



United States Department of Agriculture
Natural Resources Conservation Service

WOODGLEN LAKE DAM REHABILITATION PROJECT

Pohick Creek Watershed, Fairfax County



American Recovery and
Reinvestment Act of 2009

POHICK'S SHORT STORY

In the 1960s, Fairfax County requested assistance from USDA NRCS (then Soil Conservation Service) to construct several flood-control dams in the 23,000-acre Pohick Creek Watershed. The first dam was begun in 1969, and the final dam was built in 1985.

When Hurricane Agnes produced massive amounts of rainfall in 1972, the dam protected local residents from flooding. As 2006 floodwaters deluged the Nation's Capital, Pohick dams again held back millions of gallons of water.

Fairfax County has done an excellent job maintaining these dams. However, since state dam safety regulations have changed, necessary modifications have been identified on five of the six dams.

The County rehabilitated Lake Braddock using local funds. Royal Lake was rehabilitated in 2009 with federal funds from USDA NRCS.

Woodglen Lake and Lake Barton will be rehabilitated in 2010 and 2011 using funds from the American Recovery and Reinvestment Act, which is designed to modernize the nation's infrastructure, jump-start the economy and create jobs. NRCS is now working with local sponsors on rehabilitation plans for Huntsman Lake.



Woodglen Lake

PURPOSE:

Rehabilitating Woodglen Lake will reduce risks to downstream residents and commuters, comply with current dam design and safety standards, and maintain the present level of flood control and recreation benefits.

BENEFITS:

- Reduce threat to loss of life and property for about 875 people who live/work downstream of the dam;
- Protect 157 single family homes and town houses, about 20 businesses, and two public buildings;
- Protect two major roads used by 29,000 vehicles per day, railroad lines used by approximately 9,000 passengers per day, two bridges; and
- Provide \$118,400 in monetary benefits/year for 71 years after construction.

REHABILITATION PLAN DETAILS:

- Armor the auxiliary spillway and training dikes with articulated concrete blocks;
- Raise and lengthen the existing training dike to protect the dam embankment; and
- Install a second training dike to direct auxiliary spillway flow to the valley floor.

The plan does not require draining the lake or raising the dam height. Affected walking paths will be relocated. Some trees below the dam will have to be removed.

ESTIMATED PROJECT COST:

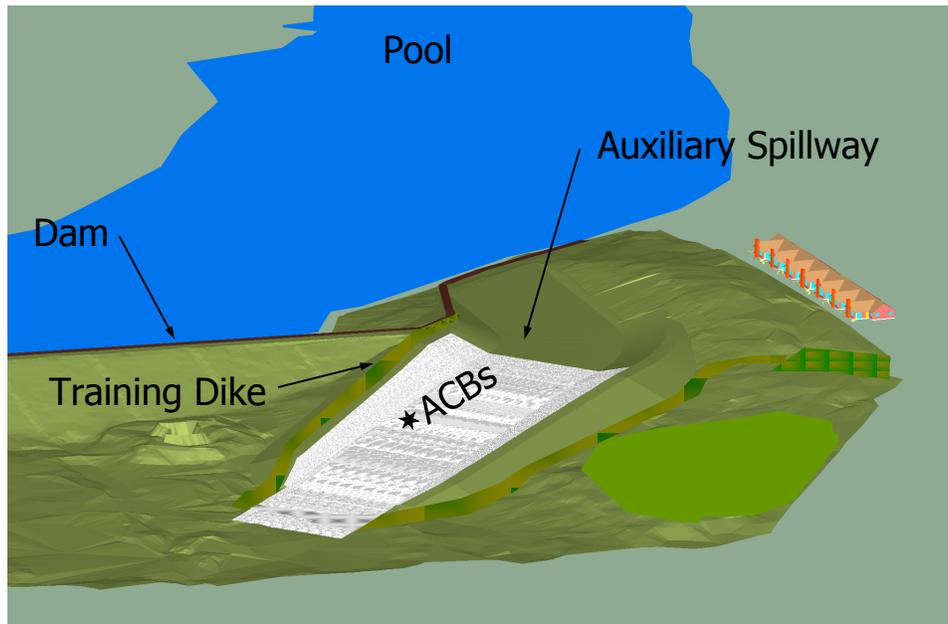
The USDA Natural Resources Conservation Service will provide \$1,449,481, and the sponsors will cover the remaining \$780,490 of the estimated \$2,229,971 total.

SPONSORS:

Fairfax County Board of Supervisors
Northern Virginia Soil and Water Conservation District

DAM REHABILITATION SCHEDULE:

The Woodglen Lake rehabilitation plan was finished in July 2008, and the design was completed in September 2009. Construction began on April 26, 2010. Once these modifications are concluded, the dam's flood protection, recreation, and water quality benefits will continue for the next 71 years.



★ Articulated Concrete Blocks

Flood control dams, such as Woodglen Lake, are designed to store flood water during storm events and gradually release it into the stream over several days through the principal spillway pipe. This principal spillway pipe regulates the water level in the dam on a daily basis and controls the rate at which the detained storm water is released from behind the dam. At the present time, Woodglen Lake can store the runoff from about 7.5 inches of rain in 24 hours.

Excess water that cannot be stored in the reservoir exits through the grassy area at the end of the dam known as the auxiliary spillway. Presently, there are two potential problems with Woodglen Lake during a storm that delivers more than 13 inches within 24 hours.

- The soils in the auxiliary spillway will erode and could cut completely through the auxiliary spillway, which would cause the dam to lose all its storage capacity;
- The back side of the dam will have some erosion because the training dike is too low to keep water away from the back slope of the dam.

The picture above is a computer-generated rendition of the proposed solution to these problems. The plan includes the following rehabilitation items:

- The rebuilt training dikes will direct the water away from the back of the dam.
- To prevent erosion, the auxiliary spillway and the inside of the training dikes will be lined with articulated concrete blocks that are cabled together. The blocks will be completely covered with soil and vegetated with grass. It will look a lot like the existing spillway. Although the picture shows the blocks as they will be installed, they will not be visible once the project is completed.

After construction, the areas that are not covered with grass will be planted with trees.

Flood control dams also serve to trap sediment and keep it from moving downstream. In the 29 years since this dam was built, it has trapped over 20-acre-feet of sediment. At the present time, there is enough room in the reservoir to retain sediment for the next 110 years. Therefore, sediment removal will not be included as part of the rehabilitation of the dam.