

Delaware and Raritan Canal: Nonpoint Source Management-Design and Implementation

Princeton Hydro and SWM Consulting, LLC were contacted in 2004 to complete nonpoint source modeling and concept design services for the New Jersey Water Supply Authority (NJWSA). The client contracted Princeton Hydro to assess, control, and manage influent flows from tributary catchment areas that are important for preserving and protecting the Delaware and Raritan Canal as both a water supply and recreational resource for the future.

This project addressed nonpoint sources of pollution from influent water sources to the final eleven miles of the canal in Franklin Township and South Bound Brook Borough, Somerset County. The upstream project limit is Amwell Road; the downstream limit is Landing Lane. The project area ends just upstream of the drinking water intakes for Middlesex Water Company and the City of New Brunswick. NJWSA (formerly Elizabethtown Water Company) also has the ability to take water from the canal near 10-Mile Lock, approximately one mile downstream of the upstream project boundary.

Infalls to the canal and their drainage areas were identified by NJWSA. Each infall was then assessed to determine which contributed the most significant phosphorus and sediment loads to the canal. Princeton Hydro and SWM Consulting developed conceptual approaches for the management of nonpoint source loads. Princeton Hydro and SWM entered NJDEP or updated land use data into WinSLAMM (Source Loading and Management Model for Windows) to estimate the runoff, sediment and phosphorus loads from each drainage area.

Based on the results of the modeling, Princeton Hydro, SWM, and NJWSA devised a prioritization scheme for the infalls and then performed a series of analyses for those infalls using WinSLAMM.

With these results five infalls were chosen to be used in the design phase. Princeton Hydro has provided schematic design plans for two of these infalls. The designs include a variety of manufactured treatment devices, bioretention systems and other vegetative practices.

