

Bear Creek Township, Luzerne County, PA
Act 537 Sewage Facilities Plan
Alternative Descriptions

BACKGROUND

The Pennsylvania Department of Environmental Protection (PA DEP) has ordered Bear Creek Township to provide an Act 537 Sewage Facilities Plan that provides Central Sewage Collection, Treatment and Disposal for Study Areas 1 and 2.

Study area 1 consists of the Llywellyn Corners, SR 115, Pittston Boulevard area.

Study Area 2 consists of Trailwood, Forest Park, Country Club Estates and SR 115.

PA DEP regulations require that The Act 537 Plan evaluate all technically feasible alternatives for Sewage Treatment and Disposal, including land application alternatives. The most cost effective, technically feasible alternative should be selected. The cost effectiveness analysis evaluates both the initial capital projects costs and the annual operation and maintenance costs for each alternative.

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Alternative 1 - Connection to Plains Township sewage collection system with ultimate disposal by Wyoming Valley Sanitary Authority

Estimated Project Cost
\$ 15,061,090

Description

This alternative involves the construction of a central sewage collection system for Study Area 1 and Study Area 2 with conveyance to the Plains Township sewage collection system. The proposed system will connect to an existing manhole on East Mountain Boulevard in Plains Township. Sewage will then be conveyed through Plains Township to an existing Wyoming Valley Sanitary Authority (WVSA) pump station. Ultimate treatment will occur at the existing WVSA plant located in Hanover Township with discharge to the Susquehanna River. The WVSA treatment plant has sufficient treatment capacity for an estimated 150,000 gallons per day of sewage flows from Study Areas 1 and 2.

The sewage collection and conveyance system for Study Areas 1 and 2 will consist of a combination of gravity sewers, low pressure sewer, and three (3) pump stations to convey the sewage to the connection manhole in Plains Township.

**Alternative 2 - 0.15 MGD Sequencing Batch Reactor (SBR) WWTP with
ultimate stream discharge to Susquehanna River**

Estimated Project Cost
\$ 17,102,434

Description

This alternative involves the construction of a central sewage collection system for Study Area 1 and Study Area 2 and the construction of a 150,000 gallon per day Sequencing Batch Reactor (SBR) Wastewater Treatment Plant (WWTP). This treatment plant will be located in the area of Study Area 1 with stream discharge to Deep Hollow, just below its confluence with Laurel Run, located in the Susquehanna River watershed.

The sewage collection and conveyance system for Study Areas 1 and 2 will consist of a combination of gravity sewers, low pressure sewer, and two (2) pump stations to convey the sewage to the proposed WWTP. The SBR WWTP will be capable of meeting the preliminary PADEP effluent discharge limits provided and will additionally remove a portion of Phosphorus and Nitrogen loads needed to meet the Chesapeake Bay nutrient loading requirements. Additional nutrient credits will also need to be purchased annually to meet these requirements.

Alternative 3 - 0.15 MGD SBR WWTP with seasonal spray irrigation and seasonal stream discharge to Bear Creek

Estimated Project Cost

\$ 20,304,094

Description

This alternative involves the construction of a central sewage collection system for Study Area 1 and Study Area 2 and the construction of a 150,000 gallon per day Sequencing Batch Reactor (SBR) Wastewater Treatment Plant (WWTP) located in the area of Study Area 2. Sewage treatment and discharge to the Bear Creek would require meeting very strict effluent limits, which would be very costly. Seasonal spray irrigation with seasonal stream discharge is an alternative solution that would be considered by PADEP. This requires irrigating the treated effluent on forested land during the warmer months of the year and then discharging to the stream when irrigation is not possible. This allows a lower cost treatment plant while still providing a high quality effluent and reduces the amount of effluent discharged to the stream. The seasonal stream discharge would be to Bear Creek, below Bear Creek Lake and located in the Lehigh River watershed. The proposed WWTP would be located in Study Area 2. A parcel located to the south of Study Area 2 could be utilized for seasonal spray irrigation. Irrigation would require the acquisition of approximately 70 Acres of land, the construction of a 2.3 Acre-foot storage pond, spray irrigation pump station, piping and a control building.

The sewage collection and conveyance system for Study Areas 1 and 2 will consist of a combination of gravity sewers, low pressure sewer, and three (3) pump stations to convey the sewage to the proposed WWTP. The proposed SBR WWTP would be similar to the SBR WWTP system in Alternative 2.

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Alternative 4 - 0.15 MGD Extended Air WWTP with year round spray irrigation

Estimated Project Cost

\$21,830,328

Description

This alternative involves the construction of a central sewage collection system for Study Area 1 and Study Area 2 and the construction of a 150,000 gallon per day Extended Air Wastewater Treatment Plant (WWTP) located in the area of Study Area 2 with summer spray irrigation and winter storage. No direct stream discharge is provided for this alternative.

The sewage collection and conveyance system for Study Areas 1 and 2 will consist of a combination of gravity sewers, low pressure sewer, and three (3) pump stations to convey the sewage to the proposed WWTP. The WWTP would be located in Study Area 2.

A parcel located to the south of Study Area 2 could be utilized for spray irrigation. Irrigation of this much water would require the acquisition of approximately 110 Acres of land, the construction of a 105 Acre-foot storage pond to store the effluent during the winter months, spray irrigation pump station, piping and a control building.

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Alternative 5 - Two (2) Community On-Lot Sewage Disposal Systems (one for each Study Area)

Estimated Project Cost

\$ 20,347,740

Description

This alternative involves the construction of a central sewage collection system for Study Area 1 and Study Area 2 with two community on-lot sewage disposal systems (one for each Study Area).

The sewage collection and conveyance system for Study Areas 1 and 2 will consist of a combination of gravity sewers, low pressure sewer, and two (2) pump stations to convey the sewage to the two community on-lot sewage disposal systems.

An area of land has been identified in each Study Area where a community on-lot system could be provided. The subsurface wastewater disposal system would require the acquisition of approximately 60 Acres of land for Study Area 1 and 75 Acres for Study Area 2. The alternative would also require the construction of a number disposal beds.