

**Table 6. Rehabilitated Facilities with Enhancements**

Pond Name	Tax Map	Access Address	Drainage Area (Ac)	Season Completed
Foxfield Sec 13 Pond D	35-3	3775 Maxewood La (rear)	154	Fall 2003
Sully Station Phase 1 Pond 2	44-3	Westfields Bv. : Opposite Sully Sta.	95	Summer 2003
Sully Station Phase 1 Pond 6	44-3	14317 Brookmere Dr	19	Winter 2003
South Run Forest Basin 2 (sec 3)	97-2	7828 Lakeland valley Dr.	57	Summer 2003

Total 325



**Figure 21.** Retro-Fitted Pond in Little Rocky Run, Completed Summer 2002. (Photo Courtesy of MSMD)



**Figure 22.** Retro-fitted pond in Little Rocky Run, One Year later, photo taken in Summer, 2003 (Photo Courtesy of MSMD)

Fairfax County is currently in the process of repairing many publicly maintained residential stormwater dry ponds that have experienced structural failure. These ponds no longer provide the water quantity or quality benefits as originally intended, and the repairs are necessary to maintain compliance with the County’s MS4 permit. The repair work generally results in significant disturbance of the dam embankment, control structure, and pond floor. With these ongoing construction activities and associated restoration requirements, an opportunity has arisen to also provide retrofit elements that enhance the water quality treatment, natural habitat, and aesthetic aspects of the ponds. Though these retrofit elements may vary to a degree from site to site, a complete retrofit project will, where practical, generally conform to the Virginia Department of Conservation and Recreation standards for the installation of shallow marsh wetlands. The pollutant removal efficiencies of these retrofitted facilities exceed that of the typical County stormwater quality pond. It is anticipated that additional Best Management Practice (BMP) credits may be obtained through these types of practices and will help meet the intent of the Chesapeake Bay 2000 Agreement and the Virginia Tributary Strategies initiative. The considered practices are as follows:

- The installation of sediment basins at the inlets
- The removal of some or all of the concrete low-flow ditches
- The installation of check dams in portions of low-flow ditch intended to remain
- The installation of diversion berms, peninsulas, and islands to increase treatment flow paths
- The installation of shallow marsh pools planted with wetland grasses and other types of wetland and wet meadow plantings (i.e., herbaceous shrubs, ornamental trees, etc.)
- The installation of modifications to the outlet structure and principal spillway pipe

### ***Reston 913 Retrofit and DCR Water Quality Study***

Reston 913, a 1.8 ha regional in-line dry detention pond originally constructed in northwest Fairfax County in 1980 for flood control has been identified for retrofitting as part of a Virginia Department of Conservation and Recreation Water Quality Improvement Fund (DCR WQIF) grant which is due to expire in February 2004. DPWES plans to continue the project, as it will provide a wealth of information on the benefits of wetlands in stormwater management facilities, and is planning on applying for an extension to the grant. There are a number of options to fulfill the requirements of the grant if given a 2 year extension, the most promising of which is to reduce the scope of the construction project so that it can be completed within one year, while not reducing the scope of the monitoring, which would take place the following year. The reduced scope project would consist of installing a BMP weir at the outlet to the pond with a drawdown time of 24 to 48 hours as previously stipulated in the grant. The difference would be in the treatment of the larger storms. At present, the design was to take into account the 100 year storm which required the design and construction of additional outlet pipes going under the W&OD Trail and a large parking.

Data generated from the monitoring program will be used to determine whether differences in pollutant loadings and peak concentrations as a result of the wetlands before and after construction of the weir wall are statistically significant. Similar hypothesis tests will be conducted to determine whether significant changes in wetland vegetation characteristics are indicated. Since the basic monitoring design is the before-and-after approach, an important aspect of data analysis will be to take into consideration year-to-year and seasonal variability.

### ***Lake Barcroft Watershed Improvement District's (LBWID) Retrofits***

LBWID continues its involvement in watershed management by assisting Falls Church City in forming a street sweeping operation that is more directed toward improving stream water quality as well as being an effective esthetic tool in community appearance. LBWID also did a fish flesh study by sending edible portions of fish removed from Lake Barcroft for analysis of toxins and heavy metals. The official report is in the process of being produced but none of the counts were over the EPA warning levels. The fish studied were Largemouth Bass, Bluegill and Black Crappie. Operations have focused heavily on removal of lake debris as well as a number of fallen trees in the lake.

The recently designed and constructed a diversion debris trap over Tripps Run at Potterton Road has undergone some changes since it was first placed in. Most of the fixed barrier boards were removed and a Tuffboom® (floating) barrier has been chained in place just upstream. This allows the debris to be diverted and held back throughout a storm, unless the storm water overwhelms the structure.

The six-year EPA grant under Section 319 of the Clean Water Act to identify and demonstrate appropriate urban BMPs has concluded with a Final Report in the form of an interactive CD-ROM containing voluminous text and hundreds of digital color pictures. A copy of this CD is attached (***Appendix H***). Numerous BMPs are appropriate for urban or urbanizing communities. Some such as street sweeping or temporary stormwater detention tend to minimize pollution discharge to stream. Others such as sediment dredging and debris catchment are pollutant removal systems

The LBWID dam has a new PLC (logic controller / computer) that regulates the level of the bascule gate relative to the amount of water in the lake. It is cutting edge technology and the operating staff are quite

pleased with its performance The dam also had some equipment repairs and upgrades and a few more are pending, like the upgrade of the water level sensors.

## **a.5) Pesticide, Herbicide and Fertilizer Application**

### ***Pesticide, Herbicide and Fertilizer (PH&F) Application Program***

A PH&F Application program (***Appendix I***) was submitted on January 24, 2003 in accordance with the permit requirement section I.B.1.e. The goal of the program plan is to evaluate current methods of application and prepare recommendations that are designed to reduce the quantity of pollutants that may enter the MS4 and streams in the County. This information will be used to ensure that all involved are in concert with each other and are striving for a reasonable goal.

A questionnaire and a list of agencies was developed to be used in compiling data necessary to determine current pest management and fertilizer application practices being implemented in the County. The survey is currently underway with good success to date. Once the survey data is complete it will be compiled and the data used to determine the degree that mechanical, cultural, or biological methods are currently being implemented in conjunction with, or in lieu of, chemical methods to manage pests and maintain properties. The data will also be used to identify areas where the use of pesticides, herbicides and fertilizers can be reduced on county owned properties by implementing non chemical or reduced chemical management practices. Recommendation for a county wide approach to reduce the use of chemicals for the control of pests and management of vegetation will prepared. The questionnaire and list of agencies surveyed is in (***Appendix J***).

The survey is being conducted of agencies in Fairfax County that maintain public right of ways, parks and other municipal property in the County, to establish current procedures for application of PH&F. These agencies include the Park Authority (FCPA), Facilities Management Division (FMD), Maintenance and Stormwater Management Division (MSMD) and Public Schools (FCPS). In addition, non-government organizations are also being surveyed. The procedures are being reviewed in an effort to identify areas where the discharge of pollutants can be reduced.

### ***Northern Virginia Soil and Water Conservation District***

NVSWCD continues to distribute *You and Your Land - A Homeowner's Guide for the Potomac Watershed*. It can be viewed at NVSWCD's web site at:

<http://www.fairfaxcounty.gov/nvswcd/yyi-intro.htm>

Under the County's Chesapeake Bay Preservation Ordinance, the NVSWCD develops soil and water quality conservation plans for land in agricultural use. The plans recommend best management practices so that sediment, fertilizers, pesticides, herbicides, and animal wastes do not harm water quality.

NVSWCD continues to distribute ***Agricultural Best Management Practices for Horse Operations in Suburban Communities***. It is posted on the web site with several photographs to accompany the text. The web page gets 50 to 100 visitors each month.

<http://www.fairfaxcounty.gov/nvswcd/horse.htm>

In addition, NVSWCD reviewed nutrient management and integrated pesticide management plans for two golf courses, and provided comments and recommendations to the Department of Planning and Zoning.

In October, NVSWCD hosted a Green Breakfast on Environmentally Friendly Lawn Care, with speakers from Virginia Cooperative Extension and DCR.

### ***Northern Virginia Regional Commission***

The Northern Virginia Regional Commission completed its “Water Friendly Lawn Care Contractor Promotion Program.” With partial funding from the Chesapeake Bay Restoration Fund, NVRC developed a data base of lawn care contractors. NVRC provided lawn care contractors with information on the Virginia Department of Conservation and Recreation’s (DCR) Water Quality Improvement Agreement program. Contractors responded directly to DCR, and DCR staff worked with contractors to meet program requirements.

NVRC compiled a data base of citizens associations and notified each organization of the WQIA program. An updated list of approved contractors was sent to more than 200 associations. The program was also publicized through the press, governmental agencies, e-mail networks and the internet.

### ***The Environmental Horticulture Division (EHD) of Fairfax County Extension***

The Environmental Horticulture Division (EHD) of Fairfax County Extension provides research based technical information from Virginia Polytechnic Institute and State University (VT) promoting sound landscaping practices that reduce the quantity of pesticide and fertilizers added to the environment, slow runoff rates, keep erosion to a minimum, and encourage significant absorption of pollutants by plant materials.

EHD programs educate private residents on ways of achieving attractive and sustainable home landscapes with the minimum use of fertilizer, pesticides and other chemical inputs. Each year:

- One-on-one advisory services reach more than 15,000 residents.
- Low input lawn care advice is circulated to more than 25,000 residents through monthly articles in resident association newsletters.
- Approximately 4,000 VT publications are distributed on such topics as “Lawn Fertilization in Virginia,” “Horse Pastures in Virginia” and “selection of plant material suitable for this area.”
- More than 2,500 residents and commercial horticultural companies use the extension office’s soil testing service to determine the precise levels of fertilizer and liming necessary for a healthy landscape. (Note: In part, due to information and assistance provided by the Fairfax County Public Library, Fairfax is the greatest user of this service in Virginia.)
- Over 40 pre-recorded messages on environmental horticulture and horticulture topics are available to the public 24 hours a day on Parkline at 703-324-8700.

EHD also works intensively with horticulture professionals, both in private industry and local government. In addition to providing one-on-one technical advice on request, EHD provides educational and logistical assistance to the Northern Virginia Nursery and Landscape Association and the Professional Grounds Management Society. In 2003, more than 885 people received professional training

at the annual 3-day Greens Industry Professional Seminar. Similarly, EHD plays a major role in the Virginia Nursery and Landscape Association Certification training.

Pesticide use and safety is a major focus of the EHD program, which provides educational materials and logistical support for pesticide applicator certification in cooperation with the Virginia Department of Agriculture and Consumer Services (VDACS). One training session prepared over 65 landscape professionals and local government employees for testing with VDACS to become certified Pesticide Applicators or Registered Technicians. In addition, more than 500 horticultural professionals and members of the structural pest control industry received recertification training and credit at the annual Greens Industry Seminar.

EHD offers technical support to other agencies on demand, for example, review of nutrient and pesticide management plans for the Department of Planning and Zoning (DPZ). The nutrient and pesticide management plans are developed pursuant to development conditions that are negotiated by DPZ during the zoning process for cases (typically special permit or special exception applications) involving substantial turf-oriented recreational activities (e.g. athletic fields, golf courses and driving ranges).

### **a.6. Illicit Discharge Improper Disposal**

#### ***Ordinances and Enforcement***

The Fire and Rescue Department's Hazardous Materials and Investigative Services aggressively enforces County Code Chapters 105 and 106 and has issued criminal citations during the investigations of Hazardous Materials Incidents. Chapters 105 & 106 contain the provisions, which address illicit discharges to state waters and the County's storm drainage system. Procedural Memorandum No. 71-01, Illegal Dump Site Investigation, Response, and Cleanup, (*Appendix L*) outlines the process of follow-up action for non-emergency incidents of illegal dumping; establishes action under County Code Chapter 46, Health or Safety Menaces; and provides referrals for action on complaints that are not public health hazards nor regulated.

In May 1995, the County established the Fairfax County Hazardous Materials Task Force. Their charge is to provide oversight of remedial activities required as a result of Corrective Action Plans (CAPs). A CAP may be issued to a site for remedial activity required from groundwater contamination. The CAPs may involve the discharge of treated groundwater to the storm sewer system. The Fire & Rescue Department's Hazardous Materials Services Section acts as an agent of the Director of the Department of Public Works and Environmental Services to permit and enforce actions on these activities. The Hazardous Materials Technical Support Branch currently monitors 43 active sites undergoing remediation activities.

In 2003 response incidences, which had the potential to discharge hazardous materials into storm drains or surface water, included: 32 improper disposals, 16 pipeline incidents, 39 various types of product release and 191 petroleum releases. Storm drains and creeks/streams were reported to have been directly contaminated in 43 cases. There were 7 cases involving products released from transportation accidents that did not reach storm drains or surface waters in the County. Hurricane Isabel accounted for 10 incidents where petroleum products or vessels were impacted by floodwaters or emergency generator operations. The incidents involving potential hazardous materials entering the storm sewer system and areas of surface water runoff are summarized in *Appendix M*.

## ***Sanitary Sewer Infiltration Abatement Program***

The Wastewater Collection Division, an agency of the Department of Public Works and Environmental Services, manages the County's infiltration abatement program. Major activities of this program include:

- Sewer system evaluation survey consisting of wastewater flow measurement and analysis to identify areas of the wastewater collection system with excessive inflow/infiltration problems.
- Closed circuit television (CCTV) inspection of trunk sewer mains to specifically identify the defective sewer lines for repair and rehabilitation. In 2003, 187 miles of old sewer lines and 34 miles of new sewer lines were inspected.
- Repair and rehabilitation of sanitary sewer lines and manholes identified by CCTV inspection. This includes, among others, dig up repairs, manhole rehabilitation, and trenchless pipe repair technologies such as robotic, cured-in-place, and fold-and-reformed pipe rehabilitation processes. In 2003, approximately 139,000 feet of sanitary sewer lines were rehabilitated and over the past six years this adds up to over 901,000 feet (170 miles).
- In addition 25 dig-up repairs and 91 trenchless point repairs were completed.
- In addition to reducing infiltration of extraneous waters into the wastewater collection system, this repair and rehabilitation program significantly extends the life of the sewer system.



**Figure 23.** Wastewater Collection Division inspects a line using their Closed Circuit Television (CCTV) System  
(Photo Courtesy of Wastewater Collection Division)

## ***Sanitary Sewer Extension and Improvement (E&I) Program***

Waste Management and Capital Facilities within the Department of Public Works and Environmental Services jointly administer the E&I Program. The purpose of this program is to provide sanitary sewer service to eligible areas that have been identified by the Department of Health as having non-repairable malfunctioning septic systems. Pollution abatement and addressing public health considerations are achieved by providing sanitary sewer service to these areas. During 2003, three E&I projects were completed consisting of 11,638 linear feet of 8-inch sewer line, 3500 linear feet of 4-inch force main, two pump station, and providing sanitary sewer service connections for 94 existing homes.

## ***Public Reporting***

Through their *Adopt-A-Stream* program the Health Department has served as a resource for concerned citizens, by answering questions and investigating stream related complaints, including sewer line breaks, fish kills, and illegal dumping. In July 2003, this program became the responsibility of DPWES along with the Water Quality monitoring program and is done in conjunction with answering stream related questions as result of the SPS study. DPWES has actively encouraged the development of "friends of" watershed groups in at least the 30 major watersheds located within county boundaries.

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Over the last decade, there have been numerous programs developed to promote stream awareness in Northern Virginia through a variety of activities. These programs include, but are not limited to, the Department of Conservation and Recreation's Adopt-A-Stream program, which focuses on stream clean-ups, the Northern Virginia Soil and Water Conservation District and Audubon Naturalist's Society's Volunteer Stream Monitoring Program, both of which collect benthic macroinvertebrates, use simple water chemistry tests, and observe physical changes in the stream's morphology, and the Potomac Conservancy, a non-profit organization, who monitor the state of the Potomac River shoreline for potential pollution problems from illegal activities.

Volunteers in the NVSWCD stream monitoring program keep an eye on stream segments in their neighborhoods. They routinely report sedimentation and pollution problems that they observe.

NVSWCD Associate Director Christa Hellberg-Cook visually inspects the Little Hunting Creek Watershed for problems stemming from water pollution, litter, and inadequate E&S controls on construction sites; she calls the appropriate agencies when she observes a problem.

Ned Foster, president of the Friends of Little Rocky Run, keeps a lookout for threats to the stream and reports E&S control failures, violations in the RPA, blockages and other problems to the appropriate county agencies.

The Potomac Conservancy, a non-profit organization, keeps an eye on the Potomac River shoreline, often using canoes to conduct surveillance, and reports to DPWES pollution problems such as sediment plumes, and illegal activities such as clear-cutting.

### **a.7) Spill Prevention and Response**

The Fire & Rescue Department (FRD) responds to all reported incidents of hazardous material releases, spills, and discharges. FRD Operations Division staff are trained and equipped to initiate spill control measures to reduce the possibility of hazardous materials reaching the municipal storm drainage system. Resources available to FRD personnel include personal protective equipment, technical tools and equipment for control, and absorbent products such as pads and booms for containment. The FRD also maintains a contract with a major commercial hazardous materials response company to provide additional containment and clean up support for large-scale incidents.

The Hazardous Materials & Investigative Services Section (HMIS) investigates complaints of potential and actual releases, many of a non-emergency nature. Approximately 500 investigations of oil or other liquid spills are conducted each year. HMIS staff, through vigorous enforcement of appropriate codes and ordinances, ensures that the responsible party takes appropriate spill control and cleanup action. In both emergency and non-emergency spills that reach the municipal storm sewer system, HMIS staff utilizes appropriate enforcement actions to ensure that proper cleanup activities are undertaken to protect and restore the environment.

The HMIS monitors, on a long-term basis, contaminated sites that have a potential for the contaminant coming in contact with surface structures including stormwater management facilities. As a part of the Oversight Program, HMIS, as an agent of the Director of DPWES, accepts, reviews, and processes requests to discharge treated groundwater from remedial activities at those sites into County sewers. HMIS then monitors the discharge for the duration of the agreement. DPWES staff members receive regular training in pollution prevention measures and in proper response procedures for incidences where