP which provides service for Stroudsburg Borough and Stroud Township currently has a permitted capacity of 2.5 million gallons per day. Therefore, the capacity needed for the BCRA Regional WWTP is 4.5 million gallons per day.
- C. There are no on-lot disposal systems proposed within the study area. Currently, the Stroudsburg Borough WWTP dewateres its sludge for ultimate landfill disposal. It is proposed that all sludge associated with the recommended alternative will be processed at the BCRA Regional WWTP ultimately for landfill disposal.

## SECTION IV – FUTURE GROWTH AND LAND DEVELOPMENT

### A. ZONING AND PLANNING

Pocono Township's Zoning Ordinance and Map, adopted November 17, 2003, designates permitted land uses in Pocono Township. The Pocono Township Zoning Ordinance requires the following minimum lot size: one acre in commercial zones, five acres in industrial zones, two acres in residential (R1) zones for either on-lot water and sewer and two acre minimum in residential (R2) zones with on-lot water and sewer and one acre minimum in residential (R2) zones with either community water or sewer.

Hamilton Township's Zoning Ordinance and Map, adopted January 7, 1985, designates permitted land uses in Hamilton Township. The Hamilton Township Zoning Ordinance requires one half-acre minimum lot size with both central water and sewer, one-acre lot size with either central water or central sewer and two acres with on-lot water and sewer.

Stroud Township Comprehensive Plan: 1994-2020, adopted September of 1994, recommends that future land development be provided with centralized sewer service. The plan also states the majority of new residential development shall be provided with a centralized sanitary sewer system through either a community treatment plant or through extension of the Township sewer system. The Comprehensive Plan also proposes commercial development along existing transportation corridors and that these areas be provided with central sewage.

The Borough of Stroudsburg has very limited growth potential. It is anticipated that there will be minimum redevelopment of existing building areas.

Pocono, Hamilton and Stroud Townships have experienced increased population growth within the study area through recent decades. Stroudsburg Borough's population has also grown in recent decades, but at a much lower rate than that of the three (3) townships. The total household population, average household size, and number of occupied housing units for Stroud Township, Stroudsburg Borough, Pocono Township, and Hamilton Township are summarized in Table IV-1 (shown on the next page). This information was obtained from the 2000 U.S. Census. Estimated projections for the year 2020 for each Township/Borough are also shown in Table IV-1; these projections are estimated by extrapolating 1990 and 2000 Census data. This growth, both residential and commercial, is consistent with the Monroe County Comprehensive Plan.

TABLE IV-1

## POPULATION PROJECTION AND HOUSING DEMAND ANALYSIS

	Total Population (1990)	Total Population (2000)	Household Size (2000)	Occupied Housing Units (2000)	2020 Total Population Projection	2020 Household Size Projection	2020 Occupied Housing Units Projection	Yearly Housing Growth Rate based on projection
Stroud Twp.	10,600	13,918	2.69	5,174	20,800	2.6	8,000	2.7%
Stroudsburg Boro.	5,312	5,568	2.30	2,422	5,927	2.3	2,577	.3%
Pocono Twp.	7,529	9,576	2.73	3,503	13,800	2.6	5,308	2.6%
Hamilton Twp.	6,681	7,788	2.64	2,947	11,400	2.6	4,385	2.4%

Using Household Size in the year 2020, the number of housing units was projected by dividing the 2020 population by the 2020 household size. The yearly housing growth rate was determined based on this projection; growth rates ranged from .3% (Stroudsburg Borough) to 2.7% (Stroud Twp), as shown in the table.

#### Flow and EDU Projections

The existing and future wastewater flows and EDU's associated with the study area have been estimated and are tabulated on the next page in Table IV-2.

The EDU estimates for Pocono and Hamilton Townships were taken from the Pocono Township Regional Act 537 Special Study Route 611 Corridor. The existing flows for Stroud Township and Stroudsburg Borough were based on the 2007 Chapter 94 report flows. Projected flows for Stroud Township are calculated using an annual growth rate of 3% based on historic growth rates in the township. Projected flows for Stroudsburg Borough are calculated using an estimated annual growth rate of 0.3% which is conservative because the borough is built out. Existing and projected EDUs were calculated based on dividing the existing and projected flows by 250 gpd/EDU. The number of EDUs based on flows are different than the number of EDUs based on billing records in the User Rate Analysis in Section VI. The detailed listing of projected flows for Pocono Township, Hamilton Township, Stroud Township and Stroudsburg Borough are included in Appendix K. The projected flows in Table IV-2 show that the 4.5 MGD WWTP will provide sufficient capacity for the service area for the 20 year planning period.

TABLE IV- 2

EXISTING AND FUTURE EDU PROJECTIONS

Municipality	2008		2012		2029	
	EDU's per Study Area	Gallons Per Day	EDU's per Study Area	Gallons Per Day	EDU's per Study Area	Gallons Per Day
Pocono Township	0	0	3,653	896,900	8,153	2,020,746
Hamilton Township	0	0	62	14,650	126	30,650
Total Pocono/Hamilton Township (1.)	0	0	3,715	911,550	8,279	2,051,396
Stroud Township (2.)	2,682	670,500	3,019	754,700	4,990	1,247,383
Stroudsburg Borough (3.)	2,764	691,000	2,812	703,000	3,016	754,000
Total EDUs and Flow	5,446	1,361,500	9,546	2,369,250	16,285	4,052,779

Notes:

1. Pocono Township Regional Sewer Flows and EDUs Table 3-4, RKR Hess Associates Rev 11/26/08
2. Assumes 3% Annual Growth to 2029
3. Assumes additional flows of 3,000 gallons per year to 2029
4. Year 2012 is the year of proposed start up of new WWTP.

SECTION V – ALTERNATIVES TO PROVIDE NEW OR IMPROVED  
WASTEWATER DISPOSAL FACILITIES

A. PROPOSED ALTERNATIVES

This Act 537 Regional Sewage Facilities Plan proposes two (2) alternatives for the wastewater treatment and disposal needs of these municipalities. Each alternative will consist of two separate projects. The alternatives are described as follows:

**Alternative 1- Regional 4.5 MGD Wastewater Facility**

**PROJECT 1 - COLLECTION & CONVEYANCE PROJECT**

The Pocono Township/Hamilton Township collection and conveyance system project will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, June 2, 2006 with the exception that the 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. The proposed collection system consists of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, and four (4) additional pump stations. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton sewers will be pumped through a combination conveyance force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new Regional WWTP. The conveyance main will consist of a single 20" diameter force main pipe and is approximately seven (7) miles long. Odor control facilities will be provided at a location approximately half way to the new WWTP and at the new WWTP. The conveyance line will be a force main for most of the route and then will be gravity through the final portion through Stroudsburg Borough to the new Regional WWTP.

**PROJECT 2 - 4.5 MGD WWTP UPGRADE AND EXPANSION PROJECT**

The 4.5 MGD WWTP project proposes upgrading and expanding the existing 2.5 MGD Stroudsburg Borough WWTP to a 4.5 MGD WWTP. The 4.5 MGD WWTP will provide treatment capacity for the Township's of Stroud, Hamilton, and Pocono, and Stroudsburg Borough. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township/Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

The upgrade and expansion of the WWTP will provide for an increased treatment capacity totaling 4.5 MGD and more stringent discharge limits than imposed on

the current treatment facility. Based on communications with PA DEP and DRBC, the anticipated discharge criteria is presented in the table below. Note that these are anticipated limits and are subject to change pending water quality modeling by DRBC that will need to show that there will be no measurable change in existing water quality at the confluence of the Brodhead Creek and Delaware River.

Table V-1: Anticipated 4.5 MGD WWTP Discharge Limits

Parameter	Limit
Flow	4.5 MGD
CBOD	10 mg/l
Total Suspended Solids (TSS)	10 mg/l
Ammonia (summer-winter)	1.5 mg/l – 4.5 mg/l
Nitrate Nitrogen (summer)	4 mg/l
Fecal Coliform	200 count/100 ml
Total Phosphorous	1 mg/l
Dissolved Oxygen	7 mg/l
Total Dissolved Solids	1000 mg/l
Residual Chlorine	1 mg/l

To achieve the necessary capacity and discharge limits, the existing 2.5 MGD WWTP will be converted to an enhanced nutrient removal Sequencing Batch Reactor (“SBR”) System. Additional land is needed for the upgrade and expansion and an adjacent property is being acquired for this purpose. New SBR tanks will be constructed with the installation of new equipment on the acquired property. The existing treatment facilities would be primarily utilized for all other processes: sludge treatment, thickening and dewatering, initial screening, degritting, disinfection, etc.

The upgraded and expanded facility’s basic treatment processes is described as follows:

Headworks – The existing headworks consist of a sewage grinder and influent screen sized to manage the current permitted flow. A new facility will be constructed, doubling its capacity. A flow splitter box will be constructed to direct flow to parallel screening facilities and will have provisions to isolate one side of the facility for maintenance. The headworks will also include a grit removal system for the plant, eliminating the need for the “elevated” aerated grit removal system. The headworks will be provided in a building with odor control as needed.

Equalization Tank – A new equalization tank will be provided to handle peak flows to the WWTP. The equalization tank will be provided with aeration and odor control as needed.

Influent Pump Station – The existing influent pump station consists of submerged pumps sized to manage the current permitted flow. The existing pumps will be replaced with new larger pumps. The pumps will be run on variable frequency drives (VFDs) to minimize power consumption. The pump station discharge will be rerouted to the new SBRs.

Grit Removal – The existing grit removal system will be abandoned and demolished. Grit removal will be provided by the headworks.

SBR Tanks – The biologic treatment would be conducted in post-tensioned precast concrete tanks located on the adjacent property. Four (4) treatment tanks are needed. The tanks will be arranged to share common walls, reducing their cost. The top of the tanks will be set at an elevation to provide for gravity flow from the SBRs through the rest of the treatment system, eliminating the need for repeat pumping.

Post Decant Equalization – The existing clarifiers will be converted to post decant equalization tanks. Flow from the SBR tanks to the equalization tanks will be by gravity.

Flocculation Tanks – The flow from the equalization tanks will be pumped at a steady rate to flocculation tanks where chemicals (typically alum and polymer) will be added to make solids and precipitated phosphorus in the water more filterable.

Tertiary Filtration – Water from the flocculation tanks will flow by gravity through cloth filters where the fine solids and precipitated phosphorus will be removed from the wastewater.

Disinfection – The existing gas chlorine disinfection system will be abandoned in favor of disinfection by ultraviolet light (“UV Disinfection”). The UV Disinfection System will be installed in the existing chlorine contact tank.

Post Aeration – The existing post aeration tanks will be re-used to elevate the dissolved oxygen content in the treated wastewater.

Flow Measurement – Flow measurement facilities will be modified to handle the increased flow through the plant.

Plant Outfall – The available capacity of the plant gravity outfall will be investigated and the potential pipe size increase will be investigated. The effluent pump station will be upgraded to handle to increased flow discharge.

Sludge Thickening – The existing clarifiers will be modified for use as sludge thickeners.

Sludge Holding and Digestion – The existing biologic treatment tanks will be converted for use for sludge holding and aerobic digestion per DEP requirements. The existing blowers will be used to supply air and new fixed diffusers will be installed in the tanks.

Sludge Dewatering – A second parallel belt filter press will be installed in the sludge dewatering building to be used as a backup as required by PaDEP regulations. Based on the current operation, we are anticipating that the current dewatered sludge dumpster loading area will not need any capacity modifications. The sludge dumpster area will be enclosed for weather protection and odor containment.

A Schematic Plan and Preliminary site layout of this Alternative is shown on the following pages.

## **Alternative 2 – Separate Wastewater Systems**

### **PROJECT 1 - POCONO/HAMILTON TOWNSHIP PROJECT**

Pocono Township and Hamilton Township will follow the plan in their recently approved Pocono Township Regional Act 537 Special Study, June 2, 2006. This plan proposes the construction of a pump station in Swiftwater, four (4) other collection pump stations, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, a 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and an effluent pump station and force main to convey treated effluent to the Brodhead Creek in Stroud Township. There is also an outfall structure at the Brodhead Creek for secondary disinfection and aeration before discharge to the creek.

### **PROJECT 2 STROUD TOWNSHIP/STROUDSBURG BOROUGH PROJECT**

Alternatively, Stroudsburg Borough and Stroud Township will follow the Amended 201 Facilities Plan implemented by SEMSA in 1985. This plan will entail Stroudsburg Borough and Stroud Township to keep the existing Stroudsburg WWTP and upgrade it to its permitted capacity of 2.5 MGD. This upgrade would require improved treatment technology to meet more stringent discharge limits proposed by the DRBC based on their no measurable change requirements. Brinjac Engineering provided alternatives to meet these new conditions in a Draft Report dated January 2007. The relevant portions of this report are included in Appendix N. The recommended treatment process was to

convert the existing treatment facility to an ultra-filtration Membrane Bioreactor (MBR) facility. This would require the following improvements:

- Modify the existing headworks to provide a new fine screen process.
- Convert the existing aeration tanks to provide 400,000 gallons of anoxic zone and 800,000 gallons of aeration zone. This would require removing the traveling bridges and installing a new aeration system and constructing a baffle wall to divide the anoxic from the aeration zones.
- Decommission the two (2) clarifiers and construct two (2) new Membrane Bioreactor tanks inside one of the clarifiers. The remaining clarifier would be modified to provide sludge storage and digestion.
- A new Return Activated Sludge building would be constructed with pumps and piping inside.
- A new Membrane building would be constructed to house the membrane blowers, cleaning systems and controls.
- The chlorine contact tanks would be modified to provide Ultraviolet light disinfection and additional post aeration.

A Schematic Plan of this Alternative is shown on the following page and a Preliminary Layout is included in Appendix M.

- B. The use of individual sewage disposal systems will not be considered because they are not suitable to meet the needs of the municipalities. Therefore, a central collection system will be utilized.
- C. The use of small flow or package treatment systems will not be considered due to the need of the municipalities. Therefore, a central collection system will be utilized.
- D, E, F and G            The widespread unsuitability of the local soils, and the commercial and industrial needs for public sewer systems require that only alternatives for a centralized public sewer system be evaluated further.
- H. There is no “no-action” alternative for this plan. Current sewage planning approvals require Pocono and Hamilton Townships to proceed with its currently approved sewage plan until this revision is approved. Capacity limitations at the current Stroudsburg WWTP require an upgrade to reach its full 2.5 MGD capacity.

# SECTION 5

## SECTION 5 PLANNING COMMISSION COMMENTS AND RESPONSES

Submission of the Draft Official Act 537 Plan was made to the Monroe County Planning Commission, and the Planning Commissions of Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The following is a listing of responses provided by these groups or their consultants on their behalf, and Reilly Associates responses to each of the comments. Copies of the actual comment letters are included in this Section as well.

### MONROE COUNTY PLANNING COMMISSION Letter dated March 5, 2009

The Monroe County Planning Commission recommended approval of this Draft Official Act 537 Plan Update conditioned upon the comments listed below being satisfactorily addressed and upon the action of the Planning Commission at its next regular meeting of April 14, 2009.

The Planning Commission's comments, and Reilly Associates responses are as follows:

1. Section 4.H.B., Physical Characteristics, indicates that the Brodhead Creek from SR. 2022 to the confluence with the Delaware River is categorized as a Trout Stocking Fishery (TSF) and Migratory Fishes (MF). According to Pennsylvania Code § 93.9c. Drainage List C., Statewide Existing Use Classifications - Stream Code 04750, this stream segment has an existing use of CWF-MF and a designated use of TSF-MF.

**Response:** This section has been revised to classify this stream segment of the Brodhead Creek with an existing use of CWF-MF and a designated use of TSF-MF.

2. According to the HSPS Regional Comprehensive Plan, June 2005, and the County Comprehensive Plan, Monroe 2020, this plan update is generally consistent in terms of land use and providing for public sewage facilities.

**Response:** No response needed

3. According to Section 7, the Pennsylvania Fish & Boat Commission and the United States Department of the Interior responses regarding a known range of the bog turtle (*Clemmys Muhlenbergii*), a federally listed threatened species, the project construction timeframe should take place between November 1. at and March 31st for the Big Meadow Run area. The implementation schedule did not provide sufficient detail to determine if the time frame would be met.

**Response:** The construction documents will require construction of the stream crossings between 11/1 and 3/31, if feasible. At this point in the project, it is difficult to determine when construction of this stream crossing will occur. The Pennsylvania Fish & Boat Commission and United States Department of the Interior response letters do allow work outside this time period provided certain conditions are met. These conditions are included in the agency letters and

would be included in the construction requirements and would be required if working during the preferred time frame is not feasible.

**CRAMER, SWETZ & MCMANUS, P.C. COMMENT Letter dated March 18, 2009 on behalf of Pocono Township**

Mr. Timothy J. McManus's comments, and Reilly Associates responses are as follows:

1. The checklist entitled "Additional Requirements for Pennvest Projects" on Page 14 is not completed.

**Response:** This section has now been completed.

2. In the fifth line of the description of Project No. 2 on the 2nd page of each of the proposed resolutions, it states that "The adjacent southwest parcel of the Stroudsburg Borough WWTP was purchased for the expansion" [emphasis supplied]. To my knowledge, this purchase has not been completed, and the phrase "was purchased" should be changed to "is in the process of being acquired."

**Response:** The phrase "was purchased" has been changed to "is in the process of being acquired" in each of the proposed resolutions.

3. On the third page of each of those resolutions, in the 2nd line of the first full paragraph, I recommend that the phrase "as amended" be added after "(MOU)?"

**Response:** The phrase "as amended" has been added after "(MOU)".

4. Three lines from the end of the first full paragraph of page 3-4 states that Hamilton will also be entering into a separate agreement for sewage service with the BCRA. As presently envisioned, Hamilton Township will be tying into the Pocono Township collection system, and will be entering into an inter-municipal service agreement with Pocono Township. I therefore suggest that sentence be revised to provide as follows:

"Separate agreements for sewage service will be established between the BCRA and Pocono and Stroud Townships and Stroudsburg Borough. Hamilton Township will be connecting its sewage collection system into the Pocono Township collection system, and will enter into either a management or service agreement with Pocono Township."

**Response:** The above description of the sewage service for Hamilton Township was incorporated into the plan in the section referenced above.

5. The dates, especially with the draft plan information, in the Schedule of Implementation that starts on Page 3-7 should be updated, since it is somewhat already out of sync with respect to the draft plan.

**Response:** The dates of the 537 plan completion in the Schedule of Implementation have been revised to co-incide with the current status.

6. The third full paragraph under Section B. on Page 4-4 states that the Brodhead Creek is categorized as a cold water fishery from its source to S.R. 2022 and a trout-stocking fishery from S.R.2022 to its mouth. It was my recollection that in July of 2007, DEP re-categorized the section from S.R. 2022 to its mouth as cold water fishery.

**Response:** This section has been revised to classify this stream segment of the Brodhead Creek with an existing use of CWF-MF and a designated use of TSF-MF.

7. Item C. 2. at the bottom of Page 4-38 should be changed to provide as follows:

“BCRA to enter into individual Sewage Treatment Agreements with Pocono Township, Stroud Township and Stroudsburg Borough.”

**Response:** Item C.2. at the bottom of page 4-38 has be revised as described above.

8. I recommend that the last sentence of Section D. on Page 4-39 be revised to provide as follows:

“Each individual municipality will own, operate and maintain its own collection and conveyance system and will, directly or indirectly, obtain sewage treatment and disposal services for the same from BCRA.”

**Response:** The last sentence of Section D. on page 4-39 has been revised as described above.

9. In the sixth line of the description of Project No. 2 on Page 8-2, it states that “The adjacent southwest parcel of the Stroudsburg Borough WWTP was purchased for the expansion” [emphasis supplied]. As I previously stated, to my knowledge, this purchase has not been completed, and the phrase “was purchased” should be changed to “is in the process of being acquired.”

**Response:** The sixth line of the description of Project No. 2 on Page 8-2, has been revised from “was purchased” to “is in the process of being acquired.”

10. In my copy of the Plan although Appendix K states that it contains the MEMORANDUM OF UNDERSTANDING DOCUMENT, spreadsheets containing the sewage flow calculations instead appear.

**Response:** In the final plan, Appendix K will include the executed copy of the Memorandum of Understanding, the executed Addendum to the Memorandum of Understanding, and associated exhibits as provided by Mr. McManus.

11. Although Appendix L states that it contains the STROUDSBURG WWTP 2007 CHAPTER 94 REPORT, a copy of the Memorandum of Understanding is instead inserted. Additionally, the copy of the Memorandum of Understanding which is included is not the final executed copy. A copy of the finally executed copy should, however be included, as well as a copy of the executed Addendum to the Memorandum of Understanding that was entered into. Copies of both executed documents are included with this letter.

**Response:** In the final plan, Appendix L will include the STROUDSBURG WWTP 2007 CHAPTER 94 REPORT and Appendix K will include the executed copy of the Memorandum of Understanding, the executed Addendum to the Memorandum of Understanding, and associated exhibits as provided by Mr. McManus.

**RKR HESS ASSOCIATES COMMENT Letter dated March 6, 2009 on behalf of Pocono Township**

The following are RKR Hess Associates' comments and Reilly Associates' responses to the comments:

1. The Pennsylvania Department of Environmental Protection (PA DEP) required that Pocono and Hamilton Townships include the following note in the Special Study:

"..... In order to promote water reuse and to encourage the use of on-lot wastewater disposal as much as practical, the Plan requires that any undeveloped lot in the service area may connect to the system for its existing flow. If a developed lot proposes a change in flow of more than 800 gallons per day, either by conversion of an existing use or redevelopment, sewage planning on an individual basis is required. This shall include an alternatives analysis for potential and possible land disposal opportunities. Any undeveloped lot within the service area may connect to the system if its proposed flow is 800 gallons per day or less. If its proposed flow is more than 800 gallons per day, individual sewage planning will be required including an evaluation of the potential to accommodate all or a portion of the lot's waste water needs through onsite disposal."

PA DEP included this requirement in their December 7, 2006 approval letter. (See attached). This note should also be included in the Regional Act 537 Plan.

**Response:** This condition has been added to Pocono Township and Hamilton Township sewage planning requirements in Section I Previous Wastewater Planning, Part A Existing Wastewater Planning (page 4-2) of the Plan. These conditions for development will only apply to Pocono Township and Hamilton Township.

2. Regarding the Plan Summary, Page 3-5, Project Financing:

It is our understanding that for projects involving four or more municipalities, PennVEST will fund up to \$22 Million Dollars for a project loan. This could be a revision on Page 3-5 and affect the user rate analysis.

**Response:** PENNVEST regulations states that they can fund up to \$20 Million dollars in loans for a project with two (2) or more municipalities. This is what we based the financing calculations upon, therefore, no revision is necessary.

3. Appendix I, User Rate Analysis, Page 1:

The User Rate Analysis includes 3,713 EDUs for Pocono and Hamilton Townships. The total EDUs are 3,715 as indicated in revised Table 3-4 included in the Act 537 Plan. On Page IV-13, Table IV-2, Existing and Future EDU Projections, the Pocono/Hamilton Township total EDU5 in 2012 is shown as 3,715.

On Page 3, the User Rate Calculations for Alternative 2 Project 1 and 2 PennVEST and Bond Financing uses 3,895 EDUs. We are not aware of how this number was determined. Pocono and Hamilton Township's total EDU5 are 3,715. This will revise the user rates.

**Response:** All User Rate calculations have been revised based on the current total of 3,715 EDUs for Pocono and Hamilton Townships. The revised User Rates have been updated in all locations of the plan.

4. A draft copy of the MOU appears to be included in the Plan. We recommend that the executed version of the Memorandum of Understanding (MOU) and the Addendum to the MOU and the current Exhibits be included in the Study.

**Response:** The executed version of the Memorandum of Understanding (MOU) and the Addendum to the MOU and the current Exhibits have been provided and are now included in Appendix K in lieu of the Draft copy previously included.

5. If the proposed equalization system is moved from the Pocono Township site to the Stroud Township site, Pocono Township would then have additional costs for re-design of the pump stations and the forcemain in the southern end of Pocono Township and Hamilton Township. Also, additional construction costs will be incurred by Pocono Township due to a larger forcemain to handle the raw sewage from Pocono Township to the equalization site in Stroud Township. In addition, the regional shared costs might increase if the forcemain from the Stroud Township equalization site to the wastewater treatment plant will be utilized by other municipalities.

**Response:** This plan recognizes the need for additional equalization and odor control for the Pocono and Hamilton Township flows. Originally this was proposed at a location in Pocono Township. After further evaluation, it has been determined that the original location may not be the most cost effective, and two (2) alternate sites are being evaluated at this time. It is anticipated that either one of these new locations would result in cost savings for the project associated with the following items:

- The original equalization tank site in Pocono Township required additional costs for access and stream crossings that can be saved in the site work and design of the facility at the other alternate sites.

- The location in Pocono Township required pumping to the equalization and back from the equalization to the transfer pump station that would now be eliminated, thereby saving costs.
- It is anticipated that the sewage transmission main alignment could be modified which would reduce pipe construction in the state highway, thereby saving costs for that system.

**RKR HESS ASSOCIATES COMMENT Letter dated March 13, 2009 on behalf of Hamilton Township**

Comments 1 through 5 are the same as in the letter dated March 6, 2009 on behalf of Pocono Township and are addressed previously.

The following are RKR Hess Associates' comments that were exclusive to Hamilton Township and Reilly Associates' responses to the comments:

6. Tab 4, Section H — Physical and Demographic Analysis, B. Physical Characteristics, page 4-4:

The text indicates that the Brodhead Creek from SR 2002 (Stokes Avenue) Bridge to its mouth is classified as a trout-stocking, migratory fishery. We understand that PA DEP was reclassifying this section of the Brodhead Creek.

**Response:** This section has been revised to classify this stream segment of the Brodhead Creek with an existing use of CWF-MF and a designated use of TSF-MF.

7. The Hamilton Township Boundary information should be confirmed to be consistent with existing and proposed Township Ordinances.

**Response:** The Hamilton Township Municipal boundary on the Service Area Map is generally consistent with the Hamilton Township Zoning map dated July 1, 2002. If Hamilton has changed their municipal boundary or plans to change their boundary, they can provide us the proposed changes.

**BRINJAC ENGINEERING COMMENT Letter dated March 20, 2009 on behalf of Stroudsburg Borough**

The following are Brinjac's comments and Reilly Associates responses to these comments:

1. Section 1, Plan Check List Page 14, Additional Requirements for PENNVEST Projects, was not filled out. This section should be completed since "the primary funding method recommended by this Plan is a \$20 million PENNVEST loan for each project of Alternative 1 — Regional 4.5 MGD WWTP (total of \$40 million)", as stated in Section 4, Page 4-31, 1st Paragraph, 1st Sentence.

**Response:** These items have been completed on Plan Checklist Page 14.

2. Section 2, Municipalities' Resolutions of Adoption, contains the draft resolutions for each municipality to adopt this Plan. Page 3, 1st Paragraph, of each draft resolution, lists the following milestone schedules.

<u>Milestone</u>	<u>Completion</u>
Revise Act 537 Plan	September 2009
2.5 MGD Upgrade Part II Permit	July 2009
4.5 MGD Upgrade Part II Permit	September 2009

The Pennsylvania Department of Environmental Protection (DEP) typically requires that an Act 537 planning process needs to be completed and approved before the Part II construction permit can be obtained. The proposed implementation schedule may not be feasible.

**Response:** The September 2009 date for completion of the 4.5 MGD Upgrade Part II Permit, listed in Brinjac's comment above, is not correct. The Plan schedule has a completion date of July 2010 for the 4.5 MGD Upgrade Part II Permit, based upon Act 537 Plan approval in September 2009. In a phased approach, the 2.5 MGD Upgrade Part II permit does not require the Updated Act 537 Plan approval, therefore this permit could be acquired.

3. Section 3, Page 3-1, 1st Paragraph, states that "Purpose of the Update — The four (4) municipalities in this plan have existing approved sewage facilities planning which will remain in effect with this Update. The only modification being proposed with this Update is for the conversion to a regional 4.5 MGD wastewater treatment for the four (4) municipalities. Therefore, most of the other sewage planning sections in the existing approved plans were not required to be updated in this plan and would remain in the previously approved plan." DEP may have waived certain planning elements and items for this Plan. However, we did not have a copy of the originally DEP approved Task Activity Report (TAR) to identify the required planning scopes, elements, tasks, and items. This Plan should include a copy of the TAR as an appendix for comparison.

**Response:** A copy of the executed and approved Task Activity Report will be added to the Final plan in Appendix O.

4. Section 3, Page 3-2, 2nd Paragraph, 3<sup>rd</sup> Sentence, states that "The adjacent southwest parcel of the Stroudsburg Borough WWTP was purchased for the expansion." Was this parcel actually purchased? If so, what was the cost? The land acquisition cost would then need to be included in the cost effectiveness analysis. Depending upon the actual land acquisition cost, this may change the comparison result of whether Alternative 1 still has a lower present worth cost than Alternative 2.

**Response:** Page 3-2, 2nd Paragraph, 3<sup>rd</sup> Sentence has been revised from “was purchased” to “is in the process of being acquired.”

5. Section 4, Page 4-8, 5th Paragraph, lists the permitted average monthly discharge limits for the existing Borough of Stroudsburg WWTP. The reference to BOD5 should be corrected as CBOD5. Also, the existing WWTP does not currently have effluent DO or Phosphorus discharge limits.

**Response:** The above corrections to CBOD5, effluent DO and Phosphorus have been made to Section 4, Page 4-8, 5th Paragraph.

6. Section 4, Page 4-25, Table IV-1, and Page 4-26, Table IV-2, list the following costs.

Table VI-1 Total Project Costs for each Alternative by Municipality

Municipality and Share of Total	Alternative 1	Alternative 2
Pocono/Hamilton Project 1 Collection/Conveyance Costs	\$46,189,000	\$38,731,000
Pocono/Hamilton Project 2 WWTP Cost	\$20,625,805 (50.73% of Regional WWTP)	\$39,007,000 (100% of 2.0 MGD WWTP)
Stroud Township Project 2 WWTP Cost	\$12,018,405 (29.56% of Regional WWTP)	\$10,265,400 (60% of 2.5 MGD WWTP Upgrade)
Stroudsburg Boro. Project 2 WWTP Cost	\$8,012,270 (19.71% of Regional WWTP)	\$6,843,600 (40% of 2.5 MGD WWTP Upgrade)
Total Project Cost	\$86,845,480	\$94,847,000

Table VI-2 O&M Costs for each Alternative by Municipality

	Alternative 1	Alternative 2
Pocono/Hamilton Twp.	\$1,703,532	\$1,462,000
Stroud Township	\$1,570,399	\$1,372,000
Stroudsburg Boro	\$1,061,569	\$929,000
Total Annual O&M Cost	\$3,384,500	\$2,812,000

However, as illustrated in the table below, Alternate 1, the recommended alternative by this Plan, does not seem to be cost-effective at all for the rate payers in Stroudsburg Borough and Stroud Township.

	Project Cost Increase Due to Selecting Alternative 1	Yearly O&M Cost Increase Due to Selecting Alternative 1
Pocono/Hamilton Twp.	(\$10,923,195)	\$241,532
Stroud Township	\$1,753,005	\$198,399
Stroudsburg Boro	\$1,168,670	\$132,569
Total Annual O&M Cost	(\$8,001,520)	\$572,500

**Response:** Alternative 1 was recommended in the Draft Plan because it resulted in a lower Total Project Cost and a lower Total Present Worth Cost to all communities in the aggregate. Additionally, there are non-economic environmental benefits to the communities with Alternative 1, such as eliminating a stream discharge to the Brodhead Creek that is desired by a number of people in the community.

7. Section 4, Page 4-29, Table VI-5, lists the following costs. The annual user fee numbers confirm that the recommended alternative is a more costly option for all the rate payers in Stroudsburg Borough and Stroud Township.

Table VI-5 Estimated User Rate Comparison with PENNVEST Financing

	Alternative 1 4.5 MGD Regional WWTP	Alternative 2 Separate Wastewater Systems
Total Present Worth	\$114,726,527	\$116,313,848
Pocono/Ham. Twp Annual User Fee	\$1,330	\$1,339
Stroud Twp. Annual User Fee	\$892	\$840
Stroudsburg Boro. Annual User Fee	\$529	\$441

**Response:** The User Rate analysis was performed without including any state or federal grants to show a worst case scenario; however, the BCRA is applying for a number of grants to assist in funding the project which will help to lower the user rates for all municipalities. Discussions with agencies administering the grants have stated that a larger, regional project would result in a higher likelihood of receiving grants. If the Plan had included the grant amounts in the financing approach for Alternative 1 that are being applied for, the User Rates for Alternative 1 would be lower than shown above.

8. Appendix H, Present Worth Analysis, Page 2 and Page 11, assumed the same amount of annual O&M costs for two different alternatives (please see below for the scanned images of the relevant sections). However, Alternative 1 includes more than \$8.0 million more sewage conveyance infrastructure, which has to be operated and maintained additionally. The estimated annual O&M cost for Alternative 1 should be adjusted and increased accordingly.

**Response:** Based on discussion with RKR Hess Associates, who originally prepared the O&M estimates, the O&M cost for the sewage conveyance main was omitted from the Present Worth Cost analysis of Alternative 1 Project 1. An O&M cost for the conveyance main of \$75,000 has been added to the Present Worth Cost analysis of Alternative 1 Project 1. Likewise for Alternative 2 Project 2 the Pocono WWTP, the O&M cost for the effluent force main and outfall structure was omitted. An O&M cost for the effluent force main and outfall of \$50,000 has been added to the Present Worth Cost analysis for Alternative 2 Project 2 – Pocono WWTP.

9. The estimated annual O&M change identified in Comment #3 will also result in an enlarged change for the total present worth cost change for Alternative 1 since the present worth of O&M cost is calculated by the estimated annual O&M cost multiply a present worth factor of 13.007936. This may also change the comparison result of whether Alternative 1 still has a lower present worth cost than Alternative 2.

**Response:** The Total Present Worth Costs in Table VI-3 and VI-4 have been revised based on the changes in Comment 8. The Total Present Worth Cost of Alternative 1 is still lower than Alternative 2.

10. Some other general comments:

- The Table of Contents should also include a listing of Tables and Exhibits (Schematic Plans and Site Layouts)
- Section Dividers should be provided between Sections.
- Appendices L and N are missing from this Plan.
- Appendices I through K have been misplaced behind wrong Appendix Dividers.
- Appendix Divider should be provided for Appendix N.

- Miscellaneous legal and 11 x 17 size pages are not properly folded and bound.

Response: The above items will be addressed in the final plan.

THIS CONCLUDES ALL THE COMMENTS AND RESPONSES FOR THE OFFICIAL ACT 537 PLAN UPDATE. ACTUAL COPIES OF THE COMMENT LETTERS ARE ATTACHED FOR REVIEW.

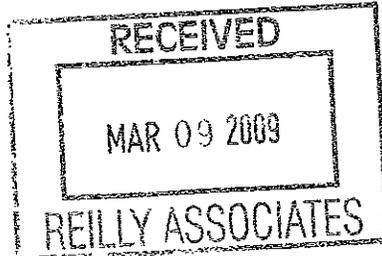
Draft Act 537

John Woodling

MONROE 2020

**MONROE COUNTY PLANNING COMMISSION**

March 5, 2009



ADMINISTRATIVE CENTER  
1 Quaker Plaza, Room 106  
Stroudsburg, PA 18360-2169  
Phone: 570-517-3100  
Fax: 570-517-3858  
mcpc@co.monroe.pa.us  
www.co.monroe.pa.us

Jeremy A. Nelson, P.E.  
Reilly Associates  
49 South Main Street  
Pittston, PA 18640

Re: Draft Official Act 537 Plan Update  
Hamilton, Pocono and Stroud Townships and  
Stroudsburg Borough  
MCPC Review #31-09

Dear Mr. Nelson:

The Draft Official Act 537 Plan Update was reviewed by Amy Seidel, Environmental Planner, on behalf of the Monroe County Planning Commission. You will find her comments enclosed.

All comments are preliminary and will be acted upon by the Planning Commission at its regular meeting on April 14, 2009 at 5:00 p.m. at the Monroe County Administrative Center. This action is in keeping with the Planning Commission's review policy and allows the municipalities and other interested parties to respond to the review comments before the Planning Commission's public meeting.

If these comments are not amended and are found to be acceptable by the Board at the next meeting, they should be considered to be approved as enclosed.

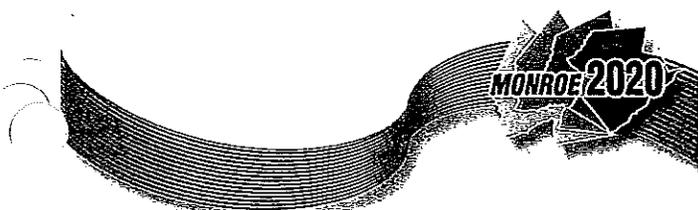
If you have any questions or if we can be of further service to you, please feel free to contact me.

Sincerely yours,

John Woodling  
Planning Director

JW/pr

cc: Kenneth Brown, BCRA



MONROE 2020

## MONROE COUNTY PLANNING COMMISSION

---

TO: John Woodling, Planning Director

FROM: Amy Seidel, Environmental Planner 

DATE: March 5, 2009

SUBJECT: Draft Official Act 537 Plan Update  
Hamilton, Pocono and Stroud Townships and Stroudsburg Borough  
MCPC Review # 31-09

ADMINISTRATIVE CENTER  
1 Quaker Plaza, Room 106  
Stroudsburg, PA 18360-2169  
Phone: 570-517-3100  
Fax: 570-517-3858  
mcpc@co.monroe.pa.us  
www.co.monroe.pa.us

The MCPC staff has reviewed the above mentioned plan on the basis of Chapter 71.21 of Title 25 of the PA Code, the County Comprehensive Plan, Monroe 2020, and the HSPS Multi-Municipal Comprehensive Plan. The following comments are offered:

1. Section 4.II.B., Physical Characteristics, indicates that the Brodhead Creek from S.R. 2022 to the confluence with the Delaware River is categorized as a Trout Stocking Fishery (TSF) and Migratory Fishes (MF). According to Pennsylvania Code § 93.9c. Drainage List C., Statewide Existing Use Classifications - Stream Code 04750, this stream segment has an existing use of CWF-MF and a designated use of TSF-MF.
2. According to the HSPS Regional Comprehensive Plan, June 2005, and the County Comprehensive Plan, Monroe 2020, this plan update is generally consistent in terms of land use and providing for public sewage facilities.
3. According to Section 7, the Pennsylvania Fish & Boat Commission and the United States Department of the Interior responses regarding a known range of the bog turtle (*Clemmys Muhlenbergii*), a federally listed threatened species, the project construction timeframe should take place between November 1st and March 31st for the Big Meadow Run area. The implementation schedule did not provide sufficient detail to determine if the time frame would be met.

It is recommended that approval of this Act 537 Official Plan Update be conditioned upon the above listed comments being satisfactorily addressed. The Staff appreciates the opportunity to review this plan and looks forward to continued cooperation with the Municipalities.

This review is subject to the approval of the Monroe County Planning Commission at its next regularly scheduled meeting.

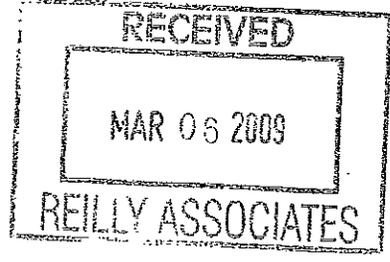
*distribution J11*



Edward C. Cramer, Chairman  
Daryl A. Eppley, Vice Chairman  
James L. Decker, Supervisor/Road Master

**TOWNSHIP** Stroud Township Municipal Center 1211 North Fifth Street Stroudsburg, PA 18360-2646  
Phone 570-421-3362 Fax 570-421-3240 www.township.stroud.pa.us

March 4, 2009



Reilly Associates  
Attn: Jeremy Nelson, P.E.,  
49 South Main St.  
Pittston, PA 18640

Re: Draft Act 537 Sewage Facilities Plan Update For Pocono, Hamilton and Stroud Townships  
and Stroudsburg Borough

Dear Jeremy:

At our March 3, 2009 meeting, the Stroud Township Board of Supervisors voted to concur with the Township Planning Commission's vote to support the plan amendment mentioned above. Enclosed is a copy of the March 2, 2009 letter from Camille Lore, Planning Administrator, noting the Planning Commission's action.

Sincerely,

STROUD TOWNSHIP SUPERVISORS

Daryl A. Eppley, Vice Chairman/Secretary

Enclosure

- cc: Stroud Township Supervisors (w/ encl.)
- Richard Deetz, Esq. (w/ encl.)
- Mark Eisold, P.E., Boucher & James, Inc. (email only)
- Camille Lore, Planning Administrator (w/ encl.)
- Helen Beers, SEO, H.M. Beers Inc., (email only)
- Todd Weitzmann, Esq. (email only)
- Ken Brown, Manager, Brodhead Creek Regional Authority (w/ encl.)
- Brenda Klein, Office Manager, Stroud Township Sewer Authority (w/ encl.)
- Taylor Wenck, Township Planning Commission Chairman (w/ encl.)
- Pocono Twp. Board of Supervisors (w/ encl.)
- Hamilton Twp. Board of Supervisors (w/ encl.)
- Stroudsburg Borough Council (w/ encl.)
- Correspondence file



ECC

DAE

**COPY**

Edward C. Cramer, Chairman  
Daryl A. Eppley, Vice Chairman  
James L. Decker, Supervisor/Road Master

**T O W N S H I P**

Stroud Township Municipal Center 1211 North Fifth Street Stroudsburg, PA 18360-2646  
Phone 570-421-3362 Fax 570-421-3240 www.township.stroud.pa.us

March 2, 2009

Stroud Township Supervisors  
c/o Daryl Eppley, Secretary/Vice Chair  
1211 North Fifth Street  
Stroudsburg, PA 18360

RE: Act 537 Plan Amendment

Dear Daryl:

At their February 25<sup>th</sup>, 2009 meeting the Stroud Township Planning Commission voted to support the Act 537 amendment for Pocono, Hamilton and Stroud Townships and Stroudsburg Borough. The Planning Commission finds that this amendment is in keeping with the regional Comprehensive Plan and is in favor of a regional approach.

Please contact me if you or the Board needs my assistance.

Sincerely,

Camille Lore  
Planning Administrator/Zoning Official

# Borough of Stroudsburg

Charles Baughman  
Mayor

Kim M. Diddio  
President

Neil Allen  
Vice-President

Matt Abell  
Councilmember

Joanne Kochanski  
Councilmember



Jeff Ewen  
Councilmember

Boyd Weiss  
Councilmember

Eric Scelza  
Councilmember

Barbara K. Quarantello  
Borough Manager

Ralph A. Matergia  
Borough Solicitor

April 2, 2009

Reilly Associates  
Attn: Jeremy Nelson, P.E.  
49 South Main Street  
Pittston, PA 18640

Re: Draft Act 537 Sewage Facilities Plan Update for Pocono, Hamilton, and Stroud Townships and Stroudsburg Borough

Dear Jeremy:

At the Borough Council meeting of March 19, 2009, Council voted unanimously to support the plan amendment mentioned above. Enclosed is a copy of the March 30, 2009 letter from Jeffrey B. Wilkins, Code Enforcement Officer indicating the Stroudsburg Borough Planning Commission's action granting unanimous approval of the plan.

Sincerely,

*Barbara K. Quarantello*

Barbara K. Quarantello  
Borough Manager

/bkq

Cc: Ken Brown, Manager, Brodhead Creek Regional Authority  
Stroud Township Board of Supervisors  
Pocono Township Board of Supervisors

Municipal Building, 700 Sarah Street, Stroudsburg, PA 18360  
Phone: (570) 421-5444, Fax: (570) 421-2690, e-mail: [stgboro@ptd.net](mailto:stgboro@ptd.net)  
[www.borough.stroudsburg.pa.us](http://www.borough.stroudsburg.pa.us)

# Borough of Stroudsburg

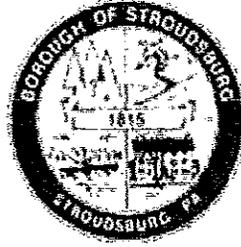
Charles Baughman  
Mayor

Kim M. Diddio  
President

Neil Allen  
Vice-President

Matt Abell  
Councilmember

Joanne Kochanski  
Councilmember



Jeff Ewen  
Councilmember

Eric Scelza  
Councilmember

Boyd Weiss  
Councilmember

Barbara Quarantello  
Borough Manager

Ralph A. Matergia  
Borough Solicitor

March 30, 2009

Jeremy Nelson, P.E.  
Reilly Associates  
49 S. Main Street, Suite 200  
Pittston, PA 18640

Re: Act 537 Plan for Brodhead Creek Regional Authority

Dear Mr. Nelson:

The Stroudsburg Borough Planning Commission reviewed the Act 537 Plan Application, for the Brodhead Creek Regional Authority, at their February and March 2009 Planning Commission meetings. On March 9, 2009 the Planning Commission granted unanimous approval of the Plan.

Please feel free to contact me if you have any further questions or if I can be of any additional assistance.

Sincerely,

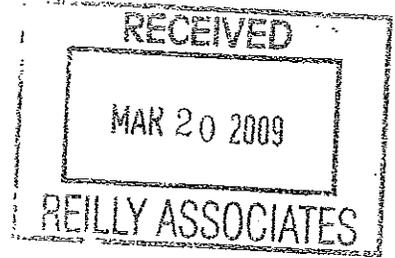
A handwritten signature in black ink, appearing to read 'Jeffrey B. Wilkins', is written over the typed name.

Jeffrey B. Wilkins  
Code Enforcement Officer



*HAMILTON TOWNSHIP PLANNING COMMISSION  
MONROE COUNTY*

P.O. BOX 285  
SCIOTA, PA 18354-0285



(570) 992-7020

FAX (570) 992-1381

March 19, 2009

Jeremy A. Nelson  
Reilly Associates  
49 S Main Street  
Pittston PA 18640

RE: BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg, Monroe County

Dear Mr. Nelson:

The Hamilton Township Planning Commission, at their March 16, 2009 meeting, unanimously voted to recommend approval of the draft copy of the Official Act 537 Sewage Facilities Plan Update for Pocono Township, Hamilton Township, Stroud Township and Stroudsburg Borough dated January 2009 based upon the comments noted in the enclosed letter from their engineer, R.K.R. Hess Associates, dated March 13, 2009.

If you need anything further, please feel free to call.

Sincerely,

Brian Potcher,  
Secretary

BP/tk  
Enclosure  
pc: Hamilton Township Supervisors

## R.K.R. Hess Associates

Surveyors, Planners, Engineers, Landscape Architects, Environmental Scientists  
112 North Courtland Street, P.O. Box 268, East Stroudsburg, Pennsylvania 18301  
Phone (570) 421-1550, Fax (570) 421-6720, Web Site: www.rkrhess.com

-copy-



March 13, 2009  
Project No. 08038.09

Hamilton Township Board of Supervisors  
Hamilton Township Municipal Building  
PO Box 285  
Sciota, PA 18354

**ATTENTION: MR. ALAN EVERETT, CHAIRMAN**

**SUBJECT: REVIEW OF DRAFT OFFICIAL ACT 537 PLAN UPDATE**

Dear Mr. Everett:

We received a copy of the Draft Official Act 537 Plan Update for Regional Sewage Facilities Plan for Stroud Township, Stroudsburg Borough, Pocono Township, and Hamilton Township dated January 2009 prepared by Reilly Associates. R.K.R. Hess reviewed the plan.

We have the following comments:

1. The Pennsylvania Department of Environmental Protection (PA DEP) required that Pocono and Hamilton Townships include the following note in the Special Study:  
*".....In order to promote water reuse and to encourage the use of on-lot wastewater disposal as much as practical, the Plan requires that any developed lot in the service area may connect to the system for its existing flow. If a developed lot proposes a change in flow of more than 800 gallons per day, either by conversion of an existing use or redevelopment, sewage planning on an individual basis is required. This shall include an alternatives analysis for potential and possible land disposal opportunities. Any undeveloped lot within the service area may connect to the system if its proposed flow is 800 gallons per day or less. If its proposed flow is more than 800 gallons per day, individual sewage planning will be required including an evaluation of the potential to accommodate all or a portion of the lot's wastewater needs through onsite disposal."*  
PA DEP included this requirement in their December 7, 2006 approval letter. (See attached). This note should also be included in the Regional Act 537 Plan.
2. Regarding the Plan Summary, Page 3-5, Project Financing:  
It is our understanding that for projects involving four or more municipalities, PennVEST will fund up to \$22 Million Dollars for a project loan. This could be a revision on Page 3-5 and affect the user rate analysis.
3. Appendix I, User Rate Analysis, Page 1:  
The User Rate Analysis includes 3,713 EDUs for Pocono and Hamilton Townships. The total EDUs are 3,715 as indicated in revised Table 3-4 included in the Act 537 Plan. On Page IV-13, Table IV-2, Existing and Future EDU Projections, the Pocono/Hamilton Township total EDUs in 2012 is shown as 3,715.



March 13, 2009

Hamilton Township Board of Supervisors (Project No. 08038.09)

Review of Draft Official Act 537 Plan Update

Page 2 of 3

On Page 3, the User Rate Calculations for Alternative 2 Project 1 and 2 PennVEST and Bond Financing uses 3,895 EDUs. We are not aware of how this number was determined. Pocono and Hamilton Township's total EDUs are 3,715. This will revise the user rates.

4. A draft copy of the MOU appears to be included in the Plan. We recommend that the executed version of the Memorandum of Understanding (MOU) and the Addendum to the MOU and the current Exhibits be included in the Study.
5. If the proposed equalization system is moved from the Pocono Township site to the Stroud Township site, Pocono Township would then have additional costs for re-design of the pump stations and the forcemain in the southern end of Pocono Township and Hamilton Township. Also, additional construction costs will be incurred by Pocono Township due to a larger forcemain to handle the raw sewage from Pocono Township to the equalization site in Stroud Township. In addition, the regional shared costs might increase if the forcemain from the Stroud Township equalization site to the wastewater treatment plant will be utilized by other municipalities.
6. Tab 4, Section II - Physical and Demographic Analysis, B. Physical Characteristics, page 4-4:  
  
The text indicates that the Brodhead Creek from SR 2002 (Stokes Avenue) Bridge to its mouth is classified as a trout-stocking, migratory fishery. We understand that PA DEP was reclassifying this section of the Brodhead Creek.
7. The Hamilton Township Boundary information should be confirmed to be consistent with existing and proposed Township Ordinances.

Should you have any questions or comments, please contact us.

Very truly yours,

**R.K.R. HESS ASSOCIATES, INC.**

Wayne E. Gross, P.E.

WEG/acj

cc: Ms. Jane Cilurso, Chairperson, Pocono Township Board of Supervisors  
Mr. Kenneth R. Brown, Manager - Brodhead Creek Regional Authority  
Mr. Timothy McManus, Esq., Solicitor - Pocono Township Board of Supervisors  
Ms. Barbara Quarantello, Manager - Stroudsburg Borough  
Mr. Edward Cramer, Chairman - Stroud Township Board of Supervisors  
Mr. Jeremy A. Nelson, P.E. - Reilly Associates



March 13, 2009

Hamilton Township Board of Supervisors (Project No. 08038.09)

Review of Draft Official Act 537 Plan Update

Page 3 of 3

Mr. Andrew Evans, P.E. – Pennoni Associates  
Mr. Fran McGovern, P.E. – Brinjac Engineering

P:\PA\Monroe Co\Pocono Twp\_Authorities\Poc Twp Superv\Poc Twp Sewer\08038.09 Review Joint Act 537 Plan\WP\A Everett 2009-03-13  
Hamilton Twp Spvrs LTR.doc



Pennsylvania Department of Environmental Protection

DEC - 8 2006  
2 Public Square  
Wilkes-Barre, PA 18711-0790  
December 7, 2006

Northeast Regional Office

570-826-2511  
Fax 570-830-3016

CERTIFIED MAIL NO. 7005 0390 0001 3228 2514 CERTIFIED MAIL NO. 7005 0390 0001 3228 0008

Pocono Township Board of Supervisors  
P.O. Box 197  
Tannersville, PA 18372

Attention: Ms. Jane Cilurso, Secretary

Hamilton Township Board of Supervisors  
P.O. Box 285  
Sciota, PA 18354

Attention: Mr. David B. Ferner, Secretary

Re: Regional Act 537 Special Study  
Route 611 Corridor  
Pocono and Hamilton Townships  
Monroe County

Ladies and Gentlemen:

We have reviewed your Act 537 Plan prepared by R.K.R. Hess Associates, Incorporated, entitled: "Pocono Township Regional Act 537 Special Study, Route 611 Corridor" (the "Plan"). The submission consists of Volume 1 of 3, 2 of 3 and 3 of 3 dated June 2, 2006 (received June 14, 2006) and Volume 4 dated October 9, 2006 (received October 11, 2006).

This submission is consistent with the planning requirements given in Chapter 71, of the Rules and Regulations of the Department. The Plan provides for construction of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, a 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and a force main to convey treated effluent to the Brodhead Creek for discharge at a point below the Brodhead Creek Regional Authority Water Plant.

The selected alternative and service area for the proposed project are depicted on Map 11 of 11 in the Plan. In order to promote water reuse and to encourage the use of on-lot wastewater disposal as much as practical, the Plan requires that any developed lot in the service area may connect to the system for its existing flow. If a developed lot proposes a change in flow of more than 800 gallons per day, either by conversion of an existing use or redevelopment, sewage planning on an individual basis is required. This shall include an alternatives analysis for potential and possible land disposal opportunities. Any undeveloped lot within the service area may connect to the system if its proposed flow is 800 gallons per day or less. If its proposed flow is more than 800 gallons per day, individual sewage planning will be required including an evaluation of the potential to accommodate all or a portion of the lots wastewater needs through onsite disposal.



The Plan is approved with the following conditions:

1. The approved project will require an NPDES Permit for the proposed effluent discharge. The permit application must be submitted in the name of the municipality or Authority, as appropriate.
2. The approved project will require a Water Quality Management Part II Permit for construction and operation of the proposed sewage facilities. The permit application must be submitted in the name of the municipality or Authority, as appropriate. Issuance of a Part II Permit will be based upon a technical evaluation of the permit application and supporting documentation. Starting construction prior to obtaining a Part II Permit is a violation of The Clean Streams Law.
3. Other Departmental permits will be required for construction and encroachment on streams and/or wetlands. Information regarding the requirements for such permits or approvals may be obtained from the Department's Technical Services Section at the above letterhead address or telephone.

It is now your responsibility to implement the Plan in accordance with the schedules contained therein.

Since the Department has approved your Plan, you are now eligible for a 50% planning cost reimbursement as provided under Section 6 of the Sewage Facilities Act (Act 537). A copy of the reimbursement application is enclosed. You are reminded that reimbursement applications must show detailed cost breakdowns of tasks completed or you will place your reimbursement in jeopardy.

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.

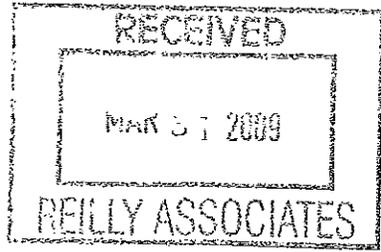
**IF YOU WANT TO CHALLENGE THIS ACTION, YOUR APPEAL MUST REACH THE BOARD WITHIN 30 DAYS. YOU DO NOT NEED A LAWYER TO FILE AN APPEAL WITH THE BOARD.**

*Distributed on 3/27*



March 27, 2009

Reilly Associates  
Attn: Jeremy Nelson, P.E.  
49 South Main Street  
Pittston, PA 18640



RE: Draft Act 537 Sewage Facilities Plan Update for Pocono, Hamilton and Stroud Townships and Stroudsburg Borough

Dear Jeremy:

At a Special Meeting held on March 27, 2009, the Pocono Township Planning Commission members voted to concur with the modifications as so noted in the letter dated March 18, 2009, from Pocono Township Planning Commission's solicitor, Timothy J. McManus, regarding the Draft Act 537 as referenced above.

The Planning Commission also concurs with comments of the letter dated March 6, 2009, from Wayne Gross, of RKR Hess Associates, re the same. Copies of both of these letters are attached hereto.

We appreciate the opportunity to review the Act 537.

Sincerely,

POCONO TOWNSHIP PLANNING COMMISSION

Jane Cilurso, CGS  
Secretary

Jc  
Enc.

CRAMER, SWETZ & McMANUS, P. C.

ATTORNEYS AT LAW  
711 SARAH STREET  
STROUDSBURG, PENNSYLVANIA 18360-2196  
<http://www.csmlawyer.com>

WILLIAM B. CRAMER  
JAMES A. SWETZ\*†  
TIMOTHY J. McMANUS  
JEFFREY L. WRIGHT  
TODD W. WEITZMANN  
GRETCHEN MARSH WEITZMANN  
BRANDON R. REISH  
MICHAEL E. McHALE  
DEBORAH L. HUFFMAN

TEL 570-421-5568  
FAX 570-421-5720  
E-MAIL [trmcmanus@csmlawyer.com](mailto:trmcmanus@csmlawyer.com)

March 18, 2009

\*Board Certified Civil and Criminal Trial Specialist by the  
National Board of Trial Advocacy, A Pennsylvania Supreme  
Court Approved Agency  
† Also Admitted in Florida

Pocono Township Planning Commission  
Municipal Building  
P.O. Box 197  
Tannersville PA 18372

Re: Review of Draft Official Act 537 Plan Update  
Our File No.: 96-8684

Dear Members of the Commission:

I have reviewed the January, 2009 draft of the Official Act 537 Plan Update, and have the following comments:

1. The checklist entitled "Additional Requirements for Pennvest Projects" on Page 14 is not completed.
2. In the fifth line of the description of Project No. 2 on the 2<sup>nd</sup> page of each of the proposed resolutions, it states that "The adjacent southwest parcel of the Stroudsburg Borough WWTP was purchased for the expansion" [emphasis supplied]. To my knowledge, this purchase has not been completed, and the phrase "was purchased" should be changed to "is in the process of being acquired."
3. On the third page of each of those resolutions, in the 2<sup>nd</sup> line of the first full paragraph, I recommend that the phrase "as amended" be added after "(MOU)."
4. Three lines from the end of the first full paragraph of page 3-4 states that Hamilton will also be entering into a separate agreement for sewage service with the BCRA. As presently envisioned, Hamilton Township will be tying into the Pocono Township collection

system, and will be entering into an inter-municipal service agreement with Pocono Township. I therefore suggest that sentence be revised to provide as follows:

“Separate agreements for sewage service will be established between the BCRA and Pocono and Stroud Townships and Stroudsburg Borough. Hamilton Township will be connecting its sewage collection system into the Pocono Township collection system, and will enter into either a management or service agreement with Pocono Township.”

5. The dates, especially with the draft plan information, in the Schedule of Implementation that starts on Page 3-7 should be updated, since it is somewhat already out of sync with respect to the draft plan.

6. The third full paragraph under Section B. on Page 4-4 states that the Brodhead Creek is categorized as a cold water fishery from its source to S.R. 2022 and a trout-stocking fishery from S.R. 2022 to its mouth. It was my recollection that in July of 2007, DEP re-categorized the section from S.R. 2022 to its mouth as cold water fishery.

7. Item C. 2. at the bottom of Page 4-38 should be changed to provide as follows:

“BCRA to enter into individual Sewage Treatment Agreements with Pocono Township, Stroud Township and Stroudsburg Borough.”

8. I recommend that the last sentence of Section D. on Page 4-39 be revised to provide as follows:

“Each individual municipality will own, operate and maintain its own collection and conveyance system, and will, directly or indirectly, obtain sewage treatment and disposal services for the same from BCRA.”

9. In the sixth line of the description of Project No. 2 on Page 8-2, it states that “The adjacent southwest parcel of the Stroudsburg Borough WWTP was purchased for the expansion” [emphasis supplied]. As I previously stated, to my knowledge, this purchase has not been completed, and the phrase “was purchased” should be changed to “is in the process of being acquired.”

10. In my copy of the Plan, although Appendix K states that it contains the MEMORANDUM OF UNDERSTANDING DOCUMENT, spreadsheets containing the sewage flow calculations instead appear.

11. Although Appendix L states that it contains the STOUDESBURG WWTP 2007 CHAPTER 94 REPORT, a copy of the Memorandum of Understanding is instead inserted.

Pocono Township Planning Commission  
March 18, 2009  
Page 3

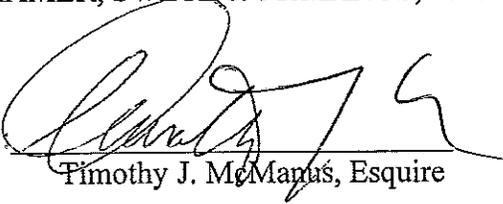
Additionally, the copy of the Memorandum of Understanding which is included is not the final executed copy. A copy of the finally executed copy should however be included, as well as a copy of the executed Addendum to the Memorandum of Understanding that was entered into. Copies of both executed documents are included with this letter.

Should you have any questions concerning the above, please feel free to contact me.

Very truly yours,

CRAMER, SWETZ, & McMANUS, P.C.

By



Timothy J. McManus, Esquire

TJM:clm

Enclosures

cc: Pocono Township Board of Supervisors

## EXECUTION COPY

### MEMORANDUM OF UNDERSTANDING

By and among the TOWNSHIP OF HAMILTON ("Hamilton"), the TOWNSHIP OF POCONO ("Pocono"), the TOWNSHIP OF STROUD and the STROUD TOWNSHIP SEWER AUTHORITY (collectively, "Stroud"), the BOROUGH OF STROUDSBURG ("Stroudsburg"), the TOWNSHIP OF SMITHFIELD ("Smithfield"), the BOROUGH OF EAST STROUDSBURG ("East Stroudsburg"), the BROADHEAD CREEK REGIONAL AUTHORITY ("BCRA"), all of Monroe County, Pennsylvania, the BROADHEAD WATERSHED ASSOCIATION ("BWA"), a not-for-profit corporation, and CITIZENS FOR PENNSYLVANIA'S FUTURE ("PennFuture"), a not-for-profit corporation.

The undersigned, as duly authorized representatives of and on behalf of their respective organizations, agree to the following terms and conditions to the implementation of a comprehensive solution to the wastewater disposal needs of Hamilton, Pocono, Stroud and Stroudsburg (the "Project").

- A. BCRA shall serve as a regional wastewater treatment authority serving Pocono, Stroud and Stroudsburg as municipal bulk treatment service customers. Affected residents of Hamilton will be served by, or on behalf of, Pocono.
1. Stroudsburg/Stroud shall convey and assign to BCRA their existing sewage treatment plant and required common use facilities, including all required permits and contracts (together the "STP"), within four weeks after BCRA receives a construction (Part 2) permit for the 2.5 MGD Upgrade (hereinafter defined), or earlier if Stroud and Stroudsburg determine it is necessary to implement the terms of this Memorandum of Understanding (the "Memorandum"). This Memorandum shall be deemed to convey a sufficient equitable interest in the STP to enable BCRA to immediately undertake appropriate planning, design and permitting activities as contemplated herein.
  2. BCRA will own, finance, design, construct and operate the STP, including the upgrades necessary to allow the STP to treat up to 2.5 MGD (hereinafter defined) of wastewater (the "2.5 MGD Upgrade") and the upgrades necessary to allow the STP to treat at least 4.5 MGD of wastewater (the "4.5 MGD Upgrade"), and accommodate not less than the effluent characteristics for Pocono described in Exhibit A attached hereto. The maximum waste characteristics applicable to Stroud and Stroudsburg shall be comparable to Pocono's. BCRA will proceed, when appropriate, to acquire additional real property to accommodate the Project, apply for the transfer or assignment of existing permits, and expeditiously apply for new permits and approvals required for the Project and the operation of the STP. BCRA shall contract for all professional services necessary to implement the Project under the milestones described below. All start up and "soft" costs

incurred by BCRA prior to obtaining permanent financing, including the cost of acquiring additional real property to accommodate the Project, shall be reimbursed from funds provided by Pocono, Stroud and Stroudsburg in accordance with paragraph B3 below, payable within 30 days of the date of periodic invoices prepared by BCRA. Each municipality shall adopt a resolution, prior to BCRA paying any Project costs from its own funds, confirming its obligation to reimburse BCRA for such costs.

3. Pocono will purchase its interest in the existing STP for the amount of approximately \$3,900,000 (44% of \$8,800,000) allocable to Stroud (60%) and Stroudsburg (40%) by assuming a portion of the debt otherwise attributable to Stroud and Stroudsburg at the time of the 2.5 MGD Upgrade and at time of the 4.5 MGD Upgrade (the "Purchase Credits"). 50% of the Purchase Credits will be applied by BCRA for the benefit of Stroud and Stroudsburg at the time of the 2.5 MGD Upgrade and 50% of the Purchase Credits will be applied at the time of the 4.5 MGD Upgrade.
4. BCRA will enter into bulk sewage treatment agreements with Pocono, Stroud, Stroudsburg based on the formulas outlined in this Memorandum and as further negotiated by such parties (the "Treatment Agreements"). Each municipality will continue to own (or construct) and operate its respective sewage collection system and set rates payable by individual users within its boundaries. Any such municipality may elect to contract with BCRA for billing, management and operation services regarding its collection system under separate agreement. As to those parties executing the Treatment Agreements, the Treatment Agreements shall supersede this Memorandum.
5. All design and permitting efforts undertaken to date by Pocono in connection with its individual sewage treatment plant project will be at the sole cost and expense of Pocono. Pocono will assume all costs associated with the design and construction of the collection facilities necessary to serve customers in Pocono and the designated portion of Hamilton.
6. Smithfield hereby consents, under the provisions of BCRA's Articles of Incorporation, to BCRA undertaking the Project as contemplated by this Memorandum. Smithfield shall not be held liable in any way whatsoever for such activities of BCRA, including Project indebtedness, in the absence of an express guaranty or other agreement under which Smithfield becomes a future participant in the Project facilities.

B. The Treatment Agreements will allocate and limit STP capacity (including hydraulic, BOD, ammonia and phosphorus), and the operating costs and debt service payable by BCRA.

1. Capacity Allocation: The Treatment Agreements shall allocate and reserve specified quantities of hydraulic capacity for the exclusive use of each identified municipality and their customers as follows:

a. Existing STP (2.0 MGD Total Available)

Pocono	0.50 MGD
Stroud	0.80 MGD
Stroudsburg	0.70 MGD

b. Following the 2.5 MGD Upgrade

Pocono/Hamilton	1.00 MGD
Stroud	0.80 MGD
Stroudsburg	0.70 MGD

c. Following the 4.5 MGD Upgrade

Pocono/Hamilton	2.00 MGD
Stroud	1.50 MGD
Stroudsburg	1.00 MGD

For all purposes of this Memorandum, and the Treatment Agreements, MGD shall mean millions of gallons per day, calculated as total annual flow divided by 365.

2. Operation and Routine Maintenance Costs ("O&M")

a. Budgeted O&M will be submitted by BCRA to the municipal customers by November 1 of each year with the estimated O&M cost allocation payable by each municipality to include in their respective budgets and rate structure (BCRA could serve as the billing agent for collecting bills in the name of a municipality).

b. Total flow would be metered at the outflow point and the flow by each municipality would be metered separately.

c. O&M would be allocated based on each municipality's annual percentage of the total flow.

d. There would be penalties for excessive flow (hydraulic and strength above that contemplated by Exhibit A).

3. Debt Service

- a. Upon execution of the Treatment Agreements, BCRA will borrow funds for the initial design and other soft costs for the Project, the construction of the 2.5 MGD Upgrade, the construction of the 4.5 MGD Upgrade, and to acquire additional real property necessary to accommodate the Project. Such financings shall include all associated issuance costs and capitalized interest on each financing through the date projected to occur when the initial Pocono customers can be served and revenues collected following completion of the 2.5 MGD Upgrade.
- b. The allocation of the principal amount of (and associated interest on) total BCRA Project debt at the time of construction of the 2.5 MGD Upgrade (inclusive of the debt allocated for design described above) shall be allocated and paid as follows (reduced by 50% of the Purchase Credits):

Pocono/Hamilton	44.45%
Stroud	33.33%
Stroudsburg	22.22%.

- c. The allocation of the principal amount of (and associated interest on) total BCRA Project debt at the time of construction of the 4.5 MGD Upgrade (inclusive of the debt allocated for design and the 2.5 MGD Upgrade described above), shall be allocated and paid by each municipality in accordance with the following methodology:

Pocono/Hamilton: The sum of (1) the principal amount of BCRA debt previously allocated to Pocono/Hamilton in connection with the Project, including the debt assumed by Pocono in connection with the Purchase Credits, plus (2) 44.45% of additional Project debt up to \$32,000,000, plus (3) 44.45% of additional Project debt in excess of \$35,000,000.

Stroud: The sum of (1) the principal amount of BCRA debt previously allocated to Stroud in connection with the Project, net of the deduction for one-half of the Purchase Credits, plus (2) 33.33% of additional Project debt up to \$32,000,000, (minus the remaining one-half of the Purchase Credits), plus (3) 59% of additional Project debt between \$32,000,000 and \$35,000,000, plus (4) 33.33% of the principal amount of Project debt in excess of \$35,000,000.

Stroudsburg: The sum of (1) the principal amount of BCRA debt previously allocated to Stroudsburg in connection with the Project, net of the deduction for one-half of the Purchase Credits, plus (2)

22.22% of additional Project debt up to \$32,000,000, (minus the remaining one-half of the Purchase Credits), plus (3) 41% of additional Project debt between \$32,000,000 and \$35,000,000, plus (4) 22.22% of the principal amount of Project debt in excess of \$35,000,000.

- d. BCRA Debt Service on any future STP projects (after completion of the 4.5 MGD Upgrade) would be paid by the recipient of the additional capacity resulting from the project, or if no new capacity, based on the percentage of total capacity allocated to each municipality at that time.
  - e. The municipalities shall guaranty BCRA debt incurred in connection with the Project in the same percentages as their allocation of debt service principal at each stage described above (net of the Purchase Credits).
  - f. A municipality would have the option to tender cash (from an individual borrowing or grant) in lieu of an allocation and payment of a like principal amount of BCRA debt.
  - g. Outstanding debt of Stroud would not be assumed by BCRA and remain the obligation of Stroud.
  - h. BCRA would be added as a beneficiary in the application for gaming (grant) funds previously submitted by Pocono in relation to its individual sewer system project and pending before Monroe County. Pocono would receive the first \$10,000,000 of such funds distributed by Monroe County and all funds distributed in excess of such amount will be transferred to BCRA to be applied to this Project to pay or retire debt previously allocated or reduce debt previously allocated in the proportions described above (but not reduce the amount or application of the Purchase Credits). BCRA would be encouraged to seek additional grant and subsidized loan funding for the Project, for which it would apply in its own name.
- C. The parties will cooperate and take all reasonable action (or refrain from any interference) required to expedite the multiple phases of the Project.
- 1. BWA, PennFuture, East Stroudsburg, Stroud and Stroudsburg will not appeal Pocono's permit to construct the "dry sewer" project (which does not include construction of a Pocono owned sewage treatment plant) or other permits or approvals required to construct the balance of Pocono's sewage collection and transmission system.
  - 2. Pocono shall construct a force main substantially along the route described in the attached Exhibit B to the STP. Any changes to such route shall be in locations that, in the reasonable judgment of Pocono, will minimize environmental

incursion. Stroud and Stroudsburg will grant permission to Pocono to construct such force main in non-state roads to the STP, and will consent to, and cooperate in, the exercise of eminent domain by Pocono to acquire necessary property interests to construct such force main. Restrictions and conditions for road openings and construction placed upon Pocono by Stroud and Stroudsburg shall be no greater than that which has historically been placed on private developers and other private persons seeking to undertake comparable activities.

3. BCRA, Pocono, Hamilton, Stroud and Stroudsburg will proceed expeditiously to comply with all planning and permitting requirements with the express goal of achieving the following major milestones:
  - a. Engagement of design consultant: 30 days from Memorandum execution
  - b. Treatment Agreement(s) executed: 60 days from Memorandum execution
  - c. Act 537 Planning Adopted by Municipalities: December, 2008
  - d. Substantial completion of the Pocono conveyance system (and commence treatment of Sanofi and Great Wolf wastewater): June, 2011
  - e. Substantial completion of the 2.5 MGD Upgrade: November, 2011
  - f. Substantial completion of the 4.5 MGD Upgrade: November, 2012
4. Pocono will not file any further applications for approval of a separate wastewater treatment plant so long as the Project is proceeding expeditiously, in view of the major milestones stated in paragraph C3. If Pocono determines that the Project is not proceeding expeditiously, Pocono shall provide all parties hereto written notice of such determination and allow a period of at least 60 days for discussion among the parties prior to filing any application for permits to construct its own sewage treatment plant. In the event that Pocono files an application for any permit to construct its own treatment plant, the remaining parties hereto shall be free to oppose or appeal such permit. In such event, Pocono shall pay or reimburse BCRA for its allocable share of all Project costs paid through the date Pocono provides written notice to BCRA that it intends to file an application to construct its own treatment plant.
5. The appeals filed by or within the control of Pocono, BWA, East Stroudsburg, Stroud and Stroudsburg to Pocono's NPDES Permit will be held in abeyance while the Project is proceeding expeditiously, as described in paragraph C4 above. BWA, Stroud, Stroudsburg, East Stroudsburg and Pocono will jointly file a motion to stay such appeals (subject to paragraph C4 above), or to resolve or withdraw them by consent of all parties. Such parties may request a conference call with the judge assigned to the appeals to ensure that the intention of this

Memorandum is understood. If allowed by the judge, BCRA shall be invited to participate in any such conference call.

6. Upon issuance of a DRBC docket approval and a NPDES permit for the 4.5 MGD Upgrade, Pocono shall relinquish its DRBC docket approval and NPDES permit authorizing discharge of treated wastewater to Brodhead Creek.
7. BWA, its undersigned officers and directors (individually as well as on behalf of BWA), East Stroudsburg and PennFuture will not oppose any application or appeal any approval or permit for the 2.5 MGD Upgrade or the 4.5 MGD Upgrade, nor advise or support any other person opposing any application or appealing any approval or permit for the 2.5 MGD Upgrade or the 4.5 MGD Upgrade (including but not limited to sewage planning approvals, wastewater discharge authorizations and construction approvals for such projects).
8. BCRA shall provide BWA, East Stroudsburg and PennFuture reasonable opportunity to review and comment on (but not oppose outright) all application submittals relating to the 2.5 MGD Upgrade and the 4.5 MGD Upgrade prior to submission to the regulatory agencies. BWA, East Stroudsburg and PennFuture agree to return comments at least 20 days prior to submission to the regulatory agencies.
9. Pocono shall provide BWA, East Stroudsburg and PennFuture reasonable opportunity to review and comment on (but not oppose outright) all application submittals relating to its sewage collection system prior to submission to the regulatory agencies. BCRA also shall be included in such review in order to evaluate potential impacts at the STP. BWA, East Stroudsburg and PennFuture agree to return comments at least 20 days prior to submission to the regulatory agencies.
10. Stroud, Stroudsburg, Pocono and Hamilton shall provide to one another and to BWA, East Stroudsburg and PennFuture reasonable opportunity to review and comment on (but not oppose outright) all sewage planning submittals relating to the Project prior to submission to the regulatory agencies. BWA, East Stroudsburg and PennFuture agree to return comments at least 20 days prior to submission to the regulatory agencies. Representatives of Stroud, Stroudsburg, Pocono, Hamilton, BCRA, BWA, East Stroudsburg and PennFuture shall participate in a meeting to take place 30 days after the execution of this Memorandum, to discuss planning efforts to date and voice any concerns.
11. The parties understand and agree that BWA may continue to advocate for decentralized wastewater management, and to submit data relevant to water use determinations, consistent with the terms and spirit of this Memorandum.

12. The parties shall issue a joint press release within one week of the execution of this Memorandum acknowledging the cooperation of all parties in agreeing to a comprehensive solution to the wastewater needs of Hamilton, Pocono, Stroud and Stroudsburg.
13. The parties understand that Sanofi Pasteur Inc. intends to seek planning and other regulatory approval to increase its discharge to Swiftwater Creek, pending implementation of the Project and availability of the proposed collection and treatment services. The parties to a separate Agreement attached as Exhibit C will not oppose any application or appeal any approval or permit authorizing the increased discharge by Sanofi Pasteur, nor advise or support any other person opposing any such application or appealing any such approval or permit, except as provided in such Agreement attached as Exhibit C.
14. The BCRA's participation in the STP project is contingent upon unanimous consent of the project by its incorporating municipalities. Pocono, Stroud and Stroudsburg shall make funds available to BCRA which it can draw as needed to pay startup and soft costs. Pocono, Stroud and Stroudsburg acknowledge that BCRA's ability to fund the Project is contingent upon the strength of each municipality's DCED approved municipal guarantee, and that BCRA will use its "best commercially reasonable efforts" to fund same.
15. The duties and obligations of BCRA to proceed with the Project shall be conditioned upon its execution of an appropriate intermunicipal agreement with Pocono, Stroud and Stroudsburg.

ACCEPTANCES:

ATTEST:

TOWNSHIP OF HAMILTON,  
Monroe County, Pennsylvania

*Daniel B. Emmer*  
(Assistant) Secretary

By: *[Signature]*  
Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF POCONO,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF STROUD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ACCEPTANCES:

ATTEST:

TOWNSHIP OF HAMILTON,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF POCONO,  
Monroe County, Pennsylvania

*John T. Bramley*  
\_\_\_\_\_  
(Assistant) Secretary

By: *H. Jane Caluso*  
\_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: 7.7.08

ATTEST:

TOWNSHIP OF STROUD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ACCEPTANCES:

ATTEST:

TOWNSHIP OF HAMILTON,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF POCONO,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF STROUD,  
Monroe County, Pennsylvania

Paul A. Epler  
\_\_\_\_\_  
(Assistant) Secretary

By: Edward C. Crane  
\_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: 10/21/08

ATTEST:

STROUD TOWNSHIP SEWER  
AUTHORITY



(Assistant) Secretary

By:   
(Vice) Chairman

(SEAL)

Date of Signature: 10-22-08

ATTEST:

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

STROUD TOWNSHIP SEWER  
AUTHORITY

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

*Barbara K. Zuercher*  
\_\_\_\_\_  
(Assistant) Secretary

By: *[Signature]*  
\_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: 6-4-08

ATTEST:

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

STROUD TOWNSHIP SEWER  
AUTHORITY

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

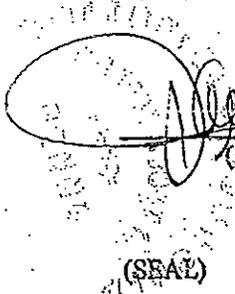
By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

  
  
\_\_\_\_\_  
(Assistant) Secretary

By:   
\_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

(SEAL)

Date of Signature: 10/14/08

ATTEST:

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

STROUD TOWNSHIP SEWER  
AUTHORITY

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

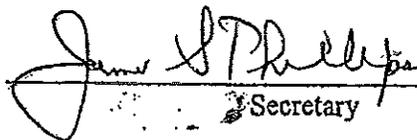
By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

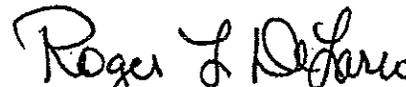
(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

  
\_\_\_\_\_  
Secretary

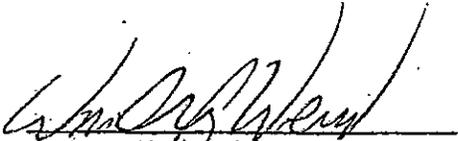
By:   
\_\_\_\_\_  
President of Council

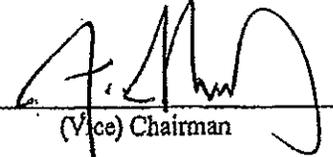
(SEAL)

Date of Signature: July 1, 2008

ATTEST:

BRODHEAD CREEK REGIONAL  
AUTHORITY

  
\_\_\_\_\_  
(Assistant) Secretary

By:   
\_\_\_\_\_  
(Vice) Chairman

(SEAL)

Date of Signature: 9/17/08

ATTEST:

BRODHEAD WATERSHED  
ASSOCIATION (and individually)

\_\_\_\_\_  
Title:

By: \_\_\_\_\_  
Dr. Jerilynn Jewett-Smith, President

(SEAL)

Date of Signature: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

\_\_\_\_\_  
Frank Herting, Vice President

Date of Signature: \_\_\_\_\_

\_\_\_\_\_  
Edie Stevens, Treasurer

Date of Signature: \_\_\_\_\_

\_\_\_\_\_  
Theresa Merli, Director

Date of Signature: \_\_\_\_\_

\_\_\_\_\_  
Don Baylor, Director

ATTEST:

BRODHEAD CREEK REGIONAL  
AUTHORITY

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman

(SEAL)

Date of Signature: \_\_\_\_\_

COMMONWEALTH OF PENNSYLVANIA  
 Notarial Seal  
 ATTEST: Michelle F. Farley, Notary Public  
 Barrett Twp., Monroe County  
 My Commission Expires May 27, 2011  
 Member, Pennsylvania Association of Notaries

BRODHEAD WATERSHED  
ASSOCIATION (and individually)

*Michelle F. Farley*  
\_\_\_\_\_  
Title: Notary Public

By: *Dr. Jerilynn Jewett-Smith*  
\_\_\_\_\_  
Dr. Jerilynn Jewett-Smith, President

(SEAL)

Date of Signature: June 22, 2008

Date of Signature: June 21, 2008

*Frank A. Herting*  
\_\_\_\_\_  
Frank Herting, Vice President

Date of Signature: 6-23-2008

*Eddie Stevens*  
\_\_\_\_\_  
Eddie Stevens, Treasurer

Date of Signature: 6-23-2008

*Theresa Merli*  
\_\_\_\_\_  
Theresa Merli, Director

Date of Signature: June 23, 2008

*Don Baylor*  
\_\_\_\_\_  
Don Baylor, Director

ATTEST: John A. Kelly

CITIZENS FOR PENNSYLVANIA'S  
FUTURE

President + CEO  
Title:

By: John Hanger  
Title:

(SEAL)

Date of Signature: 6-25-08

COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
JOHN A. KELLY, Notary Public  
Susquehanna Twp., Dauphin County  
My Commission Expires Oct. 13, 2010





## AGREEMENT

This Agreement is entered into this \_\_\_ day of June 2008, by and between Sanofi Pasteur Inc. ("Sanofi Pasteur"), a Delaware corporation, Township of Stroud ("Stroud"), a Pennsylvania local government municipality, Borough of Stroudsburg ("Stroudsburg"), a Pennsylvania local government municipality, Borough of East Stroudsburg ("East Stroudsburg"), a Pennsylvania local government municipality, Brodhead Watershed Association ("BWA"), a Pennsylvania non-profit corporation, and Citizens for Pennsylvania's Future ("PennFuture"), a Pennsylvania non-profit corporation (referred to below, collectively, as the "Parties" and, individually, as "Party").

WHEREAS, Stroud, Stroudsburg, East Stroudsburg, BWA, PennFuture and certain municipal entities intend to enter a Memorandum of Understanding (the "MOU") memorializing the terms and conditions upon which they agree to implement a comprehensive solution to the wastewater disposal needs of Hamilton Township, Pocono Township, Stroud and Stroudsburg in Monroe County, Pennsylvania;

WHEREAS, the terms of the MOU provide for the upgrade and expansion of the sewage treatment plant now owned and operated by Stroud and Stroudsburg and the development by Pocono Township of a sewage collection and transmission system so that Pocono Township may be served by the plant;

WHEREAS, the terms of the MOU preclude Pocono Township from continuing to seek approval of a separate wastewater treatment plant, so long as the MOU project is proceeding expeditiously;

WHEREAS, Sanofi Pasteur expected to be a customer of Pocono Township with respect to the wastewater services that were to be provided by the Pocono Township wastewater treatment plant;

WHEREAS, Sanofi Pasteur now expects to be a customer of Pocono Township with respect to the wastewater services to be developed and provided in accordance with the MOU;

WHEREAS, Sanofi Pasteur is concerned that the switch from the Pocono Township wastewater treatment plant project to the wastewater treatment plant project provided by the MOU may cause delay in the delivery of wastewater services;

WHEREAS, the projects specified in the MOU require various regulatory approvals, which have not yet been obtained;

WHEREAS, pending receipt of the required regulatory approvals for the projects specified in the MOU, Sanofi Pasteur believes that it does not have adequate assurance of wastewater service in order to plan future projects for the Sanofi Pasteur Swiftwater campus;

*EXHIBIT C*

WHEREAS, Sanofi Pasteur owns and operates a wastewater treatment plant at its Swiftwater campus, which is authorized to discharge treated wastewater to Swiftwater Creek in an amount up to 550,000 gallons per day ("gpd") upon completion of a plant expansion;

WHEREAS, Sanofi Pasteur's wastewater treatment plant was designed with a treatment capacity of 950,000 gpd;

WHEREAS, in order to acquire adequate assurance of wastewater service in order to plan future projects for the Swiftwater campus, Sanofi Pasteur intends to seek the regulatory approvals required to increase its discharge of treated wastewater to Swiftwater Creek up to 900,000 gpd;

WHEREAS, as soon as the Pocono Township sewage collection and transmission system and the wastewater treatment services to be developed and provided in accordance with the MOU (or by any other substantially similar municipal treatment system available at commercially reasonable rates for the area served under the MOU) are authorized and become available, and for so long as such services remain available, Sanofi Pasteur intends to utilize such services for 350,000 gpd of wastewater generated at the Swiftwater campus;

WHEREAS, Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture understand the need of Sanofi Pasteur for greater assurance of wastewater service in order to plan future projects for the Sanofi Pasteur Swiftwater campus;

WHEREAS, Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture desire that Sanofi Pasteur utilize the wastewater treatment services to be developed and provided in accordance with the MOU (or by any other substantially similar municipal treatment system available at commercially reasonable rates for the area served under the MOU) as soon as such services are authorized and become available, rather than continuing any increased discharge to Swiftwater Creek in an amount greater than the currently approved discharge up to 550,000 gpd;

NOW THEREFORE, in consideration of the foregoing, and in consideration of the promises and conditional promises set forth herein, and for other good and valuable consideration, the Parties, intending to be legally bound, hereby agree as follows:

1. *Applications to Increase Discharge to Swiftwater Creek.* Except as provided in Section 7, Sanofi Pasteur agrees to request in all applications to increase its discharge to Swiftwater Creek in accordance with this Agreement that the approval applied for contain an appropriate abandonment provision that requires Sanofi Pasteur to abandon the increased discharge to Swiftwater Creek, and to return to the terms and conditions of its current permits, if and as soon as the Pocono Township sewage collection and transmission system and the wastewater treatment services to be developed and provided in accordance with the MOU (or by any other substantially similar municipal treatment system available at commercially reasonable

rates) are authorized and have demonstrated functionality in accordance with regulatory requirements for a period of six (6) months.

2. *No Objection to Applications to Increase Discharge to Swiftwater Creek.* Except as provided in Section 7, and provided that Sanofi Pasteur satisfies the agreements set forth in Section 1, Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture will not oppose any application by Sanofi Pasteur for planning or regulatory approval of an increase in the discharge of treated wastewater by Sanofi Pasteur to Swiftwater Creek in accordance with this Agreement up to the amount of 900,000 gpd, including any application for approval by Pocono Township, the Pennsylvania Department of Environmental Protection or the Delaware River Basin Commission.

3. *No Appeal of Permits or Approvals.* Except as provided in Section 7, and provided that Sanofi Pasteur satisfies the agreements set forth in Section 1, Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture will not appeal any approval or permit issued by any municipal body or regulatory agency authorizing an increase in the discharge of treated wastewater by Sanofi Pasteur to Swiftwater Creek up to the amount of 900,000 gpd, including any planning or regulatory approval or permit issued by Pocono Township, the Pennsylvania Department of Environmental Protection or the Delaware River Basin Commission. Except as provided in Section 7, and provided that Sanofi Pasteur satisfies the agreements set forth in Section 1, any right of Stroud, Stroudsburg, East Stroudsburg, BWA or PennFuture to appeal any such approval or permit is hereby waived.

4. *No Representation of Other Parties.* Except as provided in Section 7, and provided that Sanofi Pasteur satisfies the agreements set forth in Section 1, Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture will not advise or support any other person opposing any application or appealing any approval or permit relating to an increase in the discharge of treated wastewater by Sanofi Pasteur to Swiftwater Creek up to the amount of 900,000 gpd.

5. *Non-Degrading Discharge.* The application Sanofi Pasteur submits to authorize an increase in the discharge of treated wastewater to Swiftwater Creek to an amount greater than the currently approved flow of 550,000 gpd as contemplated herein will reflect a "non-degrading" discharge in accordance with the regulations of the Pennsylvania Department of

Environmental Protection, *i.e.*, it will maintain and protect the existing water quality, and will not reduce the water quality, of Swiftwater Creek, and will not rely on the "social or economic justification" ("SEJ") as provided in the regulations of the Pennsylvania Department of Environmental Protection. In the event that the Pennsylvania Department of Environmental Protection rejects or denies the application submitted by Sanofi Pasteur for a "non-degrading" discharge, or if Sanofi Pasteur determines that its existing wastewater treatment plant cannot reliably achieve the effluent limitations or controls required for a "non-degrading" discharge, then, subject to Section 7, Sanofi Pasteur retains the right to apply for increased discharge to Swiftwater Creek on the basis of SEJ.

6. *Limitation of Discharge When Municipal System Available.* Notwithstanding any approval it may obtain to increase the discharge of treated wastewater to Swiftwater Creek to an amount greater than the currently approved flow of 550,000 gpd, Sanofi Pasteur will utilize, up to a total amount of 350,000 gpd, the Pocono Township sewage collection and transmission system and the wastewater treatment services to be developed and provided in accordance with the MOU: (or any other substantially similar municipal treatment system available at commercially reasonable rates for the area served under the MOU) as soon as such services are authorized and become available, and for so long as such services remain available, in lieu of continuing to discharge to Swiftwater Creek in an amount greater than the currently approved flow of 550,000 gpd.

7. *Scope of Agreement and Reservations.* Nothing in this Agreement shall limit the right of Sanofi Pasteur in the future to seek approval of increased discharges of treated wastewater to Swiftwater Creek in amounts greater than 550,000 gpd (including approval based on SEJ), provided that its commitment to utilize the municipal system for up to 350,000 gpd, as provided in Section 6, has been satisfied or a municipal system as contemplated herein is not available. Similarly, nothing in this Agreement shall limit the rights of Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture to oppose any application for such subsequent future increase, to appeal any approval or permit authorizing such subsequent future increase, or to advise or support any other person opposing any application or appealing any approval or permit relating to such subsequent future increase. Sanofi Pasteur agrees not to argue that the failure of Stroud, Stroudsburg, East Stroudsburg, BWA or PennFuture to appeal any previous increase

bars, estops or in any way limits those parties from opposing any application for such subsequent future increase, appealing any approval or permit authorizing such subsequent future increase, or advising or supporting any other person opposing any application or appealing any approval or permit relating to such subsequent future increase. Furthermore, the commitments by Stroud, Stroudsburg, East Stroudsburg, BWA and PennFuture stated in Sections 2, 3 and 4 shall not apply in the event that Sanofi Pasteur is permitted for increased discharge to Swiftwater Creek on the basis of SEJ.

8. *Final Agreement.* This Agreement constitutes the entire agreement between and among the Parties and it shall supersede all prior agreements and understandings between or among the Parties with respect to the subject matter hereof. No representation or statement by a Party, or any representative thereof, shall be binding unless it is stated herein.

9. *Drafting by All Parties.* All Parties to this Agreement acknowledge that each has had an equal opportunity to participate in, and each has participated in, the drafting of this Agreement.

10. *Modifications and Amendments.* This Agreement may be modified or amended only in writing and only if signed by a duly authorized representative of each Party. No modification or amendment of this Agreement shall be binding unless in writing and so signed.

11. *Remedies.* In the event of breach by either Party of this Agreement, the other Party shall have the right to seek any remedy at law or equity.

12. *Attorneys' Fees and Costs.* In the event that a Party to this Agreement seeks enforcement of this Agreement, or brings an action for breach of this Agreement, the prevailing Party or Parties shall be entitled to recover all reasonable attorneys' fees and costs and expenses related to the prosecution or defense of such action, unless the non-prevailing Party is determined to have acted with substantial justification.

13. *Failure of Enforcement.* The failure of any Party to enforce its rights under this Agreement in one instance shall not constitute a waiver of such rights in any other instance.

14. *Severability.* Any term or provision of this Agreement which is invalid or unenforceable shall be ineffective to the extent of such invalidity or unenforceability without rendering invalid or unenforceable the remaining terms and provisions of this Agreement.

15. *Controlling Law.* This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the Commonwealth of Pennsylvania.

16. *No Third Party Beneficiaries.* Nothing in this Agreement is intended to benefit any person or entity not a signatory to this Agreement, and the rights and remedies provided herein shall only be enforceable by the party granted such rights under this Agreement.

17. *Successors and Assigns.* This Agreement shall be binding on and inure to the benefit of the Parties and their successors and assigns.

18. *BWA Members Bound.* The terms of this Agreement shall bind BWA as an organization. The officers and directors thereof who have signed the Agreement also shall be bound as individuals to the full extent of the Parties.

19. *Counterparts.* This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the Parties have executed this Agreement on the day and year first above written.

**Sanofi Pasteur Inc.**

**Witness:**

\_\_\_\_\_  
Frank A. Epifano  
Vice President, Finance US

\_\_\_\_\_  
Name:

\_\_\_\_\_  
John Harrington  
Vice President, Site Services

\_\_\_\_\_  
Name:

**Brodhead Watershed Association  
(and members individually)**

**Witnesses:**

\_\_\_\_\_  
Dr. Jerilynn Jewett-Smith  
President

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Frank Herting  
Vice President

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Edie Stevens  
Treasurer

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Theresa Merli  
Director

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Don Baylor  
Director

\_\_\_\_\_  
Name:

**Township of Stroud**

**Witness:**

\_\_\_\_\_  
Edward C. Cramer  
Chairman, Board of Supervisors

\_\_\_\_\_  
Name:

**Borough of Stroudsburg**

**Witness:**

\_\_\_\_\_  
Kim M. Diddio  
President of Council

\_\_\_\_\_  
Name:

**Borough of East Stroudsburg**

**Witness:**

\_\_\_\_\_  
Roger DeLarco  
Council President

\_\_\_\_\_  
Name:

**Citizens for Pennsylvania's Future**

**Witness:**

\_\_\_\_\_  
John Hanger  
President and CEO

\_\_\_\_\_  
Name:

ADDENDUM TO MEMORANDUM OF UNDERSTANDING

By and among the TOWNSHIP OF HAMILTON ("Hamilton"), the TOWNSHIP OF POCONO ("Pocono"), the TOWNSHIP OF STROUD and the STROUD TOWNSHIP SEWER AUTHORITY (collectively "Stroud"), the BOROUGH OF STROUDSBURG ("Stroudsburg"), the TOWNSHIP OF SMITHFIELD ("Smithfield"), the BOROUGH OF EAST STROUDSBURG ("East Stroudsburg"), the BROADHEAD CREEK REGIONAL AUTHORITY ("BCRA"), all of Monroe County, Pennsylvania, the BROADHEAD WATERSHED ASSOCIATION ("BWA"), a not-for-profit corporation, and CITIZENS FOR PENNSYLVANIA'S FUTURE ("PennFuture"), a not-for-profit corporation (hereinafter the "Parties").

The undersigned, as duly authorized representatives of and on behalf of their respective organizations, agree to the following terms and conditions as an Addendum to a Memorandum of Understanding ("MOU") entered into by the above Parties to memorialize their respective understandings regarding the implementation of a comprehensive solution to the wastewater disposal needs of Hamilton, Pocono, Stroud, and Stroudsburg (the "Project").

1. All definitions utilized in the MOU are incorporated herein.
2. Paragraph 14 of the MOU contemplates that BCRA's participation in the STP Project was, in part, contingent upon approval of its participation in said Project by its host Municipalities, to wit: the Townships of Pocono, Hamilton, Stroud, and Smithfield, and the Borough of Stroudsburg (hereinafter "Participating BCRA Municipalities"). Each of the aforementioned Municipalities have approved a Resolution authorizing the

BCRA to participate in the STP Project. A copy of the respective Municipalities' Resolutions are incorporated herein and attached hereto as though fully set forth herein.

3. The Parties acknowledge that the Resolutions attached hereto authorizing BCRA's participation in the STP Project shall supersede any provision of the MOU that may conflict with the authority set forth in said Resolutions.
4. The Borough of Stroudsburg, and the Townships of Pocono, Hamilton, Stroud, and Smithfield shall amend the Articles of Incorporation for the BCRA to authorize the BCRA to initiate, develop, maintain, and manage, either directly or under management agreement with the owner of the STP, sewage and sewage-related projects which are hereinafter duly approved by the BCRA.
5. The Participating BCRA Municipalities will authorize the BCRA to own, develop, operate and/or manage sewage treatment facilities with attendant collection lines, structures, easements, and rights of way.
6. The Parties to the MOU acknowledge that the BCRA has the right to develop the STP Project as a new facility, a rehabilitation of the old facility and/or a combination of both so long as the effluent discharge point remains as currently established for the Stroudsburg/Stroud Township STP.
7. The Parties to the MOU acknowledge that the BCRA may develop the STP Project in either two phases as contemplated by the existing MOU or in one stage thereby developing one 4.5 MGD STP.

8. The Parties to the MOU acknowledge that the BCRA may either own/operate the new STP in its own name or may operate the new STP under a management agreement with a new authority, to be established by the Municipalities participating in the STP Project (to date: Pocono Township, Stroud Township, Borough of Stroudsburg), which shall then own the STP, as the Municipalities participating in the STP Project shall solely determine.
9. The Parties acknowledge that the duties and obligations of the BCRA to proceed with the Project remain conditioned upon appropriate intermunicipal agreement(s) to be entered into with each party utilizing the STP.
10. The Parties acknowledge that the BCRA's ability to fulfill its obligations as set forth in the MOU and this Addendum is contingent upon the Participating BCRA Municipalities executing, enacting, adopting and/or resolving to file the appropriate documents authorizing the participation of the BCRA as set forth herein.
11. Exhibits A and B attached hereto are hereby substituted for, and shall replace, Exhibits A and B which are currently attached to the MOU.
12. The BCRA shall have the right, but not the obligation, to assign any of its rights and obligations, and delegate any of its duties, set forth in the MOU to a new authority which may be formed to own the STP.
13. Paragraph A.6 of the MOU is hereby revised to provide as follows:  
  
"Hamilton and Smithfield hereby consent, under the provisions of BCRA's Articles of Incorporation, to BCRA undertaking the Project as

contemplated by this Memorandum. Hamilton and Smithfield shall not be held liable in any way whatsoever for such Project activities of BCRA, including Project indebtedness, in the absence of an express guaranty or other agreement under which Hamilton or Smithfield become a future participant in the Project facilities."

14. The references to "Pocono/Hamilton" in B.3.b. and B.3.c. of the MOU are hereby revised to "Pocono".
15. The following sentences are added to Paragraph A.5 of the MOU to provide as follows: "Pocono and/or BCRA, as they may agree, will operate and maintain at their cost the collection facilities necessary to serve customers in Pocono and the designated portion of Hamilton. For purposes of this Agreement, the designated portion of Hamilton, and the properties therein, to be served is indicated on attached Exhibit "D"."
16. Any reference to the terms "municipality" or "municipalities" in Paragraphs A.2., A.4., B.2.a., B.2.b., B.2.c., B.3.d. and B.3.e. of the MOU, shall mean only Pocono, Stroud and/or Stroudsburg, as applicable. Those terms do not include Hamilton or Smithfield.
17. Hamilton will grant permission to Pocono to construct the sewer lines and facilities in the locations agreed upon by Pocono and Hamilton for Pocono's sewer collection and transmission system in non-state roads within Hamilton Township, and will consent to, and cooperate in, the exercise of eminent domain by Pocono to acquire necessary property interests to construct such sewer lines and facilities. Restrictions and conditions for road openings and construction placed upon Pocono by Hamilton shall be no greater than that which has historically been placed

on private developers and other private persons seeking to undertake road openings and construction with respect to its roads .

18. All other provisions of the MOU shall remain in full force and effect.

ACCEPTANCES:

ATTEST:

*Daniel B. Fenna*  
(Assistant) Secretary  
(SEAL)

TOWNSHIP OF HAMILTON,  
Monroe County, Pennsylvania

By: *Alan L. Cunniff*  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

TOWNSHIP OF POCONO,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

TOWNSHIP OF STROUD,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

STROUD TROWNSHIP SEWER  
AUTHORITY,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) Chairman  
Date of Signature: \_\_\_\_\_

on private developers and other private persons seeking to undertake road openings and construction with respect to its roads .

18. All other provisions of the MOU shall remain in full force and effect.

ACCEPTANCES:

ATTEST:

TOWNSHIP OF HAMILTON,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

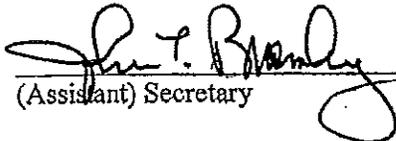
(SEAL)

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF POCONO,  
Monroe County, Pennsylvania

  
\_\_\_\_\_  
(Assistant) Secretary

(SEAL)

By: N. Jane Aliso  
(Vice) Chairman of the Board  
of Supervisors

Date of Signature: 10/14/08

ATTEST:

TOWNSHIP OF STROUD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

(SEAL)

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

Date of Signature: \_\_\_\_\_

ATTEST:

STROUD TROWNSHIP SEWER  
AUTHORITY,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

(SEAL)

By: \_\_\_\_\_  
(Vice) Chairman

Date of Signature: \_\_\_\_\_

on private developers and other private persons seeking to undertake road openings and construction with respect to its roads .

18. All other provisions of the MOU shall remain in full force and effect.

ACCEPTANCES:

ATTEST:

TOWNSHIP OF HAMILTON,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF POCONO,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF STROUD,  
Monroe County, Pennsylvania

Paul A. Eglay  
(Assistant) Secretary  
(SEAL)

By: Edward C. Casner  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: 10/21/08

ATTEST:

STROUD TROWNSHIP SEWER  
AUTHORITY,  
Monroe County, Pennsylvania

M. M. K.  
(Assistant) Secretary  
(SEAL)

By: [Signature]  
(Vice) Chairman  
Date of Signature: 10-22-08

ATTEST:

*Barbara L. L...*  
(Assistant) Secretary  
(SEAL)

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

By: *[Signature]*  
(Vice) President of Council  
Date of Signature: 9-18-08

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) President of Council  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

*[Signature]*  
(Assistant) Secretary  
(SEAL)

BRODHEAD CREEK REGIONAL  
AUTHORITY

By: *[Signature]*  
(Vice) Chairman  
Date of Signature: 9/17/08

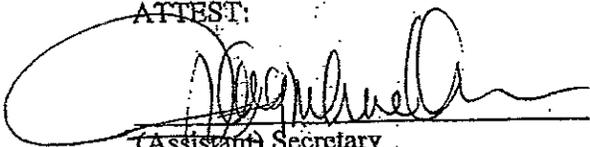
ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

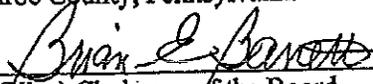
BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) President of Council  
Date of Signature: \_\_\_\_\_

ATTEST:

  
\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

By:   
\_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: 10/14/08

ATTEST:

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

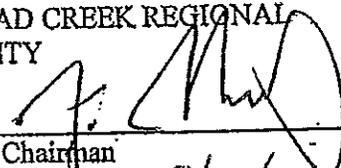
BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

By: \_\_\_\_\_  
(Vice) President of Council  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

  
\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

BRODHEAD CREEK REGIONAL  
AUTHORITY

By:   
\_\_\_\_\_  
(Vice) Chairman  
Date of Signature: 9/17/08

ATTEST:

STROUD TOWNSHIP SEWER  
AUTHORITY

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) Chairman

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

By: \_\_\_\_\_  
(Vice) President of Council

(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary

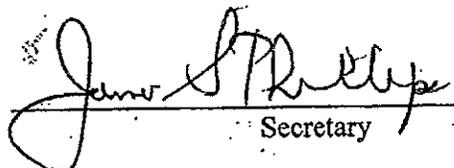
By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors

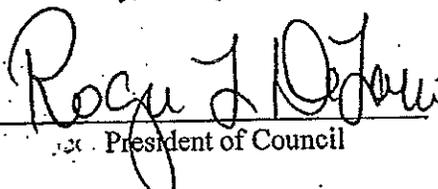
(SEAL)

Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

  
Secretary

By:   
President of Council

(SEAL)

Date of Signature: Sept. 16, 2008

ATTEST:

BOROUGH OF STROUDSBURG,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

By: \_\_\_\_\_  
(Vice) President of Council  
Date of Signature: \_\_\_\_\_

ATTEST:

TOWNSHIP OF SMITHFIELD,  
Monroe County, Pennsylvania

\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

By: \_\_\_\_\_  
(Vice) Chairman of the Board  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

BOROUGH OF EAST STROUDSBURG,  
Monroe County, Pennsylvania

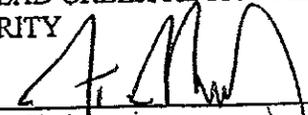
\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

By: \_\_\_\_\_  
(Vice) President of Council  
of Supervisors  
Date of Signature: \_\_\_\_\_

ATTEST:

BRODHEAD CREEK REGIONAL  
AUTHORITY

  
\_\_\_\_\_  
(Assistant) Secretary  
(SEAL)

By:   
\_\_\_\_\_  
(Vice) Chairman  
Date of Signature: 9/17/08

ATTEST:

Michelle F. Farley  
Title: Notary Public

BRODHEAD WATERSHED  
ASSOCIATION (and individually)

By: Edith D. Stevens  
Edith D. Stevens, Treasurer  
(SEAL)  
Date of Signature: 10/13/08

COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Michelle F. Farley, Notary Public  
Barrett Twp., Monroe County  
My Commission Expires May 27, 2011  
Member, Pennsylvania Association of Notaries

Date of Signature: 10/13/08

Frank A. Heiting  
Frank Heiting, Vice President

Date of Signature: 10/13/08

Edie Stevens  
Edie Stevens, Treasurer

Date of Signature: 10/13/08

Theresa Merli  
Theresa Merli, Director

Date of Signature: 10/14/08

Don Baylor  
Don Baylor, Director

ATTEST:

\_\_\_\_\_  
Title:  
(SEAL)

Date of Signature: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

Date of Signature: \_\_\_\_\_

BRODHEAD WATERSHED  
ASSOCIATION (and individually)

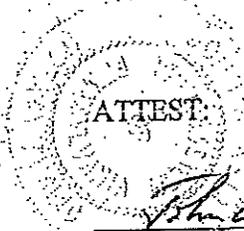
By: \_\_\_\_\_  
Dr. Jerilynn Jewett-Smith, President  
Date of Signature: \_\_\_\_\_

\_\_\_\_\_  
Frank Herting, Vice President

\_\_\_\_\_  
Edie Stevens, Treasurer

\_\_\_\_\_  
Theresa Merli, Director

\_\_\_\_\_  
Don Baylor, Director



ATTEST:

*John A. Kelly*  
\_\_\_\_\_

Title: COMMONWEALTH OF PENNSYLVANIA  
(SEAL)

NOTARIAL SEAL  
JOHN A. KELLY, Notary Public  
Susquehanna Twp., Dauphin County  
My Commission Expires Oct. 13, 2010

CITIZENS FOR PENNSYLVANIA'S  
FUTURE

By: *Katherine J. Jewett*  
Title: \_\_\_\_\_  
Date of Signature: 9/19/08

**RESOLUTION OF THE COUNCIL  
OF THE BOROUGH OF STROUDSBURG**

**RESOLUTION NO. 3-08**

**BE IT RESOLVED** that the Borough of Stroudsburg, through its Council, hereby authorizes the Brodhead Creek Regional Authority to take the following actions:

1. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in the negotiation, development, financing and coordination of constructing a new municipal waste water treatment facility in the Borough of Stroudsburg to be financed by the municipalities participating in the use of the waste water treatment facility;
2. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in facilitating, negotiating and developing a new joint municipal authority (the "New Authority") to own the new municipal waste water treatment facility with all related permits;
3. To negotiate and apply for on behalf of the Townships of Stroud and Pocono and Borough of Stroudsburg all contracts, grants, plans and permits necessary to develop the new waste water treatment facility for eventual assignment to the New Authority, once same is established;
4. To enter into an intergovernmental municipal management agreement with the New Authority upon the establishment of, and the securing of funds to finance the project, by the same, to provide administrative and operational management services to the New Authority in order to provide effective administration and operational management of the New Authority and its waste water treatment facility.

5. To amend its Articles of Incorporation, as necessary, to authorize the Brodhead Creek Regional Authority to work on and to develop sewer projects for its member municipalities as well as to take all actions set forth in this Resolution.

The Borough of Stroudsburg does not authorize the use of Brodhead Creek Regional Authority water revenues or assets in the pursuit of any of the above endeavors.

BE IT FURTHER RESOLVED that subject to the foregoing, the Borough of Stroudsburg approves, authorizes and adopts for execution the Memorandum of Understanding between the Townships of Stroud, Pocono, Hamilton and Smithfield, the Boroughs of Stroudsburg and East Stroudsburg, the Citizens of Pennsylvania's Future, the Brodhead Watershed Association, Stroud Sewer Authority and the Brodhead Creek Regional Authority, with the understanding that, for the purpose of owning the sewage treatment plant, all references to the Brodhead Creek Regional Authority in the MOU shall mean the New Authority, and authorizes the Chairman of the Borough Council to execute and deliver the same, wherein the above parties have agreed to move forward with the waste water treatment project.

This Resolution is to be effective immediately.

Ratified the 17<sup>th</sup> day of July, 2008.

ATTEST:

Barbara K. Quarantello  
Barbara K. Quarantello  
Borough Manager/Secretary

BOROUGH OF STROUDSBURG

Kim M. Diddio  
Kim M. Diddio, President of Council

Neil Allen  
Neil Allen, Vice President of Council

Matt Abell  
Matt Abell, Council Member

RESOLUTION NO. 2008 - 40

RESOLUTION AUTHORIZING BRODHEAD CREEK REGIONAL AUTHORITY  
TO FACILITATE CONSTRUCTION OF NEW INTER-MUNICIPAL  
WASTE WATER TREATMENT PLANT

The Board of Supervisors of Stroud Township, Monroe County, Pennsylvania, hereby adopts the following Resolution at its special meeting held on July 25, 2008, at 11:00 A.M., at the Stroud Township Municipal Center, to wit:

WITNESSETH:

WHEREAS, the Board of Supervisors of Stroud Township, pursuant to Section 1507, entitled "Intergovernmental Cooperation", of the Second Class Township Code, Act of November 9, 1995, P.L. 350, No. 60, found at 53 P.S. 66507, has the authority to make agreements with other municipal corporations in the performance of joint governmental functions;

NOW, THEREFORE, it is hereby resolved as follows, to wit:

RESOLVED, that the Township of Stroud, through its Board of Supervisors, hereby authorizes the Brodhead Creek Regional Authority to take the following actions:

1. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in the negotiation, development, financing and coordination of constructing a new municipal waste water treatment facility in the Borough of Stroudsburg to be financed by the municipalities participating in the use of the waste water treatment facility;
2. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in facilitating, negotiating and developing a new joint municipal authority (the "New Authority") to own the new municipal waste water treatment facility with all related permits;
3. To negotiate and apply for on behalf of the Townships of Stroud and Pocono and Borough of Stroudsburg all contracts, grants, plans and permits necessary to develop the new waste water treatment facility for eventual assignment to the New Authority, once same is established;
4. To enter into an intergovernmental municipal management agreement with the New Authority upon the establishment of, and the securing of funds to finance the project, by

the same, to provide administrative and operational management services to the New Authority in order to provide effective administration and operational management of the New Authority and its waste water treatment facility.

5. To amend its Articles of Incorporation, as necessary, to authorize the Brodhead Creek Regional Authority to work on and to develop sewer projects for its member municipalities as well as to take all actions set forth in this Resolution.

Stroud Township does not authorize the use of Brodhead Creek Regional Authority water revenues or assets in the pursuit of any of the above endeavors.

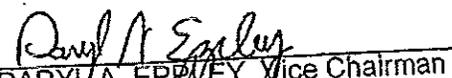
**BE IT FURTHER RESOLVED** that subject to the foregoing, the Township of Stroud approves, authorizes and adopts for execution the Memorandum of Understanding (the "MOU") between the Townships of Stroud, Pocono, Hamilton and Smithfield, the Boroughs of Stroudsburg and East Stroudsburg, the Citizens of Pennsylvania's Future, the Brodhead Watershed Association, Stroud Sewer Authority and the Brodhead Creek Regional Authority, with the understanding that, for the purpose of owning the sewage treatment plant, all references to the Brodhead Creek Regional Authority in the MOU shall mean the New Authority, and authorizes the Chairman of the Board of Supervisors to execute and deliver the same, upon the enactment of an Ordinance authorizing the same, wherein the above parties have agreed to move forward with the waste water treatment project.

This Resolution is to be effective immediately.

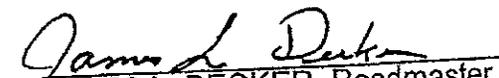
IN WITNESS WHEREOF, the aforesaid Resolution is hereby adopted as of the day and year first above set forth.

TOWNSHIP OF STROUD

  
EDWARD C. CRAMER, Chairman

  
DARYL A. EPPLEY, Vice Chairman  
and Secretary

(TOWNSHIP SEAL)

  
JAMES L. DECKER, Roadmaster

IN RE: RESOLUTION AUTHORIZING BRODHEAD CREEK REGIONAL AUTHORITY  
TO FACILITATE CONSTRUCTION OF NEW INTER-MUNICIPAL WASTE WATER  
TREATMENT PLANT

CERTIFICATION

I hereby certify that the within Resolution is a true and correct copy of the above Resolution adopted by the Board of Supervisors of Stroud Township, Monroe County, Pennsylvania, on the 25th day of July, 2008, at a special meeting held after proper notice thereof.

(TOWNSHIP SEAL)

  
DARYLL A. EPPLEY, Secretary,  
Board of Supervisors of  
Township of Stroud  
1211 North Fifth Street  
Stroudsburg, PA 18360

RESOLUTION OF THE BOARD OF SUPERVISORS  
SMITHFIELD TOWNSHIP

RESOLUTION NO. 306

BE IT RESOLVED that the Township of Smithfield, through its Board of Supervisors, hereby authorizes the Brodhead Creek Regional Authority to take the following actions:

1. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in the negotiation, development, financing and coordination of constructing a new municipal waste water treatment facility in the Borough of Stroudsburg to be financed by the municipalities participating in the use of the waste water treatment facility;
2. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in facilitating, negotiating and developing a new joint municipal authority (the "New Authority") to own the new municipal waste water treatment facility with all related permits;
3. To negotiate and apply for on behalf of the Townships of Stroud and Pocono and Borough of Stroudsburg all contracts, grants, plans and permits necessary to develop the new waste water treatment facility for eventual assignment to the New Authority, once same is established;
4. To enter into an intergovernmental municipal management agreement with the New Authority upon the establishment of, and the securing of funds to finance the project, by the same, to provide administrative and operational management services to the New Authority in order to provide effective administration and operational management of the New Authority and its waste water treatment facility.

5. To amend its Articles of Incorporation, as necessary, to authorize the Brodhead Creek Regional Authority to work on and to develop sewer projects for its member municipalities as well as to take all actions set forth in this Resolution.

All such actions of the Brodhead Creek Regional Authority shall be carried out at no cost to Smithfield Township. Further, Smithfield Township does not authorize the use of Brodhead Creek Regional Authority water revenues or assets in the pursuit of any of the above endeavors.

BE IT FURTHER RESOLVED that subject to the foregoing, the Township of Smithfield approves, authorizes and adopts for execution the Memorandum of Understanding between the Townships of Stroud, Pocono, Hamilton and Smithfield, the Boroughs of Stroudsburg and East Stroudsburg, the Citizens of Pennsylvania's Future, the Brodhead Watershed Association, Stroud Sewer Authority and the Brodhead Creek Regional Authority, with the understanding that, for the purpose of owning the sewage treatment plant, all references to the Brodhead Creek Regional Authority in the MOU shall mean the New Authority, and authorizes the Chairman of the Board of Supervisors to execute and deliver the same, wherein the above parties have agreed to move forward with the waste water treatment project.

This Resolution passed unanimously on July 16, 2008.

Resolution Ratified this 22 day of July, 2008, to be effective immediately.

TOWNSHIP OF SMITHFIELD

Brian E. Barrett  
Brian E. Barrett, Chairman

Vincent Della Fera  
Vincent Della Fera, Vice Chairman

Christine M. Griffin  
Christine Griffin, Supervisor

RESOLUTION OF THE BOARD OF SUPERVISORS  
POCONO TOWNSHIP

RESOLUTION NO. 529

BE IT RESOLVED that the Township of Pocono, through its Board of Supervisors, hereby gives its consent and authorizes the Brodhead Creek Regional Authority to take the following actions:

1. To be the lead agency in the negotiation, development, financing and coordination of constructing a new municipal waste water treatment facility in the Borough of Stroudsburg to be financed by either the municipalities participating in the use of the waste water treatment facility or by the New Authority (as that term is hereinafter defined);
2. To be the lead agency in facilitating, negotiating and developing a new joint municipal authority (the "New Authority") to own the new municipal waste water treatment facility with all related permits;
3. To negotiate and apply for all contracts, grants, plans and permits necessary to develop the new waste water treatment facility for eventual assignment to the New Authority, once same is established;
4. To enter into an intergovernmental municipal management agreement with the New Authority upon the establishment of, and the securing of funds to finance the project by, the same, to provide administrative and operational management services to the New Authority in order to provide effective administration and operational management of the New Authority and its waste water treatment facility.
5. To amend its Articles of Incorporation, as necessary, to authorize the Brodhead Creek Regional Authority to work on and to develop sewer projects for its member municipalities as well as to take all actions set forth in this Resolution.

Pocono Township does not authorize the use of Brodhead Creek Regional Authority water revenues or assets in the pursuit of any of the above endeavors.

This Resolution is to be effective immediately.

Adopted the 21<sup>st</sup> day of July, 2008.

TOWNSHIP OF POCONO

Jane Gilrso  
Jane Gilrso, Chairman

Harold Werkheiser  
Harold Werkheiser, Vice Chairman

John T. Bramley  
John Bramley, Supervisor

RESOLUTION OF THE BOARD OF SUPERVISORS  
HAMILTON TOWNSHIP

RESOLUTION NO. \_\_\_\_\_

BE IT RESOLVED that the Township of Hamilton, through its Board of Supervisors, hereby authorizes the Brodhead Creek Regional Authority to take the following actions:

BE IT RESOLVED that the Township of Hamilton, through its Board of Supervisors, hereby authorizes the Brodhead Creek Regional Authority to take the following actions:

1. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in the negotiation, development, financing and coordination of constructing a new municipal waste water treatment facility in the Borough of Stroudsburg to be financed by the municipalities participating in the use of the waste water treatment facility;
2. To serve as agent for the Townships of Stroud and Pocono and Borough of Stroudsburg to be the lead agency in facilitating, negotiating and developing a new joint municipal authority (the "New Authority") to own the new municipal waste water treatment facility with all related permits;
3. To negotiate and apply for on behalf of the Townships of Stroud and Pocono and Borough of Stroudsburg all contracts, grants, plans and permits necessary to develop the new waste water treatment facility for eventual assignment to the New Authority, once same is established;
4. To enter into an intergovernmental municipal management agreement with the New Authority upon the establishment of, and the securing of funds to finance the project, by the same, to provide administrative and operational management services to the New Authority in order to provide effective administration and operational management of the New Authority and its waste water treatment facility.

5. To amend its Articles of Incorporation, as necessary, to authorize the Brodhead Creek Regional Authority to work on and to develop sewer projects for its member municipalities as well as to take all actions set forth in this Resolution.

All such actions of the Brodhead Creek Regional Authority shall be carried out at no cost to Hamilton Township. Further, Hamilton Township does not authorize the use of Brodhead Creek Regional Authority water revenues or assets in the pursuit of any of the above endeavors.

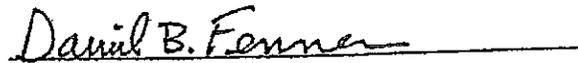
BE IT FURTHER RESOLVED that subject to the foregoing, the Township of Hamilton approves, authorizes and adopts for execution the Memorandum of Understanding and Addendum thereto between the Townships of Stroud, Pocono, Hamilton and Smithfield, the Boroughs of Stroudsburg and East Stroudsburg, the Citizens of Pennsylvania's Future, the Brodhead Watershed Association, Stroud Sewer Authority and the Brodhead Creek Regional Authority, and authorizes the Chairman of the Board of Supervisors to execute and deliver the same, wherein the above parties have agreed to move forward with the waste water treatment project.

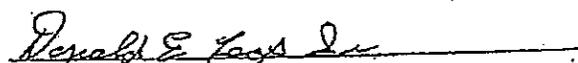
This Resolution is to be effective immediately.

Ratified the 14<sup>th</sup> day of July, 2008.

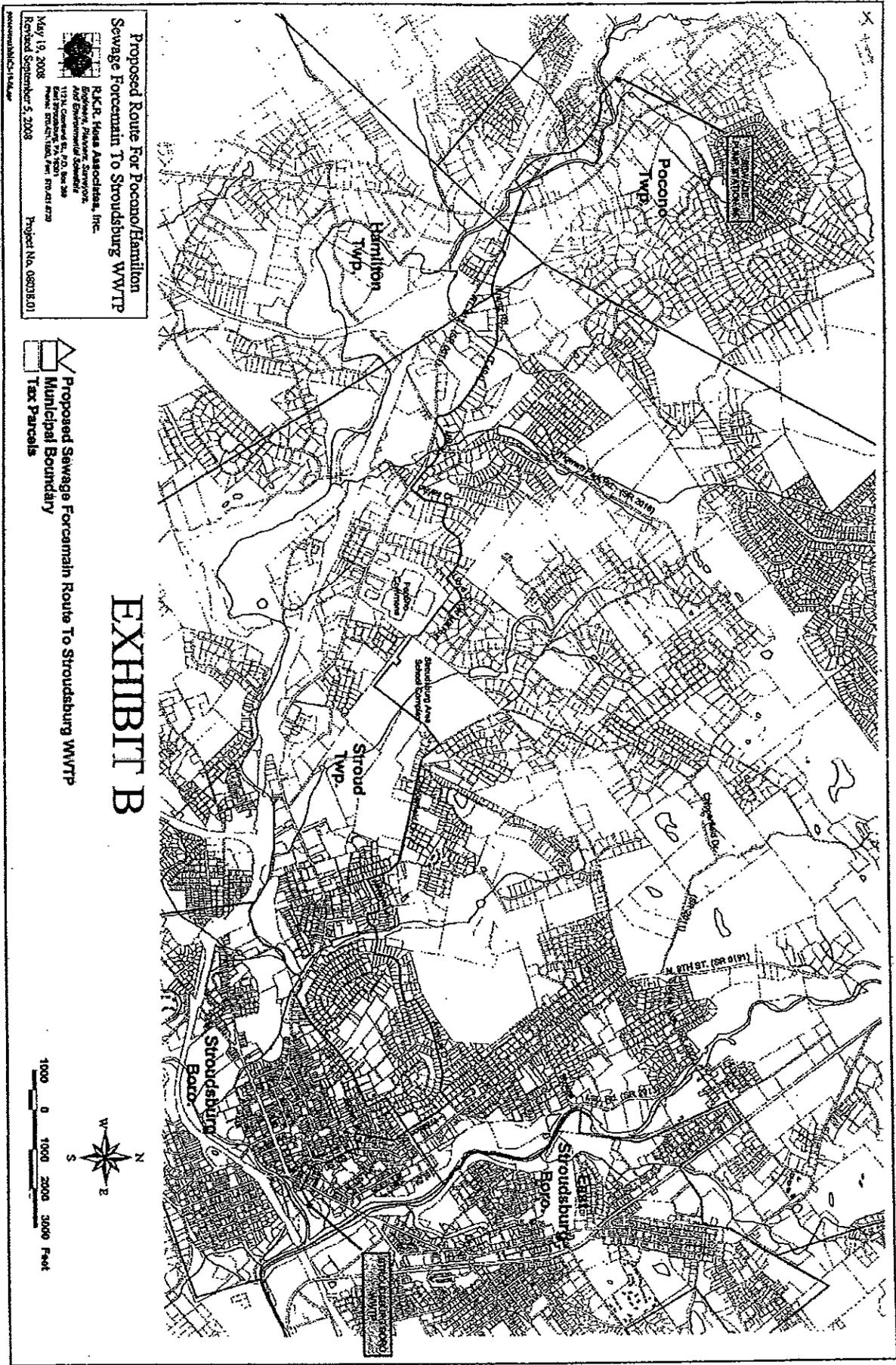
TOWNSHIP OF HAMILTON

  
Alan Everett, Supervisor

  
David Fenner, Supervisor

  
Donald Leap, Supervisor

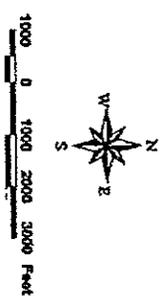




**Proposed Route For Pocahontas/Hamilton  
 Sewage Forcemain To Stroudsburg WWTP**  
 R.K.R. Heas Associates, Inc.  
 Engineers, Planners, Surveyors  
 and Environmental Scientists  
 1000 Pennsylvania Ave., Suite 200  
 East Stroudsburg, PA 18042  
 Phone: 610.251.2100 Fax: 610.251.2101  
 E-mail: info@rkh.com Project No. 08038.01  
 Revised September 5, 2008

**Proposed Sewage Forcemain Route To Stroudsburg WWTP**  
**Municipal Boundary**  
**Tax Parcels**

# EXHIBIT B





**BASE MAP**  
**Pocono Township Regional Act 537 Special Study Plan**  
**R.K.R. Moss Associates, Inc.**  
 Engineers, Planning, Surveyors  
 4120 Philadelphia Pike  
 112 N. Conard St., P.O. Box 268  
 East Stroudsburg, PA 18041  
 Phone: 610-421-1500, Fax: 610-421-8720  
 November 16, 2005, 2/24/06, 4/18/06, 4/25/06 Project No. 05111.05  
**MAP 1 OF 11**

Source: Aerially 2003 Digitized GIS Data, PA State Plane North, NAD 27,  
 dated December 11, 2001, with 2004 lot parcel updates, 2003's latest  
 1:4,000, PA & East Stroudsburg, PA Cadastral, U.S. Department of Interior.

2004 Tax Parcels  
 Proposed 10 Year Service Area  
 \* Vacant lots along Rt. 611 corridor and  
 areas expected to be served in 10 years.

0 8 2000 4000 4250 Feet

*EXHIBIT D*

# R. Hess Associates

Planners, Engineers, Landscape Architects, Environmental Scientists  
100 North Courtland Street, P.O. Box 268, East Stroudsburg, Pennsylvania 18301  
(570) 421-1550, Fax (570) 421-6720, Web Site: www.rkrhess.com



March 6, 2009  
Project No. 08038.06

SENT VIA EMAIL

SENT VIA U.S. MAIL

Pocono Township Board of Supervisors  
Pocono Township Municipal Building  
P.O. Box 197  
Tannersville, PA 18372

**ATTENTION: MS. JANE CILURSO, CHAIRPERSON**

**SUBJECT: REVIEW OF DRAFT OFFICIAL ACT 537 PLAN UPDATE**

Dear Jane:

We received a copy of the Draft Official Act 537 Plan Update for Regional Sewage Facilities Plan for Stroud Township, Stroudsburg Borough, Pocono Township, and Hamilton Township dated January 2009 prepared by Reilly Associates. You requested that R.K.R. Hess review the plan.

We have the following comments:

1. The Pennsylvania Department of Environmental Protection (PA DEP) required that Pocono and Hamilton Townships include the following note in the Special Study:

*".....In order to promote water reuse and to encourage the use of on-lot wastewater disposal as much as practical, the Plan requires that any developed lot in the service area may connect to the system for its existing flow. If a developed lot proposes a change in flow of more than 800 gallons per day, either by conversion of an existing use or redevelopment, sewage planning on an individual basis is required. This shall include an alternatives analysis for potential and possible land disposal opportunities. Any undeveloped lot within the service area may connect to the system if its proposed flow is 800 gallons per day or less. If its proposed flow is more than 800 gallons per day, individual sewage planning will be required including an evaluation of the potential to accommodate all or a portion of the lot's wastewater needs through onsite disposal."*

PA DEP included this requirement in their December 7, 2006 approval letter. (See attached). This note should also be included in the Regional Act 537 Plan.

2. Regarding the Plan Summary, Page 3-5, Project Financing:

It is our understanding that for projects involving four or more municipalities, PennVEST will fund up to \$22 Million Dollars for a project loan. This could be a revision on Page 3-5 and affect the user rate analysis.

3. Appendix I, User Rate Analysis, Page 1:

The User Rate Analysis includes 3,713 EDUs for Pocono and Hamilton Townships. The total EDUs are 3,715 as indicated in revised Table 3-4 included in the Act 537 Plan. On Page IV-13, Table IV-2, Existing and Future EDU Projections, the Pocono/Hamilton Township total EDUs in 2012 is shown as 3,715.



March 6, 2009

Pocono Township Board of Supervisors (Project No. 08038.09)

Review of Draft Official Act 537 Plan Update

Page 2 of 2

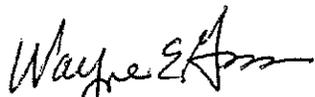
On Page 3, the User Rate Calculations for Alternative 2 Project 1 and 2 PennVEST and Bond Financing uses 3,895 EDUs. We are not aware of how this number was determined. Pocono and Hamilton Township's total EDUs are 3,715. This will revise the user rates.

4. A draft copy of the MOU appears to be included in the Plan. We recommend that the executed version of the Memorandum of Understanding (MOU) and the Addendum to the MOU and the current Exhibits be included in the Study.
5. If the proposed equalization system is moved from the Pocono Township site to the Stroud Township site, Pocono Township would then have additional costs for re-design of the pump stations and the forcemain in the southern end of Pocono Township and Hamilton Township. Also, additional construction costs will be incurred by Pocono Township due to a larger forcemain to handle the raw sewage from Pocono Township to the equalization site in Stroud Township. In addition, the regional shared costs might increase if the forcemain from the Stroud Township equalization site to the wastewater treatment plant will be utilized by other municipalities.

We appreciate the opportunity to review the Regional Act 537 Plan. Should you have any questions or comments, please contact us.

Very truly yours,

**R.K.R. HESS ASSOCIATES, INC.**



Wayne E. Gross, P.E.

WEG/acj

cc: Mr. Kenneth R. Brown, Manager – Brodhead Creek Regional Authority  
Mr. Timothy McManus, Esq., Solicitor – Pocono Township Board of Supervisors  
Ms. Barbara Quarantello, Manager – Stroudsburg Borough  
Mr. Edward Cramer, Chairman – Stroud Township Board of Supervisors  
Mr. Jeremy A. Nelson, P.E. – Reilly Associates  
Mr. Andrew Evans, P.E. – Pennoni Associates  
Mr. Fran McGovern, P.E. – Brinjac Engineering



Pennsylvania Department of Environmental Protection

DEC - 8 2006  
2 Public Square  
Wilkes-Barre, PA 18711-0790  
December 7, 2006

Northeast Regional Office

570-826-2511  
Fax 570-830-3016

CERTIFIED MAIL NO. 7005 0390 0001 3228 2514 CERTIFIED MAIL NO. 7005 0390 0001 3228 0008

Pocono Township Board of Supervisors  
P.O. Box 197  
Tannersville, PA 18372

Hamilton Township Board of Supervisors  
P.O. Box 285  
Sciota, PA 18354

Attention: Ms. Jane Cilurso, Secretary

Attention: Mr. David B. Ferner, Secretary

Re: Regional Act 537 Special Study  
Route 611 Corridor  
Pocono and Hamilton Townships  
Monroe County

Ladies and Gentlemen:

We have reviewed your Act 537 Plan prepared by R.K.R. Hess Associates, Incorporated, entitled: "Pocono Township Regional Act 537 Special Study, Route 611 Corridor" (the "Plan"). The submission consists of Volume 1 of 3, 2 of 3 and 3 of 3 dated June 2, 2006 (received June 14, 2006) and Volume 4 dated October 9, 2006 (received October 11, 2006).

This submission is consistent with the planning requirements given in Chapter 71, of the Rules and Regulations of the Department. The Plan provides for construction of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, a 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and a force main to convey treated effluent to the Brodhead Creek for discharge at a point below the Brodhead Creek Regional Authority Water Plant.

The selected alternative and service area for the proposed project are depicted on Map 11 of 11 in the Plan. In order to promote water reuse and to encourage the use of on-lot wastewater disposal as much as practical, the Plan requires that any developed lot in the service area may connect to the system for its existing flow. If a developed lot proposes a change in flow of more than 800 gallons per day, either by conversion of an existing use or redevelopment, sewage planning on a individual basis is required. This shall include an alternatives analysis for potential and possible land disposal opportunities. Any undeveloped lot within the service area may connect to the system if its proposed flow is 800 gallons per day or less. If its proposed flow is more than 800 gallons per day, individual sewage planning will be required including an evaluation of the potential to accommodate all or a portion of the lots wastewater needs through onsite disposal.



The Plan is approved with the following conditions:

1. The approved project will require an NPDES Permit for the proposed effluent discharge. The permit application must be submitted in the name of the municipality or Authority, as appropriate.
2. The approved project will require a Water Quality Management Part II Permit for construction and operation of the proposed sewage facilities. The permit application must be submitted in the name of the municipality or Authority, as appropriate. Issuance of a Part II Permit will be based upon a technical evaluation of the permit application and supporting documentation. Starting construction prior to obtaining a Part II Permit is a violation of The Clean Streams Law.
3. Other Departmental permits will be required for construction and encroachment on streams and/or wetlands. Information regarding the requirements for such permits or approvals may be obtained from the Department's Technical Services Section at the above letterhead address or telephone.

It is now your responsibility to implement the Plan in accordance with the schedules contained therein.

Since the Department has approved your Plan, you are now eligible for a 50% planning cost reimbursement as provided under Section 6 of the Sewage Facilities Act (Act 537). A copy of the reimbursement application is enclosed. You are reminded that reimbursement applications must show detailed cost breakdowns of tasks completed or you will place your reimbursement in jeopardy.

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.**

# SECTION 6

## PUBLIC NOTICE

A draft sewage facilities plan entitled Official Act 537 Plan Update; Regional Sewage Facilities Plan was prepared for the Pocono Township, Hamilton Township, and Stroud Township Boards of Supervisors and the Stroudsburg Borough Council and is proposed to be adopted. The plan was prepared as required by Pennsylvania Act 537 and Pennsylvania Code 25, Chapter 71.

The study area includes those properties along or nearby S.R. 611 along its length through Pocono Township and those properties along or nearby S.R. 611 in Hamilton Township that presently do not have central sewer. The study area also contains portions of Stroud Township and Stroudsburg Borough.

The plan provides pertinent background information about the study area, outlines two alternatives for sewage treatment and disposal, and recommends the most viable alternative to meet wastewater disposal needs of the study area.

The recommended alternative consists primarily of two separate projects. The first project is the Pocono Township and Hamilton Township collection and conveyance system. The second project is the 4.5 Million Gallon Per Day (MGD) upgrade and expansion of the Wastewater Treatment Plan (WWTP) in Stroudsburg Borough, which will be owned and operated by the Brodhead Creek Regional Authority.

### PROJECT 1 - COLLECTION & CONVEYANCE PROJECT

The Pocono Township and Hamilton Township collection and conveyance system project is unchanged and will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, dated June 2, 2006 with the exception that the proposed 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton collection system will be conveyed through a combination force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new 4.5 MGD Regional WWTP. The force main is approximately seven (7) miles long. Odor control facilities, if and as needed, will be provided at a location approximately half way to the new WWTP, along the force main and at the new WWTP.

PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION The 4.5 MGD WWTP project requires the existing 2.5 MGD Stroudsburg Borough WWTP to be upgraded and expanded to a 4.5 MGD WWTP. The treatment process involves headworks, equalization tank, pumping station, air grit removal, sequential batch reactors, air blowers, post treatment equalization, sludge treatment, sand filters, and UV disinfection. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township and Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

The following are the estimated minimum annual user fees per equivalent dwelling unit (EDU) for each of the Municipalities for the recommended alternative:

Pocono Township	\$1,295/EDU
Hamilton Township	\$1,295/EDU
Stroud Township	\$863/EDU
Stroudsburg Borough	\$481/EDU

A 30-day review and comment period, starting on the date of publication of this notice, has been established for the public to comment on the proposed Official Act 537 Plan Update; Regional Sewage Facilities Plan.

The complete Plan Update can be examined at the following locations during regular business hours:

- Pocono Township Municipal Building on Route 611 in Tannersville, PA
  - Hamilton Township Municipal Building on Fenner Avenue in Sciota, PA
  - Stroud Township Municipal Building on North 5<sup>th</sup> Street in Stroudsburg, PA
  - Stroudsburg Borough Municipal Building on Sarah Street in Stroudsburg, PA
- Copies of the same may be obtained for a charge not greater than the cost thereof.

A copy of written comments received and the responses to the comments will be included in the plan. Comments on the plan can be sent to the following locations:

Pocono Township Board of Supervisors  
P.O. Box 197  
Tannersville, PA 18372

Hamilton Township Board of Supervisors  
P.O. Box 285  
Sciota, PA 18354

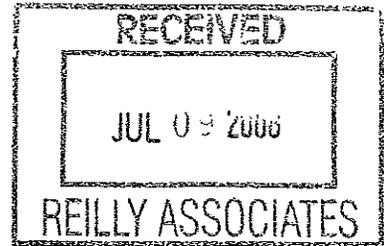
Stroud Township Board of Supervisors  
1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360

Stroudsburg Borough Council  
700 Sarah Street  
Stroudsburg, PA 18360

# SECTION 7



Commonwealth of Pennsylvania  
 Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
 Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
 400 North Street  
 Harrisburg, PA 17120-0093  
 www.phmc.state.pa.us



July 7, 2008

Joseph Durkin  
 Reilly Associates  
 49 South Main Street Suite 200  
 Pittston, PA 18640

TO EXPEDITE REVIEW USE  
 BHP REFERENCE NUMBER

Re: File No. ER 2005-0625-089-J  
 DEP, BCRA Regional WWTP ACT 537  
 Plan, Hamilton Twp. & Pocono Twp. &  
 Stroud Twp. & Stroudsburg Borough,  
 Monroe Co.

Dear Mr. Durkin:

The Bureau for Historic Preservation has reviewed the above named project under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988). This review includes comments on the project's potential effect on both historic and archaeological resources.

The properties referenced below, listed in or eligible for the National Register of Historic Places, are located near the project area. In our opinion, the activity described in your proposal will have no effect on such resources. Should the applicant become aware, from any source, that unidentified historic or archaeological properties are located at the project site, or that the project activities will have an effect on these properties, the Bureau for Historic Preservation should be contacted immediately.

**Stroudsburg Historic District**  
**Academy Hill Historic District**

In our opinion no archaeological resources will be affected by this project.

If you need further information regarding archaeological resources, please contact Steven McDougal at (717) 772-0923. If you need further information concerning historic structures, please contact Ann Safley at (717) 787-9121.

Sincerely,

Douglas C. McLearn, Chief  
 Division of Archaeology &  
 Protection

CC: DEP, Northeast Region  
 DCM/lmm



Pennsylvania Department of Conservation and Natural Resources

Bureau of Forestry

September 9, 2008 *mmh*

Paul Warren, P.W.S.

R.K.R. Hess Associates

FAX: 570.421.6720 (hard copy will NOT follow)

*Pennsylvania Natural Diversity Inventory Review, PNDI No. 019718*

BCRA Regional Act 527 Sewage Facilities Plan

Stroudsburg Borough, Monroe County

Dear Paul,

This responds to your request about a Pennsylvania Natural Diversity Inventory (PNDI) ER Tool "Potential Impact" or species of special concern impact review. We screened this project for potential impacts to species and resources of special concern under Department of Conservation and Natural Resources' responsibility, which includes plants, natural communities, terrestrial invertebrates and geologic features only.

**NO PROJECT IMPACT ANTICIPATED \***

**NO KNOWN OCCURRENCES**

PNDI records indicate that no known occurrences of species or resources of special concern under DCNR's jurisdiction occur in the vicinity of the project. Therefore, we do not anticipate the project referenced above will impact plants, natural communities, terrestrial invertebrates and geologic features of special concern. No further coordination with DCNR is needed for this project.

**KNOWN OCCURRENCES, HOWEVER, NO IMPACT ANTICIPATED**

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

**CONSERVATION MEASURE—VOLUNTARY ACTION**

Based on our PNDI map review we determined potential impacts to a Proposed PA State-listed species and/or resources of special concern and have suggested a Conservation Measure to minimize the impact of the project on ecological resources. Further coordination with this office is not necessary, but suggested, to avoid potential impacts to the below listed resources. This determination is based on a proposed status, which may change when species regulatory statuses are updated.

**COMMENTS: \* No impact as per habitat assessment and additional information, concluding that habitat for known species of concern in the area will not be disturbed.** For any areas requiring revegetation, avoid planting invasive plant species and please incorporate the use of native seed mixes if feasible. For more information on invasive plants, visit [www.dcnr.state.pa.us/forestry/wildplant/index.aspx](http://www.dcnr.state.pa.us/forestry/wildplant/index.aspx) and [www.invasive.org](http://www.invasive.org). Please refer to [www.ernstseed.com](http://www.ernstseed.com) for a PA company that does sell some "native" seed mixes. No further coordination is necessary in regards to this project.

This response represents the most up-to-date summary of the PNDI data files and is good for one (1) year from the date of this letter. An absence of recorded information does not necessarily imply actual conditions on-site. A field survey of any site may reveal previously unreported populations. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered.

To complete your review of state and federally-listed species of special concern (those NOT under DCNR's responsibility), please be sure the U.S. Fish and Wildlife Service, the PA Game Commission and the Fish and Boat Commission have been contacted regarding this project either directly or by performing a search with the online PNDI ER Tool found at [www.naturalheritage.state.pa.us](http://www.naturalheritage.state.pa.us).

*Nicole M Habecker*

Nicole Habecker, Environmental Review Specialist

DCNR/BOF/PNDI, PO Box 8552, Harrisburg, PA 17105 ~ Ph: 717-705-2823 ~ F: 717-772-0271 ~ [c-nhabecke@state.pa.us](mailto:c-nhabecke@state.pa.us)

Stewardship

Partnership

Service



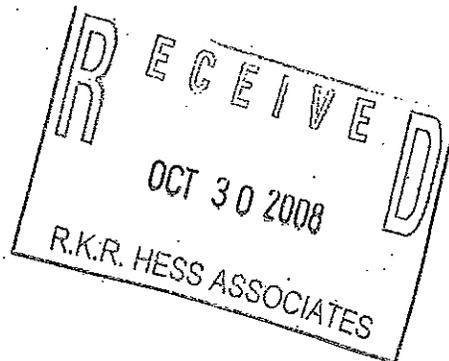
# Pennsylvania Fish & Boat Commission

Division of Environmental Services  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823-9620  
(814) 359-5237 Fax: (814) 359-5175  
October 28, 2008

IN REPLY REFER TO  
SIR# 18772

R.K.R. HESS ASSOCIATES  
PAUL WARREN  
112 N COURTLAND STREET  
PO BOX 268  
EAST STROUDSBURG, PA 18301

RE: Secondary Species Impact Review (SIR) #18772  
Bog Turtle Survey  
INSTALLATION OF SEWER PIPELINE  
POCONO TOWNSHIP SEWER SYSTEM PROJECT  
MT. POCONO, PARADISE, POCONO, HAMILTON, & STROUD Townships  
MONROE County, Pennsylvania



Dear Mr. WARREN:

I have reviewed your recent correspondence regarding the above referenced project and its potential to adversely impact the bog turtle, (*Glyptemys mühlenbergii*, PA endangered, federally listed as threatened). Because of the project's proximity to a known bog turtle site, and identification of wetlands that contain bog turtle habitat adjacent to the project (wetland at Big Meadow Run), the construction activities should be completed between November 1 and March 31 for the Big Meadow Run area. If the work cannot be conducted during this time, then I recommend that a herpetologist that is qualified/recognized to survey for the bog turtle be on-site to clear the area of bog turtles and other herpetofauna. All areas to be permanently or temporarily impacted, including staging areas, should be investigated/cleared before any work activities are to commence. After the clearance surveys, silt fencing should be placed around all work/staging areas so that any transient turtles or herpetofauna do not re-enter the project area. The qualified/recognized herpetologist is to be on-site during all project activity. If any bog turtles are found during the clearance survey, the herpetologist is to move the turtle no further than necessary out of the immediate project area, and this office and the PA Field Office of the U.S. Fish and Wildlife Service should be contacted immediately. Upon completion of the bog turtle survey work, the herpetologist is to forward a report showing the surveyor's results to this office (Natural Diversity Section) for our review and comment. Reports should include photographs and maps of appropriate suitable habitat. Threatened and endangered species observed in the survey should be photographed, aged, sexed, measured as to their size, and areas they were observed/captured should be mapped accordingly. The surveyor should also report other herpetofauna seen while conducting the surveys.

For wetlands at Flagler Run and Avenue C, Scott Angus conducted a bog turtle habitat evaluation on August 29, 2008 at the project site and concluded that suitable habitat for bog turtles did not occur within these areas. According to his report, the vegetation, hydrology, and soils are not consistent with wetlands known to support bog turtles. I concur with the conclusions of the Phase 1 habitat assessment; the habitat in the Flagler Run and Avenue C areas are not suitable for bog turtles.

Our Mission:

[www.fish.state.pa.us](http://www.fish.state.pa.us)

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

SIR# 18772  
WARREN  
PAGE 2

Provided that the aforementioned recommendations are followed, best management practices are employed and an approved erosion and sedimentation plan is utilized, then I do not foresee any adverse impacts to the bog turtle or any other species under Pennsylvania Fish & Boat Commission jurisdiction.

Note that this office performed no field inspection of the project area. Consequently, comments in this letter are not meant to address other issues or concerns that might arise concerning matters under Pennsylvania Fish and Boat Commission jurisdiction or that of other authorities. Please call Tina Walther at 814-359-5186 if you have any additional concerns regarding this response. Thank you for your cooperation and attention to this matter of threatened and endangered species conservation.

Sincerely,



Christopher A. Urban, Chief  
Natural Diversity Section

CAU/TRW/mr

c: DEP- NE region

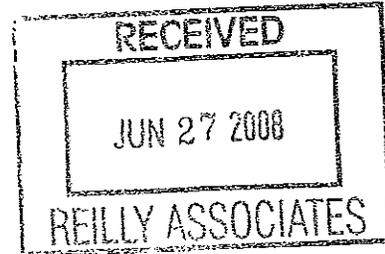


*Distribution  
LH*

COMMONWEALTH OF PENNSYLVANIA  
**PENNSYLVANIA GAME COMMISSION**  
2001 ELMERTON AVENUE, HARRISBURG, PA 17110-9797

June 23, 2008

Mr. Lonell C. Tomaine  
Reilly Associates  
49 South Main Street  
Suite 200  
Pittston, PA 18640



In re: PNDI Database Search  
BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County, PA

Dear Mr. Tomaine:

This is in response to your letter dated June 13, 2008 regarding the potential impacts of your project on special concern species of birds or mammals and State Game Lands.

Our office review has determined that your project should not cause any adverse impacts to any special concern species of birds or mammals, or State Game Lands. This determination may be reconsidered if project plans change or extend beyond the present study area, or if additional information becomes available on state-listed species or State Game Lands.

If you have any questions, please contact me at (717) 783-5957. Please be advised that this determination is only valid for one year from the date of this letter.

Very truly yours,

James R. Leigey  
Wildlife Impact Review Coordinator  
Division of Environmental Planning  
And Habitat Protection  
Bureau of Wildlife Habitat Management

JRL/pfb

Cc: File

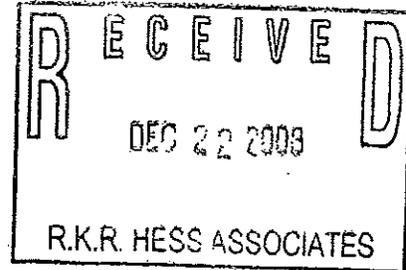
ADMINISTRATIVE BUREAUS:

PERSONNEL: 717-787-7836 ADMINISTRATION: 717-787-5670 AUTOMOTIVE AND PROCURMENT: 717-787-6594  
LICENSE DIVISION: 717-787-2084 WILDLIFE MANAGEMENT: 717-787-5529 INFORMATION & EDUCATION: 717-787-6286  
WILDLIFE PROTECTION: 717-787-5740 WILDLIFE HABITAT MANAGEMENT: 717-787-6818 REAL ESTATE: 717-787-6568  
AUTOMATED TECHNOLOGY SYSTEMS: 717-787-4076



COMMONWEALTH OF PENNSYLVANIA  
**PENNSYLVANIA GAME COMMISSION**  
2001 ELMERTON AVENUE, HARRISBURG, PA 17110-9797

December 17, 2008



Mr. Paul Warren  
R.K.R. Hess Associates, Inc.  
112 North Courtland Street  
PO Box 268  
East Stroudsburg, PA 18301

In re: PNDI Database Search Review  
BCRA Act 537 Plan for the Pocono Township  
Sewer Project Force Main Section  
Stroudsburg Borough, Monroe County, PA

Dear Mr. Warren:

This is in response to your letter dated November 25, 2008 regarding the potential impacts of your project on special concern species of birds or mammals and State Game Lands.

Our office review has determined that your project should not cause any adverse impacts to any special concern species of birds or mammals recognized by the Pennsylvania Game Commission or State Game Lands. This determination may be reconsidered if project plans change or extend beyond the present study area, or if additional information becomes available on state-listed species or State Game Lands.

If you have any questions, please contact me at (717) 783-5957. Please be advised that this determination is only valid for one year from the date of this letter.

Very truly yours,

James R. Leigey  
Wildlife Impact Review Coordinator  
Division of Environmental Planning  
And Habitat Protection  
Bureau of Wildlife Habitat Management

JRL/pfb

Cc: File

ADMINISTRATIVE BUREAUS:

PERSONNEL: 717-787-7836 ADMINISTRATION: 717-787-5670 AUTOMOTIVE AND PROCUREMENT: 717-787-6594  
LICENSE DIVISION: 717-787-2084 WILDLIFE MANAGEMENT: 717-787-5529 INFORMATION & EDUCATION: 717-787-6286  
WILDLIFE PROTECTION: 717-787-5740 WILDLIFE HABITAT MANAGEMENT: 717-787-6818 REAL ESTATE: 717-787-6568  
AUTOMATED TECHNOLOGY SYSTEMS: 717-787-4076



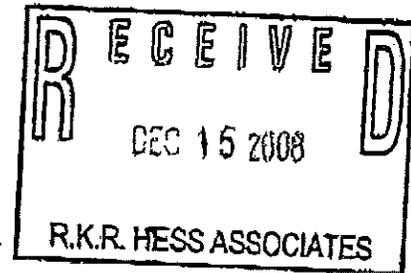
# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Pennsylvania Field Office  
315 South Allen Street, Suite 322  
State College, Pennsylvania 16801-4850

December 8, 2008

Paul Warren  
R.K.R. Hess Associates  
P.O. Box 268  
East Stroudsburg, PA 18301



RE: USFWS Project #2008-1481

Dear Mr. Warren:

This responds to your letter of August 14, 2008, which provided the Fish and Wildlife Service with information regarding the BCRA Regional Act 537 Plan project in Pocono and Hamilton Townships, Monroe County, Pennsylvania. The project area is within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

A Phase 1 bog turtle habitat assessment was conducted by Scott Angus on August 29, 2008, and potential bog turtle habitat was identified within Big Meadow Run. Although no impacts on these wetlands are proposed, given the proximity of the project to known bog turtle occurrences in the watershed, and suitable habitat on the site, wetlands and streams are likely to be used as a dispersal/travel corridor. Accordingly, we recommend that project construction take place between November 1 and March 31, when bog turtles are hibernating, to avoid harming any turtles moving through the area. If this time-of-year restriction cannot be implemented, we further recommend you conduct a bog turtle survey in accordance with the following conditions, which only apply if project construction is proposed to occur between April 1 and October 31, during which time bog turtles are active:

1. Prior to performing any construction work in wetlands, streams, or uplands within 300 feet of the potential bog turtle habitat, all areas of expected disturbance must be surveyed by a qualified surveyor for the presence of bog turtles.
2. Prior to the survey, herbaceous vegetation should be cut to a height of 4 to 6 inches using a hand-held trimmer/weed-cutter, and then carefully raked away from the area to be searched. A qualified bog turtle surveyor should be present when this vegetation clearing occurs.

3. Immediately following the survey, silt-fencing should be placed between the wetland and the proposed construction zone while the bog turtle surveyor is present to ensure that the fencing is properly installed in the correct location. The silt-fencing should be removed immediately following construction.
4. If any bog turtles are located during these searches, the Service and Pennsylvania Fish and Boat Commission should be contacted immediately, and construction should not proceed until further consultation occurs. Survey results should be submitted to the Service and PFBC.

With the implementation of either the time-of-year restriction or pre-construction survey, this project is not likely to adversely affect the bog turtle, or any other federally listed or proposed species. If you are unable to implement the time-of-year restriction or pre-construction survey, or project plans change, further consultation with the Service will be required, pursuant to the Endangered Species Act.

This response relates only to endangered and threatened species under our jurisdiction, and is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities. This determination is valid for two years from the date of this letter. If the proposed project has not been fully implemented prior to this, an additional review by this office will be necessary.

*To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.*

Please contact Bonnie Dershem at 814-234-4090 if you have any questions or require further assistance regarding this matter.

Sincerely,



David Densmore  
Supervisor



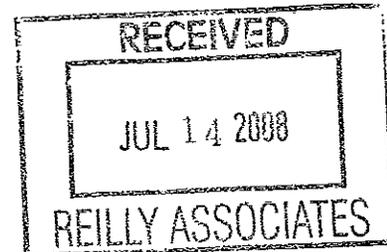
*Distribution*  
*LH*  
*[Signature]*

# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Pennsylvania Field Office  
315 South Allen Street, Suite 322  
State College, Pennsylvania 16801-4850

July 11, 2008



Lonell Tomaine  
Reilly Associates  
49 South Main Street  
Suite 200  
Pittston, PA 18640

RE: USFWS Project #2008-1481

Dear Mr. Tomaine:

This responds to your letter of June 13, 2008, requesting information about federally listed and proposed endangered and threatened species within the area affected by the proposed BCRA Regional Act 537 Sewage Facilities Plan located in Stroudsburg Borough, Pocono, Hamilton and Stroud Townships, Monroe County, Pennsylvania. The proposed project is within the known range of the bog turtle (*Clemmys muhlenbergii*), a species that is federally listed as threatened. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species.

Because wetlands occur within 300 feet of the project area, their potential suitability as bog turtle habitat should be assessed, as described under "*Bog Turtle Habitat Survey*" (Phase 1 survey) of the enclosed *Guidelines for Bog Turtle Surveys*. This Phase 1 survey should evaluate all wetlands within the project action area. The project "action area" includes all areas that will be directly or indirectly affected by the proposed project (including all phases of multi-phased projects) and all project-associated features, such as roads, water and sewer lines, utility lines, stormwater and sedimentation basins, buildings and other structures, driveways, parking lots, yards/lawns, and wells.

Due to the skill required to correctly identify potential bog turtle habitat, we recommend that the Phase 1 survey be done by a qualified surveyor (see enclosed list). Survey results should be submitted to the Service for review and concurrence. *If the Phase 1 survey is done by someone who is not on this list, it is likely that a site visit by a Fish and Wildlife Service biologist will be necessary to verify their findings. Due to the limited availability of staff from this office, such a visit may not be possible for some time. Use of a qualified surveyor will expedite our review of the survey results.*

If potential bog turtle habitat is found in the project action area, efforts should be made to avoid any direct or indirect impacts to those wetlands (see enclosed *Bog Turtle Conservation Zones*). Avoidance of direct and indirect effects means no disturbance to or encroachment into the

wetlands (e.g., filling, ditching or draining) for any project-associated features or activities. Adverse effects may also be anticipated to occur when lot lines include portions of the wetland; when an adequate upland buffer is not designated around the wetland (see *Bog Turtle Conservation Zones*); or when roads, stormwater/sedimentation basins, impervious surfaces, or wells affect the hydrology of the wetland.

If potential habitat is found, submit (along with your Phase 1 survey results) a detailed project description and detailed project plans documenting how direct and indirect impacts to the wetlands will be avoided. If adverse effects to these wetlands cannot be avoided, a more detailed and thorough survey will be necessary, as described under "*Bog Turtle Survey*" (Phase 2 survey) of the *Guidelines*. The Phase 2 survey should be conducted by a qualified biologist with bog turtle field survey experience (see enclosed list of qualified surveyors). Submit survey results to the Service for review and concurrence.

Note that a phase 1 does not need to be redone on the portion that was already approved by our office on November 28, 2005. However, we would like a copy of the 2005 Phase 1 report to put with the project records.

In cases where adverse effects to federally listed species cannot be avoided, further consultation with the Service would be necessary to avoid potential violations of section 9 (prohibiting "take" of listed species) and/or section 7 (requiring federal agencies to consult) of the Endangered Species Act. Information about the section 7 and section 10 consultation processes (for federal and non-federal actions, respectively) can be obtained by contacting this office or accessing the Service's Endangered Species Home Page (<http://endangered.fws.gov>).

This response relates only to endangered and threatened species under our jurisdiction, based on an office and/or field review of the proposed project. Consequently, this letter is not to be construed as addressing potential Service concerns under the Fish and Wildlife Coordination Act or other authorities. A compilation of certain federal status species in Pennsylvania is enclosed for your information.

*To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.*

Please contact Pamela Shellenberger of my staff at 814-234-4090 if you have any questions regarding this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "David Densmore", followed by a long horizontal line extending to the right.

David Densmore  
Supervisor

Enclosures



ENGINEERING / ENVIRONMENTAL / SURVEYING

June 13, 2008

CERTIFIED MAIL NO. 7000 0600 0027 8973 9761

PA Historical & Museum Commission  
Bureau of Historic Preservation  
400 North Street, 2<sup>nd</sup> Floor  
Harrisburg, PA 17120-0093  
Attn: Mr. Doug McLaren

RE: Cultural Resource Notice  
BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County

Dear Mr. McLaren:

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, Pennsylvania. The Department of Environmental Protection (DEP) considers this project to be a large project. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of four (4) municipalities: Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The municipalities' addresses are as follows:

- ◆ Pocono Township – P.O. Box 167.  
Tannersville, PA 18372
- ◆ Hamilton Township – P.O. Box 285  
Sciota, PA 18354
- ◆ Stroud Township – 1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360
- ◆ Stroudsburg Borough – 700 Sarah Street  
Stroudsburg, PA 18360

In addition, the address of the BCRA is:

- ◆ 410 Stokes Avenue  
East Stroudsburg, PA 18301

49 South Main Street, Suite 200, Pittston, PA 18640 570 654 2473 FAX 570 654 6880



Preceding this project was the Pocono Regional Act 537 Special Study which involved the installation of sewer pipelines along road right-of-ways in five (5) municipalities: Mt. Pocono Borough, Paradise Township, Pocono Township, Hamilton Township, and Stroud Township. In January of 2005, this project was reviewed and showed no effects upon both historic and archaeological resources by the Bureau for Historic Preservation. The Bureau of Historic Preservation assigned the File No. ER 05-0625-089-A to the Pocono Regional Act 537 Special Study. Attached for your use is the relative correspondence. The letter is dated January 12, 2005.

The proposed sewer pipeline route for the BCRA Regional Act 537 Plan is shown on the attached U.S.G.S. map. The proposed sewer pipeline is approximately 7.8 miles long. Approximately one third of the proposed sewer pipeline alignment presented in the Pocono Regional Act 537 Special Study is the same as is being proposed in the BCRA Regional Act 537 Plan. The pipeline will be installed within existing road shoulders wherever possible, or within previously disturbed areas within road right-of-ways. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough. The adjacent parcel in Stroudsburg Borough is currently developed as a commercial business. The total project area is approximately 35 acres. The approximate area of disturbance will be 16.1 acres.

No buildings will be adversely affected by the project.

As part of the Act 537 Plan, we are requesting from your office a review of potential conflicts with historic and archaeological resources by the project.

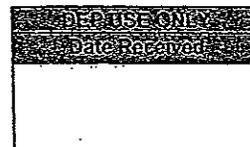
Should you require any additional information, please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Lonell C. Tomaine, E.I.T.

Encl.



## CULTURAL RESOURCE NOTICE

Read the instructions before completing this form.

<b>SECTION A. APPLICANT IDENTIFIER</b>	
Applicant Name	BRODHEAD CREEK REGIONAL AUTHORITY
Street Address	410 STOKES AVENUE
City	EAST STROUDSBURG State PA Zip 18301
Telephone Number	(570) 421-3232
Project Title	BCRA REGIONAL WWTP ACT 537 PLAN
<b>SECTION B. LOCATION OF PROJECT</b>	
Municipality	VARIOUS-SEE NARRATIVE County Name MONROE DEP County Code 45
<b>SECTION C. PERMITS OR APPROVALS</b>	
Name of Specific DEP Permit or Approval Requested:	
Anticipated federal permits:	
<input type="checkbox"/> Surface Mining	<input type="checkbox"/> 404 Water Quality Permit
<input type="checkbox"/> Army Corps of Engineers	<input type="checkbox"/> Federal Energy Regulatory Commission
<input type="checkbox"/> 401 Water Quality Certification	<input checked="" type="checkbox"/> Other:
<b>SECTION D. GOVERNMENT FUNDING SOURCES</b>	
<input type="checkbox"/> State: (Name) _____	<input type="checkbox"/> Local: (Name) _____
<input type="checkbox"/> Federal: (Name) _____	<input checked="" type="checkbox"/> Other: (Name) BCRA
<b>SECTION E. RESPONSIBLE DEP REGIONAL, CENTRAL, DISTRICT MINING or OIL &amp; GAS MGMT OFFICE</b>	
DEP Regional Office Responsible for Review of Permit Application	<input type="checkbox"/> Central Office (Harrisburg)
<input type="checkbox"/> Southeast Regional Office (Conshohocken)	<input checked="" type="checkbox"/> Northeast Regional Office (Wilkes-Barre)
<input type="checkbox"/> Southcentral Regional Office (Harrisburg)	<input type="checkbox"/> Northcentral Regional Office (Williamsport)
<input type="checkbox"/> Southwest Regional Office (Pittsburgh)	<input type="checkbox"/> Northwest Regional Office (Meadville)
<input type="checkbox"/> District Mining Office:	<input type="checkbox"/> Oil & Gas Office:
<b>SECTION F. RESPONSIBLE COUNTY CONSERVATION DISTRICT, if applicable.</b>	
County Conservation District	Telephone Number, if known
MONROE	(570) 629-3060
<b>SECTION G. CONSULTANT</b>	
Consultant, if applicable	REILLY ASSOCIATES ATTN.: JOSEPH DURKIN
Street Address	49 SOUTH MAIN STREET - SUITE 200
City	PITTSTON State PA Zip 18640
Telephone Number	(570) 654-2473

**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**

*Lonell Tomaine*

*6/13/08*

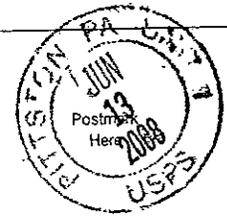
Applicant's Signature

Date of Submission of Notice to PHMC

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

7000 0600 0027 8973 9761

Postage	\$
Certified Fee	2.70
Return Receipt Fee (Endorsement Required)	2.20
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$



Recipient's Name (Please Print Clearly) (to be completed by mailer)  
**PA HISTORICAL & MUSEUM COM.**  
 Street, Apt. No., or PO Box No. **BUREAU OF HISTORIC PRES.**  
**200 NORTH ST. - 2ND FL.**  
 City, State, ZIP+4  
**HARRISBURG PA 17120-0093**

PS Form 3800, February 2000 See Reverse for Instructions

**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 & MUSEUM COM.  
 BUREAU OF HISTORIC PRESERVATION  
 200 NORTH ST. - 2ND FLOOR  
 HARRISBURG PA 17120-0093  
 ATTN.: DOUG MCLAREN

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  Agent  
 Addressee

B. Received by (Printed Name) **JUN 16 2008** Date of Delivery

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) **7000 0600 0027 8973 9761**



ENGINEERING / ENVIRONMENTAL / SURVEYING

June 13, 2008

CERTIFIED MAIL NO. 7000 0600 0027 8973 9723

Department of Conservation and Natural Resources  
Bureau of Forestry, Ecological Services Section  
400 Market St., P.O. Box 8552  
Harrisburg, PA 17105  
Attn: Ms. Rebecca Bowen

RE: Municipal Request for PNDI Data  
BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County

Dear Ms. Rebecca Bowen:

Enclosed is a Pennsylvania Natural Diversity Inventory (PNDI) search form for the Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, Pennsylvania. The Department of Environmental Protection (DEP) considers this project to be a large project. Based upon the agreement between DEP and the Department of Conservation and Natural Resources (DCNR), we are sending you a hard copy of the PNDI form. The Monroe County Conservation District (MCCD) has also informed us that they cannot process a linear PNDI review and suggested that we submit it to you.

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the BCRA. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of four (4) municipalities: Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The municipalities' addresses are as follows:

- ♦ Pocono Township – P.O. Box 167  
Tannersville, PA 18372
- ♦ Hamilton Township – P.O. Box 285  
Sciota, PA 18354
- ♦ Stroud Township – 1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360
- ♦ Stroudsburg Borough – 700 Sarah Street  
Stroudsburg, PA 18360

49 South Main Street, Suite 200, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

Z/08062/Notification Letters/ltr Dept. of Conservation and Natural Resources.doc



In addition, the address of the BCRA is:

♦ 410 Stokes Avenue  
East Stroudsburg, PA 18301

Preceding this project was the Pocono Regional Act 537 Special Study which involved the installation of sewer pipelines along road right-of-ways in five (5) municipalities: Mt. Pocono Borough, Paradise Township, Pocono Township, Hamilton Township, and Stroud Township. In January of 2005, this project was reviewed and showed no known occurrences of plant species of special concern by the PNDI. The PNDI assigned the PER NO: 17305 to the Pocono Regional Act 537 Special Study. Attached for your use is the relative correspondence. The letter is dated January 25, 2005.

The proposed sewer pipeline route for the BCRA Regional Act 537 Plan is shown on the attached U.S.G.S. map. The proposed sewer pipeline is approximately 7.8 miles long. Approximately one third of the proposed sewer pipeline alignment presented in the Pocono Regional Act 537 Special Study is the same as is being proposed in the BCRA Regional Act 537 Plan. The pipeline will be installed within existing road shoulders wherever possible, or within previously disturbed areas within road right-of-ways. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough. The adjacent parcel in Stroudsburg Borough is currently developed as a commercial business. The total project area is approximately 35 acres. The approximate area of disturbance will be 16.1 acres.

As part of the Act 537 Plan, we are requesting from your office a review of potential conflicts with species of special concern by the project.

Should you require any additional information, please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Lonell C. Tomaine, E.I.T.

Encl.



ENGINEERING / ENVIRONMENTAL / SURVEYING

June 13, 2008

CERTIFIED MAIL NO. 7000 0600 0027 8973 9747

Pennsylvania Fish and Boat Commission  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823

RE: BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County

To Whom This May Concern:

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, Pennsylvania. The Department of Environmental Protection (DEP) considers this project to be a large project. Based upon the agreement between DEP and the Pennsylvania Fish and Boat Commission, we are sending you a hard copy of the Pennsylvania Natural Diversity Inventory (PNDI) form. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of four (4) municipalities: Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The municipalities' addresses are as follows:

- ♦ Pocono Township – P.O. Box 167  
Tannersville, PA 18372
- ♦ Hamilton Township – P.O. Box 285  
Sciota, PA 18354
- ♦ Stroud Township – 1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360
- ♦ Stroudsburg Borough – 700 Sarah Street  
Stroudsburg, PA 18360

In addition, the address of the BCRA is:

- ♦ 410 Stokes Avenue  
East Stroudsburg, PA 18301

49 South Main Street, Suite 200, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

Z/08062/Notification Letters/ltr Pennsylvania Fish and Boat Commission 6-08.doc



Preceding this project was the Pocono Regional Act 537 Special Study which involved the installation of sewer pipelines along road right-of-ways in five (5) municipalities: Mt. Pocono Borough, Paradise Township, Pocono Township, Hamilton Township, and Stroud Township. In March of 2005, the Pennsylvania Fish and Boat Commission reviewed the project and it was within the known range of the bog turtle, a species that is federally listed as threatened. A Phase I bog turtle habitat assessment was conducted in October of 2005. Based on the review of the report, the Pennsylvania Fish and Boat Commission concluded that suitable habitat for bog turtles did not occur on-site. The Pennsylvania Fish and Boat Commission assigned the SIR # 18772 to the Pocono Regional Act 537 Special Study. Attached for your use are the relative correspondences.

The proposed sewer pipeline route for the BCRA Regional Act 537 Plan is shown on the attached U.S.G.S. map. The proposed sewer pipeline is approximately 7.8 miles long. Approximately one third of the proposed sewer pipeline alignment presented in the Pocono Regional Act 537 Special Study is the same as is being proposed in the BCRA Regional Act 537 Plan. The pipeline will be installed within existing road shoulders wherever possible, or within previously disturbed areas within road right-of-ways. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough. The adjacent parcel in Stroudsburg Borough is currently developed as a commercial business. The total project area is approximately 35 acres. The approximate area of disturbance will be 16.1 acres.

As part of the Act 537 Plan, we are requesting from your office a review of potential conflicts with species of special concern by the project.

Should you require any additional information, please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Lonell C. Tomaine, E.I.T.

Encl.

COMMONWEALTH OF PENNSYLVANIA  
**FISH AND BOAT COMMISSION**  
 NATURAL DIVERSITY SECTION  
**SPECIES IMPACT REVIEW (SIR) REQUEST FORM**

- A. This form provides the site information necessary to perform a computer database search for species of special concern listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat Code or the Wildlife Code.
- B. Use only *one form* for each proposed project or location. Complete the information below and mail form to:

Natural Diversity Section  
 Division of Environmental Services  
 PA Fish and Boat Commission  
 450 Robinson Lane  
 Bellefonte, PA 16823  
 Fax: (814) 359-5175

- C. This form, a cover letter including a project narrative, and accompanying maps should be sent to the above address for environmental reviews that *only* concern *reptiles, amphibians, fishes and aquatic invertebrates*. Reviews for other natural resources must be submitted to other appropriate agencies.
- D. The absence of recorded information from our databases and files does not necessarily imply actual conditions on site. Future field investigations could alter this determination. The information contained in our files is routinely updated. A review is valid for one year.
- E. *Please send us only one (1) copy of your request* – either by fax or by mail – not both. Mail is preferred to improve legibility of maps. Facsimile submission will not improve our response turn-around time.
- F. *Allow 30 days for completion of the review from the date of PFBC receipt*. Large projects and workload may extend this review timeframe.
- G. *In any future correspondence with us following your receipt of the SIR response, please refer to the assigned SIR number at the top left of our cover letter.*
- H. **FORMS THAT ARE NOT COMPLETED IN FULL WILL NOT BE REVIEWED.**

**PLEASE PRINT OR TYPE:** If available, provide the potential conflict PNDI Search Number: \_\_\_\_\_

PFBC response should be sent to:  
 Company/Agency: Reilly Associates Form Preparer: Jennifer Tomaine  
 Address: 495 Main St., Suite 200 Pittston, PA 16840 Phone (8:00 AM to 4:00 PM): 570-654-2473

Project Description: See Attached Sheet

Indicate if the project is: Transportation  or Non-transportation  (check one)  
 Will the proposed project encroach directly or indirectly (e.g., runoff) upon wetlands or waterways? Circle one for each:  
 Wetlands: Yes No Unknown Waterways: Yes No Unknown  
 County: MONROE Township/Municipality: Stroudsburg Borough, Pocono Twp., Hamilton  
Saylorsburg, Stroudsburg, Mount Pocono, and East Stroudsburg Project size (in acres): 35  
 Name of the United States Geological Survey (U.S.G.S.) 7.5 Minute Quadrangle Map where project is located: Twp., and Stroud Twp.  
 Attach an 8.5" by 11" photocopy (DO NOT REDUCE) of the section of the U.S.G.S. Quadrangle Map which identifies the project location. On this map, indicate the location of the project center (if linear, depict both ends) and outline the approximate boundaries of the project area.  
 Specify latitude/longitude of the project center. Latitude: N 1 / A 1 " N  
 Indicate latitude/longitude in degrees-minutes-seconds format only. Longitude: \_\_\_\_\_ " W

Three steps are needed to convert from decimal degrees to degrees-minutes-seconds: (1) Degrees will be the whole number. (2) To get minutes, multiply the decimal degree portion by 60. (3) Multiply the decimal minute portion by 60 to get seconds.  
 Example: (Latitude) 40.93748 = 40°; 0.93748 x 60 = 56.2488' = 56'; 0.2488 x 60 = 14.928 = 15" = 40°56'15" N  
 (Longitude) 75.94740 = 75°; 0.94740 x 60 = 56.844' = 56'; 0.844 x 60 = 50.64 = 51" = 75°56'51" W

**FOR PFBC USE ONLY**

SIR#	Quad Name	Data Source	Search Result-Potential Species Conflict	Action

Commonwealth of Pennsylvania

Fish and Boat Commission

Natural Diversity Section

Species Impact Review (SIR) Request Form

Attached Sheet

**Project Description:**

The preparation of a BCRA Regional Act 537 Sewage Facilities Plan. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in these four (4) municipalities: Stroudsburg Borough, Pocono Twp., Hamilton Twp., and Stroud Twp.



Pennsylvania Natural Diversity Inventory

# Pennsylvania Natural Diversity Inventory Project Planning & Environmental Review Form

This form provides site information necessary to perform an Environmental Review for special concern species and resources listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat code or the Pennsylvania Game and Wildlife Code.

## Applicant Information

Name: Lionel Tommano, Reilly Associates  
Address: Hq S. Main St., Suite 200 Pittston, PA 18640  
Phone Number: 570-654-2473 Fax Number: 570-654-6880

## Contact Person Information - if different from applicant

Name:  
Address:  
Phone Number: Fax Number:

## Project Information

Project Name: BCRA Regional WWTP Act 537 Plan  
Project Location: Portions of Stroudsburg Borough, Stroud Twp., Hamilton Twp., and Pocono Twp.  
Municipality: See Above County: Monroe  
 Attach a copy of a U.S.G.S. 7 1/2 Minute Quadrangle Map with Project Boundaries clearly marked.  
U.S.G.S. Quad Name: Saylorsburg, Mount Pocono, East Stroudsburg, and Stroudsburg

## Project Description

Proposed Project Activity (including ALL earth disturbance areas and current conditions)

See Attached Sheet

Total Acres of Property: 35 Acreage to be Impacted: 16.1

- Will the entire project occur in or on an existing building, parking lot, driveway, road, maintained road shoulder, street, runway, paved area, railroad bed, or maintained lawn? Yes  No
- Are there any waterways or waterbodies (intermittent or perennial rivers, streams, creeks, tributaries, lakes or ponds) in or near the project area, or on the land parcel? If so, how many feet away is the project?  
Yes  In Project Area Feet No
- Are wetlands located in or within 300 feet of the project area? Yes  No  If No, is this the result of a wetland delineation?

If you have a "PNDI Project Environmental Review Receipt" with potential impacts, please send a receipt copy, this completed form, and a USGS Quad Map to the agency/agencies noted on the receipt. If you are unable to generate a PNDI Receipt because you do not have Internet access, complete this form, attach a USGS Quad Map, and send them to your local DEP or County Conservation District. For review of a "Large Project," please send form and map to all the agencies listed below. See page 2 for more information.

Dept. of Conservation and Natural Resources  
Bureau of Forestry, Ecological Services Section  
400 Market St., PO Box 8552  
Harrisburg, PA 17105  
fax: 717-772-0271

PA Fish and Boat Commission  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823  
fax 814-359-5175

PA Game Commission  
Bureau of Land Management  
2001 Elmerton Avenue  
Harrisburg, PA 17110-9797  
fax: 717-787-6957

US Fish and Wildlife Service  
Endangered Species Biologist  
315 South Allen St., Suite 322  
State College, PA 16801  
no faxes please

Pennsylvania Natural Diversity Inventory

Project Planning & Environmental Review Form

Attached Sheet

Proposed Project Activity

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, PA. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in these four (4) municipalities: Pocono Twp., Hamilton Twp., Stroud Twp., and Stroudsburg Borough. The pipeline will be installed within the existing road shoulders wherever possible, or within previously disturbed areas within road right-of ways. Two stream crossings will be required. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough.



ENGINEERING / ENVIRONMENTAL / SURVEYING

June 13, 2008

CERTIFIED MAIL NO. 7000 0600 0027 8973 9730

Pennsylvania Game Commission  
Bureau of Land Management  
2001 Elmerton Avenue  
Harrisburg, PA 17110-9797

RE: BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County

To Whom This May Concern:

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, Pennsylvania. The Department of Environmental Protection (DEP) considers this project to be a large project. Based upon the agreement between DEP and the Pennsylvania Game Commission, we are sending you a hard copy of the Pennsylvania Natural Diversity Inventory (PNDI) form. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of four (4) municipalities: Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The municipalities' addresses are as follows:

- ♦ Pocono Township – P.O. Box 167  
Tannersville, PA 18372
- ♦ Hamilton Township – P.O. Box 285  
Sciota, PA 18354
- ♦ Stroud Township – 1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360
- ♦ Stroudsburg Borough – 700 Sarah Street  
Stroudsburg, PA 18360

In addition, the address of the BCRA is:

- ♦ 410 Stokes Avenue  
East Stroudsburg, PA 18301

49 South Main Street, Suite 200, Pittston, PA 18640 570 654 2473 FAX 570 654 6880



The proposed sewer pipeline route for the BCRA Regional Act 537 Plan is shown on the attached U.S.G.S. map. The proposed sewer pipeline is approximately 7.8 miles long. The pipeline will be installed within existing road shoulders wherever possible, or within previously disturbed areas within road right-of-ways. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough. The adjacent parcel in Stroudsburg Borough is currently developed as a commercial business. The total project area is approximately 35 acres. The approximate area of disturbance will be 16.1 acres.

As part of the Act 537 Plan, we are requesting from your office a review of potential conflicts with species of special concern by the project.

Should you require any additional information, please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Lonell C. Tomaine, E.I.T.

Encl.



Pennsylvania Natural Diversity Inventory

# Pennsylvania Natural Diversity Inventory Project Planning & Environmental Review Form

This form provides site information necessary to perform an Environmental Review for special concern species and resources listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat code or the Pennsylvania Game and Wildlife Code.

## Applicant Information

Name: Lionel Tomaino, Reilly Associates  
Address: Hq S. Main St., Suite 200 Pittston, PA 18640  
Phone Number: 570-654-2473 Fax Number: 570-654-6880

## Contact Person Information - if different from applicant

Name:  
Address:  
Phone Number: Fax Number:

## Project Information

Project Name: BCRA Regional WWTP Act 537 Plan  
Project Location: Portions of Stroudsburg Borough, Stroud Twp., Hamilton Twp., and Pocono Twp  
Municipality: See Above County: Monroe  
 Attach a copy of a U.S.G.S. 7 1/2 Minute Quadrangle Map with Project Boundaries clearly marked.  
U.S.G.S. Quad Name: Saylorsburg, Mount Pocono, East Stroudsburg, and Stroudsburg

## Project Description

Proposed Project Activity (including ALL earth disturbance areas and current conditions)

See Attached Sheet

Total Acres of Property: 35 Acreage to be Impacted: 16.1

- Will the entire project occur in or on an existing building, parking lot, driveway, road, maintained road shoulder, street, runway, paved area, railroad bed, or maintained lawn? Yes  No
- Are there any waterways or waterbodies (intermittent or perennial rivers, streams, creeks, tributaries, lakes or ponds) in or near the project area, or on the land parcel? If so, how many feet away is the project?  
Yes  In Project Area Feet No
- Are wetlands located in or within 300 feet of the project area? Yes  No  If No, is this the result of a wetland delineation?

If you have a "PNDI Project Environmental Review Receipt" with potential impacts, please send a receipt copy, this completed form, and a USGS Quad Map to the agency/agencies noted on the receipt. If you are unable to generate a PNDI Receipt because you do not have Internet access, complete this form, attach a USGS Quad Map, and send them to your local DEP or County Conservation District. For review of a "Large Project," please send form and map to all the agencies listed below. See page 2 for more information.

Dept. of Conservation and Natural Resources  
Bureau of Forestry, Ecological Services Section  
400 Market St., PO Box 8552  
Harrisburg, PA 17105  
fax: 717-772-0271

PA Fish and Boat Commission  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823  
fax 814-359-5175

PA Game Commission  
Bureau of Land Management  
2001 Elmerton Avenue  
Harrisburg, PA 17110-9797  
fax: 717-787-6957

US Fish and Wildlife Service  
Endangered Species Biologist  
315 South Allen St., Suite 322  
State College, PA 16801  
no faxes please

Pennsylvania Natural Diversity Inventory

Project Planning & Environmental Review Form

Attached Sheet

Proposed Project Activity

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, PA. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in these four (4) municipalities: Pocono Twp., Hamilton Twp., Stroud Twp., and Stroudsburg Borough. The pipeline will be installed within the existing road shoulders wherever possible, or within previously disturbed areas within road right-of ways. Two stream crossings will be required. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough.

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

7000 0600 0027 8973 9730

Postage	\$
Certified Fee	2.70
Return Receipt Fee (Endorsement Required)	2.20
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	\$



Recipient's Name (Please Print Clearly) (to be completed by mailer)  
**PA GAME COM. - BUREAU OF LAND MANAGEMENT**  
 Street, Apt. No., or PO Box No.  
**2001 ELMERTON AVE.**  
 City, State, ZIP+4  
**HARRISBURG PA 17110-9797**

PS Form 3800, February 2000 See Reverse for Instructions

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"> <li>■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>■ Print your name and address on the reverse so that we can return the card to you.</li> <li>■ Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	<p>A. Signature <input checked="" type="checkbox"/> Agent  <input type="checkbox"/> Addressee</p> <p>B. Received by (Printed Name) <u>D. HARLE</u> C. Date of Delivery <u>JUN 16 2008</u></p> <p>D. Is delivery address different from item 1? <input type="checkbox"/> Yes                  If YES, enter delivery address below: <input checked="" type="checkbox"/> No</p>
<p>1. Article Addressed to:</p> <p><b>PA GAME COMMISSION                  BUREAU OF LAND MANAGEMENT                  2001 ELMERTON AVENUE                  HARRISBURG PA 17110-9797</b></p>	<p>3. Service Type</p> <p><input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail  <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise  <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p>
<p>2. Article Number                  (Transfer from service label)</p>	<p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>

7000 0600 0027 8973 9730



ENGINEERING / ENVIRONMENTAL / SURVEYING

June 18, 2008

CERTIFIED MAIL NO. 7000 0600 0027 8973 9716

Monroe County Agricultural Land Preservation Board  
C/o County Administrator  
Monroe County Planning Commission  
1 Quaker Plaza, Room 106  
Stroudsburg, PA 18360

RE: BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County

Dear Monroe County Planning Commission:

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, Pennsylvania. The Department of Environmental Protection (DEP) considers this project to be a large project. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of four (4) municipalities: Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The municipalities' addresses are as follows:

- ♦ Pocono Township – P.O. Box 167  
Tannersville, PA 18372
- ♦ Hamilton Township – P.O. Box 285  
Sciota, PA 18354
- ♦ Stroud Township – 1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360
- ♦ Stroudsburg Borough – 700 Sarah Street  
Stroudsburg, PA 18360

In addition, the address of the BCRA is:

- ♦ 410 Stokes Avenue  
East Stroudsburg, PA 18301

49 South Main Street, Suite 200, Pittston, PA 18640 570 654 2473 FAX 570 654 6880

Z/08062/Notification Letters/ltr Monroe County Agricultural Land Preservation Board 6-08.doc



Preceding this project was the Pocono Regional Act 537 Special Study which involved the installation of sewer pipelines along road right-of-ways in five (5) municipalities: Mt. Pocono Borough, Paradise Township, Pocono Township, Hamilton Township, and Stroud Township. In March of 2005, the Monroe County Agricultural Land Preservation Board reviewed the project and it was in compliance with the agricultural preservation efforts/initiatives of Monroe County. Attached for your use is the relative correspondence.

The proposed sewer pipeline route for the BCRA Regional Act 537 Plan is shown on the attached U.S.G.S. map. The proposed sewer pipeline is approximately 7.8 miles long. Approximately one third of the proposed sewer pipeline alignment presented in the Pocono Regional Act 537 Special Study is the same as is being proposed in the BCRA Regional Act 537 Plan. The pipeline will be installed within existing road shoulders wherever possible, or within previously disturbed areas within road right-of-ways. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough. The adjacent parcel in Stroudsburg Borough is currently developed as a commercial business. The total project area is approximately 35 acres. The approximate area of disturbance will be 16.1 acres.

As part of the Act 537 Plan, we are requesting the board review for potential conflicts with any important farmland as defined by the Farmland Protection Agency Act.

Should you require any additional information, please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Lonell C. Tomaine, E.I.T.



Pennsylvania Natural Diversity Inventory

# Pennsylvania Natural Diversity Inventory Project Planning & Environmental Review Form

This form provides site information necessary to perform an Environmental Review for special concern species and resources listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat code or the Pennsylvania Game and Wildlife Code.

### Applicant Information

Name: *Lionel Tomaino, Reilly Associates*  
Address: *Hq S. Main St., Suite 200 Pittston, PA 18640*  
Phone Number: *570-654-2473* Fax Number: *570-654-6880*

### Contact Person Information - if different from applicant

Name:  
Address:  
Phone Number: Fax Number:

### Project Information

Project Name: *BCRA Regional WWTP Act 537 Plan*  
Project Location: *Portions of Stroudsburg Borough, Stroud Twp., Hamilton Twp., and Pocono Twp.*  
Municipality: *See Above* County: *Monroe*  
 Attach a copy of a U.S.G.S. 7 1/2 Minute Quadrangle Map with Project Boundaries clearly marked.  
U.S.G.S. Quad Name: *Saylorburg, Mount Pocono, East Stroudsburg, and Stroudsburg*

### Project Description

Proposed Project Activity (including ALL earth disturbance areas and current conditions)

*See Attached Sheet*

Total Acres of Property: *35* Acreage to be Impacted: *16.1*

- Will the entire project occur in or on an existing building, parking lot, driveway, road, maintained road shoulder, street, runway, paved area, railroad bed, or maintained lawn? Yes  No
- Are there any waterways or waterbodies (intermittent or perennial rivers, streams, creeks, tributaries, lakes or ponds) in or near the project area, or on the land parcel? If so, how many feet away is the project? Yes  *In Project Area* Feet No
- Are wetlands located in or within 300 feet of the project area? Yes  No  If No, is this the result of a wetland delineation?

If you have a "PNDI Project Environmental Review Receipt" with potential impacts, please send a receipt copy, this completed form, and a USGS Quad Map to the agency/agencies noted on the receipt. If you are unable to generate a PNDI Receipt because you do not have Internet access, complete this form, attach a USGS Quad Map, and send them to your local DEP or County Conservation District. For review of a "Large Project," please send form and map to all the agencies listed below. See page 2 for more information.

Dept. of Conservation and Natural Resources  
Bureau of Forestry, Ecological Services Section  
400 Market St., PO Box 8552  
Harrisburg, PA 17106  
fax: 717-772-0271

PA Fish and Boat Commission  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823  
fax 814-359-5175

PA Game Commission  
Bureau of Land Management  
2001 Elmerton Avenue  
Harrisburg, PA 17110-9797  
fax: 717-787-6957

US Fish and Wildlife Service  
Endangered Species Biologist  
315 South Allen St., Suite 322  
State College, PA 16801  
no faxes please

Pennsylvania Natural Diversity Inventory

Project Planning & Environmental Review Form

Attached Sheet

Proposed Project Activity

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, PA. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in these four (4) municipalities: Pocono Twp., Hamilton Twp., Stroud Twp., and Stroudsburg Borough. The pipeline will be installed within the existing road shoulders wherever possible, or within previously disturbed areas within road right-of ways. Two stream crossings will be required. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough.



ENGINEERING / ENVIRONMENTAL / SURVEYING

June 13, 2008

CERTIFIED MAIL NO. 7000 0600 0027 8973 9754

U.S. Fish and Wildlife Service  
315 South Allen St., Suite 322  
State College, PA 16801-4850  
Attn: Endangered Species Biologist

RE: BCRA Regional Act 537 Sewage Facilities Plan  
Stroudsburg Borough, Monroe County

To Whom This May Concern:

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, Pennsylvania. The Department of Environmental Protection (DEP) considers this project to be a large project. Based upon the agreement between DEP and the U.S. Fish and Wildlife Service, we are sending you a hard copy of the Pennsylvania Natural Diversity Inventory (PNDI) form. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of four (4) municipalities: Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough. The municipalities' addresses are as follows:

- ♦ Pocono Township – P.O. Box 167  
Tannersville, PA 18372
- ♦ Hamilton Township – P.O. Box 285  
Sciota, PA 18354
- ♦ Stroud Township – 1211 North 5<sup>th</sup> Street  
Stroudsburg, PA 18360
- ♦ Stroudsburg Borough – 700 Sarah Street  
Stroudsburg, PA 18360

In addition, the address of the BCRA is:

- ♦ 410 Stokes Avenue  
East Stroudsburg, PA 18301



Preceding this project was the Pocono Regional Act 537 Special Study which involved the installation of sewer pipelines along road right-of-ways in five (5) municipalities: Mt. Pocono Borough, Paradise Township, Pocono Township, Hamilton Township, and Stroud Township. In January of 2005, the U.S. Fish and Wildlife Service reviewed the project and it was within the known range of the bog turtle, a species that is federally listed as threatened. A Phase 1 bog turtle habitat assessment was conducted in October of 2005. Based on the review of the report, the U.S. Fish and Wildlife Service concluded that implementation of the project would not affect the bog turtle. The U.S. Fish and Wildlife Service assigned the USFWS Project #2005-2425 to the Pocono Regional Act 537 Special Study. Attached for your use are the relative correspondences.

The proposed sewer pipeline route for the BCRA Regional Act 537 Plan is shown on the attached U.S.G.S. map. The proposed sewer pipeline is approximately 7.8 miles long. Approximately one third of the proposed sewer pipeline alignment presented in the Pocono Regional Act 537 Special Study is the same as is being proposed in the BCRA Regional Act 537 Plan. The pipeline will be installed within existing road shoulders wherever possible, or within previously disturbed areas within road right-of-ways. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough. The adjacent parcel in Stroudsburg Borough is currently developed as a commercial business. The total project area is approximately 35 acres. The approximate area of disturbance will be 16.1 acres.

As part of the Act 537 Plan, we are requesting from your office a review of potential conflicts with species of special concern by the project.

Should you require any additional information, please do not hesitate to contact me.

Sincerely,

REILLY ASSOCIATES

Lonell C. Tomaine, E.I.T.

Encl.



Pennsylvania Natural Diversity Inventory

# Pennsylvania Natural Diversity Inventory Project Planning & Environmental Review Form

This form provides site information necessary to perform an Environmental Review for special concern species and resources listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, the Pennsylvania Fish and Boat code or the Pennsylvania Game and Wildlife Code.

### Applicant Information

Name: Lonell Tomaino, Reilly Associates  
Address: 49 S. Main St., Suite 200 Pittston, PA 18640  
Phone Number: 570-654-2473 Fax Number: 570-654-6880

### Contact Person Information - if different from applicant

Name:  
Address:  
Phone Number: Fax Number:

### Project Information

Project Name: BCRA Regional WWTP Act 537 Plan  
Project Location: Portions of Stroudsburg Borough, Stroud Twp., Hamilton Twp., and Pocono Twp.  
Municipality: See above County: Monroe  
 Attach a copy of a U.S.G.S. 7 1/2-Minute Quadrangle Map with Project Boundaries clearly marked.  
U.S.G.S. Quad Name: Saylorburg, Mount Pocono, East Stroudsburg, and Stroudsburg

### Project Description

Proposed Project Activity (including ALL earth disturbance areas and current conditions)

See Attached Sheet

Total Acres of Property: 35 Acreage to be Impacted: 16.1

1. Will the entire project occur in or on an existing building, parking lot, driveway, road, maintained road shoulder, street, runway, paved area, railroad bed, or maintained lawn? Yes  No
2. Are there any waterways or waterbodies (intermittent or perennial rivers, streams, creeks, tributaries, lakes or ponds) in or near the project area, or on the land parcel? If so, how many feet away is the project?  
Yes  In Project Area Feet No
3. Are wetlands located in or within 300 feet of the project area? Yes  No  If No, is this the result of a wetland delineation?

If you have a "PNDI Project Environmental Review Receipt" with potential impacts, please send a receipt copy, this completed form, and a USGS Quad Map to the agency/agencies noted on the receipt. If you are unable to generate a PNDI Receipt because you do not have Internet access, complete this form, attach a USGS Quad Map, and send them to your local DEP or County Conservation District. For review of a "Large Project," please send form and map to all the agencies listed below. See page 2 for more information.

Dept. of Conservation and Natural Resources  
Bureau of Forestry, Ecological Services Section  
400 Market St., PO Box 8552  
Harrisburg, PA 17105  
fax: 717-772-0271

PA Fish and Boat Commission  
Natural Diversity Section  
450 Robinson Lane  
Bellefonte, PA 16823  
fax 814-359-5175

PA Game Commission  
Bureau of Land Management  
2001 Elmerton Avenue  
Harrisburg, PA 17110-9797  
fax: 717-787-6957

US Fish and Wildlife Service  
Endangered Species Biologist  
315 South Allen St., Suite 322  
State College, PA 16801  
no faxes please

Pennsylvania Natural Diversity Inventory

Project Planning & Environmental Review Form

Attached Sheet

Proposed Project Activity

Reilly Associates is preparing a Regional Act 537 Sewage Facilities Plan for the Brodhead Creek Regional Authority (BCRA) in Monroe County, PA. The project will involve the construction of an expanded 4.5 mgd wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in these four (4) municipalities: Pocono Twp., Hamilton Twp., Stroud Twp., and Stroudsburg Borough. The pipeline will be installed within the existing road shoulders wherever possible, or within previously disturbed areas within road right-of ways. Two stream crossings will be required. The expanded WWTP will be located on the existing WWTP site and an adjacent parcel in Stroudsburg Borough.

**U.S. Postal Service**  
**CERTIFIED MAIL RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

4526 9754  
 9754 4526  
 0027 8973  
 0000 0600  
 0090 0074  
 0000 7000

Postage	\$	
Certified Fee		2.70
Return Receipt Fee (Endorsement Required)		2.30
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$	



Recipient's Name (Please Print Clearly) (to be completed by mailer)  
**U.S. FISH & WILDLIFE SERVICES**  
 Street, Apt. No.; or PO Box No.  
**315 SOUTH ALLEN ST. - SUITE 322**  
 City, State, ZIP+4  
**STATE COLLEGE PA 16801-4850**

PS Form 3800, February 2000 See Reverse for Instructions

**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:  
**U.S. FISH & WILDLIFE SERVICE**  
**ATTN.: ENDANGERED SPECIES**  
**BIOLIGIST**  
**315 SOUTH ALLEN ST. - SUITE 322**  
**STATE COLLEGE, PA 16801-4850**

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature  
*Dianne B. Thies*  Agent  Addressee  
 B. Received by (Printed Name) C. Date of Delivery  
**Dianne B. Thies** **6/16/08**  
 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) **7000 0600 0027 8973 9754**

# SECTION 8

## 1.0 PROJECT DESCRIPTION AND NEED

### 1.1 Purpose of and Need for Project

Pocono Township, Hamilton Township, Stroudsburg Borough, and Stroud Township in Monroe County, Pennsylvania are undertaking the Act 537 Regional Sewage Facilities Plan. This sewage facilities plan involves the joining of the Pocono Township/Hamilton Township service area with the Stroudsburg Borough/Stroud Township service area. The plan consists of expanding the existing Stroudsburg Borough wastewater treatment plant to a 4.5 million gallon per day wastewater treatment plant. It also contains construction of a new collection system and a new conveyance pipe for Pocono and Hamilton Townships.

Currently, Pocono Township and Hamilton Township have adopted and are implementing the recent sewage plan in the Pocono Township Regional Act 537 Special Study. This study describes the wastewater treatment disposal needs of the S.R. 611 corridor, Sanofi Pasteur facility, and other related properties in Pocono Township and Hamilton Township. Currently, this area is served with individual on-lot systems and private wastewater treatment plants.

The current approved sewage treatment plan includes a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and a force main to convey treated effluent to Brodhead Creek.

Sewage facilities planning in Stroudsburg Borough and Stroud Township began with the September 1975 Monroe County General Authority Metropolitan Region Wastewater (201) Facilities Plan. This study area is in need of upgrading their existing wastewater treatment plant. At this time, the Borough of Stroudsburg WWTP has a permitted capacity to treat 2.5 million gallons per day of wastewater but only has the operation capability to treat approximately 2.0 million gallons per day of wastewater.

The Act 537 Regional Sewage Facilities Plan will allow all four municipalities to have a regional service area and a cost effective regional wastewater treatment plant.

## 1.2 Project Description

The recommended project is described as follows:

### **Alternative 1 – Regional 4.5 MGD Wastewater Facilities**

#### PROJECT 1 - COLLECTION & CONVEYANCE PROJECT

The Pocono Township/Hamilton Township collection and conveyance system project will be constructed in accordance with the approved plan in the Pocono Township Regional Act 537 Special Study, date June 2, 2006 the exception that the 2.0 MGD WWTP and effluent line to the Brodhead Creek in Stroud Township will not be constructed. The proposed collection system consists of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, and four (4) additional pump stations. In lieu of the 2.0 MGD WWTP and effluent line to the Brodhead Creek, the sewage from the Pocono and Hamilton sewers will be pumped through a combination conveyance force main and gravity sewer from Pocono Township through Hamilton Township, Stroud Township, and Stroudsburg Borough to the new Regional WWTP. The force main is approximately seven (7) miles long. Odor control facilities will be provided at a location approximately half way to the new WWTP and at the new WWTP as needed. The conveyance line will be a force main for most of the route and then will be gravity through the final portion through Stroudsburg Borough.

#### PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION

The 4.5 MGD WWTP project entails the existing 2.5 MGD Stroudsburg Borough WWTP to be upgraded and expanded to a 4.5 MGD WWTP. The treatment process involves new headworks, an equalization tank, pumping station, air grit removal, sequential batch reactors, air blowers, post equalization, sludge treatment, sand filters, and UV disinfection. The adjacent parcel southwest of the Stroudsburg Borough WWTP is in the process of being acquired for the expansion. The Stroud Township and Stroudsburg Borough collection and conveyance systems will remain unchanged. The capacity of the 4.5 MGD Regional WWTP is allocated to the municipalities as follows:

Pocono Township/Hamilton Township	2.0 MGD
Stroud Township	1.5 MGD
Stroudsburg Borough	1.0 MGD

The funding approach for the recommended option is as follows:

Two conventional funding options were explored for construction of the recommended alternative. The primary financing option includes Pennsylvania Infrastructure Investment Authority (PENNVEST) loans applied to both projects of the recommended alternative, with the remainder of the project costs financed with a combination of connection fees, grants, bonds, and local loans. The alternate financing option is for a combination of connection fees, grants, bonds, and local loans.

PENNVEST is the typical agency involved in funding community development projects such as sewage collection and disposal systems. PENNVEST can fund infrastructure projects regardless of location and community populations. The maximum PENNVEST Loan Amount for each project is \$20,000,000 for a 20 year term (multi-municipality projects). The annual interest rate for Monroe County is 1.3% for the first 5 years and 2.6% per year for the last 15 years. These interest rates are equivalent to an annual interest rate of 2.275% over the 20 year payback period.

Conventional bond financing is typical for large municipal projects and based on the financial stability of all the municipalities and authorities involved, this project should be able to secure bond financing with competitive interest rates. For the purposes of this study an annual interest rate of 4.75% was used for a 20 year term.

The recommended financing plan is to apply to Pennvest for \$20 million loans for both the Pocono Township collection and conveyance project and for the BCRA 4.5 MGD WWTP expansion. The remainder of project costs for the Pocono Township project would be paid with grants, tapping fees, and bond financing. The remainder of the project costs for the BCRA 4.5 MGD WWTP expansion would be paid with bond financing.

Pocono Township and Hamilton Township will impose a connection fee and annual user rates to pay for the financing of the project. The estimated rates for the Pocono Township and Hamilton Township portions of the cost are as follows:

Estimated Connection Fee	\$2,500 per EDU
Estimated Annual User Rate	\$1,295 per EDU

Stroud Township and Stroudsburg Borough will need to adjust their annual user rates to pay for the financing of their portion of the project. The estimated annual user rates for the Stroud Township and Stroudsburg Borough portions of the cost are as follows:

Stroud Township Estimated Annual User Rate	\$863 per EDU
Stroudsburg Borough Annual User Rate	\$481 per EDU

Ultimate project financing will also pursue new grant funding sources through PENNVEST and the Department of Community and Economic Development (DCED) and Commonwealth Financing Authority (CFA) for both projects of the recommended Alternative 1-Regional 4.5 MGD WWTP. The grants were not included in the user rate analysis because they have not yet been awarded. If grants are awarded, they will be applied directly to the project costs to lower the user rates in all the municipalities included in this project

Please see the Study Area General Plan in Appendix A and the Service Area Map in Appendix F for the project location.

## 2.0 SUMMARY OF REASONABLE ALTERNATIVES CONSIDERED

### 2.1 Alternatives Considered

The only other alternative considered was for Pocono and Hamilton Township to have a separate wastewater collection and treatment system from Stroud Township and Stroudsburg borough. The alternative is described as follows:

#### **Alternative 2 – Separate Wastewater Systems**

##### PROJECT 1 – POCONO/HAMILTON TOWNSHIP PROJECT

Pocono Township and Hamilton Township will follow the plan in their recently approved Pocono Township Regional Act 537 Special Study. This plan entails the construction of a pump station in Swiftwater, a Pocono Township Interceptor Sewer, a Hamilton Township Interceptor Sewer, a 2.0 million gallons per day wastewater treatment plant in Pocono Township with tertiary treatment and filtration, and a force main to convey treated effluent to the Brodhead Creek in Stroud Township.

##### PROJECT 2 – STROUD TOWNSHIP/STROUDSBURG BOROUGH PROJECT

Alternatively, Stroudsburg Borough and Stroud Township will follow the Amended 201 Facilities Plan implemented by SEMSA in 1985. This plan will entail Stroudsburg Borough and Stroud Township to keep the existing Borough of Stroudsburg WWTP and upgrade it to its permitted capacity of 2.5 MGD. This upgrade would require improved treatment technology to meet more stringent discharge limits proposed by the DRBC based on their no measurable change requirements. Brinjac Engineering provided alternatives to meet these new conditions in a Draft Report dated January 2007. The recommended treatment process involved a pumping station, air grit removal, Membrane Biological Reactors, air blowers, equalization, sludge treatment, and UV disinfection.

## 2.2 Comparison of Alternatives

The following is a summary of the Present Worth and the Annual cost per EDU of each alternative.

### Alternative 1 – Regional 4.5 MGD WWTP Facility

Project	Capital Cost	Annual O&M Cost	Present Worth Cost
1-Pocono & Hamilton Sewers	\$48,198,000	\$434,000	\$42,878,530
2- 4.5 MGD WWTP Expansion	\$33,740,000	\$2,965,000	\$69,017,488
<b>Total Costs</b>	<b>\$81,938,000</b>	<b>\$3,399,000</b>	<b>\$111,896,018</b>

### Alternative 2 – Separate Wastewater Systems

Project	Capital Cost	Annual O&M Cost	Present Worth Cost
1-Pocono & Hamilton Sewers and 2.0 MGD WWTP	\$77,738,000	\$1,462,000	\$82,658,738
2- Stroud/Stroudsburg 2.5 MGD WWTP Upgrade	\$17,109,000	\$1,350,000	\$33,655,109
<b>Total Costs</b>	<b>\$94,847,000</b>	<b>\$2,812,000</b>	<b>\$116,313,848</b>

The recommended alternative is the 4.5 MGD Regional WWTF for the following reasons:

- It was found to be the most cost effective, technically feasible alternative to meet existing and future sewage needs of the member municipalities.
- It is consist with local municipal planning.
- It will provide compliance with state water quality regulations.
- It will provide a single discharge to the McMichael's Creek, a TSF as opposed to two (2) separate discharges, one of which is a stream that has an existing use as a CWF-MF (the Brodhead below Stokes Ave).
- The institutional mechanism for designing, constructing, operating and maintain the facilities for this project are already in place.
- Its implementation schedule meets the timeline requirements of all the member municipalities.

### 3.0 ENVIRONMENTAL CONSEQUENCES OF THE PROJECT

The alternative selected is the Act 537 Regional Sewage Facilities Plan. This sewage facilities plan involves the joining of the Pocono Township/Hamilton Township service area with the Stroudsburg Borough/Stroud Township service area. The plan consists of expanding the existing wastewater treatment plant to a 4.5 million gallon per day wastewater treatment plant in Stroudsburg Borough and a new conveyance system located in portions of the above mentioned municipalities.

This alternative will have the least environmental impacts on the study area because it provides only one wastewater treatment plant with one discharge location in a non-HQ water as opposed to two discharges. This Act will meet the present and future wastewater disposal needs for Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough.

#### 3.1 Land Use/ Important Farmland/ Formally Classified Lands

The proposed sewer collection system in Pocono Township and Hamilton Township will primarily serve properties that are zoned commercial along the S.R. 611 corridor. In Pocono Township, a couple areas are zoned industrial. There are also some properties that are zoned residential R1, R2. A few properties are zoned Resort District RD in Pocono Township. All the properties in Hamilton Township along the S.R. 611 corridor are zoned commercial.

The conveyance line will run through commercial zones in Pocono Township and Hamilton Township

The proposed conveyance system in Stroud Township will be constructed in low-medium density residential, R-2, zones. It will also be constructed in some areas that are zoned general commercial, C-2.

The expansion of the existing Stroudsburg Borough WWTP will be constructed in a commercial zone.

None of the areas in the above townships are actively being used for agriculture. There would be no impact on agriculture. Attached is a letter from the Monroe County Agricultural Land Preservation Board indicating that the proposed alternative is in compliance with the agricultural preservation efforts/initiatives of Monroe County.

Natural Resources Conservation Service (NRCS) soils have been mapped and can be found in Appendix B of the Act 537 Regional Sewage Facilities Plan, along with the proposed pump station, conveyance line, and Regional WWTP.

There will be no impacts on national and state parks, forests, and trails.

There are no known impacts on registered and eligible national monuments and landmarks.

### **3.2 Floodplains**

The Federal Emergency Management Agency (FEMA) floodplain maps with the project facilities can be found in Appendix C of the Act 537 Regional Sewage Facilities Plan.

The following stream crossings are found along the proposed conveyance alignment:

1. Pocono Creek in Pocono Township (2)
2. Pocono Creek tributary in Stroud Township
3. Wigwam Run in Stroud Township (potential wetlands impact)
4. Flagler Run in Stroud Township
5. Big Meadow Run in Stroudsburg Borough (potential wetlands impact)

However, there are no impacts on the 100-year floodplain and associated floodways because there will be no permanent structures built in the floodplain or floodway. All construction taking place in the streams will be temporary to install the crossing under the stream, which may require PA DEP general permits. The project is not altering any part of the streams.

### **3.3 Wetlands**

Possible stream crossings and wetland impacts are shown on the Hydrological Features Map in Appendix C of the Act 537 Regional Sewage Facilities Plan. Six potential stream crossing areas were found and two potential wetland impacts were found.

The pipelines will be installed along existing roads, and every practicable effort will be made to avoid encroachment upon wetlands and waters. The design priority to avoid and minimize impacts will be as follows:

1. Alternate routing on parallel side roads to avoid impacts.
2. Pipeline installation in existing road shoulders to avoid wetland impacts and cross streams where they are already enclosed with culverts.
3. Cross streams and wetlands in previously disturbed areas within road right-of-ways.

4. No buildings or other structures will be constructed in any wetland area.

The decisions on the final routing and avoidance alternatives will be made during the design process. The procedure will be as follows:

1. Obtain aerial topographic mapping of the project area.
2. Field check potential pipeline routes for the presence of wetlands and stream crossings.
3. Select the routes and design alternatives that will minimize impacts on streams and wetlands.
4. Consult with the U.S. Fish and Wildlife Service and the appropriate state agencies to resolve any potential conflicts with species of concern.
5. Delineate and map survey any wetland areas around the selected pipeline routes.
6. Schedule a pre-application meeting with PA DEP and the Army Corps of Engineers (ACOE) to determine permitting requirements and procedures for any encroachments that cannot be avoided.

The routes of the proposed sewers are tentative pending permit level design. During design, the highest priority will be to locate sewers to avoid wetland encroachments. Should wetland encroachment be necessary for the proposed sewers either a general permit #5 (GP-5) application(s) or joint permit (JP) application will be applied for depending on the site requirements. Because the sewer lines will be buried and wetlands will be restored, there will be no net loss of wetlands. Because restoration will take place, no mitigation will be necessary. A pre-application meeting with PA DEP will be scheduled early in the design process to discuss wetlands.

### **3.4 Historic Resources**

A Cultural Resources Notification Form, along with a project description and maps, has been submitted to the PA Historic and Museum Commission (PAHMC). The project will have no significant impact on "historic resources" because the pipelines will be installed either in existing road shoulders or in previously disturbed road rights-of-way. See the response letter from PAHMC in Section 7 which states no impacts to historical resources.

### **3.5 Sensitive Biological Resources**

A project description and maps have been submitted to PA DCNR as a PNDI request and to the U.S. Fish and Wildlife Service for a review of potential impacts on "species of concern." As a result of the PNDI review, a submission was made

to the PA Fish and Boat Commission and the PA Game Commission in addition to the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service has indicated a potential for impact on bog turtle habitat by the project. The applicant has consulted with the U.S. Fish and Wildlife Service and the PA Fish and Boat Commission to insure that there will be no adverse impacts on species of concern. All potential impacts have been investigated and addressed in cooperation with these agencies. See the correspondence in the "Consistency Documentation" (Section 7) portion of the plan.

### **3.6 Water Quality Issues**

The project is to maintain water quality within the Pocono Creek and McMichaels Creek Watershed Areas. The wastewater is being conveyed from HQ area to non-HQ which provides good water quality. The WWTP will meet Draft PA DEP and DRBC limits to maintain existing water quality in the stream.

The establishment of a central sewer system along the S.R. 611 Corridor through Hamilton and Pocono Townships will eliminate multiple discharges from small privately owned wastewater treatment plants, thus improving water quality in Pocono Creek, which is classified as High Quality Cold Water Fishery (HQ-CWF). The central sewer system will also eliminate the potential for multiple malfunctions of old individual septic systems in low-lying, high water table areas along Pocono Creek, particularly in the Tannersville and Bartonsville areas.

The expanded Regional 4.5 MGD WWTP in Stroudsburg Borough will have stricter effluent limits than the existing 2.5 MGD WWTP, thus improving water quality. The discharge point from the expanded Regional WWTP will be on McMichaels Creek in Stroudsburg Borough. The McMichaels Creek is classified as a Trout Stocking Fishery (TSF, non-HQ). This is in lieu of a separate discharge to the Brodhead Creek below Stokes Ave. which has an existing use designation of CWF-MF.

This proposed system complies with regional planning goals and will have a positive impact on water quality in the area.

### **3.7 Coastal Resources**

The project is not located in or near a coastal zone management area.

### **3.8 Socio-Economic Issues**

The sewer system project is designed to serve all residents and property owners in the project area equally. Impacts on private properties will be minimized by installing the pipelines in existing road shoulders and road rights-of-way wherever possible. Any minor impacts on private properties will be determined by physical

and geographical factors, not by property ownership or occupancy. The planning for this project will be done to minimize the impacts on all residents. There will be no disproportionate impact on any minority or other group.

### **3.9 Air Quality**

Construction activities will consist of trenching and installation of pipeline and the construction of an expanded WWTP in Stroudsburg Borough. All construction activities and future operation of the WWTP will comply with applicable air quality standards.

### **3.10 Transportation**

The only impact from the project will be traffic control during the installation of the pipelines. This impact will be temporary. There will be no permanent impact on traffic.

### **3.11 Noise Abatement and Control**

Noise associated with the project will be temporary during construction from the trench excavation and installation of the pipelines and the construction of the expanded WWTP in Stroudsburg Borough. Construction activities will comply with applicable standards, the impacts will be temporary and minor. Construction activities will take place during normal business hours and thus minimize impacts on residents in the area. The equalization facilities in Pocono Township, the sewage conveyance main, and the WWTP in Stroudsburg Borough will be provided with odor control facilities.

After construction, the expanded WWTP in Stroudsburg Borough and the proposed pump stations will generate noise from pumps, blowers, and emergency generators. However, the expanded WWTP and proposed pump stations will operate in compliance with applicable standards and will design the facilities to minimize excessive noise around these facilities.

### **3.12 Wild and Scenic Rivers**

The project is not located along or within one mile of any designated wild or scenic river.

#### **4.0 SUMMARY OF MITIGATION**

The project does not generate significant impacts on existing environmental or community conditions therefore, significant mitigation is not required.

Mitigation of remaining impacts will be a component of the design phase of the project. The location of the proposed sewer pipeline will be installed in existing road shoulders or previously disturbed adjacent land wherever possible to minimize impacts to existing features.

The pipelines will be installed along existing roads and every practicable effort will be made to avoid encroachment upon wetlands and waters. The design priority to avoid and minimize impacts will be as follows:

1. Alternate routing on parallel side roads to avoid impacts.
2. Pipeline installation in existing road shoulders to avoid wetland impacts and cross streams where they are already enclosed within culverts.
3. Cross streams and wetlands in previously disturbed areas within road right-of-ways.
4. No buildings or other structures will be constructed in any wetland area.

All construction activities will be done in compliance with both an Erosion and Sediment Pollution Control Plan to be approved by the Monroe County Conservation District, and stream/wetland crossing permits to be obtained from PA DEP and the U.S. Army Corps. of Engineers. The construction impacts will be temporary and temporary Erosion and Sedimentation control measures will be put in place to protect streams. The pipeline route, including stream/wetland crossings, will be restored to original condition following the pipe installation. Stream crossings will be provided in accordance with PA DEP guidelines which will include placing the top of the pipe three (3) feet from the bottom of the stream channel and concrete encasing the pipe. There will be no loss of wetland/regulated water area. Therefore no mitigation-replacement project is proposed.

#### **5.0 Public Participation**

An advertisement in the local newspaper per Act 537 requirement will run and a 30 day comment period will take place.

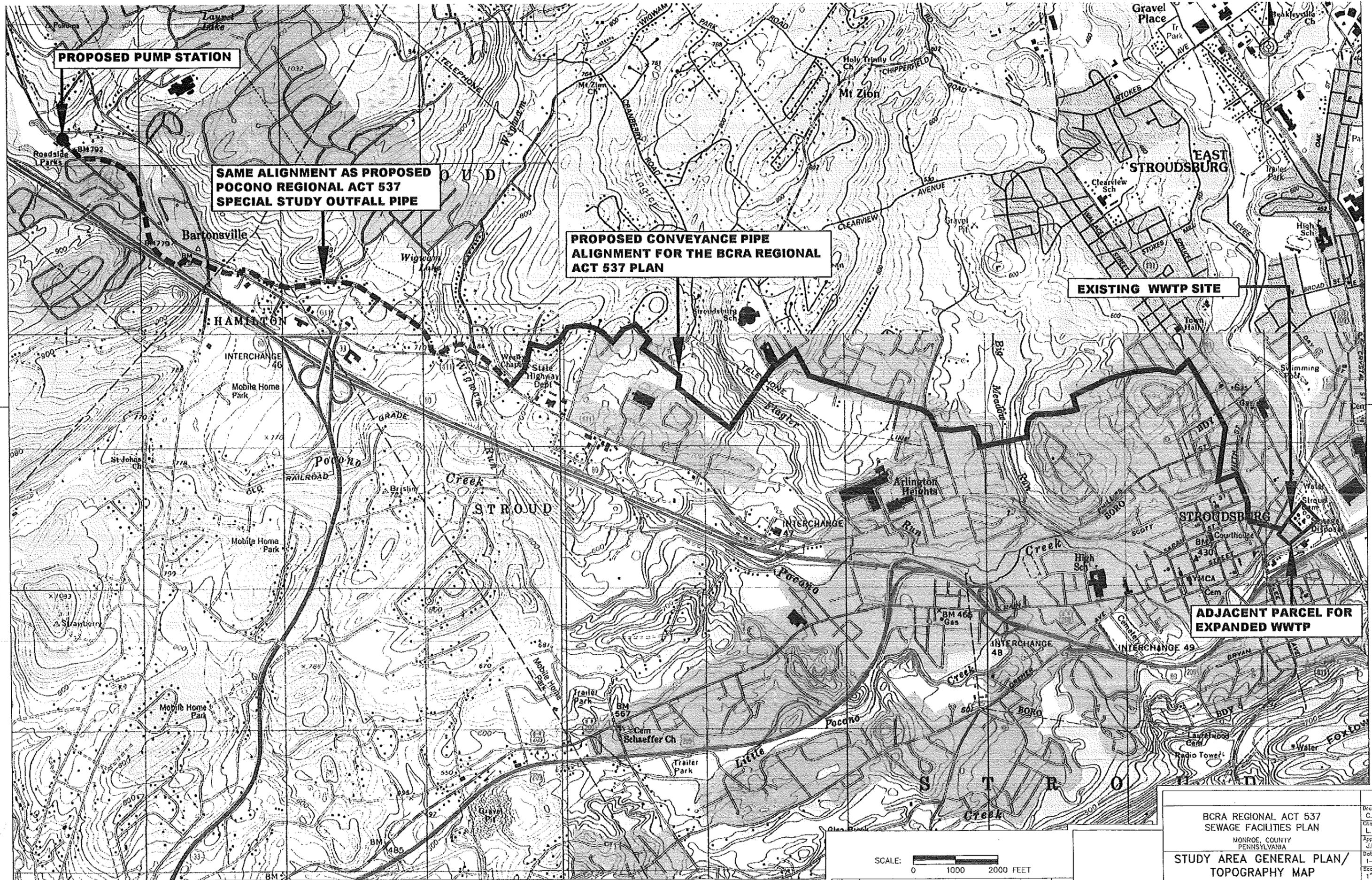
An advertisement/Publication in PA Bulletin after approval by DEP will run and a 30 day comment period will take place.

# SECTION 9

**APPENDIX A**

**STUDY AREA GENERAL PLAN/TOPOGRAPHY MAP**

PORTION OF MOUNT POCONO QUADRANGLE  
 PORTION OF SAYLORSBURG QUADRANGLE



**PROPOSED PUMP STATION**

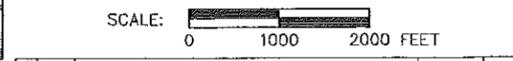
**SAME ALIGNMENT AS PROPOSED  
POCONO REGIONAL ACT 537  
SPECIAL STUDY OUTFALL PIPE**

**PROPOSED CONVEYANCE PIPE  
ALIGNMENT FOR THE BCRA REGIONAL  
ACT 537 PLAN**

**EXISTING WWTP SITE**

**ADJACENT PARCEL FOR  
EXPANDED WWTP**

PORTION OF SAYLORSBURG QUADRANGLE      PORTION OF STROUDSBURG QUADRANGLE



NO.	REVISIONS	DATE	APP'D

DRAWN: \_\_\_\_\_ CHK'D: \_\_\_\_\_ APPROVED: \_\_\_\_\_

**BCRA REGIONAL ACT 537  
SEWAGE FACILITIES PLAN**  
 MONROE COUNTY  
PENNSYLVANIA

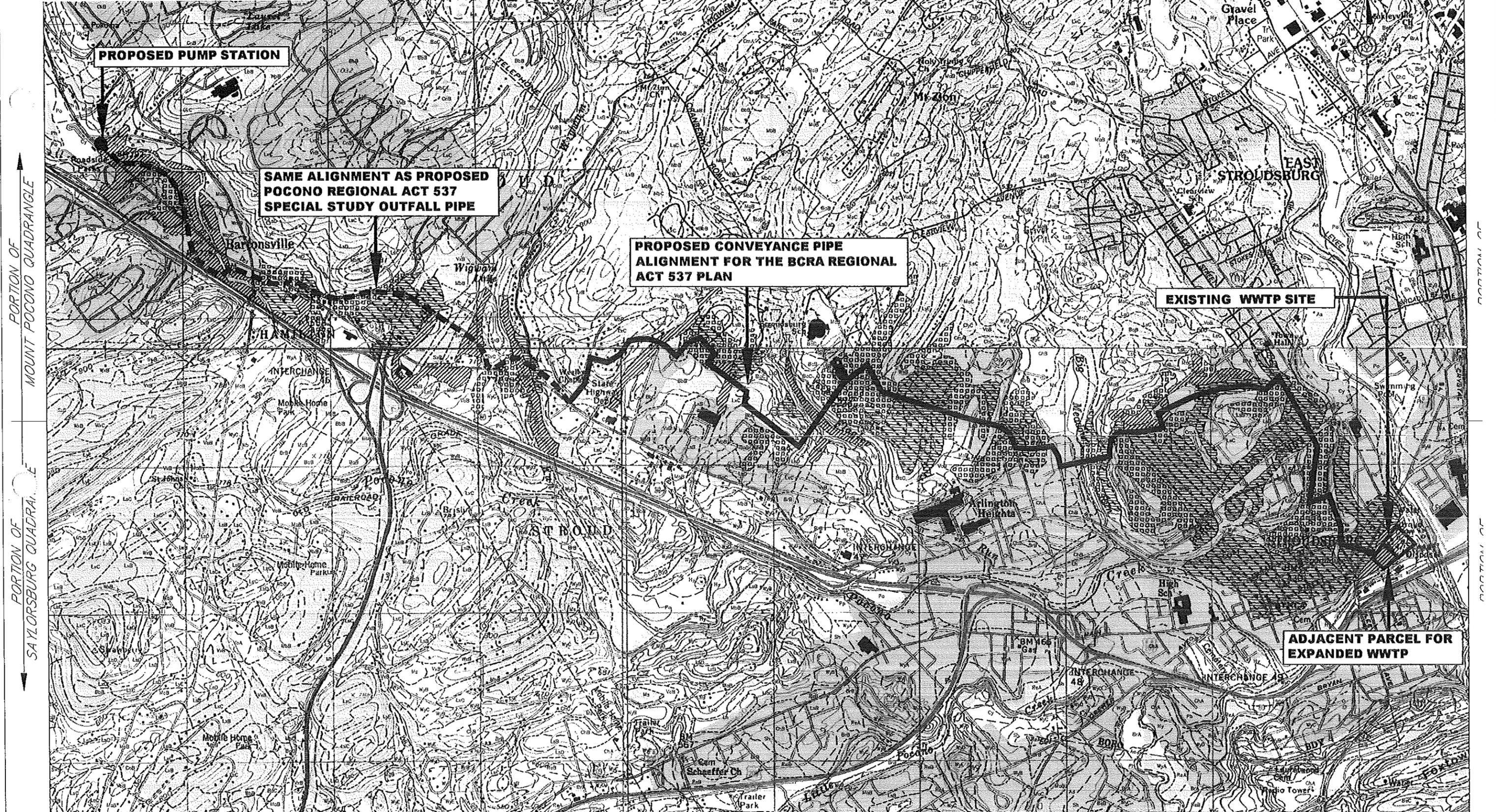
**STUDY AREA GENERAL PLAN/  
TOPOGRAPHY MAP**

**Reilly** 49 South Main Street,  
 Suite 200  
 Pottsville, PA 18640  
 P: 610.654.2473 F: 610.654.6253  
 E: www.reillygroup.com

Drawn: E.C.M.  
 Checked: L.T.  
 Approved: J.H.N.  
 Date: 1-26-11  
 Scale: 1"=10'  
 Project: 09052  
 Sheet: K

**APPENDIX B**

**SOILS MAP**



**PROPOSED PUMP STATION**

**SAME ALIGNMENT AS PROPOSED  
POCONO REGIONAL ACT 537  
SPECIAL STUDY OUTFALL PIPE**

**PROPOSED CONVEYANCE PIPE  
ALIGNMENT FOR THE BCRA REGIONAL  
ACT 537 PLAN**

**EXISTING WWTP SITE**

**ADJACENT PARCEL FOR  
EXPANDED WWTP**

PORTION OF MOUNT POCONO QUADRANGLE

PORTION OF SAYLORSBURG QUADRANGLE

PORTION OF STROUNDSBURG QUADRANGLE

**LEGEND**

-  PRIME AGRICULTURAL SOILS
-  HYDRIC SOILS
-  PRIME AGRICULTURAL SOILS/HYDRIC SOILS

← PORTION OF SAYLORSBURG QUADRANGLE      PORTION OF STROUNDSBURG QUADRANGLE →

SCALE:  0 1000 2000 FEET

NO.	REVISIONS	DATE	APP'D

DRAWN:      CHK'D:      APPROVED:

LOCATION MAP	
BCRA REGIONAL ACT 537 SEWAGE FACILITIES PLAN	
MONROE COUNTY PENNSYLVANIA	
SOILS MAP	
 <b>Reilly</b> ASSOCIATES <small>ENGINEERS/ENVIRONMENTAL/SURVEYING</small>	49 South Main Street, Suite 200 Pittston, PA 18440 Tel: 570.654.2473 Fax: 570.654.6593 e-mail: www@reillyeng.com

Drawn E  
 C.M.  
 Checked L.T.  
 Approved J.N.  
 Date: 1-26-  
 Scale: 1"=10'  
 Project 05062  
 Sheet R

**APPENDIX C**  
**HYDROLOGICAL FEATURES MAP**





**APPENDIX D**  
**SLOPE ANALYSIS MAP**



LEGEND

SLOPES 15% TO 25% 

SLOPES 25% OR GREATER 

PORION OF SAYSORSBURG QUADRANGLE

PORION OF MOUNT POCONO QUADRANGLE

REVISIONS	
NO.	DATE

APPROVED: \_\_\_\_\_

DATE: \_\_\_\_\_

SCALE: 0 1000 2000 FEET

**Reilly**  
 ASSOCIATES  
 49 South Main Street  
 Pileston, PA 16640  
 Tel: 717-524-6599  
 Fax: 717-524-6599  
 www.reillyassociates.com

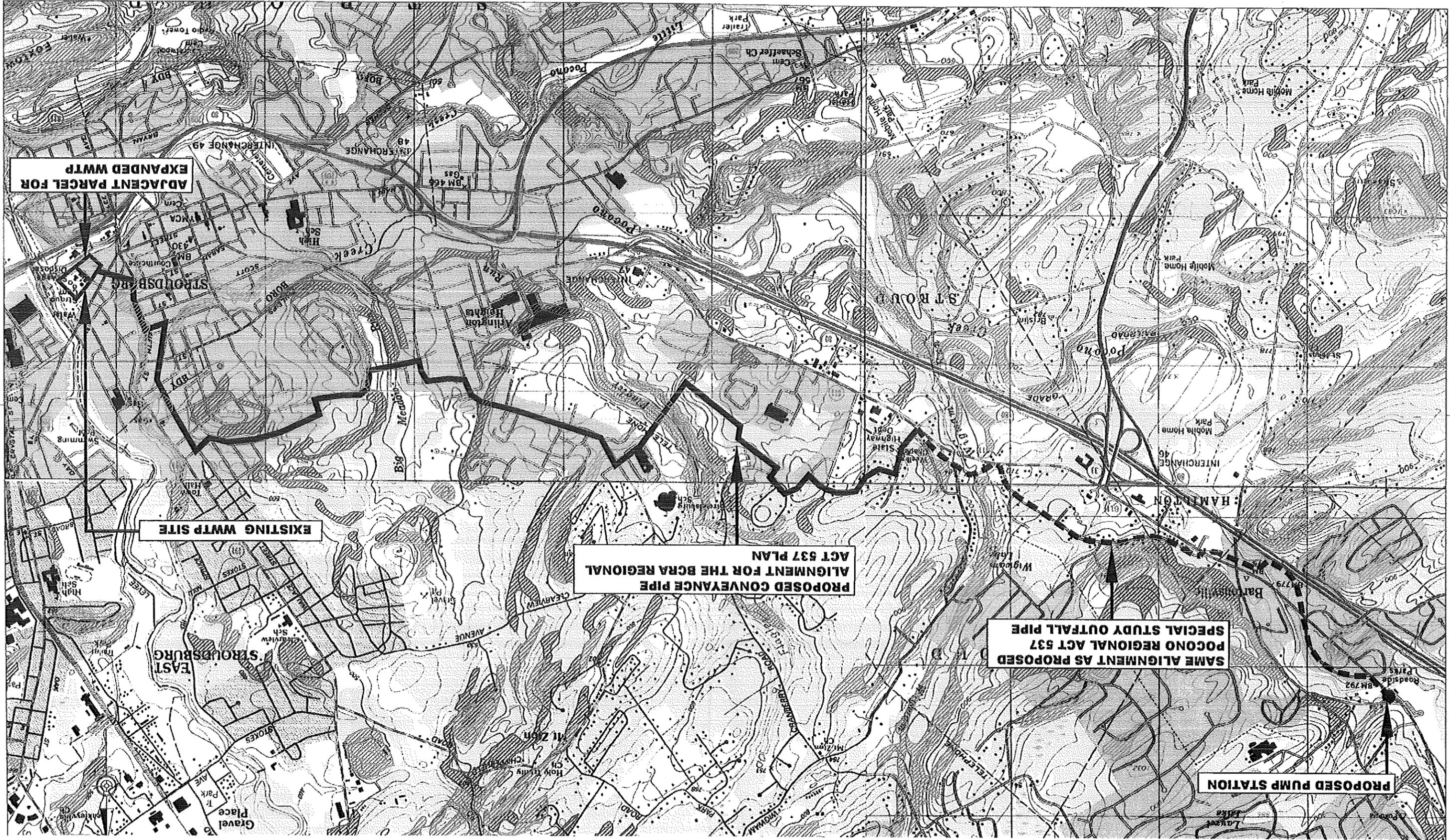
PROJECT: BCRA REGIONAL ACT 537  
 SEWAGE FACILITIES PLAN  
 MONROE COUNTY  
 PENNSYLVANIA

DATE: 1-26-11

SCALE: 1"=100'

SHEET: 1

PROJECT: 49 South Main Street, Pileston, PA 16640



PORION OF SAYSORSBURG QUADRANGLE

PORION OF MOUNT POCONO QUADRANGLE

**APPENDIX E**

**BCRA WATER SERVICE AREA MAP**

# LEGEND

-  Present Service Area
-  Proposed Smithfield Twp. Region 1, Phase 2A Service Area
-  Additional Ten Year Projected Water Service Area (Areas Reversibly Anticipated To Be Served Within At Least The Next 10 Years)

REVISIONS		CHK'D:	APPROVED:
NO.	REVISIONS	DATE	APP'D.

SCALE: 0 3000 6000 FEET

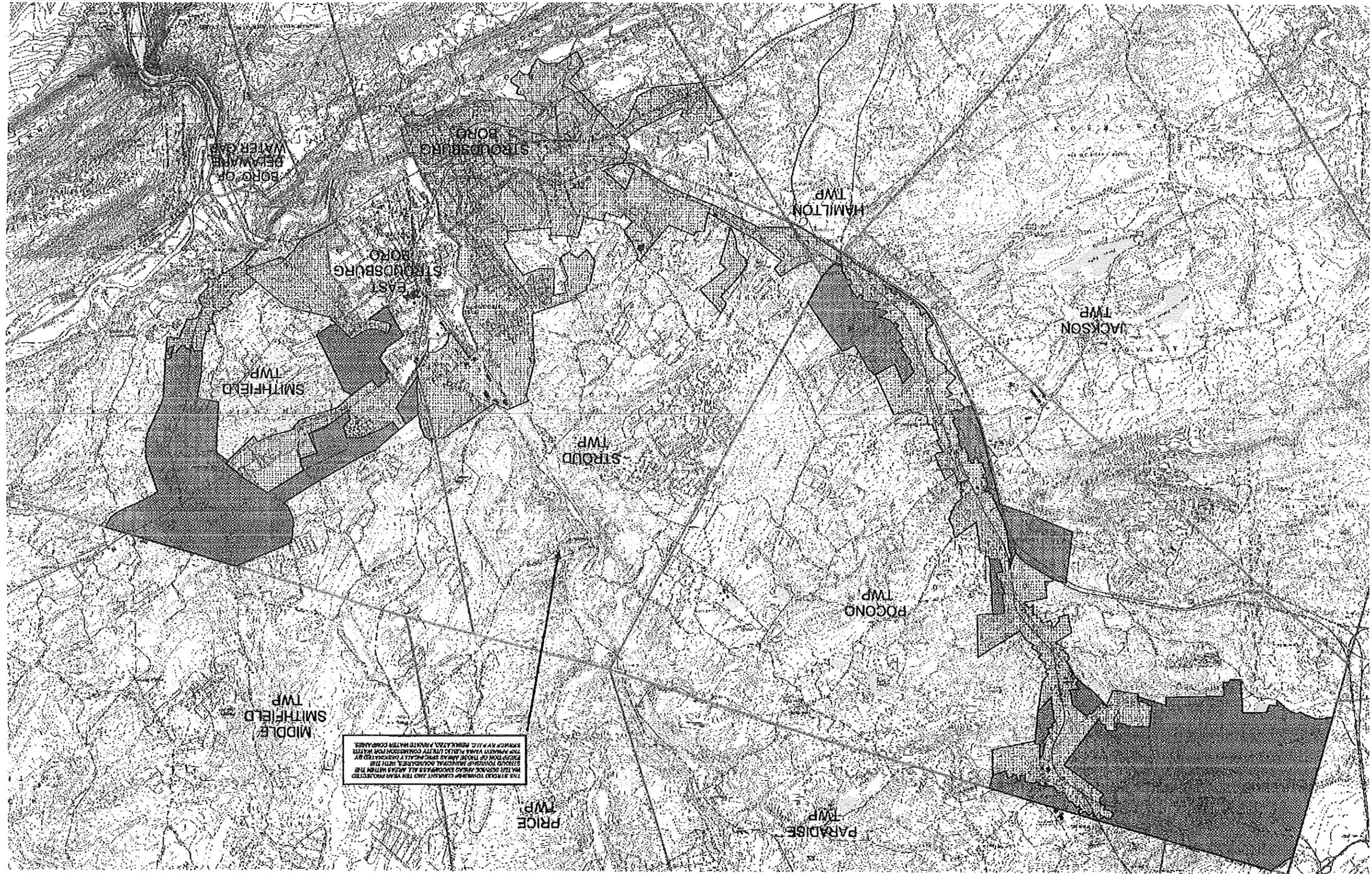
**BCRA REGIONAL ACT 537  
SEWAGE FACILITIES PLAN**

MONROE COUNTY  
PENNSYLVANIA

**BCRA WATER SERVICE  
AREA MAP**

1-26-  
Date:  
Scale:  
1" = 3"  
Project:  
08082  
Sheet: 11

**Reilly**  
ASSOCIATES  
ENGINEERING/ENVIRONMENTAL/SCIENCE  
141 5704 2473  
Suite 200  
Pittsford, PA 16840  
19 South Main Street,  
Pittsford, PA 16840  
www.reillyassoc.com



THIS STRUDD TOWNSHIP CURRENT AND TEN YEAR PROJECTED WATER SERVICE AREAS ENCOMPASSES ALL AREAS WITHIN THE STRUDD TOWNSHIP BOUNDARIES. ALL AREAS WITHIN THE STRUDD TOWNSHIP ARE SPECIFICALLY DESIGNATED BY THE MARKET WATER PUBLIC UTILITY COMMISSION FOR WATER SERVICE AND WILL BE KEPT AS AN ACTIVE MARKET COMPANY.



**APPENDIX F**  
**SERVICE AREA MAP**



REVISIONS	
NO.	DATE

DRAWN: \_\_\_\_\_  
 CHECK'D: \_\_\_\_\_  
 APPROVED: \_\_\_\_\_  
 SCALE: 0 2000 4000 FEET

**Reilly**  
 ASSOCIATES  
 ENGINEERING/ARCHITECTURAL/SURVEYING  
 49 South Main Street,  
 Suite 200  
 Pottsville, PA 17854  
 Tel: 717.261.6600  
 Fax: 717.261.6603  
 Email: [www@reillyassociates.com](mailto:www@reillyassociates.com)

**REGIONAL ACT 537  
 SEWAGE FACILITIES PLAN  
 STRUDSBOURG BORO  
 HONORE COUNTY, PENNSYLVANIA**

**REGIONAL WTP  
 SERVICE AREA MAP**

Project: 08082  
 Sheet: 1  
 Date: 4-28-12  
 Appr'd: J.M.  
 C.M.



**APPENDIX G**

**SOIL SUITABILITY FOR LAND DISPOSAL DOCUMENTS**

# Sewage Disposal

Monroe 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 table shows only the top five limitations for any given soil. The soil may have additional limitations]

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
<b>111B:</b>					
Edgemere	42	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Organic matter content	1.00
				Slope	0.92
			Seepage	0.53	
Shohola	42	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.04	Seepage	0.53
<b>BaB:</b>					
Bath	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.92
		Depth to saturated zone	1.00	Depth to saturated zone	0.68
			Seepage	0.53	
<b>BaC:</b>					
Bath	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.68
		Slope	0.63	Seepage	0.53
<b>BbB:</b>					
Bath	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.92
		Depth to saturated zone	1.00	Depth to saturated zone	0.68
			Seepage	0.53	
<b>BbC:</b>					
Bath	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.68
		Slope	1.00	Seepage	0.53

# Sewage Disposal

Monroe 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
<b>BrB:</b>					
Braceville	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Slope		Slope	0.92
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44
		Slow water movement	1.00		
<b>ChA:</b>					
Chenango	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
<b>ChB:</b>					
Chenango	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.92
<b>ChC:</b>					
Chenango	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Slope	1.00
		Slope	0.63	Seepage	1.00
<b>CmA:</b>					
Chippewa	48	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.08
<b>Norwich</b>					
	48	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.08
<b>Cy:</b>					
Udorthents, cut and fill	90	Not rated		Not rated	

# Sewage Disposal

Monroe 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
<b>Hy:</b>					
Holly	100	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.46		
<b>LsB:</b>					
Lordstown	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.46	Slope	0.92
				Seepage	0.53
<b>LsC:</b>					
Lordstown	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.63	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
<b>LsD:</b>					
Lordstown	85	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
<b>LxB:</b>					
Lordstown	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slow water movement	0.46	Large stones content	0.96
		Large stones content	0.10	Slope	0.92
				Seepage	0.53
<b>LxC:</b>					
Lordstown	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Large stones content	0.96
		Large stones content	0.10	Seepage	0.53

# Sewage Disposal

Monroe 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
<b>LyE:</b>					
Lordstown	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
<b>Oquaga</b>					
	35	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
				Large stones content	0.10
<b>MaB:</b>					
Mardin	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
				Seepage	0.53
<b>MaC:</b>					
Mardin	85	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slope	0.63	Seepage	0.53
<b>MbB:</b>					
Mardin	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
				Seepage	0.53
<b>Mp:</b>					
Freetown, mucky peat	100	Very limited		Very limited	
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Seepage	1.00

# Sewage Disposal

Monroe 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
<b>OkC:</b>					
Oquaga	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.63	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
Lackawanna	30	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.64
		Slope	0.63	Seepage	0.53
<b>Ph:</b>					
Philo	85	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	0.46		
<b>Pp:</b>					
Pope	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Depth to saturated zone	0.40	Flooding	0.40
		Flooding	0.40		
<b>ReB:</b>					
Rexford, somewhat poorly drained	50	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Slope	0.92
Rexford, poorly drained	35	Very limited		Very limited	
		Slow water movement	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Seepage, bottom layer	1.00	Slope	0.68

# Sewage Disposal

Monroe 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
<b>SwB:</b>					
Swartswood	90	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	0.40
<b>SwC:</b>					
Swartswood	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Slope	0.63	Depth to saturated zone	0.40
<b>SxB:</b>					
Swartswood	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Large stones content	0.99
		Slow water movement	1.00	Slope	0.92
		Large stones content	0.06	Seepage	0.53
				Depth to saturated zone	0.40
<b>SxC:</b>					
Swartswood	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Large stones content	0.99
		Slope	1.00	Seepage	0.53
		Large stones content	0.06	Depth to saturated zone	0.40
<b>VoA:</b>					
Volusia	80	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
<b>VoB:</b>					
Volusia	85	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Slope	0.68
				Seepage	0.53

# Sewage Disposal

Monroe 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
<b>VxB:</b>					
Volusia	75	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
<b>WmB:</b>					
Wellsboro	80	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
				Large stones content	0.01
<b>WpB:</b>					
Wellsboro	80	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
				Large stones content	0.01
<b>WxB:</b>					
Wurtsboro	85	Very limited		Somewhat limited	
		Slow water movement	1.00	Slope	0.92
		Depth to saturated zone	1.00	Depth to saturated zone	0.78
				Seepage	0.53
<b>WyB:</b>					
Wyoming	85	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	0.92
<b>WyC:</b>					
Wyoming	85	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slope	0.63		
<b>WyE:</b>					
Wyoming	100	Very limited		Very limited	
		Filtering capacity	1.00	Slope	1.00
		Slope	1.00	Seepage	1.00
		Seepage, bottom layer	1.00		

## Sewage Disposal

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

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

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

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

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

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

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

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

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

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

**APPENDIX H**  
**PRESENT WORTH ANALYSIS**

Summary of Capital Costs, Operating Costs and Present Worth Costs of Alternatives						
Alternative 1- Regional WWTP Alternative						
				Capital Cost	O&M Cost	Present Worth Cost
Project 1 - Pocono/Hamilton Sewers				\$ 48,198,000	\$434,000	\$42,878,530
Project 2 - Regional 4.5 MGD WWTP Upgrade and Expansion				\$33,740,000	\$2,965,000	\$69,017,488
Totals for Alternative 1				\$81,938,000	\$3,399,000	\$111,896,018
Alternative 2 - Separate WWTPs Alternative						
				Capital Cost	O&M Cost	Present Worth Cost
Project 1 - Pocono/Hamilton Sewers				\$38,731,000	\$359,000	\$34,712,821
Pocono/Hamilton 2.0 MGD WWTP				\$39,007,000	\$1,103,000	\$47,945,917
Project 2 - Stroud/Stroudsburg 2.5 MGD WWTP Upgrade				\$17,109,000	\$1,350,000	\$33,655,109
Totals for Alternative 2				\$94,847,000	\$2,812,000	\$116,313,848

**ALTERNATIVE 1**

**PRESENT WORTH COST CALCULATIONS**

**Regional Sewer Project, Monroe County, PA  
Alternative 1 Project 1 - Pocono Twp. Collection & Conveyance Systems**

**Capital Project Cost Estimate Summary**

Sewage Collection System (Dry Sewers Seg 1) including interest (1)	\$ 7,480,000.00
Sewage Collection System (Remaining Sections Seg1-5) no Land (1)	\$ 29,570,000.00
Sewage Collection System (Remaining Sections Seg1-5) Interest (1)	\$ 1,711,000.00
Sewage Transmission Main Capital Costs (2)	\$ 8,909,000.00
Sewage Transmission Main interest (1)	\$ 178,000.00
Pocono Twp Design Lost Costs (Effluent Pipe, Outfall) (1)	\$ 572,000.00
<b>Total Project Cost</b>	<b>\$ 48,420,000.00</b>

**Operation and Maintenance Costs**

Sewage Collection System (1)	\$ 359,000.00
Sewage Transmission Main	\$ 75,000.00
<b>Total O&amp;M Cost</b>	<b>\$ 434,000.00</b>

- (1) Cost Estimates provided by RKR Hess Associates (Nov 13, 2008)  
 (2) Cost Estimates provided by RKR Hess Associates (May 6, 2009)

**Present Worth Analysis**

**Given:**

Planning period for PW calculations	20 Years
Discount rate	4.500% as per US EPA and PADEP
Land Escalation Factor per annum	3.00%

**Initial Capital Cost**

Total Construction Cost	\$ 48,420,000
Less sunk cost	\$ (572,000)
<b>Total</b>	<b>\$ 47,848,000</b>
A. Non-land	\$ 47,848,000
B. Land	\$ 350,000 (1)
<b>Total</b>	<b>\$ 48,198,000</b>

**Annual O&M costs**

Item 1	\$ 434,000
Item 2	\$ -
<b>Total</b>	<b>\$ 434,000</b>

**Average useful life**

40 Years

**Analysis:**

<b>1 Compute Present worth factor for planning period and discount rate.</b>	
Single payment present worth factor	0.4146429
Annual payment present worth factor	13.007936

**2 Salvage Value**

<b>Determine Salvage Value of Collection Sewers, Force Main, Pump Stations and Land</b>	
	<b>Capital Cost</b>
A. Sewage Collection System (Dry Sewers - Seg 1)	\$ 7,480,000
Sewage Collection System (Remaining sections Seg 1-5 w/out PS)	\$ 24,532,000
Sewage Transmission Main	\$ 8,909,000
<b>Total</b>	<b>\$ 40,921,000</b>

Regional Sewer Project, Monroe County, PA			
Alternative 1 Project 1 - Pocono Twp. Collection & Conveyance Systems			
Initial Value (non-land)	\$	40,921,000	
Annual Straight line Depreciation based on			50 years
	\$	818,420	
Cumulative Depreciation over planning period of			20 years
	\$	16,368,400	
Assume salvage value = net depreciated value = Initial Value - Accumaluted Depreciation			
Initial Value	\$	40,921,000	
Accumulated Depreciation	\$	(16,368,400)	
Salvage Value	\$	24,552,600	at year 20
	Salvage Value	\$ 24,552,600	at year 20
	Single payment discount factor	0.4146429	
Present Worth of Salvage Value of Sewers	\$	10,180,560	
			Construction Cost
B. Pump Station No.1 - From Seg 5 Costs			\$ 913,000
Pump Station No.2- From Seg 5 Costs			\$ 770,000
Pump Station No.3 - From Seg 5 Costs			\$ 605,000
Pump Station No.4 - From Seg 5 Costs			\$ 550,000
Pump Station No.5 - Transmission PS - From Seg 5 Costs			\$ 2,200,000
	Total		\$ 5,038,000
Assume half of the cost is for the Structures with a 40 year life			\$ 2,519,000
and the other half is equipment with a 20 year life with a salvage value of 0			
Initial Value (non-land)	\$	2,519,000	
Annual Straight line Depreciation based on			40 years
	\$	62,975	
Cumulative Depreciation over planning period of			20 years
	\$	1,259,500	
Assume salvage value = net depreciated value = Initial Value - Accumaluted Depreciation			
Initial Value	\$	2,519,000	
Accumulated Depreciation	\$	(1,259,500)	
Salvage Value	\$	1,259,500	at year 20
	Salvage Value	\$ 1,259,500	at year 20
	Single payment discount factor	0.4146429	
Present Worth of Salvage Value of Pump Stations	\$	522,243	
C. Salvage Value of Land			
Initial Value (Land)	\$	350,000	
Cumulative Escalation factor over planning period of			20 years
		1.806111	
Future Value of Land at end of the planning period of			20 years
	\$	632,139	
Salvage Value = Future Value			
	Salvage Value	\$ 632,139	20 years
	Single payment discount factor	0.4146429	
Present Worth of Salvage Value of Land	\$	262,112	

**Regional Sewer Project, Monroe County, PA**  
**Alternative 1 Project 1 - Pocono Twp. Collection & Conveyance Systems**

**3 Present Worth of Operations and Maintenance Costs**

	Annual O&M Costs	\$	434,000
Annual payment present worth factor			13.007936
Present Worth of O&M Costs		\$	5,645,444

**4 Total Present Worth**

Present Worth of Initial Capital Cost	\$		48,198,000
Present Worth of O&M Costs	\$		5,645,444
Subtotal	\$		53,843,444
Less Present Worth of Salvage Value			(10,964,915)
<b>TOTAL PRESENT WORTH</b>	<b>\$</b>		<b>42,878,530</b>

**Regional Sewer Project, Monroe County, PA  
Alternative 1 Project 2 - Regional 4.5 MGD WWTP**

**Capital Cost Estimate Summary**

4.5 MGD WWTP Upgrade and Expansion Project Cost (No Land cost) (2)	\$ 32,940,000.00
Pocono Township WWTP Design Lost Costs (1)	\$ 1,130,000.00
Odor Prevention Facilities Project Cost (No Land Cost) (2)	\$ 300,000.00
<b>Total</b>	<b>\$ 34,370,000.00</b>

**Operation and Maintenance Costs**

4.5 MGD WWTP Facilities (2)	\$ 2,700,000.00
Odor Prevention Facilities (2)	\$ 265,000.00
<b>Total O&amp;M Costs</b>	<b>\$ 2,965,000.00</b>

- (1) Cost Estimates provided by RKR Hess Associates (Nov 13, 2008)  
 (2) Cost Estimates provided by Pennoni Associates (May 11, 2009)

**Present Worth Analysis**

Given:

Planning period for PW calculations	20 Years
Discount rate	4.500% as per US EPA and PADEP
Land Escalation Factor per annum	3.00%

**Initial Capital Cost**

Total Capital Cost	\$ 34,370,000
Less sunk cost	\$ (1,130,000)
<b>Total</b>	<b>\$ 33,240,000</b>
A. Non-land	\$ 33,240,000
B. Land	\$ 500,000 (2)
<b>Total</b>	<b>\$ 33,740,000</b>

**Annual O&M costs**

Item 1	\$ 2,965,000
Item 2	\$ -
<b>Total</b>	<b>\$ 2,965,000</b>

Analysis:

1 Compute Present worth factor for planning period and discount rate.

Single payment present worth factor	0.4146429
Annual payment present worth factor	13.007936

**Regional Sewer Project, Monroe County, PA  
Alternative 1 Project 2 - Regional 4.5 MGD WWTP**

2 Salvage Value

Determine Salvage Values of 4.5 MGD WWTP, Odor Prevention Facilities, and Land

<b>A. 4.5 MGD REGIONAL WWTP</b>		<b>Capital Cost</b>	
		\$ 32,940,000	
Cost for Buildings, Tanks, and pipes with 40 year life		\$ 13,900,000	
Cost for equipment with 20 year life and therefore no salvage value (see breakdown for 20 and 40 year items following this section)		\$ 19,040,000	
Initial Value (non-land)	\$ 13,900,000		
Annual Straight line Depreciation based on		40 years	
	\$ 347,500		
Cumulative Depreciation over planning period of		20 years	
	\$ 6,950,000		
Assume salvage value = net depreciated value = Initial Value - Accumaluted Depreciation			
Initial Value	\$ 13,900,000		
Accumulated Depreciation	\$ (6,950,000)		
Salvage Value	\$ 6,950,000		at year 20
	Salvage Value \$ 6,950,000		at year 20
	Single payment discount factor 0.4146429		
Present Worth of Salvage Value	\$ 2,881,768		
<b>B. Odor Prevention Facilities</b>		<b>Capital Cost</b>	
		\$ 300,000	
Cost for Buildings, Tanks, and pipes with 40 year life		\$ 168,000	
Cost for equipment with 20 year life and therefore no salvage value (see breakdown for 20 and 40 year items following this section)		\$ 132,000	
Initial Value (non-land)	\$ 168,000		
Annual Straight line Depreciation based on		40 years	
	\$ 4,200		
Cumulative Depreciation over planning period of		20 years	
	\$ 84,000		
Assume salvage value = net depreciated value = Initial Value - Accumaluted Depreciation			
Initial Value	\$ 168,000		
Accumulated Depreciation	\$ (84,000)		
Salvage Value	\$ 84,000		at year 20
	Salvage Value \$ 84,000		at year 20
	Single payment discount factor 0.4146429		
Present Worth of Salvage Value	\$ 34,830		
<b>C. Land</b>	\$ 500,000		
Cumulative Escalation factor over planning period of		20 years	
		1.806111	
Future Value of Land at end of the planning period of		20 years	
	\$ 903,056		
Salvage Value = Future Value			
	Salvage Value \$ 903,056		20 years
	Single payment discount factor 0.4146429		
Present Worth of Salvage Value	\$ 374,446		

**Regional Sewer Project, Monroe County, PA  
Alternative 1 Project 2 - Regional 4.5 MGD WWTP**

**3 Present Worth of Operations and Maintenance Costs**

	Annual O&M Costs	\$	2,965,000
Annual payment present worth factor			13.007936
Present Worth of O&M Costs		\$	38,568,532

**4 Total Present Worth**

Present Worth of Initial Capital Cost	\$	33,740,000
Present Worth of O&M Costs	\$	38,568,532
Subtotal	\$	72,308,532
Less Present Worth of Salvage Value		(3,291,043)
<b>TOTAL PRESENT WORTH</b>	<b>\$</b>	<b>69,017,488</b>

ALTERNATIVE 1 PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION

DETERMINATION OF WWTP SALVAGE VALUE

Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)
Influent Piping Changes	\$ 67,500		\$ 67,500
Course Screen	\$ 410,000	\$ 325,000	\$ 85,000
Grit Chamber/Washing	\$ 1,910,000	\$ 1,510,000	\$ 400,000
SBR Basins and Equipment	\$ 8,520,000	\$ 4,580,000	\$ 3,940,000
UV Disinfection System	\$ 770,000	\$ 500,000	\$ 270,000
Discharge Expansion	\$ 510,000	\$ 235,000	\$ 275,000
Sludge Thickeners	\$ 300,000	\$ 250,000	\$ 50,000
Sludge Holding	\$ 375,000	\$ 250,000	\$ 125,000
Sludge Digesters	\$ 650,000	\$ 505,000	\$ 145,000
Belt Press	\$ 965,000	\$ 740,000	\$ 225,000
Sludge Dumpster Encl.	\$ 155,000	\$ 20,000	\$ 135,000
Odor Control	\$ 1,635,000	\$ 635,000	\$ 1,000,000
Electrical Service & Site Work	\$ 1,345,000	\$ 1,045,000	\$ 300,000
Other Items	\$ 1,020,000	\$ 420,000	\$ 600,000
Effluent Filtration	\$ 1,160,000	\$ 950,000	\$ 210,000
Civil Site Work	\$ 460,000	\$ -	\$ 460,000
EQ & West Headworks	\$ 2,910,000	\$ 1,425,000	\$ 1,485,000
Construction Subtotal	\$ 23,162,500	\$ 13,390,000	\$ 9,772,500
Contractor GC Costs	\$ 1,783,512	\$ 1,031,030	\$ 752,482
Construction Subtotal	\$ 24,946,012	\$ 14,421,030	\$ 10,524,982
Contingency (20%)	\$ 4,989,202	\$ 2,884,206	\$ 2,104,996

**ALTERNATIVE 1 PROJECT 2 - REGIONAL 4.5 MGD WWTP UPGRADE AND EXPANSION**

**DETERMINATION OF WWTP SALVAGE VALUE**

Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)
Construction Total	\$ 29,935,214	\$ 17,305,235	\$ 12,629,979
Project Soft Costs (10%)	\$ 3,000,000	\$ 1,734,269	\$ 1,265,731
Total Project Costs (not including land)	\$ 32,935,214	\$ 19,039,504	\$ 13,895,710
<b>ROUND UP TO</b>	<b>\$ 32,940,000</b>	<b>\$ 19,040,000</b>	<b>\$ 13,900,000</b>
Notes:			
(1) Item Costs based on Pennoni Cost Estimate Dated 5-11-2009			
(2) 20 year life includes equipment, electrical, & mechanical item costs			
(3) 40 year life includes structures, buildings, piping, and site work item costs			
(4) Contractor GC, Contingency, and Project Soft costs are split between 20 year and 40 year life costs based on percentage split of Construction Subtotal costs.			

ALTERNATIVE 1 PROJECT 2 - Bioxide Odor Control for 20-inch Pocono Force Main

DETERMINATION OF SALVAGE VALUE

Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)
Site Work	\$ 153,100	\$ 35,000	\$ 118,100
Odor Control	\$ 80,000	\$ 70,000	\$ 10,000
Construction Subtotal	\$ 233,100	\$ 105,000	\$ 128,100
Contractor GC Costs	\$ 15,151	\$ 6,825	\$ 8,326
Construction Subtotal	\$ 248,251	\$ 111,825	\$ 136,426
Contingency (10%)	\$ 24,825	\$ 11,182	\$ 13,643
Construction Total	\$ 273,076	\$ 123,007	\$ 150,069
Project Soft Costs (5%)	\$ 20,000	\$ 9,009	\$ 10,991
Total Project Costs (not including land)	\$ 293,076	\$ 132,016	\$ 161,060
<b>ROUND UP TO</b>	<b>\$ 300,000</b>	<b>\$ 132,000</b>	<b>\$ 168,000</b>
Notes:			
(1) Item Costs based on Pennoni Cost Estimate Dated 5-11-2009			
(2) 20 year life includes equipment, electrical, & mechanical item costs			
(3) 40 year life includes structures, buildings, piping, and site work item costs			
(4) Contractor GC, Contingency, and Project Soft costs are split between 20 year and 40 year life costs based on percentage split of Construction Subtotal costs.			

**ALTERNATIVE 2**

**PRESENT WORTH COST CALCULATIONS**

BCRA Regional Act 537 Plan Update, Monroe County, PA  
Sewage Facilities Alternative 1

Regional Sewer Project, Monroe County, PA Alternative 2 Project 1 - Pocono Twp Collection System		
<b>Capital Cost Estimate Summary</b>		
1 Sewage Collection System (Dry Sewers Seg 1) including interest (1)	\$	7,427,000.00
Sewage Collection System (Remaining Sections Seg 1-5) no Land Costs (1)	\$	29,380,000.00
Sewage Collection System (Remaining Sections Seg 1-5) interest only (1)	\$	1,574,000.00
Total Capital Cost (Not Including Land)	\$	38,381,000.00
<b>Operation and Maintenance Costs</b>		
Total	\$	359,000.00
<i>(1) Cost Estimates provided by RKR Hess Associates (Sept 12, 2008)</i>		
<b>Present Worth Analysis</b>		
Given:		
Planning period for PW calculations	20 Years	
Discount rate	4.500% as per US EPA and PADEP	
Land Escalation Factor per annum	3.00%	
<b>Initial Capital Cost</b>		
Total Construction Cost	\$	38,381,000
Less sunk cost	\$	-
Total	\$	38,381,000
A. Non-land	\$	38,381,000
B. Land	\$	350,000
Total	\$	38,731,000
<b>Annual O&amp;M costs</b>		
Item 1	\$	359,000
Item 2	\$	-
Total	\$	359,000
<b>Analysis:</b>		
<u>1 Compute Present worth factor for planning period and discount rate.</u>		
Single payment present worth factor		0.4146429
Annual payment present worth factor		13.007936
<u>2 Salvage Value</u>		
Determine Salvage Value of Collection Systems and Pump Stations		
		Capital Cost
A. Sewage Collection System (Dry Sewers - Seg 1) (1)		\$ 7,427,000
Sewage Collection System (Remaining sections Seg 1-5 Less PS 1-5) (1)		\$ 24,342,000
Total		\$ 31,769,000
Initial Value (non-land)	\$	31,769,000
Annual Straight line Depreciation based on		50 years
	\$	635,380
Cumulative Depreciation over planning period of		20 years
	\$	12,707,600
Assume salvage value = net depreciated value = Initial Value - Accumulated Depreciation		
Initial Value	\$	31,769,000
Accumulated Depreciation	\$	(12,707,600)
Salvage Value	\$	19,061,400
		at year 20
Salvage Value	\$	19,061,400
		at year 20
Single payment discount factor		0.4146429
Present Worth of Salvage Value of Sewers	\$	7,903,673

BCRA Regional Act 537 Plan Update, Monroe County, PA  
Sewage Facilities Alternative 1

<b>Regional Sewer Project, Monroe County, PA</b>		
<b>Alternative 2 Project 1 - Pocono Twp Collection System</b>		
		Capital Cost
B. Pump Station No.1 - From Seg 5 Costs	\$	913,000
Pump Station No.2- From Seg 5 Costs	\$	770,000
Pump Station No.3 - From Seg 5 Costs	\$	605,000
Pump Station No.4 - From Seg 5 Costs	\$	550,000
Pump Station No.5 - From Seg 5 Costs	\$	2,200,000
	Total	\$ 5,038,000
Assume half of the cost is for the Structures with a 40 year life and the other half is equipment with a 20 year life with a salvage value of 0		\$ 2,519,000
Initial Value (non-land)	\$	2,519,000
Annual Straight line Depreciation based on		40 years
	\$	62,975
Cumulative Depreciation over planning period of		20 years
	\$	1,259,500
Assume salvage value = net depreciated value = Initial Value - Accumulated Depreciation		
Initial Value	\$	2,519,000
Accumulated Depreciation	\$	(1,259,500)
Salvage Value of Pump Stations	\$	1,259,500 at year 20
	Salvage Value	\$ 1,259,500 at year 20
	Single payment discount factor	0.4146429
Present Worth of Salvage Value of Pump Stations	\$	522,243
B. Initial Value (Land)	\$	350,000
Cumulative Escalation factor over planning period of		20 years
		1.806111
Future Value of Land at end of the planning period of		20 years
	\$	632,139
Salvage Value = Future Value		
	Salvage Value	\$ 632,139 20 years
	Single payment discount factor	0.4146429
Present Worth of Salvage Value of Land	\$	262,112
<b>3 Present Worth of Operations and Maintenance Costs</b>		
Annual O&M Costs	\$	359,000
Annual payment present worth factor		13.007936
Present Worth of O&M Costs	\$	4,669,849
<b>4 Total Present Worth</b>		
Present Worth of Initial Capital Cost	\$	38,731,000
Present Worth of O&M Costs	\$	4,669,849
Subtotal	\$	43,400,849
Less Present Worth of Salvage Value		(8,688,028)
<b>TOTAL PRESENT WORTH</b>	<b>\$</b>	<b>34,712,821</b>

**Regional Sewer Project, Monroe County, PA  
Alternative 2 Project 1 - Pocono Twp 2.0 MGD WWTP**

<b>Capital Cost Estimate Summary</b>		
2.0 MGD Wastewater Treatment Plant including Interest (with land cost removed) (1)		\$ 30,831,000.00
Effluent Force Main including Interest (1)		\$ 7,108,000.00
Outfall including Interest (1)		\$ 1,043,000.00
Total Capital Cost (Not Including Land)		\$ 38,982,000.00

<b>Operation and Maintenance Costs</b>		
	<b>Total</b>	\$ 1,103,000.00

(1) Cost Estimates provided by RKR Hess Associates (Sept 12, 2008)

**Present Worth Analysis**

Given:

Planning period for PW calculations	20 Years
Discount rate	4.500% as per US EPA and PADEP
Land Escalation Factor per annum	3.00%

**Initial Capital Cost**

Total Construction Cost	\$ 38,982,000
Less sunk cost	\$ -
<b>Total</b>	<b>\$ 38,982,000</b>
A. Non-land	\$ 38,982,000
B. Land	\$ 25,000
<b>Total</b>	<b>\$ 39,007,000</b>

**Annual O&M costs**

Item 1	\$ 1,103,000
item 2	\$ -
<b>Total</b>	<b>\$ 1,103,000</b>

**Analysis:**

1 Compute Present worth factor for planning period and discount rate.

Single payment present worth factor	0.4146429
Annual payment present worth factor	13.007936

2 Salvage Value

Determine Salvage Value of WWTP, Force Main, Outfall and WWTP Land

<b>A. 2.0 MGD WWTP</b>		<b>Capital Cost</b>
		<b>\$ 29,000,000</b>
Cost for Buildings, Tanks, and pipes with 40 year life		\$ 16,923,117
Cost for equipment with 20 year life and therefore no salvage value (see breakdown for 20 and 40 year items following this section)		\$ 12,076,823
Initial Value (non-land)	\$ 16,923,117	
Annual Straight line Depreciation based on	40 years	
	\$ 423,078	
Cumulative Depreciation over planning period of	20 years	
	\$ 8,461,559	
Assume salvage value = net depreciated value = Initial Value - Accumulated Depreciation		
Initial Value	\$ 16,923,117	
Accumulated Depreciation	\$ (8,461,559)	
<b>Salvage Value</b>	<b>\$ 8,461,559</b>	<b>at year 20</b>

**Regional Sewer Project, Monroe County, PA  
Alternative 2 Project 1 - Pocono Twp 2.0 MGD WWTP**

Salvage Value	\$	8,461,559	at year 20
Single payment discount factor		0.4146429	
Present Worth of Salvage Value of WWTP	\$	3,508,525	

B. Effluent Force Main (Useful life of 50 years) Capital Cost  
\$ 7,108,000

Cost for Buildings, Tanks, and pipes with 40 year life  
Cost for equipment with 20 year life and therefore no salvage value  
(see breakdown for 20 and 40 year items following this section)

Initial Value (non-land)	\$	7,108,000	
Annual Straight line Depreciation based on		50 years	
	\$	142,160	
Cumulative Depreciation over planning period of		20 years	
	\$	2,843,200	
Assume salvage value = net depreciated value = Initial Value - Accumaluted Depreciation			
Initial Value	\$	7,108,000	
Accumulated Depreciation	\$	(2,843,200)	
Salvage Value	\$	4,264,800	at year 20

Salvage Value	\$	4,264,800	at year 20
Single payment discount factor		0.4146429	
Present Worth of Salvage Value of Force Main	\$	1,768,369	

C. Outfall Structure and Equipment Capital Cost  
\$ 1,080,000

Cost for Buildings, Tanks, and pipes with 40 year life \$ 546,111  
Cost for equipment with 20 year life and therefore no salvage value \$ 533,889  
(see breakdown for 20 and 40 year items following this section)

Initial Value (non-land)	\$	546,111	
Annual Straight line Depreciation based on		40 years	
	\$	13,653	
Cumulative Depreciation over planning period of		20 years	
	\$	273,056	
Assume salvage value = net depreciated value = Initial Value - Accumaluted Depreciation			
Initial Value	\$	546,111	
Accumulated Depreciation	\$	(273,056)	
Salvage Value	\$	273,056	at year 20

Salvage Value	\$	273,056	at year 20
Single payment discount factor		0.4146429	
Present Worth of Salvage Value of Outfall	\$	113,221	

D. Land \$ 25,000

Cumulative Escalation factor over planning period of		20 years	
		1.806111	
Future Value of Land at end of the planning period of		20 years	
	\$	45,153	
Salvage Value = Future Value			

**Regional Sewer Project, Monroe County, PA  
Alternative 2 Project 1 - Pocono Twp 2.0 MGD WWTP**

	Salvage Value	\$	45,153	20 years
	Single payment discount factor		0.4146429	
Present Worth of Salvage Value of Land		\$	18,722	

**3 Present Worth of Operations and Maintenance Costs**

	Annual O&M Costs	\$	1,103,000
Annual payment present worth factor			13.007936
Present Worth of O&M Costs		\$	14,347,754

**4 Total Present Worth**

Present Worth of Initial Capital Cost	\$	39,007,000
Present Worth of O&M Costs	\$	14,347,754
Subtotal	\$	53,354,754
Less Present Worth of Salvage Value		(5,408,836)
<b>TOTAL PRESENT WORTH</b>	<b>\$</b>	<b>47,945,917</b>

ALTERNATIVE 2 PROJECT 1 - REGIONAL 2.0 MGD WWTP UPGRADE AND EXPANSION				
DETERMINATION OF WWTP SALVAGE VALUE				
	Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)
	Headworks	\$ 1,200,960	\$ 978,480	\$ 222,480
	Influent Equalization Tank	\$ 1,372,680	\$ 452,520	\$ 920,160
	Blower/Pump Station Building	\$ 772,200	\$ 255,960	\$ 516,240
	SBR and Sludge Digester Tanks/ Control and Lab	\$ 6,637,410	\$ 1,846,800	\$ 4,790,610
	Decant Equalization Tank	\$ 1,597,860	\$ 360,720	\$ 1,237,140
	Decant Pump Station	\$ 296,460	\$ 104,760	\$ 191,700
	Tertiary Building - Sand Filter/ Belt Press/UV Area	\$ 1,701,000	\$ -	\$ 1,701,000
	Sand Filters	\$ 817,560	\$ 797,040	\$ 20,520
	Ultraviolet Disinfection Equip.	\$ 270,000	\$ 264,600	\$ 5,400
	Post Aeration/Effluent Pump Sta.	\$ 1,068,255	\$ 156,600	\$ 911,655
	Flow Metering Manhole	\$ 78,840	\$ 66,960	\$ 11,880
	Post Aeration Building	\$ 87,480	\$ 27,000	\$ 60,480
	Sludge processing Equipment including tank cover	\$ 1,593,000	\$ 1,547,640	\$ 45,360
	Sludge Decant Pump Station	\$ 77,760	\$ 30,240	\$ 47,520
	Belt Press	\$ 732,240	\$ 667,440	\$ 64,800
	Belt Press and Filter Reject Return Pump Station	\$ 77,760	\$ 30,240	\$ 47,520
	Chemical Feed Equipment (tanks, piping, pumps, etc.) and Labor	\$ 288,360	\$ 288,360	\$ -
	Utility Water System	\$ 262,710	\$ 111,240	\$ 151,470

ALTERNATIVE 2 PROJECT 1 - REGIONAL 2.0 MGD WWTP UPGRADE AND EXPANSION				
DETERMINATION OF WWTP SALVAGE VALUE				
	Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)
	Potable Water System	\$ 57,626	\$ 10,800	\$ 46,826
	SCADA/Controls - Equip. and Labor	\$ 270,000	\$ 270,000	\$ -
	Emergency Generator Equipment and Labor	\$ 216,000	\$ 216,000	\$ -
	Lab and Equipment Equipment and Labor	\$ 108,000	\$ 108,000	\$ -
	Equipment Installation	\$ 604,800	\$ 604,800	\$ -
	Electrical - Labor and Equipment, Service and underground, misc.	\$ 777,600	\$ 777,600	\$ -
	Piping	\$ 621,000	\$ -	\$ 621,000
	Site Work	\$ 2,362,462	\$ -	\$ 2,362,462
	<b>Construction Subtotal</b>	<b>\$ 23,950,023</b>	<b>\$ 9,973,800</b>	<b>\$ 13,976,223</b>
	Contingency (10% of sub-total)	\$ 2,395,002	\$ 997,380	\$ 1,397,622
	<b>Total Construction Cost</b>	<b>\$ 26,345,025</b>	<b>\$ 10,971,180</b>	<b>\$ 15,373,845</b>
	<b>Total Constuction Cost (Rounded)</b>	<b>\$ 26,400,000</b>	<b>\$ 10,994,074</b>	<b>\$ 15,405,926</b>
	Non-Construction Cost	\$ 2,518,965	\$ 1,049,003	\$ 1,469,962
	<b>Non-Construction Cost (Rounded)</b>	<b>\$ 2,600,000</b>	<b>\$ 1,082,750</b>	<b>\$ 1,517,250</b>
	<b>Total Capital Cost (Rounded)</b>	<b>\$ 29,000,000</b>	<b>\$ 12,076,823</b>	<b>\$ 16,923,177</b>
	Notes:			
	(1) Item Costs based on R.K.R. Hess Associates Cost Estimate Dated 07-11-2008			
	(2) 20 year life includes equipment, electrical, & mechanical item costs			
	(3) 40 year life includes structures, buildings, piping, and site work item costs			
	(4) Contingency, Non-Construction costs and Total project costs are split between 20 year and 40 year life costs based on percentage split of Construction Subtotal costs.			

ALTERNATIVE 2 PROJECT 1 - REGIONAL 2.0 MGD WWTP UPGRADE AND EXPANSION				
DETERMINATION OF WWTP SALVAGE VALUE				
Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)	
Outfall Structure	\$ 675,080	\$ 333,720	\$ 341,360	
Contingency (10% of sub-total)	\$ 67,508	\$ 33,372	\$ 34,136	
Total Construction Costs	\$ 742,588	\$ 367,092	\$ 375,496	
Total Construction Costs (Rounded)	\$ 750,000	\$ 370,756	\$ 379,244	
Non-Construction Cost	\$ 321,493	\$ 158,927	\$ 162,566	
Non-Construction Cost (Rounded)	\$ 330,000	\$ 163,133	\$ 166,867	
Total Capital Cost (Rounded)	\$ 1,080,000	\$ 533,889	\$ 546,111	
Notes:				
(1) Item Costs based on R.K.R. Hess Associates Cost Estimate Dated 07-11-2008				
(2) 20 year life includes equipment, electrical, & mechanical item costs				
(3) 40 year life includes structures, buildings, piping, and site work item costs				
(4) Contingency, Non-Construction costs and Total project costs are split between 20 year and 40 year life costs based on percentage split of Construction Subtotal costs.				

**Regional Sewer Project, Monroe County, PA  
Alternative 2 Project 2 - Stroudsburg WWTP 2.5 MGD Upgrade**

**Capital Cost Estimate Summary**

2.5 MGD WWTP MBR Upgrade Total Project Cost (1)	\$ 17,109,000.00
Total	\$ 17,109,000.00

**Operation and Maintenance Costs (1)**

Total	\$ 1,350,000.00
-------	-----------------

(1) Cost Estimate by Weston Solutions (5-30-2007), Edits by Reilly Associates

**Present Worth Analysis**

Given:

Planning period for PW calculations	20 Years
Discount rate	4.500% as per US EPA and PADEP
Land Escalation Factor per annum	3.00%

**Initial Capital Cost**

Total Construction Cost	\$ 17,109,000
Less sunk cost	\$ -
<b>Total</b>	<b>\$ 17,109,000</b>
 A. Non-land	 \$ 17,109,000
B. Land	\$ -
<b>Total</b>	<b>\$ 17,109,000</b>

Annual O&M costs	\$ 1,350,000
------------------	--------------

Analysis:

<u>1</u> Compute Present worth factor for planning period and discount rate.	
Single payment present worth factor	0.4146429
Annual payment present worth factor	13.007936

2 **Salvage Value**

A. 2.5 MGD WWTP MBR Upgrade	Capital Cost	\$ 17,109,112
Cost for Buildings, Tanks, and pipes with 40 year life	\$ 4,893,873	
Cost for equipment with 20 year life and therefore no salvage value (see breakdown for 20 and 40 year items following this section)	\$ 12,215,239	
 A. Initial Value (non-land)	\$ 4,893,873	
Annual Straight line Depreciation based on	40 years	
	\$ 122,347	
Cumulative Depreciation over planning period of	20 years	
	\$ 2,446,937	
Assume salvage value = net depreciated value = Initial Value - Accumulated Depreciation		
Initial Value	\$ 4,893,873	
Accumulated Depreciation	\$ (2,446,937)	
Salvage Value	\$ 2,446,937	at year 20
	Salvage Value \$ 2,446,937	at year 20
Single payment discount factor	0.4146429	
Present Worth of Salvage Value	\$ 1,014,605	

**Regional Sewer Project, Monroe County, PA  
Alternative 2 Project 2 - Stroudsburg WWTP 2.5 MGD Upgrade**

B. Salvage Value of Land: No additional Land	\$	-
Cumulative Escalation factor over planning period of		20 years
		1.806111
Future Value of Land at end of the planning period of		20 years
	\$	-
Salvage Value = Future Value		

Salvage Value	\$	-	20 years
Single payment discount factor		0.4146429	
Present Worth of Salvage Value of Land	\$		

**3 Present Worth of Operations and Maintenance Costs**

Annual O&M Costs	\$	1,350,000
Annual payment present worth factor		13.007936
Present Worth of O&M Costs	\$	17,560,714

**4 Total Present Worth**

Present Worth of Initial Capital Cost	\$	17,109,000
Present Worth of O&M Costs	\$	17,560,714
Subtotal	\$	34,669,714
Less Present Worth of Salvage Value		(1,014,605)
<b>TOTAL PRESENT WORTH</b>	<b>\$</b>	<b>33,655,109</b>

ALTERNATIVE 2 PROJECT 2 - 2.5 MGD WWTP UPGRADE AND EXPANSION				
DETERMINATION OF WWTP SALVAGE VALUE				
Item Description	Item Cost (1)	20-Year Life (2)	40 Year Life (3)	
Site Work	\$ 32,100	\$ -	\$ 32,100	
Screening Basin	\$ 119,600	\$ -	\$ 119,600	
Modifications to Existing Tanks	\$ 572,000	\$ -	\$ 572,000	
MBR Tanks	\$ 470,900	\$ -	\$ 470,900	
Blower Building	\$ 428,800	\$ 133,200	\$ 295,600	
Mechanical Equipment	\$ 7,469,300	\$ 7,469,300	\$ -	
Mechanical Piping Costs	\$ 1,037,400	\$ -	\$ 1,037,400	
Yard Piping	\$ 850,000	\$ -	\$ 850,000	
Electrical Work	\$ 274,800	\$ 274,800	\$ -	
Instrumentation Work	\$ 553,280	\$ 553,280	\$ -	
Construction Subtotal	\$ 11,808,180	\$ 8,430,580	\$ 3,377,600	
Engineering and Design (8%)	\$ 944,654	\$ 674,446	\$ 270,208	
Construction Management (8%)	\$ 944,654	\$ 674,446	\$ 270,208	
Escalation to Mid-Point	\$ 1,180,000	\$ 842,474	\$ 337,526	
Sub-total Project Costs	\$ 14,877,489	\$ 10,621,947	\$ 4,255,542	
Contingency (15%)	\$ 2,231,623	\$ 1,593,292	\$ 638,331	
Total Project Costs (not including land)	\$ 17,109,112	\$ 12,215,239	\$ 4,893,873	
Notes:				
(1) Item Costs based on Estimate Dated 5-30-2007 and updated by Reilly Associates				
(2) 20 year life includes equipment, electrical, & mechanical item costs				
(3) 40 year life includes structures, buildings, piping, and site work item costs				
(4) Engineering and Design, Construction Management, Escalation to Mid-Point, and Contingency are split between 20 year and 40 year life costs based on percentage split of Construction Subtotal costs.				

**APPENDIX I**  
**USER RATE ANALYSIS**

ALT 1- PROJECT 2 - COST SHARING WITH PURCHASE CREDIT ON \$33,740,000 TOTAL PROJECT AS DESCRIBED IN THE MEMORANDUM OF UNDERSTANDING (MOU)

	Pocono	Stroud	Stroudsburg	Total
Pocono Buy-in (means credit recieved) (44% * \$8,800,000 purchase price) Credit Sharing: Stroud 60% Stroudsburg 40%	44.45% \$3,911,600	33.33% -\$2,346,960	22.22% -\$1,564,640	\$0
2.5 MGD Upgrade (half credit applied)	\$7,556,500	\$4,492,620	\$2,995,080	\$17,000,000
4.5 MGD Upgrade (half credit applied)	\$3,531,900	\$1,507,380	\$1,004,920	\$8,000,000
Subtotal based on \$25,000,000	\$15,000,000	\$6,000,000	\$4,000,000	\$25,000,000
Additional Cost to go to \$32,000,000				
Additional costs shared at the percentages	44.45%	33.33%	22.22%	
Share of additional project costs	\$3,111,500	\$2,333,100	\$1,555,400	\$7,000,000
Additional Costs to go to \$33,740,000				
Additional costs shared at the percentages	0.00%	60.00%	40.00%	
Share of additional project costs	\$0	\$1,044,000	\$696,000	\$1,740,000
Additional Cost to go to \$0				
Additional costs shared at the percentages	44.45%	33.33%	22.22%	
Share of additional project costs	\$0	\$0	\$0	\$0
<b>Total Costs based on \$33,740,000</b>	<b>\$18,111,500</b>	<b>\$9,377,100</b>	<b>\$6,251,400</b>	<b>\$33,740,000</b>
Final cost share percentage based on \$33,740,000	<b>53.68%</b>	<b>27.79%</b>	<b>18.53%</b>	

**ALTERNATIVE 1**

**USER RATE CALCULATION:**

**PENNVEST PRIMARY FINANCING**

**WITH SUPPLEMENTAL BOND FINANCING**

**Alternative 1 - Project 2 - Regional 4.5 MGD WWTP Project**  
**User Rate Calculation - PENNVEST Primary Financing**  
**Capital and O&M Cost Split per Municipality based on percentages according to MOU**

**Financing Plan**

Pennvest Loan with average interest rate of 2.275% for 20 years	-\$20,000,000
Bond Issue with average interest rate of 4.75% for 20 years	-\$13,740,000
Total Financed	-\$33,740,000

**Project Cost Debt Payments**

Total Amount      Annual Cost

Pocono Township share of Pennvest Loan at 53.68%	-\$10,736,000	
Pocono Township share of Bond at 53.68%	-\$7,375,632	
Annual Pennvest Loan Payment at 2.275% interest for 20 years		\$674,132
Annual Bond Payment at 4.75% interest for 20 years		\$579,359
<b>Total Annual WWTP Debt Payment for 20 years</b>		<b>\$1,253,491</b>
Number of EDUs		3715
Annual Cost per EDU		\$337

Stroud Township share of Pennvest Loan at 27.79%	-\$5,558,000	
Stroud Township share of Bond at 27.79%	-\$3,818,346	
Annual Pennvest Loan Payment at 2.275% interest for 20 years		\$348,996
Average Annual Bond Payment at 4.75% interest (first 10 years of payback)		\$210,000 (1)
<b>Total Annual WWTP Debt Payment for 20 years</b>		<b>\$558,996</b>
No. of EDUs in 2012		4240
Annual Cost per EDU		\$132

Stroudsburg Borough share of Pennvest Loan at 18.53%	-\$3,706,000	
Stroudsburg Borough share of Bond at 18.53%	-\$2,546,022	
Annual Pennvest Loan Payment at 2.275% interest for 20 years		\$232,706
Annual Bond Payment at 4.75% interest for 20 years		\$199,991
<b>Total Annual WWTP Debt Payment for 20 years</b>		<b>\$432,697</b>
Number of EDUs		3143
Annual Cost per EDU		\$138

**O&M Costs 2012**

Odor Prevention Facilities	\$265,000
4.5 MGD WWTP	\$2,700,000
Total O&M Cost	\$2,965,000

Pocono Township share at 44.45%	\$1,317,943
Stroud Township share at 33.33%	\$988,235
Stroudsburg Borough share at 22.23%	\$659,120

Note (1) Annual debt service based on Wrap Around Bond Structure, see calculation provided by Concord Public Finance

**Alternative 1 - Project 2 - Regional 4.5 MGD WWTP Project  
Stroud Township User Rates - PENNVEST Primary Financing**

No. of EDUs in 2012            4240 (1)  
Current Annual Cost    \$600/EDU

<b>Debt Payments</b>	Total Amount	Annual Cost
Stroud Township share of Regional WWTP Debt at 27.79%		\$558,996 (2)
Stroud Twp existing annual average Debt Payment in 2012		<u>\$1,475,000 (3)</u>
Subtotal Debt Payment Amount		\$2,033,996
Subtotal Debt payment cost per EDU		\$480
 <b>O&amp;M Costs 2012</b>		
Stroud Township share of Regional WWTP O&M at 33.33%		\$988,235 (4)
Stroud Township Existing Collection System O&M Costs		<u>\$562,000 (5)</u>
Subtotal O & M Cost		\$1,550,235
Subtotal O & M cost per EDU		\$366
 Total Annual Costs for Debt Payment and O&M		 <u>\$3,584,231</u>
Total Annual Cost per EDU		\$845
<b>Total Annual Cost per EDU with 2% non-payment</b>		<b>\$863</b>

Notes

- (1) Based on 3750 EDUs currently and 2.5% growth till 2012.
- (2) Taken from Page 1.
- (3) As reported on most recent Bond Refinancing calculation for existing annual debt service through 2022.
- (4) Based on 33.3% of \$2,965,000 operating expenses when the new WWTP is on line.
- (5) Based on projected Stroud Township Sewer Authority budget in 2012 without its WWTP Component.

**Alternative 1 - Project 2 - Regional 4.5 MGD WWTP Project  
Stroudsburg Borough User Rates - PENNVEST Primary Financing**

Number of EDUs in 2012      3143 (1)

<b>Debt Payments</b>	Total Amount	Annual Cost
Stroudsburg Borough share of Regional WWTP Debt at 18.53%		\$432,697 (2)
Stroudsburg Borough existing annual average Debt Payment		<u>\$0 (3)</u>
Subtotal Debt Payment Amount		\$432,697
Subtotal Debt payment cost per EDU		\$138
 <b>O&amp;M Costs 2012</b>		
Stroudsburg Borough share of Regional WWTP O&M at 22.23%		\$659,120 (4)
Stroudsburg Borough Collection System O&M Costs		<u>\$389,000 (5)</u>
Subtotal O & M Cost		\$1,048,120
Subtotal O & M Cost per EDU		\$333
 Total Annual Costs for Debt Payment and O&M		 \$1,480,817
Total Annual Cost per EDU		\$471
<b>Total Annual Cost per EDU with 2% non payment</b>		<b>\$481</b>

Notes

- (1) Based on current number of EDUs, assumes no growth
- (2) Taken from Page 1
- (3) As reported by Stroudsburg Borough
- (4) 22.23% of \$2,965,000 operating budget when the new WWTP is on line.
- (5) Based on projected budget in 2012 without WWTP component.

**Alternative 1 - Project 1 New Collection System and  
Project 2 - Regional 4.5 MGD WWTP Project  
Pocono/Hamilton Township User Rates - PENNVEST Primary Financing**

Number of EDUs in 2012      3715 (1)

<b>Debt Payments</b>	Total Amount	Annual Cost
Pocono Township share of Regional WWTP Debt at 53.68%		\$1,253,491 (2)
Pocono Township Annual Debt for interest on \$500,000 advance to BCRA		\$5,341 (1)
Pocono Township Dry Sewer System Annual Debt Payment		<u>\$158,593 (1)</u>
Subtotal Debt Payment Amount		\$1,417,425
		\$382
Subtotal Debt payment cost per EDU		\$382
Pocono Township Remaining Sewer System Annual Debt Payment Per EDU		<u>\$416 (4)</u>
Total Debt Payment Costs per EDU		\$798

<b>O&amp;M Costs</b>	Annual Cost
Pocono Township share of Regional WWTP O&M at 44.45%	\$1,317,943 (3)
Pocono Township Collection System O&M Costs	<u>\$434,000</u>
Subtotal O & M Cost	\$1,751,943
	\$472
Subtotal O & M Cost per EDU	\$472
	\$1,269
Total Annual Cost per EDU	\$1,269
<b>Total Annual Cost per EDU with 2% non payment</b>	<b>\$1,295</b>

Notes

- (1) Taken from WASTEWATER FUNDING ANALYSIS AND USER RATES STROUDSBURG/STROUD POCONO JOINT SEWER PROJECT, November 13, 2008, RKR Hess Associates
- (2) Taken from Page 1
- (3) 44.45% of \$2,965,000 operating budget when the new WWTP is on line.
- (4) Taken from RKR Hess Associates Email dated May 7, 2009



**Stroud Township Sewer Authority  
Guaranteed Sewer Revenue Bonds,  
Wrap Around Structure  
\$5.558mm of PennVest Funding**

	1	2	3	4	5	6	7	8
Date	Principal	Coupon	Interest	Debt Service	Annual Debt Service (2)	Existing Annual Debt Service (3)	Aggregate Annual Debt Service	
1/1/2012								
5/15/2012			60,882.92	60,882.92				
11/15/2012		2.300	81,783.03	81,783.03	142,665.96	1,802,568.63	1,945,234.58	
5/15/2013			81,783.03	81,783.03				
11/15/2013	45,000	2.800	81,783.03	126,783.03	208,566.07	1,811,882.43	2,020,448.49	
5/15/2014			81,153.03	81,153.03				
11/15/2014	50,000	3.150	81,153.03	131,153.03	212,306.07	1,809,669.73	2,021,975.79	
5/15/2015			80,365.53	80,365.53				
11/15/2015	35,000	3.380	80,365.53	115,365.53	195,731.07	1,823,316.63	2,019,047.69	
5/15/2016			79,774.03	79,774.03				
11/15/2016	35,000	3.510	79,774.03	114,774.03	194,548.07	1,825,261.53	2,019,809.59	
5/15/2017			79,159.78	79,159.78				
11/15/2017	30,000	3.630	79,159.78	109,159.78	188,319.57	1,830,890.53	2,019,210.09	
5/15/2018			78,615.28	78,615.28				
11/15/2018	20,000	3.750	78,615.28	98,615.28	177,230.57	1,841,063.23	2,018,293.79	
5/15/2019			78,240.28	78,240.28				
11/15/2019	15,000	3.870	78,240.28	93,240.28	171,480.57	1,850,779.63	2,022,260.19	
5/15/2020			77,950.03	77,950.03				
11/15/2020	120,000	3.980	77,950.03	197,950.03	275,900.07	1,741,864.23	2,017,764.29	
5/15/2021			75,562.03	75,562.03				
11/15/2021	125,000	4.090	75,562.03	200,562.03	276,124.07	1,744,458.83	2,020,582.89	
5/15/2022			73,005.78	73,005.78				
11/15/2022	120,000	4.200	73,005.78	193,005.78	266,011.57	1,752,772.63	2,018,784.19	
5/15/2023			70,485.78	70,485.78				
11/15/2023	1,335,000	4.320	70,485.78	1,405,485.78	1,475,971.57	543,595.03	2,019,566.59	
5/15/2024			41,649.78	41,649.78				
11/15/2024	1,585,000	4.400	41,649.78	1,626,649.78	1,668,299.57	348,996.23	2,017,295.79	
5/15/2025			6,779.78	6,779.78				
11/15/2025	303,346	4.470	6,779.78	310,125.78	316,905.57	348,996.23	665,901.79	
5/15/2026			0.00	0.00				
11/15/2026		4.530	0.00	0.00	0.00	348,996.23	348,996.23	
5/15/2027			0.00	0.00				
11/15/2027		4.590	0.00	0.00	0.00	348,996.23	348,996.23	
5/15/2028			0.00	0.00				
11/15/2028		4.640	0.00	0.00	0.00	348,996.23	348,996.23	
5/15/2029			0.00	0.00				
11/15/2029		4.690	0.00	0.00	0.00	348,996.23	348,996.23	
5/15/2030			0.00	0.00				
11/15/2030		4.740	0.00	0.00	0.00	348,996.23	348,996.23	
5/15/2031			0.00	0.00				
11/15/2031		4.790	0.00	0.00	0.00	348,996.23	348,996.23	

**Totals** 3,818,346(1) 1,951,714.32 5,770,060.32 5,770,060.32 23,170,092.83 28,940,153.15

- (1) - STROUD TOWNSHIP SHARE OF BOND DEBT.
- (2) - WRAP AROUND DEBT SERVICE ON \$ 3,818,346
- (3) - EX STROUD TWO DEBT PLUS NEW PENNVEST ANNUAL DEBT.

**ALTERNATIVE 1**  
**USER RATE CALCULATION:**  
**ALTERNATIVE FINANCING**  
**WITH ALL CONVENTIONAL BONDS**

**Alternative 1 - Project 2 - Regional 4.5 MGD WWTP Project**  
**User Rate Calculation - Alternate Financing with all Conventional Bonds**  
**Capital and O&M Split between Municipality based on percentages according to MOU**

Total WWTP Project Cost \$33,740,000

Full amount Financed at 4.75% for 20 years

**Project Cost Debt Payments** Total Amount      Annual Cost

Pocono Township share at 53.68% \$18,111,632

Total Annual WWTP Debt Payment at 4.75% interest for 20 years -\$1,422,677

Number of EDUs in 2012 3715

Annual Cost per EDU \$383

Stroud Township share at 27.79% \$9,376,346

Total Annual WWTP Debt Payment at 4.75% interest for first 10 years \$570,000 (1)

No. of EDUs in 2012 4240

Annual Cost per EDU \$134

Stroudsburg Borough share at 18.53% \$6,252,022

Total Annual WWTP Debt Payment at 4.75% interest for 20 years -\$491,099

Number of EDUs in 2012 3143

Annual Cost per EDU \$156

**O&M Costs 2012**

Odor Prevention Facilities \$265,000

4.5 MGD WWTP \$2,700,000

Total O&M Cost \$2,965,000

Pocono Township share at 44.44% \$1,317,646

O & M Cost per EDU \$355

Stroud Township share at 33.33% \$988,235

O & M Cost per EDU \$233

Stroudsburg Borough share at 22.23% \$659,120

O & M Cost per EDU \$210

Note (1) Annual debt service based on Wrap Around Bond Structure, see calculation provided by Concord Public Finance.

**Alternative 1 - Project 2 - Regional 4.5 MGD WWTP Project  
Stroud Township User Rates - Alternate Financing with all Conventional Bonds**

No. of EDUs in 2012            4240 (1)  
Annual Cost                      \$600/EDU

Debt Payments	Total Amount	Annual Cost
Stroud Township share of Regional WWTP Annual Debt at 27.79%		\$570,000 (2)
Stroud Twp existing annual average Debt Payment		<u>\$1,475,000 (3)</u>
Subtotal Debt Payment Amount		\$2,045,000
Subtotal Debt payment cost per EDU		\$482
Stroud Township share of Regional WWTP Annual O&M at 33.33%		\$988,235 (4)
Stroud Township Existing Collection System O&M Costs		<u>\$562,000 (5)</u>
Subtotal O & M Cost		\$1,550,235
Subtotal O & M cost per EDU		\$366
Total Annual Costs for Debt Payment and O&M		\$3,595,235
Total Annual Cost per EDU		\$848
<b>Total Annual Cost per EDU with 2% non payment</b>		<b>\$865</b>

Notes

- (1) Based on 3750 EDUs currently and 2.5% growth until 2012
- (2) Taken from Page 1
- (3) As reported on most recent Bond Refinancing calculation for existing annual debt service through 2022.
- (4) Based on 33.3% of \$2,965,000 operating expenses when the new WWTP is on line
- (5) Based on projected Stroud Township Sewer Authority Budget in 2012 without its WWTP Component

**Alternative 1 - Project 2 - Regional 4.5 MGD WWTP Project  
Stroudsburg Borough User Rates - Alternate Financing with all Conventional Bonds**

Number of EDUs 3143 (1)

<b>Debt Payments</b>	<b>Total Amount</b>	<b>Annual Cost</b>
Stroudsburg Borough share of Regional WWTP Annual Debt at 18.53%		\$491,099 (2)
Stroudsburg Borough existing annual average Debt Payment		\$0 (3)
Subtotal Debt Payment Amount		\$491,099
Subtotal Debt payment cost per EDU		\$156
 <b>O&amp;M Costs 2012</b>		
Stroudsburg Borough share of Regional WWTP Annual O&M at 22.23%		\$659,120 (4)
Stroudsburg Borough Collection System O&M Costs		\$389,000 (5)
Subtotal O & M Cost		\$1,048,120
Subtotal O & M Cost per EDU		\$333
 Total Annual Costs for Debt Payment and O&M		 \$1,539,219
Total Annual Cost per EDU		\$490
<b>Total Annual Cost per EDU with 2% non payment</b>		<b>\$500</b>

**Notes**

- (1) Based on current EDUs, and assumes no growth until 2012
- (2) Taken from Page 1
- (3) As reported by Stroudsburg Borough
- (4) Based on 22.2% of \$2,965,000 operating expenses when the new WWTP is on line
- (5) Based on projected Budget in 2012 without its WWTP Component

**Alternative 1 - Project 1 New Collection System and  
Project 2 - Regional 4.5 MGD WWTP Project  
Pocono/Hamilton Township User Rates - Alternate Financing with all Conventional Bonds**

Number of EDUs 3715 (1)

<b>Debt Payments</b>	<b>Total Amount</b>	<b>Annual Cost</b>
Pocono Township share of Regional WWTP Annual Debt at 53.68%		\$1,422,677 (2)
Pocono Township Annual Debt for interest on \$500,000 advance to BCRA		\$5,341 (1)
Pocono Twp Dry Sewer System Annual Debt Payment		<u>\$158,593 (1)</u>
Subtotal Debt Payment Amount		\$1,586,611
Subtotal Debt payment cost per EDU		\$427
Remaining Sewer System Annual Debt Payment per EDU		<u>\$416 (4)</u>
Total Debt Payment Cost per EDU		\$843

**O&M Costs**

Pocono Township share of Regional WWTP O&M at 44.44%		\$1,317,646 (3)
Pocono Township Collection System O&M Costs		<u>\$434,000</u>
Subtotal O & M Cost		\$1,751,646
Subtotal O & M Cost per EDU		\$472
Total Annual Cost per EDU		\$1,315
<b>Total Annual Cost per EDU with 2% non payment</b>		<b>\$1,341</b>

**Notes**

(1) Taken from WASTEWATER FUNDING ANALYSIS AND USER RATES STROUDSBURG/STROUD POCONO JOINT SEWER PROJECT, November 13, 2008, RKR Hess Associates

(2) Taken from Page 1

(3) 44.45% of \$2,965,000 operating budget when the new WWTP is on line.

(4) Taken from RKR Hess Associates Email Dated May 7, 2009

Concord Township Sewer Authority  
Guaranteed Sewer Revenue Bonds,  
Wrap Around Structure  
No PennVest Funding

	1	2	3	4	5	6	7	8
Date	Principal	Coupon	Interest	Debt Service	Annual Debt Service	Existing Annual Debt Service	Aggregate Annual Debt Service	
1/1/2012					(2)	(3)		
5/15/2012			148,841.79	148,841.79				
11/15/2012		2.300	199,936.74	199,936.74	348,778.53	1,453,572.40	1,802,350.93	
5/15/2013			199,936.74	199,936.74				
11/15/2013	185,000	2.800	199,936.74	384,936.74	584,873.47	1,462,886.20	2,047,759.67	
5/15/2014			197,346.74	197,346.74				
11/15/2014	190,000	3.150	197,346.74	387,346.74	584,693.47	1,460,673.50	2,045,366.97	
5/15/2015			194,354.24	194,354.24				
11/15/2015	185,000	3.380	194,354.24	379,354.24	573,708.47	1,474,320.40	2,048,028.87	
5/15/2016			191,227.74	191,227.74				
11/15/2016	185,000	3.510	191,227.74	376,227.74	567,455.47	1,476,265.30	2,043,720.77	
5/15/2017			187,980.99	187,980.99				
11/15/2017	190,000	3.630	187,980.99	377,980.99	565,961.97	1,481,894.30	2,047,856.27	
5/15/2018			184,532.49	184,532.49				
11/15/2018	185,000	3.750	184,532.49	369,532.49	554,064.97	1,492,067.00	2,046,131.97	
5/15/2019			181,063.74	181,063.74				
11/15/2019	180,000	3.870	181,063.74	361,063.74	542,127.47	1,501,783.40	2,043,910.87	
5/15/2020			177,580.74	177,580.74				
11/15/2020	300,000	3.980	177,580.74	477,580.74	655,161.47	1,392,868.00	2,048,029.47	
5/15/2021			171,610.74	171,610.74				
11/15/2021	305,000	4.090	171,610.74	476,610.74	648,221.47	1,395,462.60	2,043,684.07	
5/15/2022			165,373.49	165,373.49				
11/15/2022	310,000	4.200	165,373.49	475,373.49	640,746.97	1,403,776.40	2,044,523.37	
5/15/2023			158,863.49	158,863.49				
11/15/2023	1,535,000	4.320	158,863.49	1,693,863.49	1,852,726.97	194,598.80	2,047,325.77	
5/15/2024			125,707.49	125,707.49				
11/15/2024	1,795,000	4.400	125,707.49	1,920,707.49	2,046,414.97	0.00	2,046,414.97	
5/15/2025			86,217.49	86,217.49				
11/15/2025	1,875,000	4.470	86,217.49	1,961,217.49	2,047,434.97	0.00	2,047,434.97	
5/15/2026			44,311.24	44,311.24				
11/15/2026	1,956,346	4.530	44,311.24	2,000,657.24	2,044,968.47	0.00	2,044,968.47	
5/15/2027			0.00	0.00				
11/15/2027		4.590	0.00	0.00	0.00	0.00	0.00	
5/15/2028			0.00	0.00				
11/15/2028		4.640	0.00	0.00	0.00	0.00	0.00	
Totals	9,376,346 (1)		4,880,993.16	14,257,339.16	14,257,339.16	16,190,168.30	30,447,507.46	

- (1) - STSA Township share of Bond Debt.
- (2) - WRAP AROUND DEBT SERVICE ON \$9,376,346
- (3) - EX. STSA DEBT

**ALTERNATIVE 2**

**USER RATE CALCULATION:**

**PENNVEST FINANCING**

**Alternative 2- Project 2 - 2.5 MGD WWTP Upgrade  
Stroud Township User Rates - PENNVEST FINANCING**

No. of EDUs in 2012           4240  
Current EDU Rate     \$600/EDU

<b>Debt Payments</b>	Total Amount	Annual Cost
Total WWTP Project Cost	-\$17,109,000	
Stroud Township share at 60%	-\$10,265,400	
Annual PENNVEST Debt Payment at 2.275% interest for 20 years		\$644,582
Stroud Twp existing annual average Debt Payment		\$1,475,000
Subtotal Debt Payment Amount		\$2,119,582
Debt payment cost per EDU		\$500
<b>O&amp;M Costs in 2012</b>		
Total WWTP O&M Cost	\$1,350,000	
Stroud Township share of 2.5 MGD WWTP at 60%		\$810,000
Stroud Township Existing Collection System O&M Costs		\$562,000
Subtotal O & M Cost		\$1,372,000
O & M cost per EDU		\$324
Total Annual Costs for Debt Payment and O&M		\$3,491,582
Annual Cost per EDU		\$823
<b>Total Annual Cost per EDU with 2% non Payment</b>		<b>\$840</b>

**Alternative 2 - Project 2 - 2.5 MGD WWTP Upgrade  
Stroudsburg Borough User Rates - PENNVEST FINANCING**

No. of EDUs in 2012            3143

<b>Debt Payments</b>	Total Amount	Annual Cost
Total WWTP Project Cost	-\$17,109,000	
Stroudsburg Borough share at 40%	-\$6,843,600	
Annual PENNVEST Debt Payment at 2.275% interest for 20 years		\$429,721
Stroudsburg Borough existing annual average Debt Payment		
Subtotal Debt Payment Amount		\$429,721
Debt payment cost per EDU		\$137
<b>O&amp;M Costs in 2012</b>		
Total WWTP O&M Cost	\$1,350,000	
Stroudsburg Borough share at 40%		\$540,000
Stroudsburg Borough Existing Collection System O&M Costs		\$389,000
Subtotal O & M Cost		\$929,000
O & M cost per EDU		\$296
Total Annual Costs for Debt Payment and O&M		\$1,358,721
Annual Cost per EDU		\$432
<b>Total Annual Cost per EDU with 2% non Payment</b>		<b>\$441</b>

**Alternative 2 - Project 1 and 2 - Separate Wastewater system and New 2.0 MGD WWTP  
Pocono/Hamilton Township User Rates - PENNVEST AND BOND FINANCING**

Number of EDUs 3715

<b>Project Costs</b>	Total Amount	Annual Cost
Pocono Township Collection System Costs	\$38,731,000	
Pocono Twp 2.0 MGD WWTP Project Cost	\$30,831,000	
Pocono Twp Effluent Force Main	\$7,108,000	
Effluent Outfall	\$1,043,000	
Land Costs	\$25,000	
<b>Total Project Costs</b>	<b>\$77,738,000</b>	
 <b>Funding Methods</b>		
<b>Grants</b>		
TIF Loan with no debt service	\$2,741,000	
HRSA Federal Grant	\$10,000,000	
PennWorks Grant	\$5,000,000	
Monroe County Grant	\$300,000	
<b>Total Grants</b>	<b>\$18,041,000</b>	
<b>Tapping Fees</b>		
Tapping Fees @ \$2,500/EDU	\$9,242,350	
<b>Total Grants and Tapping Fees</b>	<b>\$27,283,350</b>	
<b>Total Project Costs minus Grants and Tapping Fees</b>	<b>\$50,454,650</b>	
Remainder of project to be financed	-\$50,454,650	
Pennvest Loan at 2.275% for 20 years	-\$20,000,000	
Remainder of project to be financed with bonds	-\$30,454,650	
 Annual Pennvest loan payment at 2.275% for 20 years		\$1,255,834
Annual Bond payment at 4.75% for 20 years		\$2,392,227
Subtotal Annual Debt Payment Amount		\$3,648,061
 Gambling Proceeds (1,000,000 for 10 years) applied towards Debt. Payment		\$0
Net Total Annual Debt Payment Amount		\$3,648,061
Debt payment cost per EDU		\$982
 <b>O&amp;M Costs</b>		
Collection System O&M Cost		\$359,000
WWTP O&M Cost		\$1,103,000
<b>Total System O&amp;M Cost</b>		<b>\$1,462,000</b>
 Total Annual Costs for Debt Payment and O&M		<b>\$5,110,061</b>
Total Annual Cost per EDU		\$1,376
<b>Total Annual Cost per EDU with 2% non-payment</b>		<b>\$1,404</b>

**USER RATES**  
**SUPPORTING DATA**

**EXHIBIT B**  
**STROUD TOWNSHIP SEWER AUTHORITY**  
**GUARANTEED SEWER REVENUE BOND, SERIES 2008 AMOUNT \$4,121,000.00**

**ESTIMATED ANNUAL SEWER EXPENSES AND REVENUES**

YEAR.	2008	2009	2010	2011	2012	2013	2014
EDUS		3824	3881	3939	3998	4058	4119
ANNUAL FEE/EDU	\$600.00	\$615.00	\$615.00	\$615.00	\$615.00	\$615.00	\$615.00
CONNECTION FEE/EDU	\$3,200.00	\$3,200.00	\$3,200.00	\$3,200.00	\$3,200.00	\$3,200.00	\$3,200.00
REVENUE							
SEWER FEE (3% UNCOLLECTIBLES)	\$2,192,394	\$2,281,207	\$2,315,211	\$2,349,810	\$2,385,007	\$2,420,800	\$2,457,189
INITIAL CONNECTION FEES	\$173,824	\$176,928	\$176,928	\$180,032	\$183,136	\$186,240	\$189,344
INTEREST ON INVESTMENTS/OTHER	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000	\$135,000
TOTAL REVENUE	\$2,501,218	\$2,593,135	\$2,627,139	\$2,664,842	\$2,703,143	\$2,742,040	\$2,781,533
EXPENDITURES							
TOTAL OPERATING EXPENSES	\$875,656	\$901,926	\$928,983	\$956,853	\$985,559	\$1,015,125	\$1,045,579
SEWER REVENUE BONDS - 1992	\$510,000	\$510,000	\$1,050,000	\$1,210,000	\$1,210,000	\$1,210,000	\$1,210,000
SEWER REVENUE BOND - 2008	\$647,547	\$866,640	\$435,596	\$234,767	\$243,572	\$252,886	\$250,674
TOTAL EXPENDITURES	\$2,033,203	\$2,278,566	\$2,414,579	\$2,401,620	\$2,439,131	\$2,478,011	\$2,506,253
NET REVENUE	\$468,015	\$314,570	\$212,559	\$263,222	\$264,012	\$264,029	\$275,280
DEBT COVERAGE	140%	123%	114%	118%	118%	118%	119%

**POCONO TOWNSHIP SEWER PROJECT**  
**USER FEE CALCULATIONS FOR**  
**POCONO TOWNSHIP SEWER PROJECT AND POCONO TOWNSHIP'S SHARE OF JOINT SEWER PROJECT**

R.K.R Hess Associates  
 Project No. 08038.06  
 November 13, 2008

STROUDSBURG/STROUD/POCONO JOINT SEWER PROJECT	
SEWER SYSTEM (DRY SEWER SECTION)	
DRY SEWER COST	\$ 7,281,000
DRY SEWER INTEREST	\$ 199,000
* CAPITAL COST <sup>(1)</sup>	\$ 7,480,000 *
CAPITAL COST PER EDU	\$ 43
SEWER SYSTEM <sup>(2)</sup>	
* SEWER SYSTEM (REMAINING SECTIONS)	\$ 29,570,000 *
EFFLUENT FORCE MAIN	N/A
OUTFALL	N/A
* EFFLUENT FORCE MAIN LOST COSTS	\$ 452,000 *
* OUTFALL LOST COSTS	\$ 120,000 *
* TRANSMISSION MAIN - ADD ON COSTS	\$ <del>7,250,000</del> 8,909,000 - Res
REMAINING SEWER COST	\$ 37,392,000
* SEWER SYSTEM (REMAINING SECTIONS) INTEREST	\$ 1,711,000 *
EFFLUENT FORCE MAIN INTEREST	N/A
OUTFALL INTEREST	N/A
EFFLUENT FORCE MAIN LOST COSTS INTEREST	N/A
OUTFALL LOST COSTS INTEREST	N/A
* TRANSMISSION MAIN - ADD ON COSTS INTEREST	\$ 178,000 *
REMAINING SEWER INTEREST	\$ 1,889,000
CAPITAL COST <sup>(1)</sup>	\$ 39,281,000
OPERATION AND MAINTENANCE	\$ 359,000
OUTFALL LOST COSTS	\$ 120,000
TRANSMISSION MAIN - ADD ON COSTS <sup>(3)</sup>	\$ 7,428,000
TRANSMISSION MAIN - INTEREST DURING CONSTRUCTION	\$ 178,000
CAPITAL COST PER EDU	\$ 407
JOINT EQUALIZATION SYSTEM	
JOINT EQUALIZATION SYSTEM COST <sup>(6)</sup>	\$ 2,600,000
JOINT EQUALIZATION SYSTEM INTEREST	\$ 160,000
CAPITAL COST <sup>(1)</sup>	\$ 2,760,000
OPERATION AND MAINTENANCE	\$ 101,000
CAPITAL COST PER EDU	\$ 49

\* - Items included in Capital Project Cost Estimate Summary for PRESENT WORTH Analysis for ALTERNATIVE 1 Project 1 - Pocono Twp Collection & Conveyance Systems.

**WASTEWATER FUNDING ANALYSIS AND USER RATES  
STROUDSBURG/STROUD/POCONO JOINT SEWER PROJECT**

**1. SEWER SYSTEM (DRY SEWER SECTION)**

**COST TO BE FUNDED - SEWER SYSTEM (DRY SEWER SECTION)**

DRY SEWER Capital Cost		\$	7,281,000
DRY SEWER Interest (April 1, 2011 to Jan 1, 2013)		\$	199,000
<b>DRY SEWER Total Capital Cost</b>		\$	<b>7,480,000</b>
HRSA Federal Grant	Expires 9/30/10	\$	-
PennWorks Grant	Expires 6/30/09	\$	3,850,000
TIF Financing		\$	1,611,000
Monroe County grant		\$	-
<b>Total Grants</b>		\$	<b>5,461,000</b>
Total Minus Grants		\$	2,019,000
Total to be financed Locally 20 Years at 4.75%		\$	2,019,000

**CALCULATION OF COSTS PER EDU - SEWER SYSTEM (DRY SEWER SECTION)**

	Loan Amount	Loan Terms	A/P Factor	Capital Cost Amortized \$/Yr
Capital Cost to be Financed Locally	\$ 2,019,000	20 Years at 4.75%	0.0786	\$ 158,593 *
Total Debt Service - SEWER SYSTEM (DRY SEWER SECTION)				\$ 158,593
EDUs connected initially, used per PA DEP requirements				3,713
<b>Total Debt per EDU per Year - SEWER SYSTEM (DRY SEWER SECTION)</b>				<b>\$ 43</b>

Operation and Maintenance Costs included in Collection System O&M below

Total Cost per EDU per Year - SEWER SYSTEM (DRY SEWER SECTION) \$ 43

**2. SEWER SYSTEM (REMAINING SECTIONS)**

**COST TO BE FUNDED - SEWER SYSTEM (REMAINING SECTIONS)**

SEWER SYSTEM (REMAINING SECTIONS) Capital Cost (Rounded)		\$	37,392,000
SEWER SYSTEM (REMAINING SECTIONS) Interest (April 2010 to Jan 1, 2013)		\$	1,889,000
<b>SEWER SYSTEM (REMAINING SECTIONS) Total Capital Cost</b>		\$	<b>39,281,000</b>
HRSA Federal Grant	Expires 9/30/10	\$	10,000,000
PennWorks Grant	Expires 6/30/09	\$	1,150,000
TIF Financing		\$	-
Monroe County grant		\$	300,000
<b>Total Grants</b>		\$	<b>11,450,000</b>
Tapping Fees	Note: Tapping Fees will not be available until after construction.	\$	5,342,350
Total Minus Grants and Tapping Fees		\$	22,488,650
PennVEST Loan 20 Years at 2.774%		\$	20,000,000
Total to be financed Locally 20 Years at 4.75%		\$	2,488,650

See Revision  
April 21, 2009  
MAY 7, 2009  
EMAIL - RKR.NESS.

**CALCULATION OF COSTS PER EDU - SEWER SYSTEM (REMAINING SECTIONS)**

	Loan Amount	Loan Terms	A/P Factor	Capital Cost Amortized \$/Yr
PennVEST Loan	\$ 20,000,000	20 Years at 2.774%	0.0658	\$
Capital Cost to be Financed Locally				\$

#### 4. STROUDSBURG/STROUD/POCONO JOINT WASTE WATER TREATMENT PLANT

##### COST TO BE FUNDED - STROUDSBURG/STROUD/POCONO JOINT WWTP

4.5 MGD Joint WWTP		
Legal, Admin., Engineering, Construction Review*	\$	24,580,000
Property Acquisition*	\$	4,920,000
Interest during construction	\$	1,000,000
	\$	675,000
<b>Subtotal Capital Cost</b>	<b>\$</b>	<b>31,175,000</b>

BCRA PennVEST Loan 20 Years at 2.774%	\$	20,000,000
Total to be financed Locally 20 Years at 4.75%	\$	11,175,000

##### CALCULATION OF COSTS PER EDU - STROUDSBURG/STROUD/POCONO JOINT WWTP (POCONO TOWNSHIP'S SHARE)

	Loan Amount	Loan Terms	A/P Factor	Capital Cost Amortized \$/Yr
Capital Cost of Joint WWTP to be financed by BCRA's PennVEST Loan	\$ 20,000,000	20 Years at 2.774%	0.0658	\$ 1,316,382
Capital Cost to be Financed Locally	\$ 11,175,000	20 Years at 4.75%	0.0786	\$ 877,801
Total Debt Service for Joint Plant			\$	2,194,184
Total Debt Service for Joint Plant - Pocono Township's Share			44.45%	\$ 975,315
EDUs connected initially, used per PA DEP requirements				3,713
<b>Total Debt per EDU per Year - Pocono Township's Share - STROUDSBURG/STROUD/POCONO JOINT WWTP</b>			\$	<b>263</b>

#### 5. JOINT WASTE WATER TREATMENT PLANT - Pocono Township Costs

WWTP Lost Costs (Non-Construction)	\$	1,130,000
Interest on \$500,000 Advance payment to BCRA for Engineering Costs	\$	68,000 *
"Buy In"	\$	3,900,000
<b>Total Additional Costs</b>	<b>\$</b>	<b>5,098,000</b>
HRSA Federal Grant	Expires 9/30/10	\$ -
PennWorks Grant	Expires 6/30/09	\$ -
TIF Financing		\$ -
Monroe County grant		\$ 1,130,000
<b>Total Grants</b>		<b>\$ 1,130,000</b>
Tapping Fees	Note: Tapping Fees will not be available until after construction	\$ 3,900,000
Total Minus Grants and Tapping Fees		\$ 68,000
PennVEST Loan 20 Years at 2.774%		\$ -
Total to be financed Locally 20 Years at 4.75%		\$ 68,000

##### CALCULATION OF COSTS PER EDU - STROUDSBURG/STROUD/POCONO JOINT WWTP Additional Pocono Township Costs

	Loan Amount	Loan Terms	A/P Factor	Capital Cost Amortized \$/Yr
PennVEST Loan	\$ -	20 Years at 2.774%	0.0658	\$ -
Capital Cost to be Financed Locally	\$ 68,000	20 Years at 4.75%	0.0786	\$ 5,341
Total Debt Service			\$	5,341 *
EDUs connected initially, used per PA DEP requirements				
<b>Total Debt per EDU per Year - Pocono Township's Share - STROUDSBURG/STROUD/POCONO JOINT WWTP</b>			\$	<b>5.341</b>

**APPENDIX J**

**FLOW PROJECTIONS**



**TABLE 3-4**  
**POCONO TOWNSHIP REGIONAL SEWER FLOWS AND EQUIVALENT DWELLING UNITS (EDUs)**  
 DEVELOPED AND 10 YEAR PROJECTED FLOWS  
 R.K.R. HESS ASSOCIATES  
 PROJECT NO. 05181.02  
 11/17/2005

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
<b>POCONO TOWNSHIP</b>								
ABRAMSKI	12636302968804	0.48	RESIDENTIAL (C)	HOME	250	250	1	1
AKBAR	12636302779862	46.94	VACANT - RECREATION (R-1)	HOME	250	46,940	1	188
ALLEGAR, MARY	12638100157256	1.80	RESIDENTIAL (R-2)	HOME	250	250	1	1
ALLEN	12637301068123	0.19	RESIDENTIAL (C)	HOME	250	250	1	1
ALLEN	12637301062197	0.19	RESIDENTIAL (C)	HOME	250	250	1	1
AMALGAMATED MEGA PROPERTIES	12637201386336	0.22	RESIDENTIAL (C)	TANNERSVILLE PROFESSIONAL OFFICES	200	200	1	1
ANDREWS, MAURICE & MARY	12637201455572	2.50	RESIDENTIAL (C)		250	2,000	1	8
ANGLEMYER, WILLARD	12637202553460	1.55	RESIDENTIAL (C)		250	2,000	1	8
ANGLEMYER, WILLARD & LORRAINE	12637204547890	0.20	RESIDENTIAL (C)		250	250	1	1
ARCHER, JAMES	12637202574026	6.75	RESIDENTIAL (C)		250	5,000	1	20
B & B REAL ESTATE	12636302893572	2.53	SERVICES & F.I.R.E. (C)	ELEVATIONS HEALTH CLUB ALLIED REHAB SERVICES	1,000	1,500	4	6
BANKERS FIRST MORTGAGE	12637200611487	2.81	RESIDENTIAL (C)	BANKERS FIRST MORTGAGE	100	2,000	1	8
BANKERS TRUST COMPANY OF CAL	12637201468803	0.26	RESIDENTIAL (C)	COUNTRYWIDE HOME LOANS	250	250	1	1
BELARDI, BARBARA & DARIO	12636402770937	2.50	RESIDENTIAL (C)		250	2,000	1	8
BELL TELEPHONE CO. OF PA	12637201378738	0.85	Communication/Transportation/Utilities	BELL TELEPHONE CO. OF PA	100	100	1	1
BENNINGER	12637200607303	1.60	SERVICES & F.I.R.E. (C)	611 OFFICE PLAZA BENNINGER INSURANCE AGENCY INC.	400	2,000	2	8
BENNINGER	"	"	"	RIDGEWOOD HOMES				
BENNINGER	"	"	"	DUGAN REAL ESTATE				
BENNINGER	"	"	"	SPECIALTY MORTGAGE SERVICES				
BOLAND, ROBERT	12637202550984	1.50	SERVICES & F.I.R.E. (C)		250	2,000	1	8
BRAMLEY, JOHN & BEVERLY	12637201469895	0.37	INDUSTRIAL (C)		250	250	1	1
BRAY	12638100147957	0.37	RETAIL TRADE (C)	ADVANCED COLLISION	130	130	1	1
BRAY, MICHAEL	12636404811905	1.32	RESIDENTIAL (C)		250	2,000	1	8
BRONG, EDITH	12637204545891	0.25	RESIDENTIAL (C)		250	250	1	1
BROSNAN	12637204630864	1.81	RESIDENTIAL (C)	HOME	250	2,000	1	8
BUCK, FRANK	12637100958787	4.51	SERVICES & F.I.R.E. (C)	GARY BURKHART DENTIST	250	250	1	1
BURKHART, GARY	12637102396636	0.50	RETAIL TRADE (C)	BARONSVILLE PRINTING	100	100	1	1
BUTZ KARL E & MARILYN M	12637204543970	0.30	INDUSTRIAL (C)	C-1	425	2,000	2	8
BUTZ KARL E & MARILYN M	12636404841779	1.610	RETAIL TRADE (C)	FROLIC ON THE MOUNTAIN	100	100	1	1
CAGA GROUP LLC	12637202550162	0.41	SERVICES & F.I.R.E. (C)	POCONO BREWING COMPANY	42,400	42,400	170	170
CAPORUSSO INVESTMENT GROUP	12636404744153	5.47	RETAIL TRADE (C)	AMBULANCE BUILDING	150	150	1	1
CENTRAL POCONO AMBULANCE	12637201463755	0.48	SERVICES & F.I.R.E. (C)	CROSSINGS OUTLETS	0	0	0	0
CHELSEA POCONO FINANCE, LLC	12637303117723	2.00	VACANT - PARKING	CROSSINGS OUTLETS	0	0	0	0
CHELSEA POCONO FINANCE, LLC	12637303118469	1.00	VACANT - PARKING	CROSSINGS OUTLETS	0	0	0	0
CHELSEA POCONO FINANCE, LLC	12637303119358	0.50	VACANT - PARKING	CROSSINGS OUTLETS	0	0	0	0
CHELSEA POCONO FINANCE, LLC	12637303122386	8.00	RETAIL TRADE	CROSSINGS OUTLETS	0	0	0	0
CHELSEA POCONO FINANCE, LLC	12637303201339	23.30	RETAIL TRADE	CROSSINGS OUTLETS	24,000	24,000	96	96
CHELSEA POCONO FINANCE, LLC	12637303210310	0.46	VACANT - PARKING	CROSSINGS OUTLETS	0	0	0	0
CHEA	12637201473360	0.72	GOV. SERVICES (C)	FORMERLY SWITZERLAND OLD WORLD CREATIONS	100	250	1	1
CHEA	12637201299601	0.91	SCRAP YARD (C)	SWITZERLAND OLD WORLD CREATIONS	100	130	1	1
CITIZEN'S BANK	12637201299439	1.40	SERVICES & F.I.R.E. (C)	CITIZEN'S BANK	130	130	1	1
COCO	12637204541859	0.34	RETAIL TRADE (C)	CHIC'S LAMPS	100	100	1	1
COMMONWEALTH OF PA	12636404723184	10.01	GOV. SERVICES (C)	PA DEP OFFICES	5,000	5,000	20	20
COMMUNITY BANK & TRUST CO.	12637201475101	1.00	SERVICES & F.I.R.E. (C)	COMMUNITY BANK & TRUST CO.	250	250	1	1
CONGER	12637201388942	2.20	SERVICES & F.I.R.E. (C)	IMAGINATIONS	100	2,000	1	8

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (EDU)		SEWAGE FLOW (GPD)		SEWAGE FLOW (10 YEAR)	
					(1 EDU = 250 GPD)		EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
					EXISTING	10 YEAR				
CONNAUGHT LABORATORIES, INC.	12636408776782	0.87	C-1 (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408775804	0.37	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408775899	0.55	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408776931	0.30	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408776885	0.44	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408776961	0.50	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408776830	0.28	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408776709	1.44	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408775882	0.37	VACANT (C)	SANOPI PASTEUR PROPERTIES	0	0	0	0	0	0
CONNAUGHT LABORATORIES, INC.	12636408776814	0.34	VACANT (C)	HOME	250	250	250	250	250	250
CORVI	12637201386562	0.63	RESIDENTIAL (C)		250	250	250	250	250	250
COVELLO, HARRY	12637201471774	0.37	RESIDENTIAL (C)		250	250	250	250	250	250
COVELLO, NELL	12636402854242	4.00	RESIDENTIAL (C)		250	250	250	250	250	250
CU GROWTH MARKETING INC.	12637201388292	1.39	SERVICES & F.I.R.E. (C)	APARTMENTS & STORE FRONT	800	800	2,000	2,000	2,000	2,000
CUMELLO	12637201059109	1.00	SERVICES & F.I.R.E. (C)	STAR VILLAGE SHOP	100	100	100	100	100	100
CUMELLO	"	"	"	FAMILY CARPET	100	100	100	100	100	100
CUMELLO	"	"	"	NORTHWEST ESPRESSO	700	700	700	700	700	700
CUMELLO	"	"	"	SICILIAS BRICK OVEN PIZZA	250	250	250	250	250	250
CUMELLO	"	"	"	ANNA'S POLISH DELI	100	100	100	100	100	100
CUMELLO	"	"	"	EL TOBACCO	100	100	100	100	100	100
CUMELLO	"	"	"	STAR VILLAGE SHOP (ADDITIONAL 10 YR FLOW)	0	750	0	750	0	750
CYPHERS	12638100057783	1.49	RETAIL TRADE (C)	REPTILE LAND, BAJA BUG ETC.	100	100	2,000	2,000	1	3
CZOPOTI, ROBERT	12636400851516	4.80	HOTELS (C)	WOOD HAVEN IN THE POCOSONS (2 HOUSES, 8 UNITS)	1,200	2,500	5	5	10	10
D'AMICO	12636302889029	5.05	RESIDENTIAL (C)	BNL BIRDS & CLOCK DOCTORS	200	5,000	1	1	20	20
D'AMICO	126367302882020	4.85	SERVICES & F.I.R.E. (C)	D'AMICO'S AUTO BODY	180	2,000	1	1	8	8
DAUBERT, WAYNE & BERTHAMAE	12637201463401	0.61	RESIDENTIAL (C)	HOME	250	250	250	250	250	250
DEHAVEN	12637301170533	2.28	RETAIL TRADE	DEHAVENS EXCAVATING	250	250	2,000	2,000	1	8
DEMARIA, MICHAEL	12637204548907	0.24	RESIDENTIAL (C)	HOME	170	5,000	1	1	20	20
DEPUÉ	12637204545295	1.20	SERVICES & F.I.R.E. (C)	DEPUÉ PLAZA (BOTH BUILDINGS)	250	250	250	250	250	250
DEPUÉ	"	"	"	CRANT WOODWORKING MALL	310	310	310	310	2	2
DEPUÉ	"	"	"	DEPUÉ RUBBER STAMPS	330	330	330	330	2	2
DEPUÉ	"	"	"	BAGEL HAVEN	200	200	200	200	1	1
DEPUÉ	"	"	"	ROSEWOOD HOMES	50	50	50	50	1	1
DEPUÉ	"	"	"	VACANT	0	0	0	0	0	0
DEPUÉ	"	"	"	SILVER ARROW JEWELRY STORE	40	40	40	40	1	1
DEPUÉ	"	"	"	DEPUÉ PLAZA (ADDITIONAL 10 YR FLOW)	0	1,070	0	1,070	5	5
DEPUÉ, MARK & JANET	12637201473561	0.72	RETAIL TRADE	SWIFTWATER PLAZA	150	150	150	150	1	1
DODD, EVELYN	12637303214933	50.27	RESIDENTIAL (R-2)	S&L CAR CARE	100	100	100	100	1	1
DOLL, LESLIE	1263720257354	0.27	RESIDENTIAL (C)	BARRETT GRAPHICS & SIGNS	700	700	700	700	3	3
DOMIANO	12636404728002	0.47	SERVICES & F.I.R.E. (C)	TRALIS HAIR SALON	100	100	100	100	1	1
DOMIANO	"	"	"	S.T. ENTERPRISE AUTO	750	750	750	750	3	3
DOMIANO	"	"	"	TAX SERVICES	100	100	100	100	1	1
DOMIANO	"	"	"	DOG GROOMING	250	250	250	250	1	1
DOMIANO	"	"	"	FRAN'S GULF STATION	130	130	2,000	2,000	1	8
DURCHSPRANG	12637202552546	1.30	RETAIL TRADE (C)	HOME	250	250	250	250	1	1
DURCHSPRANG, FRANCIS	12637202554691	0.50	RESIDENTIAL (C)	HOME	250	250	250	250	1	1
ECKHART	12636402684435	0.75	RESIDENTIAL (C)	1 HOUSE & 7 VERY SMALL UNITS (ABANDONED)	4,900	4,900	20	20	20	20
FALKOWSKI, KRYSZYNA	12636402674899	1.60	HOTELS (C)	FANNUCI'S RESTAURANT, COUNTRY CREEK REALTY	2,000	2,000	2,000	2,000	8	8
FANUCCI	12636404748985	2.76	RESIDENTIAL	C-1	250	250	250	250	1	1
FARDA ANTHONY M TRUSTEE	12637200160648	0.464	RESIDENTIAL	C-1	2,000	2,000	2,000	2,000	8	8
FARDA ASSOC.	12637201471114	1.20	RESIDENTIAL (C)	RESIDENTIAL	2,000	2,000	2,000	2,000	8	8
FARDA JOSEPH	12637200166969	1.247	Retail Trade	C-1	2,000	2,000	2,000	2,000	8	8
FARDA REALTY ASSOCIATES LP *	12637200165755	5.842	SERVICES & F.I.R.E.	C-1	2,000	2,000	2,000	2,000	8	8
FARDA REALTY ASSOCIATES LP	12637200056914	21.684	Residential	C-1	21,000	21,000	21,000	21,000	84	84

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU) (1 EDU = 250 GPD)	
					EXISTING	10 YEAR	EXISTING	10 YEAR
					FLOW	FLOW	FLOW	FLOW
FARDA REALTY ASSOCIATES LP *	12637200157904	58.247	Resorts & Group Camps	C-1	77,000	77,000	308	308
FAVORS, CHARLES & DELORES	12637201472660	0.26	RESIDENTIAL (C)		250	250	1	1
FELVER, THOMAS	12637202561650	0.60	RESIDENTIAL (C)		250	250	1	1
FIRST NATL BANK	12637204547026	2.00	SERVICES & F.I.R.E. (C)	FIRST NATIONAL BANK OF PALMERTON	130	2,000	1	8
FOGA, JOHN	12637200529304	3.25	SERVICES & F.I.R.E. (C)	POCONO CREEK PET CENTER	250	2,000	1	8
FORTE	12636902976017	0.48	RESIDENTIAL (C)	HOME	250	250	1	1
FRAILY, FRANCIS & DORIS	12636902975250	1.44	RESIDENTIAL - RECREATION (RD)	HOME	250	250	1	1
FRANTZ, PATRICIA	12636404733646	0.35	RESIDENTIAL (C)		250	250	1	1
FRANTZ, PATRICIA	12637204545567	0.66	RESIDENTIAL (C)		250	250	1	1
FRANTZ, PATRICIA	12637202555221	0.36	RETAIL TRADE (C)		250	250	1	1
FRANTZ, PATRICIA & PAUL	12637202555228	0.34	RESIDENTIAL (C)		250	250	1	1
FRANTZ, PAUL	12637200558108	0.34	RESIDENTIAL (C)		250	250	1	1
FUTURE CENTURY INC.	12637200520849	1.00	RETAIL TRADE (C)	AMERI CORP BUILDERS (AMERICAN WAY REALTY) MODEL	100	250	1	1
GANTZORN, JANICE	12637201384301	1.00	RESIDENTIAL (C)	HOME	250	250	1	1
GANTZORN, JANICE L ETAL	12636200857678	71.05	Agriculture (C)	(Northampton Community College)	20,000	20,000	80	80
GAIN, RICHARD & NANCY	12637202553890	0.59	RESIDENTIAL (C)		250	250	1	1
GAY	12637204533933	6.37	SERVICES & F.I.R.E. (C)	THE KLOCK DOCTOR	100	4,900	1	20
GAY	12637201292309	2.510	Services & F.I.R.E.	CHESTER'S	100	100	1	1
GRAY UNITED CHURCH	12637102565695	0.81	Residential	C-1	250	250	1	1
GREYSTONE ENTERPRISES LLC	12637303047125	4.98	VACANT (C)	GREAT WOLF LODGE OF THE POCONO	0	0	0	0
GREAT WOLF LODGE LAPP ARLIN ETAL TRUSTEES T/A	12636300952495	37.28	HOTELS (C)	GREAT WOLF LODGE OF THE POCONO	120,800	220,800	484	884
GREAT WOLF LODGE OF THE POCONO	12636300946421	52.02	HOTELS (C)	GREAT WOLF LODGE OF THE POCONO	0	0	0	0
GREAT WOLF LODGE OF THE POCONO	12637301055292	5.02	VACANT (C)	GREAT WOLF LODGE OF THE POCONO	0	0	0	0
GREAT WOLF LODGE OF THE POCONO	12637303046759	2.01	VACANT (C)	GREAT WOLF LODGE OF THE POCONO	0	0	0	0
GREBB, LAWRENCE & DIANNE	12637202562039	0.27	RESIDENTIAL (C)		250	250	1	1
GRIFFIN, RICHARD & DEBORAH	12637201388739	1.10	RESIDENTIAL (C)	HOME	250	2,000	1	8
HAMILTON	12637202555142	0.76	RESIDENTIAL (C)		250	250	1	1
HANYON, FRANCIS & DELORES	12637301061303	0.67	RESIDENTIAL (C)	HOME	250	250	1	1
HANYON, FRANCIS & DELORES	12637202557180	0.19	RESIDENTIAL (C)		250	250	1	1
HARRISON	12636402691066	2.30	RESORTS & GROUP CAMPS (C)	HOME	250	2,000	1	8
HASELMANN, INGEBERT	12637201474460	0.34	RESIDENTIAL (C)		250	250	1	1
HEILMAN	12637201466698	1.54	RETAIL TRADE (C)	PHIL'S DISCOUNTS	100	2,000	1	8
HERMANN, GEORGE & JANE	12636404705947	21.50	RESORTS & GROUP CAMPS (C)		2,000	21,500	8	85
HESS	12636404601892	2.07	RESIDENTIAL (C)		100	2,000	1	8
HESS	"	"	"	HESS PLAZA				
HESS	"	"	"	SWIFTWATER SUPPLY				
HESS	"	"	"	BUILDING CONSULTANTS				
HESS	"	"	"	FJ HESS & SONS INC.				
HESS	"	"	"	SHEET METAL SHOP				
HICKEY	12637303049823	0.77	RESIDENTIAL (C)	STEVES AUTO SERVICE	180	250	1	1
HILLTOP ROAD DEVELOPMENT LLP	12637201185290	5.517	Hotels / Restaurant	C-1	5,000	5,000	20	20
HILLTOP ROAD DEVELOPMENT LLP	12637201184579	0.973	Residential	C-1	250	250	1	1
HOCKMAN, ERIC	12636402850179	0.68	RESIDENTIAL (C)	HOME	250	2,000	1	8
HOLLE, PAUL	12636402690119	1.39	RESIDENTIAL (C)		250	2,000	1	8
HOWANITZ	12638100544467	1.56	RETAIL TRADE (C)	AMERICAN CANDLE	350	350	2	2
HOWELL	12637201385942	0.21	RETAIL TRADE (C)	LEDDY TELECOMMUNICATIONS	100	100	1	1
HOWELL, OWEN & JEANNE	12637202555334	0.29	RESIDENTIAL (C)		250	250	1	1
HOWELL, OWEN & JEANNE	12637202555531	0.32	RESIDENTIAL (C)		250	250	1	1
HOWELLS, WILLIAM	12637102869838	0.79	RESIDENTIAL (C)		250	250	1	1
JAKUBOWITZ, STEVEN & JANICE	12637204546805	0.33	RESIDENTIAL (C)	BARTONSVILLE PROF. BLDG. (HOWELLS)	250	250	1	1
JUNTA, PATRICIA	12637102874946	0.28	RETAIL TRADE (C)	ONE OF A KIND SHOPPE	100	100	1	1
JKE REALTY CORP. (H. OREILLY)	12636404747414	1.40	VACANT (C)	VACANT BUILDING	200	200	1	1
JMS PARTNERSHIP	12636402584501	2.96	HOTEL (C)	SUPER 8 MOTEL	5,000	5,000	20	20
KADIEV	12636302974500	0.77	RESIDENTIAL - RECREATION (RD)	HOME	250	250	1	1



PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU) (1 EDU = 250 GPD)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
MULDON	12637303049375	0.45		SUNOCO STATION	130	130	1	1
NAIZBY	12637303000133	2.44	RESIDENTIAL	AFFINITY SPA, MESSAGE & TANNING SALON	200	200	1	1
NAIZBY	12637303208962	1.16	RESIDENTIAL (C)		250	2,000	1	8
NIELSEN	12637201394070	0.13	RESIDENTIAL (C)	HOME	250	250	1	1
NIELSEN	12637201394036	0.22	RESIDENTIAL (C)	HOME	250	250	1	1
NIELSEN	12637201364996	0.07	RESIDENTIAL (C)	HOME	250	250	1	1
NIERING	12637204589566	1.70	RESIDENTIAL (C)	HOME	250	2,000	1	8
NORTHEASTERN BANK OF PA	12637201470334	1.50	SERVICES & F.I.R.E. (C)	NORTHEASTERN BANK OF PA (PNC BANK)	130	2,000	1	8
OHARA, SEAMUS & MARIANNE	12637202556988	0.93	RESIDENTIAL (C)		250	250	1	1
OLIVER	12637201298930	0.33	RETAIL TRADE (C)	CENTURY 21	100	100	1	1
OW ACQUISITION	12637301078612	5.20	RESORTS & GROUP CAMPS (C)	OUTDOOR WORLD CAMPGROUND	15,000	15,000	60	60
OW ACQUISITION	12637301186367	57.88	RESORTS & GROUP CAMPS (C)	OUTDOOR WORLD CAMPGROUND	0	0	0	0
PAPILE, ROBERT & CHRISTINE	12637201486166	0.72	RETAIL TRADE (C)	FAMILY NEW YORK PIZZA (PAPILE, ROBERT)	700	700	3	3
PAPILE, ROBERT & CHRISTINE				STEVE GARVEY ACCOUNTANTS				
PEARSON	12637303206309	0.95	SERVICES & F.I.R.E. (C)	THE PERSNICKETY CAT	100	100	1	1
PEETCHATKA	12637301062526	0.50	RESIDENTIAL (C)	HOME	250	250	1	1
PERCUDANI	12637201398649	0.98	SERVICES & F.I.R.E. (C)	VACANT COMMERCIAL BUILDING	200	200	1	1
PHL CORP. CENTER	126372025505984	1.20	SERVICES & F.I.R.E. (C)	PHL CORP. CENTER	200	2,000	1	8
PIPOLO, PETER	12636404715686	1.52	SERVICES & F.I.R.E. (C)	SENSIBLE AUTO GROUP	100	2,000	1	8
PIRONE, LOUIS & BERNADETTE	12637100878726	7.75	RESORTS & GROUP CAMPS (C)	VICTORY FAITH INDUSTRIES & 12 APT. UNITS	3,250	5,000	13	20
POCONO GAS STATION	12638100159379	4.10	RETAIL TRADE (C)	GULF GAS STATION	130	2,000	1	8
POCONO LAND & HOMES INC.	12637100879332	1.12	SERVICES & F.I.R.E. (C)	TOKYO LUXURY SPA	200	200	1	1
POCONO MOUNTAIN JOINT	116364028383694	21.60	EDUCATIONAL SERVICES	POCONO MOUNTAIN JOINT	28,000	28,000	112	112
POCONO MOUNTAIN JOINT	12636402785596	5.90	EDUCATIONAL SERVICES	POCONO MOUNTAIN JOINT	0	0	0	0
POCONO MOUNTAIN JOINT SCHOOLS	11636402796069	8.17	EDUCATIONAL SERVICES	POCONO MOUNTAIN JOINT SCHOOLS	0	0	0	0
POCONO MOUNTAIN JOINTURE	11636402861577	9.40	EDUCATIONAL SERVICES	POCONO MOUNTAIN JOINTURE	0	0	0	0
POCONO MOUNTAIN SCHOOL	11636402899227	10.57	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT				POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636402790434	16.98	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636402796842	14.71	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636402898962	12.29	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636402992730	11.56	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636402995581	11.56	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636504707890	27.00	FOREST	FORMERLY DAVIS LAURENE H	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636504803490	10.57	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11636504806143	11.60	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	12636402886122	8.68	EDUCATIONAL SERVICES	POCONO MOUNTAIN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN SCHOOL DISTRICT	11637401093336	3.23	EDUCATIONAL SERVICES	POCONO MTN SCHOOL DISTRICT	0	0	0	0
POCONO MOUNTAIN (STEFANOWICZ)	11636504916457	43.10	FOREST	POCONO MTN SCHOOL DISTRICT	0	0	0	0
POCONO TOWNSHIP	12637201461397	0.35	GOV. SERVICES (C)	POCONO MTN SCHOOL DISTRICT	0	0	0	0
POCONO TOWNSHIP	12637201461520	0.27	GOV. SERVICES (C)	POCONO MTN SCHOOL DISTRICT	0	0	0	0
POCONO TOWNSHIP	12637201460641	1.28	GOV. SERVICES (C)	MUNICIPAL BUILDING & POLICE	100	100	1	1
POCONO TOWNSHIP	12637201462545	0.44	GOV. SERVICES (C)		0	0	0	0
POCONO TOWNSHIP FIRE CO.	12637201369868	6.20	GOV. SERVICES (C)	FIRE DEPARTMENT BUILDING	180	180	1	1
POCONO TOWNSHIP SCHOOL	12637201287961	10.43	EDUCATIONAL SERVICES (C)	POCONO TWP OPEN SPACE	0	1,000	0	4
POCONO TOWNSHIP SUPERVISORS	12637201461793	0.17	GOV. SERVICES	POKORNY RELAY CO.	0	0	0	0
POKORNY	12638100153032	6.15	SERVICES & F.I.R.E. (C)	MATTRESS MAN	100	100	1	1
PP&M REALTY CO.	12638100053613	1.82	RETAIL TRADE (C)	GALLERY BILLIARDS	100	100	1	1
PP&M REALTY CO.	"	"	"	BARTONVILLE POST OFFICE	100	100	1	1
PP&M REALTY CO.	"	"	"	POKE-A-ROSE POTTERY	100	100	1	1
PP&M REALTY CO.	"	"	"	GIANT PLAZA (GIANT FLOOR)	100	100	1	1



PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING	10 YEAR	EXISTING	10 YEAR
					FLOW	FLOW	FLOW	FLOW
SICULETANO, MICHAEL	"				250	250	1	1
SICULETANO, MICHAEL	12637201383388	0.55	RESIDENTIAL (C)	POCONO PLAY PARK	0	28,910	0	116
SIEGFRIED, DONALD & YVONNE	12637201472433	0.27	RETAIL TRADE (C)	SCPIO PLAZA (10 YR ADDITIONAL FLOW)	250	250	1	1
SIMPSON	12636404733630	0.36	RESIDENTIAL (C)	THE HAIR WORKS BEAUTY SALON	500	500	2	2
SIMPSON, CALVIN	12637201298761	0.38	RETAIL TRADE (C)	SEITZ BROTHERS	250	250	1	1
SMITH	12637201052378	10.00	RESIDENTIAL (C)	STAINED GLASS CREATIONS	100	100	1	1
SMITH, ANN	12637201052378	10.00	RESIDENTIAL (C)	HOME	250	5,000	1	20
SMITH, MILES E & HARRIET	12637202557808	0.22	RESIDENTIAL (C)		250	250	1	1
SMITH, SHIRLEY	12637201463285	0.61	RESIDENTIAL (C)		250	250	1	1
SMITH, STANLEY & SUSAN	12637201383484	0.69	RESIDENTIAL (C)	HOUSE W/ APARTMENTS	800	800	4	4
SNOEREN	12636402684150	0.39	RETAIL TRADE (C)	AMBER INN	2,000	2,000	8	8
SNOEREN, CORNELIUS	12636402687200	0.10	RESIDENTIAL (C)		250	250	1	1
SNOEREN, CORNELIUS	12636402686194	0.26	Residential		250	250	1	1
SNYDER	12637201458718	1.06	RETAIL TRADE (C)	FARM STAND	100	100	1	1
SNYDER	12636302967605	4.87	RESIDENTIAL (C)	HOME	250	2,000	1	8
SNYDER (HAGEDORN)	12637202353116	1.15	Communication/Transportation/Utilities	FOUNTAIN SPRINGS EAST				
SNYDER (HAGEDORN)	"			TUMBLE BEES GYM	100	100	1	1
SNYDER (HAGEDORN)	"			AMERICAN GENERAL FINANCE SERVICES	100	100	1	1
SNYDER (HAGEDORN)	"			EARTH-LIGHT NATURAL FOODS	100	100	1	1
SNYDER (HAGEDORN)	"			WASSEROTT'S MEDICAL	250	250	1	1
SNYDER (HAGEDORN)	"			MANPOWER TEMP SERVICES	100	100	1	1
SNYDER (HAGEDORN)	"			CRYSTAL VISION CARE	400	400	2	2
SNYDER, J.	12637100697884	3.90	RETAIL TRADE (C)	FOUNTAIN COURT (17 OFFICES)	5,000	5,000	20	20
SNYDER, J.	"			SUBWAY RESTAURANT				
SNYDER, J.	"			NEW STAR BUFFET CHINESE RESTAURANT				
SNYDER, J.	"			ALFREDO'S RESTAURANT				
SNYDER, JEFFREY & LINDA	126363029386802	10.52	CULTURAL, PARKS & REC. (C)	STORAGE UNITS	0	10,520	0	43
SOMAGYI	12637201456560	3.50	RETAIL TRADE (C)	GLORIA'S FURNITURE	100	2,000	1	8
SOMAGYI	"			DANCE STUDIO				
SOMAGYI	"			MUSIC STORE				
ST. JOHN'S LUTHERAN CHURCH	12637301064228	0.70	SERVICES & F.I.R.E. (C)	CEMETARY	0	0	0	0
ST. JOHN'S LUTHERAN CHURCH	12637301064228	0.70	SERVICES & F.I.R.E. (C)	ST. JOHN'S LUTHERAN CHURCH	200	200	1	1
ST. PAUL'S LUTHERAN CHURCH	12637201295543	0.55	SERVICES & F.I.R.E. (C)	CEMETARY LOT	0	0	0	0
STAATS	12637301063465	0.48	RESIDENTIAL (C)	HOME	250	250	1	1
STARNER	12637201389258	0.60	RETAIL TRADE (C)	LAW OFFICE, VILLAGE SALON	700	700	3	3
STARNER	12637201388484	0.97	RETAIL TRADE (C)	STARNERS QUICK SHOP, INC.	100	100	1	1
STARNER	12637201299257	1.80	RETAIL TRADE (C)	BP STATION	1,800	1,800	1	8
STARNER	"			EZ REST WATER BED STORE	100	100	1	1
STARNER	"			BARBER SHOP	100	100	1	1
STONE, DONALD	12637102363601	0.98	SERVICES & F.I.R.E. (C)		250	250	1	1
STONER	12636402887057	0.59	RESIDENTIAL (C)	HOME	250	250	1	1
SWIFTWATER INN	12636402878251	26.80	RESORTS & GROUP CAMPS (C)	SWIFTWATER INN	3,800	26,800	16	108
T&S REALTY INC.	12637201464561	1.00	RETAIL TRADE (C)	GABEL'S GREAT STEAKS & SHAKES	700	700	3	3
TANNERSVILLE CEMETARY	12637201466939	0.45	SERVICES & F.I.R.E.	CEMETARY	0	0	0	0
TANNERSVILLE INN	12637204546465	1.50	RESIDENTIAL (C)		250	2,000	1	8
TANNERSVILLE INN	12637204548730	2.10	RETAIL TRADE (C)	TANNERSVILLE INN	4,100	4,100	17	17
TANNERSVILLE OFFICE ASSOC. INC.	12637202561200	1.54	RESIDENTIAL (C)		250	2,000	1	8
TANNERSVILLE REALTY (R. PIPER)	12637201373721	22.96		TANNERSVILLE PLAZA				
TANNERSVILLE REALTY (R. PIPER)	"			CVS	40	40	1	1
TANNERSVILLE REALTY (R. PIPER)	"			MR. Z'S	9,900	9,900	40	40
TANNERSVILLE REALTY (R. PIPER)	"			PLAY IT AGAIN SPORTS	100	100	1	1
TANNERSVILLE REALTY (R. PIPER)	"			AMICI PIZZA & PASTA	600	600	3	3
TANNERSVILLE REALTY (R. PIPER)	"			CHINA III RESTAURANT	1,870	1,870	8	8
TANNERSVILLE REALTY (R. PIPER)	"			WINE & SPIRITS SHOPPE	210	210	1	1
TANNERSVILLE REALTY (R. PIPER)	"			PERSONAL TOUCH CLEANERS	1,430	1,430	6	6
TANNERSVILLE REALTY (R. PIPER)	"			MR. VIDEO	210	210	1	1
TANNERSVILLE REALTY (R. PIPER)	"			FINISHING TOUCHES	210	210	1	1
TANNERSVILLE REALTY (R. PIPER)	"			WARNER'S SURPLUS	210	210	1	1
TANNERSVILLE REALTY (R. PIPER)	"			DIGI CEL	210	210	1	1
TANNERSVILLE REALTY (R. PIPER)	"			TRIPPLE S SPORTS	360	360	2	2
TANNERSVILLE REALTY (R. PIPER)	"			CRAFT RUG MILLS	210	210	1	1

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
TANNERSVILLE REALTY (R. PIPER)	12637201379529	1.29		TANNERSVILLE PLAZA (10 YR ADDITIONAL FLOW ESTIMATE BASED ON EXISTING SITE CONDITIONS)	0	3,000	0	12
TANNERSVILLE REALTY CO. LP	12636402694284	1.50	RESIDENTIAL (C)	TANNERSVILLE OFFICE PARK	500	2,000	2	8
TENNANT	12637204587854	1.95	RESIDENTIAL (C)	HOME	250	250	1	1
TL REALTY INC.	12636404733952	0.60	RESIDENTIAL (C)	HOME (POCONO FARMS STAND)	500	2,000	2	8
TOMAN MIROSLAV	12637204549388	1.10	RESIDENTIAL (C)		250	250	1	1
TOZZI SALVATORE & MARY ANN	12637200610982	4.61	RETAIL TRADE (C)	PEDDLERS VILLAGE (POCONO YOUNG DEVELOPMENT)	250	2,000	1	8
TS REALTY INC.				17 SMALL STORES	750	1,100	3	5
TS REALTY INC.				2 HAIR SALONS	400	400	2	2
VARELLAS, IOANNIS	126364025895355	1.00	RETAIL TRADE (C)	FLEA MARKET BUILDING	500	500	2	2
VECCHIO, R. JR.	12637100987165	2.99	RETAIL TRADE (C)	LA CABANA RESTAURANT	1,500	1,500	6	6
VERWEY, RICHARD & PAULINE	12637202554649	0.45	RESIDENTIAL (C)	COLONIAL AUTO SALES	250	250	1	1
WIERCICKI, JOSEPH	12637202560746	0.81	RESIDENTIAL (C)		250	250	1	1
WERKHEISER	12637201462272	0.34	RESIDENTIAL (C)	DISTRICT JUSTICE	100	100	1	1
WERKHEISER	12637201383084	2.50	RESIDENTIAL (C)	MEADOW RUN BUILDERS	100	2,000	1	8
WERKHEISER	12636500968992	0.37	RESIDENTIAL (C)	HOME	250	250	1	1
WERKHEISER	12636302974872	0.25	RESIDENTIAL (C)	HOME	250	250	1	1
WERKHEISER, EDWARD	12636302974821	0.10	RESIDENTIAL (C)	HOME	250	250	1	1
WERKHEISER, HARRY	12637201454928	4.48	RESIDENTIAL (C)	HOME	250	2,000	1	8
WERT, JEFFREY	12637201383552	0.91	SERVICES & F.I.R.E.	FAMILY DENTISTRY	250	250	1	1
WILKINS & ASSOCIATES	12637204541871	0.33	SERVICES & F.I.R.E.	WILKINS & ASSOCIATES	250	250	1	1
WISE	12636302973381	1.70	RESIDENTIAL RECREATION (RD)	HOME	200	200	1	1
WISE	12636302978284	1.15	RETAIL TRADE (C)	WISE BUILDING & LEARNING CENTER	250	250	1	1
WISE	1263630297471	1.44	RESIDENTIAL (C)	HOME	100	2,000	1	8
WISE	12636302976588	0.44	SERVICES & F.I.R.E. (C)	CORONA BUTCHER	250	2,000	1	8
WISE, MITCHELL L & LEE ANN	12637202558899	1.00	RESIDENTIAL (C)	HOME	100	100	1	1
WISNIEWSKI	12637204640180	2.15	RESIDENTIAL (C)	HOME	250	2,000	1	8
WRIGHT, CHARLES	12637201468928	1.08	RESIDENTIAL (C)	HOME	250	2,000	1	8
YAF-AI, SHARQA	12636404728541	0.56	RESIDENTIAL (C)	HOME	250	250	1	1
				POCONO TWP. TOTAL	896,900	1,401,604	3,653	5,663
HAMILTON TOWNSHIP								
AMERICAN FALCON AUTO TRUCKSTOP	07638103330711	0.37	RESIDENTIAL (C)		250	250	1	1
AMERICAN FALCON AUTO TRUCKSTOP	07638103331808	0.34	RESIDENTIAL (C)		250	250	1	1
BAGO, JASHUA	07638103237921	0.69	RESIDENTIAL (C)		250	2,000	1	8
BLANNARD, JOSEPH & JUDITH	07638103239986	0.64	RESIDENTIAL (C)		250	2,000	1	8
COMMUNAL, DEAN	07638103245404	1.00	RETAIL TRADE (C)	PAT & RED'S TIRE SERVICE	250	250	1	1
FORMERLY OWNED BY ELAINE SCHOCH								
FORMERLY OWNED BY ELAINE SCHOCH	07638103244846	1.00	NOWHERE ELSE CLASSIFIED (N.E.C.)	FORMERLY OWNED BY ELAINE SCHOCH	0	250	0	1
KIRK, STEVEN & MELINDA	07638103248054	1.14	RESIDENTIAL (C)		250	2,000	1	8
KIRK, STEVEN & MELINDA	07638103248241	1.00	RESIDENTIAL (C)		250	2,000	1	8
LEE, RICHARD CY	07638103242708	0.91	RETAIL TRADE	LEE'S TOKYO RESTAURANT	1,000	2,000	4	8
OCEANVIEW REALTY, LTD	07638103333956	0.27	COMMUNICATION / TRANS. (C)	PLAYTIME BOUTIQUE	0	250	0	1
PARKER, DONALD & DEBRA	07638103344111	0.31	RETAIL TRADE		100	100	1	1
PENTA HOTEL GROUP, LLC	07638103340173	0.34	RESIDENTIAL (C)	COMFORT INN	250	250	1	1
T R REALTY CORP.	07638103241468	10.43	HOTELS	ADULT VIDEO GIFT OUTLET	10,300	10,300	42	42
THIERRY, ANDREW P. & BARBARA A.	07638103342550	0.63	RETAIL TRADE	ATE ENERGY CORPORATION	100	100	1	1
THIERRY, ANDREW P. & BARBARA A.	07638103247761	0.68	SERVICES & F.I.R.E.	PHASES HAIR CONCEPTS	100	100	1	1
THIERRY, ANDREW P. & BARBARA A.	07638103249630	0.38	RESIDENTIAL	PHARMACY/ORGANIC WAREHOUSE/CHIROPRACTIC	700	700	3	3
THIERRY, ANDREW P. & BARBARA A.	07638103341502	0.89	WHOLESALE TRADE		100	100	1	1
THIERRY, ANDREW P. & BARBARA A.	07638103343411	1.03	RESIDENTIAL (C)		250	2,000	1	8
				HAMILTON TWP. TOTAL	14,850	24,900	62	103
				POCONO TWP. TOTAL	896,900	1,401,604	3,653	5,663
				DEVELOPED LOTS FLOW TOTAL	911,550	1,426,504	3,715	5,766

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
							(1 EDU = 250 GPD)	
<b>10 YEAR SERVICE AREA FLOWS</b>								
<b>POCONO TOWNSHIP</b>								
AMALGAMATED MEGA PROPERTIES	12637201388342	0.093	Vacant					
BACIK STEPHEN	12637100883181	1.089	Vacant					
BAGGERLY CATHY	12637200624001	1.08	RESIDENTIAL (C)					
BALLARD BARBARA A	12637102966215	0.448	RESIDENTIAL (R-1)					
BANKUS MICHAEL	12637303144641	1.20	Vacant					
BARTON GLEN CLUB INC	12637102866649	0.211	Vacant					
BARTON GLEN CLUB INC	126371028665666	0.265	Vacant					
BARTON GLEN CLUB INC	12637102867880	0.269	Vacant					
BARTON GLEN CLUB INC	12637102866598	0.280	Vacant					
BARTON GLEN CLUB INC	12637102961762	0.282	Vacant					
BARTON GLEN CLUB INC	12637102868327	0.293	Vacant					
BARTON GLEN CLUB INC	12637102865594	0.296	Vacant					
BARTON GLEN CLUB INC	12637102869421	0.315	Vacant					
BARTON GLEN CLUB INC	12637102864489	0.344	Vacant					
BELARDI BARBARA A & DARIO R	12636402874864	0.131	Vacant					
BELLOW MAX K & WINIFRED E	12636402882010	1.768	Residential					
BELLOW WINIFRED	12637303137671	2.231	Residential					
BENDER LINDA K	12637303137671	2.231	Residential					
BESSEKER ROBERT A & JILL F	12637202570548	10.335	Residential					
BLOCKLAND INC	12637102868723	0.238	Vacant					
BLOSS MARKLEY	12637303128755	4.20	RESIDENTIAL (R-2)					
BROOKDALE RESORT INC.	12636400649404	3.612	Resorts & Group Camps					
BROOKDALE RESORT INC.	12636400649404	82.526	Resorts & Group Camps					
BRUCKER DANIEL	12636302892922	2.653	Vacant					
BUCHER GUSTAV & HEDWIG	12637303145492	3.96	RESIDENTIAL (R-1)					
BUCHER GUSTAV & HEDWIG	12637303146121	1.712	Residential					
BUCK E FRANK JR	12638100051733	0.032	Vacant					
BUCK E FRANK JR	12638100050544	0.200	Vacant					
BUCK E FRANK JR	12638100051724	0.862	Vacant					
BUCK E FRANK JR	12637100954917	2.062	Vacant					
BUILDERS MORTGAGE SERVICE INC	12637102876069	2.008	Vacant					
BUILDERS MORTGAGE SERVICE INC	12637102864966	2.668	Vacant					
BURKHART GARY	12637102965402	0.372	Vacant					
CAGA GROUP LLC	12637301160246	17.312	Forest					
CALCHERA DOUGLAS K	12637201275679	2.189	Vacant					
CAPITAL MANAGEMENT	12637303133290	4.794	Vacant					
CARUSO JOHN J & MARGARET A	12637102964244	0.489	Residential					
CARUSO JOHN J & MARGARET A	12637102965360	0.091	Vacant					
CENTRAL POCONO AMBULANCE ASSOC	12637201463686	0.428	Vacant					
CHARRON LEWIS C ETUX	12638100171072	6.206	Residential					
CHELSEA POCONO FINANCE LLC (Outlier Associates)	12637201285227	2.324	Vacant					
CHELSEA POCONO HOLDINGS LLC	12637303211191	1.267	Vacant					
CONNAUGHT LABORATORIES INC	12636408775826	0.024	Vacant					
CONNAUGHT LABORATORIES INC DBA CONOCHAN MARYANN	12636408775847	0.033	Vacant					
CONOCHAN MARYANN	12637201461178	0.298	Residential					
CONTINORTMORTGAGE CORPORATION	12638100073723	0.692	Residential					
COUNTERMAN SAMUEL P ETUX	12637102878540	1.227	Residential					
COVELLO ANTHONY	12637202551001	0.591	Vacant					
COVELLO ANTHONY	12636902890830	1.746	Vacant					
CYPHERS LEROY C	12638100060550	2.212	Vacant					

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
CYPHERS LEROY C ETAL DBA	12638100153825	0.275	Residential				250	1
CYPHERS ROBERT F	12638101081676	0.662	Residential				250	1
CYPHERS ROBERT F ETAL	12638100151627	1.622	Residential				2,000	8
CYPHERS ROBERT FLOYD	12638100060959	4.063	Vacant				250	1
CZOPOTH ROBERT J	12636402759287	0.703	Vacant				250	1
DAHER DONNA M	12637102862839	0.272	Residential				250	1
DALESANDRO PAUL E	12637100977828	1.277	Residential				2,000	8
DAMICO BARBARA	12637102960546	0.256	Vacant				250	1
DAMICO BARBARA	12637102960414	0.306	Vacant				250	1
DAMICO BARBARA	12636302886504	6.754	Vacant				5,000	20
DAMICO BARBARA A	12637102961560	0.340	Residential				250	1
DAMICO BARBARA A	12637102960496	0.248	Vacant				250	1
DEHAVEN FLOYD J JR & BETTY J	12637301178299	43.704	Forest			43.704	175	8
DEPUJE J MARK & JANET N	12637201199477	1.734	Vacant			2,000	8	
DIONYSIUS RICHARD A JR	12637102972430	0.441	Residential				250	1
DIONYSIUS RICHARD A JR	12637102972448	0.722	Residential				250	1
DIONYSIUS RICHARD A JR	12637102971502	1.528	Residential				2,000	8
DOMIANO LOUIS J & DEBRA	12636404727183	0.079	Vacant				250	1
DORSCH LILLIAN	12637201366600	0.723	Residential				250	1
FANUCCI GEORGE & CAROLINE	12636404746850	0.696	Vacant				250	1
FANUCCI GEORGE & CAROLINE	12636404748743	1.161	Vacant				2,000	8
FANUCCI M TRUSTEE	12638200978513	34.569	Residential				34.569	139
FARDA ANTHONY TRUSTEE	12638200968389	16.736	Forest				16.736	67
FARDA ANTHONY TRUSTEE	12637200076466	34.648	Forest				34.648	139
FARDA ANTHONY TRUSTEE FOR	12637201176463	2.138	Vacant				2,000	8
FARDA REALTY ASSOCIATES LP	12637201174167	2.198	Retail Trade				5,000	20
FELINS ROBERT & ESMÉ	12637100789211	6.097	Vacant				180	1
FELINS, R.	12637200624511	2.57	F & P PAVING				250	1
FERRARI FRANCES	12637201375291	0.223	Residential				200	1
FISK R.	12637200616610	1.10	FISK CARPENTRY				0	0
FISK R.			FIRST HORIZON HOME LOANS				0	0
FISK R.			DAVE'S				0	0
FISK R.			SECRET TILE & SUPPLY				2,000	8
FRAILEY, ALICE	12637200608223	1.22	RESIDENTIAL (C)				33,969	136
FRITZ KETURAH D	12637200097241	33.969	Forest				1,369	6
FURINO ROBERT	12638100167168	7.300	Residential				250	1
GAY GERALD	12637204535831	0.843	Vacant				0	0
GIATRAKIS JAMES & MARY	12637100873852	2.514	Vacant				250	1
GLADSTONE STEVEN D	12637100983060	0.863	Residential				250	1
GOFORTH WILLIAM P & IRENE G	12637102868659	0.271	Residential				2,000	8
GREYSTONE ENTERPRISES LLC	12637102867840	1.044	Residential				2,000	8
GRUEN MARY S	12637102969582	0.321	Vacant				34,330	138
GUPTA SALLI	12637100686871	34.330	Vacant				250	1
HAGERTY STEVEN D SR & JUDY M	12637102863740	0.289	Residential				250	1
HANYON FRANCIS G & DOLORES	12637202657098	0.182	Vacant				250	1
HERB JOAN ANN	12637201987353	0.554	Residential				17,582	71
HILLTOP ROAD DEVELOPMENT LLP	12637201182320	17.582	Vacant				2,000	8
HOWANITZ STEPHEN E & PATRICIA	12638100057255	4.273	Vacant				797	4
INSALACO LOUIS P & ANNA M	12637100886370	8.501	Residential				573	3
IRWIN, ZACHARY & MONICA	12637301151271	6.11	RESIDENTIAL (R-1)				2,000	8
J A SNEYDER HOMES	12636302888931	1.887	Vacant				2,000	8
JENNER, DOUGLAS & JUSTINE	12637100793747	1.43	RESIDENTIAL (C)				2,000	8
JUANTA PATRICE	12637102871384	1.652	Vacant				5,000	20
KALUCKI MARTINA A & NANETTE E	12637201373193	0.487	Residential				250	1
KENDERJOINE EDWARD & MARYANN	12636400769007	18.719	Vacant				250	1
KINSLEY ROBERT W & DORIS M	12637301064643	0.814	Vacant				2,000	8
KLEIN JOHN J	12637102977201	0.313	Residential				250	1
KLINGER JOHN OLIVER	12637200529630	1.055	Vacant				2,000	8
KOLLER RONALD	12637102960788	0.487	Vacant				250	1
KOPELSON SHELDON	12637303207515	1.008	Vacant				2,000	8
KOURTESIS JOHN	12637204642396	6.518	Vacant				5,000	20

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
KUPSELAITIS JANE	12637201377605	5.543	Residential				1,039	5
LEARN GEORGE A JR & OLIVE S	12637201354893	25.393	Forest				250	1
LEARN JACOB L & MARY Y	12637200735405	118.416	Forest (Pocoyo Twp Open Space)				1,000	102
LEE RICHARD C Y	12637201372180	0.357	Residential				250	4
LEISURE OPPORTUNITY CONSULTANT	12637102867298	0.325	Vacant				250	1
LOPEZ ROSE M	12637102875288	1.107	Residential				2,000	8
MARRYSHOW MERLE	12636402860684	1.804	Vacant				2,000	8
MARTINELL HELEN	12637303141379	1.00	RESIDENTIAL (C)				5,000	20
MARTINELL RONALD	12637303143219	0.50	RESIDENTIAL (C)				250	1
MCKEOWN THOMAS A & BARBARA A	12637102969304	0.299	Residential				2,000	8
MECKES SHIRLEY J & RICHARD D	12637202571024	1.966	Residential				250	1
METZGER FREDERICK C & LOUISE E	12637201468689	0.378	Vacant				2,000	8
MICHAEL PATRICIA J	12637201369026	0.792	Residential				250	1
MILLER RENE	12637102862851	0.318	Residential				250	1
MOHR MARTHA L	12637102852795	0.293	Residential				250	1
MONZA FRANK & MILDRED	12637303139259	2.11	RESIDENTIAL (R-1)				250	1
NIERING PATRICIA J	12637200539274	1.428	Vacant				2,000	8
NIEVES MANUEL & ROMELIA L	12637201364929	1.045	Residential				2,000	8
NOLAN MARK R	12637201282212	1.063	Retail Trade				2,000	8
OHARA SEAMUS & MARIANNE	12637202556928	0.796	Vacant				250	1
OLTMAN K	12637200616465	1.10	RESIDENTIAL (C)				250	1
OUTLETTERS ASSOCIATES	12637303125095	0.914	Vacant				250	1
OUTLETTERS ASSOCIATES	12637303115346	10.459	Vacant				10,459	42
OWENS LINDA C & TIMOTHY J	12637102871400	0.603	Vacant				250	1
PADGETT DANIEL W & DOROTHY S	12637201365657	0.779	Residential				250	1
PASTERCHICK PETER & MARY	12637102964737	0.187	Vacant				250	1
PASTERCHICK PETER & MARY	12637102968911	0.627	Vacant				250	1
PEECHATKA	12637102968911	1.070	Vacant				100	1
PEECHATKA	12637100793497	3.53	TENDERTIME CHILD CARE				100	1
PEECHATKA	12637100791658	1.25	PEECHATKA CHIROPRACTIC				250	1
PEECHATKA	126373031396064	2.07	RESIDENTIAL (R-1)				250	1
PIRONE LOUIS R & BERNADETTE	12637100975682	2.932	Vacant				0	0
POCONO LAND & HOMES INC	12637100876459	1.274	Vacant				2,000	8
POCONO MARKSMAN INC	12638100152607	3.091	Government Services				2,000	8
POCONO TOWNSHIP	12637201460351	0.572	Government Services				250	1
POSSINGER E ROY	12637102961150	1.874	Residential				2,000	8
POWERS JANE	12637102974307	0.135	Residential				250	1
PRAGO INC	12637102870005	2.063	Vacant				2,000	8
PREMIER LODGE INC	12637201281440	0.383	Vacant				250	1
PSITOS NICHOLAS & MARIA	12637303036397	0.255	Vacant				250	1
PUPPO DIANE	12637102974084	0.886	Residential				250	1
RIEMAN MARY	12638100386240	12.813	Residential				2,000	8
RIEMAN MARY	12636402868296	0.298	Vacant				2,000	8
RIEMAN MARY C	12636402868335	1.060	Vacant				250	1
RINKER NORMAN & JOAN E	12637201377268	0.412	Vacant				250	1
ROBINSON MARVIN & CAROL H	12638100080059	2.033	Residential				250	1
ROBINSON MARVIN ETUX	12638100071987	2.475	Residential				250	1
ROGERS ELIZABETH M	12637201367403	0.563	Residential				250	1
ROSS L PATRICK	12637201369473	0.924	Vacant				250	1
RUSSO JOEL D & DEBRA A	12637202560339	0.751	Vacant				2,000	8
ROTHROCK LOIS	12636402873820	1.007	Residential				250	1
RPM ASSET MANAGEMENT INC	12637102869691	0.230	Vacant				250	1
RUSSO BARTHOLOMEO C ETAL	12637200616275	1.49	RESIDENTIAL (R-1)				250	1
SARAJUAN RONALD G (Came back)	12637102872013	0.273	Residential				250	1
Comp	12637201293036	0.846	Vacant				250	1

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
SARAJAN, RONALD G. (SPN Associates)	12637201291261	1.101	Vacant			2,000		8
SARTE WAYNE & DIANE	12637102974116	0.312	Residential	C-1		250		1
SARTE WAYNE & DIANE	12637102972193	0.814	Residential	C-1		250		1
SEARS VERONICA	12637102967475	0.307	Residential	C-1		250		1
SEBRING, FOREST & CLARIBEL	12637100790984	1.67	RESIDENTIAL (C)	C-1		2,000		8
SEYBOLD PAUL J JR	12637102869754	0.305	Residential	C-1		250		1
SHUMAN D L	12637102872195	0.242	Vacant	C-1		250		1
SHUMAN D L	12637102871154	0.289	Vacant	C-1		250		1
SIMMONS MARGARET E TRUSTEE	12637303125743	1.415	Vacant	C-1		2,000		8
SLAYTON DEANIS	12637200601720	36.691	Agriculture	C-1		36,691		147
SMITH WILLES E & HARRIET L	12637202556647	0.661	Vacant	C-1		250		1
SIMPSON	126372006235660	7.12	RESIDENTIAL (C)	HOUSE/APARTMENTS HOME		5,000		20
SIMPSON	126372006235556	1.06	SERVICES & F.I.R.E.	C-1		2,000		8
SMITH NELSON R & BARBARA ANN	12637201198820	1.963	Vacant	C-1		250		1
SNODEREN CORNELIUS	12636402685194	0.120	Vacant	C-1		250		1
SNODEREN CORNELIUS	12636402686232	0.296	Vacant	C-1		250		1
SNODEREN CORNELIUS	12636402683012	0.581	Vacant	C-1		250		1
SNYDER JEFFREY A & LINDA J	12637100659760	0.210	Vacant	C-1		250		1
SNYDER JEFFREY A & LINDA J	12637202562442	1.182	Vacant	C-1		2,000		8
SNYDER JEFFREY A & LINDA J	12636402787251	2.745	Residential	C-1		2,000		8
SOUFFRONT DIANE L	12637301064349	0.590	Vacant	C-1		250		1
ST JOHNS LUTHERAN CHURCH	12638100154552	0.658	Residential	C-1		250		1
STAPLES JEFFREY B	12637201460194	0.360	Vacant	C-1		250		1
STETTNER SHIRLEY A	12638100161099	0.971	Vacant	C-1		5,000		20
STRAND ALAN K	12638100067278	10.650	Hotels	C-1		0		0
STRAND ALAN K & LINDA E	12638100067278	10.650	Hotels	C-1		0		0
STRAND ALAN K & LINDA E	12638100074078	1.941	Residential	C-1		1,138		5
STRAND ALAN K & LINDA E	12638100164497	6.070	Residential	R-2		5,000		20
STRAND ALAN K & LINDA E	12638100065724	6.301	SERVICES & F.I.R.E.	C-1		0		0
STRAND ALAN K & LINDA E	12638100073298	0.607	Vacant	C-1		250		1
STRAND ALAN K & LINDA E	12637102978146	0.809	SERVICES & F.I.R.E.	C-1		2,000		8
STRUBERT JOHN W	12637102979132	1.083	Residential	C-1		200		1
STRUBERT MARGARET A	12637102979132	1.083	Residential	C-1		200		1
TAITT, RICHARD	12637200615810	1.20	CENTURY 21 & MOUNTAIN AREA ABSTRACT INC.	C-1		250		1
TANNERSVILLE REALTY COMPANY LP	12637201373365	0.835	Residential	C-1		13,577		55
TENNANT MARION C	12636402688533	13.577	Vacant	C-1		250		1
TRACY JO ANN C	12637102864604	0.394	Residential	C-1		250		1
VANGORDER EDWARD B SR & LINDA	12637102862926	0.254	Residential	C-1		250		1
VERPONI JOSEPH J & ROSE A	12637102867874	0.273	Residential	C-1		2,000		8
VERPONI JOSEPH J JR	12637100980027	1.470	Resorts & Group Camps	C-1		250		1
VESCE JOSEPH P JR	12637100982057	0.991	Vacant	C-1		907		4
VESCE JOSEPH P JR	12638100170318	4.838	Residential	R-2		250		1
VICAN EDWARD H ETUX	12638100078595	1.695	Vacant	R-2		10,266		42
VICAN RONALD E	12637201478912	10.266	Residential	R-2		250		1
VILLAGE VIEW OF TANNERSVILLE	12637303137334	1.00	RESIDENTIAL (R-1)	R-1		0		0
VONK RENE	12637303137334	1.00	RESIDENTIAL (R-1)	R-1		250		1
VULTAGGIO MARK	12636302987027	9.010	Vacant-Wetlands	C-1		250		1
WAGNER SYLVIA	12637102864673	0.405	Residential	C-1		250		1
WALTERS FREDERICK F & VERA K	12638100161224	0.587	Residential	R-1		250		1
WAYNE ERIC	12637303143773	1.90	RETAIL TRADE (R-1)	C-1		250		1
WERKEISER HAROLD	12637201376243	0.210	Residential	C-1		250		1
WERKEISER HAROLD	12637201376295	0.213	Vacant	C-1		250		1
WERKEISER EDWARD H & HELEN M	12636302975752	0.538	Vacant	C-1		250		1
WERNER DANIEL & SUSAN B	12637201368221	0.691	Residential	C-1		250		1
WESTDYKE MARLESE B	12638100163703	2.572	Residential	R-2		250		1
WILLIAMS JOSEPH L & CLAUDIA P	12637102974341	0.264	Residential	C-1		36,497		146
WILLIAMS LEO M JR & PATRICIA B	12637200523734	36.497	Vacant	C-1		250		1
WILTAMP PARTNERSHIP	12636302891459	0.155	Vacant	C-1		250		1
WILTSE ARMOND	12637102866388	0.272	Residential	C-1		5,000		20
WONG RICHARD M	12637100796818	9.038	Vacant	C-1		250		1
YEREMA ROMAN P ETUX	12637201366551	0.696	Vacant	C-1		250		1
ZACKOWSKI WALTER ETUX	12637201374196	0.399	Residential	C-1		250		1
ZACK STEPHEN	12637102977157	0.425	Residential	C-1		250		1
10 YEAR SERVICE AREA POCONO TWP. TOTAL						619,142		2490

PROPERTY OWNER	PIN #	ACRES	GIS LANDUSE (ZONING)	NAME OF BUSINESS OR ZONING	SEWAGE FLOW (GPD)		SEWAGE FLOW (EDU) (1 EDU = 250 GPD)	
					EXISTING FLOW	10 YEAR FLOW	EXISTING FLOW	10 YEAR FLOW
HAMILTON TOWNSHIP								
AMERICAN FALCON AUTO TRUCKSTOP	07638103239720	0.211	Vacant	C			250	1
AMERICAN FALCON AUTO/TRUCK	07638103331957	0.318	Vacant	C			250	1
AMERICAN FALCON AUTO/TRUCK	07638103330759	0.325	Vacant	C			250	1
BAGO JOSHUA	07638103238749	0.279	Vacant	C			250	1
COMUNAL DEAN	07638103245650	0.979	Vacant	C			250	1
PENTA HOTEL GROUP LLC	07638103247405	0.118	Vacant	C			250	1
PENTA HOTEL GROUP LLC	07638103243381	1.525	Vacant	C			2,000	8
T R REALTY CORP	07638103342006	0.344	Vacant	C			250	1
T R REALTY CORP	07638103340343	1.085	Vacant	C			2,000	8
				10 YEAR SERVICE AREA HAMILTON TWP. TOTAL		5,750		23
				10 YEAR SERVICE AREA POCONO TWP. TOTAL		619,142		2,490
				10 YEAR SERVICE AREA TOTAL		624,892		2,513
				10 YEAR GRAND TOTAL		2,051,396		8,279

\* An additional 100,000 gpd for these lots will be treated by the permitted Tannersville Factory Stores Phase One WWTP yet to be constructed on site

**APPENDIX M**

**EVALUATION OF WASTEWATER TREATMENT PLANT UPGRADE  
FOR THE BOROUGH OF STROUDSBURG – DRAFT REPORT,  
JANUARY 2007**

DRAFT REPORT

---

**EVALUATION OF WASTEWATER  
TREATMENT PLANT UPGRADE  
FOR THE BOROUGH OF STROUDSBURG**

*Presented to:*

**BOROUGH OF STROUDSBURG**

Municipal Building  
700 Sarah Street  
Stroudsburg, PA 18360

*Presented by:*

**BRINJAC ENGINEERING, INC.**

P.O. Box 1290  
114 North Second Street  
Harrisburg, Pennsylvania 17101

**January 2007**

---

**BRINJAC No. 97186-36**

# TABLE OF CONTENTS

---

1.	EXECUTIVE SUMMARY .....	1
2.	INTRODUCTION AND BACKGROUND .....	3
2.1	BACKGROUND .....	3
2.2	OBJECTIVE .....	4
3.	BASIS OF EVALUATION .....	5
3.1	FLOW PROJECTIONS .....	5
3.2	TREATMENT GOALS – BASIS OF TECHNOLOGY ANALYSIS .....	8
4.	EVALUATION OF ALTERNATIVES .....	13
4.1	BOROUGH OF STROUDSBURG WWTP BACKGROUND .....	13
4.2	TECHNICAL FEASIBILITY .....	15
4.3	COLLECTION AND CONVEYANCE SYSTEM EVALUATION .....	20
5.	RECOMMENDATION .....	22
5.1	TECHNOLOGY AND MAJOR COMPONENT UPGRADE .....	22
5.2	OPINION OF PROBABLE CONSTRUCTION COST .....	22
5.3	OPERATION AND MAINTENANCE COST ESTIMATION .....	26
5.4	NET PRESENT VALUE .....	28

## LIST OF TABLES

---

- Table 3-1. Historical WWTP Flow
- Table 3-2. Projected Hydraulic Loadings Data
- Table 3-3. Summary of "Hold the Load" Analysis
- Table 3-4. Average Monthly Concentration Comparison
- Table 4-1. Summary of Existing Process Capacity
- Table 4-2. Upgrade Alternatives Advantages and Disadvantages
- Table 5-1. Summary of Estimated Capital Costs – Single Index
- Table 5-2. Summary of Estimated O&M Costs
- Table 5-3. Table 5-3 Net Present Value Analysis

## LIST OF FIGURES

---

- Figure 4-1. WWTP Upgrade – Accuweb IFAS
- Figure 4-2. WWTP Upgrade – IBI ActiveCell
- Figure 4-3. WWTP Upgrade – Siemens Omniflow SBR
- Figure 4-4. WWTP Upgrade – Siemens MemJet
- Figure 4-5. WWTP Upgrade – GE Zenon ZeeWeed
- Figure 4-6. WWTP Upgrade – Enviroquip Kubota

## 1. EXECUTIVE SUMMARY

This report presents the Borough of Stroudsburg (Borough) and Stroud Township (Township) with recommendations of technology and an opinion of probable construction cost for upgrading portions of the collection and conveyance system within the Borough, and the wastewater treatment plant (WWTP) that serves the Borough and Township to accommodate the rated average daily flow capacity of 2.5 million gallons per day (MGD).

### 1. Recommended Collection and Conveyance System Improvements

As illustrated in Section 4.3, an analysis of the condition of the critical portions of the existing wastewater collection and conveyance system within the Borough identified the following recommended improvements:

Siphon Improvements (Assuming highest estimated cost)	\$320,000
Thomas Street Interceptor Improvements	\$ 45,000
Ann Street Interceptor Improvements	\$200,000

Total Opinion of Cost for Line Improvements \$565,000

A detailed analysis of the WWTP upgrade was performed utilizing the current loadings and flows identified within the Borough's wasteload management reports (Chapter 94). For a full 2.5 MGD WWTP Upgrade with the projected loading limits that may be required by the Delaware River Basin Commission (DRBC), two approaches are available for a WWTP upgrade and are described below.

### 2. Recommended Upgrades for 2.5 MGD within Existing WWTP Footprint – MBR Process

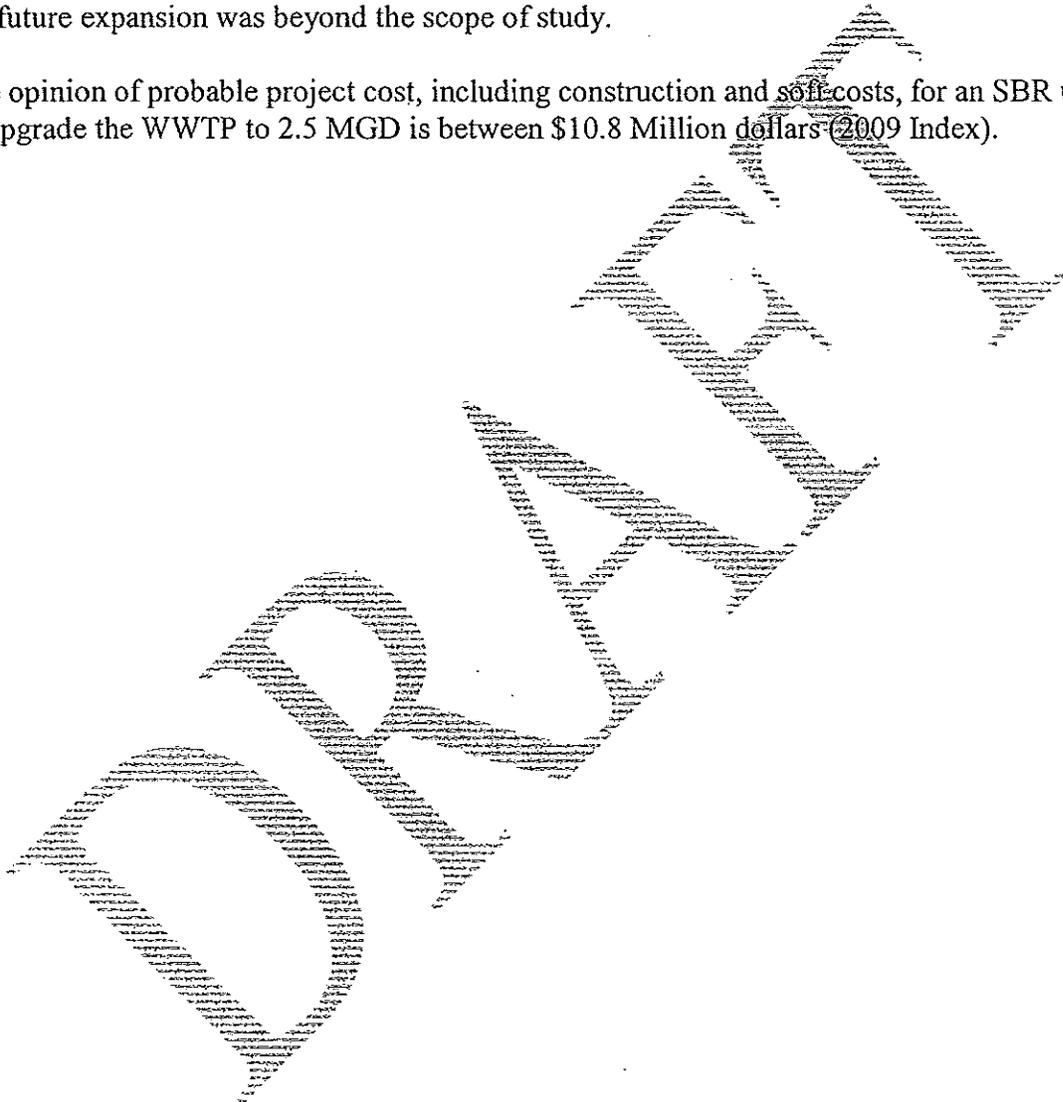
Construction of a membrane bioreactor (MBR) may be utilized within the existing WWTP footprint to provide a high level of treatment and leave room for expansion of within the same WWTP footprint. If the upgrade to the WWTP were to be made before flows increase to close to 85% of the true capacity of the WWTP, the existing unit processes may be modified during construction without major disruption to the existing treatment process.

The range of opinion of probable project cost, including construction and soft costs, for an MBR upgrade to upgrade the WWTP to 2.5 MGD is between \$14.3 and \$14.9 Million dollars (2009 Index).

### 3. Recommended Upgrades for 2.5 MGD – Expand Beyond Existing WWTP Footprint.

Construction of a sequential batch reactor (SBR) is the recommended alternative if adjacent land were to be obtained by the Borough and the WWTP were only to be upgraded to 2.5 MGD. The existing process aeration tanks would be abandoned in place. This alternative cannot be constructed within the existing WWTP footprint, but can be constructed with minimal impact to the existing WWTP process at any time in the future. If the WWTP were to expand beyond the 2.5 MGD capacity, the existing WWTP land may be utilized for expansion, but a cost estimate for future expansion was beyond the scope of study.

The opinion of probable project cost, including construction and soft costs, for an SBR upgrade to upgrade the WWTP to 2.5 MGD is between \$10.8 Million dollars (2009 Index).



---

## 2. INTRODUCTION AND BACKGROUND

### 2.1 BACKGROUND

Since 2002, with the initial Pocono sewer infrastructure analysis as a catalyst, the Borough and Township have been engaged in numerous information sharing discussions, meetings, and review of consultant reports on the feasibility of a regional wastewater treatment plant and the value of the existing WWTP owned by the Borough and Township. In addition, the Borough and the Township have expressed the desire to formally investigate solutions to future problems that may be experienced at the existing WWTP and within portions of the collection system if the population of the Borough and Township continues to increase.

The issues relating to the infrastructure can be summarized as follows:

#### Wastewater Treatment Facility

- Preliminary consultant investigations have identified that the WWTP may be at risk for violating the current NPDES effluent discharge limits when hydraulic and organic (influent BOD and nitrogen) loadings reach 2.0 MGD. Therefore, upgrades are needed to realize the full permitted 2.5 MGD capacity at the existing NPDES effluent discharge permit limits.
- The solids handling portion of the WWTP may not be adequate to stabilize the biosolids to Class "B" for acceptable landfill disposal in 2 years without modifications to the digester or stabilization system.
- Projected Borough and Township growth could result in flows exceeding 2.0 MGD by 2013 or sooner.
- If the Borough and Township were to commit to an upgrade, the study, design, financing, and construction may take 4 years or longer before the upgrade is complete and the WWTP capacity is fully operational. This process needs to be completed before the growth exceeds the existing WWTP capacity.
- Possible growth in the Township may warrant the need to expand the WWTP beyond 2.5 MGD at some future time.
- At the time of this report, the Pocono Township Act 537 Plan and DRBC Docket have been approved, but the possibility of additional flow from Pocono Township cannot be ruled until the Pocono Township infrastructure is complete and operational.

#### Borough Wastewater Collection and Conveyance System:

- Current flow bottlenecks exist within the Borough where the Township's growth has been concentrated and where the infrastructure has outlived its useful design capacity. Sanitary sewer overflows (SSOs) have not been reported in the system, but could occur with future growth.
- Future flow bottlenecks may exist, depending on growth patterns in the Township.
- Basement backups in some areas of the Borough are experienced during wet weather flows.

- The age and condition of the collection system and estimated useful life needs to be documented. Ongoing problem areas that need maintenance should also be documented to identify future operation and maintenance areas and possible capital improvements to reduce continued (and increasing) maintenance costs.

Brinjac Engineering, Inc., as the Borough's retained wastewater engineer, was requested to perform a feasibility analysis as outlined in Brinjac's June 8, 2006 proposal to evaluate the necessary improvements to the conveyance system within the Borough and the WWTP.

## 2.2 OBJECTIVE

The objectives of this feasibility study were to

1. produce conceptual engineering options and cost estimates for the upgrades to the Borough's collection and conveyance infrastructure and WWTP at a level of detail that would allow the Borough and Township to make appropriate planning level decisions toward improvements of the wastewater treatment system and
2. provide the most technically sound and cost-affordable solutions to the current and future projected problems that exist and may exist in the collection and conveyance system and at the WWTP

The study would identify:

- Short (0-10 year) term and Long (10-30 year) term population projections for the Borough, Township, and other potential service areas that would impact the WWTP and collection and conveyance system - Flows at the interface of the Township to the Borough's collection system would be projected to further refine the collection and conveyance system impacts and potential overloads.
- A selected treatment process upgrade, based on technology evaluation and life-cycle costing to meet the WWTP current and future flows and effluent permit limits - The evaluation would be for the permitted 2.5 MGD upgrade, unless a larger WWTP capacity evaluation is requested by the Township or Borough. If a treatment plant beyond the permitted 2.5 MGD capacity is requested to be evaluated, the scope of this study would include the required elements of an Act 537 Plan to be approved by the Pennsylvania Department of Environmental Protection (PADEP or DEP).
- An opinion of probable construction cost for the WWTP upgrade with the appropriate cost index for future construction.
- Projected operations and maintenance costs for the upgraded WWTP.
- Recommended collection system improvements, with indexed opinion of probable construction cost, and recommended ongoing maintenance procedures.
- Estimated user rate impact analysis, based on a recommended funding option.
- A list of available financing alternatives.

### 3. BASIS OF EVALUATION

This section discusses the projected flows to be treated, based on the Borough's 2005 Chapter 94 report and projections, and discusses the issues relating to current permitted discharge loadings and the upgrade requirements for compliance with DRBC. These parameters provide the basis for applicable technology, development of cost estimates, and recommendations for future upgrades to the WWTP as described in the following subsections.

#### 3.1 FLOW PROJECTIONS

An initial assessment of the historical flows received at the WWTP was developed from the Borough 2005 Chapter 94 Report and Discharge Monitoring Data (DMR) data from 2006 (Table 3-1).

Table 3-1. Historical WWTP Flow

MONTH	CHAPTER 94 REPORT FOR 2005					DMR Data
	2001 (MGD)	2002 (MGD)	2003 (MGD)	2004 (MGD)	2005 (MGD)	2006 (MGD)
January	1.145	1.128	1.507	1.055	1.699	1.84
February	1.257	1.130	1.286	0.999	1.355	1.56
March	1.398	1.181	1.562	0.947	1.422	1.20
April	1.356	1.213	1.422	1.038	1.878	1.22
May	1.174	1.336	1.179	1.022	1.205	1.26
June	1.275	1.248	2.033	1.023	1.150	1.41
July	1.203	1.103	1.222	1.233	1.118	1.47
August	1.162	1.096	1.482	1.343	1.080	1.22
September	1.210	1.085	1.370	1.767	1.074	1.38
October	1.179	1.411	1.101	1.361	1.816	1.31
November	1.080	1.387	1.153	1.227	1.344	1.64
December	1.152	1.490	1.485	1.540	1.573	1.573**
ANNUAL AVERAGE DAILY FLOW (MGD)	1.216	1.234	1.400	1.213	1.393	1.423
MAX 3-MONTH AVERAGE DAILY FLOW (MGD)*	1.337	1.429	1.579	1.490	1.578	1.533

RATIO OF MAX 3 MONTH TO AVERAGE DAILY FLOW	1.10	1.16	1.13	1.23	1.13	1.08
5-YEAR AVERAGE DAILY HYDRAULIC LOADING (MGD)					1.291	1.333

\*The Flows in Bold-Italics are the 3 Consecutive Months Used for Calculating the Maximum 3-Month Average Daily Flow

\*\*Estimated

Permitted Hydraulic Capacity = 2.5

The 20-year projected flows are tabulated below. A straight-line regression was used for projected flows.

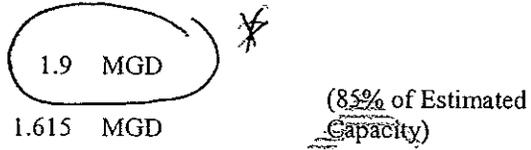
**Table 3-2. PROJECTED HYDRAULIC LOADINGS DATA  
BOROUGH OF STROUDSBURG**

YEAR	STARTING POINT FLOW (MGD)*	INCREASE DUE TO KNOWN DEVELOPMENT (GPD/YR)	PROJECTED FLOW	CALCULATED PROJECTION FACTOR	PROJECTED MAX 3-MONTH AVERAGE DAILY (MGD)
2007	1.333	20000	1.353	1.15	1.555
2008	1.353	20000	1.373	1.15	1.578
2009	1.373	20000	1.393	1.15	1.601
2010	1.393	20000	1.413	1.15	1.624
2011	1.413	20000	1.433	1.15	1.647
2012	1.433	20000	1.453	1.15	1.670
2013	1.453	20000	1.473	1.15	1.693
2014	1.473	20000	1.493	1.15	1.716
2015	1.493	20000	1.513	1.15	1.739
2016	1.513	20000	1.533	1.15	1.762
2017	1.533	20000	1.553	1.15	1.785
2018	1.553	20000	1.573	1.15	1.808
2019	1.573	20000	1.593	1.15	1.831
2020	1.593	20000	1.613	1.15	1.854
2021	1.613	20000	1.633	1.15	1.877
2022	1.633	20000	1.653	1.15	1.900
2023	1.653	20000	1.673	1.15	1.923
2024	1.673	20000	1.693	1.15	1.946
2025	1.693	20000	1.713	1.15	1.969

2026	1.713	20000	1.733	1.15	1.992
2027	1.733	20000	1.753	1.15	2.015
2028	1.753	20000	1.773	1.15	2.038

\* For 2007 use five year average flow from 2002-2006; the remaining years use calculated projected flows from previous year

Estimated WWTP Capacity  
Typical Trigger for Planning  
Activities



## 3.2 TREATMENT GOALS – BASIS OF TECHNOLOGY ANALYSIS

### 3.2.1 DRBC 1986 Docket

In April, 1986, the DRBC approved an application by the Borough of Stroudsburg to expand the Borough's WWTP discharge permit from 1.3 MGD to 2.5 MGD after it was approved by DEP and the PA Department of Environmental Resources. With DRBC's docket approval, the expansion project was added to the DRBC Comprehensive plan for the Delaware River watershed. The limits imposed by the DRBC for the upgraded WWTP discharge were based on a concurrent DEP review of the watershed loading analysis relative to the technology available at the time of application, before any special protection designation of the Delaware River by the DRBC. The limits imposed on the WWTP were similar to the Borough's current NPDES Permit, with the exception of the 5-Day BOD, which was limited to 30 mg/L (it is now a CBOD5 limit of 25 mg/L.) Based on the Docket (and DEP) approval, the Borough upgrade was completed in June, 1991.

### 3.2.2 DRBC Special Protection Waters Designation

As an agency, the DRBC has a presidential charter to regulate activities that may affect the Delaware River, and the DRBC has jurisdiction over the Intrastate Delaware River as it passes through New York, Pennsylvania, New Jersey, and Delaware. The DRBC also has jurisdiction over any adjacent National Park lands and waterways within the National parks. The DRBC has installed numerous boundary control points within the Delaware River boundary, and these boundary control points measure flow of the tributary waterways to the Delaware River as well as sample the water quality of the tributary as it enters the Delaware River or National Park. In the Stroudsburg area, on the Brodhead Creek, the DRBC boundary control point is near Minisink Falls, at the border of the Water Gap National Recreation Area. On a regular basis, flow and water quality samples are collected from the Minisink boundary control point and used to analyze current and future effects of discharge within the Brodhead.

In 1992, the DRBC classified the Upper and Middle Delaware River, encompassing the 120-mile reach from Hancock, New York to the Delaware Water Gap, PA as Special Protection Waters (SPW). This reach includes sections of the river designated by Congress in 1978 as "Wild and Scenic," including the Upper Delaware Scenic and Recreational River and the Delaware Water Gap National Recreation Area, as well as an eight-mile section not designated Wild and Scenic between Milrift and Milford, Pennsylvania that. The Brodhead flows into the area of the Delaware Water Gap National Recreation Area, within the Middle Delaware River SPW area.

SPW regulations require a demonstration that the project discharge will not result in a "Measurable Change" to the "Existing Water Quality" (EWQ) in the Brodhead Creek at the boundary of the National Park Service's Delaware Water Gap National Recreational Area (DWGNRA). Section 3.10.3A.2.a.4. of the DRBC Water Quality Regulations defines "Measurable Change" as an actual or estimated change in a mean (annual or seasonal) in-stream pollutant concentration that is outside the range of the two-tailed upper and lower 95 percent confidence limits that define existing water quality. The Brodhead Creek at the boundary of the National Park Service's DWGNRA is considered an Outstanding Basin Waters (OBW). The

DRBC requires that Outstanding Basin Waters be maintained at their existing water quality. WQR Section 3.10.A.2.b.1. reads in part: "Point- and non-point sources of pollutants originating from outside the boundaries of stream reaches classified as OBW shall be treated as required and then dispersed in the receiving water so that no measurable change occurs at Boundary and Interstate Special Protection Waters Control Points (BCPs and ICPs)."

EWQ is defined as the actual concentration of a water constituent at an in-stream site or sites, as determined through field measurements and laboratory analysis of data collected over a time period determined by the Commission to adequately reflect the natural range of the hydraulic and climatologic factors which affect water quality.

The EWQ that is protected at the BCP is that which existed at the time of SPW classification in 1992. Water quality data prior to 1993 from United States Environmental Protection Agency's (USEPA's) stored database were used to define EWQ for the DWGNRA Brodhead Creek BCP.

Since Stroudsburg received their 1986 Docket approval 8 years prior to the Special Protection waters designation, and has not gone through a significant upgrade or expansion of the WWTP since 1991, Stroudsburg has not been required to provide a detailed analysis of the impact of the existing discharge from Stroudsburg to the boundary control point near the Delaware River. The current WWTP NPDES discharge permit has been renewed every 5 years without significant change to the limits imposed by DEP.

### 3.2.3 Significant DRBC Docket Approvals in 2006

On May 10, 2006, DRBC Docket No. D-1999-071-2 was issued to Sanofi Pasteur to expand the existing IWTP to 0.95 MGD, of which 0.55 MGD could be discharged into Swiftwater Creek. The NPDES permit and the docket also provides that 0.245 MGD of the 0.55 MGD would be discharge to the land, weather permitting, and 0.05 MGD would be reused at the Sanofi facility. The remaining 0.35 MGD would be treated and discharged to the proposed Pocono Township WWTP.

A water quality model, using the USEPA's QUAL2E platform, was developed by Sanofi's consultant for the Brodhead Creek Watershed after a dilution analyses predicted that Sanofi's requested increase would cause measurable change to the existing water quality at the Minisink boundary control point. The model was developed with inputs and close coordination and review by the DRBC.

During their review of this IWTP expansion project, DRBC noted that as the remaining 30 watershed facilities increase their flows and loadings to the docketed and permitted allowances, the model predicted a measurable change to the water quality at the Minisink. At that time, the DRBC decided to refine the model and work with PADEP and the remaining and proposed dischargers to develop a program that would minimize the predicted measurable change to EWQ.

On December 12, 2006, the DRBC approved Docket No. 2006-17 CP-1 for the Pocono Township - Wastewater Treatment Plant. As with the Sanofi upgrade, Pocono Township is only required to mitigate any potential net increase to above the existing water quality target predicted to be caused by Pocono's discharge, and not any other existing facilities. Any change to the EWQ caused by the existing dischargers would need to be mitigated by those dischargers when they request significant plant upgrades or capacity increases.

A detailed discussion of the DRBC analysis of the water quality and model run scenarios is given in the Pocono Docket prepared by the DRBC.

### 3.2.4 DRBC Requirements for Upgrade

During the progression of this Study, the DRBC was contacted to discuss the possible need for a project at the Stroudsburg WWTP to upgrade the capacity of the WWTP to 2.5 MGD. In anticipation of the review of the Pocono Docket, DRBC requested that the meeting be scheduled after the DRBC's meeting on 12/12/06. A meeting was held on Tuesday, December 19<sup>th</sup>, 2006 between the DRBC and the Borough of Stroudsburg representatives at the DRBC office in Trenton, NJ. A list of attendees and the summary memorandum highlighting the key issues relating to how a DRBC review may affect the requirements for the level of treatment are attached in Appendix B.

The DRBC must approve a Docket for any projects beyond O&M at the WWTP. For Stroudsburg, there are two basic levels of DRBC review:

- Non-major upgrade: WWTP is upgraded to 2.5 MGD using the existing process equipment (Schreiber), with additional air to the aerobic tanks and digester. With this approach, the WWTP must match loadings that it was discharging in 1992, when the SPW were adopted by DRBC. DRBC will not impose new limits on Stroudsburg but rely on the 1992 discharge loadings. Brinjac is currently evaluating if this is possible, and will provide the assessment in the final report.
  - Major upgrade: WWTP is upgraded to 2.5 MGD with a new process. With this approach, the DRBC will impose new limits on Stroudsburg, according to their model run so that no measurable change is seen at the Minisink. These limits will most likely be similar to Pocono's Table A-3 from their approved Docket. This evaluation will also be included in the final report.
- Should Stroudsburg expand beyond 2.5 MGD, limits would be imposed that do not change the SPW boundary, with additional analysis for natural treatment systems for the net additional discharge beyond the current permitted limit.
  - For any Docket submission, Stroudsburg will be required to prepare and maintain an Emergency Response Plan for the WWTP. This plan would follow general guidelines and accepted standards available through DEP and EPA.
  - DRBC will require all WWTP dischargers to monitor for nitrate and phosphorous in their discharges, starting in February 2007, regardless of whether or not they plan to upgrade or expand.

**Table 3-3. Summary of "Hold-the-Load" Analysis**

	MASS UNITS, lb/d			CONCENTRATION, mg/L			Average Monthly Flow (MGD)	
	CBOD5	SS	NH3-N	CBOD5	SS	NH3-N		
Average 1991-1992	89.2	85.4	27.0	9.9	9.4	3.0	1.09	From DMR Data
Average 2006	33.2	45.3	21.2	2.8	3.9	1.8	1.41	From DMR Data
Hold-the-1992-Load	89.2	85.4	27.0	7.6	7.3	2.3	1.41	2006 Flow Basis
	89.2	85.4	27.0	4.3	4.1	1.3	2.50	Design Basis

Copies of the DMR data available in the files at the Stroudsburg operations facility for 1991 and 1992 were obtained, and the average mass loading calculations were made to compare the average loadings discharged during 1991-1992. The mass loadings were taken to the 2006 and permitted design flow levels, and the concentrations of CBOD5, Suspended Solids, and NH3-N were calculated to "hold-the-load" based on the 1991-1992 period. The calculated concentrations are shown above in Table 3-3. A comparison of the existing permit loads, estimated DRBC loads, and the calculated limits for a 2.5 MGD permit based on the 1992 loadings is shown in Table 3-4. While data for some of the pollutant parameters was not taken during the 1991-1992 period, the calculated concentrations for BOD, SS, and NH3-N were compared to the existing permit limits and estimated future DRBC limits. As shown in Table 3-4, a more stringent permit would be required if the existing Schreiber process were to be upgraded. This is because the DRBC would require that the WWTP must hold the 1992 loadings for a process upgrade using the existing Schreiber process.

Based on the analysis of WWTP limitations and an evaluation of appropriate technologies for municipal wastewater treatment, a process upgrade at the WWTP will not meet consistent BOD, SS, and NH3-N limits to hold the 1992 loads. If the treatment goals were based on a 2.5 MGD facility to hold the 1992 loads, the existing process would not be appropriate, and this alternative was not explored further. Therefore, the detailed analysis of the existing process modification was not included within this report as a recommended alternative.

Table 3-4. AVERAGE MONTHLY CONCENTRATION COMPARISON

FLOW BASIS: 2.5 MGD

DISCHARGE PARAMETER	CURRENT NPDES PERMIT NO. PA-0029289	ESTIMATED DRBC LIMITS (TABLE A-3, POCONO DOCKET)	CALCULATED LIMITS BASED ON 1992 DMR DISCHARGE LOADINGS
CBOD5, mg/L	25	10	4.3
Total Suspended Solids, mg/L	30	10	4.1
NH3-N (5/1 - 10/31), mg/L	10	1.5	1.3
NH3-N (11/1 - 4/30), mg/L	No Published Limit	4.5	
Nitrate Nitrogen (5/1-10/31)	No Published Limit	4	
FECAL COLIFORM (5/1-9/30)	200/100 mL	200/100 mL	200/100 mL
FECAL COLIFORM (10/1-4/30)	2000/100 mL	200/100 mL	
pH, NTU	6 to 9 at all times	6 to 9 at all times	6 to 9
TOTAL PHOSPHOROUS, mg/L	No Published Limit	1	
DISSOLVED OXYGEN, mg/L	No Published Limit	7	
TOTAL DISSOLVED SOLIDS, mg/L	No Published Limit	1000	
RESIDUAL CHLORINE, mg/L	1		0.32

## 4. EVALUATION OF ALTERNATIVES

### 4.1 BOROUGH OF STROUDSBURG WWTP BACKGROUND

#### 4.1.1 General Description

The Stroudsburg WWTP is a conventional activated sludge facility. Headworks are composed of a screen, pump station, and aerated grit chamber. Wastewater Treatment process consists of twin Schrieber aeration basins combined with two circular clarifiers. Wastewater effluent is disinfected using chlorine before being pumped out to the receiving creek. Waste activated sludge (WAS) is digested in aerobic digesters and dewatered using a belt filter press before being sent out for final disposal. Primary process equipment for the WWTP includes a WAS/Return Activated Sludge pump station, air blowers, chemical injection equipment, and emergency electricity generator.

A detailed analysis of the unit process was performed and included in Appendix A. Based on the detailed analysis, with a flow basis of 2.5 MGD, a summary of the estimated limits on the processes is shown below in Table 4-1. The critical parameters were taken from the latest requirements from DEP for the design of an activated sludge process system. The sections of this table shaded in gray indicate the limitations of the WWTP capacity.

**4-1. Summary of Existing Capacities and Processes Evaluation**

Unit Process	Critical Parameter	Parameter Value and Unit		Requirements Satisfied?
		Required	Actual	
Influent Pumping Station	Pumping Capacity	4,437 GPM	7,300 GPM two pumps, 1,750 GPM each two pumps, 1,900 GPM each	Yes
Aerated Grit Chamber	Detention Time @ Peak Flow 6.389 MGD	2-5 Minutes	2.83 Minutes	Yes
	Air Requirements	112 SCFM (8 ft <sup>3</sup> /(min. ft of length))		
Aeration Tanks	Minimum Detention Time @ Maximum Monthly Average Flow 3.210 MGD	> 12 hours for Combined Carbon Oxidation-Nitrification Process	9.29 hours	No
	Maximum Organic Loading @ Maximum Monthly Average	< 20 lb BOD/1000 ft <sup>2</sup> /day for Combined Carbon Oxidation	36.69 lb BOD/1000 ft <sup>2</sup> /day	No

	Flow 3.210 MGD	Nitrification Process		
	Sludge Age	10-20 days for Combined Carbon Oxidation Nitrification Process	5-70 days	No
	F/M Ratio	0.2-0.5 lb BOD/lb MLVSS/day for Conventional Activated Sludge	0.033 lb BOD/lb MLVSS/d	
	Air Requirements @ Average Flow 2.5 MGD	3,108 SCFM	1,550 SCFM	No
	Length of Installed Ceramic Diffusers	>1,289 ft (<180 scfm/ft diffuser)	2,350 ft	Yes
Final Clarifiers	Surface Overflow Rate @ Average Flow 2.5 MGD	< 800 gpd/ft <sup>2</sup>	334.32 gpd/ft <sup>2</sup>	Yes
	Surface Overflow Rate @ Peak Flow 6.389 MGD	< 1,200 gpd/ft <sup>2</sup>	854.40 gpd/ft <sup>2</sup>	Yes
	Solids Loading @ Average Flow 2.5 MGD	< 40 lb/d/ft <sup>2</sup>	15.47 lb/d/ft <sup>2</sup>	Yes
	Solids Loading @ Peak Flow 6.389 MGD	< 50 lb/d/ft <sup>2</sup>	27.53 lb/d/ft <sup>2</sup>	Yes
	Weir Loading @ Maximum Monthly Flow 3.210 MGD	< 15,000 gpd/ft if Max. Month Average Flow > 1 MGD	7,407.58 gpd/ft	Yes
Chlorine Contact Tanks	Contact Time @ Maximum Monthly Flow 3.210 MGD	> 30 Minutes	29.21 Minutes	No but close
	Contact Time @ Peak Flow 6.389 MGD	> 15 Minutes	14.67 Minutes	No but close
Post Aeration Tank	Detention Time @ Average Flow 2.5 MGD		12.50 Minutes	
Aerobic Digesters (Assume the	Volatile Solids Loading @ Average Flow 2.5 MGD	<100 lb VS/1000 ft <sup>3</sup> /d	12.21 lb VS/1000 ft <sup>3</sup> /d	Yes

sludge yield is 0.3 lb solids/ lb BOD applied)	Detention Time @ Average Flow 2.5 MGD	> 15 d (WAS only) > 40 d (Class B Biosolid Disposal Requirement) > 38% volatile solids reduction	25 d	No
	Minimum Air Requirements	2973.3 SCFM (30 cfm/1000 ft <sup>3</sup> of Tank Volume)	1550 SCFM	No
2.0 m Belt Filter Press (Assume the sludge yield is 0.3 lb solids/ lb BOD applied)	Solids Loading Rate	200-1,500 lb/m <sup>2</sup> •hour	Satisfy DEP's requirements if operated 1 day/week for 9 hours/day	Yes
	Hydraulic Loading	<100 gal/m <sup>2</sup> •hour		Yes

From the precedent analysis, the decision to evaluate new alternatives to upgrade the aeration systems for both wastewater and sludge was made. To analyze those alternatives, an evaluation of the available technologies suited for upgrading the WWTP was performed, and manufacturers of the suitable technologies were contacted to obtain proposals for the appropriate equipment. The technologies included Integrated Fixed Activated Sludge (IFAS), Sequencing Batch Reactor (SBR), and Membrane BioReactor (MBR). The following sections include a technical feasibility of the proposals received to determine a ranking of selected alternatives on a technical and operations basis.

## 4.2. TECHNICAL FEASIBILITY

This feasibility study was undertaken to suggest an upgrade to the WWTP involving the least amount of civil works and reusing the existing infrastructure as much as possible while maintaining the operation of the plant.

### 4.2.1. Upgrade perspective

Reducing the effluent BOD concentration requires a higher biomass activity and/or concentration (and an increased amount of aeration). Reducing total nitrogen requires creating an anoxic environment to induce biological denitrification within the treatment process and an internal recycle from the aerobic to anoxic zones. This would reduce the existing hydraulic detention time. To compensate for it, the biomass concentration would have to be raised significantly. Since the settling capacity of the clarifiers could be limiting, the biomass could be increased by: a) attaching biomass to media within the aeration zone, b) restraining biomass within the treatment process using membranes instead of clarifiers, or c) SBR that combines treatment and settling in the same tank.

Effluent phosphorus concentration can be reduced biologically or by chemical precipitation. To reduce civil works, biological reduction requiring an anaerobic chamber was not considered.

## 4.2.2 Description of Upgrade Alternatives

### A. Integrated Fixed Film and Suspended Growth

These technologies involve the immersion of modules of special fabric material or suspended synthetic elements to allow growth of biomass film fixed to the material. The sludge yield of this technology is lower than conventional activated sludge yield and can, consequently, improve the operation of the existing digesters. The sludge yield depends on the actual operating conditions. To ensure proper sludge digestion, a sludge thickener has been considered as a complement for this technology.

#### Brentwood - AccuWeb

Brentwood Industries presented a proposal to create an anoxic region in the aeration basins and add 27 AccuWeb modules on the aerated zone on each aeration basin. These modules are designed to support the full load of wet biomass after prolonged operation. Each module includes tubular diffusers mounted below and supported by the module structure.

This alternative involves an increase in biomass since the complete basin will share the concentration of activated sludge and part of it will hold new fixed film growth. The concentration of activated sludge can be reduced by testing to prevent solids overload on the clarifiers.

#### Infilco Degremont - ActiveCell

Infilco Degremont presented a proposal to implement the Active Cell Hybrid IFAS system. The concept consists of addition of IDPs ActiveCell biofilm carriers, carrier retaining screens, and other necessary process modifications to the aeration basins to convert them to IFAS system. The neutrally buoyant HDPE ActiveCell biofilm carriers provide a stable base for the growth of a diverse community of micro-organisms and longer solids retention time to stabilize the nitrification process.

This alternative proposes to:

- add a baffle wall to create a pre-anoxic zone in the 33% of the aeration basin,
- add a mixer in each of the pre-anoxic zones,
- install biomass carrier retaining screens on the upstream side of the discharge wall,
- install a recycling pump downstream of the discharge wall to the inlet of pre-anoxic zone, and
- install new fine bubble aeration grids in the aerobic zone.

### B. Sequencing Batch Reactors

This technology offers a system that biologically treats wastewater using activated sludge but maintaining it within the same basin and eliminating external settling tanks and recycle lines. The process is a sequence of filling, reaction, settling, decanting, and idle stages. The SBR process provides inherent flow equalization and blending. Anaerobic, anoxic, and aerobic

conditions are generated during the operation of the reactor and promote nitrification, denitrification, and phosphorus removal.

This technology will release the existing clarifiers that can be converted into sludge digester to fulfill the capacity requirement. Additional aeration capacity is considered for this alternative.

#### Siemens – OmniFlo

Siemens presented a proposal to operate three SBRs sized to treat the average daily flow. The proposal is to build three new - circular or rectangular - basins with 4.04 MG total volume. These new SBRs will be equipped with a jet aeration system, motive pumps, decanters, influent manifolds, and a pneumatic flush-out system.

The process will be controlled by a microprocessor which receives continuous signals from level monitoring devices in each basin. This microprocessor, based on the basin fill time, defines the influent flow rate and controls the process accordingly with a treatment strategy that can be modified as needed.

The existing aeration basins can be dedicated to hold decant for equalization before disinfection. The recycling line and pumps will no longer be in operation. The existing aeration blowers need to be modified to supply air for the process and new pumps have to be installed to handle the decant and sludge.

#### C. Membrane BioReactors

This technology installs a membrane system that holds the biomass and recycles it to the aeration basins, increasing the biomass concentration which enhances nitrification and denitrification. This technology does not require settling tanks and could be installed within the existing clarifiers. It requires an improvement on the headworks to screen out particles larger than 2 mm. The existing aeration basins have to be divided into anoxic and pre-aerobic ones to promote denitrification. The activated sludge has to be recycled from the MBR to the pre-aerobic chamber and from there to the anoxic chamber.

This technology will allow existing clarifiers to be converted into sludge digesters to fulfill the capacity requirement. Additional aeration capacity is considered for this alternative.

#### Siemens – MemJet MBR

Siemens presented a proposal to convert the existing basins to a MemJet Membrane Operating System (MOS). Membranes used in this system are hollow fiber type and the aeration is a jet aeration system. Mainly the proposal is to convert the existing basins configuration to a combination of anaerobic, anoxic, and aerobic chambers, and convert one of the existing clarifiers to a membrane tank. This membrane tank will be subdivided in four membrane cells, each with a total of 256 B30R membrane modules. Any of these cells can be out of service for cleaning while the rest of them stand in operation and are able to handle the Peak Hourly Flow.

MemJet is a hollow-fiber membrane system through which filtrate is pumped out and particulate matter greater than 0.1 microns is removed. Mixed liquor is pumped into the membrane tank from the biological process.

Membranes are continuously cleaned through air scouring that creates a cross flow at the membrane surface. Over time, a clean-in-place procedure is recommended to remove any fouling material from the membranes surface. This procedure is carried out with sodium hypochlorite or citric acid. Between chemical cleanings, maintenance cleaning with chlorinated filtrate backwash is recommended.

The MemJet MOS requires a programmable logic controller (PLC) which is able to direct the operation of all MOS equipment functions.

#### General Electric – Zenon MBR

General Electric presented a proposal to convert the existing treatment to a ZeeWeed ultra-filtration system. This proposal is to convert the existing aeration basins in one 400,000 gal anoxic chamber and 800,000 gal aerobic chamber. The proposal requires the construction of new membrane cells that could fit inside one of the existing clarifiers. Zenon provides a hollow-fiber membrane system similar to MemJet with similar cleaning requirements.

#### Enviroquip – Kubota MBR

This proposal is to build new anoxic basins and convert the existing aeration basins into a pre-aerobic chamber. Four new membrane cells (14' x 34.5' x 16' SWD) will be required to be installed for a total of 180 EW 400 membrane cassettes or a total of 16,000 panels with 13.45 ft<sup>2</sup> surface area each.

Kubota membranes are flat plate type membranes that can work by gravity flow. Flow is continuous and controlled using modulating control valves. There is no back pulse. Each cassette has a scouring knife formed with coarse bubble diffusers that form a cross flow at the membrane panel surface. Chemical cleaning is recommended every six months.

### 4.2.3 Comparison of Upgrade Alternatives

Table 4-2 shows a comparison of advantages and disadvantages of each alternative presented above. This parameters compared are civil works, footprint demand, expandability, and other processes modification.

**Table 4-2. Upgrade Alternatives Advantages and Disadvantages**

ALTERNATIVE	ADVANTAGES	DISADVANTAGES
Brentwood - AccuWeb and Infilco - Active Cell	Minimal Civil Work involved	Limited by footprint availability
	Low operation and maintenance requirement	Undefined suspended solids load to clarifiers
	Low energy demand	Not expandable
	No headworks modification required	
Siemens Omniflo SBR	Medium energy demand	New complete structure construction
	Can be expanded up to 3.5 MGD	Requires additional land
	Low operation and maintenance requirement	
Siemens MemJet and GE - Zenon	Medium Civil Work involved	Requires headworks modification or intermediate screen installation
	Membrane Cells fit in one of existing clarifiers	High energy consumption rate
	Potential for expansion	Additional maintenance and cleaning required
		Additional operation control required
Enviroquip - Kubota	Both clarifiers to be released	Requires headworks modification or intermediate screen installation
	Potential for expansion	New Anoxic basins and Membrane Cells to be built.
		High energy consumption rate
		Additional operation control required
		Additional maintenance and cleaning work

#### 4.2.4 Higher Flow Capacity with Future Effluent Requirements

According to the Projected Hydraulic Load Data, the demand of higher treatment flows is uncertain. Consequently, no extensive cost analysis was done for this scenario. From alternatives presented to treat 2.5 MGD, only membrane technologies could allow for future expansion. Additional capacity will be required for pump stations, headworks, effluent disinfection and sludge digester space, depending on the expansion size.

### 4.3 COLLECTION AND CONVEYANCE SYSTEM EVALUATION

Three (3) sections of the existing collection and conveyance system within the Borough of Stroudsburg are known bottlenecks that impede sewage flows to the WWTP and cause backups during wet weather events. Some of the backups are large enough to affect private property owners who receive sewer backups into their properties or structures. These areas are as follows:

1. South Stroudsburg Conveyance (Siphon)
2. Shared Stroud/Stroudsburg Interceptor that runs Sarah and 4<sup>th</sup> Streets to the WWTP
3. Portions of the Ann Street Interceptor.

The recommendations for improvements within these areas are discussed below.

#### 4.3.1 South Stroudsburg Conveyance

Currently, the South Stroudsburg area, including a portion of Stroud Township, is served by the sewer siphon that crosses the McMichael's creek. The siphon consists of two (2) 6-inch pipes that are vertically stacked, and serves approximately 20% of the Borough's land area as well as portions of Stroud Township. Existing and future EDU assessments, combined with periodic flow metering of the siphon, indicate that the siphon appears to have limited future capacity during wet weather events, and in the future may surcharge beyond its design capacity. Therefore, improvements to the conveyance of sewer flows from the South Stroudsburg drainage are warranted.

The recommended improvements should be approached systematically, first to eliminate any existing sources of inflow (from roof drains, area drains, sump pumps) by enforcement of Borough ordinances, combined with routine siphon cleaning and periodic flow metering during wet weather events, after the ordinances are enforced and the private properties are checked for sources of inflow.

If the ordinance enforcement actions do not reduce the peak wet weather flows to the siphon, then structural alternatives must be considered. As described in the memorandum, the following alternative is recommended:

- Partial system diversion and Re-Route sewage flows across the Broad Street Bridge. Connect to the new Ann Street bypass line on Kitson Street.

The preliminary opinion of probable construction cost for the design, permitting, and construction of this alternative is \$250,000.

Alternately, if PennDOT would not allow a sewer pipe to be constructed across the Broad Street Bridge, structural option 3 - construct a peak handling pump station at the siphon would be required. The opinion of probable project cost for this alternative is \$320,000.

#### 4.3.2 Shared Stroud/Stroudsburg Interceptor

The 15-inch shared interceptor collects a significant portion of flows from Stroud Township, runs along Thomas, N. 8<sup>th</sup> Street, Sarah, and 4<sup>th</sup> Street. This 15-inch interceptor has various sloped sections and directional changes as it runs through the Borough. One section of this line experiences backups during wet weather events, near the corner of Stone and Thomas Street in the Borough.

The entire interceptor has been studied by both Brinjac Engineering and Reilly Associates, the engineer for Stroud Township Sewer Authority. Flowmetering, elevation surveys, and television inspections have illustrated that this interceptor contains many sags and offset joints that cause flow impedance and debris accumulation within portions of the line. However, no catastrophic areas of failure were identified within the line, and it is therefore recommended that only one section along Thomas Street that currently causes a bottleneck for the flows be replaced with an 18-inch section. This section is approximately 137 lineal feet, between manholes 34 and 12. The opinion of probable construction cost for replacement of this section, including bypass pumping and two new manholes, is \$45,000.

#### 4.3.3 Portions of the Ann Street Interceptor

In December, 2006, construction on the Ann Street bypass line was completed. This 18-inch line connected to the existing sewer near Ann Street to serve as a relief point downstream of the connection point from Main Street and Ann Street. In addition, this new line may serve to connect a portion of the South Stroudsburg area if a relief interceptor were able to be constructed over the Broad Street Bridge.

Remaining portions of the 12-inch sewer line along Ann Street, particularly in the area of the new parking garage, approximately 1,000 lineal feet, may need to be upgraded to an 18-inch to avoid wet weather backup problems within the Borough. The opinion of probable construction cost for this line replacement is \$200,000.

#### 4.3.4 Summary of Collection System and Interceptor Improvements

The total opinion of probable construction cost for the upgrades to the Borough's interceptor are as follows:

1. Siphon Improvements (Assuming highest estimated cost)	\$320,000
2. Thomas Street Interceptor Improvements	\$ 45,000
3. Ann Street Interceptor Improvements	<u>\$200,000</u>
Total Opinion of Cost for Line Improvements	<u>\$565,000</u>

---

## 5. RECOMMENDATION

### 5.1 TECHNOLOGY AND MAJOR COMPONENT UPGRADE

The analysis made before this recommendation was intended to evaluate the alternatives under a holistic approach that considered capital as well as operation and maintenance costs, advantages and disadvantages of each alternative, and expandability. A more detailed analysis should be performed to determine the actual scope of work for expanding the Borough of Stroudsburg WWTP during the preliminary design and design report phase of the project in order to fine tune the final cost for the selected alternative.

Considering the requirement to maintain the operation of the treatment plant, the alternative to build a new structure that will require only interconnection with the existing treatment train will be preferable instead of invasive alternatives that require partial shut-down of the treatment plant. That alternative is the SBR by Siemens. IFAS alternatives involve a small modification to the existing system but the clarifiers solids loading is unknown. Regarding expandability, all membranes technologies offer expandability but directly related with high capital costs. SBR alternative offers some expandability once the new system is online and the existing aeration basins are released of the treatment train. IFAS technology will require a large addition of land since new aeration basins and clarifiers will be required to expand under this option. From the operational and maintenance view point, IFAS technologies are the simpler, followed by SBR, and last Membranes. Approaching the analysis by the estimated cost analysis, the IFAS alternatives are in the lower end of the spectrum followed by the SBR and finally all three membrane proposals that involve higher capital and O&M costs.

Considering all relevant features, Brinjac Engineering recommends Omniflo SBR by Siemens for the Borough of Stroudsburg WWTP upgrade.

### 5.2 OPINION OF PROBABLE CONSTRUCTION COST

The following standard percentages were used for estimating

o Contingency	20% of construction cost
o Non-construction Costs (Costs of Engineering, Legal, Fiscal and Administrative)	20% of construction cost

#### 5.2.1. Cost Analysis

Following the technical feasibility, the cost analysis is presented to cover each alternative described before.

Table 6 shows cost composition for each alternative.

Table 6. Summary of Estimated Capital Costs – Single Index

CONSTRUCTION COST ESTIMATE											
PROJECT:		BOROUGH OF STROUDSBURG WWTP UPGRADE			DATE:		January 5, 2007				
LOCATION:		Monroe County, Pennsylvania			JOB NUMBER:		97186-36				
OWNER:		Borough of Stroudsburg Municipal Authority			DESIGN STATUS:		Predesign Phase				
SCENARIO:		2			ESTIMATOR:		lej				
		2.5 MGD, future effluent limits			CHECKED BY:		MLP				
Number	Name	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5	
		Brentwood AccuWeb	Infilco Degremont ActiveCell	Siemens OmniFlow SBR	Siemens MemJet	GE - Zenon ZeeWeed	Enviroquip Kubota				
1	General Data	\$ 290,000	\$ 258,500	\$ 1,720,500	\$ 950,500	\$ 950,500	\$ 950,500	\$ 983,000			
2	Site Construction	\$ 5,344	\$ 5,344	\$ 174,792	\$ 431	\$ 8,610	\$ 32,410				
3	Concrete	\$ 471,139	\$ 471,139	\$ 2,174,502	\$ 396,648	\$ 296,261	\$ 692,798				
4	Masonry	\$ -	\$ -	\$ 63,360	\$ -	\$ 63,360	\$ 63,360				
5	Metals	\$ -	\$ -	\$ 72,000	\$ -	\$ 72,000	\$ 72,000				
8	Doors and Windows	\$ -	\$ -	\$ 24,800	\$ -	\$ 27,100	\$ 24,800				
9	Finishes	\$ -	\$ -	\$ 3,528	\$ -	\$ 3,528	\$ 3,528				
11	Equipment	\$ 4743,575	\$ 4,264,250	\$ 2,781,000	\$ 6,557,498	\$ 6,916,600	\$ 7,129,950				
13	Special Construction	\$ 485,400	\$ 485,400	\$ 212,500	\$ 615,000	\$ 539,400	\$ 237,000				
15	Mechanical	\$ 7,789	\$ 7,789	\$ 33,016	\$ -	\$ 15,848	\$ 18,965				
15	Plumbing	\$ 3,338	\$ 3,338	\$ 10,451	\$ -	\$ 6,669	\$ 8,029				
16	Electrical	\$ 149,567	\$ 149,567	\$ 603,036	\$ 655,779	\$ 298,894	\$ 248,520				
<b>TOTAL PROBABLE CONSTRUCTION COST*</b>		<b>\$ 6,156,152</b>	<b>\$ 5,645,327</b>	<b>\$ 6,873,485</b>	<b>\$ 9,175,856</b>	<b>\$ 9,198,771</b>	<b>\$ 9,514,359</b>				

\*Costs of Engineering, Legal, Fiscal and Administrative

**CONSTRUCTION COST ESTIMATE**

<b>PROJECT:</b>		BOROUGH OF STROUDSBURG WWTP UPGRADE				<b>DATE:</b>	January 5, 2007
<b>LOCATION:</b>		Monroe County, Pennsylvania				<b>JOB NUMBER:</b>	97186-36
<b>OWNER:</b>		Borough of Stroudsburg Municipal Authority				<b>DESIGN STATUS:</b>	Pre-design Phase
<b>SCENARIO:</b>		2				<b>ESTIMATOR:</b>	lej
		2.5 MGD, future effluent limits				<b>CHECKED BY:</b>	MLP
<b>DIVISION</b>	<b>Alternative 1</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4</b>	<b>Alternative 5</b>	<b>Alternative 6</b>	
<b>Number</b>	Brentwood AccuWeb	Infilco Degremont ActiveCell	Siemens Omnicolor SBR	Siemens MemJet	GE - Zenon ZeeWeed	Enviroquip Kubota	
<b>TOTAL PROBABLE CONSTRUCTION COST</b>	\$ 6,156,152	\$ 5,645,327	\$ 6,873,485	\$ 9,175,856	\$ 9,198,771	\$ 9,514,359	
<b>Contingency</b>	20%	\$ 1,231,230	\$ 1,374,697	\$ 1,835,171	\$ 1,839,754	\$ 1,902,872	
<b>Non-Const.</b>	20%	\$ 1,231,230	\$ 1,374,697	\$ 1,835,171	\$ 1,839,754	\$ 1,902,872	
<b>Total Project Cost</b>		\$ 8,618,613	\$ 9,622,879	\$ 12,846,199	\$ 12,878,279	\$ 13,320,103	
<b>Indexed Project Cost (03/09)</b>		\$ 9,625,300	\$ 10,746,869	\$ 14,346,685	\$ 14,382,512 *	\$ 14,875,942	
<b>Total Flow Capacity (MGD)</b>	2.5	2.5	2.5	2.5	2.5	2.5	
<b>Cost per gal. WWTP upgrade</b>		\$3.85	\$4.30	\$5.74	\$5.75	\$5.95	

\* See updated Capital Cost Estimate in Appendix A

### 5.3 OPERATION AND MAINTENANCE COST ESTIMATION

This section presents the estimates of operation and maintenance (O&M) costs based on the conceptual design.

O&M cost estimates for this evaluation are based on the following principles and assumptions:

- The new technology will demand additional energy for operation of blowers, pumps, and mixers.
- The additional hand labor that will be required to attend the operation of new facilities.
- Chemical addition either for process or cleaning.
- Each new equipment will need some replacement of parts during normal operation.

Table 7 summarizes the estimated additional O&M costs for treating the 2.5 MGD flow per alternative.

Table 7. Summary of Estimated O&M Costs

BOROUGH OF STROUDSBURG WWTP UPGRADE FEASIBILITY STUDY

O&M Cost	Alternatives					
	1	2	3	4	5	6
	Brentwood AccuWeb	Infilco Degemont ActiveCell	Siemens OmniFlow SBR	Siemens MemJet	GE - Zenon ZeeWeed	Enviroquip Kubota
1. Energy Cost	\$ 190,940	\$ 229,170	\$ 294,073	\$ 449,397	\$ 311,554	\$ 346,843
2. Annual Chemical Additives				\$ 20,662	\$ 20,662	\$ 19,665
3. Handlabor	\$ 22,344	\$ 22,344	\$ 12,031	\$ 22,344	\$ 22,344	\$ 24,063
4. Parts	\$ 21,643	\$ 21,290	\$ 1,300	\$ 34,941	\$ 38,292	\$ 32,833
5. Insurance						
Facilities	\$ 3,955	\$ 3,867	\$ 11,459	\$ 7,331	\$ 6,390	\$ 6,676
Equipment	\$ 133,205	\$ 29,850	\$ 19,467	\$ 45,902	\$ 48,416	\$ 49,910
5. Miscellaneous NPDES sampling and DMR testing and reports, Admin, Office, Labs	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000
6. Maintenance, grounds, parts	\$ 11,866	\$ 17,601	\$ 34,377	\$ 21,994	\$ 19,170	\$ 20,029
<b>TOTAL ESTIMATED ANNUAL O&amp;M</b>	<b>\$ 295,953</b>	<b>\$ 330,122</b>	<b>\$ 394,707</b>	<b>\$ 614,572</b>	<b>\$ 478,829 *</b>	<b>\$ 512,019</b>

\* See updated O&M cost estimate in Appendix N

## 5.4 NET PRESENT VALUE

Table No. 8 presents a Net Present Value per alternative, including capital and O&M costs. This was assuming a 7% return rate.

Chart No. 1 presents a cost comparison by alternatives.

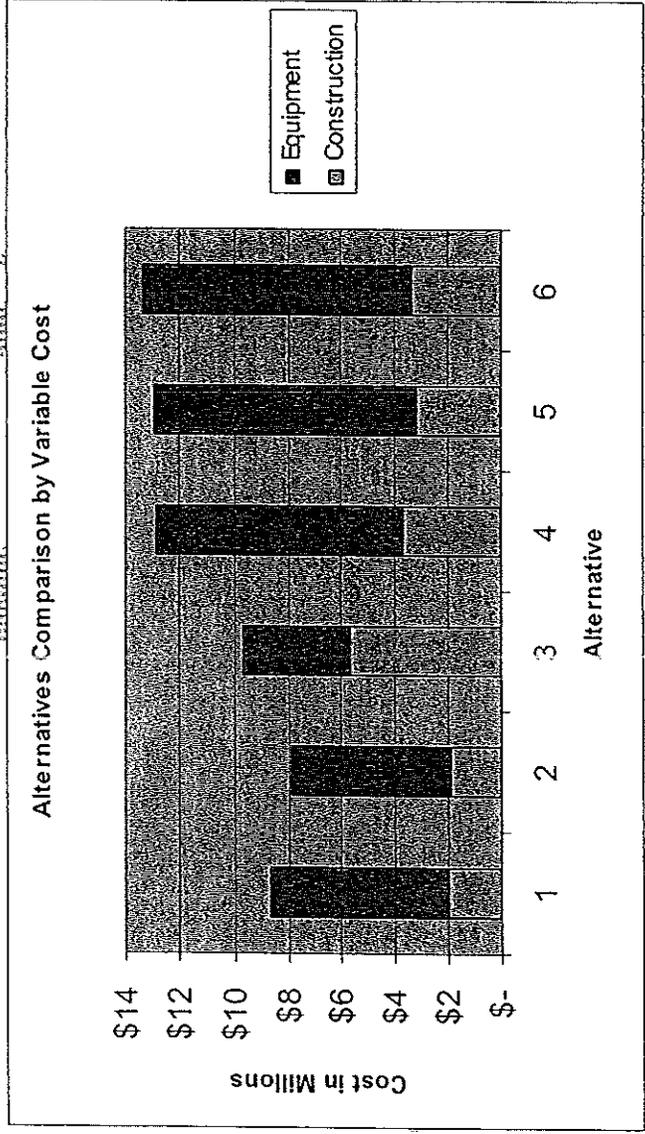


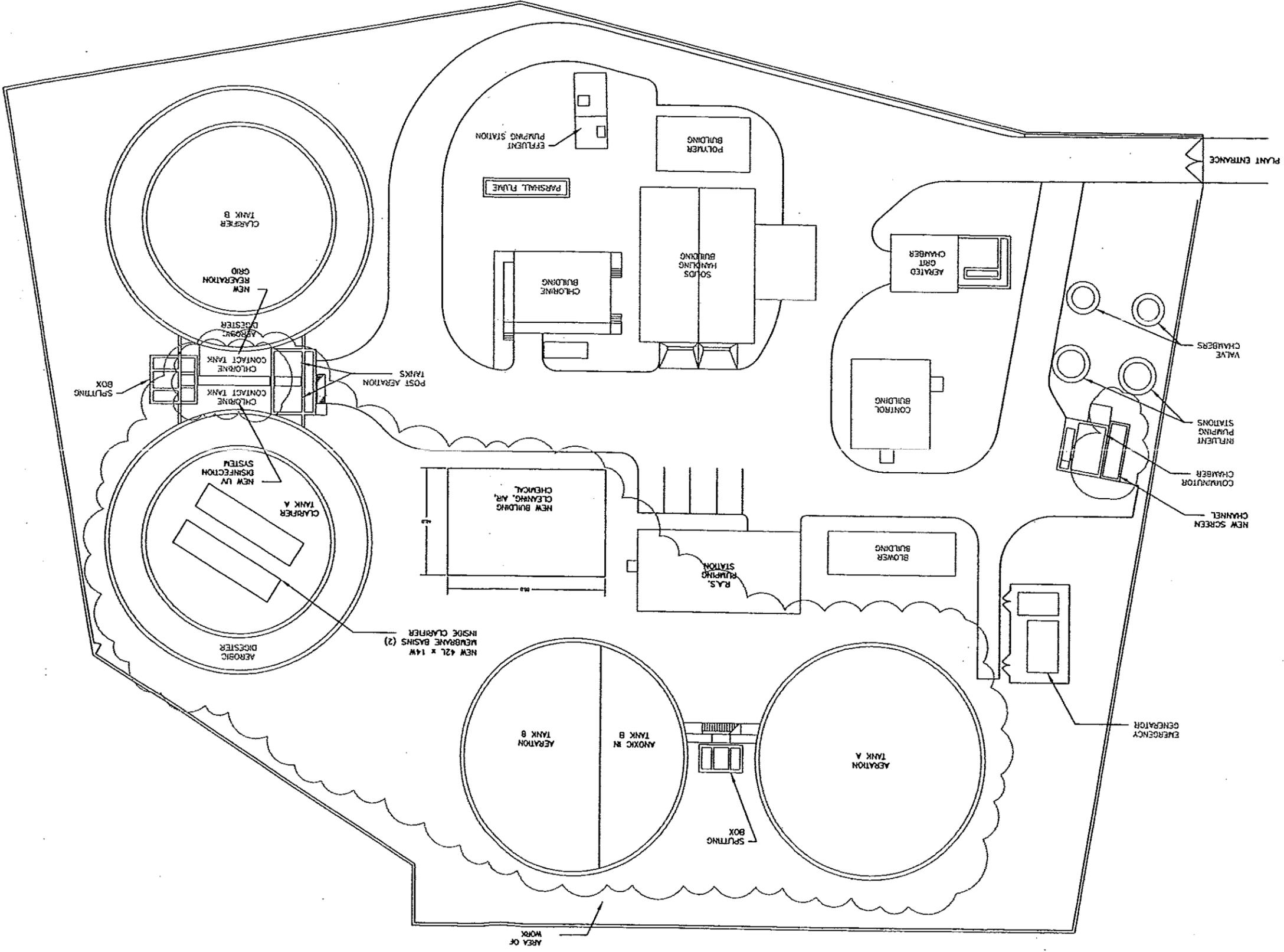
Table No. 8. Net Present Value Analysis

Alternative	1	2	3	4	5	6
Description	Brentwood AccuWeb	Infilco Degremont ActiveCell	Siemens Omniflow SBR	Siemens MemJet	GE - Zenon ZeeWeed	Enviroquip Kubota
Capital Costs	\$ 8,618,613	\$ 7,903,458	\$ 9,622,879	\$ 12,846,199	\$ 12,878,279	\$ 13,320,103
O&M Costs	\$ 295,953	\$ 330,122	\$ 394,707	\$ 614,572	\$ 478,829	\$ 512,019
Present Worth Factor (20 year @7%)	10.594	10.594	10.594	10.594	10.594	10.594
20 Year O&M Present Worth	\$ 3,135,325	\$ 3,497,310	\$ 4,181,524	\$ 6,510,777	\$ 5,072,709	\$ 5,424,324
Total Costs (Net Present Value)	\$ 11,753,938	\$ 11,400,768	\$ 13,804,403	\$ 19,356,976	\$ 17,950,988	\$ 18,744,427

RECOMMENDED ALTERNATIVE FOR ALTERNATIVE 2 - PROJECT 2 2.5 MGD UPGRADE.

Chart No. 1





SITE PLAN  
SCALE: 1" = 20'-0"

PROJECT NO. 97186-26 DATE NOV. 2006 SHEET NO. 5	
MONROE COUNTY BOROUGH OF STROUDSBURG WASTEWATER TREATMENT PLANT UPGRADE FEASIBILITY STUDY	
BRNYAC ENGINEERING, INC. 114 St. Steved St., Harrisburg, PA 17101-1401 Phone: (717) 233-4502 FAX: (717) 233-0833 www.brnyac.com	
ALL RIGHTS RESERVED NOT FOR REUSE	
PRELIMINARY	
NO. BY DATE REVISIONS	DATE

WTP UPGRADE FOR  
2.5 MGD WITH FUTURE LIMITS  
ALTERNATIVE # 5  
MBR UPGRADE - GE ZEEWED  
Recommended Alternative  
For Alternative 2  
Project 2 - 2.5MGD  
WMP Upgrade.

AREA OF  
WORK

**APPENDIX N**

**CAPITAL COST AND O & M COST SUPPORTING DOCUMENTATION**

## Jeremy Nelson

---

**From:** Wayne Gross [wgross@rkrhess.com]  
**Sent:** Thursday, May 07, 2009 8:56 PM  
**To:** jnelson@reillyengineering.com  
**Cc:** EAndrews@Pennoni.com; manager2@ptd.net; jcilurso@poconotownship.org; 'Audrey Jones'; 'Sam D'Alessandro'; rscott@rkrhess.com  
**Subject:** FW: Joint Sewer Project - Pocono Twp. forcemain and sewer flows

Hi Jeremy,  
Pocono Township's debt service on the Remaining Sewer with the 20" dia sewer is \$416/EDU/yr. ✱  
Thanks  
Wayne Gross

---

**From:** Russell Scott [mailto:rscott@rkrhess.com]  
**Sent:** Thursday, May 07, 2009 5:30 PM  
**To:** 'Andrews, Evan'; jnelson@reillyengineering.com  
**Cc:** manager2@ptd.net; 'Brodhead Creek Regional Authority'; 'Jane Cilurso'; Audrey Jones; Wayne Gross; Sam D'Alessandro  
**Subject:** Joint Sewer Project - Pocono Twp. forcemain and sewer flows

Hi Evan,

As a followup to Ken's email of earlier today, Pocono Twp. has decided to install a single 20" diameter sewage forcemain from Pump Station #5 to the Joint Municipal Sewer Facility in Stroudsburg. Pump Station #3 (South Pocono) and #4 (Hamilton) will pump directly into this 20" forcemain. Initially, the VFD pumps will be throttled back to around 1500 – 2000 gpm. After this initial period, Pocono Township expects to pump 2000 – 3000 gpm of sewage flow through the forcemain to the Joint STP on a regular basis. Please incorporate these flows into your STP design.

Please see the attached analysis. I have also included a list of challenges presented by the design of the proposed forcemain, as prepared for the Supervisors benefit.

Jeremy – Wayne Gross from our office will send the figure for "Debt Service on Remaining Sewer" for Pocono Township, for you to plug in to the Act 537 Plan calculations.

Thank you.

Very truly yours,  
Russell D. Scott IV

## Jeremy Nelson

---

**From:** Wayne Gross [wgross@rkrhess.com]  
**Sent:** Friday, April 10, 2009 1:51 PM  
**To:** jnelson@reillyengineering.com  
**Cc:** manager2@ptd.net; jdurkin@reillyengineering.com; 'Sam D'Alessandro'; jcilurso@poconotownship.org  
**Subject:** FW: Regional Act 537 plan  
**Attachments:** DOC041009.pdf

Hi Jeremy,

It appears that Brinjac is comparing the O&M costs that Reilly has listed for the following:  
Alternative 1 (Regional WWTP Alternative) Project 1 - Pocono Twp Collection & Conveyance Systems vs.  
Alternative 2 (Do Nothing Alternative - Go it Alone) Project 1 - Pocono Twp Collection System

There appears to be a discrepancy in way the O&M costs are being distributed.

Attached is stick diagram to help clarify information below.

Alternative 1 Project 1 - Pocono Twp Collection & Conveyance Systems:  
Reilly lists O&M costs for Pocono Township Pump Stations and Collection System as \$359,000/year which matches the RKR Hess November 13, 2008 spreadsheet).

The The O&M costs for the Conveyance portion (the Transmission Main) was not included on sheet 1 of 2. It appears that the O&M cost for the Conveyance portion was included in the Alternative 1 Project 2 - Regional 4.5 MGD WWTP O&M costs for EQ Facilities at Pocono as provided from Pennoni dated January 13, 2009 - \$160,875. So, then the O&M costs for the Conveyance (Transmission Main) are included in the Alternative 1 Project 2 - Regional 4.5 MGD WWTP. If not, it appears that O&M costs for the Transmission Main needs to be added. Say \$75,000.

Pennoni's Single Project Budget sheet is in Appendix N. Two columns have (RKR Hess) listed but we do not recall reviewing this January 13 spreadsheet or providing the numbers listed adding up to \$160,875.

Alternative 2 Project 1 - Pocono Twp Collection System  
Reilly lists O&M costs for Pocono Township Pump Stations and Collection System as \$359,000/year which matches the RKR Hess September, 2008 spreadsheet).

Hope this helps.  
Please contact me if you have any questions.  
Thanks  
Wayne

---

**From:** Jeremy Nelson [mailto: jnelson@reillyengineering.com]  
**Sent:** Monday, March 30, 2009 3:19 PM  
**To:** 'Wayne Gross'  
**Cc:** 'Ken Brown'; Joseph S Durkin  
**Subject:** Regional Act 537 plan

'Wayne,

We are in the process of addressing comments on the 537 plan. Attached is a comment letter from Brinjac. Please note Comment 8 which basically states that the O&M cost for the collection system of "Regional" alternative with the Sewage

Forcemain should be higher than the O&M cost for the collection system of "Go it Alone" alternative without the sewage force main. Since these cost estimates came from your company, can you advise why these costs are the same? Since the "Go it alone" alternative includes an effluent force main in lieu of a sewage forcemain, does that equalize the O&M costs, or is their point valid, and the O&M should be higher? If so, can you provide an estimate of the O&M for the sewage force main?

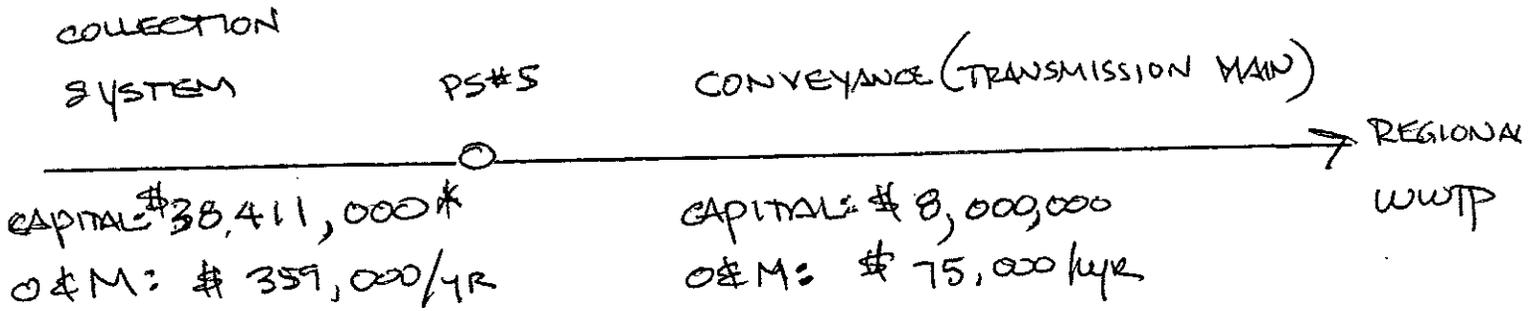
Please let me know your thoughts when you get a chance.

Thank you.

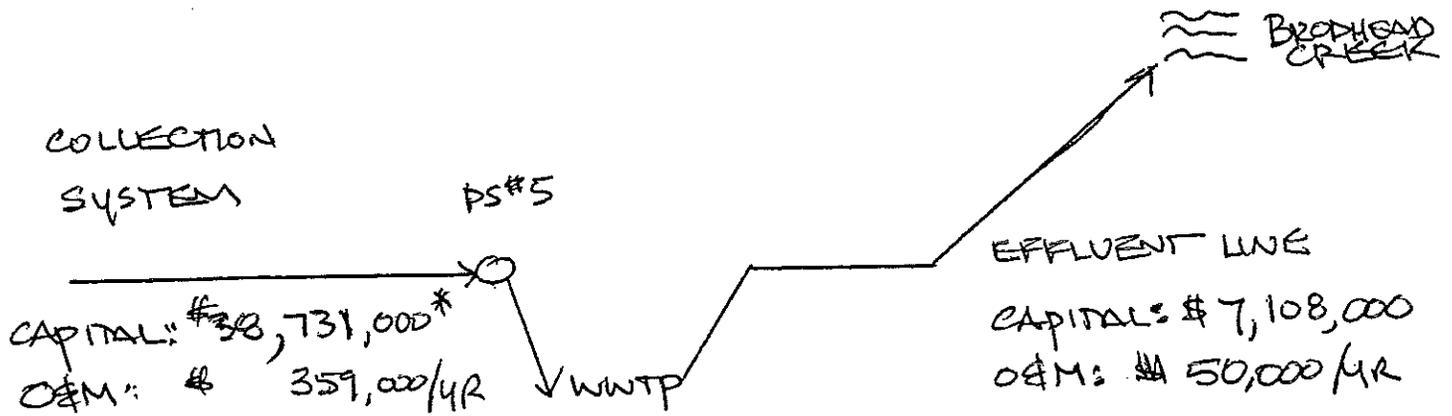
Jeremy Nelson, P.E.  
Reilly Associates  
49 S. Main Street, Suite 200  
Pittston, PA 18640  
PH: (570)-654-2473  
Fax: (570)-654-6880  
[jnelson@reillyengineering.com](mailto:jnelson@reillyengineering.com)

Pocano twp  
# 08038.09  
4/9/09  
WEG

### ALTERNATIVE 1: REGIONAL WWTP



### ALTERNATIVE 2: POCANO ALONE



\* DIFFERENCE IS INTEREST DUE TO DIFFERENT CONSTRUCTION PERIODS

**POCONO TOWNSHIP SEWER PROJECT**  
**FORCE MAIN ANALYSIS**  
**PUMP STATION #5 TO REGIONAL WWTP**

R.K.R Hess Associates  
Project No. 08200.09  
May 4, 2009

**A. ALTERNATIVES**

1. Install two 16-inch diameter force mains for entire route from pump station #5 to the regional WWTP.
2. Install one 16-inch diameter force main for entire route from pump station #5 to the regional WWTP.
3. Install one 20-inch diameter force main for entire route from pump station #5 to the regional WWTP and future equalization at a nearby location.

**B. ALTERNATIVES DESCRIPTIONS**

1. Install two 16-inch diameter force mains for entire route from pump station #5 to the regional WWTP.
  - One 50,920 linear feet of 16-inch diameter force main for entire route from pump station #5 to the regional WWTP.
  - Second 50,920 linear feet of 16-inch diameter force main for entire route from pump station #5 to the regional WWTP.
  - Air vacuum relief valves and odor control along force main.
  - Pump station #3 pumps directly into the force main to the regional plant.
  - Pump station #4 pumps directly into the force main to the regional plant.
  - Air/vacuum release valves with odor control.

2. Install one 16-inch diameter force main for entire route from pump station #5 to the regional WWTP.

- One 50,920 linear feet of 16-inch diameter force main for entire route from pump station #5 to the regional WWTP.
- Pump station #3 pumps directly into the force main to the regional plant.
- Pump station #4 pumps directly into the force main to the regional plant.
- Air/vacuum release valves with odor control.

3. Install one 20-inch diameter force main for entire route from pump station #5 to the regional WWTP and future equalization at a nearby location.

- One 50,920 linear feet of 20-inch diameter force main for entire route from pump station #5 to the regional WWTP.
- Pump station #3 pumps directly into the force main to the regional plant.
- Pump station #4 pumps directly into the force main to the regional plant.
- Air/vacuum release valves with odor control.

Recommendation:

\* We recommend alternative No. 3, Install one 20-inch diameter force main for entire route from pump station #5 to the regional WWTP and future equalization at a nearby location.

**POCONO TOWNSHIP SEWER PROJECT  
COMPARISON OF NUMBERS**

20 INCH SEWAGE FORCE MAIN FROM PROPOSED PUMP STATION NO 5 TO THE REGIONAL WWTP, WITH 6 INCH SEWAGE FORCE MAINS FROM PUMP STATIONS NO. 3 & 4 DISCHARGING DIRECTLY INTO THE PROPOSED 20 INCH SEWAGE FORCE MAIN.  
USER FEE CALCULATIONS FOR

POCONO TOWNSHIP SEWER PROJECT AND POCONO'S SHARE OF JOINT SEWER PROJECT WITH EQ AT REGIONAL WWTP

R.K.R. Hess Associates  
Project No. 08200.09  
May 6, 2009

	Estimated Add-on cost to Transmission Main	Estimated User Fee calculated by RKR	Estimated User Fee calculated by Reilly
1-16 INCH DIAMETER FORCE MAIN LINES	\$7,428,000	1,189	1,330 *
2-16 INCH DIAMETER FORCE MAIN LINES	\$14,410,000	1,350	1,489 **
1-20 INCH DIAMETER FORCE MAIN LINE	\$8,909,000	1,197	Need Reilly to recalculate

\* From Draft Act 537 Plan

\*\* From Draft Act 537 Plan Public Notice

**R.K.R. Hess Associates.**

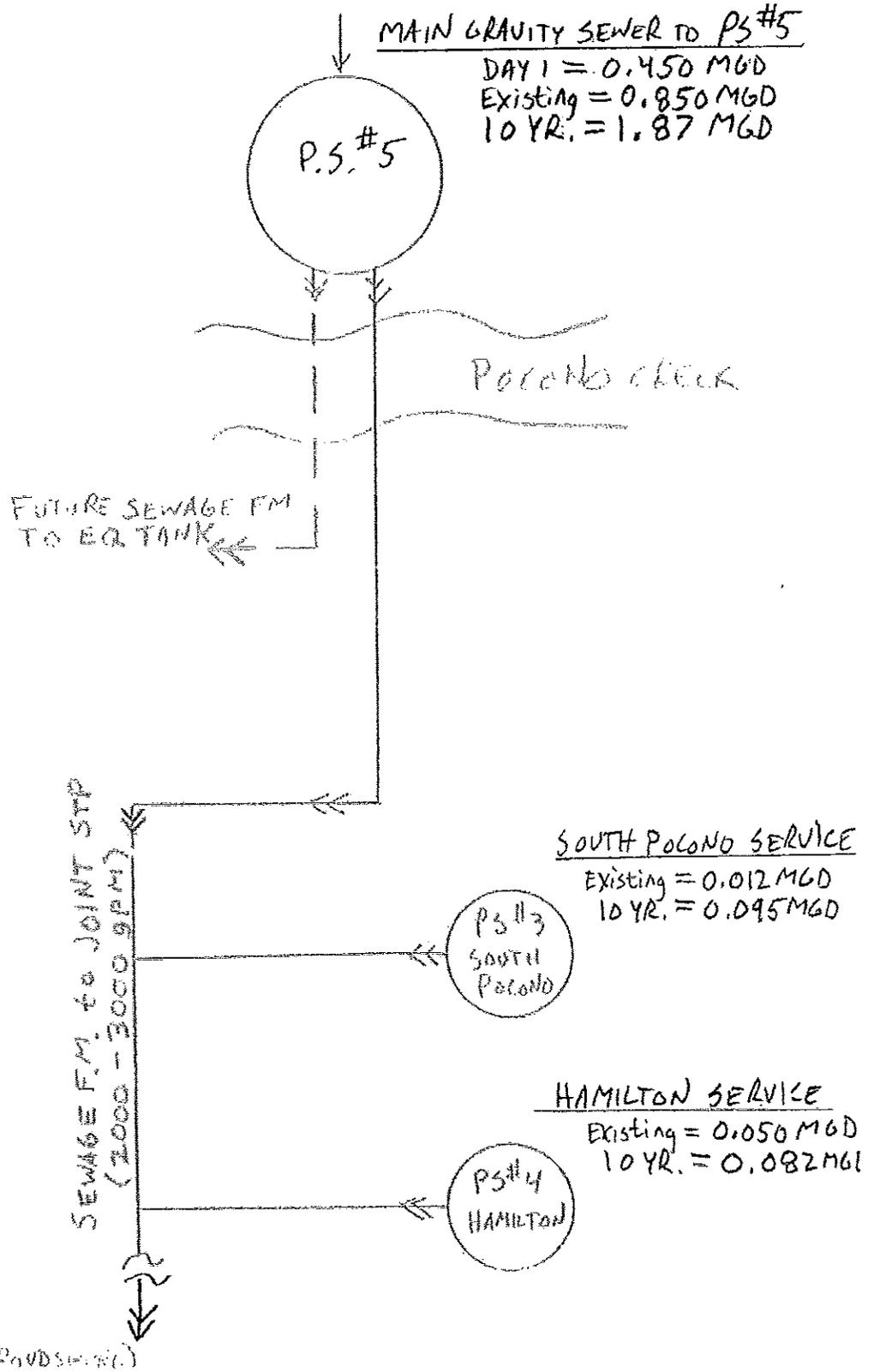
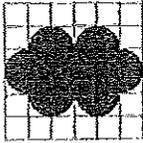
Planners, Engineers, Architects, Landscape Architects.  
112 North Courtland Street  
East Stroudsburg, Pennsylvania 18301  
Telephone (717) 421-1550

Subject JOINT MUNICIPAL SEWER  
PROJECT - PS #5 FLOW SCHEMATIC

Client POCONO TWP. Project No. 08200.09

Made by J.M. SAZ Date 5/6/09

Checked by \_\_\_\_\_ Date \_\_\_\_\_



**JOINT MUNICIPAL SEWER PROJECT  
CHALLENGES PRESENTED BY  
REVISED FORCEMAIN (FROM EFFLUENT TO SEWAGE) AND REVISED LOCATION  
OF EQUALIZATION TANK**

MAY 7, 2009  
PROJECT NO. 08200.09

- The former Pocono WWTP design provided for flow equalization, which allowed us to even out peak flows being pumped to Brodhead Creek at a lower, steadier rate over a longer period of each day. Likewise, a sewage equalization tank in Pocono Township would serve to even out peak flows pumped to the Joint STP. With the EQ Tank in Stroudsburg, sewage must be pumped out as it comes in, requiring higher flow rates and larger pumps in PS#5.
- As the sewer service area is built out, this may necessitate the future installation of an EQ Tank in Pocono Township, to handle the peak flows generated.
- The original PS#5 design included capacity for a potential extra 750,000 gpd of future sewage flow from the northern areas of the Township. Treatment and disposal of this extra flow was undetermined at the time. It is almost certain that this additional could not be accommodated without equalization, and likely expansion of PS #5 at the time of service.
- We expect a phased increase in overall sewage flows: initially 450,000 gpd and ultimately 2,000,000 gpd. This wide range makes it very difficult to size a single set of pumps to do the job.
- With the previous effluent forcemain design, accumulation of solids was not an issue. Now that we are pumping raw sewage, we must maintain a minimum of 2 feet per second scouring velocity at least once a day to flush the solids. This means that the forcemain cannot be too large for the proposed pumping rates.
- Given the long length of forcemain, the sewage will reside in the pipeline for a substantial period of time, especially in the first five years of service. While not a concern with the effluent line, raw sewage held for long periods of time, will generate corrosive gasses and odors.
- Given the substantial changes in elevation along the forcemain, pressures are expected to be very high in the lower stretches of pipeline, and may require pipe constructed of stronger material or with a thicker wall than generally utilized in sewerage applications. To resolve high pressure issues in the effluent forcemain design, we proposed utilizing ductile iron in the last mile of pipeline. While Ductile Iron will likewise be suitable for critical sections of the sewage forcemain, it may require a special lining system to protect against corrosive gasses. This increases the material cost of the pipe.
- With a sewage forcemain of this length, odor control will be required at locations where air release valves are positioned along the route.

- The previously considered Oxygen Injection system for odor control worked better with a steady equalized flow. Given the expected variation in flowrate in the unequalized forcemain, this system (or any chemical injection system) may require some modifications for flow monitoring and pacing of chemical feeds.
- The current permit applications before PADEP reflect the 16" effluent forcemain, and will ultimately need to be amended. As previously discussed, we do not want to disrupt the current review process.
- Additional engineering work will be required to redesign and permit: 1) PS#5, 2) PS#3 and PS#4 to pump directly into the forcemain, 3) The forcemain from PS#5 to the Hamilton/Stroud Twp. line (the remaining lengths are already under contract), and 4) localized odor control for the air release valves.

Based upon our analysis, the alternatives are as follows:

**Alternative 1** – Install a single 16" sewage forcemain and equalization system in Pocono Township now.

**Alternative 2** – Install two 16" sewage forcemains and no equalization system in Pocono Township. The capital cost associated with this alternative are very high.

**Alternative 3** – Install a single 20" sewage forcemain now, which will satisfy the initial flows from the service area. The expected pumping rates are 2000 – 3000 gpm. As the system is built out, it may be necessary to install a future equalization system in Pocono Township to handle peak flows.

**Client:** Brodhead Creek Regional Authority  
**Job No.:** BHRA0802  
**Project:** Stroudsburg STP Upgrade and Expansion  
**Location:** Stroudsburg, PA  
**Estimator:** Pennoni Associates Inc.  
**Date:** May 11, 2009

**Description:** Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
1	<b>Influent Piping Changes</b>		
	Underground Piping	\$ 50,000.00	
	Concrete MHs and Vaults	\$ 17,500.00	
		<b>Influent Piping Cost: \$</b>	<b>67,500.00</b>
2	<b>Coarse Screen</b>		
	Concrete channel modification	\$ 75,000.00	
	Screen equipment	\$ 205,000.00	
	Weir gates	\$ 10,000.00	
	Mechanical Installation	\$ 100,000.00	
	Electrical installation	\$ 20,000.00	
		<b>Coarse Screen Cost: \$</b>	<b>410,000.00</b>
3	<b>East Headworks</b>		
	<i>Upgrade Influent Pumps</i>		
	Pumps	\$ 100,000.00	
	<i>Grit</i>		
	Grit Mechanism, pump and washers	\$ 400,000.00	
	Grit Building Addition	\$ 100,000.00	
	Grit piping	\$ 10,000.00	
	<i>Fine Screens</i>		
	Screen mechanism, pump and washers	\$ 530,000.00	
	New Screen House	\$ 75,000.00	
	Discharge piping	\$ 15,000.00	
	<i>Forward Feed Pumps</i>		
	Pumps	\$ 100,000.00	
	<i>Modification of existing grit building</i>		
	Stairs	\$ 25,000.00	
	Building modifications	\$ 175,000.00	
<i>Other items</i>			
Control Panel and instruments	\$ 100,000.00		
Mechanical Installation	\$ 250,000.00		
Electrical installation	\$ 30,000.00		
		<b>New Grit Chamber and Grit Washing Cost: \$</b>	<b>1,910,000.00</b>

**Client:** Brodhead Creek Regional Authority  
**Job No.:** BHRA0802  
**Project:** Stroudsburg STP Upgrade and Expansion  
**Location:** Stroudsburg, PA  
**Estimator:** Pennoni Associates Inc.  
**Date:** May 11, 2009

**Description:** Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
4	<b>SBR Basins and Equipment</b>		
	SBR tank basins	\$ 3,200,000.00	
	Excavation	\$ 100,000.00	
	SBR Equipment	\$ 2,900,000.00	
	Handrail	\$ 125,000.00	
	Access stairs	\$ 50,000.00	
	Mechanical installation	\$ 500,000.00	
	Electrical installation	\$ 300,000.00	
	Blower and Decant Building	\$ 330,000.00	
	Influent and chemical feed building	\$ 240,000.00	
	Decant piping	\$ 100,000.00	
	Sludge Piping	\$ 50,000.00	
	Influent Piping	\$ 75,000.00	
	Chemical feed system	\$ 250,000.00	
SBR Blowers w/ VFDs	\$ 300,000.00		
<b>SBR Basins and Equipment Costs:</b>			<b>\$ 8,520,000.00</b>
5	<b>UV Disinfection System</b>		
	Equipment	\$ 400,000.00	
	Modifications	\$ 250,000.00	
	Weir gates	\$ 20,000.00	
	Electrical installation	\$ 50,000.00	
	Mechanical installation	\$ 50,000.00	
<b>UV Disinfection System Cost:</b>			<b>\$ 770,000.00</b>
6	<b>Discharge Expansion</b>		
	Levee penetration	\$ 150,000.00	
	Discharge pump station	\$ 250,000.00	
	Mechanical installation	\$ 75,000.00	
	Electrical installation	\$ 35,000.00	
<b>Discharge Expansion Costs:</b>			<b>\$ 510,000.00</b>
7	<b>Sludge Thickeners</b>		
	Mechanisms	\$ 200,000.00	
	Electrical installation	\$ 25,000.00	
	Mechanical installation	\$ 25,000.00	
	Tank repair	\$ 50,000.00	
<b>Sludge Thickeners Cost:</b>			<b>\$ 300,000.00</b>

Client: Brodhead Creek Regional Authority  
 Job No.: BHRA0802  
 Project: Stroudsburg STP Upgrade and Expansion  
 Location: Stroudsburg, PA  
 Estimator: Pennoni Associates Inc.  
 Date: May 11, 2009

Description: Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
8	<b>Sludge Holding</b>		
	Pumping modifications	\$ 30,000.00	
	Pipe line	\$ 25,000.00	
	Electrical Installation	\$ 20,000.00	
	Course bubble diffusers	\$ 200,000.00	
	Tank repair	\$ 100,000.00	
		<b>Sludge Holding Costs: \$</b>	<b>375,000.00</b>
9	<b>Sludge Digesters</b>		
	Demolition	\$ 20,000.00	
	Sludge Mixing	\$ 200,000.00	
	Diffusers	\$ 200,000.00	
	Pumping modifications	\$ 30,000.00	
	Pipe line	\$ 25,000.00	
	Electrical Installation	\$ 25,000.00	
	Mechanical installation	\$ 50,000.00	
	Tank repair	\$ 100,000.00	
		<b>Sludge Digesters Costs: \$</b>	<b>650,000.00</b>
10	<b>Belt Press</b>		
	Equipment	\$ 400,000.00	
	Conveyors	\$ 65,000.00	
	Polymer pump	\$ 10,000.00	
	Sludge pump	\$ 30,000.00	
	Sludge transfer tank	\$ 10,000.00	
	Concrete floor in second bay	\$ 100,000.00	
	Mechanical installation	\$ 150,000.00	
	Piping modifications	\$ 125,000.00	
	Electrical Installation	\$ 75,000.00	
		<b>Belt Press Costs: \$</b>	<b>965,000.00</b>
11	<b>Sludge Dumpster Enclosure</b>		
	Enclosure structural steel	\$ 65,000.00	
	Enclosure siding	\$ 70,000.00	
	Enclosure Lighting	\$ 20,000.00	
		<b>Sludge Dumpster Enclosure Cost: \$</b>	<b>155,000.00</b>

Client: Brodhead Creek Regional Authority  
 Job No.: BHRA0802  
 Project: Stroudsburg STP Upgrade and Expansion  
 Location: Stroudsburg, PA  
 Estimator: Pennonni Associates Inc.  
 Date: May 11, 2009

Description: Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
12	<b>Odor Control</b>		
	Covers over digesters	\$ 400,000.00	
	Covers over thickener	\$ 400,000.00	
	Belt press enclosure	\$ 200,000.00	
	Dumpster enclosure ventilation	\$ 35,000.00	
	Influent biofilter and duct work	\$ 250,000.00	
	Sludge digestion carbon and duct work	\$ 250,000.00	
	Belt press odor scrubber	\$ 100,000.00	
		<b>Odor Control Costs:</b>	<b>\$ 1,635,000.00</b>
13	<b>Electrical Service and Site Work</b>		
	New entrance	\$ 200,000.00	
	transformer	\$ 100,000.00	
	Generator	\$ 450,000.00	
	Distribution gear	\$ 120,000.00	
	Duct bank	\$ 300,000.00	
	Site Lighting	\$ 175,000.00	
		<b>Electrical Service and Site Work Costs:</b>	<b>\$ 1,345,000.00</b>
14	<b>Other Items</b>		
	Demolish septage station	\$ 10,000.00	
	Demo chlorination building	\$ 35,000.00	
	SCADA system	\$ 275,000.00	
	Repair/replace electrical boxes	\$ 100,000.00	
	Structure repair	\$ 300,000.00	
	Relocate, rebuild or widen access road	\$ 150,000.00	
	Upgrade plant water system	\$ 150,000.00	
Reduce effluent temperatures	\$ -		
		<b>Other Items Cost:</b>	<b>\$ 1,020,000.00</b>
15	<b>Effluent Filter System (if necessary)</b>		
	Filtration	\$ 850,000.00	
	Chemical feeds	\$ 100,000.00	
	Building	\$ 210,000.00	
		<b>Effluent Filter System Cost:</b>	<b>\$ 1,160,000.00</b>

Client: Brodhead Creek Regional Authority  
 Job No.: BHRA0802  
 Project: Stroudsburg STP Upgrade and Expansion  
 Location: Stroudsburg, PA  
 Estimator: Pennonni Associates Inc.  
 Date: May 11, 2009

Description: Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
16	<b>Civil Site Work</b>		
	E&S Controls	\$ 50,000.00	
	Grading	\$ 50,000.00	
	Stormwater Controls	\$ 150,000.00	
	Paving	\$ 75,000.00	
	Demolition at Acquired Property	\$ 35,000.00	
	Site Fencing	\$ 50,000.00	
	Final grading and restoration	\$ 50,000.00	
		<b>Civil Site Work Cost:</b>	<b>\$ 460,000.00</b>
17	<b>EQ and West Headworks</b>		
	EQ tank basins	\$ 800,000.00	
	Covers	\$ 400,000.00	
	Excavation	\$ 25,000.00	
	Jet Mixer and Aeration	\$ 100,000.00	
	Forward Feed Pumps & Piping	\$ 100,000.00	
	Handrail	\$ 35,000.00	
	Access stairs	\$ 25,000.00	
	Headworks Building	\$ 200,000.00	
	Headworks Equipment	\$ 750,000.00	
	Odor Control	\$ 150,000.00	
	Mechanical Installation	\$ 250,000.00	
	Electrical installation	\$ 75,000.00	
		<b>EQ and West Headworks</b>	<b>\$ 2,910,000.00</b>
18	<b>Subtotal 1</b>		<b>\$ 23,162,500.00</b>
19	<b>Bonds and Insurance</b>	2.0%	\$ 463,250.00
20	<b>Traffic Control</b>	0.2%	\$ 46,325.00
21	<b>Construction layout</b>	1.0%	\$ 231,625.00
22	<b>As-builts</b>	1.0%	\$ 231,625.00
23	<b>Testing</b>	1.5%	\$ 347,437.50
24	<b>Mobilization/ Demobilization</b>	2.0%	\$ 463,250.00
25	<b>Subtotal 2</b>		<b>\$ 24,946,012.50</b>

Client: Brodhead Creek Regional Authority  
 Job No.: BHRA0802  
 Project: Stroudsburg STP Upgrade and Expansion  
 Location: Stroudsburg, PA  
 Estimator: Pennoni Associates Inc.  
 Date: May 11, 2009

Description: Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
26	Contingency	20%	\$ 4,989,202.50
27	Subtotal 3 (Probable Construction Cost)		\$ 29,940,000.00
28	Legal, Admin., Engineering, Construction Review	10%	\$ 3,000,000.00
29	Property Acquisition → LAND COST.	Estimated	\$ 500,000.00
30	Subtotal 4 (Probable Non-Construction Cost)		\$ 3,500,000.00
<b>31</b>	<b>Probable Project Cost</b>		<b>\$ 33,440,000.00</b>

**Client:** Brodhead Creek Regional Authority  
**Job No.:** BHRA0802  
**Project:** Stroudsburg STP Upgrade and Expansion  
**Location:** Stroudsburg, PA  
**Estimator:** Pennonni Associates Inc.  
**Date:** May 11, 2009

**Description:** Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD O&M

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
1	<b>Administration, Operations Labor and Salary</b>		
	Billing	\$ 15,000.00	
	Billings Support	\$ 25,000.00	
	Administration Expenses	\$ 8,000.00	
	Plant Manager (\$65k +30% for Benefits)	\$ 84,500.00	
	Staff Operations (3 @ \$45k + 30%)	\$ 175,500.00	
	<b>Administration, Operations Labor and Salary Costs:</b>	<b>\$</b>	<b>308,000.00</b>
2	<b>Maintenance, Supplies and Grounds</b>		
	Equipment & Supplies (2% of Plant Cost)	\$ 598,800.00	
	Grounds	\$ 50,000.00	
	<b>Maintenance and Grounds Costs:</b>	<b>\$</b>	<b>648,800.00</b>
3	<b>Repairs</b>		
	35% of Equipment & Supplies	\$ 210,000.00	
		<b>Repairs Costs:</b>	<b>\$ 210,000.00</b>
4	<b>Utilities</b>		
	Electric	\$ 400,000.00	
	Water	\$ 5,000.00	
	Communications	\$ 2,000.00	
		<b>Utilities Costs:</b>	<b>\$ 407,000.00</b>
5	<b>Chemicals and Laboratory Analysis</b>		
	Chemicals	\$ 40,000.00	
	Laboratory	\$ 55,000.00	
	<b>Chemicals and Laboratory Analysis Costs:</b>	<b>\$</b>	<b>95,000.00</b>
6	<b>Disposal</b>		
	Sludge (\$80/ton x 7,000 tons)	\$ 560,000.00	
	Grit and Screenings	\$ 50,000.00	
		<b>Disposal Costs:</b>	<b>\$</b>
7	<b>Professional Services</b>		
	Engineering	\$ 20,000.00	
	Legal	\$ 20,000.00	
	Financial	\$ 15,000.00	
	<b>Professional Services Costs:</b>	<b>\$</b>	<b>55,000.00</b>

**Client:** Brodhead Creek Regional Authority  
**Job No.:** BHRA0802  
**Project:** Stroudsburg STP Upgrade and Expansion  
**Location:** Stroudsburg, PA  
**Estimator:** Pennoni Associates Inc.  
**Date:** May 11, 2009

**Description:** Expansion and Upgrade of STP from 2.5 MGD to 4.5 MGD O&M

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
8	Subtotal 1		\$ 2,333,800.00
9	Contingency	15.0%	\$ 350,070.00
10	<i>Probable Project Operation &amp; Maintenance Cost</i>		\$ 2,683,870.00
		<i>Use</i>	\$ 2,700,000.00

**Client:** Brodhead Creek Regional Authority  
**Job No.:** BHRA0802  
**Project:** Stroudsburg STP Upgrade and Expansion  
**Location:** Stroudsburg, PA  
**Estimator:** Pennoni Associates Inc.  
**Date:** May 11, 2009

**Description:** Bioxide Odor Control on 20-inch Pocono Force Main

<b>1</b>	<b>Site Work</b>			
	FM Flow Meter	\$	10,000.00	
	Meter Vault	\$	30,000.00	
	Tank Foundation	\$	12,500.00	
	Shed Foundation	\$	5,600.00	
	Shed with lighting and HVAC	\$	35,000.00	
	Site Control and Restoration	\$	50,000.00	
	Utilities	\$	10,000.00	
			<b>Odor Control Costs: \$</b>	<b>153,100.00</b>
<b>2</b>	<b>Odor Control</b>			
	Bioxide Tank	\$	10,000.00	
	Bioxide Feed System	\$	40,000.00	
	Controls and SCADA	\$	30,000.00	
			<b>Odor Control Costs: \$</b>	<b>80,000.00</b>
<b>18</b>	<b>Subtotal 1</b>		\$	<b>233,100.00</b>
<b>19</b>	<b>Bonds and Insurance</b>	2.0%	\$	4,662.00
<b>20</b>	<b>Traffic Control</b>	0.0%	\$	-
<b>21</b>	<b>Construction layout</b>	1.0%	\$	2,331.00
<b>22</b>	<b>As-builts</b>	1.0%	\$	2,331.00
<b>23</b>	<b>Testing</b>	0.5%	\$	1,165.50
<b>24</b>	<b>Mobilization/ Demobilization</b>	2.0%	\$	4,662.00
<b>25</b>	<b>Subtotal 2</b>		\$	<b>248,251.50</b>
<b>26</b>	<b>Contingency</b>	10%	\$	<b>24,825.15</b>
<b>27</b>	<b>Subtotal 3 (Probable Construction Cost)</b>		\$	<b>280,000.00</b>
<b>28</b>	<b>Legal, Admin., Engineering, Construction Review</b>	5%	\$	20,000.00
<b>29</b>	<b>Property Acquisition</b>		\$	-
<b>30</b>	<b>Subtotal 4 (Probable Non-Construction Cost)</b>		\$	<b>20,000.00</b>
<b>31</b>	<b>Probable Project Cost</b>		\$	<b>300,000.00</b>

Client: Brodhead Creek Regional Authority  
 Job No.: BHRA0802  
 Project: Stroudsburg STP Upgrade and Expansion  
 Location: Stroudsburg, PA  
 Estimator: Pennon Associates Inc.  
 Date: May 11, 2009

Description: Bioxide Odor Control on 20-inch Pocono Force Main O&M

Item No.	Item (Sub-Item) Description	Sub-Item Cost	Item Cost
1	Administration, Operations Labor and Salary Staff Operations (3hr/wk @ \$45k + 30%)	\$ 4,387.50	
	<b>Administration, Operations Labor and Salary Costs:</b>	\$	<b>4,387.50</b>
2	Maintenance, Supplies and Grounds Equipment & Supplies (2% of Facility Cost)	\$ 5,600.00	
	<b>Maintenance and Supply Costs:</b>	\$	<b>5,600.00</b>
3	Repairs 35% of Equipment & Supplies	\$ 2,000.00	
	<b>Repairs Costs:</b>	\$	<b>2,000.00</b>
4	Utilities Electric Communications	\$ 5,000.00 \$ 2,000.00	
	<b>Utilities Costs:</b>	\$	<b>7,000.00</b>
5	Chemicals and Laboratory Analysis Chemicals (220 gpd @ \$2.50/gal)	\$ 208,780.00	
	<b>Chemicals and Laboratory Analysis Costs:</b>	\$	<b>208,780.00</b>
6	Professional Services Engineering	\$ 2,500.00	
	<b>Professional Services Costs:</b>	\$	<b>2,500.00</b>
8	Subtotal 1		\$ 230,267.50
9	Contingency	15.0%	\$ 34,540.13
10	<b>Probable Project Operation &amp; Maintenance Cost</b>		<b>\$ 264,807.63</b>
		<b>Use</b>	<b>\$ 265,000.00</b>

Client: Brodhead Creek Regional Authority  
 Job No.: BHRA0802  
 Project: Stroudsburg STP Upgrade and Expansion  
 Location: Stroudsburg, PA  
 Estimator: Pennoni Associates Inc.  
 Date: May 11, 2009

Description: Expansion and Upgrade of STP and Force Main Odor Control

**Shared Costs**

New SBR Wastewater Treatment Plant =	\$	33,440,000
Odor Prevention Facilities =	\$	300,000
<b>Total Estimated Shared Cost =</b>	<b>\$</b>	<b>33,740,000</b>

**Cost Distribution by Municipality**

	Pocono 44.45%	Stroud 33.33%	Stroudsburg 22.22%	Total
Pocono Buy-In (\$8,800,000):	\$ 3,911,600	\$ (2,933,040)	\$ (1,955,360)	
At 2.5 MGD Upgrade	\$ 7,556,500	\$ 4,492,620	\$ 2,995,080	\$ 17,000,000
At 4.5 MGD Upgrade	\$ 3,531,900	\$ 1,507,380	\$ 1,004,920	\$ 8,000,000
<b>Subtotal at \$25M Project Cost:</b>	<b>\$ 15,000,000</b>	<b>\$ 6,000,000</b>	<b>\$ 4,000,000</b>	<b>\$ 25,000,000</b>
Additional Cost to go to \$32M:	44.45%	33.33%	22.22%	
	\$ 3,111,500	\$ 2,333,100	\$ 1,555,400	\$ 7,000,000
Additional Cost to go to \$35M:	0%	60%	40%	
	\$ -	\$ 1,044,000	\$ 696,000	\$ 1,740,000
Remaining Project Cost:	44.45%	33.33%	22.22%	
	\$ -	\$ -	\$ -	\$ -
<b>Total Cost Share:</b>	<b>\$ 18,111,500</b> 53.68%	<b>\$ 9,377,100</b> 27.79%	<b>\$ 6,251,400</b> 18.53%	<b>\$ 33,740,000</b>

**POCONO TOWNSHIP SEWER PROJECT  
EDU USER FEE CALCULATIONS FOR  
POCONO TOWNSHIP SEWER PROJECT AND JOINT SEWER PROJECT**

R.K.R Hess Associates  
Project No. 08038.03  
August 29, 2008

REVISED September 12, 2008  
ALT 2 - PROJECT 1

SEE NOV. 13, 2008 update.  
ALT 1 - PROJECT 1

	POCONO TOWNSHIP SEWER PROJECT		STROUDSBURG/STROUD/POCONO JOINT SEWER PROJECT	
	SEWER SYSTEM (DRY SEWER SECTION)		SEWER SYSTEM (DRY SEWER SECTION)	
DRY SEWER COST	\$	7,281,000	\$	7,281,000
DRY SEWER INTEREST	\$	146,000	\$	146,000
CAPITAL COST <sup>(1)</sup>	\$	7,427,000	\$	7,427,000
COST PER EDU	\$	42	\$	43
	<b>SEWER SYSTEM <sup>(1)</sup></b>		<b>SEWER SYSTEM <sup>(1)</sup></b>	
SEWER SYSTEM (REMAINING SECTIONS)	\$	29,730,000	\$	29,590,000
EFFLUENT FORCE MAIN	\$	6,770,000	\$	N/A
OUTFALL	\$	993,000	\$	N/A
EFFLUENT FORCE MAIN LOST COSTS		N/A	\$	452,000
OUTFALL LOST COSTS		N/A	\$	120,000
TRANSMISSION MAIN - ADD ON COSTS		N/A	\$	7,260,000
TRANSMISSION PUMP STATION MODIFICATIONS - ADD ON COSTS		N/A	\$	857,000
REMAINING SEWER COST	\$	37,493,000	\$	38,279,000
SEWER SYSTEM (REMAINING SECTIONS) Interest		\$ 1,574,000		\$ 1,819,000
EFFLUENT FORCE MAIN INTEREST		\$ 338,000		N/A
OUTFALL INTEREST		\$ 50,000		N/A
EFFLUENT FORCE MAIN LOST COSTS INTEREST		N/A		N/A
OUTFALL LOST COSTS INTEREST		N/A		N/A
TRANSMISSION MAIN - ADD ON COSTS INTEREST		N/A		N/A
TRANSMISSION PUMP STATION MODIFICATIONS - ADD ON COSTS INTEREST		N/A		\$ 189,000
REMAINING SEWER INTEREST		\$ 1,962,000		\$ 23,000
CAPITAL COST <sup>(1)</sup>	\$	39,455,000	\$	40,310,000
EFFLUENT FORCE MAIN LOST COSTS <sup>(4)</sup>		N/A	\$	452,000
OUTFALL LOST COSTS		N/A	\$	120,000
TRANSMISSION MAIN - ADD ON COSTS <sup>(4)</sup>		N/A	\$	7,449,000
INTEREST DURING CONSTRUCTION		N/A	\$	189,000
TRANSMISSION PUMP STATION MODIFICATIONS - ADD ON COSTS <sup>(4)</sup>		N/A	\$	880,000
INTEREST DURING CONSTRUCTION		N/A	\$	23,000
COST PER EDU	\$	540	\$	429
	<b>WASTEWATER TREATMENT PLANT</b>		<b>WASTEWATER TREATMENT PLANT <sup>(4)</sup></b>	
WWTP COST	\$	29,890,000	\$	16,791,000
WWTP INTEREST	\$	966,000	\$	718,000
CAPITAL COST <sup>(1)</sup>	\$	30,856,000	\$	17,509,000
"BUY IN" <sup>(5)</sup>		N/A	\$	3,900,000
"BUY IN" INTEREST		N/A	\$	-
INTEREST DURING CONSTRUCTION	\$	966,000	\$	650,000
WWTP LOST COSTS		N/A	\$	1,130,000
WWTP LOST COSTS INTEREST		N/A	\$	68,000
INTEREST ON LINE OF CREDIT		N/A	\$	-
COST PER EDU		417	\$	235
TOTAL CAPITAL COST <sup>(1) (7)</sup>	\$	77,738,000	\$	65,299,000
TOTAL INTEREST DURING CONSTRUCTION <sup>(7)</sup>	\$	3,074,000	\$	2,948,000
TOTAL DEBT SERVICE PER EDU <sup>(7)</sup>	\$	999	\$	707
TOTAL ANNUAL O & M COST <sup>(7)</sup>	\$	1,462,000	\$	1,462,000
ANNUAL O & M COST PER EDU <sup>(7)</sup>	\$	394	\$	394
SUBTOTAL COST PER EDU <sup>(7)</sup>	\$	1,393	\$	1,101
EQUALIZATION		?		?
ODOR CONTROL		?		?
SUBTOTAL COST PER EDU <sup>(7)</sup>	\$	1,393 PLUS cost of ODOR CONTROL & EQUALIZATION	\$	1,101 PLUS cost of ODOR CONTROL & EQUALIZATION

(1) Includes Contingency and Interest

# POCONO TOWNSHIP SEWER PROJECT

SEWER SYSTEM (DRY SEWER SECTION)

Construction	\$	6,900,000 ←
Non Construction	\$	381,000
Interest During Construction	\$	146,000

SEWER SYSTEM (REMAINING SECTIONS)

Construction	\$	24,480,000 ←
Non Construction	\$	5,250,000
Interest During Construction	\$	1,574,000

POCONO TOWNSHIP WASTE WATER TREATMENT PLANT

Construction	\$	27,500,000 ←
Non Construction	\$	2,390,000
Interest During Construction	\$	966,000
"Buy In"		N/A
"Buy In" Interest		N/A

EFFLUENT FORCE MAIN

Construction	\$	5,850,000 ←
Non Construction	\$	920,000
Interest During Construction	\$	338,000

OUTFALL

Construction	\$	690,000 ←
Non Construction	\$	303,000
Interest During Construction	\$	50,000

WWTP LOST COSTS

Non Construction		N/A
------------------	--	-----

EFFLUENT FORCE MAIN LOST COSTS

Non Construction		N/A
Interest During Construction		N/A

OUTFALL LOST COSTS

Non Construction		N/A
Interest During Construction		N/A

TRANSMISSION MAIN - ADD ON COSTS

Construction		N/A
Non Construction		N/A
Interest During Construction		N/A

TRANSMISSION PUMP STATION MODIFICATIONS - ADD ON COSTS

Construction		N/A
Non Construction		N/A
Interest During Construction		N/A

TOTAL POCONO TOWNSHIP SEWER PROJECT ESTIMATED COST \$ 77,738,000

POCONO TOWNSHIP SEWER PROJECT

SEWER SYSTEM (DRY SEWER SECTION)

Construction

Segment No. 1

Dry Sewer Contract No.1	\$	1,382,205
Dry Sewer Contract No.2	\$	5,517,795

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) CONSTRUCTION \$ 6,900,000

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) CONSTRUCTION (Rounded) \$ 6,900,000

SEWER SYSTEM (DRY SEWER SECTION)

Non Construction

Engineering	\$	-
Legal	\$	-
Permit Application Fees - Dry sewers	\$	1,985
Land	\$	-
Construction Observations- Dry Sewer	\$	327,000
Bond Fees	\$	51,800

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) NON-CONSTRUCTION \$ 380,785

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) NON-CONSTRUCTION (Rounded) \$ 381,000

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) (Rounded) \$ 7,281,000

Interest During Construction\* \$ 146,000

TOTAL SEWER SYSTEM (DRY SEWER SECTION) (Rounded) \$ 7,427,000

\* 2.75 years of Interest @ 3.0%; Construction Oct 1, 2008; Collect Tapping Fees Jan 2012

# POCONO TOWNSHIP SEWER PROJECT

## SEWER SYSTEM (REMAINING SECTIONS)

### Construction

<u>Segment No. 1</u>		
Remaining SEWER System within Dry Sewer Section	\$	1,670,000
 <u>Segment No. 2</u>		
	\$	9,390,000
 <u>Segment No. 3</u>		
	\$	1,530,000
 <u>Segment No. 4</u>		
	\$	4,890,000
 <u>Segment No. 5</u>		
	\$	7,000,000

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) CONSTRUCTION \$ 24,480,000

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) CONSTRUCTION (Rounded) \$ 24,480,000

## SEWER SYSTEM (REMAINING SECTIONS)

### Non Construction

Engineering	\$	3,179,338
Legal	\$	646,327
Permitting	\$	2,000
Land	\$	350,000
Construction Observations	\$	750,000
Bond Fees	\$	319,059

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) NON-CONSTRUCTION \$ 5,246,724

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) NON-CONSTRUCTION (Rounded) \$ 5,250,000

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) (Rounded) \$ 29,730,000

Interest During Construction\* \$ 1,574,000

TOTAL SEWER SYSTEM (REMAINING SECTIONS) (Rounded) \$ 31,310,000

\* 1.75 years of Interest @ 3.0%; Construction Oct 1, 2009; Collect Tapping Fees Jan 2012



# POCONO TOWNSHIP SEWER PROJECT

**OUTFALL**

Construction

OUTFALL

	\$	690,000	
			SUBTOTAL OUTFALL CONSTRUCTION \$ 690,000
			SUBTOTAL OUTFALL CONSTRUCTION (Rounded) \$ <u>690,000</u>

**OUTFALL**

Non Construction

Engineering  
 Legal  
 Permitting  
 Land  
 Construction Observations  
 Bond Fees

	\$	241,493	
			SUBTOTAL OUTFALL NON-CONSTRUCTION \$ 302,142
			SUBTOTAL OUTFALL NON-CONSTRUCTION (Rounded) \$ <u>303,000</u>

SUBTOTAL OUTFALL (Rounded) \$ 993,000

Interest During Construction\* \$ 50,000

TOTAL OUTFALL (Rounded) \$ 1,043,000

\* 1.75 years of Interest @ 3.0%; Construction Oct 1, 2009; Collect Tapping Fees Jan 2012

**WWTP LOST COSTS**

Non Construction

Engineering  
 Legal  
 Permitting  
 Land  
 Construction Observations  
 Bond Fees

N/A  
 N/A  
 N/A  
 N/A  
 N/A  
 N/A

SUBTOTAL WWTP LOST COSTS NON-CONSTRUCTION N/A

SUBTOTAL WWTP LOST COSTS NON-CONSTRUCTION (Rounded) N/A

SUBTOTAL WWTP LOST COSTS (Rounded) N/A

Interest During Construction\* N/A

TOTAL WWTP LOST COSTS (Rounded) N/A

**POCONO TOWNSHIP SEWER PROJECT**  
**SUMMARY**  
**USER FEE CALCULATIONS FOR**  
**POCONO TOWNSHIP SEWER PROJECT AND POCONO'S SHARE OF JOINT SEWER PROJECT**  
R.K.R Hess Associates  
Project No. 08038.06  
August 29, 2008  
**REVISED November 13, 2008**

**SEWER SYSTEM (DRY SEWER SECTION)**

**Construction**

**Segment No. 1**

Dry Sewer Contract No.1	\$	1,382,205
Dry Sewer Contract No.2	\$	5,517,795

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) CONSTRUCTION \$ 6,900,000

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) CONSTRUCTION (Rounded) \$ 6,900,000

**SEWER SYSTEM (DRY SEWER SECTION)**

**Non Construction**

Engineering	\$	-
Legal	\$	-
Permit Application Fees - Dry sewers	\$	1,985
Land	\$	-
Construction Observations- Dry Sewer	\$	327,000
Bond Fees	\$	51,800

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) NON-CONSTRUCTION \$ 380,785

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) NON-CONSTRUCTION (Rounded) \$ 381,000

**TOTAL COST SEWER SYSTEM (DRY SEWER SECTION) (Rounded) \$ 7,281,000**

Interest During Construction\* \$ 199,000

**TOTAL COST SEWER SYSTEM (DRY SEWER SECTION) (Rounded) \$ 7,480,000**

<b>7,480,000</b> *
--------------------

\* 3.75 years of Interest @ 3.0%; Construction Oct 1, 2008; Collect Tapping Fees Jan 2013

**SEWER SYSTEM (REMAINING SECTIONS)**

**Construction**

<u>Segment No. 1</u>		
Remaining SEWER System within Dry Sewer Section	\$	1,670,000
<u>Segment No. 2</u>	\$	9,390,000
<u>Segment No. 3</u>	\$	1,530,000
<u>Segment No. 4</u>	\$	4,890,000
<u>Segment No. 5</u>	\$	7,000,000 - (includes PS#1-5)

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) CONSTRUCTION \$ 24,480,000

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) CONSTRUCTION (Rounded) \$ 24,480,000

**SEWER SYSTEM (REMAINING SECTIONS)**

**Non Construction**

Engineering	\$	3,179,338
Legal	\$	646,327
Permitting	\$	2,000
Land	\$	350,000 *
Construction Observations	\$	750,000
Bond Fees	\$	160,808

SUBTOTAL SEWER SYSTEM (DRY SEWER SECTION) NON-CONSTRUCTION \$ 5,088,473

SUBTOTAL SEWER SYSTEM (REMAINING SECTIONS) NON-CONSTRUCTION (Rounded) \$ 5,090,000

**TOTAL COST SEWER SYSTEM (REMAINING SECTIONS) (Rounded) \$ 29,570,000**

Interest During Construction\* \$ 1,711,000

**TOTAL SEWER SYSTEM (REMAINING SECTIONS) (Rounded) \$ 31,281,000 \***

\* 2.75 years of Interest @ 3.0%; Construction Oct 1, 2009; Collect Tapping Fees Jan 2013

Less  
\$ 350,000  
LAND

**WWTP LOST COSTS**

**Non Construction**

Engineering	\$	681,494
Legal	\$	63,156
Permitting	\$	381,523
Land	\$	-
Construction Observations	\$	-
Bond Fees	\$	-

SUBTOTAL WWTP LOST COSTS NON-CONSTRUCTION \$ 1,126,173

SUBTOTAL WWTP LOST COSTS NON-CONSTRUCTION (Rounded) \$ 1,130,000

SUBTOTAL WWTP LOST COSTS (Rounded) \$ 1,130,000

Interest During Construction\* N/A

TOTAL WWTP LOST COSTS (Rounded) \$ 1,130,000 \*

**EFFLUENT FORCE MAIN LOST COSTS**

**Non Construction**

Engineering	\$	451,407
Legal	\$	-
Permitting	\$	-
Land	\$	-
Construction Observations	\$	-
Bond Fees	\$	-

SUBTOTAL EFFLUENT FORCE MAIN LOST COSTS NON-CONSTRUCTION \$ 451,407

SUBTOTAL EFFLUENT FORCE MAIN LOST COSTS NON-CONSTRUCTION (Rounded) \$ 452,000

Interest During Construction\* N/A

TOTAL EFFLUENT FORCE MAIN LOST COSTS (Rounded) \$ 452,000 \*

**OUTFALL LOST COSTS**

**Non Construction**

Engineering	\$	118,000
Legal	\$	-
Permitting	\$	-
Land	\$	-
Construction Observations	\$	-
Bond Fees	\$	-

SUBTOTAL OUTFALL LOST COSTS NON-CONSTRUCTION \$ 118,000

SUBTOTAL OUTFALL LOST COSTS NON-CONSTRUCTION (Rounded) \$ 120,000

Interest During Construction\* N/A

TOTAL OUTFALL LOST COSTS (Rounded) \$ 120,000 \*

**TRANSMISSION MAIN - ADD ON COSTS**

**Construction**

TRANSMISSION MAIN - ADD ON COSTS \$ 6,140,000

SUBTOTAL TRANSMISSION MAIN - ADD ON COSTS CONSTRUCTION \$ 6,140,000

SUBTOTAL TRANSMISSION MAIN - ADD ON COSTS CONSTRUCTION (Rounded) \$ 6,140,000

**TRANSMISSION MAIN - ADD ON COSTS**

**Non Construction**

Engineering	\$	551,900
Legal	\$	305,000
Permitting	\$	13,020
Land	\$	-
Construction Observations	\$	200,000
Bond Fees	\$	38,677

SUBTOTAL TRANSMISSION MAIN - ADD ON COSTS NON-CONSTRUCTION \$ 1,108,597

SUBTOTAL TRANSMISSION MAIN - ADD ON COSTS NON-CONSTRUCTION (Rounded) \$ 1,110,000

SUBTOTAL TRANSMISSION MAIN - ADD ON COSTS (Rounded) \$ 7,250,000

Interest During Construction\* \$ 178,000

TOTAL TRANSMISSION MAIN - ADD ON COSTS (Rounded) \$ 7,428,000 \*

\*1.25 years of Interest @ 3.0%; Construction April 1, 2011; Collect Tapping Fees Jan 2013

**SEWER SYSTEM (DRY SEWER SECTION)**

Construction	\$ 6,900,000
Non Construction	\$ 381,000
Interest During Construction	\$ 199,000

**SEWER SYSTEM (REMAINING SECTIONS)**

Construction	\$ 24,480,000
Non Construction	\$ 5,090,000
Interest During Construction	\$ 1,711,000

**POCONO TOWNSHIP'S SHARE OF THE WASTE WATER TREATMENT PLANT**

Construction	\$ 10,926,000
Non Construction	\$ 2,632,000
Interest During Construction	\$ 675,000
"Buy In"	\$ 3,900,000
"Buy In" Interest	\$ -
Interest on \$500,000 Advance payment to BCRA for Engineering Costs	\$ 68,000

**POCONO TOWNSHIP'S SHARE OF THE EQUALIZATION SYSTEM**

Construction	\$ 2,360,000
Non Construction	\$ 240,000
Interest During Construction	\$ 160,000

**WWTP LOST COSTS**

Non Construction	\$ 1,130,000
------------------	--------------

**EFFLUENT FORCE MAIN LOST COSTS**

Non Construction	\$ 452,000
Interest	N/A

**OUTFALL LOST COSTS**

Non Construction	\$ 120,000
Interest	N/A

**TRANSMISSION MAIN - ADD ON COSTS**

Construction	\$ 6,140,000
Non Construction	\$ 1,110,000
Interest During Construction	\$ 178,000

TOTAL OF POCONO'S SHARE OF STROUDSBURG/STROUD/POCONO JOINT SEWER PROJECT AND POCONO  
TOWNSHIP'S COLLECTION SYSTEM ESTIMATED COSTS \$ 68,852,000

ALTERNATIVE 2 - PROJECT 2

2.5 MGD MBR UPGRADE → STROUDSBURG WWTP  
PROJECT COST ESTIMATE.



Assumptions:

1. A new fine screen is required.
2. Comminutor, influent pump station, valve boxes, and aerated grit chamber do not require modifications.
3. The aerated tanks require modification as follows:
  - a. Traveling bridges and diffuser systems will need to be removed from both tanks.
  - b. A baffle wall will need to be added to the east tank to block off an anoxic zone.
  - c. Aeration diffusers and blowers will be needed for the aeration zones in each tank.
  - d. The flow splitter box will need to be modified to allow splitting of flow from the anoxic portion of the east tank to the aerobic zones of each of the two tanks.
4. The clarigestors will need to be modified as follows:
  - a. The aeration system in the aerobic sludge digester zone of the northern clarigestor will need to be removed to convert the outer rim to an anoxic zone.
  - b. The clarifier internals will need to be removed from both tanks.
  - c. A membrane system will be added to the center of the northern clarigestor.
  - d. An aeration system will be added to the center of the southern clarigestor to accommodate additional sludge digestion.
5. A new sludge thickening tank will need to be added.
6. The existing sludge dewatering equipment will be used.
7. The chlorine contact tanks will be converted to accommodate reaeration and UV disinfection.
8. A new RAS pumping station will be added.
9. A new blower building will be added.
10. The existing Parshall flume and discharge line will be used.

\* Provided By WESTON SOLUTIONS INC. MAY 2007.

ITEM	DESCRIPTION	QUANTITY	UNIT	MATERIAL COST	LABOR COSTS	EQUIPMENT COSTS	TOTAL COSTS
1	SITE WORK	1	LS	\$ -	\$ -	\$ -	\$ -
A	SITE CLEARING AND GRUBBING	0.6	ACRES	\$ 13,600.00	\$ 9,400.00	\$ 4,800.00	\$ 26,700.00
B	SITE CUT & FILL	300	CY	\$ -	\$ 2,300.00	\$ 3100	\$ 5,400.00
	SUB-TOTAL SITE WORK			\$ 13,600.00	\$ 10,700.00	\$ 7,900.00	\$ 32,100.00
2	NEW BARD SCREENING BASIN	1	LS	\$ -	\$ -	\$ -	\$ -
	STRUCTURE	1	LS	\$ 42,300.00	\$ 60,200.00	\$ 17,100.00	\$ 119,600.00
	SUB-TOTAL BARD SCREENING BASIN			\$ 42,300.00	\$ 60,200.00	\$ 17,100.00	\$ 119,600.00
3	MODIFICATIONS TO EXISTING BASINS	1	LS	\$ -	\$ -	\$ -	\$ -
A	BASIN CLEANING - TANKS T-3B AND T-4A & 4-B	1	LS	\$ 2,600.00	\$ 44,200.00	\$ 5,300.00	\$ 52,000.00
B	DEMOLITIONS TANK 3-B	1	LS	\$ 3,900.00	\$ 42,000.00	\$ 19,700.00	\$ 66,400.00
C	DEMOLITIONS TANKS T-4-A AND 4-B	1	LS	\$ 42,300.00	\$ 161,300.00	\$ 78,800.00	\$ 272,500.00
D	MODIFICATIONS TO TANK 3-B	1	LS	\$ 60,800.00	\$ 102,700.00	\$ 17,800.00	\$ 181,100.00
	SUBTOTAL MODIFICATIONS TO EXISTING TANKS			\$ 109,300.00	\$ 349,000.00	\$ 121,700.00	\$ 672,000.00
4	MBR TANKS	1	LS	\$ -	\$ -	\$ -	\$ -
A	CONCRETE WORK	1	LS	\$ 136,900.00	\$ 224,300.00	\$ 28,800.00	\$ 389,000.00
B	MISCELLANEOUS METALS	1	LS	\$ 61,600.00	\$ 24,300.00	\$ 6,000.00	\$ 81,900.00
	SUB-TOTAL MBR TANKS			\$ 198,500.00	\$ 248,600.00	\$ 34,800.00	\$ 477,900.00
5	BLOWER BUILDING	2400	SF	\$ -	\$ -	\$ -	\$ -
A	BLOWER BUILDING FOUNDATION	1	LS	\$ 30,400.00	\$ 35,000.00	\$ 16,100.00	\$ 80,900.00
B	BUILDING MASONRY WORK	6600	SF	\$ 37,700.00	\$ 74,000.00	\$ 7,300.00	\$ 119,000.00
C	BUILDING STEEL AND ROOFING SYSTEM	2400	SF	\$ 42,700.00	\$ 20,700.00	\$ 6,000.00	\$ 69,400.00
D	BUILDING WINDOWS & DOORS	1	LS	\$ 7,600.00	\$ 2,200.00	\$ 1,600.00	\$ 11,400.00
E	BUILDING FINISHES	1	LS	\$ 3,600.00	\$ 10,200.00	\$ 1,200.00	\$ 14,900.00
F	BUILDING - LIGHTING & HVAC	1	LS	\$ 75,600.00	\$ 46,800.00	\$ 10,800.00	\$ 133,200.00
	SUB-TOTAL BLOWER BUILDING			\$ 197,600.00	\$ 189,700.00	\$ 41,600.00	\$ 428,900.00
6	MECHANICAL EQUIPMENT	1	LS	\$ -	\$ -	\$ -	\$ -
	MECHANICAL EQUIPMENT	1	LS	\$ 6,916,000.00	\$ 653,300.00	\$ -	\$ 7,469,300.00
	SUB-TOTAL MECHANICAL EQUIPMENT			\$ 6,916,000.00	\$ 653,300.00	\$ -	\$ 7,469,300.00
7	MECHANICAL PIPING COSTS			\$ -	\$ -	\$ -	\$ -
A	MECHANICAL PIPING COSTS - USE 15% OF EQUIPMENT COSTS	1	LS	\$ 1,037,400.00	\$ -	\$ -	\$ 1,037,400.00
	SUB-TOTAL MECHANICAL PIPING COSTS			\$ 1,037,400.00	\$ -	\$ -	\$ 1,037,400.00



ALTERNATIVE 2  
PROJECT 2

2.5 MGD MBR WWTP.

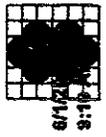
			LS	\$		\$		\$		\$
8		1								
	YARD PIPING									
	USE RATIO 2.5 MGD/3.0 MGD = .7 OF PREVIOUS ESTIMATE	1	LS	\$	696,100.00	\$	121,600.00	\$	132,400.00	\$
A										860,000.00
	SUB-TOTAL YARD PIPING				696,100.00		121,600.00		132,400.00	860,000.00
9		1	LS	\$		\$		\$		
	ELECTRICAL WORK									
A	ELECTRICAL WORK - USE RATIO = .7	1	LS	\$	96,200.00	\$	160,700.00	\$	17,900.00	\$
	SUB-TOTAL ELECTRICAL WORK				96,200.00		160,700.00		17,900.00	274,800.00
10		1	LS	\$		\$		\$		
	INSTRUMENTATION WORK									
A	INSTRUMENTATION WORK - USE 8% OF EQUIPMENT COSTS	1	LS	\$	553,280.00	\$		\$		\$
	SUB-TOTAL INSTRUMENTATION WORK				553,280.00					553,280.00
	SUB-TOTAL PLANT COSTS				9,749,080.00		1,885,700.00		373,400.00	11,808,180.00
	ENGINEERING & DESIGN COSTS - 8%	1	LS	\$	779,928.40	\$	134,868.00	\$	29,872.00	\$
	CONSTRUCTION MANAGEMENT - 8%	1	LS	\$	779,928.40	\$	134,868.00	\$	29,872.00	\$
	ESCALATION TO MID-POINT - 6% - 10%	1	LS	\$	555,446.84	\$	13,485.60	\$	2,987.20	\$
	SUB-TOTAL PROJECT COSTS				11,874,379.44		1,968,897.60		436,131.20	14,279,408.24
	CONTINGENCY 15%				1,781,156.92		295,334.84		65,419.88	2,141,911.54
	TOTAL PROJECT COSTS				13,655,536.36		2,284,232.24		501,550.88	16,441,319.48

1,180,000  
14,877,500  
2,231,500

\* \$17,109,000

INCREASE TO 10% TO UPDATE FROM MAY 30, 2007 TO JAN 1, 2009

USE \$17,109,000 - TOTAL PROJECT COST.



ALTERNATIVE 2 - PROJECT 2 2.5 MGD WWTP - O&M COST

O&M Budget				
Project: Stroudsburg, Stroud, Pocono Joint Treatment Plant - 4.5 MGD Zenon Zeeweed MBR *				
Item	First Full Year Budget			
	2013	2014	2015	2016
<b>1. Administrative</b>				
Quarterly Billings	\$ 14,000	\$ 14,420	\$ 14,853	\$ 15,298
Billing Operations Support	\$ 10,000	\$ 10,300	\$ 10,609	\$ 10,927
Misc Admin Expenses	\$ 5,430	\$ 5,593	\$ 5,761	\$ 5,934
<b>Total Administrative</b>	<b>\$ 29,430</b>	<b>\$ 30,313</b>	<b>\$ 31,222</b>	<b>\$ 32,159</b>
<b>2. Labor and Salaries</b>				
Plant Superintendent	\$ 60,000	\$ 61,800	\$ 63,654	\$ 65,564
Staff Operations Support (2 Staff)	\$ 80,000	\$ 82,400	\$ 84,872	\$ 87,418
Benefits (10%)	\$ 14,000	\$ 14,420	\$ 14,853	\$ 15,298
<b>Total Labor and Salaries</b>	<b>\$ 154,000</b>	<b>\$ 158,620</b>	<b>\$ 163,379</b>	<b>\$ 168,280</b>
<b>3. Maintenance and Supplies (See Basis)</b>				
Membrane and Thickener Modules - 20% of Equipment Capital (no discount)	\$ 633,767	\$ 650,715	\$ 670,236	\$ 690,243
Other Equipment - 2% of Equipment Capital	\$ 27,153	\$ 27,968	\$ 28,807	\$ 29,671
Grounds and Parts	\$ 24,238	\$ 24,965	\$ 25,714	\$ 26,486
<b>Total Maintenance and Supplies</b>	<b>\$ 685,158</b>	<b>\$ 703,648</b>	<b>\$ 724,757</b>	<b>\$ 746,500</b>
<b>4. Electrical and Utilities (See Basis)</b>				
Electric	\$ 138,452	\$ 142,606	\$ 146,884	\$ 151,200
Water	\$ 1,400	\$ 1,442	\$ 1,485	\$ 1,530
Telephone	\$ 1,300	\$ 1,339	\$ 1,379	\$ 1,421
<b>Total Electrical and Utilities</b>	<b>\$ 141,152</b>	<b>\$ 145,387</b>	<b>\$ 149,748</b>	<b>\$ 154,241</b>
<b>5. Insurance and Chemicals (See Basis)</b>				
Facilities	\$ 16,081	\$ 16,724	\$ 17,393	\$ 18,089
Equipment	\$ 64,032	\$ 66,594	\$ 69,257	\$ 72,028
Chemicals	\$ 106,810	\$ 111,082	\$ 115,526	\$ 120,147
<b>Total Insurance and Chemicals</b>	<b>\$ 186,923</b>	<b>\$ 194,400</b>	<b>\$ 202,176</b>	<b>\$ 210,263</b>
<b>6. Sludge Disposal 3,178 * \$75/t</b>				
5,778 Wet Tons/Yr * \$46/ton	\$ 265,498	\$ 270,227	\$ 275,236	\$ 280,485
<b>Total Sludge Disposal</b>	<b>\$ 144,449</b>	<b>\$ 150,227</b>	<b>\$ 156,236</b>	<b>\$ 162,485</b>
<b>7. Repairs (See Basis)</b>				
35% of Maintenance and Supplies	\$ 246,707	\$ 254,108	\$ 261,731	\$ 269,583
<b>Total Repairs</b>	<b>\$ 246,707</b>	<b>\$ 254,108</b>	<b>\$ 261,731</b>	<b>\$ 269,583</b>
<b>8. Engineering, Legal, Etc.</b>				
Auditing	\$ 10,000	\$ 10,300	\$ 10,609	\$ 10,927
Legal (Retainer)	\$ 15,000	\$ 15,450	\$ 15,914	\$ 16,391
Engineering (Retainer)	\$ 10,000	\$ 10,300	\$ 10,609	\$ 10,927
<b>Total Engineering, Legal, Etc.</b>	<b>\$ 35,000</b>	<b>\$ 36,050</b>	<b>\$ 37,132</b>	<b>\$ 38,245</b>
<b>Lab Testing</b>				
Daily Samples Collection and Testing	\$ 40,000	\$ 42,000	\$ 44,100	\$ 46,305
<b>Total Lab Testing</b>	<b>\$ 40,000</b>	<b>\$ 42,000</b>	<b>\$ 44,100</b>	<b>\$ 46,305</b>
<b>TOTAL ANNUAL O&amp;M, No Contingency</b>	<b>\$ 1,660,814</b>	<b>\$ 1,714,752</b>	<b>\$ 1,770,481</b>	<b>\$ 1,828,062</b>
<b>TOTAL ANNUAL O&amp;M, With 10% Contingency</b>	<b>\$ 1,826,895</b>	<b>\$ 1,886,227</b>	<b>\$ 1,947,529</b>	<b>\$ 2,010,868</b>

\* - O&M BUDGET FOR 4.5 MGD MEMBRANE WWTP  
 Revise Costs that are Flow Dependent to 2.5 MGD  
 N/C in ADMINISTRATIVE; LABOR; ENGR; LEGAL

2.5 MGD MBR - O&M COST

use \$1,350,000 \*

**APPENDIX O**

**TASK ACTIVITY REPORT APPROVED BY DEP AND MUNICIPALITIES**

**Engineering**

**Environmental**

**Surveying**

HAMILTON TOWNSHIP  
POCONO TOWNSHIP  
STROUD TOWNSHIP  
STROUDSBURG BOROUGH

MONROE COUNTY, PA

OFFICIAL ACT 537 SEWAGE FACILITIES PLAN  
TASK / ACTIVITY REPORT (TAR)

Prepared For:  
**Brodhead Creek Regional Authority**  
410 Stokes Avenue  
East Stroudsburg, PA 18301-1604

August 20, 2008

Prepared By:  
**REILLY ASSOCIATES**  
Consulting Engineers  
49 South Main Street  
Suite 200  
Pittston, Pennsylvania 18640  
RA No. 08062.00

**REVISION**  
**OFFICIAL ACT 537 SEWAGE FACILITIES PLAN**  
**TASK/ACTIVITY REPORT**

Plan Summary

Four municipalities in Monroe County are consolidating wastewater treatment into a single regional Wastewater Treatment Plant (WWTP). The municipalities are Hamilton Township, Pocono Township, Stroud Township and Stroudsburg Borough. To accomplish this goal the municipalities have agreed to have the Brodhead Creek Regional Authority (BCRA) take the lead in planning and ultimately be the entity to own and operate the WWTP. On behalf of the municipalities BCRA is in the process of developing revisions to the four Official Act 537 Sewage Facilities Plans. Reilly Associates of Pittston, Pennsylvania was retained by BCRA in May 2008 to assist in development of a consolidated Act 537 Sewage Facilities Plan revision document.

On May 20 of 2008, BCRA met with the Delaware River Basin Commission (DRBC) and The Department of Environmental Protection (DEP) to discuss the approach, general requirements and schedule for the plan revisions. It was determined that a single document would be produced which each of the municipalities would adopt in order to implement the regional WWTP.

The purpose of this Task Activity Report (TAR) is to describe the tasks for Reilly Associates to complete and to revise the Official Act 537 Sewage Facilities Plans. The Department of Environmental Protection has requested to review and approve this TAR so as to qualify the fees associated with the completion of the Plan as eligible for 50% reimbursement.

Reilly Associates' tasks to be completed in finalizing this report are presented below. It is Reilly Associates intention to rely on work previously performed by this firm and other firms in the preparation of previously approved Act 537 Sewage Facilities Plans. Other

Plan requirements will be satisfied in accordance with the Department of Environmental Protection's guidelines and the Instructions for Completing Act 537 Plan Content and Environmental Assessment Checklist, revised September 2005 (attached).

A map delineating the proposed planning area is provided in Attachment A. Timelines for completing the Official Act 537 Sewage Facilities Plan are included in Attachment B. A task/activity cost preparation is provided in Attachment C.

### Tasks

1. Table of Contents  
Reilly Associates will prepare a Table of Contents for the Official Act 537 Sewage Facilities Plan to coincide with the applicable sections of the Plan.
2. Plan Summary  
A plan summary will be written outlining the service areas, selected alternative, costs and user fees, institutional requirements, municipal commitments, and schedule of implementation.
3. Municipal Adoption  
Reilly Associates will prepare the resolutions required for municipal adoption of the Official Act 537 Sewage Facilities Plan.
4. Planning Commission/County Health Department Comments  
A copy of the Plan will be provided to the county and municipal planning commissions (as applicable) for comments.
5. Publication  
Reilly Associates will prepare an advertisement for publication in a local newspaper acceptable to the Department of Environmental Protection, outlining the plan requirements for public comment. The comment period shall be for a minimum of 30 days.

6. Comments and Responses

Reilly Associates will receive written public comments regarding the proposed Plan and provide written responses to comments. All written comments and responses will be included in the Official Act 537 Sewage Facilities Plan.

7. Implementation Schedule

An implementation schedule will be developed based on the tasks required to implement the selected alternative. The schedule will be included in the Plan Summary.

8. Consistency Documentation

The selected alternative shall be in accordance with the requirements of the local, state, and federal governments and/or their respective agencies. Agency coordination will be submitted for the area of the conveyance line from the unbuilt Pocono WWTP to the Stroudsburg Borough WWTP. Where inconsistencies are identified, they shall be resolved to the satisfaction of the regulatory agency.

I. Previous Wastewater Planning

- A. Reilly Associates will review and summarize previous wastewater planning performed by various engineering firms and agencies. Additionally, Reilly Associates will review applicable sewage planning modules for new land development.

II. Physical and Demographic Analysis

- A. Reilly Associates will identify the sewage planning areas and service areas.

- B. Reilly Associates will identify the municipal boundaries. Reilly Associates will add to the analysis and mapping as necessary.

### III. Existing Sewage Facilities In the Planning Area - Identifying the Existing Needs

- A. Reilly Associates will summarize the existing Stroud/Stroudsburg WWTP size, capacity, location, receiving stream, process, pertinent parameters and information. Reilly Associates will also describe the previously approved, but un-built Pocono Township WWTP.
- B. This section is not applicable because the sewage disposal needs identification was performed in the previous approved Pocono Township Plan; Stroud Township and Stroudsburg Borough are not changing their service area.
- C. Reilly Associates will briefly summarize sludge generation and disposal from existing and proposed wastewater treatment plants.

### IV. Future Growth and Land Development

- A. Reilly Associates will utilize the existing approved Act 537 Plan documents for establishment of sewage needs.
- B. Reilly Associates will summarize the existing and future growth sewage needs. Reference will be made to existing documents and no new analysis or mapping will be developed.

### V. Identify Alternatives

- A. Conventional collection, conveyance, treatment and discharge alternatives will be identified. In particular the alternatives to be considered will be a)

two WWTPs, one in Pocono (2.0 MGD) and one in Stroudsburg (2.5 MGD) in accordance with current DEP approvals and b) a new regional WWTP (4.5 MGD) located in Stroudsburg on the existing WWTP site with some acquisition of adjacent land for the expansion.

B. No land disposal or alternate disposal methods will be considered.

C. - G. Alternatives listed in these sections are not applicable and will not be considered.

H. A no action alternative will be evaluated with respect to required sewage needs and current anti-degradation requirements and current laws.

## VI. Evaluation of Alternatives

A. Technically feasible alternatives identified in Section V above will be evaluated in relation to the effectiveness of the alternative with regards to the sewage needs of the four municipalities. Alternatives will also be evaluated with respect to the following:

1. Applicable plans developed and approved under Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act (33 U.S.C.A. 1288).
2. Municipal wasteload management Corrective Action Plans or Annual Reports developed under PA Code, Title 25, Chapter 94. (Reference-Title 25, §71.21.a.5.i.B). The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report.
3. Plans developed under Title II of the Clean Water Act (33 U.S.C.A. 1281-1299) or Titles II and VI of the Water Quality Act of 1987 (33 U.S.C.A 1251-1376).
4. Comprehensive plans developed under the Pennsylvania Municipalities Planning Code. (Reference-Title 25, §71.21.a.5.i.D). The municipality's comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan.
5. Antidegradation requirements as contained in PA Code, Title 25, Chapters 93, 95 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act. (Reference - Title 25, §71.21.a.5.i.E).

Appendix B, Section II.F of the Planning Guide.

6. State Water Plans developed under the Water Resources Planning Act (42 U.S.C.A. 1962-1962 d-18). (Reference-Title 25, §71.21.a.5.i.F).
  7. Pennsylvania Prime Agricultural Land Policy contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils. (Reference-Title 25, §71.21.a.5.i.G).
  8. County Stormwater Management Plans approved by DEP under the Storm Water Management Act (32 P.S. 680.1-680.17). (Reference-Title 25, §71.21.a.5.i.H). Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the county Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exists.
  9. Wetland Protection. Using wetland mapping developed under Checklist Section II.G, identify and discuss mitigative measures including the need to obtain permits for any encroachments on wetlands from the construction or operation of any proposed wastewater facilities.
  10. Protection of rare, endangered or threatened plant and animal species as identified by the Pennsylvania Natural Diversity Inventory (PNDI). (Reference-Title 25, §71.21.a.5.i.J). Provide DEP with a copy of the completed Request For PNDI Search document. Also provide a copy of the response letter from the Department of Conservation and Natural Resources' Bureau of Forestry regarding the findings of the PNDI search.
  11. Historical and archaeological resource protection under P.C.S. Title 37, Section 507 relating to cooperation by public officials with the Pennsylvania Historical and Museum Commission. (Reference-Title 25, §71.21.a.5.i.K). Provide the department with a completed copy of a Cultural Resource Notice request of the Bureau of Historic Preservation (BHP) to provide a listing of known historical sites and potential impacts on known archaeological and historical sites. Also provide a copy of the response letter from the BHP.
- B. Reilly Associates will provide for the resolution of any inconsistencies in applicable plans by requesting correspondence from the appropriate agency stating that the agency has received, reviewed and concurred with the resolution of identified inconsistencies. This will include a Phase 1 study to resolve potential conflicts with U.S. Fish and Wildlife Service and the Department of Natural Resources based on their response letters.
- C. Reilly Associates will evaluate alternatives with regards to appropriate water quality standards provided by DRBC and DEP.

- D. Detailed costs estimates will be developed for the Alternatives Evaluation completed by Reilly Associates. These costs estimates will utilize present worth analysis.
- E. The study will provide an analysis of funding methods available for the alternative and financing scheme combination, which prove to be the most cost effective. Contingency financing will be discussed.
- F. Immediate versus phased implementation of alternatives will be analyzed. Consideration will be given to any existing public health hazards if identified. The advantages, if any, in phasing construction will be explored.
- G. We will evaluate administrative organizations and legal authority necessary for implementation of the Plan.

## VII. Institutional Evaluation

- A. Reilly Associates will provide an analysis of existing organizations and their performance including financial, administrative and legal authority as they apply to this plan.
- B. Reilly Associates will provide an analysis and description of the various institutional alternatives necessary to implement the proposed technical solution including the need for new authorities and the cost of administration.
- C. Reilly Associates will describe all necessary administrative and legal activities to be completed and adopted to ensure implementation of the recommended alternative.
- D. Reilly Associates will identify the chosen institutional alternative for implementing the chosen technical alternative and provide justification for the selection.

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

- A. Reilly Associates will identify the technical wastewater disposal alternative best suited to meet the planning area's needs. Justification will be provided based upon the existing and future needs, operation and maintenance considerations, cost effectiveness, available management and financing considerations, and environmental soundness.

B. The Plan will designate and describe the capital financing plan chosen to implement the selected alternative. A back-up financing plan will also be considered.

C. Reilly Associates will designate and describe the implementation schedule for the recommended alternative including any justification for proposed phasing of construction.

IX. Environmental Report (ER) generated from the Uniform Environmental Review Process (UER)

A. Reilly Associates will complete an ER as required by the UER process and as described in the DEP Technical Guidance 381-5511-111.

OFFICIAL ACT 537 SEWAGE FACILITIES PLAN  
TASK / ACTIVITY REPORT

ATTACHMENT A

PROPOSED PLANNING AREA MAP

**HAMILTON TOWNSHIP  
POCONO TOWNSHIP  
STROUD TOWNSHIP  
STROUDSBURG BOROUGH**

OFFICIAL ACT 537 SEWAGE FACILITIES PLAN  
TASK / ACTIVITY REPORT

ATTACHMENT B

ACTIVITIES SCHEDULE

**BCRA Regional WWTP**  
6/26/2008

ACT 537 Planning

	Start	Duration (Days)	Finish	Achievable Goals
Prepare Draft Plan			7/15/2008	
Draft Plan Circulated for Comment	7/15/2008			
Draft Plan Comments Received		30	8/14/2008	
Agency Notifications				
DEP, PNDI, USF&W, PAF&B	6/15/2008			
PADCNR, PHMC, etc.				
Agency Responses - Assumes no major issues		60	8/14/2008	
Submit to Planning Commissions for Comment	8/15/2008	30	9/14/2008	
Respond to Planning Commission Comments	9/14/2008	14	9/28/2008	
Municipalities Advertise Plan	9/29/2008			
Public Comment Period	9/29/2008	30	10/29/2008	
Respond to Public Comments	10/29/2008	14	11/12/2008	
<b>Adopt Plans</b>	11/12/2008	14	11/26/2008	12/08
Submit to DEP	11/26/2008			
DEP Review and Approval	11/26/2008	60	1/25/2009	
Advertisement and Waiting period after Publication by DEP	1/25/2009	30	2/24/2009	
<b>Act 537 Plans Completed</b>			2/24/2009	3/09

OFFICIAL ACT 537 SEWAGE FACILITIES PLAN  
TASK / ACTIVITY REPORT

ATTACHMENT C

COST PREPARATION SUMMARY

8/19/2008

Date of Report

**TASK/ACTIVITY**

HAMILTON TWP., POCONO TWP., STROUD TWP., STROUDSBURG BOR.  
Proposed Planning Area (Attach Map)

MONROE  
County

HAMILTON TWP., POCONO TWP.,  
STROUD TWP., STROUDSBURG BOR.  
Municipality

Estimated Cost of Plan \$46,680.00

Approx. DECEMBER 08

Use Additional Sheets if Necessary

Sheet 1 of 3

Date completed plan will be submitted to DEP

Column Headings May Be Changed to Suit The Needs of the Planning Effort

TASK ACTIVITY NUMBER	PRINCIPAL		SR. PROJECT MGR.		SR. ENG		PROJECT ENGINEER		ASSOCIATE		SR DESIGNER		ADMINISTRATIVE		EXPENSES	SUB TOTAL
	HR/ RATE	HRS COST	HR/ RATE	HRS COST	HR/ RATE	HRS COST	HR/ RATE	HRS COST	HR/ RATE	HRS COST	HR/ RATE	HRS COST	HR/ RATE	HRS COST		
FROM APPENDIX 1	130		110		80		72		60		76		48			
1	0.0	\$0.00	1.0	\$110.00	0.0	\$0.00	2.0	\$144.00	0.0	\$0.00	0.0	\$0.00	1.0	\$48.00		\$302.00
2	0.0	\$0.00	1.0	\$110.00	0.0	\$0.00	2.0	\$144.00	0.0	\$0.00	0.0	\$0.00	1.0	\$48.00		\$302.00
3	0.0	\$0.00	6.0	\$660.00	0.0	\$0.00	4.0	\$288.00	0.0	\$0.00	0.0	\$0.00	1.0	\$48.00		\$996.00
4	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	4.0	\$288.00	0.0	\$0.00	0.0	\$0.00	1.0	\$48.00		\$556.00
5	0.0	\$0.00	4.0	\$440.00	0.0	\$0.00	8.0	\$576.00	0.0	\$0.00	0.0	\$0.00	2.0	\$96.00		\$1,112.00
6	2.0	\$260.00	10.0	\$1,100.00	0.0	\$0.00	24.0	\$1,728.00	4.0	\$240.00	2.0	\$152.00	2.0	\$96.00		\$3,336.00
7	0.0	\$0.00	3.0	\$330.00	0.0	\$0.00	6.0	\$432.00	0.0	\$0.00	0.0	\$0.00	4.0	\$192.00		\$954.00
8	1.0	\$130.00	4.0	\$440.00	0.0	\$0.00	20.0	\$1,440.00	4.0	\$240.00	2.0	\$152.00	1.0	\$48.00		\$2,210.00
IA	1.0	\$130.00	2.0	\$220.00	0.0	\$0.00	8.0	\$576.00	0.0	\$0.00	0.0	\$0.00	1.0	\$48.00		\$974.00
IIA	0.0	\$0.00	1.0	\$110.00	0.0	\$0.00	4.0	\$288.00	0.0	\$0.00	2.0	\$152.00	1.0	\$48.00		\$598.00
IIB	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	8.0	\$576.00	0.0	\$0.00	4.0	\$304.00	1.0	\$48.00		\$1,148.00
III A; B; C	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	8.0	\$576.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$796.00
IV A	0.0	\$0.00	3.0	\$330.00	0.0	\$0.00	6.0	\$432.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$762.00
IV B	0.0	\$0.00	3.0	\$330.00	0.0	\$0.00	6.0	\$432.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$762.00
VA	2.0	\$260.00	8.0	\$880.00	0.0	\$0.00	32.0	\$2,304.00	4.0	\$240.00	6.0	\$456.00	1.0	\$48.00		\$4,188.00
VB	0.0	\$0.00	1.0	\$110.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	1.0	\$48.00		\$230.00
VH	0.0	\$0.00	4.0	\$440.00	0.0	\$0.00	8.0	\$576.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$1,016.00
																\$0.00
SUBTOTAL	6.0	\$780.00	57.0	\$6,270.00	0.0	\$0.00	151.0	\$10,872.00	12.0	\$720.00	16.0	\$1,216.00	18.0	\$864.00		\$20,242.00

**TASK/ACTIVITY**

8/19/2008

HAMILTON TWP., POCONO TWP.,  
STROUD TWP., STROUDSBURG BOR.  
Municipality

HAMILTON TWP., POCONO TWP., STROUD TWP., STROUDSBURG BOR.  
Proposed Planning Area (Attach Map)

MONROE  
County

Date of Report

Estimated Cost of Plan \$46,680.00

Approx. DECEMBER 08

Date completed plan will be submitted to DEP

Use Additional Sheets if Necessary

Column Headings May Be Changed to Suit The Needs of the Planning Effort

Sheet 2 of 3

TASK ACTIVITY NUMBER	PRINCIPAL		SR. PROJECT MGR.		SR. ENG		PROJECT ENGINEER		ASSOCIATE		SR DESIGNER		ADMINISTRATIVE		EXPENSES	SUB TOTAL
	HR/	RATE	HR/	RATE	HR/	RATE	HR/	RATE	HR/	RATE	HR/	RATE	HR/	RATE		
FROM APPENDIX I	130		110		80		72		60		76		48			
	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST	HRS	COST		
VIA	2.0	\$260.00	8.0	\$880.00	0.0	\$0.00	16.0	\$1,152.00	4.0	\$240.00	2.0	\$152.00	4.0	\$192.00		\$2,876.00
VIB,C	0.0	\$0.00	4.0	\$440.00	0.0	\$0.00	12.0	\$864.00	0.0	\$0.00	2.0	\$152.00	2.0	\$96.00		\$10,632.00
VID	2.0	\$260.00	8.0	\$880.00	0.0	\$0.00	16.0	\$1,152.00	4.0	\$240.00	0.0	\$0.00	0.0	\$0.00		\$2,292.00
VIE	0.0	\$0.00	4.0	\$440.00	0.0	\$0.00	2.0	\$144.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$584.00
VIF	0.0	\$0.00	6.0	\$660.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$732.00
VIG	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$292.00
VIIA	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$292.00
VII B	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$292.00
VII C	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$292.00
VII D	0.0	\$0.00	2.0	\$220.00	0.0	\$0.00	1.0	\$72.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$1,168.00
VIII A	0.0	\$0.00	8.0	\$880.00	0.0	\$0.00	4.0	\$288.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$728.00
VIII B	0.0	\$0.00	4.0	\$440.00	0.0	\$0.00	4.0	\$288.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$546.00
VIII C	0.0	\$0.00	3.0	\$330.00	0.0	\$0.00	3.0	\$216.00	0.0	\$0.00	0.0	\$0.00	0.0	\$0.00		\$3,460.00
IX A	2.0	\$260.00	8.0	\$880.00	0.0	\$0.00	24.0	\$1,728.00	0.0	\$0.00	4.0	\$304.00	6.0	\$288.00		
Reproduction																\$1,500.00
Mileage																\$ 280.00
Postage, Other																\$ 180.00
SUBTOTAL	6.0	\$780.00	63.0	\$6,930.00	0.0	\$0.00	87.0	\$6,264.00	8.0	\$480.00	8.0	\$608.00	12.0	\$576.00		\$26,438.00



TASK/ACTIVITY

8/19/2008

Date of Report

HAMILTON TWP., POCONO TWP., STROUD TWP., STROUDSBURG BOR. STROUDSBURG BOR. Municipality

MONROE County

HAMILTON TWP., POCONO TWP., STROUD TWP., STROUDSBURG BOR. Proposed Planning Area (Attach Map)

Date completed plan will be submitted to DEP Column Headings May Be Changed to Suit The Needs of the Planning Effort

Approx. DECEMBER 08

Estimated Cost of Plan \$46,680.00

Use Additional Sheets If Necessary Sheet 3 of 3

Hamilton Township Board of Supervisors

Stroud Township Board of Supervisors

Pocono Township Board of Supervisors

Stroudsburg Borough Council

JOSEPH S. DURKIN, P.E.

Reilly Associates

Name of Person Completing Report

Signature

Project Manager

Title

Brodhead Creek Regional Authority



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

## Instructions for Completing Act 537 Plan Content and Environmental Assessment Checklist

Remove and recycle these instructions prior to submission

### CHECKLIST INSTRUCTIONS

These instructions are designed to assist the applicant in completing the Act 537 Plan Content and Environmental Assessment Checklist.

This checklist is composed of three parts: one for "General Information," one for "Administrative Completeness," and one for "General Plan Content". A plan must be "administratively complete" in order to be formally reviewed by DEP. The General Plan Content portion of the checklist identifies each of the issues that must be addressed in your Act 537 Plan Update based on the pre-planning meeting between you and/or your consultant and DEP.

Use the right-hand column blanks in the checklist to identify the page in the plan on which each planning issue is found or to reference a previously approved update or special study (title and page number).

If you determine a planning issue is not applicable even though it was previously thought to be needed, please explain your decision within the text of the plan (or as a footnote) and indicate the page number where this documentation is found.

When information required as part of an official plan update revision has been developed separately or in a previous update revision, incorporate the information by reference to the planning document and page.

For specific details covering the Act 537 planning requirements, refer to Chapters 71 and 73 of DEP's regulations.

Wastewater projects proposing funding through the following sources must prepare an "Environmental Report" as described in the Uniform Environmental Review Process (UER) and include it with the plan submission designated as "Plan-Appendix A". The following funding programs use the UER process.

- The Clean Water State Revolving Loan Fund (PENNVEST, DEP, EPA)
- The RUS Water and Waste Disposal Grant and Loan Program (USDA-RD)
- The Community Development Block Grant Program (DCED, HUG)
- Other Federal Funding Efforts (EPA)

The checklist items or portions of checklist items required in the Act 537 Plan Update revision and that are also included in the UER process are indicated by shading. Most of the "Environmental Report" document may be constructed from the Act 537 Official Plan Update revision by using "copy & paste" techniques. The technical guidance document *Uniform Environmental Review Process* (UER) (DEP ID. 381-5511-111) is available electronically on DEP's website at [www.depweb.state.pa.us](http://www.depweb.state.pa.us).

After Municipal Adoption by Resolution, submit three copies of the plan, any attachments or addenda and this checklist to DEP.

A copy of this completed checklist must be included with your Act 537 plan. DEP will use the "DEP USE ONLY" column during the completeness evaluation of the plan. This column may also be used by DEP during the pre-planning meeting with the municipality to identify planning elements that are not required to be included in the plan.



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

## Act 537 Plan Content and Environmental Assessment Checklist

### PART 1 GENERAL INFORMATION

#### A. Project Information

1. Project Name Official Act 537 Regional Sewage Facilities Plan

2. Brief Project Description The Official Act 537 Regional Sewage Facilities Plan addresses the wastewater treatment and disposal needs for the properties along the S.R. 611 Corridor in Pocono and Hamilton Townships and the wastewater treatment capacity issues of Stroud Township and Stroudsburg Borough, Monroe County, Pennsylvania.

#### B. Client (Municipality) Information

Municipality Name	County	City	Boro	Twp
Brodhead Creek Regional Authority (BCRA)	Monroe	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Municipality Contact Individual - Last Name	First Name	MI	Suffix	Title
Brown	Ken			
Additional Individual Last Name	First Name	MI	Suffix	Title

Municipality Mailing Address Line 1	Mailing Address Line 2		
10 Stokes Avenue			
Address Last Line -- City	State	ZIP+4	
East Stroudsburg	PA	18301-1604	
Phone + Ext.	FAX (optional)	Email (optional)	
570-421-3232	570-421-2322		

#### C. Site Information

Site (or Project) Name	(Municipal Name) Act 537 Plan
BCRA Official Act 537 Regional Sewage Facilities Plan	
Site Location Line 1	Site Location Line 2
Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough	Pocono Township, Hamilton Township, Stroud Township, and Stroudsburg Borough

#### D. Project Consultant Information

Last Name	First Name	MI	Suffix
Nelson	Jeremy		
Title	Consulting Firm Name		
Project Engineer	Reilly Associates		
Mailing Address Line 1	Mailing Address Line 2		
49 South Main Street, Suite 200			
Address Last Line -- City	State	ZIP+4	Country
Pittston	PA	18640	U. S. A.
Email	Phone + Ext.	FAX	
nelson@reillyengineering.com	570-654-2473	570-654-6880	

**PART 2 ADMINISTRATIVE COMPLETENESS CHECKLIST**

<b>DEP Use Only</b>	<b>Indicate Page #(s) in Plan</b>	In addition to the main body of the plan, the plan must include items one through eight listed below to be accepted for formal review by the department. Incomplete Plans will be returned unless the municipality is clearly requesting an advisory review.
---------------------	-----------------------------------	--

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

**PART 3 GENERAL PLAN CONTENT CHECKLIST**

DEP Use Only	Indicate Page #(s) in Plan	Item Required
--------------	----------------------------	---------------

**I. Previous Wastewater Planning**

A. Identify, describe and briefly analyze all past wastewater planning for its impact on the current planning effort:

1. Previously undertaken under the Sewage Facilities Act (Act 537). (Reference-Act 537, Section 5 §d.1).
2. Has not been carried out according to an approved implementation schedule contained in the plans. (Reference-Title 25, §71.21.a.5.i.A-D). Section V.F of the Planning Guide.
3. Is anticipated or planned by applicable sewer authorities or approved under a Chapter 94 Corrective Action Plan. (Reference-Title 25, §71.21.a.5.i.A&B). Section V.D. of the Planning Guide.
4. Through planning modules for new land development, planning "exemptions" and addenda. (Reference-Title 25, §71.21.a.5.i.A).

**II. Physical and Demographic Analysis utilizing written description and mapping (All items listed below require maps, and all maps should show all current lots and structures and be of appropriate scale to clearly show significant information).**

- A. Identification of planning area(s), municipal boundaries, Sewer Authority/Management Agency service area boundaries. (Reference-Title 25, §71.21.a.1.i).
- B. Identification of physical characteristics (streams, lakes, impoundments, natural conveyance, channels, drainage basins in the planning area). (Reference-Title 25, §71.21.a.1.ii).
- C. Soils - Analysis with description by soil type and soils mapping for areas not presently served by sanitary sewer service. Show areas suitable for in-ground onlot systems, elevated sand mounds, individual residential spray irrigation systems; and areas unsuitable for soil dependent systems. (Reference-Title 25, §71.21.a.1.iii). Show Prime Agricultural Soils and any locally protected agricultural soils. (Reference-Title 25, §71.21.a.1.iii).
- D. Geologic Features - (1) Identification through analysis, (2) mapping and (3) their relation to existing or potential nitrate-nitrogen pollution and drinking water sources. Include areas where existing nitrate-nitrogen levels are in excess of 5 mg/L. (Reference-Title 25, §71.21.a.1.iii).
- E. Topography - Depict areas with slopes that are suitable for conventional systems; slopes that are suitable for elevated sand mounds and slopes that are unsuitable for onlot systems. (Reference-Title 25, §71.21.a.1.ii).
- F. Potable Water Supplies - Identification through mapping, description and analysis. Include public water supply service areas and available public water supply capacity and aquifer yield for groundwater supplies. (Reference-Title 25 §71.21.a.1.vi). Section V.C. of the Planning Guide.

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

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

A. Identify, map and describe municipal and non-municipal, individual and community sewerage systems in the planning area including:

1. Location, size and ownership of treatment facilities, main intercepting lines, pumping stations and force mains including their size, capacity, point of discharge. Also include the name of the receiving stream, drainage basin, and the facility's effluent discharge requirements. (Reference-Title 25, §71.21a.2.i.A).
2. A narrative and schematic diagram of the facility's basic treatment processes including the facility's NPDES permitted capacity, and the Clean Streams Law permit number. (Reference-Title 25, §71.21.a.2.i.A).
3. A description of problems with existing facilities (collection, conveyance and/or treatment), including existing or projected overload under Title 25, Chapter 94 (relating to municipal wasteload management) or violations of the NPDES permit, Clean Streams Law permit, or other permit, rule or regulation of DEP. (Reference-Title 25, §71.21.a.2.i.B).
4. Details of scheduled or in-progress upgrading or expansion of treatment facilities and the anticipated completion date of the improvements. Discuss any remaining reserve capacity and the policy concerning the allocation of reserve capacity. Also discuss the compatibility of the rate of growth to existing and proposed wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.i & ii).
5. A detailed description of the municipality's operation and maintenance requirements for small flow treatment facility systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).
6. Disposal areas, if other than stream discharge, and any applicable groundwater limitations. (Reference-Title 25, §71.21.a.4.i & ii).

B. Using DEP's publication titled *Sewage Disposal Needs Identification*, identify, map and describe areas that utilize individual and community onlot sewage disposal and, unpermitted collection and disposal systems ("wildcat" sewers, borehole disposal, etc.) and retaining tank systems in the planning area including:

1. The types of onlot systems in use. (Reference-Title 25, §71.21.a.2.ii.A).
2. A sanitary survey complete with description, map and tabulation of documented and potential public health, pollution, and operational problems (including malfunctioning systems) with the systems, including violations of local ordinances, the Sewage Facilities Act, the Clean Stream Law or regulations promulgated thereunder. (Reference-Title 25, §71.21.a.2.ii.B).
3. A comparison of the types of onlot sewage systems installed in an area with the types of systems which are appropriate for the area according to soil, geologic conditions, topographic limitations sewage flows, and Title 25 Chapter 73 (relating to standards for sewage disposal facilities). (Reference-Title 25, §71.21.a.2.ii.C).

- 4. An individual water supply survey to identify possible contamination by malfunctioning onlot sewage disposal systems consistent with DEP's *Sewage Disposal Needs Identification* publication. (Reference-Title 25 §71.21.a.2.ii.B).
- 5. Detailed description of operation and maintenance requirements of the municipality for individual and small volume community onlot systems, including the status of past and present compliance with these requirements and any other requirements relating to sewage management programs. (Reference-Title 25, §71.21.a.2.i.C).

C. Identify wastewater sludge and septage generation, transport and disposal methods. Include this information in the sewage facilities alternative analysis including:

- 1. Location of sources of wastewater sludge or septage (Septic tanks, holding tanks, wastewater treatment facilities). (Reference-Title 25 §71.71).
- 2. Quantities of the types of sludges or septage generated. (Reference-Title 25 §71.71).
- 3. Present disposal methods, locations, capacities and transportation methods. (Reference-Title 25 §71.71).

**IV. Future Growth and Land Development**

A. Identify and briefly summarize all municipal and county planning documents adopted pursuant to the Pennsylvania Municipalities Planning Code (Act 247) including:

- 1. All land use plans and zoning maps that identify residential, commercial, industrial, agricultural, recreational and open space areas. (Reference-Title 25, §71.21.a.3.iv).
- 2. Zoning or subdivision regulations that establish lot sizes predicated on sewage disposal methods. (Reference - Title 25§71.21.a.3.iv).
- 3. All limitations and plans related to floodplain and stormwater management and special protection (Ch. 93) areas. (Reference-Title 25 §71.21.a.3.iv) Appendix B, Section II:F of the Planning Guide.

B. Delineate and describe the following through map, text and analysis.

- 1. Areas with existing development or plotted subdivisions. Include the name, location, description, total number of EDU's in development, total number of EDU's currently developed and total number of EDU's remaining to be developed (include time schedule for EDU's remaining to be developed). (Reference-Title 25, §71.21.a.3.i).
- 2. Land use designations established under the Pennsylvania Municipalities Planning Code (35 P.S. 10101-11202), including residential, commercial and industrial areas. (Reference-Title 25,§71.21.a.3.ii). Include a comparison of proposed land use as allowed by zoning and existing sewage facility planning. (Reference-Title 25, §71.21.a.3.iv).
- 3. Future growth areas with population and EDU projections for these areas using historical, current and future population figures and projections of the municipality. Discuss and evaluate discrepancies between local, county, state and federal projections as they relate to sewage facilities. (Reference-Title 25, §71.21.a.1.iv). (Reference-Title 25, §71.21.a.3.iii).

- 4. Zoning, and/or subdivision regulations; local, county or regional comprehensive plans; and existing plans of any other agency relating to the development, use and protection of land and water resources with special attention to: (Reference-Title 25, §71.21.a.3.iv).
  - public ground/surface water supplies
  - recreational water use areas
  - groundwater recharge areas
  - industrial water use
  - wetlands
- 5. Sewage planning necessary to provide adequate wastewater treatment for five and ten year future planning periods based on projected growth of existing and proposed wastewater collection and treatment facilities. (Reference-Title 25, §71.21.a.3.v).

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

**A. Conventional collection, conveyance, treatment and discharge alternatives including:**

- 1. The potential for regional wastewater treatment. (Reference-Title 25, §71.21.a.4).
- 2. The potential for extension of existing municipal or non-municipal sewage facilities to areas in need of new or improved sewage facilities. (Reference-Title 25, §71.21.a.4.i).
- 3. The potential for the continued use of existing municipal or non-municipal sewage facilities through one or more of the following: (Reference-Title 25, §71.21.a.4.ii).
  - a. Repair. (Reference-Title 25, §71.21.a.4.ii.A).
  - b. Upgrading. (Reference-Title 25, §71.21.a.4.ii.B).
  - c. Reduction of hydraulic or organic loading to existing facilities. (Reference-Title 25, §71.71).
  - d. Improved operation and maintenance. Reference-Title 25, §71.21.a.4.ii.C).
  - e. Other applicable actions that will resolve or abate the identified problems. (Reference-Title 25, §71.21.a.4.ii.D).
- 4. Repair or replacement of existing collection and conveyance system components. (Reference-Title 25, §71.21.a.4.ii.A).
- 5. The need for construction of new community sewage systems including sewer systems and/or treatment facilities. (Reference-Title 25, §71.21.a.4.iii).
- 6. Use of innovative/alternative methods of collection/conveyance to serve needs areas using existing wastewater treatment facilities. (Reference-Title 25, §71.21.a.4.ii.B).

**B. The use of individual sewage disposal systems including individual residential spray irrigation systems based on:**

- 1. Soil and slope suitability. (Reference-Title 25, §71.21.a.2.ii.C).
- 2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).
- 3. The establishment of a sewage management program. (Reference-Title 25, §71.21.a.4.iv). See also Part "F" below.
- 4. The repair, replacement or upgrading of existing malfunctioning systems in

areas suitable for onlot disposal considering: (Reference-Title 25, §71.21.a.4).

- a. Existing technology and sizing requirements of Title 25 Chapter 73. (Reference-Title 25, §73.31-73.72).
- b. Use of expanded absorption areas or alternating absorption areas. (Reference-Title 25, §73.16).
- c. Use of water conservation devices. (Reference-Title 25, §71.73.b.2.iii).

C. The use of small flow sewage treatment facilities or package treatment facilities to serve individual homes or clusters of homes with consideration of: (Reference-Title 25, §71.64.d).

- 1. Treatment and discharge requirements. (Reference-Title 25, §71.64.d).
- 2. Soil suitability. (Reference-Title 25, §71.64.c.i).
- 3. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.64.c.2).
- 4. Municipal, Local, Agency or other controls over operation and maintenance requirements through a Sewage Management Program. (Reference-Title 25, §71.64.d). See Part "F" below.

D. The use of community land disposal alternatives including:

- 1. Soil and site suitability. (Reference-Title 25, §71.21.a.2.ii.C).
- 2. Preliminary hydrogeologic evaluation. (Reference-Title 25, §71.21.a.2.ii.C).
- 3. Municipality, Local Agency or Other Controls over operation and maintenance requirements through a Sewage Management Program (Reference-Title 25, §71.21.a.2.ii.C). See Part "F" below.
- 4. The rehabilitation or replacement of existing malfunctioning community land disposal systems. (See Part "V", B, 4, a, b, c above). See also Part "F" below.

E. The use of retaining tank alternatives on a temporary or permanent basis including: (Reference-Title 25, §71.21.a.4).

- 1. Commercial, residential and industrial use. (Reference-Title 25, §71.63.e).
- 2. Designated conveyance facilities (pumper trucks). (Reference-Title 25, §71.63.b.2).
- 3. Designated treatment facilities or disposal site. (Reference-Title 25, §71.63.b.2).
- 4. Implementation of a retaining tank ordinance by the municipality. (Reference-Title 25, §71.63.c.3). See Part "F" below.
- 5. Financial guarantees when retaining tanks are used as an interim sewage disposal measure. (Reference-Title 25, §71.63.c.2).

F. Sewage Management Programs to assure the future operation and maintenance of existing and proposed sewage facilities through:

- 1. Municipal ownership or control over the operation and maintenance of individual onlot sewage disposal systems, small flow treatment facilities, or other traditionally non-municipal treatment facilities. (Reference-Title 25, §71.21.a.4.iv).
- 2. Required inspection of sewage disposal systems on a schedule established by the municipality. (Reference-Title 25, §71.73.b.1.).
- 3. Required maintenance of sewage disposal systems including septic and aerobic treatment tanks and other system components on a schedule

established by the municipality. (Reference-Title 25, §71.73.b.2).

- 4. Repair, replacement or upgrading of malfunctioning onlot sewage systems. (Reference-Title 25, §71.21.a.4.iv) and §71.73.b.5 through:
  - a. Aggressive pro-active enforcement of ordinances that require operation and maintenance and prohibit malfunctioning systems. (Reference-Title 25, §71.73.b.5).
  - b. Public education programs to encourage proper operation and maintenance and repair of sewage disposal systems.
- 5. Establishment of joint municipal sewage management programs. (Reference-Title 25, §71.73.b.8).
- 6. Requirements for bonding, escrow accounts, management agencies or associations to assure operation and maintenance for non-municipal facilities. (Reference-Title 25, §71.71).

G. Non-structural comprehensive planning alternatives that can be undertaken to assist in meeting existing and future sewage disposal needs including: (Reference-Title 25, §71.21.a.4).

- 1. Modification of existing comprehensive plans involving:
  - a. Land use designations. (Reference-Title 25, §71.21.a.4).
  - b. Densities. (Reference-Title 25, §71.21.a.4).
  - c. Municipal ordinances and regulations. (Reference-Title 25, §71.21.a.4).
  - d. Improved enforcement. (Reference-Title 25, §71.21.a.4).
  - e. Protection of drinking water sources. (Reference-Title 25, §71.21.a.4).
- 2. Consideration of a local comprehensive plan to assist in producing sound economic and consistent land development. (Reference-Title 25, §71.21.a.4).
- 3. Alternatives for creating or changing municipal subdivision regulations to assure long-term use of on-site sewage disposal that consider lot sizes and protection of replacement areas. (Reference-Title 25, §71.21.a.4).
- 4. Evaluation of existing local agency programs and the need for technical or administrative training. (Reference-Title 25, §71.21.a.4).

H. A no-action alternative which includes discussion of both short-term and long-term impacts on: (Reference-Title 25, §71.21.a.4).

- 1. Water Quality/Public Health. (Reference-Title 25, §71.21.a.4).
- 2. Growth potential (residential, commercial, industrial). (Reference-Title 25, §71.21.a.4).
- 3. Community economic conditions. (Reference-Title 25, §71.21.a.4).
- 4. Recreational opportunities. (Reference-Title 25, §71.21.a.4).
- 5. Drinking water sources. (Reference-Title 25, §71.21.a.4).
- 6. Other environmental concerns. (Reference-Title 25, §71.21.a.4).

**VI. Evaluation of Alternatives**

A. Technically feasible alternatives identified in Section V of this check-list must be evaluated for consistency with respect to the following: (Reference-Title 25, §71.21.a.5.i.).

- 1. Applicable plans developed and approved under **Sections 4 and 5 of the Clean Streams Law or Section 208 of the Clean Water Act** (33 U.S.C.A. 1288). (Reference-Title 25, §71.21.a.5.i.A). Appendix B, Section II.A of the

## Planning Guide.

2. **Municipal wasteload management Corrective Action Plans or Annual Reports** developed under PA Code, Title 25, Chapter 94. (Reference-Title 25, §71.21.a.5.i.B). The municipality's recent Wasteload Management (Chapter 94) Reports should be examined to determine if the proposed alternative is consistent with the recommendations and findings of the report. Appendix B, Section II.B of the Planning Guide.
3. Plans developed under **Title II of the Clean Water Act** (33 U.S.C.A. 1281-1299) or **Titles II and VI of the Water Quality Act of 1987** (33 U.S.C.A. 1251-1376). (Reference-Title 25, §71.21.a.5.i.C). Appendix B, Section II.E of the Planning Guide.
4. **Comprehensive plans** developed under the Pennsylvania Municipalities Planning Code. (Reference-Title 25, §71.21.a.5.i.D). The municipality's comprehensive plan must be examined to assure that the proposed wastewater disposal alternative is consistent with land use and all other requirements stated in the comprehensive plan. Appendix B, Section II.D of the Planning Guide.
5. **Antidegradation requirements** as contained in PA Code, Title 25, Chapters 93, 95 and 102 (relating to water quality standards, wastewater treatment requirements and erosion control) and the Clean Water Act. (Reference-Title 25, §71.21.a.5.i.E). Appendix B, Section II.F of the Planning Guide.
6. **State Water Plans** developed under the Water Resources Planning Act (42 U.S.C.A. 1962-1962 d-18). (Reference-Title 25, §71.21.a.5.i.F). Appendix B, Section II.C of the Planning Guide.
7. **Pennsylvania Prime Agricultural Land Policy** contained in Title 4 of the Pennsylvania Code, Chapter 7, Subchapter W. Provide narrative on local municipal policy and an overlay map on prime agricultural soils. (Reference-Title 25, §71.21.a.5.i.G). Appendix B, Section II.G of the Planning Guide.
8. **County Stormwater Management Plans** approved by DEP under the Storm Water Management Act (32 P.S. 680.1-680.17). (Reference-Title 25, §71.21.a.5.i.H). Conflicts created by the implementation of the proposed wastewater alternative and the existing recommendations for the management of stormwater in the county Stormwater Management Plan must be evaluated and mitigated. If no plan exists, no conflict exists. Appendix B, Section II.H of the Planning Guide.
9. **Wetland Protection**. Using wetland mapping developed under Checklist Section II.G, identify and discuss mitigative measures including the need to obtain permits for any encroachments on wetlands from the construction or operation of any proposed wastewater facilities. (Reference-Title 25, §71.21.a.5.i.I) Appendix B, Section II.I of the Planning Guide.
10. **Protection of rare, endangered or threatened plant and animal species** as identified by the Pennsylvania Natural Diversity Inventory (PNDI). (Reference-Title 25, §71.21.a.5.i.J). Provide DEP with a copy of the completed Request For PNDI Search document. Also provide a copy of the response letter from the Department of Conservation and Natural Resources' Bureau of Forestry regarding the findings of the PNDI search. Appendix B, Section II.J of the Planning Guide.
11. **Historical and archaeological resource protection** under P.C.S. Title 37, Section 507 relating to cooperation by public officials with the Pennsylvania Historical and Museum Commission. (Reference-Title 25, §71.21.a.5.i.K). Provide the department with a completed copy of a Cultural Resource Notice

request of the Bureau of Historic Preservation (BHP) to provide a listing of known historical sites and potential impacts on known archaeological and historical sites. Also provide a copy of the response letter from the BHP. Appendix B, Section II K of the Planning Guide.

- B. Provide for the resolution of any inconsistencies in any of the points identified in Section VI.A. of this checklist by submitting a letter from the appropriate agency stating that the agency has received, reviewed and concurred with the resolution of identified inconsistencies. (Reference-Title 25, §71.21.a.5.ii). Appendix B of the Planning Guide.
- C. Evaluate alternatives identified in Section V of this checklist with respect to applicable water quality standards, effluent limitations or other technical, legislative or legal requirements. (Reference-Title 25, §71.21.a.5.iii).
- D. Provide cost estimates using present worth analysis for construction, financing, on going administration, operation and maintenance and user fees for alternatives identified in Section V of this checklist. Estimates shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of plan submission. (Reference-Title 25, §71.21.a.5.iv).
- E. Provide an analysis of the funding methods available to finance the proposed alternatives evaluated in Section V of this checklist. Also provide documentation to demonstrate which alternative and financing scheme combination is the most cost-effective; and a contingency financial plan to be used if the preferred method of financing cannot be implemented. The funding analysis shall be limited to areas identified in the plan as needing improved sewage facilities within five years from the date of the plan submission. (Reference-Title 25, §71.21.a.5.v).
- F. Analyze the need for immediate or phased implementation of each alternative proposed in Section V of this checklist including: (Reference-Title 25, §71.21.a.5.vi).
  - 1. A description of any activities necessary to abate critical public health hazards pending completion of sewage facilities or implementation of sewage management programs. (Reference-Title 25, §71.21.a.5.vi.A).
  - 2. A description of the advantages, if any, in phasing construction of the facilities or implementation of a sewage management program justifying time schedules for each phase. (Reference-Title 25, §71.21.a.5.vi.B).
- G. Evaluate administrative organizations and legal authority necessary for plan implementation. (Reference - Title 25, §71.21.a.5.vi.D.).

**VII. Institutional Evaluation**

- A. Provide an analysis of all existing wastewater treatment authorities, their past actions and present performance including:
  - 1. Financial and debt status. (Reference-Title 25, §71.61.d.2).
  - 2. Available staff and administrative resources. (Reference-Title 25, §71.61.d.2)
  - 3. Existing legal authority to:
    - a. Implement wastewater planning recommendations. (Reference-Title 25, §71.61.d.2).
    - b. Implement system-wide operation and maintenance activities. (Reference-Title 25, §71.61.d.2).
    - c. Set user fees and take purchasing actions. (Reference-Title 25, §71.61.d.2).
    - d. Take enforcement actions against ordinance violators. (Reference-Title 25,

§71.61.d.2).

- e. Negotiate agreements with other parties. (Reference-Title 25, §71.61.d.2).
- f. Raise capital for construction and operation and maintenance of facilities. (Reference-Title 25, §71.61.d.2).

B. Provide an analysis and description of the various institutional alternatives necessary to implement the proposed technical alternatives including:

- 1. Need for new municipal departments or municipal authorities. (Reference-Title 25, §71.61.d.2).
- 2. Functions of existing and proposed organizations (sewer authorities, onlot maintenance agencies, etc.). (Reference-Title 25, §71.61.d.2).
- 3. Cost of administration, implementability, and the capability of the authority/agency to react to future needs. (Reference-Title 25, §71.61.d.2).

C. Describe all necessary administrative and legal activities to be completed and adopted to ensure the implementation of the recommended alternative including:

- 1. Incorporation of authorities or agencies. (Reference-Title 25, §71.61.d.2).
- 2. Development of all required ordinances, regulations, standards and inter-municipal agreements. (Reference-Title 25, §71.61.d.2).
- 3. Description of activities to provide rights-of-way, easements and land transfers. (Reference-Title 25, §71.61.d.2).
- 4. Adoption of other municipal sewage facilities plans. (Reference-Title 25, §71.61.d.2).
- 5. Any other legal documents. (Reference-Title 25, §71.61.d.2).
- 6. Dates or timeframes for items 1-5 above on the project's implementation schedule.

D. Identify the proposed institutional alternative for implementing the chosen technical wastewater disposal alternative. Provide justification for choosing the specific institutional alternative considering administrative issues, organizational needs and enabling legal authority. (Reference-Title 25, §71.61.d.2).

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

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

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

7. Environmental soundness and compliance with natural resource planning and preservation programs. (Reference-Title 25, §71.21.a.6)

B. Designate and describe the capital financing plan chosen to implement the selected alternative(s). Designate and describe the chosen back-up financing plan. (Reference-Title 25, §71.21.a.6)

C. Designate and describe the implementation schedule for the recommended alternative, including justification for any proposed phasing of construction or implementation of a Sewage Management Program. (Reference - Title 25 §71.31d)

**IX. Environmental Report (ER) generated from the Uniform Environmental Review Process (UER)**

A. Complete an ER as required by the UER process and as described in the DEP Technical Guidance 381-5511-111. Include this document as "Appendix A" to the Act 537 Plan Update Revision. Note: An ER is required only for Wastewater projects proposing funding through any of the funding sources identified in the UER.

**ADDITIONAL REQUIREMENTS FOR PENNVEST PROJECTS**

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

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

## **TECHNOLOGIES**

### **PARTIAL LISTING OF INNOVATIVE AND ALTERNATIVE TECHNOLOGIES**

#### **TREATMENT TECHNOLOGIES**

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

#### **SLUDGE TREATMENT TECHNOLOGIES**

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

#### **ENERGY RECOVERY TECHNOLOGIES**

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

#### **INDIVIDUAL & SYSTEM-WIDE COLLECTION TECHNOLOGIES**

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