Save Huntley – CASH and Friends of Huntley Meadows Park) and was completed in 1999. This restoration project used bioengineering techniques to restore and stabilize a severely degraded stream segment in the Kingstowne area (Dogue Creek watershed). It continues to function as designed, carrying all storms successfully, and has become an attractive amenity for the community.

## *Occoquan Watershed*

On July 7, 2003, County staff presented the Board of Supervisors with an implementation plan responding to each of the 29 recommendations of the report prepared by the New Millennium Occoquan Watershed Task Force co-chaired by NVRC. The task force was established as part of the 2002 Board of Supervisors celebration of the 20th anniversary of the downzoning of nearly 41,000 acres of land in the Occoquan Watershed for the purpose of protecting the Occoquan Reservoir (one of the County's major sources of drinking water) from nonpoint source pollution. The Task Force's report ***(Appendix G),*** which presented a series of recommendations addressing watershed management issues, was presented to the Board of Supervisors on January 27, 2003. The mission of the Task Force was to provide an assessment of issues facing the Fairfax County portion of the Occoquan watershed, to examine gaps in programs being carried out by local, State, and regional agencies, to define the role of volunteer organizations that have interests in the watershed, and to provide a vision for the future management of the watershed. The Environment and Development Review Branch of DPZ was an active participant in the Task Force's efforts as well as other County offices: the Environmental Coordinator, the Park Authority, the Health Department, the Chairman's Office, and DPWES. Continued progress on implementation of the report's recommendations is anticipated.

***Occoquan Watershed Management Planning -*** NVRC continues to direct the Occoquan Basin Nonpoint Pollution Management Program, which was established in 1982 to provide an institutional framework for maintaining acceptable levels of water quality in the Occoquan Reservoir through management of nonpoint source pollution. The Occoquan Reservoir is one of two major water supply sources of the majority of Northern Virginians. Six jurisdictions within the watershed, including Fairfax County, as well as various stakeholders participate in this program. NVRC has outlined a watershed planning process for the Occoquan basin. The intent of NVRC's work is to coordinate and strengthen the individual components of each jurisdiction, to identify gaps and to provide a planning and implementation tool for filling those gaps. In addition to the advantages associated with basin-wide planning, the interjurisdictional and multi-stakeholder nature of the project is expected to facilitate funding for subwatershed planning, for example, implementation of Fairfax County's watershed management plans for the Occoquan basin subwatersheds.

At the request of the Occoquan Technical Advisory Committee and the Virginia Department of Environmental Quality (DEQ), the Northern Virginia Regional Commission entered into agreement with the Commonwealth to develop TMDLs for bacteria in Occoquan subsheds of Licking and Cedar Run. NVRC has started to coordinate with key staff from the affected localities that share the watershed. The State mandated deadline for development of the TMDL is May 1, 2004. To-date, NVRC's primary focus has been the development of a water quality model using the U.S. EPA's BASINS software.

Because of this continued high growth, the Occoquan Program will begin to turn its attention to broader watershed management and planning issues in addition to its current emphasis on BMPs and modeling. As part of the watershed management planning process, NVRC continues to review local policies and meet with key stakeholders in Prince William, Fauquier, Fairfax, and Loudoun counties. NVRC is identifying any stream assessment activities underway or planned, along with activities that support long-term watershed management planning for the Occoquan watershed area of each jurisdiction. NVRC expects to craft a watershed management plan over the next several years that will support local goals and

objectives, lead to the funding of missing links, and further the implementation of subwatershed plans.

***Occoquan Watershed Storm Drain Markers -*** NVRC purchased more than 700 storm drain markers and 5,000 door hangers for installation by volunteers in the Occoquan watershed. The markers warn residents not to dump anything down a storm drain, and the door hangers provide information on the dangers of dumping pollutants and alternative disposal methods. Fairfax County Stream Protection Strategy staff led teams of volunteers, who installed almost 100 storm drain markers and 750 door hangers in the Centreville area of the Occoquan watershed.

## *Mosquitoes*

In a proactive approach to mosquito surveillance and management a Mosquito Surveillance and Management Sub-committee was formed which includes the City of Falls Church, City of Fairfax, Town of Herndon, Town of Vienna, Health Department, Park Authority, DPWES, and other County agencies. An entomologist was employed to coordinate the effort to suppress West Nile Virus (WNV) and a company specializing in mosquito control was contracted to perform surveillance and treatment activities. It was determined that the primary vector for the transmission of WNV was a type of mosquito that primarily bread in storm drainage catch basins and isolated containers. Therefore, the surveillance and treatment activities focused on catch basins and citizen awareness. Surveillance and biological pesticide treatments were contracted to treat 10,000 suspect catch basins three times in 2003. County inspection crews supported this effort by identifying suspect areas in storm drainage conveyance systems during regularly scheduled maintenance inspections. The Health Department also conducted a rigorous quality control effort and found the contractor's work consistent with program needs. Information collected from first round of surveillance and treatments provided data to effectively define areas of WNV activity and zero in on appropriate locations. The second round of treatments focused more closely on the areas identified from the first round of surveillance. Based on data from the first two rounds of treatment and surveillance, the Health Department made the recommendation to treat these same areas a third time later in the season. Treatment activities were suspended due to unseasonably cold weather followed by Hurricane Isabel which was associated with heavy rains.

A program was initiated to educate citizens about WNV and informational handouts were developed to provide citizens and stormwater management facility owners/operators with background mosquito information and the do' and don't of mosquito management. County staff became certified by the State Office of Pesticide Services to proctor exams and to certify field staff, who were then qualified to apply biological herbicides in storm drainage conveyance systems. In 2003 approximately 6 stormwater management ponds were found to have mosquito larvae present and were treated by field staff outside of the regularly scheduled County WNV treatment program. This proactive approach/integrated approach resulted in a community more educated in stormwater, WNV, and contributed to an overall reduction of WNV in the County.

## *Floodplain Management*

The floodplain management program in Fairfax County, in addition to reducing flood risks, provides water quality benefits in several ways. In any floodplain served by a drainage area of greater than 360 acres (major floodplains), development and disturbance is strictly limited. Considered in every proposed use in a floodplain, including minor floodplains with drainage areas between 70 and 360 acres, are the environmental impacts resulting from the proposed work. The overall effect of this program, together with the restrictions in Fairfax County's Zoning Ordinance which prohibit increases in the 100-year water

surface elevation except for road crossings and certain county-driven improvements, is to preserve and to limit the disturbance to large areas within floodplains. The ability of these undisturbed floodplain areas to provide water quality benefits in "filtering" sheet flow from adjacent properties and in temporarily storing overbank flows in larger storm events is thus being maintained as a result of Fairfax County's floodplain regulations and policies.

# a.1) Structural and Source Controls

**Figure 16.** Rock Sediment Trap a few hours after a rain event at Sunset Ridge, Centreville (Photo Courtesy of MSMD)

**Figure 17.** Rock Sediment Trap a few days after rain event at Sunset Ridge, Centreville (Photo Courtesy of MSMD)

DPWES conducts inspections and maintenance of regional ponds and dry ponds located within residential developments, along with certain underground chambers, and percolation trenches within residential developments. In addition, DPWES conducts inspection and enforcement of maintenance agreement terms for the privately maintained facilities, including wet and dry ponds, culvert storage areas, sand filters, oil/grit separators, percolation trenches, inlet treatment devices, rooftop storage, and all commercial and/or industrial detention facilities.

## *County Maintained Stormwater Management Facilities*

There are 1,093 stormwater management facilities maintained by the County. The current inventory includes 971 on-site ponds, 33 regional ponds, 47 underground chambers, 32 percolation trenches, and 3 bio-retention areas. In 2003, the County inspected each facility at least once and performed 251 (10% increase from 2002) maintenance work orders for 203 facilities. No state or federal permits were required to perform this work. Retention and detention facilities had their mowing areas reduced to just mowing dam embankments and other critical areas to increase nutrient and absorption rates. A total of 503 dam embankments were mowed in 2003. To increase program effectiveness, a visual inspection of each facility was conducted during each visit. Complex issues were identified and additional field investigations were performed.

**Figure 18.** Stormwater Pond at the Government Center Complex, Feb. 2004 (Side view picture taken just above outlet point)

**Figure 19**
Stormwater Pond at the Government Center Complex, Feb. 2004 (Photo taken from one end of oblong-shaped pond)

## *Privately Maintained Stormwater Management Facilities*

In 2003 the Private Inspection Program underwent a rigorous review of the inventory which resulted in an increase of 300+ facilities to the inventory. In addition to the County maintained facilities, there are 2,164 privately maintained facilities in the County. The current inventory includes 285 wet ponds, 473 dry ponds, 113 sand filters, 49 manufactured BMPs', 322 percolation trenches, 496 roof top detention areas, 4140 parking lot detention areas, 376 underground detention facilities, and 6 bio-retention areas. These facilities are routinely scheduled for inspection conducted by DPWES staff with the goal of performing a thorough inspection of each facility at least once every 5 years. A total of 550 facilities (25%) were inspected in 2003. A detailed inspection report, with photographs and GIS maps, is provided to each owner upon completion of each inspection. The goal is to have the County ramp-up its efforts to ensure privately maintained facilities are maintained and operated consistent with industry standards to be in full compliance with permit requirements. Education of owner/operator of stormwater managed facilities has proven effective in getting the desired level of service for these facilities.

## *State-Regulated Dam Facilities*

There are six state-regulated dams maintained by the County; all are located within Pohick Creek Watershed. Combined, the six facilities serve a watershed area of 22,690 acres with an estimated population of 100,000 residents. DPWES staff and representatives from NRCS and NVSWCD formally inspect all PL-566 facilities in the fall of every year. The purpose of this formal inspection is to identify any safety or operational items in need of corrective action. In addition, a biennial inspection is conducted by an engineering firm under contract with the County or by in-house professional engineering staff with expertise in dam design and construction. These inspections satisfy state requirements for dam safety. State issued operating permits are valid for six-years and must be reissued at the end of each permitting period. Permit reissuing is tied to the most recent biennial inspection and its attached operation and maintenance plan. Based on these formal inspections, as well as other less formal inspections, a work program to correct deficiencies and address maintenance items is established and implemented. Critical items such as the stability of the dam embankment and the functioning of the water control structures are addressed on a priority basis. Routine items such as mowing are accomplished on a scheduled basis, currently scheduled five times per year.

# a.2) <u>Areas of New Development and Significant Redevelopment</u>

## *Comprehensive Land Use Plan*