



United States Department of Agriculture  
Natural Resources Conservation Service

# HUNTSMAN 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. Federal funds from USDA NRCS were used to rehabilitate Royal Lake in 2009 and Woodglen Lake in 2010.

Lake Barton is in construction now (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.



Huntsman Lake

## PURPOSE:

Rehabilitating Huntsman 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 13,800 people who live/work downstream of the dam;
- Protect 13 single family homes and town houses;
- Protect three roads used by 10,600 vehicles per day and four utilities; and
- Provide \$110,000 in monetary benefits/year for 75 years after construction.

## REHABILITATION PLAN DETAILS:

- Realign the auxiliary spillway to protect the sanitary sewer;
- Armor the auxiliary spillway and training dikes with articulated concrete blocks;
- Extend the training dikes to the valley floor to protect the dam embankment; and
- Replace the principal spillway riser.

The plan will require draining the lake for about eight months. One short section of the top of the dam will be raised about 0.6 feet. To the extent possible, pedestrian access to the lake will be maintained. Some trees below the dam will have to be removed.

## ESTIMATED PROJECT COST:

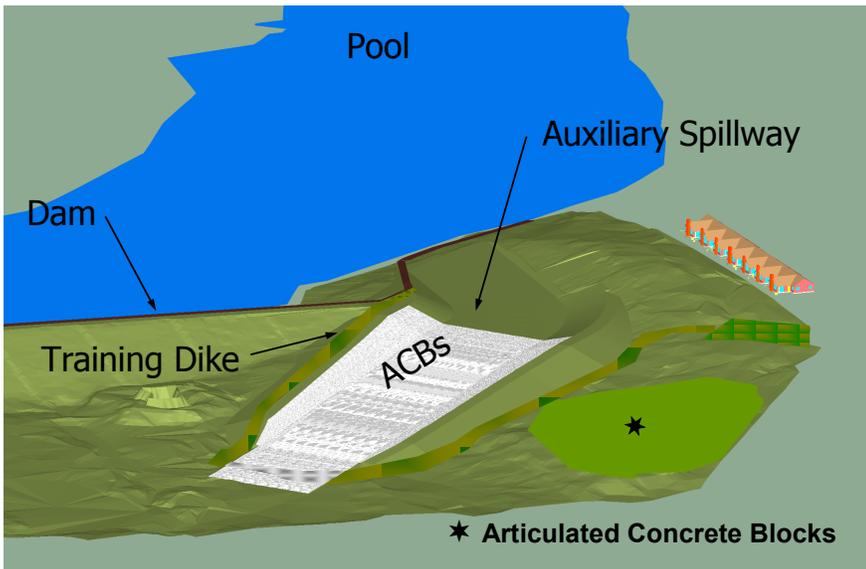
The USDA Natural Resources Conservation Service will provide \$1,939,000, and the sponsors will cover the remaining \$738,000 of the estimated \$2,677,000 total.

## SPONSORS:

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

## DAM REHABILITATION SCHEDULE:

The Huntsman Lake rehabilitation plan was finished in September 2011. Once design and construction are concluded, the dam's flood protection, recreation, and water quality benefits will continue for the next 75 years.



Above: Existing riser at Huntsman Lake.  
Below: Example of closed top riser.



Schematic of proposed solution using articulated concrete blocks.

Flood control dams, such as Huntsman 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, Huntsman Lake can store the runoff from about 8.34 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 Huntsman Lake.

- During a storm that delivers more than 11 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; and
- The principal spillway riser does not meet current safety criteria because of the open top.

The drawing above is a computer-generated rendition of the proposed solution to the auxiliary spillway problem. The plan includes the following rehabilitation items:

- The training dikes will be extended to the valley floor to 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.

The principal spillway riser will be replaced to improve public safety and to prevent clogging by floating debris.

Flood control dams also serve to trap sediment and keep it from moving downstream. In the 38 years since this dam was built, it has trapped over 54-acre-feet of sediment. As of 2010, there is enough room in the reservoir to retain sediment for the next 85 years. Therefore, sediment removal will not be included as part of the rehabilitation of the dam.