

Harry S. Pursel Dam Breach and Fish Passage Improvements on the Morris Canal

Harry S. Pursel

Warren County, NJ

In 2001, Princeton Hydro was contracted by Harry Pursel, the owner of a local agricultural and garden supply store, to inspect the Harry S. Pursel dam. This dam was a remnant structure of the historic Morris Canal and part of a historic gristmill complex. The canal is protected under the National Historic Preservation Act and is registered under the National Register of Historic Places. Our dam inspection found that the cost to bring the dam into compliance with current regulations would be between \$500,000 to \$600,000. To provide a more cost-effective option, Princeton Hydro recommended breaching the dam and its subsequent deregulation.

Because the dam is located on the Lopatcong Creek, a protected C-1 waterway and trout production stream, Princeton Hydro was able to identify and secure over \$132,000 in grants and a NJDEP low-interest loan to fund the project. The company then prepared an initial dam breach design which included the partial removal of the concrete ogee spillway. To protect the area from flooding, it was necessary to preserve the steep earthen embankments around the dam. Therefore, Princeton Hydro also designed a step pool system to transition the stream elevation while providing fish passage for local species. The team then developed a hydrologic and hydraulic analysis of the watershed to ensure that the designs for the dam breach would not affect property owners downstream.

Princeton Hydro then assisted in the permit application process and provided construction supervision. In addition to the design and permitting of this dam, Princeton Hydro also worked with local groups to preserve the historic aspects of this dam through the use of signage, local rock and the preservation of the major components of the historic Morris Canal. The dam was breached in April 2006 and continues to be used by the NJDEP, USFWS, and NRCS as an example of a successful dam removal, where dam safety compliance, ecological restoration, and historic preservation can all be achieved.

