



Virginia Pollutant Discharge Elimination System
Phase II Annual Report

Permit Number VAR040022

Roanoke County Community Development
April 28, 2004

MINIMUM CONTROL MEASURE 1: PUBLIC EDUCATION AND OUTREACH **4**

- BMP 1-1 Complete a comprehensive review of existing stormwater educational programs available to Roanoke County and the Roanoke Valley region.* 4
- BMP 1-2 Develop and distribute a Roanoke County Stormwater Informational Mailer to Roanoke County Residents on a Yearly Basis. The mailer will be designed as a regional document based on the unique issues and concerns for the Roanoke River Watershed.* 4
- BMP 1-3 In cooperation with Virginia Save Our Streams, Roanoke County will provide Stream School Seminars for adults and high school students on a yearly basis.* 4
- BMP 1-4 Develop a stormwater education program for Roanoke County school age children. Different programs will target appropriate grade levels.* 4
- BMP 1-5 Distribute posters, bumper stickers, flyers, fact sheets, and other items promoting the importance of Stormwater Quality to the citizens of Roanoke County.* 5
- BMP 1-6 Utilization of billboards in high traffic corridors to advertise the importance of stormwater quality, conservation, and other stormwater issues.* 5
- BMP 1-7 Establish a stormwater hotline for Roanoke County Citizens that allows citizens to report storm drain violations (illegal dumping), make general comments about stormwater/storm drains and stormwater maintenance concerns. The hotline will be designed to include comment tracking and follow up protocols, provide general information on the stormwater management program and provide storm water management program contact information.* 5
- BMP 1-8 Develop and maintain a Roanoke County Stormwater web page, where citizens can get information concerning the County's Stormwater Management Program, ordinances, design guidelines, general information, contact information, pollution prevention information, educational programs and links to other organizations and sites.* 5
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Minimum Control Measure 1: Public Education and Outreach

The County of Roanoke partnered with Explore Park to help fulfill most of the BMPs within this control measure and Minimum Control Measure 2. Explore Park's Earth-Wise program is supported by a number of local municipalities and enabled them to fulfill the BMPs of these control measures consistently on a regional level

BMP: 1-1. Complete a comprehensive review of existing stormwater educational programs available to Roanoke County and the Roanoke Valley region.

This resource review lists over 150 resources for stormwater information. The information is in the form of printed material, agency websites, environmental education efforts and organizations, maps, videos, hotlines, and books. A website and phone number is listed with each resource if it is available. The list can be seen in Appendix A (p. 14).

BMP: 1-2. Develop and distribute a Roanoke County Stormwater Informational Mailer to Roanoke County Residents on a Yearly Basis. The mailer will be designed as a regional document based on the unique issues and concerns for the Roanoke River Watershed.

In conjunction with the City of Roanoke and the Town of Vinton, the County developed an informational mailer that was adapted from the EPA's *After the Storm* flyer. The County's measurable goal was to distribute the mailer to 8,500 County residents which is approximately 10% of the County population. The flyer was printed as an insert to the Department of Parks and Recreation bulletin which was distributed to 34,673 households in the County. This is approximately 100% of the population. An extra 5,000 flyers were printed for distribution in libraries, schools, and county offices throughout the next year. The flyer can be seen in Appendix A (p. 25).

BMP: 1-3. In cooperation with Virginia Save Our Streams, Roanoke County will provide Stream School Seminars for adults and high school students on a yearly basis.

Three Save Our Stream workshops were conducted in July, August, and September. They were well attended and it is anticipated that more will be held in the upcoming year. An attendance list is provided in Appendix A (p. 29).

BMP: 1-4. Develop a stormwater education program for Roanoke County school age children. Different programs will target appropriate grade levels.

The Explore Park EarthWISE program entitled *Stormwater and Water Resources Education* was utilized to fulfill the requirements of this BMP. The program consists of SOL-based lessons that expose students to storm water, watersheds, pollution and runoff, regional water resources and other grade appropriate (K-12) topics. A description of the EarthWISE program and a table showing the schools that utilized it and the number of students reached is shown in Appendix A (p. 31).

BMP 1-5 Distribute posters, bumper stickers, flyers, fact sheets, and other items promoting the importance of Stormwater Quality to the citizens of Roanoke County.

Information was distributed at a large number of events around the region. The majority of the information was in the form of brochures, bumper stickers, maps, and flyers provided by the DCR. A list showing the events and the number of people in attendance, and quantities and types of information that was distributed is shown in Appendix A (p. 45).

As a part of the education BMP, the County is promoting a poster contest among school-age children to design a stormwater logo. The logo will be used as a regionally recognized icon on merchandise and information promoting the stormwater program in the upcoming years of the VPDES permit.

BMP 1-6 Utilization of billboards in high traffic corridors to advertise the importance of stormwater quality, conservation, and other stormwater issues.

The County of Roanoke would like to remove this BMP from its permit. Since the date of approval of the permit, the County's zoning regulations have changed and no new billboards are being allowed within the County.

BMP 1-7 Establish a stormwater hotline for Roanoke County Citizens that allows citizens to report storm drain violations (illegal dumping), make general comments about stormwater/storm drains and stormwater maintenance concerns. The hotline will be designed to include comment tracking and follow up protocols, provide general information on the stormwater management program and provide storm water management program contact information.

The County's Citizen Inquiry System (CIS) is being utilized to handle the stormwater hotline. This system allows any County employee to provide citizens with prompt service regarding their questions and concerns. After a stormwater-related citizen issue is entered into the system, the assigned employee is notified via email, and any activity related to the issue is be logged in the system. Outside of normal business hours, citizens can log on to the County's website and fill out a form that is linked to the CIS. A stormwater specific email address has also been established and is posted on the stormwater web page.

BMP 1-8 Develop and maintain a Roanoke County Stormwater web page, where citizens can get information concerning the County's Stormwater Management Program, ordinances, design guidelines, general information, contact information, pollution prevention information, educational programs and links to other organizations and sites.

The County's website has a page devoted to Stormwater. The web address is <http://www.roanokecountyva.gov/Departments/Engineering/Stormwater/>. The entire county website was redesigned in February, and the stormwater web page is still in the process of being updated. It currently includes general information, contacts, and links to stormwater information.

BMP 1-9 Produce Stormwater Program Public Service Announcements on a yearly basis that utilize radio and television media to educate the public on stormwater issues.

The County produced four PSA's that were run on Roanoke Valley Television (RVTV). The PSA's were in the form of interviews with representatives from the County and Explore Park about stormwater management and stormwater programs. Descriptions of the PSA's and a record of when they were aired can be found in Appendix A (p. 46). A copy of the PSA's is submitted with this document.

RVTV is only available to subscribers of Cox Cable, so for the upcoming year, the County is working on producing PSA's that will be run on radio and local television broadcast stations. This will help in reaching a much broader audience in the region.

BMP 1-10 Develop a stormwater quality education program for specific commercial businesses within the County of Roanoke and provide information to these businesses in an effort to increase business owner awareness of the impacts of illicit discharges into the County's storm sewer system.

The goal for this BMP for year one was to create an inventory of existing business-related stormwater material, and to develop a list of target businesses for outreach. In Year Two, the business program is to be implemented with the listed businesses as potential targets. This program would likely include the use of the DCR video "Watershed Connections" as an introduction to watersheds. A stormwater video, available from the DEQ, may also be used in coordination. The 45 to 60 minute educational sessions would be tailored depending on the type of business and the specific requests of items to address by the employer. The list of target businesses is in Appendix A (p. 47).

Minimum Control Measure 2: Public Participation and Involvement

BMP 2-1 Coordinate a Storm Drain Stenciling Program with local schools, organizations, neighborhoods, businesses, etc., with the goal of stenciling storm drains throughout the County.

The storm drain stenciling program primarily involves teen groups and teaches that the storm drain system discharges untreated water into local streams and rivers, and also teaches the consequences of dumping wastes into the storm drains. Participants have found this activity enjoyable and the County expects to stencil a large percentage of drains near schools, neighborhoods, and other public places. A list of participating groups and numbers of storm drains stenciled can be found in Appendix B (p. 56).

BMP 2-2 Coordinate a Save our Streams Program to educate local schools, organizations, neighborhoods, and businesses on water quality regulations, water pollution and the importance of stream monitoring within the County.

This BMP coordinates with BMP 1-3. Through the stream schools that were conducted, 30 individuals were introduced to the SOS protocol. The SOS program has been promoted to groups in the area but none have volunteered to start a monitoring project. Additionally, no individuals have volunteered to go through the training to become certified monitors. Each group monitoring a stream must have at least one person certified in the SOS protocol. Currently in the region, two streams are being monitored: Buffalo Creek in Troutville, and Glade Creek in Vinton.

Mudlick Creek runs adjacent to the property at Hidden Valley High School and if at least one of the biology teachers at the school is willing to become certified in the SOS protocol, a student monitoring program will be established there.

BMP 2-3 Once a year, at Virginia's Explore Park, hold a public forum to address different storm water issues, the County's progress towards storm water quality improvements, and to receive input from the public on the County's Stormwater Management Program.

The public forum meeting entitled "Waterways Field Days Summit 2003" was held on September 26, 2003 at the Blue Ridge Parkway Visitor Center. This event was planned as the first of a series of five annual meetings. The meeting agenda, minutes, and attendance list can be found in Appendix B (p. 57).

BMP: 2-4. Establish a Stormwater Management Program Citizens Advisory Committee

Committee members from the County of Roanoke, City of Roanoke, and Town of Vinton were asked to participate by representatives from their respective municipalities and met four times. The committee was established somewhat late in the year and met once each month from December to March. In the remaining years of the permit, the committee will meet quarterly. Attendance lists and minutes from the meetings can be found in Appendix B (p. 60).

Minimum Control Measure 3: Illicit Discharge Detection and Elimination

BMP: 3-1. Develop a storm drain system map which identifies all outfalls 15-inch and larger and all 12-inch outfalls from zoned industrial properties within the County of Roanoke, which discharge to natural waterways.

The County of Roanoke is making two distinct efforts to map the storm drain system. The first involves drafting the system in AutoCAD, based on research of as-built plans and planimetric data derived from aerial photography. To date, this effort has been concentrated on the developed area south of the City of Roanoke. The second effort towards mapping the storm drain system is field collection of the storm drain structures using the Global Positioning System (GPS). During the summer of 2003 the County of Roanoke hired interns to do the GPS mapping. The Town of Vinton was the focus of the GPS effort with some additional work done in the Hollins area.

The AutoCAD-based mapping has located nearly 5000 storm drain structures, with 331 15-inch or larger outfalls, and 21 12-inch or larger outfalls from industrial zoned properties. All structures that have been mapped from as-built plans and topo maps will be field verified with GPS prior to completion of the mapping effort. A total of 1500 structures have been collected with GPS in the field, with 50 15-inch or larger outfalls and 6 12-inch or larger outfalls from industrial zoned properties.

It is estimated, based on data from the GIS department and field measurements in the Town of Vinton, that there are, on average, 40 structures per tax map. Therefore there are approximately 15,000 to 20,000 storm drain structures in the County of Roanoke. The measurable goal for this BMP is a complete map of 10% of all storm drain outfalls 15-inch and larger, and all outfalls 12-inch and larger from industrial zoned properties within the County of Roanoke. This map can be found in Appendix C (p. 67).

BMP: 3-2. Develop regulations and an enforcement program for a stormwater ordinance preventing illegal discharges into the storm drain system.

No activity in year one

BMP: 3-3. Pilot project for Illicit Discharge Detection and Elimination.

No activity in year one

BMP: 3-4. Identify and enforce correction of illicit connections.

No activity in year one

Minimum Control Measure 4: Construction Site Runoff Control.

BMP: 4-1. Require Erosion and Sediment Control plans for any land disturbance greater than 10,000 square feet.

The County of Roanoke has adopted an updated erosion and sediment control ordinance to reduce construction pollutants in its storm water runoff. The ordinance states that any land-disturbing activity of 10,000 square feet or more requires an approved erosion and sediment control plan that contains measures to reduce soil erosion and practices to control sediments that have already eroded. For land-disturbing activities between 5,000 and 10,000 square feet, either a plot plan prepared by a certified responsible land disturber or an engineered plan prepared by a professional engineer must be approved. For land-disturbing activities between 2,500 and 5,000 square feet, an “agreement in lieu of a plan” may be substituted for an erosion and sediment control plan. The complete erosion and sediment control ordinance can be found in Appendix D (p. 78).

In 2003 the Department of Community Development issued 61 erosion and sediment control permits with a total disturbed area of approximately 300 acres. A spreadsheet listing the details of each permit can be found in Appendix D (p. 90).

BMP: 4-2. Identify current Erosion and Sediment Control certified employees and develop a program for additional certifications and cross training.

Three county departments, Community Development, Parks and Recreation, and Utilities, were identified as having positions whose job responsibilities necessitate erosion and sediment control training and certification. Currently the county utilizes training and certification through the Department of Conservation and Recreation’s Virginia Erosion and Sediment Control Training and Certification Program. A table of the positions within each department, the employee(s) in the positions, and their level of certification can be found in Appendix D (p. 92).

BMP: 4-3. Develop a County sponsored awards program for Exemplary Erosion and Sediment Control Compliance

An erosion and sediment control awards program is currently under development. The program will recognize any outstanding project or program which demonstrates excellence in natural resource conservation and environmental protection through the use of effective erosion and sediment control policies. The focus will be on the application of a new practice, design or process that has combined technological and environmental considerations to reduce erosion and sediment loss and improve water quality.

A flyer describing the awards program and the types of innovative practices it will be promoting will be developed and distributed to individuals and companies in preliminary meetings. This will provide county staff with a way to help promote the program and encourage erosion and sediment control practices that exceed the minimums for compliance.

County staff in development review, engineering, and inspections will make note of and vote on projects to be considered for awards. The awards will be presented in front of the Board of Supervisors quarterly or semi-annually, depending on the number of awards to be given. A plaque will be given and companies will be recognized in a splash screen on RVTv, the local public access television station. A

seal or logo is also being considered so recipients can show in their literature or signage that they were recognized by the County of Roanoke for their efforts in erosion and sediment control.

Minimum Control Measure 5: Post Construction stormwater management in new development and redevelopment.

BMP: 5-1. Develop, Adopt and Enforce an ordinance addressing water quality in post construction site storm water runoff. Design the Roanoke County Stormwater Management Ordinance to address water quality, watershed management, design guidelines, and other applications that will meet the VPDES Phase II requirements.

No activity in year one

BMP: 5-2. Develop an Inspection and Enforcement program for maintenance of Post Construction structural stormwater quality controls in new development and redevelopment. The inspection program will be designed to tie into CRS inspections, Flood/911 response calls, flood damage reporting and stream habitat inventory efforts.

This program is being created as one of the sections of the new stormwater ordinance which is being drafted for year two. Efforts for year one were primarily focused on using existing GIS data to locate structures. This effort will be continued as field work in conjunction with the storm drain system mapping program. The County plans to use handheld Windows CE-based computers with GPS integration to conduct the bi-annual inspections.

Minimum Control Measure 6: Pollution Prevention/Good Housekeeping.

BMP: 6-1. Develop Spill Prevention and Control Plans for Municipal Facilities

As a cornerstone of EPA's strategy to prevent oil spills from reaching our nation's waters, the Agency requires that facilities with a total aboveground oil storage capacity of greater than 1,320 gallons develop and implement oil spill prevention, control, and countermeasure, or SPCC plans. All county facilities were evaluated and it was determined that the Public Safety Center, and the Cave Spring, Clearbrook, Fort Lewis, and Hollins fire stations required SPCC plans. The County hired Maureen Castern of Stratus Environmental Systems to prepare SPCC plans for the listed county facilities. The plans have been completed and the County is currently in the process of implementing them.

BMP: 6-2. Participate in a Household Hazardous Waste (HHHW) Collection Event

The County of Roanoke participated in Household Hazardous Waste Collection Day on September 13, 2003. Over 1,100 participants braved the cold and rainy conditions to drop off their unwanted household waste items. The City of Roanoke, Roanoke County, Botetourt County, the City of Salem, and the Town of Vinton provided financial resources and volunteers, which enabled the day to be a success. A table showing the breakdown of participants and the information that was posted on the County of Roanoke's website can be found in Appendix E (p. 94). The next Household Hazardous Waste Collection Day is being planned for late-Spring or early-Fall 2004.

BMP: 6-3. Develop and Maintain a Program for Maintenance of Public Storm Drain Systems.

The Stormwater Division of the Department of Community Development employed a stormwater construction and maintenance crew of 5 men for the majority of 2003. An additional crew was hired near the end of the year due to the large number of drainage projects the County is responsible for. These crews perform a large variety of duties including storm pond maintenance, installation of pipes and structures, repair of damaged structures, emergency response to flooding problems and all other county storm drain system maintenance. A table listing the projects that the crew worked on in 2003 can be found in Appendix E (p. 96).

Currently, the stormwater operations supervisor records the work on projects in a hand written logbook. A program is being developed to keep a log of the projects and the hours worked on those projects. This will provide a better method to maintain records of the activities of the stormwater maintenance crew and will allow for more accurate reporting of man-hours for subsequent years of the County's VPDES permit.

BMP: 6-4. Develop and maintain Pollution Prevention and Hazardous Waste training programs for County employees, grounds maintenance workers and landscaping crews.

The County of Roanoke currently maintains basic hazardous waste training for employees in Fire and Rescue. The County's Environmental Assessment Team (EAT) is also involved in specifying hazardous waste training for applicable positions within the County. A basic environmental awareness and pollution prevention video was created as one of the tasks of the EAT. This video was shown to all County employees, and all new employees will be shown the video.

Appendix A

BMP 1.1 Resource Review

<u>Source/Type of Information</u>	<u>Material Information</u>	<u>Website</u>	<u>Phone Number</u>
<u>Printed material</u>			
VA Dept. of Conservation and Recreation	"Non-Point Source Pollution and You"	www.dcr.state.va.us	
VA Dept. of Conservation and Recreation	"Ways to keep your lawn green and the Chesapeake Bay clean"	www.dcr.state.va.us	
VA Dept. of Conservation and Recreation	"Raindrops Keep Falling On My Head" (for school children)	www.dcr.state.va.us	
VA Dept. of Conservation and Recreation	Roanoke River Watershed Yellow Pages	www.dcr.state.va.us	
VA Dept. of Conservation and Recreation	Virginia Stormwater Management Program	www.dcr.state.va.us/sw/stormwat.htm	
VA Dept. of Conservation and Recreation	Soil and Water Conservation Programs	www.dcr.state.va.us/waterways/tech_prog/t_storm_water.htm	
City of Roanoke	"Flooding in Roanoke"	www.roanokegov.com	540-853-2731
City of Roanoke	"Roanoke City Water Quality Report 2002" - City Water Division		540-853-2596
City of Roanoke	"Every Drop Counts"		540-853-6357
City of Roanoke	stormwater link on City of Roanoke website	www.roanokegov.com	540-853-2425 (Office of Environmental and Emergency Management)
City of Roanoke	"Citizen Magazine" 2003 issue article on storm drain stenciling		540-853-1315
City of Roanoke, Roanoke County, Town of Vinton	"After the Storm" newsprint publication in Parks & Rec. papers (Winter 2003)	see individual locality/agency websites	
VA Water Research Center at VA Tech	"Virginia Water Central" (printed publication)	www.vwrrc.vt.edu	
Environmental Protection Agency (EPA)	Stormwater information	www.epa.gov/npdes/stormwater	
Environmental Protection Agency (EPA)	Storm Water Management Model Redevelopment Project	www.epa.gov/ednrmrl/swmm/	
Environmental Protection Agency (EPA)	Urban Stormwater Best Management Practice Study	www.epa.gov/ost/stormwater	
Environmental Protection Agency (EPA)	runoff pollution information	www.epa.gov/owow/nps/eduinfo.html	
Environmental Protection Agency (EPA)	Office of Wetlands, Oceans and Watersheds	www.epa.gov/owow/	

Canaan Valley Institute	"Mid-Atlantic Highlands Action Program"	www.canaanvi.org	1-800-922-3601
The Sierra Club	"The River Rag" Roanoke River Group publication	rseibert@adelphia.net	540-384-7448 (Roanoke Chapter Leader)
Piedmont Environmental Council	"Sources of Funds for Conservation"	www.pecva.org	540-347-2334
Valley Beautiful	"Views"		540-345-5523
VA Department of Environmental Quality	"25 Ways to Help Virginia's Environment"	www.deq.state.va.us	
Blue Ridge Soil & Water District	Annual Report	www.va.nacdnet.org/brswcd	540-483-5269 extension 3
Verizon Online Business Listings	Business listings for Stormwater related businesses	http://151.138.2.30/business/Engineers+Drainage+(Storm+Water+Management).html	
Battelle	newsletter	www.battelle.org/Environment/publications/EnvUpdates/winter2003/article9.stm	
Stormwater Manager's Resource Center	links to publications	http://www.stormwatercenter.net/Manual_Builder/Maintenance_Manual/9%20-%20BMP%20Maint%20Ed%20Materials%20and%20Links/ME_Introduction.htm	
Northwest Environmental Conference	notes from a trade show lecture good overview information with graphics	http://www.nwec.org/nwecConf.data/Components/speaker_handouts_attachments/StormwaterManagmnt_lenhart.pdf	
US Dept of Education	Gateway to education materials	http://rdfgateway.syr.edu/search?t0=keyw&q0=Water%20pollution	
US Dept of Education	ERIC publications on water issues	http://wdcrobcolp01.ed.gov/CFAPPS/ERIC/resumes/descriptorsummary.cfm?majordesc=Water%20Pollution%20	
Journal of Environmental Quality	downloadable publications on water issues	http://jeq.sciijournals.org/cgi/collection/water_pollution?page=21	

North Dakota State Water Commission	"What '100 year flood' really means" May 2001 issue of Water Primer (on-line pdf)	www.swc.state.nd.us/education/watprimer.html	
<u>Agencies/websites</u>			
United States Fish and Wildlife Service	Portal links	www.fws.gov	276-623-1233
National Park Service	Nature Net link	www.nps.gov	
VA Department of Conservation and Recreation	website	www.dcr.state.va.us	
City of Roanoke	Office of Environmental and Emergency Management	www.roanokegov.com	540-853-2425
Town of Vinton	Department of Public Works	www.town.vinton.va.us	540-983-0646
County of Roanoke	Department of Community Development	www.roanokecountyva.gov	540-772-2065
City of Salem	stormwater link on City of Salem website (Dept. of Engineering)	www.ci.salem.va.us	540-375-3032 (Department of Engineering)
Roanoke Valley Greenways		www.greenways.org	
National Oceanic & Atmospheric Administration (NOAA)		www.noaa.gov	
National Oceanic & Atmospheric Administration (NOAA)	Flooding link	http://www.nssl.noaa.gov/researchitems/flooding.shtml	
Clean Valley Council		www.cleanvalley.org	540-345-5523
VA Department of Forestry	Water Quality information	www.vdof.org	
VA Department of Game & Inland Fisheries	Education link	www.dgif.state.va.us	
VA Department of Environmental Quality	Stormwater link	www.deq.state.va.us/vpdes	
VA Department of Environmental	water programs	http://www.deq.state.va.us/water/	

Quality			
VA Department of Health	Office of Drinking Water & Health Hazards Control links	www.vdh.state.va.us	
VA Save Our Streams	volunteer stream monitoring programs	www.sosva.com	
VA Department of Transportation	Environmental link	www.virginiadot.org	
VA Cooperative Extension	Educational programs link	www.ext.vt.edu	
VA Museum of Natural History	Earth Science activities	www.vmnh.net	
Virginia Tech	College of Natural Resources	www.vt.edu	
Roanoke College	Department of Environmental Science	www.roanoke.edu	
Virginia Western Community College	Natural Sciences & Mathematics Division	www.virginiawestern.edu	
Ferrum College	Environmental Sciences	www.ferrum.edu	
Chesapeake Bay Foundation		www.cbf.org	
Hampton Roads (HR) Storm	Stormwater information website	www.hrstorm.org	
Roanoke Valley Allegheny Regional Commission	Projects link	www.rvarc.org	540-343-4417
Smith Mountain Lake Association	Programs link	www.lynchburg.net/SMLA	540-297-4146
Western Virginia Land Trust	Conservation and preservation of land	www.westernvirginialandtrust.org	540-985-0000
Natural Resources Defense Council	Clean Water and Oceans link	www.nrdc.org	
Natural Resource Conservation Service	Programs: Watershed Protection and Flood Prevention link	www.nrcs.usda.gov	
Farm Services Agency	Conservation programs link	www.fsa.usda.gov	540-977-2698

VA Department of Agriculture and Consumer Services	Regulatory services	www.vdacs.state.va.us	804-786-2373
Blue Ridge Soil & Water District Office		Blue Ridge Soil & Water District Office	540-483-5269
Stormwater Manager's Resource Center (Center for Watershed Protection affiliate)		www.stormwatercenter.net	
US Army Environmental Center	Watershed and Storm Water Management	http://aec.army.mil/usaec/compliance-p2/watershed00.html	
Stormwater Coalition	homepage Stormwater educational stuff	www.stormwatercoalition.org/	
Northwest Environmental Conference	notes from a trade show lecture good overview information with graphics	http://www.nwec.org/nwecConf.data/Components/speaker_handouts_attachments/StormwaterManagmnt_lenhart.pdf	
Non-Point Education for Municipal Officials (NEMO)	publications on water and water quality	http://nemo.uconn.edu/publications/index.htm	
Agriculture Network Information Center	water quality web resources for adults	http://deal.unl.edu/agnic/	
Agriculture Network Information Center	water quality web resources for kids	http://deal.unl.edu/agnic/youth/index.html	
US Department of Energy's Smart Communities Network	water issues information	www.sustainable.doe.gov/efficiency/wpinfo.shtml	
National Wildlife Federation	watershed/water pollution information	www.nwf.org/watersheds/wildlife.html	
Federal Emergency Management Agency (FEMA)	information on flooding and flood issues	www.fema.gov/hazards/floods/	
<u>Environmental Education Efforts/Organizations</u>			
Clean Valley Council	offers outreach in the Roanoke Valley to school age children	www.cleanvalley.org	540-345-5523
Blue Ridge Soil & Water District Office	offers outreach in Roanoke County to school age children	www.va.nacdnet.org/brswcd	540-483-5269

Virginia's Explore Park	offers outreach in Roanoke County, City of Roanoke, Town of Vinton to school age children	www.explorepark.org	540-427-1800
Project Learning Tree	offers training in forestry-related educational programs for school age children	www.plt.org	804-328-3031(Virginia Department of Forestry)
Project WET	offers training in water-related educational programs for school age children	www.projectwet.org	804-698-4442 (Virginia Department of Environmental Quality)
Project WILD	offers training in animal-related educational programs for school age children	www.projectwild.org	804-367-0188 (Virginia Department of Game and Inland Fisheries)
VA Department of Education	offers information on VA Standards of Learning (See Science standards)	www.pen.k12.va.us	1-800-292-3820
VA Cooperative Extension	offers information on a variety of water related education topics	www.ext.vt.edu	540-772-7524
University of Kentucky	basic storm water information (4-H involvement)	www.ca.uky.edu/agc/pubs/ip/ip65/ip65.pdf	
Environmental Finance Center affiliated with U of MD	List of information and considerations about Stormwater Management	www.efc.umd.edu/our_work/management.cfm	
Coordinating Committee For Automotive Repair (CCAR®)	offers information about water quality issues relating to automotive work	www.ccar-greenlink.org/vshops/vshop1/drain.html	
City of Greensboro, NC			
	basic stormwater information	www.ci.greensboro.nc.us/stormwater/Education/	
City of Newport News, VA			
	basic stormwater information	www.newport-news.va.us/stormwater/educate.htm	
South Carolina State Programs	stormwater education information	www.scdhec.net/water/ms4/	
Randolph County, NC Planning and Zoning			
	basic stormwater educational information	www.co.randolph.nc.us/planning_zoning/StormwaterEducation.htm	

VirginGlobe	list of links for Stormwater and Water Quality sites	http://virginglobe.com/links/links.html
Raingardens	Rain garden information with plans etc to help with runoff	www.raingardens.org/Index.php
City of Eugene, OR	cute site for kids explaining water systems	www.ci.eugene.or.us/Splashweb/
CSREES USA Water Quality	Stormwater Education information	www.usawaterquality.org/NWQP.pdf
University of Maryland	CSREES Mid-Atlantic Water Quality Program	www.agnr.umd.edu/users/waterqual/
Clark County Regional Flood Control District	Links for stormwater education	www.lvstormwater.com/links.html#Stormwater
South Carolina Department of Health and Environmental Control (DHEC)	SC page for funding sources for education	www.scdhec.net/water/ms4/html/funding.html
South Carolina Department of Health and Environmental Control (DHEC)	water pollution information	www.scdhec.net/water/html/npspage.html
Albemarle County	Education programs in Charlottesville Area	www.albemarle.org/departments.asp?department=epw&relpage=4135
Storm Water Coalition	on-line educational products to order	www.stormwatercoalition.org/cfml/cat.cfm
Journal for Surface Water Quality Professionals	newsletter/journal	www.forester.net/sw_0205_public.html
Adopt a Stream	educational information	www.dcr.state.va.us/forms/DCR199-027.pdf
City of Monterey, CA	car care stormwater issues educational information	www.monterey.org/publicworks/carcare.html
City of Monterey, CA	stormwater pollution reduction pointers	www.monterey.org/publicworks/stormeduc.html
State of Tennessee	aimed at stormwater educators	http://eerc.ra.utk.edu/divisions/wrrc/BMP/NonStructBMPs/N S-03.doc
State of Tennessee	" using Best Management	www.mtas.utk.edu/bmpeducation.htm
Non-Point Education for Municipal Officials (NEMO)	education on reducing runoff for communities and businesses	http://nemo.uconn.edu/reducing_runoff/

Waste Reduction Resource Center	information about water management	http://wrrc.p2pays.org/industry/stormwater.htm
National Agricultural Library	information about water and agriculture	http://www.nal.usda.gov/wqic/
International Water Association	global stormwater information	http://www.iwahq.org.uk/template.cfm?name=home
US Geological Survey	National Water Quality Assessment Program	http://water.usgs.gov/nawqa/
US Geological Survey	USGS Water Quality Information pages	http://water.usgs.gov/owq/
US Geological Survey	classroom resources	http://ga.water.usgs.gov/edu/waterquality.html
US Geological Survey	interactive water education	http://interactive2.usgs.gov/learningweb/explorer/topic_water.htm
Global Environment Monitoring System	global inland water quality information	www.gemswater.org/
Center for Environmental Quality at Wilkes University	water quality, drinking water, ground water, etc information	http://wilkes.edu/~eqc/helpguide.htm
Wheeling Jesuit University.	classroom resources on stormwater	www.cotf.edu/ete/modules/waterq/waterq.html
Chesapeake Bay Program	factors effecting water quality information	http://www.chesapeakebay.net/wquality.htm
Education Planet	water pollution info website for other water issue also	www.educationplanet.com/search/Science/Environment/Water_Pollution
Academy of Natural Sciences	water education information	www.acnatsci.org/education/river/page4.html
VA Department of Conservation and Recreation	Soil and Water links	www.dcr.state.va.us/sw/swintro.htm
Clean Water Education Partnership	pollution information	www.nccwep.org/index.htm

Yahoo Directory	water pollution links	http://dir.yahoo.com/Society_and_Culture/Environment_and_Nature/Pollution/Water/Nonpoint_Source_Pollution/
Google Directory	water pollution/water issues links	http://directory.google.com/Top/Science/Environment/Water/Resources/
KinderStart Search Engine	links on pollution issues for children	www.kinderstart.com/societycultureenvironment/environmentalissues/airandwaterpollution.html
EcolQ.com	water and waste water information	www.ecoiq.com/water/
Eco-Rangers	teacher resource links on environmental issues incl. Water related issues	http://cuip.uchicago.edu/www4teach/98/teams/Eco-rangers/list%20of%20links.html
Kitsap Stormwater Education Consortium (WA State)	water pollution information	www.kitsapgov.com/sswm/sswm_water_pollution.pdf
KiddyHouse.com	links for environmental education for kids and teachers	www.kiddyhouse.com/Themes/Environ/Water.html
North Carolina State University	Water Shedss links	http://h2osparc.wg.ncsu.edu/info/
North Carolina State University	Storm drain information, stenciling safety considerations	www.bae.ncsu.edu/bae/programs/extension/wqg/smp-18/stormdrain/localgov.html
Environmental Organization Webdirectory	listings of internet sites dealing with water quality issues	www.webdirectory.com/
The Natural World of North America (Nearctica)	water pollution information	www.nearctica.com/environ/water/pollute.htm
The Natural World of North America (Nearctica)	water issues information	www.nearctica.com/environ/water/water.htm
Infoplease	water issue information especially pollution	www.infoplease.com/ce6/sci/A0851609.html
Infoplease	flooding information	www.infoplease.com/ce6/sci/A0818948.html

UNESCO	global water information	www.wateryear2003.org/en/ev.php@URL_ID=5579&URL_DO=DO_TOPIC&URL_SECTION=201.html	
San Fransisco Unified School District	kids game about the effects of water quality on fish	http://spidey.sfusd.edu/schwww/sch529/webquests/alex/riverquest.html	
Sustainable Agri-Food Production and Consumption Forum	water issue information relating to agriculture	www.agrifood-forum.net/issues/water.asp	
Protecting Water	Storm water, storm drain overview	http://protectingwater.com/index.html	
Earthwater Stencils, Ltd.	storm drain stenciling information	www.earthwater-stencils.com/index.htm	
Environmental Health Center (division of National Safety Council)	general information on flooding	www.nsc.org/ehc/ew/disaster/floods.htm	
Geology Labs On-line	Virtual River, an interactive website for students on river discharge and flooding	http://vcourseware.sonoma.edu/VirtualRiver/	
Greenpeace	flooding information	http://archive.greenpeace.org/climate/flood_report/	
Learners On-line	"Life in the Flood Zone" student-oriented information	www.learnersonline.com/weekly/archive2001/week24/	
Audubon Galleries	brief information on flooding	www.audubongalleries.com/education/ex_flood.php	
<u>Maps</u>			
Upper Roanoke River Roundtable	Upper Roanoke River Basin Watershed Maps	j_quilliams@hotmail.com	
Roanoke River Basin Association	Roanoke River Watershed Maps (entire watershed)	www.rrba.org	(434) 577-2159

Videos

Save Our Streams of the Izaak Walton League	"A guide to water quality monitoring"	www.sosva.com	
VA Department of Conservation and Recreation	"Watershed Connections"	www.dcr.state.va.us	(804) 786-1712
VA Department of Conservation and Recreation	"Keep your Grass Green and your Water Clean"	www.dcr.state.va.us	(804) 786-1713
US Fish and Wildlife Service: Roanoke River National Wildlife Refuge	Roanoke River: River of Life	www.fws.gov	

Hotlines

Stormwater information	Environmental Protection Agency (federal government)	1-800-426-4791
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Books

Scisoftware	Stormwater Management source for book	www.scisoftware.com/publications/mu_storm_water_management/mu_storm_water_management.html
William Andrew Books	Science oriented books incl. Environmental	www.williamandrew.com/titles/1327.html
McGraw-Hill	book to order on Stormwater systems	http://mcgraw-hill.co.uk/html/0071354719.html

Insert Stormwater Flyer Here

BMP 1-3 Stream School Seminars / Save Our Streams**July 26th SOS**

<u>Name</u>	<u>Address</u>	<u>Phone</u>	<u>E-Mail Address</u>
Maureen Castern	City of Roanoke/URRR		
Scott McDowell	HSMM/URRR		
Charlene Oliver	Mt. Castle SWCD		
Carol Davit	City of Roanoke		
Mike Leahy (Carol's husband)			
Wanda Jackson	3058 Stoney Creek Lane Salem 24153		Wanda_Jackson@ci.roanoke.va.us
Angela Dean	6917 Back Creek Road Boones Mille 24065	540-384-6698	adean2907@aol.com
Dana Manuel	PO Box 7005 Roanoke 24019	362-6402	dmanuel@hollins.edu
Roger Manuel	PO Box 7005 Roanoke 24019	362-6402	
Brianna Brooks	Ferrum Student		bbrooks@ferrum.edu / mithir@hotmail.com
Rebecca Harmon	Ferrum Student		rebecca_h24184@yahoo.com
Jenn Pugh	Ferrum Student		jpaugh@ferrum.edu

FULL**August 23rd
SOS**

<u>Name</u>	<u>Address</u>	<u>Phone</u>	<u>E-Mail Address</u>
Marvin Booth	Bedford County Water & Sewer Authority		mbooth@ci.bedford.va.us
Michele Buccellato	Roanoke College Student		mtbuccellato@roanoke.edu
Carrie Traud	Roanoke College Student		Michele B. is contact
Mary Elizabeth Thomson	Roanoke College Student		Michele B. is contact
Jacqueline Shinault	Roanoke College Student		Michele B. is contact
Kathryn Debnar	2007 Bloomfield Avenue Roanoke 24012	977-1576	k2debnar@aol.com
Nancy Kuebler	425 Fugate Road Roanoke, VA 24012	366-4581	writerdame@aol.com
Martin Dileggi	(guest with Nancy Kuebler)		Nancy K. is contact
Donna Wilson	5162 Valleypointe Pkwy Roanoke 24019	265-5177	dlwilson@fs.fed.us
Henry Culp	1715 Bandy Mill Road Hardy, VA 24101	853-6514/890-6200	ed_culp@ci.roanoke.va.us
Courtney Culp	1278 Sweeney Road Blacksburg, VA 24060	961-5003	coculp@vt.edu

Wes 992-5495

Training Session

September 27th

<u>Name</u>	<u>Address</u>	<u>Phone</u>	<u>E-Mail Address</u>
Nikkie Sorrell	64 Doe Drive Roanoke	977-6140	nikkisorrell@hotmail.com
Leon Reyes	4329-B Garst Mill Road Roanoke	989-4723	stormfield@hotmail.com
Kathryn Debnar	2007 Bloomfield Ave. Roanoke VA 24012	977-1576	k2debnar@aol.com
Jessica P.	Roanoke College Student (Earthbound member)	375-7861	
Meghan P.	Roanoke College Student (Earthbound member)		
Blake Seitz	221 College Lane Salem (Earthbound member)	375-6206	baseitz@roanoke.edu
Dave Evans	Ferrum College (PO Box 1803 Ferrum)	365-3135	dbevans@ferrum.edu



Earthwise: Environmental Education



Stormwater/Water Resource Education

A Virginia SOL based K-12 Educational Program

September 2003

***Prepared by: Ms. Lane Guilliams, Environmental Education Coordinator
540-427-1800 ext. 337 or lguilliams@explorepark.org***

Introduction to EarthW.I.S.E.

What in the world is Earthwise!? This program has been created to explore the co-existence of nature and humanity. It is a partnership for a better future....a partnership of local governments, citizens and businesses, a partnership of school-age children and educators. A partnership between all of us who inhabit this great region of the Commonwealth of Virginia and share the same natural resources.

The program, EarthWISE (Worlds In Sustainable Information) is set up to address issues and questions relating to our surrounding resources. **This program is titled: Stormwater and Water Resource Education and is done in coordination with local governments to meet educational requirements as stated by the Virginia Pollutant Discharge Elimination System II (VPDES II).** This federal program set forth by the Environmental Protection Agency has been mandated for several local regional governments and is coordinated in Virginia through the Department of Environmental Quality. Educational goals under the VPDES II will address storm water (non-point source pollution, conservation, solutions for citizens) and other topics of water education. The lessons are Virginia Standard of Learning (SOL) based and will advance student knowledge of storm water, watersheds, pollution and runoff, regional water resources and any other number of grade appropriate (K-12) topics.

Earthwise: Stormwater and Water Resource Education

As one old Native American saying states, “The frog does not drink up the pond in which he lives”. This simple statement well describes the importance of education on the conservation of our water resources. There are many aspects of water usage, but without an understanding of these things it will be difficult to manage this crucial resource for our future generations. Explore Park offers this program to supplement your class lessons and enhance student understanding of related SOLs. Lessons are each approximately 45 minutes in length and are available to one class or all classes of a grade level at a time.

Virginia’s Explore Park offers this as an outreach program in your school. If you are already planning a trip to Explore Park, you may also wish to add this program to your visit. With this, your students will experience our 1,100-acre “outdoor classroom” and all the many natural wonders the Park has to offer. Explore Park is home to a mixed hardwood forest and many animals such as wild turkey, deer, snakes, turtles, birds and even fish in the Roanoke River that runs through the Park. This is a unique opportunity for students to experience hands-on learning while surrounded by a natural forested setting. *(Note: If you choose to add this program, please arrange this when making your historic tour reservation.)*

We look forward to visiting with your class and enhancing the natural knowledge of the students of Virginia!

Special Note:

Project Learning Tree K-8 and Project Wild K-12 Activities are incorporated in some of the educational programs. These activities are Virginia SOL correlated.

The complete Project Learning Tree PreK-8 Environmental Education Activity Guide or Project Wild Activity Guide can be obtained by attending training workshops. For more information on these workshops in Virginia, please contact:

* *Lisa Deaton, Virginia Project Learning Tree Coordinator at (804) 328-3031*
or deatonl@dof.state.va.us

(Workshops are posted on the calendar of events at www.plt.org)

* *Virginia Dept. of Game and Inland Fisheries, Project Wild Virginia at (804) 367-1000*

* *Virginia Dept. of Environmental Quality, Project WET at (804) 698-4049*

For more information about Project Learning Tree, Project WET or Project Wild, please visit the organizations' national web sites at:

www.plt.org or the VA PLT website at www.cnr.state.va.us

www.projectwet.org

www.projectwild.org

***An Overview of Science Standards of Learning
Addressed:***

<u>Grade/Subject</u>	<u>Science SOL Addressed</u>
<i>K</i>	<i>K.1, K.6, K.10</i>
<i>1</i>	<i>1.4, 1.5, 1.8</i>
<i>2</i>	<i>2.8</i>
<i>3</i>	<i>3.9, 3.10</i>
<i>4</i>	<i>4.5, 4.8</i>
<i>5</i>	<i>5.6,5.7</i>
<i>6</i>	<i>6.7, 6.9,</i>
<i>Life Science</i>	<i>LS.12</i>
<i>Physical Science</i>	<i>PS.1</i>
<i>Earth Science</i>	<i>ES.7, ES.9</i>
<i>Biology</i>	<i>BIO.1, BIO.9</i>
<i>Virginia Studies</i>	<i>VS.1, VS.10</i>
<i>Government</i>	<i>GOVT.8, GOVT.16, GOVT.18</i>

Grade Kindergarten

Clean Water Now!

Students will look at pictures of water being used in a variety of ways. Students will look at pictures of potential sources of water pollution and ways they can help to reduce it. They will also discuss the importance of protecting our water and that water is needed for the life processes and survival of plants and animals.

Students will enjoy a story that illustrates and reinforces what pollution is, what can cause pollution and what we can do to help clean up.

Vocabulary: pollution, watershed, litter

Virginia Science SOLs addressed in this program: K.1, K.6, K.10

Grade 1

Can I have another one?

Students will understand that natural resources are limited and that plants and animals (including humans) rely on clean water to live. Students will discuss the importance of clean water for life and how we can keep our waters clean.

Students will enjoy a story that illustrates the concept that natural resources are limited and further discussion of this story will show the importance of clean water and how we all can keep it clean. Students may draw (if time allows) ways in which they already keep their water clean and will see illustrations of some ways to keep water clean.

Vocabulary: natural resources

Virginia Science SOLs addressed in this program: 1.4, 1.5, 1.8

Grade 2

You're Grounded!

Students will listen to a story (The Man Who Planted Trees by Jean Giono) to understand the important role trees play in preventing soil erosion and discuss what happens to our waters when erosion occurs (sedimentation and loss of habitat, less sunlight to the water...). They may further discuss other values of trees (used in building our homes and schools, homes for animals, paper to write on and maple syrup for our pancakes!).

Vocabulary: erosion, habitat

Virginia Science SOLs addressed in this program: 2.8
Grade 3

Where did the water go?

Students will learn about the water cycle. Students will play a game from Project Learning Tree activity “Water Wonders” to illustrate the many ways in which water is cycled throughout our environment. They will also understand that our actions affect the quality and quantity of our waters.

Vocabulary: water cycle, evaporation, watershed, erosion, sedimentation, runoff, groundwater, transpiration

Virginia Science SOLs addressed in this program: 3.9, 3.10

Grade 4

What is a watershed?

Students will learn what a watershed is by watching a video (*if A/V is available*) or looking at a watershed model to understand the importance of Virginia’s natural resources and how our actions affect these resources.

Vocabulary: watershed, non-point source pollution, point source pollution, conservation, runoff

Virginia Science SOLs addressed in this program: 4.5, 4.8

Grade 5

Every Little Bit Counts!

Students will discuss how humans affect the cycles of the Earth. They will understand that actions they take affect many other things. Students will discuss human impact on resources by looking at rates of water use. Students will understand that how we use our water affects the health of our oceans.

Vocabulary: conservation

Virginia Science SOLs addressed in this program: 5.6, 5.7

Grade 6

An Ounce of Prevention

Students will examine the watershed structure of Virginia. They will understand the connection of our water systems (rivers, lakes, streams, tributaries) to see the importance of conservation and protection (pollution prevention) of our waters. They will discuss ways we use our land (farming, forestry, industry...) and what we can do in those practices to help lessen land-use hazards. Students will play “Natural Resources Jeopardy” to help them understand watersheds and the need for conservation and other wise land use management practices.

Vocabulary: sediment, conservation tillage, Best Management Practices (BMP’s), riparian

Virginia Science SOLs addressed in this program: 6.7, 6.9

Grade 7

Careful Consideration

Students will understand the importance of considering all the factors present in ecosystems and how man interacts with plants/animals and other inhabitants of our ecosystems. Students will understand the relationships between ecosystem dynamics and human activity. They will participate in an activity in which they will create a plan for open land space in which they must incorporate all the many aspects of ecosystem needs and human needs.

Vocabulary: ecosystem, community, topography, diversity, competition, management

Virginia Science SOLs addressed in this program: LS.12

Grades 8 - 12

Storm Drain Stenciling

Students will participate in a regional effort to stencil storm drains as part of the Virginia Pollutant Discharge Elimination System II (VPDES II). ***Students will go out and stencil storm drains in the County of Roanoke and Town of Vinton.*** Students will use maps with plotted points (storm drains) to locate inlets for stenciling. Further, they will understand that stormwater goes directly to our rivers and lakes without first undergoing treatment. Students will discuss ways to prevent water pollution, the importance of making informed judgments related to resource (water) use, and effects of usage and human/natural events on water quality and ecosystems. Students will also collect data from the project.

Vocabulary: storm drain inlet, stormwater

Virginia Science SOLs addressed in this program: PS.1, ES.7, ES.9, BIO.9

Note: Program may address related SOL appropriate topics to be covered in the classroom as the above program is designed for outside the classroom. Refer to pages 15-20.

Acknowledgements and Resources:

1. **Project Learning Tree (VDOF)**
2. **Project Wild (VDGIF)**
3. **Virginia Dept. of Conservation and Recreation**
4. **Virginia Assoc. of Soil and Water Conservation Districts (Blue Ridge, Mountain Castles and Peaks of Otter)**
5. **Virginia Dept. of Environmental Quality**
6. **“The Cat in the Hat Comes Back” by Dr. Seuss**
7. **“The Lorax” by Dr. Seuss**

Alternative In-Classroom Activities:

Note: These activities may serve as alternatives to outdoor storm drain stenciling for students in grades 8-12.

Grades 8-12 (Note: Can be adapted for use in Grades 6 &7)

“Indoor” Stream Monitoring

Students will do an indoor simulation of the biological stream monitoring method. They will investigate the relative water quality of a stream through a simulated sampling of aquatic macro-invertebrates. Students will tally their findings to determine the quality of their water sample. They will further compare their findings with other groups (there are three “sample sights”) and discuss why the findings may be different (location: urban or rural, what is upstream, industry, construction or agriculture near by, etc...).

Vocabulary: aquatic macro-invertebrates, biological monitoring

Virginia Science SOLs addressed in this program: LS.1, LS.14, PS.1, ES.2, BIO.1, BIO.9, PH.3

Grade 8

The Driving Force

Students will understand the Law of Conservation of Matter and Energy. Students will further identify forms and sources of energy. Students will investigate energy processes through the creation and understanding of “energy chains”. Through this activity they will trace the path that energy undergoes as it changes from one form to another. *(Example: students will be given an energy use as in computers and trace that use back to its energy source)*

Vocabulary: energy, forms of energy: chemical, electrical, mechanical, light, thermal and nuclear; Law of Conservation of Energy; kinetic energy, potential energy

Virginia Science SOL’s addressed in this program: PS.5, PS.6

Grade 9

Straight to the Source

Students will discuss the difference in renewable and non-renewable resources. They will further look specifically at resources in Virginia and their geographic location in the state. Students will have the opportunity to discuss Virginia's renewable and non-renewable resources and products that are made in Virginia from the state's natural resources. Further, students will understand the importance of resource conservation, protection, the related importance of wise-decision making and that humans affect the amount and health of our resources (highlighting water resources in Virginia).

Vocabulary: renewable, nonrenewable, sustainable yield, fossil fuels

Virginia SOL's addressed in this program: ES.7, ES.9, VS.10

Grade 10

Water Watch

Students will watch a video (Save Our Streams introduction/information - *28 minutes*) to understand the biological method to monitor streams and rivers. Students will then further discuss the method, equipment used, what is monitored (macro-invertebrates) and how to interpret results using this method. Students will be given a list of potential aquatic insects they might find in our area rivers and streams and investigate which ones indicate good water quality versus ones that indicate poor water quality. Students will discuss potential pollution sources, how we can take measures to prevent water pollution and also what measures we may use to prevent further degradation of water quality.

Vocabulary: macro-invertebrates, biological monitoring, riffle, pool

Virginia Science SOL's addressed in this program: BIO.1, BIO.9

Grade 11

Natural Resource History in Virginia

Students will examine a map of the regions of Virginia to understand how landforms shape patterns of settlement. They will further look at the landforms in the Roanoke region to understand why settlers may have chosen this region and how natural resources shaped their decisions (proximity to the river). Students will also study our regions resources and further understand how we today rely on natural resources to support our communities.

Virginia SOL's addressed in this program: VS.1

Grade 12

Stormwater Student Advisory Committee

Students will hold a mock advisory committee meeting. A portion of the students will be “citizens” with water quality issues to bring forth to the remaining students that will make up the “advisory committee”. This committee will have to listen to the citizens issues and work together to come up with potential solutions or means to solutions (i.e.-agencies they may work with and how the issues may be addressed). The committee must represent the overall welfare of their citizens in making decisions. Students will be given some background information on potential issues and solutions through the examination of some example situations (*Ex. A citizen buys a home near the river where flooding is potential; They call their local government to find out that they can purchase flood insurance under a federal program*)

Vocabulary: advisory committee

Virginia SOL's addressed in this program: GOVT.8, GOVT.16, GOVT.18, ES.7, ES.9

BMP 1-4 Stormwater Education Program

<u>Date and Time of Visit</u> (visits are @45 minutes)	<u>School Name</u>	<u>Grade</u>	<u># students</u>	<u>Teacher</u>
March 14-15, 2003	Hidden Valley High (HV)	9	100	
<u>Oct-03</u>				
Tuesday, Oct. 14 from 1-2:45PM	Virginia Heights Elementary	3rd	50	Ms. April Coates
Wed. Oct. 29th from 12-3PM	Oakland Intermediate School	3rd	80	Ms. Jasmin Venable
Fri. Oct. 31st at 10-10:45 AM	Hurt Park	2nd	36	Ms. Becky Grant
<u>Nov-03</u>				
Friday, Nov. 7 from 11:30-2:30 (3 classes)	Fishburn Park Elementary	K	42	Michelle Hurst
Thursday, Nov. 13 from 2:30-3:15PM	Mount Pleasant Elementary (V)	K-6	22	Jim Basham, Coordinator
Friday, Nov. 14 from 3:00-3:45PM	W.E. Cundiff Elementary (V)	K-6	35	Jim Basham, Coordinator
Friday, Nov. 21 from 12:30 to 1:15PM (3 classes at once)	Morningside Elementary	3rd	50	Tonya Kindberg
<u>Dec-03</u>				
Friday, Dec. 5 from 8:05-10:50AM Cancel	Green Valley Elementary (HV)	5	66	Karen Flanary
Tuesday, Dec. 9 from 3:00-3:45PM	Penn Forest Elementary (CS)	K-6	35	Jim Basham, Coordinator
Wednesday, Dec. 10 from 3:00-3:45PM	Back Creek Elementary (CS)	K-6	35	Jim Basham, Coordinator
Thursday, Dec. 11 from 2:30-3:15PM	Burlington Elementary (H)	K-6	35	Jim Basham, Coordinator
Tuesday, Dec. 16 from 2:30-3:15PM	Mountain View Elementary (H)	K-6	35	Jim Basham, Coordinator
Wednesday, Dec. 17 from 3:00-3:34PM	Green Valley Elementary (HV)	K-6	35	Jim Basham, Coordinator
Thursday, Dec. 18 from 2:30-3:15PM	Mason's Cove Elementary(CAT)	K-6	<u>35</u>	Jim Basham, Coordinator
<u>Jan-04</u>				
Tuesday, Jan. 13 from 8:00A-Noon	Mountain View Elementary (H)	5	65	Deborah Fraley, Science Teacher
Wednesday, Jan. 14 from 2:30-3:15	Mount Pleasant Elementary (V)	K-6	22	Jim Basham
Thursday, Jan. 15 from 3-3:45	W.E. Cundiff Elementary (V)	K-6	35	
Monday, Jan. 20 9-11:45AM	Mount Pleasant Elementary (V)	5	66	Jenny Basham
Tuesday, Jan. 20 from 3-3:45	Penn Forest Elementary (CS)	K-6	35	Jim Basham

Wednesday, Jan. 21 from 3-3:45	Back Creek Elementary (CS)	K-6	35
Thursday, Jan. 22 from 2:30-3:15	Burlington Elementary (H)	K-6	35
Monday, Jan. 26 from 2:30-3:15	Mountain View Elementary (H)	K-6	35
Wednesday, Jan. 28 from 3-3:45	Green Valley Elementary (HV)	K-6	35
Thursday, Jan. 29 from 2:30-3:15	Mason's Cove Elementary (CAT)	K-6	35

Feb-04

Monday, February 16 from 12:15-1:45 PM	Clearbrook Elementary (CS)	K	50	Mary Ellen Himmel
Tuesday, Feb. 17 from 10:35-1:55PM	Green Valley Elementary (HV)	3rd	66	Elizabeth Sullivan
Wed., Feb. 18 from 8:15-11AM (3 classes back to back)	Back Creek Elementary (CS)	4th	60	Kathy Good

<u>County Districts</u>	<u># To See (10% of school youth per district)</u>	<u># Seen</u>	<u>(thru 2-10-04)</u>
Cave Spring (CS)	300	190	64%
Catawba (CAT)	171	70	41%
Hidden Valley (HV) - Windsor	282	236	84%
Hollins (H)	306	240	78%
Vinton (V)	<u>360</u>	<u>180</u>	<u>50%</u>
Total	1419	916	65%

BMP 1-5 Information/Merchandise Distribution

<u>Event/Program (2003)</u>	<u># attendants</u>
Earth Day - Downtown Roanoke (April 19, 2003)	100
Summer Camp 2003 (EarthWISE-City, Co., Vinton)	300
Friday Business Days (July)	29
Family Days (July)	66
Friday Business Days (August): VDH	65
Family Days (August)	46
Waterways Summit (September)	25
Family Days (September)	84
Energy Expo at RCC September 12-13 (ed info to teachers)	25
Valley Conservation Council-Water Quality-Oct 16	75
Virginia Environmental Assembly at CITS Oct 24-25	200
CVC Earth Summit at Higher Ed Ctr. November 6	100
America Recycles Day sponsor (Nov. 15)	800
DCR Office of Dam Safety workshop (Nov. 20)	30
Cave Spring UMC Adult Group (Jan. 14, 2004)	15
Roanoke Co. Civic Leagues (Feb. 9, 2004)	15
Blue Ridge Parkway Visitor Center (at Explore Park) visitors 7/20-9/28/03	7126
Education Numbers (in school outreach)	<u>916</u>
	10017
Through 2-10-04	

<u>Type of Information</u>	<u># distributed</u>
DCR "Watershed Connections" Brochures	2,000
DCR "Yellow Pages" for the Rke. River Watershed	200
Maps of the Roanoke River watershed	200
	2,400

BMP 1-9 Public Service Announcements

Inside Roanoke airs every Sunday at 3:00 p.m. & Monday & Wednesday at 10:00 a.m. & 7:00 p.m.

Roanoke County Today airs every Sunday at 3:30 p.m. & Monday & Wednesday at 10:30 a.m. & 7:30 p.m.

Each show airs for 1 month.

Show: Inside Roanoke
Carol Davit & Scott Sarver
Segment: Storm Water Management
Ran: July 13 - August 6, 2003

Show: Roanoke County Today
Elaine Simpson & George Simpson
Segment: Storm Water Management
Ran: April 13 - May 7, 2003

Show: Roanoke County Today
Elaine Simpson & Scott Sarver
Segment: Waterways Family Day
Ran: Sept. 14 - October 8, 2003

Show: Roanoke County Today
Teresa Hall & Lane Guilliams
Segment: Stormwater Program
Ran: January 11 - Feb. 4, 2004

1-10 Business Review Roanoke County, VA

Business Name By Type	Contact Person	Mailing Address	Location Address
Automotive/Engine Repair			
Kar Kraze Inc.	William C. Barnitz	PO Box 12107, Roanoke, VA 24022	2125 E Washington Ave., Vinton, VA 24179
Merchant's Tire and Auto 06016	Kim Shaw	9073 Euclid Ave., Manassas, VA 20110-0000	2910 Peters Creek Rd., Roanoke, VA 24019
B&K Auto Service, Inc.	Chris William Dreyer		3119 Brambleton Ave., Roanoke, VA 24018
Woods Garage	HC Wood, Jr and Ronald D Wood	3510 Hemingway Road, SE, Roanoke, VA 24014	3325 Mt Pleasant Blvd., Roanoke, VA 24014
Speedee Oil Change & Tune Up	Thomas Haas at TJH Automotive, Inc.		3820 Electric Road, Roanoke, VA 24018
Firestone Tire & Service Center Crescent Heights Grocery & Tire Service	Timothy S. Funk of T & S Funk, Inc.	PO Box 458, Wirtz, VA 24184	4880 Electric Road, Roanoke, VA 24014
Auto Land	Ronald S. Obenchain	4750 North Ridge Drive, Roanoke, VA 24019	5745 Starkey Road, Roanoke, VA 24014 5820 Williamson Road, NW, Roanoke, VA 24019
Plaza Service Center, Inc			6609 Peters Creek Road, Roanoke, VA 24019
Airport Auto Service	Robert L Vandyke		7002 Peters Creek Road, Roanoke, VA 24019
Auto Chemical Distributors	Tim S Ferguson		7020 Buckeye Road, Roanoke, VA 24018
Holland's Garage	Sullivan L Holland		3193 Rutrough Road, Roanoke, VA 24014 5405 Crescent Blvd., SW, Roanoke, VA 24014-5514
Crescent Heights Small Engine Repair	Arnold E Keaton		
Automotive Accents	William E Payne, Jr. Christian H Crutchfield at LMS Management Services, Inc.	411 Riverland Road, Roanoke, VA 24014	7167 Deerwood Drive, Roanoke, VA 24019
Hollins Car Care		633 Glebe Road, Daleville, VA 24083	7332 Williamson Road, Roanoke, VA 24012
Free Service Tire Company, Inc.	Dennis Pritchett	PO Box 1637, Johnson City, TN 37605	3830 Electric Road, Roanoke, VA 24018
Jiffy Lube			4036 Electric Road, Roanoke, VA 24014
Kelly's Auto Works	Peter F Kelly	PO Box 20566, Roanoke, VA 24018	4106 Electric Road, Roanoke, VA 24018
Precision Mobile Auto Repair E & D Equipment Repair Company, Inc.	Todd A Goodrich	PO Box 86, Cloverdale, VA 24077-0086	4111 Blue Jay Circle, Roanoke, VA 24018
Terry Walters Precision Engines, Inc.	Terry M Walters		4602 Bonsack Road, Roanoke, VA 24012
Holt Automotive, Inc.	Darrell L Holt		5016 Benois Road, Roanoke, VA 24014
Adams Paint & Trim	Adam Q Wright		5131 Benois Road, Roanoke, VA 24014 5665 Sugar Loaf Mountain Road, Roanoke, VA 24018
Crescent Heights Auto Service, Inc.			5777 Crescent Blvd., SW, Roanoke, VA 24014
Harry Callahan Small Engine Repair	Harry C Callahan		5901 Williamson Road, Roanoke, VA 24012
Jakes Garage			6422 Bent Mountain Road, Roanoke, VA 24018
Blevins Small Engine Repair	Robert C Blevins		6561 Mt Chestnut Road., Roanoke, VA 24018
The Lube Center	David Thompson at Tomtu, Inc.	1145 E Main Street, Salem, VA 24153	7317 Williamson Road, Roanoke, VA 24019
Sunnybrook Auto & Tire, Inc.			7443 Williamson Road, Roanoke, VA 24019
Monro Muffler Brake, Inc.			7426 Williamson Road, Roanoke, VA 24019
Poffs Garage	Lawrence C Poff	PO Box K, Bent Mountain, VA 24059	Brambleton Road, Bent Mountain, VA 24059
Car Washes			
Tanglewood Autowash-Shell	Roel Co		4083 Electric Road, Roanoke, VA 24014
Promenade Car Wash	James Dean Consultants LLC	402 Rebecca Lane, Salem, VA 24153	3504 Electric Road, Roanoke, VA 24018
Cave Spring Car Wash			4367 Brambleton Ave., Roanoke, VA 24018
Construction Firms			
G T Construction Company	Michael L Tabor	PO Box 407, Hardy, VA 24101-0407	1007 Hershberger Road, Roanoke, VA 24012
Dempsey Jr. & Son Construction	Arthur N Dempsey, Jr.		101 Verndale Drive, Roanoke, VA 24019 10146 Bent Mountain Rd, Bent Mountain, VA 24059
Mountain Structures	David L Wagoner		
Star City Drywall	Edward Scott Walker		1020 Claiborne Ave. Vinton, VA 24179 10271 Ivy Ridge Road, Bent Mountain, VA 24059
Dehart Builders, Ltd.	Arnold W Dehart		
Engineered Roof Systems, LLC	Mike Dorsch		1041 Indiana Ave., NE, Roanoke, VA 24012

Parking Marking	David Keith		10420 Ivy Ridge Road, SW, Bent Mountain, VA 24059
John J. Duncan--Framing and Drywall	John J. Duncan		10450 Russwood Road, Bent Mountain, VA 24059
The Home Handyman Parsell & Ziegler General Contractors, Inc.	David M Todd at TD2 Services, Inc. Terry Parsell	PO Box 19057, Roanoke, VA 24019	1047 Barrens Village Ct., Roanoke, VA 24019
S & D Construction	Scott Eugene Smith		112 Kirk Ave., Roanoke, VA 24011
Building Specialists, Inc.		PO Box 1174, Roanoke, VA 24006	1125 Starmount Ave., Roanoke, VA 24019
Fields Construction, Inc.	Peter R. Fields		120 Day Ave., Roanoke, VA 24016
Argabright Contractors, Inc.	Ed Baldwin	PO Box 12146, Roanoke, VA 24023	120 Downing Street, NE, Roanoke, VA 24019
Clifton Tile & Remodeling	James Clifton, Jr.		1222 McDowell Ave., NE, Roanoke, VA 24012
Lance W Partleton--Contractor			131 Verndale Drive, Roanoke, VA 24019
Dixie Contracting, Inc.			1341 Vivian Ave., Roanoke, VA 24019
Wright's Plastering	Brian K. Wright Merl L Heckman of Heckman Homes, Inc.		135 Trinkle Ave., Roanoke, VA 24012
Bastian Homes of Roanoke			1410 Lori Drive, Roanoke, VA 24014
Friendly Remodeling	Larry B Friend		1415 Towne Square Blvd., Roanoke, VA 24012
Shenandoah Builders, Inc.	Carla A Dalton	PO Box 21843, Roanoke, VA 24018	145 Tampa Drive, Roanoke, VA 24019
High Country Contractors, Inc.	Paul Crawford		1572 Rosewalk Ln, Roanoke, VA 24018
Overfelt Concrete Finishing	Joseph Wayne Overfelt, Sr.		1611 Norfolk Ave., Roanoke, VA 24013
Harman Ceiling & Partition		PO Box 4748, Roanoke, VA 24015	1613 Eanes Road, Roanoke, VA 24014
John T. Morgan Sheet Metal Co., Inc.		PO Box 1286, Roanoke, VA 24006	1615 Cleveland Ave., SW, Roanoke, VA 24015
Olde English Handyman Services	Harry M English		1620 6th Street, Roanoke, VA 24012
Peterbuilt Construction	Peter McCauley		1663 Indian Rock Road, Roanoke, VA 24014
Baird Drywall & Acoustic, Inc.		17599 Stewartsville Road, Vinton, VA 24179	1725 Elbert Drive, Roanoke, VA 24018
Ratcliffe Remodeling	Gary Ratcliffe		17599 Stewartsville Road, Roanoke, VA 24012
Rays Drywall & Remodeling LC	Scott Ray		1763 Elbert Drive, Roanoke, VA 24018
Weeks Construction	William Ronnie Weeks	PO Box 13105, Roanoke, VA 24031	1768 W. Ruritan Road, Roanoke, VA 24012
Dalton Construction Co., Inc.	C Douglas Dalton Shaun T Evans of Roanoke Valley Painting, Inc.	PO Box 4312, Roanoke, VA 24015	1802 Memorial Drive, Roanoke, VA 24015
Certa Propainters			1831 Carter Road, Roanoke, VA 24015
Jim Walter's Homes, Inc.			1828 Pelham Drive, Roanoke, VA 24018-2720
J & Ks Custom Home Painting	Kenneth W Draper and Johnny M Craighead, Jr.		1835 Loch Haven Drive, Roanoke, VA 24019
Maintenance & Construction Services	Lawrence L Fenzel		1865 Louise Wells Drive, Roanoke, VA 24019
All Brite Refinishing	Patrick T Hogan		1902 Main Street, SW, Roanoke, VA 24015-3020
Helm Building Enterprises, Ltd.			2108 Loch Haven Drive, Roanoke, VA 24019
Virginia Contracting of Roanoke, Inc. Virginia Craftsman Home Builders, Inc.	Sherman Chisom Richard A Shell, Sr.	PO Box 13106, Roanoke, VA 24031-3106	2224 Timberview Road, Roanoke, VA 24019
Blacktop Sealers, Inc.	Richard L Aftoora		225 11th Street, SE, Roanoke, VA 24013
William W Spadlin, Jr.--Excavating	William (Billy) W Spadlin, Jr.		2443 Orange Ave., Roanoke, VA 24012
Allegheny Construction Company, Inc.			2501 Longview Ave., Apt#4, Roanoke, VA 24014
RH Brown Painting	Ray Hunter Brown	3585 Forester Road, Roanoke, VA 24015 711 5th Street, NE, Roanoke, VA 24016-2123	2805 Spadlin Drive, Roanoke, VA 24014
Townside Construction Co., Inc.		PO Box 6354, Roanoke, VA 24017	2830 Nicholas Drive, Roanoke, VA 24012-5616
National Pools of Roanoke, Inc.			2845 Diplomat Drive, Roanoke, VA 24019
Steven Todd LaPradd--Roofer			306 1st Street, SW, Roanoke, VA 24011
Mike Helms Hauling and Excavating	Michael L Helms		3112 Melrose Ave., NW, Roanoke, VA 24017
Branch Highways, Inc.	Matt Wise	PO Box 40004, Roanoke, VA 24038-0004	3681 Jae Valley Road, Roanoke, VA 24014
Loeb Construction Company		PO Box 8156, Roanoke, VA 24014	3841 Sterling Road, Roanoke, VA 24014
Charles O Daily Roofer			3901 Franklin Road, Roanoke, VA 24014
House Doctors Handyman Service	Charles E White, Inc.		3922 Electric Road, Roanoke, VA 24014
Valley Renovations, LLC		PO Box 20453, Roanoke, VA 24018	4220 Edenshire Road, Roanoke, VA 24014
Diamond Seal & Paving Company	Earnest Ray Beckner, Jr.		4325 Old Cave Spring Road, Roanoke, VA 24018
S R Draper Paving Co., Inc.			4386 Sheldon Drive, Roanoke, VA 24018
			4439 Brentwood Ct., Roanoke, VA 24018
			4742 Old Rocky Mount Road, Roanoke, VA 24014

Bottom Creek Construction	Archie H. Horton	3239 Electric Road, C, Roanoke, VA 24018-6444	4919 Colonial Ave., Roanoke, VA 24018
Kingery Brothers Excavating			5469 Franklin Road, Roanoke, VA 24014 5498 Clearbrook Lane, Roanoke, VA 24014-6640
Sissons Backhoe Service	Fredrick B Sisson		5903 Starkey Road, Roanoke, VA 24014
Lionberger Construction Company		PO Box 20209, Roanoke, VA 24018	
Richard N Shahinian Paint & Power Washing		2723 Montvale Road, Roanoke, VA 24015	5928 Bent Mountain Road, Roanoke, VA 24018
Clarks Excavating Company, Inc.			6410 Sugar Ridge Drive, Roanoke, VA 24018
Structures Design/Build, LLC		PO Box 20287, Roanoke, VA 24018	5100 Bernard Drive, Roanoke, VA 24018 5183 Yellow Mountain Road, Lot #38, Roanoke, VA 24014
R & T Driveway Sealing & Repair	Tony G Underwood		521 Rutherford Ave., Roanoke, VA 24016
Avis Construction Company		PO Box 11985, Roanoke, VA 24022	
Asphalt Patch & Seal	Daniel L Randolph		5220 Eden Ave., Roanoke, VA 24014 5327 Yellow Mountain Road, Roanoke, VA 24014
J A Hartman Construction, Inc.			
Phillip Lyles & Son Excavating, Inc.	Phillip Ivy Lyles		5387 Bandy Road, Roanoke, VA 24014
Landscaping/Lawn Care/Pest Control			
Agri-Turf Products	William F Keehne, Jr.	PO Box 4064, Roanoke, VA 24015	5151 Starkey Road, Roanoke, VA 24014
Greenbrier Nurseries, Inc	Doug Jessie		5881 Starkey Road, Roanoke, VA 24014
Plantation Ground Covers Nursery, Inc.			6124 Plantation Road, Roanoke, VA 24019
BPG/The Greenery	Richard & Deborah A. Lasker, Jr		9895 Greenhouse Road, Roanoke, VA 24059
Valley Irrigation, LC	Timothy E Flack	PO Box 11571, Roanoke, VA 24022	1915 Bloomfield Ave., Roanoke, VA 24012
Complete Lawn Care	Berkley L King		2546 Willowlawn Street, Roanoke, VA 24018
Bern Bushman Tree Service	Kenton Bernard McKee, III		3485 Rutrough Road, Roanoke, VA 24014
Ebberly Landscaping and Home Repair	Christopher L Epperly		42385 Edenshire Road, Roanoke, VA 24014
Phelps Landscaping Company	Charley Lewis Phelps		5093 Bonis Road, Roanoke, VA 24014
Environmental Turf & Services, Inc.		PO Box 12706, Roanoke, VA 24027	101 Madison Ave., Roanoke, VA 24027
King's Landscapes/Lawn care, Inc.	Chad Anthony King		1041 Barrens Village Ct., Roanoke, VA 24019 10541 Bottom Creek Road, Bent Mountain, VA 24059
Landshaper	James R Bush		
Tri-Counties Lawn Mowing	Donald R. Nichols	PO Box 31, Bent Mountain, VA 24059	10988 Rocky Road, Bent Mountain, VA 24059
Landis Lawn care Company	Dyrk R Landis	PO Box 39, Bent Mountain, VA 24059	11087 Rocky Road, Bent Mountain, VA 24059
Dales Maintenance & Lawn Care	Bobby Dale Asbury		2342 Bluff Road, SE, Roanoke, VA 24014
Yards Year-Round, Inc.	W Scott Nichols		2420 Charing Cross Drive, Roanoke, VA 24018
Stacey's Tree Service, Inc.	James W Asberry, Jr.		2638 Rutrough Road, Roanoke, VA 24014
LD Gibson Tree Service	Lewis D Gibson		2836 Diplomat Dr., NW Roanoke, VA 24019
Ground Control	Chad J Wright		2971 Emissary Drive, Roanoke, VA 24019
Avant Gardens	Sherry L Wine		2974 Emissary Drive, Roanoke, VA 24019
Super Lawn Enterprises	Russel A Zimmerman		309 Vista Ave., Roanoke, VA 24019 3120 Valley Stream Dr., SE, Roanoke, VA 24014
Pearl Landscaping	Howard D Milton		
Quality Care Tree & Landscape	Joe Augstine Delarocha		3221 Penn Forest Blvd., Roanoke, VA 24018
Gregory Scott Underwood--Lawn Care			3323 Mount Pleasant Blvd., Roanoke, VA 24014 3338 Circle Brook Road #2-I, Roanoke, VA 24014
Natural Selections Landscaping	Trevin Lane Millirons		3436 Westmoreland Drive, Roanoke, VA 24018
JW Harris--Landscaping	Jerry W Harris		3441 Kenwick Trail, Roanoke, VA 24018
Evergreen Landscaping	Gale A Jarvis		3525 Normandy Lane, Roanoke, VA 24018
Alma Jasarevic Lawn Care Service	Alma Jasarevic		3540 Hillview Ave., Roanoke, VA 24014
Carla N. Webb Lawn Care	Carla N. Webb		3607 Poplar Drive, Roanoke, VA 24018
Goodwin Lawn and Landscape	Heath M Goodwin		3640 Bunker Hill Drive, Roanoke, VA 24018
Boitnotts Nursery & Landscaping, Inc.			3704 Brambleton Ave., Roanoke, VA 24018
Prestige Lawn Care	Thomas H Burton	3324 Fort Lewis Circle, Salem, VA 24153	3715 View Ave., Roanoke, VA 24018
Bryans Lawn Service	Mark A Stevenson		3744 Whispering Lane, Roanoke, VA 24014
Prestige Acres Landscaping, Inc.	Joseph Lanum		3846 Green Valley Drive, Roanoke, VA 24018
The Wildflower Farms	Vicki M Aiken		3856 Bower Road, Roanoke, VA 24018
Jersan Landscape Maintenance Service	Gerald E Lefler		

PM Simmons Yardwork & Hauling Precision Landscaping & Lawn Maintenance	Barry L Simmons	PO Box 8147, Roanoke, VA 24014	4077 Rockingham Blvd., Roanoke, VA 24014
	Todd A Goodrich		4111 Blue Jay Circle, Roanoke, VA 24018
Varsity Landscaping & Grounds, LLC	Michael A Anderson		4115 Snowbird Circle, Roanoke, VA 24018
Prolawn Harvey J Turner Mowing and Snow Removal	Ivan Lee Franklin		419 Vista Ave., Roanoke, VA 24019
	Harvey J Turner		4306 Gearhart Road, Roanoke, VA 24014-7224
Perdue Exterminators, Inc.			4323 Old Cave Spring Road, NW, Roanoke, VA 24018
Made in the Shade Lawncare	James Randall Johnson		4408 Garst Mill Road, Roanoke, VA 24018-6208
Affordable Landscapes			4491 Twelve O Clock Knob Road, Roanoke, VA 24018
Robert C Nichols Lawn Care	Robert C Nichols		4708 Goodman Road, Roanoke, VA 24014
David A Reasor Lawn Care, Inc.	David Reasor		4747 Lantern Street, Roanoke, VA 24019
Paramount Lawn Care Service	Randel G Cooper	PO Box 21342, Roanoke, VA 24018	4873 Westhill Drive, Roanoke, VA 24018
Lawn Princess	Linda L Perdue		4915 Balsam Drive, Roanoke, VA 24018
Am-Bren Lawn and Home Care	Richard F Helton		505 Greenwich Drive, NE, Roanoke, VA 24019
David L King Lawn Maintenance	David L King		5186 Singing Hill Road, Roanoke, VA 24014
Hales Landscaping, Inc.			5240 Singing Hills Circle, Roanoke, VA 24014
Light House Landscaping	Danny Joe Gibson		5327 Endicott St., Roanoke, VA 24019
Landscape Seeding, Inc.	Carl D Jannay		5403 Meadowcrest St., NW, Roanoke, VA 24019
Jackie C Walters Lawn Care	Jackie C Walters	PO Box 1493, Salem, VA 24153-0010	5466 Yale Drive, Roanoke, VA 24018
Lady Lawn & Garden Service	Rhonda J Wurtz		5644 Halcun Drive, Roanoke, VA 24019
Landscape Systems	James Michael Walters	2657 Willowlawn St., Roanoke, VA 24018-2528	5646 Green Meadow Road, Roanoke, VA 24018
Halls Lawn Maintenance	Damon W Hall	5798 Catawba Creek Road, Catawba, VA 24070	5680 Yellow Mountain Road, Roanoke, VA 24014
Timber Wolf Tree Service	Brian Keith Day		5744 Big Horn Drive, Roanoke, VA 24018
MDH Landscaping, LLC	Michelle Hightower		5848 Sierra Drive, Roanoke, VA 24012
American Tree & Shrub	Frank K Humphreys III		5881 Old Mountain Road, Roanoke, VA 24019
J & J Gardening & Cleaning Service	Jackie Allen Journiette		5923 Old Mountain Road, Roanoke, VA 24019
Masterson's Lawn Care	David S Masterson		6032 Old Manor Court, Roanoke, VA 24018
Plantation Nursery, Inc.			6100 Plantation Circle, NW, Roanoke, VA 24019
Anthony W Wertz Landscape Gardner	Anthony W Wertz		6104 Poage Valley Road, Raonoke, VA 24018
RBG Landscaping	Robert Walker Louthen		6120 Roberta Road, Roanoke, VA 24019
Lawn Care Specialists, Inc.			6480 Ran Lynn Drive, Roanoke, VA 24018
Faggart Landscaping	Charles F Faggart		6509 Harmony Lane, Roanoke, VA 24018
James W Jones Landscaping Service	James W Jones		6515 Trevillian Road, Roanoke, VA 24019
Star City Landscapes, LTD	Patrick L Bergeron		6603 Split Oak Road, Roanoke, VA 24018
Jennie L Hazlegrove Landscape Design	Jennie L Hazlegrove		6974 Shaver Road, Roanoke, VA 24018
D & D Lawn Maintenance	Timothy S Davis		7035 Tinkerdale Road, Roanoke, VA 24019
Bug Muggers Pest Control Grasshoppers Landscaping & Maintenance, Inc.	Henry J Boguniecki		7111 Crosstimbers Trail, Roanoke, VA 24019
Professional Landscaping & Lawncare	Robbin Carroll	PO Box 20012 Roanoke, VA 24018-0002	7278 Carriage Hills Drive, Roanoke, VA 24018
Deep Roots Garden Designs	Robert L Jones	PO Box 21386, Roanoke, VA 24018-0140	7343 Old Mill Road, Roanoke, VA 24018
Bluegrass Lawn & Landscape, Inc.	Jeffery A Maiden		7440 Solonevich Road, Roanoke, VA 24018
Backcreek Mulch & Topsoil, Inc.	Brandon S Harper		7623 Pebble Lane, Roanoke, VA 24018
	Tracy A Bryant		7798 Bent Mountain Road, Roanoke, VA 24018
Nicholas J Saviano Landscaping	Nicholas J Saviano		7619 Mount Chestnut Road, Roanoke, VA 24018
Stokes Lawn Care	Derek Robert Stokes		7957 Forest Creek Drive, Roanoke, VA 24018
Vandergrift Lawn Care	Terry Neil Vandergrift		8160 Williamson Road, Roanoke, VA 24019
Lambert's Landscaping	Kenneth Ward Lambert II		8441 Olsen Road, Roanoke, VA 24019
G & G Lawn Care	Willie M Green		8459 Martins Creek Road, Roanoke, VA 24018
Manufacturing Firms			
Ideal Cabinets, Inc.	Kenneth L. Rakes		6010 Williamson Road, Roanoke, VA 24012
Rapidsign Inc	Lana Atkins		6429 Williamson Road, Roanoke, VA 24019

Blue Ridge Sign & Stamp Company	Marcia Saunders		6446 Peters Creek Road, Roanoke, VA 24019
JFC Equipment Corporation	Mr. Fralin	PO Box 19307, Roanoke, VA 24019	7520 Milk-A-Way Drive, Roanoke, VA 24019
Star-Ro Trailer Corp			7527 Robertson Ln. Roanoke, VA 24019
Southern Fluid Power of VA, Inc	John F Mooney		3804 Praline Place, Roanoke, VA 24012
Industrial Process Technologies, Inc.	Will Boylan	PO Box 20211, Roanoke, VA 24018	4315 Kings Chase Drive, Roanoke, VA 24014
Metallurgical Injection Technology, Inc.	Kenneth M Durham		4501 Brentwood Ct. Roanoke, VA 24018 4502 Starkey Road, Suite 105, Roanoke, VA 24014
Dominion Metallurgical, Inc.		5304 Valleypark Dr., Roanoke, VA 24019	
Manitowoc Beverage Systems, Inc			5075 Hollins Road, Roanoke, VA 24019 5238 Peters Creek Road Bld B, Roanoke, VA 24019
East West Dyecom, Inc	Tamea Franco	PO Box 12294, Roanoke, VA 24024	5305 Hollins Road, Roanoke, VA 24019
Bay Insulation of Virginia, Inc		PO Box 1040, Roanoke, VA 24083-1040	5597 Hollins Road, Roanoke, VA 24019
Virginia Abrasives & Tools		PO Box 20066, Roanoke, VA 24018	6500 Commonwealth Dr., Roanoke, VA 24018
Insulation Systems Inc of Virginia		PO Box 28238, Richmond, VA 23228	7703 Enon Dr., NW, Roanoke, VA 24019
Old Dominion Glass, Inc.		7727 Garland Circle, Roanoke, VA 24019	7740 Garland Circle, Roanoke, VA 24019
Blue Ridge Color Co., Inc.	Roger Blake Harris		
Taylor Insulating Company, LLC	Max V. Jones	540 Mowhawk Ave., Roanoke, VA 24012	
Plastic Materials, Inc.	L Douglas Baker		6641 Circleview Drive, Roanoke, VA 24014
Labrie Refrigeration Company	William H Labrie		1560 Read Mountain Road, Roanoke, VA 24019
Cook's Industrial Maintenance Service, Inc.	Robert W Cook		6832 Mason Knob Trail, Roanoke, VA 24018
Medical			
Bio-Medic Health Services, Inc.		5041 Benois Road, B, Roanoke, VA 24014	5121 Starkey Road, Roanoke, VA 24014
Medical Equipment Recycling, Inc	Gregory Duty		5843 Winnbrook Dr., Roanoke, VA 24018
Restaurants/Food Service			
Wildwood Smokehouse	Robert Schell		2041 Electric Road, Roanoke, VA 24018
McDonalds	Michael K Grimm	2965 Colonade Dr. 310, Roanoke, VA 24018-3541	2071 Electric Road, Roanoke, VA 24018
"	"	"	8115 Plantation Road, Roanoke, VA 24019
Ruby Tuesday #4637		3250 Electric Road, Roanoke, VA 24018	
Luigis Restaurant	Marques-Isreal, Inc.		3301 Brambleton Ave., Roanoke, VA 24018
Taco Bell #017591	Tacoma, Inc	328 E. Church St., Martinsville, VA 24112	3306 Westmoreland Dr., Roanoke, VA 24018
Chico & Billys Pizza	Patrick Blake Trotman at Bogus, Inc	PO Box 63, Daleville, VA 24083	3334 Brambleton Ave., Roanoke, VA 24018
Subway Sandwiches & Salads	Chipway Enterprises, Inc.		3542 Electric Road, Bld 10, Roanoke, VA 24018
Freddy's Sunset Grill	Theresa Dickenson at Abbeyshrool, Inc.		3604 Brambleton Ave., Roanoke, VA 24018
Brambleton Deli & BBQ	Charles Moore at Morcom, Inc		3655 Brambleton Ave., Roanoke, VA 24018
Blue Magnolias	Charles A Moore at Morcom, Inc		3203 Brambleton Ave., Roanoke, VA 24018
Hardees #2591	Boddie Noell Enterprises, Inc.	PO Box 1908, Rocky Mount, NC 27801	3729 Brambleton Ave., Roanoke, VA 24018
" #2341	"	"	7407 Williamson Road, Roanoke, VA 24019
Famous Anthonys 460 East Inc.	Peter File	PO Box 21707, Roanoke, VA 24018-0111	3737 Challenger Ave., Roanoke, VA 24012
Famous Anthonys Inc.	"	"	4183 Electric Road, Roanoke, VA 24014
Frank's	DJL, Inc.		3743 Brambleton Ave., Roanoke, VA 24018
Sonic Drive-In	Donnie Rupe of SDI of Roanoke LLC		3755 Brambleton Ave., Roanoke, VA 24018
Ragazzi's	Jennifer/Ed Schrage of TRP Restaurant Enterprises, Inc.	PO Box 1148, Garner, NC 27529	3843 Electric Road, Roanoke, VA 24018
419 West	Roger R Neel, Jr.	PO Box 1371, Roanoke, VA 24007-1371	3865 Electric Road, Roanoke, VA 24018
Pizza Hut			3904 Brambleton Ave., Roanoke, VA 24018
Arby's	Grant Avenue Development, Inc.	69 South St., Auburn, NY 13021	3944 Brambleton Ave., Roanoke, VA 24018
"	"	"	5442 Williamson Road, Roanoke, VA 24012
Dragon China	Ya Lin Li		3945 Brambleton Ave., Roanoke, VA 24018
Burger King #7918	Mike Bond at Sloan, Inc.	PO Box 12327, Roanoke, VA 24024	4021 Brambleton Ave., Roanoke, VA 24018
" #2743	"	"	7121 Williamson Road, Roanoke, VA 24019

Kentucky Fried Chicken	JRN Inc. Store #181	201 West 7th St., Columbia, TN 38401	4057 Electric Road, Roanoke, VA 24014
Chuck E Cheese's			4059 Electric Road, Roanoke, VA 24014
Texas Steakhouse & Saloon			4092 Electric Road, Roanoke, VA 24014-2813
Carlos Brazilian International Cuisine	Carlos M. Amaral at Paulamaral, Inc.		4167 Electric Road, Roanoke, VA 24014
Mac & Maggie's Restaurant	Oh Brians Corp--Partner Rich Hile at Macados of the Carolinas, Inc.	1905D2 Ashwood Ct. Greensboro, NC 27455-2080	4202 Electric Road, Roanoke, VA 24014
Macados		PO Box 1911, Roanoke, VA 24008	4237 Electric Road, Roanoke, VA 24014
K & W Cafeterias, Inc.		PO Box 25048, Winston-Salem, NC 27114	4242 Electric Road, Roanoke, VA 24014
El Rodeo	Steve A Bahr	6 S College St., Salem, VA 24153	4301 Brambleton Ave., Roanoke, VA 24018
"	Maria D Lopez		7850 Plantation Road, Roanoke, VA 24019
Country Cookin	RWS Enterprises		4335 Brambleton Ave., Roanoke, VA 24018
Buffalo Wild Wings Grill & Bar	Casey J Fish at ACO Group LLC	6038 Matisse Ln., Roanoke, VA 24018	4335 Starkey Road, Roanoke, VA 24014
Applebee's Neighborhood Grill & Bar	Beth A Marschel at Applebee's of Virginia Inc.	4551 w 107th St. Overland Park, KS 66207 3959 Electric Road, SW 206, Roanoke, VA 24018	4340 Electric Road, Roanoke, VA 24014-2920
Wendy's Old Fashioned Hamburgers	Wendy's of Western Virginia Inc.		4369 Electric Road, Roanoke, VA 24014
"	"	"	7111 Williamson Road, NW, Roanoke, VA 24019
Chick Fil A--Tanglewood	Mark Randall Childress at Chick Fil A	5200 Buffington Road, Atlanta, GA 30349	4374 Electric Road, Roanoke, VA 24014
Neo China			4384 Electric Road, Roanoke, VA 24014
Gerow's Restaurant	David Gerow at JAG, Inc		4602 Old Cave Spring Road, Roanoke, VA 24018
Ciros Italian Restaurant Inc	Elizabeth W Romano		4830 Hollins Road, Roanoke, VA 24019-3342
Emilio's Pizza & Subs	Andre G Saliba	2620 Vancouver Dr., Roanoke, VA 24012	5420 Peters Creek Road, Roanoke, VA 24019
Ye Olde English Inn	Robert T Larkins		6063 Bent Moutain Road, Roanoke, VA 24018
El Toreo	Agustin Arellano		6617 Thirlane Road, Roanoke, VA 24019
Subway	Bondough Inc.		7307A Williamson Road, Roanoke, VA 24019
Pizza Den	Moran-King Corporation	504 E 4th St. Salem, VA 24153	7326 Williamson Road, Roanoke, VA 24019
Aramark Services, Inc. #6153			7711 Plantation Road, Roanoke, VA 24019
Wildflower at Hollins	James Mark Henderson at Hollywood's LLC	7706 Hollins Court Circle, Roanoke, VA 24019	7770 Williamson Road, Roanoke, VA 24019
Domino's Pizza	Wallace Family Enterprises	PO Box 8715, Roanoke, VA 24014	8201 Williamson Road, Roanoke, VA 24019
El Torito Mexican Restaurant Corporation			9607 Bent Mountain Rd, Bent Mountain, VA 24059

Cleaning Supplies/Cleaners

American Janitorial Services	Lury W Goodall, Jr. at AJS, LLC	PO Box 21082, Roanoke, VA 24018	5120 Peters Creek Road, Roanoke, VA 24019
National Scrubs	Frederick Ross Ferguson		6987 Hollyberry Road, Roanoke, VA 24018
Brenda Andrews Janitorial Service	Brenda Andrews		2811 Rutrough Road, Roanoke, VA 24014
Castlekeepers Maid Service	William E Freeman	PO Box 19203, Roanoke, VA 24019	2851 Embassy Circle, Roanoke, VA 24019
Warren H Thompson Window Cleaning	Warren H Thompson	3822 Jae Valley Road, Roanoke, VA 24014- 6166	3011 Parham Drive, Roanoke, VA 24014
Custom Cleaning Services, Inc.	John Jay Altice		3021 Parham Drive, Roanoke, VA 24014
Carolyn G Coble--Cleaning Service	Carolyn G. Coble		3026 Northside Road, Roanoke, VA 24019
Steve's Cleaning Service	Steven L Leftwich		3145 Ivyland Drive, Roanoke, VA 24014
Classic Carpet Care	Walter W Boobyer		3157 Berry Lane, # 24, Roanoke, VA 24018
Long's Cleaning Service	Ennett A Long, Jr.		3342 Mount Pleasant Blvd., Roanoke, VA 24014
Dust Busters Cleaning Services	Robin L Artutis	1640 Eanes Road, Roanoke, VA 24014	3364 View Ave., SW, Roanoke, VA 24018
Samuel D Kemp Pressure Washing	Samuel D Kemp		3503 Colony Lane, Roanoke, VA 24018-4411
Discount Carpet Cleaners			4304 Cordell Drive, Roanoke, VA 24018
K&A Fresh Start Cleaning	Tammy L Linscott-Kirby		4744 Layman Road, Roanoke, VA 24012
Sunshine Carpet & Cleaning Service	Mary M Martin		5544 Northlakes Drive, Roanoke, VA 24019
Demarest Industrial Cleaning	Steven T Demarest		5546 Heather Hill Drive, Roanoke, VA 24019
Williams Carpet Cleaning, Inc.	Danny L Williams		6241 Poage Valley Road, Roanoke, VA 24018
Skyline Cleaners, Inc.		827 College Ave., Salem, VA 24153	3309 Brambleton Ave., Roanoke, VA 24018
Harvey's Cleaners, Inc.			3411 Brambleton Ave., Roanoke, VA 24018
A Cleaner World 128	Michael Taylor at A Cleaner World-- Roanoke, Inc.		3806 Challenger Ave., Roanoke, VA 24012
Cave Spring Cleaners	Young N Kwak	3229 Winterberry Drive, Roanoke, VA 24018	3904 Brambleton Ave., Unit 2, Roanoke, VA

			24018
Air-Lee Cleaners	Bob Jones	4720 Williamson Road, Roanoke, VA 24012	4204 Brambleton Ave., Roanoke, VA 24018
Air-Lee Cleaners, Inc.	Bob Jones	4720 Williamson Road, Roanoke, VA 24012	4179 Electric Road, Roanoke, VA 24018
Vogue Cleaners & Laundry	Roy N Steele at Vogue Management, Inc	3322 Melrose Ave., Roanoke, VA 24017	4345 Brambleton Ave, Roanoke, VA 24018 7327 Sunny Brook Drive, NW, Roanoke, VA 24019
Alan E Israel All Clean	Alan E Israel		
Professional Cleaners	Hwan Tea Lee at Twin Cleaners of Virginia, Inc.		4347 Starkey Road, Roanoke, VA 24014
Best Cleaner	Sun Ok Songer Park		4520 Brambleton Ave., Roanoke, VA 24018
Winstons Cleaners			5812 Williamson Road, Roanoke, VA 24012
Virginia \$1.50 Cleaners	Brad Harder at Harder Bros., Inc.	PO Box 77199, Greensboro, NC 27417-7199	6539 Williamson Road, Roanoke, VA 24019
Valley Cleaners, Inc.			7403 Williamson Road, Roanoke, VA 24019
Fuel/Energy/Oil			
Oak Grove Texaco	Bratex Inc.		2001 Electric Road, Roanoke, VA 24018
Getty Mart #32	Sarnjit Sidhu at SS Enterprises of Roanoke, Inc.		2210 Electric Road, Roanoke, VA 24018
" #71032	Vince Marcot/Ron Hoston at Gasway, Inc	1500 Hemstead Turnpike, East Meadow, NY 11554	2214 Electric Road, Roanoke, VA 24018
Central Oil of Virginia Corp	Wendy Blair	PO Box 587, Rocky Mount, VA 24151	3128 Jae Valley Road, Roanoke, VA 24014
Orange Market #2	Lisa McCormick at Workman Oil Company, Inc.	PO Box 567, Forest, VA 24551-0000	3202 Peters Creek Road, Roanoke, VA 24019
Pilot Oil Station #101			5611 Williamson Road, Roanoke, VA 24012
Hollins Texaco	Motorists Paradise, Inc.		7603 Williamson Road, Roanoke, VA 24019
Plantation Exxon	Venkat Reddy at SVS Hospitality, Inc.		8110 Plantation Road, Roanoke, VA 24019
Webb Oil Company			8223 Reservoir Road, Roanoke, VA 24019
Workman Oil Co. Inc.	Robert M Workman	PO Box 567, Forest, VA 24551-0000	Rt 211 South, Forest, VA 24551
Marathon Ashland Petroleum, LLC	Hope Abke	539 South Main St., 4130 Findlay, OH 45840	5287 Terminal Road, Roanoke, VA 24014-4033
Quick-ette, Inc.	Aubrey A Lester III/Sammye Purdy	725 Botetourt Road, Fincastle, VA 24090	6306 Peters Creek Road, Roanoke, VA 24019
Retail			
Northwest Hardware Company	Ernest McGuire	2303 Williamson Road, Roanoke, VA 24012	2113 Washington Ave., Vinton, VA 24179
"True Value	"		3647 Brambleton Ave., Roanoke, VA 24018
Super Mart	Sarbjit S. Aujla		3660 Colonial Ave., Roanoke, VA 24018
Salon Associates, LLC	Renee H. Freeman		3214 Electric Road, Suite 104, Roanoke, VA 24018
Sherwin Williams #5008			3562 Electric Rd, Suite 22-24, Roanoke, VA 24018
Metro Paint Supply, Inc.		PO Box 20223, Roanoke, VA 24018	3719 Brambleton Ave., Roanoke, VA 24018
Apollo Hair Systems	Juliane M Shelton		4345 Old Cave Springs Road, Roanoke, VA 24018
Hair Plus #4568			4370 Electric Road, Roanoke, VA 24014
Azario Salon & Day Spa	Zena J Azar of Azario, Inc.		5420 Starkey Road, Roanoke, VA 24014
Duron Paints & Wallcoverings Store #49	John Gardner	10406 Tucker St., Beltsville, MD 20705	6707 Williamson Road, Roanoke, VA 24019
Michael's Carpet Outlet	Michael C Grant at Grant Enterprises, Inc.	3139 Old Forest Road, Roanoke, VA 24501	7338 Williamson Road, Roanoke, VA 24019
Carpetland USA	Podell, Inc.		7511 Williamson Road, Roanoke, VA 24019
Margie T Lemon--Beauticontrol			8281 Cardington Drive, Roanoke, VA 24019
Roberts Farm Equipment	Robert D Wood	117 Albemarle Ave., SW, Roanoke, VA 24016	5163 Starkey Road, Roanoke, VA 24014
Homestead Air Conditioning and Refrigeration			1 Homestead Ln., NE, Roanoke, VA 24012
Kessler Refrigeration Service, Inc.	Kenneth Barnes		214 16th Street, NW, Roanoke, VA 24017
Blue Ridge Refrigeration, Inc.	Wayne Radford		4412 Hazel Drive, SW, Roanoke, VA 24018
Aquatic Pool Service & Repair	Raymond Scott Harris		4601 Goodman Road, Roanoke, VA 24014
Blue Ridge Coal Sales, Inc.	Michael A Chudina		2149 Electric Road, Roanoke, VA 24018
Sherwin Williams #0164			4525 Brambleton Ave. Suite 202, Roanoke, VA 24018
Garnetts Beauty Salon	Garnett L Flora		5616 Crescent Blvd., Roanoke, VA 24014
Capital City Screen Printing	Barbara A Wright		8302 Strathmore Lane, Roanoke, VA 24019
Myras Salon & Co.	Myra LaDrade		2033 Electric Road, Roanoke, VA 24018

Glenvar Barber Shop	Billy R Neely		2086 Loch Haven Drive, Roanoke, VA 24019 2214 Electric Road, Suite #3, Roanoke, VA 24018
Nguyen's Inc Luxury Nail			
Brambleton Styling Salon	Virginia A Hale	5994 N Floyd Highway, Check, VA 24072	3109 Brambleton Ave., Roanoke, VA 24018 3109 Brambleton Ave., SW, Roanoke, VA 24018
Brambleton Hair	Stephanie Y Edmondson	5523 Lyn Dell Drive, Roanoke, VA 24018	
Country Hair Saloon	Gloria B Blessard	2925 Dover Drive, Roanoke, VA 24018-2603	3110 Brambleton Ave., Roanoke, VA 24018
A Salon Annettes	Cynthia Denise Ward	1096 Chumley Point, Goodview, VA 24095	3201 Brambleton Ave., Roanoke, VA 24018
Paula Salon, Inc.	Angela D Epling	3900 Apricot Trail, Roanoke, VA 24012 4605 Jacklin Drive, NE, Roanoke, VA 24019-5813	3406 Brambleton Ave., Roanoke, VA 24018 3426 Brambleton Ave., Apt.# 3, Roanoke, VA 24018
Now & Then Salon	Jennifer L Serrano		3411 Brambleton Ave., Roanoke, VA 24018
Clip & Dip, Inc.			3494 Buck Mountain Road, Roanoke, VA 24014
Yuppie Puppie, Inc.	Floyd Michael Montgomery		
Hair Trends	Yvette F Jones	3709 Garden City Blvd. Roanoke, VA 24014	3662 Colonial Ave., Roanoke, VA 24018
Hair Associates	Barbara T Thurman		4212 Cypress Drive, Roanoke, VA 24014
Brambleton Barber Shop	Roy B Nickell	3658 Green Level Road, Rocky Mount, VA 24151	4322 Brambleton Ave., Roanoke, VA 24018
Vision's Salon	Tommie Stephanie Perkins	1727 Wallace Ave., Roanoke, VA 24012	4093 Electric Road, Roanoke, VA 24014
Four Paws Pet Grooming	Jane M Neighbors		4365 Rosevale Road, Roanoke, VA 24018
Wandas Family Hair Care	Wanda L Hill		4840 Branch Road, Roanoke, VA 24014
Southwest Nails-N-Tanning, Inc.	Hau Thi Ma		5207 Bernard Drive, Roanoke, VA 24018
Southwest Barber & Styling	Donna S Adams	3115 Doe Run Road, Rocky Mount, VA 24151	5221 Starkey Road, Roanoke, VA 24014
Country Air Vacation Kennels of VA, Inc.	Darlene Hoover	5819 Knowles Drive, Roanoke, VA 24018 379 Highland Ave., 202, Roanoke, VA 24016-4321	5272 Old Virginia Springs Road, Roanoke, VA 24017
Shenandoah Styles Beauty Salon	Mardi E Street		5300 Hawthorne Road, Roanoke, VA 24012
Salon Du'Ta Ltd at Azario's Salon & Day Spa	Steven S Dugger		5420 Starkey Road, Roanoke, Va 24018
Sandi's Salon	Sharon M Proffit	7639 Edwardsville Road, Hardy, VA 24101	5524 Williamson Road, Roanoke, VA 24012
Lynns Hair Center	Lynn R Creasey		5571 Capito Street, NE, Roanoke, VA 24019
Beauty World Hair	Jacqueline L Smith	1532 Piccadilly Drive, Charlotte, NC 28211	5604 Williamson Road, Roanoke, VA 24012
Signatures Hair Studio	Angelique S Adams	1720 Pomeroy Road, B, Salem, VA 24153	5711 Airport Road, Roanoke, VA 24019
Shear Design Hair Center	Betty H Fuller		5704 Malvern Road, NW, Roanoke, VA 24012
Edna B Dalton Beauty Salon	Edna B Dalton		649 Magnolia Road, NW, Roanoke, VA 24019
Wandas Beauty Shop	Wanda W Caudell		6546 Wendover Road, NW, Roanoke, VA 24019
Hairworks	Lisa C Ferris		6905 Williamson Road, Roanoke, VA 24019
Sleepy Hollow Kennel	Brad J or Dawn K Veatch		7226 Branico Drive, Roanoke, VA 24018
Happy Nails & Tanning	Hao Bui	4065 Crawford Road, Roanoke, VA 24018-4419	7228 Williamson Road, Roanoke, VA 24019
Bodatious Salon	Stephanie W Gilmore		7650 Williamson Road, Roanoke, VA 24019
Centura Equine Center, Inc.	Jean L Bowles		8127 Martins Creek Road, Roanoke, VA 24018
Star-Ro Stables	Donna J Anger		8270 Olsen Road, Roanoke, VA 24019
Norma S Jarrett Hair Dresser	Norma S Jarrett	500 Back Nine Drive, Moneta, VA 24121	916 Anchor Drive, Roanoke, VA 24012
Hollins College Stables			Williamson Road, Roanoke, VA 24020

Appendix B

BMP 2-1 Storm Drain Stenciling 2003-2004

<u>Name of Group</u>	<u>Locality</u>	<u># stenciled</u>
William Byrd High School (Jan. 2004) -student group	Vinton/County	4
William Byrd High School (Feb. 2004) -student group	Vinton/County	4
Roanoke Co. Career Center (Feb. 2004) -student group	Vinton/County	4
Cave Spring High (Feb. 28, 2004) -Family Service Teen group	County	19
Locations TBD -National Youth Service Day April 17, 2004	Vinton/County	25

Waterways Field Days Summit 2003

Friday, September 26, 2003

*When we see land as a community to which we belong,
we may begin to use it with love and respect.—Aldo Leopold*

Waterways Field Days 2003 is the first in a five-year series of in-depth conferences designed for professionals, community leaders, and individuals interested in water quality issues in the greater Roanoke bioregion. The Summit includes Mr. Jack Frye, Virginia Director of Soil & Water Conservation Districts as keynote speaker. Following Mr. Frye, a panel of regional representatives will define progress toward water quality in southwest Virginia and will outline regional and local initiatives being taken towards this progress. Questions for the panelists are welcome and time will be allotted as such during the program.

Conference Program

(All events to take place in Blue Ridge Parkway Visitor Center)

6:45 – 7:00 pm	Reception
7:00 – 7:15 pm	Welcome and Opening Remarks (Mr. Scott Sarver, Virginia's Explore Park)
7:15 – 7:30 pm	Keynote speaker: Mr. Jack Frye, Director of Virginia Soil & Water Conservation Districts
7:30 – 8:15 pm	Panelists from local regions will address initiatives toward stormwater and water quality <u>Panelists:</u> Mr. Ken Cabarle, County of Roanoke Mr. Karl Kleinhenz and Ms. Carol Davit, City of Roanoke Ms. Anita McMillan, Town of Vinton Mr. Melvin Doughty, City of Salem Mr. Brent Wills, County of Bedford <u>Moderator:</u> Mr. Shane Sawyer, Roanoke Valley-Alleghany Regional Commission
8:15 – 8:30 pm	Questions and Answers
8:30 pm	Closing Remarks and Adjourn

Minutes from “Waterways Summit”

September 26, 2003

Virginia’s Explore Park
Blue Ridge Parkway Visitor Center
7:00-9:00 P.M.

Mr. Scott Sarver, of Explore Park, began with a welcome on behalf of the Park and made opening remarks. He thanked the participants for all their involvement over the past few months in making the first series of “Waterways” events a success. The events included the July, August and September business conferences and Family Days that were all part of the year one progress towards the education and outreach components of the VPDES II stormwater management program. Explore Park is working on behalf of Roanoke County, Roanoke City and the Town of Vinton to attain some of the education and outreach components (minimum controls 1 and 2) of the VPDES II program. The regional cooperation has been outstanding and very well received. Explore Park hopes to involve other regional municipalities in future years of the program.

Mr. Jack Frye, Director of the Virginia Soil & Water Districts was the opening speaker. He made remarks on his agencies involvement with stormwater and any number of related issues the Dept. of Conservation and Recreation works towards that tie in with the components of the program (education in schools and communities both urban and rural, TMDL’s, etc...). He mentioned the relevance and importance of regional participation and looked forward to continued progress.

A panel of regional speakers who are all involved in the stormwater program addressed what their respective localities are doing towards the goals of the program and their current progress. The following were panelists: Ken Cabarle (County of Roanoke Community Development and stormwater permit writer), Karl Kleinhenz (City of Roanoke Engineer), Carol Davit (City of Roanoke Environmental Communications Coordinator), Brent Wills (Bedford County Natural Resources Director), Melvin Doughty (City of Salem Engineer) and Anita McMillan (Town of Vinton Director of Planning). Shane Sawyer (Roanoke Valley – Alleghany Regional Planning Commission) served as moderator. After each panelist reviewed current status with respect to the stormwater program, the audience was given the opportunity to ask questions and make comments.

The “Summit” concluded at 9:00 PM and the audience was adjourned after thanks from Explore Park staff.

The General Membership meeting of the Upper Roanoke River Roundtable who co-hosted the evening’s events preceded the meeting.

Minutes noted by: Lane Guilliams, Environmental Ed. Coordinator at Explore Park

Public Forum Sign In Sheet
9-26-03

<u>Name</u>	<u>Phone #</u>	<u>Address</u>	<u>E-mail</u>
Mrs. Patty Mead	342-0013	2522 Longview Avenue, SW Roanoke, VA 24014	pmead11629@aol.com
Mr. Bill Modica	387-2782	1546 Creek Lane Salem, VA 24153	mrbillm@roanokemail.com
Mr. Herb Cormier	427-4389	3437 Periwinkle Lane Roanoke, VA	hjcormier@msn.com
Jon Stephenson & Maureen Castern	344-5286	2719 Wycliffe Avenue Roanoke, VA 24014	mcastern@rev.net
Mr. Bob Camicia	890-6007	143 Charlotte Lane Hardy, VA 24101	
Mr. Shane Sawyer	343-4417	P.O. Box 2569 Roanoke, VA 24016	ssawyer@rvarc.org
Mr. Karl Kleinhenz	853-1101	215 Church Ave., Room 350 Roanoke, VA 24011	karl_kleinhenz@ci.roanoke.va.us
Mr. Gene Yagow	774-2430	5988 Grandin Road Extension Roanoke, VA 24018	eyagow@vt.edu
Mr. Brent Wills	586-7616	122 E. Main St. Suite G-03 Bedford, VA 24523	b.wills@co.bedford.va.us
Louise and Wes Jargowsky	992-5495	858 Sunset Avenue Troutville, VA 24175	jsky@rbnet.com
Mrs. Sharon Stinnette	982-8764	1801 Mount Vernon Road Roanoke, VA	
Mr. Steve Talley	887-9898	Canaan Valley Institute	steve.talley@canaanvi.org
Mr. Rupert Cutler	345-7653	City of Roanoke (City Council Member)	
Mr. Ken Cabarle	769-0146	County of Roanoke	
Mrs. Carol Davit	853-1315	City of Roanoke	Carol_Davit@ci.roanoke.va.us
Mr. Melvin Doughty	375-3032	114 N. Broad Street Salem, VA 24153	
Mrs. Anita McMillan	983-0601	311 S. Pollard Street Vinton, VA 24179 VA Dept. of Conservation and Recreation 203 Governor St. Richmond	amcmillan@town.vinton.va.us
Mr. Jack Frye			
Mr. William Johnson		Stearns and Wheler Engineering Roanoke, VA	wpjohnson@stearnswheler.com

BMP 2-4 Citizen Advisory Committee

Meeting 1 (County) 12-17-03

* = Local Government Employee

<u>Name</u>	<u>Locality Representing</u>
Mr. Paul Truntich	City of Roanoke*
Mrs. Carol Davit	City of Roanoke*
Mr. George Simpson	County of Roanoke*
Mr. Aaron Hofberg	County of Roanoke*
Mrs. Anita McMillan	Town of Vinton*
Mr. Mick Michelsen	Town of Vinton
Mr. Marlin Rodgers	Town of Vinton

Meeting 2 (Town of Vinton) 1-8-04

Mr. Dave Jones	Town of Vinton
Mr. Mick Michelsen	Town of Vinton
Mr. Marlin Rodgers	Town of Vinton
Mrs. Maureen Castern	City of Roanoke
Mr. John Gardner	City of Roanoke

Meeting 3 (County) 2-4-04

Mr. Dave Jones	Town of Vinton
Mr. Marlin Rodgers	Town of Vinton
Mr. John Gardner	City of Roanoke
Mr. Bill Overstreet	County of Roanoke

Meeting 4 (City) 3-4-04

Stormwater Citizens Advisory Meeting – December 17th, 2003

Meeting (1) Minutes:

Minutes taken by: Lane Guilliams, Environmental Ed. Coordinator at Explore Park

In attendance: Carol Davit, Paul Truntich, George Simpson, Aaron Hofberg, Anita McMillan (locality reps); Mick Michelsen, Marlin Rodgers (citizen reps).

Lane Guilliams called the meeting to order. Lane began with an overview of the VPDES II Program, what it is and what the role of the citizen committee member involves. That was followed by introductions of all those in attendance.

Each locality representative in attendance then went over, for the citizen reps., what their vision of the program is and what they feel the role of the committee representative is to be. It was stated that the citizen representative would be a “sounding board” to help their local governments and give feedback on some of the educational components of the Phase II program.

Carol Davit, with the City of Roanoke, and Lane then went over to-date Year One activities and presented this information along with some printed materials that have been used in Year One. Lane also went over the Public Outreach and Education components with the reps and addressed specific activities that will be done to fulfill the program requirements (Ex.: stenciling, biological monitoring, outreach education for youth and adults, etc...). This was followed by a period of initial comments from the representatives in attendance. It was suggested, by Vinton representative Mr. Mick Michelsen, that though we seem to educate on a wide variety of pollutant sources, that we had overlooked citing the government and its agencies as a source. It was further suggested that we should perhaps focus our education on one potential pollution source at a time in our outreach efforts. Mr. Marlin Rodgers, also a Vinton representative, noted that the “After the Storm” mailer we produced is a good tool for citizens to use and lets them know where in their own area they can get information and answers on issues such as how to address runoff from roof tops. These suggestions were noted.

In conclusion, we discussed the commitment required by the representatives and then discussed the meetings schedule for Year One, as the program year is set to end by March 15th, 2004. After this brief discussion, the meeting was adjourned.

Stormwater Citizens Advisory Meeting – January 8th, 2003: Vinton War Memorial

Meeting (2) Minutes:

Minutes taken by: Lane Guiliams, Environmental Ed. Coordinator at Explore Park

In attendance: City reps: Maureen Castern and John Turner, Vinton reps: Mick Michelsen, Dave Jones and Marlin Rodgers

Absent: County rep: Bill Overstreet

Lane Guiliams called the meeting to order. The meeting began with the reading of minutes from the initial meeting that included a brief review of comments from citizen and locality representatives, the role of the citizen representative and the specific aspects of the Stormwater Phase II Public Education and Outreach portions of the program. New members in attendance were introduced.

Lane then announced that the focus for the meeting would be on marketing efforts of the program. These efforts include among others: mailers/brochures, billboards, newsprint/publication advertising and events. Comments were then solicited from members as to what means they see as being most effective and wide reaching in our outreach and educational efforts. The following is a listing of comments received:

- Host regional events as last year's Waterways Family Days. The group was in support of the "Bug Fest" idea and to tie that in with the Father's Day events at Explore Park on June 20, 2004; partner with VA Dept. of Game and Inland Fisheries and the VA Dept. of Environmental Quality
- Have people locate in various visible areas (such as the downtowns) throughout the region holding signs that say 'When it Rains it Drains' or something of that manner to raise curiosity; invite the media for photo and interview opportunities
- More television; Seek spots on Cox or Blue Ridge Television
- Participate in regional events such as VA Tech's Farm and Family Day
- Partner with Blue Ridge Business Journal (or other area publication) to have an "ad" to reward local businesses for environmental-stormwater related achievements
- Partner with local newsprint publications to have an ad sized area that would have weekly or monthly "stormwater tips". (For ex: "This week's stormwater tip: Pick up after your pet!" Also include a short narrative to tell the "why": Did you know that if you don't pick up your pet's waste it can end up in the Roanoke River....?)
- Use our next regional mailer to focus on one pollutant and include tips as to how citizen's can do their part (give people action items to help make it personal)

- Tie in with the regional Water Authority initiative

It was also suggested that though billboards are largely effective, it might be hard for people to realize our “message” in this small of a space. A request was made by Vinton representative, Mick Michelsen, for the group to be able to look at empirical data from the DEQ that would note local pollutants by percentage and location in the watershed.

All suggestions were noted. Remaining meeting dates were discussed and the meeting was adjourned.

Stormwater Citizens Advisory Meeting – February 4th, 2003: Brambleton Ctr.

Meeting (3) Minutes:

Minutes taken by: Lane Guiliams, Environmental Ed. Coordinator at Explore Park

In attendance: City rep: John Gardner, Vinton reps: Dave Jones and Marlin Rodgers, County rep: Bill Overstreet

Absent: City rep: Maureen Castern

Lane Guiliams called the meeting to order. The meeting began with the reading of minutes from the second meeting that included an overview of marketing efforts of the program.

Lane then announced that the focus for the meeting would be on water quality issues and problem sources in the Roanoke Valley. It was announced that we would have a guest speaker to address these topics. Mr. Jason Hill, TMDL Coordinator for the VA DEQ was introduced and subsequently handed the floor for the remainder of the meeting to address DEQ monitoring efforts, potential problem sources and solutions to water quality concerns. Following is a summary of the topics discussed by Mr. Hill:

- There are approximately 3,500 miles of perennial stream in the Upper Roanoke River watershed of which the DEQ monitoring stations cover approximately 11% or 375 miles
- There are several methods of monitoring water quality: ambient (pH, dissolved oxygen...), biological (as with S.O.S), and citizen (Izaak Walton League)
- Since the passage of the Clean Water Act in the 1970's many positive changes have been made towards the quality of our waters
- The major "problems" in the Roanoke Valley waters are seen to be:
 - Bacterial contamination – specifically fecal contamination from livestock and pets (this source of contamination is by far the leading problem)
 - Benthic violations (changes in benthic communities resulting from human actions, i.e., land-uses such as construction leading to sedimentation or nutrient runoff after storm events from impervious surfaces.)
 - PCB's – This is a contaminant source that, though it has been banned for nearly 30 years, still has residual traces in the environment due to bio-accumulation
- Possible solutions were noted:
 - Education (this one is key)
 - Structural solutions (silt fences, stream-side fencing for livestock)

It was mentioned that education is a key solution and that structural solutions are not always available as they depend on funding.

- Mr. Hill handed out several sheets with data reflecting information collected from waters in the Upper Roanoke River watershed and made mention that most of this information is available to the public on the VA DEQ website, to include area TMDL studies on listed waters.

The floor was open for final questions and comments from the representatives.

There was a call for other items to discuss. No items were brought to the floor.

The final Year One meeting date was discussed and the meeting was adjourned.

Appendix C

Appendix C map here

Appendix D

CHAPTER 8.1

EROSION AND SEDIMENT CONTROL

Section 8.1-1 TITLE, PURPOSE AND AUTHORITY.

This ordinance shall be known as the "**Erosion and Sediment Control Ordinance of the County of Roanoke, Virginia.**" The purpose of this chapter is to conserve the land, water, air and other natural resources of the County of Roanoke by establishing requirements for the control of erosion and sedimentation, and by establishing procedures whereby these requirements shall be administered and enforced.

Section 8.1-2 APPLICABILITY OF CHAPTER IN TOWN OF VINTON

The provisions of this chapter shall be applicable within the corporate limits of the Town of Vinton. Administrative procedures and review fees may be established to accommodate the review of plans for development located within the town.

Section 8.1-3 DEFINITIONS: As used in the ordinance, unless the context requires a different meaning:

- A. "**Agreement in Lieu of a Plan**" means a contract between the plan-approving authority and the owner which specifies conservation measures which must be implemented in all construction disturbing between 2,500 square feet and 5,000 square feet and/or 250-500 cubic yards; this contract may be executed by the plan-approving authority in lieu of a formal site plan.
- B. "**Applicant**" means any person submitting an erosion and sediment control plan for approval or requesting the issuance of a permit, when required, authorizing land-disturbing activities to commence.
- C. "**Board**" means the Virginia Soil and Water Conservation Board.
- D. "**Certified Inspector**" means an employee or agent of a program authority who holds a certificate of competence from the Board in the area of project inspection.
- E. "**Certified Plan Reviewer**" means an employee or agent of a program authority who (i) holds a certificate of competence from the Board in the area of plan review (ii) is licensed as a professional engineer, architect, certified landscape architect or land surveyor pursuant to Article 1 (Sec. 54.1-400 et seq.) of Chapter 4 of Title 54.1.
- F. "**Certified Program Administrator**" means an employee or agent of a program authority who holds a certificate of competence from the Board in the area of program administration.
- G. "**Clearing**" means any activity which removes the vegetative ground cover including, but not limited to, root mat removal or top soil removal.

- H. **"Conservation Plan," "Erosion and Sediment Control Plan" or "Plan"** means a document containing material for the conservation of soil and water resources of a unit or group of units of land. It may include appropriate maps, an appropriate soil and water plan inventory, and management information with needed interpretations and a record of decisions contributing to conservation treatment. The plan shall contain all major conservation decisions to assure that the entire unit or units of land will be so treated to achieve the conservation objectives.
- I. **"County"** means the County of Roanoke.
- J. **"Denuded"** means a term applied to land that has been physically disturbed and no longer supports vegetative cover.
- K. **"Department"** means the Department of Conservation and Recreation.
- L. **"Development"** means a tract of land developed or to be developed as a single unit under single ownership or unified control which is to be used for any business or industrial purpose or is to contain three or more residential dwelling units.
- M. **"Director"** means the Director of Community Development or his assignee.
- N. **"District" or "Soil and Water Conservation District"** refers to the Blue Ridge Soil and Water Conservation District.
- O. **"Dormant"** refers to denuded land that is not actively being brought to a desired grade or condition.
- P. **"Erosion Impact Area"** means an area of land not associated with current land disturbing activity but subject to persistent soil erosion resulting in the delivery of sediment onto neighboring properties or into state waters. This definition shall not apply to any lot or parcel of land of 10,000 square feet or less used for residential purposes.
- Q. **"Excavating"** means any digging, scooping or other methods of removing earth materials.
- R. **"Filling"** means any depositing or stockpiling of earth materials.
- S. **"Grading"** means any excavating or filling of earth material or any combination thereof, including the land in its excavated or filled conditions.
- T. **"Land-Disturbing Activity"** means any land change which may result in soil erosion from water or wind and the movement of sediments into State waters or onto lands in the Commonwealth, including, but not limited to, clearing, grading, excavating, transporting and filling of land, except that the term shall not include:
1. Minor land-disturbing activities such as home gardens and individual home landscaping, repairs and maintenance work;
 2. Individual service connections;

3. Installation, maintenance, or repairs of any underground public utility lines when such activity occurs on an existing hard-surfaced road, street or sidewalk provided such land-disturbing activity is confined to the area of the road, street or sidewalk which is hard-surfaced;
4. Septic tank lines or drainage fields unless included in an overall plan for land-disturbing activity relating to construction of the building to be served by the septic tank system;
5. Surface or deep mining;
6. Exploration or drilling for oil and gas including the well site, roads, feeder lines, and off-site disposal areas;
7. Tilling, planting, or harvesting of agricultural, horticultural, or forest crops, or livestock feedlot operations; including engineering operations as follows: construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation; however, this exception shall not apply to harvesting of forest crops unless the area on which harvesting occurs is reforested artificially or naturally in accordance with the provisions of Chapter 11 (Sec. 10.1-1100 et seq.) of this title or is converted to bona fide agricultural or improved pasture use as described in subsection B of Sec. 10.1-1163;
8. Repair or rebuilding of the tracks, rights-of-way, bridges, communication facilities and other related structures and facilities of a railroad company;
9. Agricultural engineering operations including but not limited to the construction of terraces, terrace outlets, check dams, desilting basins, dikes, ponds not required to comply with the Dam Safety Act, Article 2 (Section 10.1-604 et. seq.) of Chapter 6 of the Code of Virginia, ditches, strip cropping, lister furrowing, contour cultivating, contour furrowing, land drainage, and land irrigation;
10. Disturbed land areas for all uses of less than 2,500 square feet and/or less than 250 cubic yards in size;
11. Installation of fence and sign posts or telephone and electric poles and other kinds of posts or poles;
12. Emergency work to protect life, limb or property, and emergency repairs; provided that if the land-disturbing activity would have required an approved erosion and sediment control plan, if the activity were not an emergency, then the land area disturbed shall be shaped and stabilized in accordance with the requirements of the plan-approving authority.

U. **"Land disturbing permit"** means a permit issued by the County of Roanoke for the clearing, filling, excavating, grading, transporting of land or for any combination thereof or for any purpose set forth herein.

V. **"Local Erosion and Sediment Control Program"** or **"program"** means an outline of the various methods employed by the County of Roanoke to regulate land-disturbing activities and thereby minimize erosion and sedimentation in compliance with the state program and may include such items as local ordinances, policies and guidelines, technical materials, inspection, enforcement, and evaluation.

- W. **"Owner"** means the owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, lessee or other person, firm or corporation in control of a property.
- X. **"Permittee"** means the person to whom the permit authorizing land-disturbing activities is issued or the person who certifies that the approved erosion and sediment control plan will be followed.
- Y. **"Person"** means any individual, partnership, firm, association, joint venture, public or private corporation, trust, estate, commission, board, public or private institution, utility, cooperative, county, city, town or other political subdivision of the commonwealth, any interstate body, or any other legal entity.
- Z. **"Plan-approving authority"** means the Department of Community Development which is responsible for determining the adequacy of a conservation plan submitted for land-disturbing activities on a unit or units of lands and for approving plans.
- AA. **"Post-development"** refers to conditions that may be reasonably expected or anticipated to exist after completion of the land development activity on a specific site or tract of land.
- BB. **"Pre-development"** refers to conditions at the time the erosion and sediment control plan is submitted to the plan-approving authority. Where phased development or plan approval occurs (preliminary grading, roads and utilities, etc.), the existing conditions at the time the erosion and sediment control plan for the initial phase is submitted for approval shall establish pre-development conditions.
- CC. **"Program authority"** means the County of Roanoke which has adopted a Soil Erosion and Sediment Control Program approved by the Board.
- DD. **"Responsible Land Disturber"** means an individual from the project or development team, who will be in charge of and responsible for carrying out a land-disturbing activity covered by an approved plan or agreement in lieu of a plan, who (i) holds a Responsible Land Disturber certificate of competence, (ii) holds a current certificate of competence from the Board in the areas of Combined Administration, Program Administration, Inspection or Plan Review, (iii) holds a current Contractor certificate of competence for erosion and sediment control, or (iv) is licensed in Virginia as a professional engineer, architect, certified landscape architect or land surveyor pursuant to Article 1 (Sec. 54.1-400 et seq.) of Chapter 4 of Title 54.1.
- EE. **"Single-family residence"** means a noncommercial dwelling that is occupied exclusively by one family.
- FF. **"Stabilized"** means an area that can be expected to withstand normal exposure to atmospheric conditions without incurring erosion damage.
- GG. **"State waters"** means all waters on the surface and under the ground wholly or partially within or bordering the Commonwealth or within its jurisdictions.
- HH. **"Town"** means the incorporated Town of Vinton.
- II. **"Transporting"** means any moving of earth materials from one place to another place other than such movement incidental to grading, when such movement results in destroying the vegetative ground cover either by tracking or the buildup of earth materials to the extent that erosion and sedimentation will result from the soil or earth materials over which such transporting occurs.

Section 8.1-4 ADMINISTRATION OF CHAPTER IN CONJUNCTION WITH SUBDIVISION AND ZONING ORDINANCES.

This chapter shall be administered, where applicable, in conjunction with the county's subdivision and zoning ordinances wherein such apply to the development and subdivision of land within the county or where such apply to development on previously subdivided land within the county.

Section 8.1-5 LOCAL EROSION AND SEDIMENT CONTROL PROGRAM

- A. Pursuant to section 10.1-562 Of the Code of Virginia, the County of Roanoke hereby adopts the regulations, references, guidelines, standards and specifications promulgated by the Virginia Soil and Water Conservation Board and those more stringent local stormwater management criteria which the Board of Supervisors of Roanoke County, Virginia, may adopt by resolution and incorporate into the manual of regulations and policies entitled "**Design and Construction Standards Manual**" for the effective control of soil erosion and sediment deposition to prevent the unreasonable degradation of properties, stream channels, waters and other natural resources. Said regulations, references, guidelines, standards and specifications for erosion and sediment control are included in but not limited to the "Virginia Erosion and Sediment Control Regulations" and the Virginia Erosion and Sediment Control Handbook, as amended.
- B. The County of Roanoke hereby designates the Director of Community Development or his assignee as the plan-approving authority.
- C. The program and regulations provided for in this ordinance shall be made available for public inspection at the office of the Department of Community Development.
- D. Pursuant to Sec. 10.1-561.1 of the Code of Virginia, an erosion control plan shall not be approved until it is reviewed by a certified plan reviewer. Inspections of land-disturbing activities shall be conducted by a certified inspector. The Erosion Control Program of the County of Roanoke shall contain a certified program administrator, a certified plan reviewer, and a certified inspector, who may be the same person.

Section 8.1-6. REGULATED LAND-DISTURBING ACTIVITIES; SUBMISSION AND APPROVAL OF PLANS; CONTENTS OF PLANS

- A. Except as provided herein, no person **SHALL** engage in any land-disturbing activity until he has submitted to the Department of Community Development for the County of Roanoke one of the following for the land-disturbing activity and it has been approved by the plan approving authority.
 - 1. Where the land-disturbing activity results in between 2,500 square feet and 5,000 square feet and/or 250-500 cubic yards of disturbed area, an "**agreement in lieu of a plan**" may be substituted for an erosion and sediment control plan if executed by the plan-approving authority.
 - 2. Where the land-disturbing activity results in between 5,000 square feet and 10,000 square feet and/or 500-750 cubic yards of disturbed area, either a **plot plan prepared by a certified Responsible Land Disturber or an engineered plan** prepared by a professional engineer showing the erosion and sediment control measures must be submitted and executed by the plan-approving authority. A certified Responsible Land Disturber must be named.
 - 3. Where the land-disturbing activity results in 10,000 square feet or more and/or 750 cubic yards or more of disturbed area, **an erosion and sediment control plan** must be submitted which has

been prepared by a professional engineer. For disturbed areas of less than 10,000 square feet, refer to the chart below to determine requirements for the site.

Square Feet	&/or	Cubic Yards	Requirements
<2,500		0	Exempt from E & S Plan; *Building Permit Plot Plan required
2,500-5,000		250-500	"Agreement in Lieu" of a plan; permit fee; *Building Permit Plot Plan required
5,000-10,000		500-750	Certified RLD, *Building Permit Plot Plan by a certified RLD or a P.E.; permit fee
>10,000		>750	RLD, Erosion and Sediment Control Plan prepared by a P.E.; agreement; surety; a *Building Permit Plot Plan, if required by the Building Commissioner

B. *Refer to the Virginia Uniform Statewide Building Code for Building Permit Plot Plan Requirements.

C. If lots in a subdivision are sold to another owner, that person is responsible for obtaining a certified Responsible Land Disturber and submitting a plot plan for each lot to obtain an Erosion and Sediment Control permit.

D. The standards contained with The "Virginia Erosion and Sediment Control Regulations," and The Virginia Erosion and Sediment Control Handbook and those more stringent local stormwater management criteria which the Board of Supervisors of Roanoke County, Virginia, may adopt by resolution and incorporate into the manual of regulations and policies entitled "**Design and Construction Standards Manual**" are to be used by the applicant when making a submittal under the provisions of this ordinance and in the preparation of an erosion and sediment control plan. In cases where one standard conflicts with another, the more stringent applies. The plan approving authority, in considering the adequacy of a submitted plan, shall be guided by the same standards, regulations and guidelines.

E. The plan approving authority shall grant written approval within 45 days of the receipt of the plan, if it is determined that the plan meets the requirements of the local control program, and if the person responsible for carrying out the plan certifies that he or she will properly perform the erosion and sediment control measures included in the plan and will conform to the provisions of this ordinance.

When the plan is determined to be inadequate, written notice of disapproval stating the specific reasons for disapproval shall be communicated to the applicant within forty-five days. The notice shall specify the modifications, terms and conditions that will permit approval of the plan. If no action is taken by the plan-approving authority within the time specified above, the plan shall be deemed approved and the person authorized to proceed with the proposed activity.

F. Responsible Land Disturber requirement. As a prerequisite to engaging in the land-disturbing activities shown on the approved plan, the person responsible for carrying out the plan shall provide the name of an individual holding a certificate of competence, to the program authority, as provided by Section 10.1-561, of the Virginia Erosion and Sediment Control Law, who will be in charge of and responsible for carrying out the land-disturbing activity (the Responsible Land Disturber). Failure to provide the name of an individual holding a certificate of competence prior to engaging in land-disturbing activities may result in revocation of the approval of the plan and the person responsible for carrying out the plan shall be subject to the penalties provided in this ordinance.

However, the plan-approving authority may waive the certificate of competence for an "Agreement in Lieu of a Plan" for construction of a single-family residence meeting the requirements in 8.1-3T (10) of this ordinance. If a violation occurs during the land-disturbing activity, then the person responsible for carrying out the "Agreement in Lieu of a Plan" shall correct the violation and provide the name of an individual

holding a certificate of competence, as provided by Section 10.1-561 of the Virginia Erosion and Sediment Control Law. Failure to provide the name of an individual holding a certificate of competence shall be a violation of this ordinance and may result in penalties provided in this ordinance.

- G. An approved plan may be changed by the plan approving authority when:
1. The inspection reveals that the plan is inadequate to satisfy applicable regulations; or
 2. The person responsible for carrying out the plan finds that because of changed circumstances or for other reasons the approved plan cannot be effectively carried out, and proposed amendments to the plan, consistent with the requirements of this ordinance, are agreed to by the plan approving authority and the person responsible for carrying out the plan.
- H. In order to prevent further erosion, the County of Roanoke may require approval of a conservation plan for any land identified in the local program as an erosion impact area.
- I. When land-disturbing activity will be required of a contractor performing construction work pursuant to a construction contract, the preparation, submission, and approval of an erosion control plan shall be the responsibility of the owner.
- J. Whenever electric and telephone utility companies or railroad companies undertake any of the activities included in subdivisions 1 and 2 of this subsection, they shall be considered exempt from the provisions of this ordinance.
1. Construction, installation or maintenance of electric transmission, natural gas and telephone utility lines, and pipelines; and
 2. Construction of the tracks, rights-of-way, bridges, communication facilities and other related structures and facilities of the railroad company.
- The Board shall have 60 days in which to approve the specifications. If not action is taken by the Board within 60 days, the specifications shall be deemed approved. Individual approval of separate projects within subdivisions 1 and 2 of this subsection is not necessary when approved specifications are followed. Projects not included in subdivisions 1 and 2 of this subsection shall comply with the requirements of the appropriate local erosion and sediment control program. The Board shall have the authority to enforce approved specifications.
- K. State agency projects are exempt from the provisions of this ordinance, pursuant to Section 10.1-564 of the Code of Virginia.
- L. If the grade of a site is more than 33.3%, refer to the International Building Code for Steep Slope Development requirements.

Section 8.1-7. PERMITS; FEES; BONDING; ETC.:

- A. Agencies authorized under any other law to issue grading, building, or other permits for activities involving land-disturbing activities may not issue any such permit unless the applicant submits with his application an approved erosion and sediment control plan and certification that the plan will be followed.
- B. No person **SHALL** engage in any land-disturbing activity until he has acquired a land-disturbing permit, unless the proposed land-disturbing activity is specifically exempt from the provisions of this ordinance, and has paid the fees and posted the required bond.
- C. Fees: An applicant requesting permission to begin land-disturbing activity pursuant to this article shall pay the following fees to cover the administrative expense of review, permitting, and inspection.

Square Feet	&/or	Cubic Yards	Fees	Cap	Requirement
<2,500		<250	\$0.00		None
2,500-5,000		250-500	\$25.00		In Lieu of Agreement
5,000-10,000		500-750	\$50.00		Responsible Land Disturber
>10,000		>750	\$100 + \$100/disturbed acre or portion	\$500.00	Certified Inspector for project
>10,000		>750	\$100 + \$100/disturbed acre or portion		No Certified Inspector for project

- D. Bond: All applicants for permits shall provide to the County of Roanoke a performance bond, cash escrow, or an irrevocable letter of credit acceptable to the Director of Community Development or his assignee, to ensure that measures could be taken by the County of Roanoke at the applicant's expense should the applicant fail, **AFTER PROPER NOTICE**, within the time specified to initiate or maintain appropriate conservation measures required of him as a result of his land-disturbing activity. Should it be necessary for the County of Roanoke to take such conservation action, the County of Roanoke may collect from the applicant any costs in excess of the amount of the surety held.

Within sixty (60) days of adequate stabilization and completion of all other site requirements, as determined by the Director of Community Development or his assignee, such bond, cash escrow or letter of credit, or the unexpended or unobligated portion thereof shall be either refunded to the applicant or terminated.

- E. These requirements are in addition to all other provisions relating to the issuance of permits and are not intended to otherwise affect the requirements for such permits.

Section 8.1-8. MONITORING, REPORTS, AND INSPECTIONS

- A. The County of Roanoke may require the person responsible for carrying out the plan and/or the Responsible Land Disturber to monitor and maintain the land-disturbing activity. The Responsible Land Disturber will maintain records of these inspections and maintenance, to ensure compliance with the approved plan and to determine whether the measures required in the plan are effective in controlling erosion and sedimentation.
- B. The Department of Community Development shall periodically inspect the land-disturbing activity as required under the state program to ensure compliance with the approved plan and to determine whether the measures required in the plan are effective in controlling erosion and sedimentation. If the Director of Community Development or his assignee determines that there is a failure to comply with the plan or if the plan is determined to be inadequate, notice shall be served upon the permittee, person responsible for carrying out the plan or the Responsible Land Disturber by registered or certified mail to the address

specified in the permit application or in the plan certification, or by delivery at the site of the land-disturbing activities to the agent or employee supervising such activities.

The notice shall specify the measures needed to comply with the plan and shall specify the time within which such measures shall be completed. Upon failure to comply within the specified time, the permit may be revoked and the permittee shall be deemed to be in violation of this ordinance and, upon conviction, shall be subject to the penalties provided by this ordinance.

- C. Upon determination of a violation of this ordinance, the Director of Community Development or his assignee may, in conjunction with or subsequent to a notice to comply as specified in this ordinance, issue an order requiring that all or part of the land-disturbing activities permitted on the site be stopped until the specified corrective measures have been taken.

If land-disturbing activities have commenced without an approved plan or proper permits, the Director of Community Development or his assignee may, in conjunction with or subsequent to a notice to comply as specified in this ordinance, issue an order requiring that all of the land-disturbing and/or construction activities be stopped until an approved plan or any required permits are obtained. Failure to comply will result in civil penalties as outlined in Section 8.1-9 of this ordinance.

Where the alleged noncompliance is causing or is in imminent danger of causing harmful erosion of lands or sediment deposition in waters within the watersheds of the commonwealth, or where the land-disturbing activities have commenced without an approved plan or any required permits, such an order may be issued without regard to whether the permittee has been issued a notice to comply as specified in this ordinance. Otherwise, such an order may be issued only after the permittee has failed to comply with such a notice to comply. The order shall be served in the same manner as a notice to comply, and shall remain in effect for a period of seven days from the date of service pending application by the enforcing authority or permit holder for appropriate relief to the Circuit Court of the County of Roanoke.

If the alleged violator has not obtained an approved plan or any required permits within seven days from the date of service of the order, the Director of Community Development or his assignee may issue an order to the owner requiring that all construction and other work on the site, other than corrective measures, be stopped until an approved plan and any required permits have been obtained. Such an order shall be served upon the owner by registered or certified mail to the address specified in the permit application or the land records of the County of Roanoke.

The owner may appeal the issuance of an order to the Circuit Court of the County of Roanoke. Any person violating or failing, neglecting or refusing to obey an order issued by the Director of Community Development or his assignee may be compelled in a proceeding instituted in the Circuit Court of the County of Roanoke to obey same and to comply therewith by injunction, mandamus or other appropriate remedy. Upon completion and approval of corrective action or obtaining an approved plan or any required permits, the order shall immediately be lifted. Nothing in this section shall prevent the Director of Community Development or his assignee from taking any other action authorized by this ordinance.

Section 8.1-9. PENALTIES, INJUNCTIONS, AND OTHER LEGAL ACTIONS

- A. Violators of this ordinance shall be guilty of a Class I misdemeanor.
- B. Civil Penalties:

1. A civil penalty in the amount listed on the schedule below shall be assessed for each violation of the respective offenses:
 - a) Commencement of land disturbing activity without an approved plan as provided in Section 8.6-1 shall be \$1,000/day.
 - b) Vegetative Measures - failure to comply with items 1, 2 and 3 of the Minimum Standards shall be \$100/violation/day.
 - c) Structural Measures - failure to comply with items 2, 4, 9, 10, 11, 15 and 17 of the Minimum Standards shall be \$100/violation/day.
 - d) Watercourse Measures - failure to comply with items 12, 13 and 15 of the Minimum Standards shall be \$100/violation/day.
 - e) Underground Utility Measures - failure to comply with item 16(a) and/or (c) shall be \$100/violation/day.
 - f) Failure to obey a stop work order shall be \$100/day.
 - g) Failure to stop work when permit revoked \$100/day.
 2. Each day during which the violation is found to have existed shall constitute a separate offense. However, in no event shall a series of specified violations arising from the same operative set of facts result in civil penalties which exceed a total of \$3,000, except that a series of violations arising from the commencement of land-disturbing activities without an approved plan for any site shall not result in civil penalties which exceed a total of \$10,000. The assessment of civil penalties according to this schedule shall be in lieu of criminal sanctions and shall preclude the prosecution of such violation as a misdemeanor under Subsection A of this section.
- C. The Director of Community Development or his assignee may apply to the Circuit Court of the County of Roanoke to enjoin a violation or a threatened violation of this ordinance, without the necessity of showing that an adequate remedy at law does not exist.
- D. In addition to any criminal penalties provided under this ordinance, any person who violates any provision of this ordinance may be liable to the County of Roanoke in a civil action for damages.
- E. **Civil Penalty Enumerated:** Without limiting the remedies which may be obtained in this section, any person violating or failing, neglecting, or refusing to obey any injunction, mandamus or other remedy obtained pursuant to this section shall be subject, in the discretion of the court, to a civil penalty not to exceed \$2,000 for each violation. A civil action for such violation or failure may be brought by the County of Roanoke. Any civil penalties assessed by a court shall be paid into the Treasury of the County of Roanoke, except that where the violator is the locality itself, or its agent, the court shall direct the penalty to be paid into the State Treasury.
- F. With the consent of any person who has violated or failed, neglected or refused to obey any regulation or condition of a permit or any provision of this ordinance, the County of Roanoke may provide for the payment of civil charges for violations in specific sums, not to exceed the limit specified in Subsection

B(2) of this section. Such civil charges shall be instead of any appropriate civil penalty which could be imposed under Subsection B or E.

- G. The County's Attorney shall, upon request of the County of Roanoke or the permit issuing authority, take legal action to enforce the provisions of this ordinance.
- H. Compliance with the provisions of this ordinance shall be prima facie evidence in any legal or equitable proceeding for damages caused by erosion, siltation or sedimentation that all requirements of law have been met, and the complaining party must show negligence in order to recover any damages.

Section 8.1-10. APPEALS AND JUDICIAL REVIEW

Any applicant under the provision of this ordinance who is aggrieved by any action of the County of Roanoke or its agent in disapproving plans submitted pursuant to this ordinance shall have the right to apply for and receive a review of such action by the Roanoke County Board of Supervisors. In reviewing the agent's actions, the Board of Supervisors shall consider evidence and opinions presented by the aggrieved applicant and agent. After considering the evidence and opinions, the Board of Supervisors decision shall be final, subject only to review by the Circuit Court of the County of Roanoke. Any applicant who seeks an appeal hearing before the Board of Supervisors shall be heard at the next regularly scheduled Board of Supervisors public hearing provided that the Board of Supervisors and other involved parties have at least 30 days prior notice.

Final decisions of the County of Roanoke under this ordinance shall be subject to review by the County of Roanoke Circuit Court, provided an appeal is filed within 30 days from the date of any written decision adversely affecting the rights, duties, or privileges of the person engaging in or proposing to engage in land-disturbing activities.

Section 8.1.11 CIVIL VIOLATIONS, SUMMONS, GENERALLY.

- A. The Director shall prepare an appropriate "Erosion and Sediment Control Civil Violation Summons" for use in enforcing the provisions of this Chapter.
- B. Any inspector of the plan approving authority charged with enforcing this Chapter shall serve upon any owner or permittee in violation of this Chapter, a summons notifying the owner or permittee of said violation. If unable to serve the owner or permittee in person, the inspector may notify by summons an owner or permittee committing or suffering the existence of a violation by certified, return receipt requested mail, of the infraction. The Roanoke County Sheriff's Office may also deliver the summons. The summons shall contain the following information:
 - 1. The name and address of the person charged.
 - 2. The nature of the violation and ordinance provision(s) being violated.
 - 3. The location, date, and time that the violation occurred, or was observed.
 - 4. The amount of the civil penalty assessed for the violation.
 - 5. The manner, location, and time that the civil penalty may be paid to the County.
 - 6. The right of the recipient of the summons to elect to stand trial for the infraction and the date of such trial.

- C. The summons shall provide that any person summoned for a violation may, within 5 days of actual receipt of the summons or, within 10 days from the date of mailing of the summons, elect to pay the civil penalty by making an appearance in person, or in writing by mail to the Roanoke County Treasurer's Office and, by such appearance, may enter a waiver of trial, admit liability, and pay the civil penalty established for the violation charged and provide that a signature to an admission of liability shall have the same force and effect as a judgment in court; however, an admission shall not be deemed a criminal conviction for any purpose.
- D. If a person charged with a violation does not elect to enter a waiver of trial and admit liability, the County shall cause the Sheriff of Roanoke County to serve the summons on the person charged in the manner prescribed by law. The violation shall be tried in General District Court in the same manner and with the same right of appeal as provided for in Title 8.01 of the Code of Virginia. In any trial for a scheduled violation authorized by this section, it shall be the burden of the County to show the liability of the violator by the preponderance of the evidence. Any admission of liability, or finding of liability shall not be a criminal conviction for any purpose.
- E. The remedies provided for in this section are cumulative, and are not exclusive and, except as provided above, shall be in addition to any other remedies by law.
- F. The owner or permittee may pay the civil penalty to the Treasurer prior to the trial date, provided he also pays necessary court costs in addition to the civil penalty.
- G. Within the time period prescribed in C., above, the owner or permittee, may contest the violation by presenting it to the Director, who shall certify the contest in writing, on an appropriate form, to the General District Court.
- H. Failure to pay the civil penalty, or to contest the violation, within the time period prescribed in C., above, shall result in the immediate issuance of a stop work order and the revocation of the permit, if any.

That the effective date of this ordinance shall be February 1, 2004.

2003 E&S Permits											
*Permit #	*Date Issued	*Project Name	Project # or *In-Lieu of	*Address of Property or Subdivision	*Tax Map Number	*Disturbed Acreage	*Responsible Land Disturber	Land Disturber Certificate #	Certificate Expiration	Phone Number	Company
03-0001	1/2/2003	The Manor @ Kingston Court	02-SB-00021	The Manor @ Kinston Court	86.08-4-32	4.40	Lumsden and Associates	1428-B		774-4411	
03-0002	1/8/2003	Hagey Project	In-Lieu of	3677 Rutrough Road/3787 Rutrough Road	80.00-4-3 & 80.00-02-65	6.35	French Heagy			529-4239	
03-0003	2/17/2003	Bonsack Baptist Church	02-SP-00039	4845 Cloverdale Road	40.01-1-7 & 8	1.00	David Wilson	10901	12/9/2004	342-5187	Joe Bandy & Sons
03-0004	1/13/2003	Hodges, Dwight E.	In-Lieu of	3980 Flint Road	16.02-1-5	n/a	n/a	n/a		384-7751	
03-0005	1/16/2003	Stone Manor Subdivision, Section 1	02-SB-00025	Roselawn and Longview Road	86.01-3-1		Lumsden and Associates	PE	PE	774-4411	
03-0006	1/16/2003	Stone Manor Subdivision, Section 3	02-SB-00026	Roselawn and Longview Road	86.01-3-1		Lumsden and Associates	PE	PE	774-4411	
03-0007	2/6/2003	E. J. Miller	In-Lieu of	Blacksburg Road		>1	owner	n/a		n/a	
03-0008	3/4/2003	Timothy Harris	02-SP-00038	East Augusta Ave	60.2-1-23	n/a	Stephen A. Edwards	1949	PE	n/a	
03-0009	3/4/2003	Vahalla Vinyard	In-Lieu of	Mt. Chestnut Road	75.00-2-59	n/a	Adam Cohen	13641	4/3/2005	774-6500	
03-0010	3/11/2003	Penn Forest Church of God	03-SP-00003	4429 Buck Mountain Road	87.19-1-35,36,37	0.19	Earl W. Cauley, Jr.	15325	12/1/2005	293-8774	
03-0011	3/11/2003	3221/3225 Harborwood Road	In-Lieu of	3221/3225 Harborwood Road	65.00-2-12.1	n/a	Gary Epperly	n/a		387-2122	
03-0012	3/12/2003	Springwood Park Wat/Sew Ext./Springwood Development, Tract "D"	02-SB-00042	Electric Road	77.13-5-39.1	>1	S. Douglas Freeman	14630		774-6500	
03-0013	4/8/2003	Roanoke Athletic Club	03-SP-00002	4508 Starkey Road	87.07-1-27,28,&32	>1	Dave Wilson	10901	12/9/2004	342-5187	Joe Bandy & Sons
03-0014	7/1/2003	Benefit Design Office Building	02-SP-00043	Brambleton Ave	77.09-4-42	0.38	Joe Karnes	14865			Valley Excavating
03-0015	4/10/2003	First Church of God	02-SP-00040	2021 Hardy Road	71.06-3-77&78	1.00	Frank Caldwell	PE9184	PE9184	366-3400	
03-0016	4/10/2003	Winter Mini Storage	02-SP-00043	2055 Washinton Ave	61.15-2-10-&10.1	4.21	Stephen Rossi	6017C		342-6600	
03-0017	4/10/2003	Plantation Shell	03-SP-00001	8040 Plantation Road	18.18-1-12	0.63	Dan Early	PE	PE		
03-0018	4/16/2003	Lowe's Home Improvement	02-SP-00028	4520 Challenger Ave	40.14-1-2.11	14.20	David Farley		1/7/2005	502-533-0572	Hardaway Construction
03-0019	4/28/2003	Martins Automotive Services	03-SP-00004	3704 Brambleton Ave	77.13-3-1	0.88	Randy Kingery	13750	4/16/2005	774-9463	
03-0020	4/29/2003	Novozymes Expansion	03-SP-00008	Corporate Circle	54.00-1-2	0.80	Roger Sturgill	33058	2/25/2005		
03-0021	4/29/2003	Meadowbrook III	02-SB-00018	Off Northbrook Drive	28.05-1-13	9.09	Terry Parsell	12532	12/24/2004		
03-0022	5/5/2003	Kroger Warehouse Expansion	03-SP-00007	3693 Garman Road	55.03-2-3	>1	Michael Williamson	PE38532	PE38532	404-325-3441	
03-0023	5/13/2003	CRT/Glen Mary Landscaping Improvements	n/a	Glenmary Drive	64.01	4.00	Jay Knight/P.E.	P.E.	P.E.	772-2080	
03-0024	5/13/2003	Dixie Caverns Driving Course	n/a	Dixie Caverns Landfill	63.02	n/a	Jay Knight/P.E.	P.E.	P.E.	772-2080	
03-0025	5/13/2003	Indian Grave Road Improvements	n/a	Indian Grave Road	88.03	n/a	Jay Knight/P.E.	P.E.	P.E.	772-2080	
03-0026	6/16/2003	State Farm Office Building	02-SP-00037	Williamson Road	28.05-1-6&7	0.80	Randle E. Woods	12822	1/25/2005	473-3058	Earth Movers, Inc.
03-0027	6/27/2003	Structures Design/A,B,C, & D	03-EC-00004	Route 221	96.01-3-19,19.01,&20	1.00	Adam Cohen	13641	4/3/2005		Structures Design
03-0028	7/24/2003	Seaside Heights, LLC	03-0028	Corner of Colonial and Brambleton Ave		2.20	Gary Dudley	11377	9/24/2004	992-2124	Seaside Heights
03-0029	6/26/2003	Fellowship Community Church	03-SP-00010	Red Lane Ext	45.02-1-15	11.56	Sheldon Henderson	16900	6/27/2006	387-5059	G & H Contracting, Inc.
03-0030	6/26/2003	Dry Hollow Rd	In-Lieu of	Dry Hollow Rd	83.00-1-8	1.50	Sheldon Henderson	16900	6/27/2006	387-5059	GWHE, LLC
03-0031	7/3/2003	Twin Springs, LLC (E&S Plan)	03-EC-00007	Martins Creek Road	94.02-2-15,16,&17	2.00	Joe Karnes	14865		580-1477	
03-0032	7/6/2003	Integrity Windows	03-SP-00011	Valley Gateway Business Park	50.01-1-5	35.00	James Stanley	5147C		777-1312	
02-0029	6/14/2002-7/11/03	Brabham E & S Plan	02-EC-00001	Hardy Road	71.06-1-15	2.42	David R. Short	10578	8/2/2004	330-9783	
03-0033	7/10/2003	Pacheco E&S Plan	In-Lieu of	1387 Longview Road	86.01-6-12	>1	Roger Sturgill	PE33058			
03-0034	7/21/2003	Barry St. John, Inc.	In-Lieu of	Vinton		>1	owner			890-4449	Barry St. John, Inc.
03-0035	7/23/2003	Wolf Creek Interceptor/Pump Station Replacement	03-EC-00008	Town of Vinton			Kevin Jones	14928	10/5/2005		
03-0036	8/5/2003	Hollins University - Tennis Court	03-EC-00009	Williamson Road	27.12-1-7	1.70	James J. Gapinski, P.E.				6/14/2002-7/11/03
03-0037	8/15/2003	Summerplace Subdivision	97-SB-00085	Off Starkey Road	97.01-1-15	35.69	Jeremy Blackstock	17169	8/11/2006	776-8676	

03-0038	8/21/2003	Fink's Jewelers	03-SP-00013	Electric Road	77.18-5-2	2.10	B Lee Henderson	PE17591	PE17591	774-4411	Lumsden Associates
03-0039	8/21/2003	Oak Grove Elementary School, Renovations	03-SP-00015	5005 Grandin Road	76.06-6-1	2.00	Joseph D. Bandy	10907	8/22/2004	342-5187	Joe Bandy & Sons
03-0040	8/21/2003	Mountian View Elemetary School, Renovation	03-SP-00017	5901 Plantation Circle	38.08-3-1	12.00	Russell Short	10578	8/2/2004	520-6025	Russell Short
03-0041	9/4/2003	Oak Knoll at Barrens	03-SB-00007	Barrens Road	27.09-1-1 & 2.1	7.50	Joseph D. Bandy	10907	8/22/2004	342-5187	Joe Bandy & Sons
03-0042		Structures Office Park	03-SP-00019	Electric Road	76.15-1-3	1.40	Adam Cohen	13641	4/3/2005		Adam Cohen
03-0043	9/25/2003	Falling Creek Estates, Sec. 8, Lots 4,5,6,		Falling Creek Estates			Douglas Meredith	PE		345-0675	LMW, PC
03-0044		Mitchell Property E&S Plan	03-EC-00013	Off mount Chestnut Road	75.00-2-39	18.50					
03-0045	10/7/2003	Henderson, Property	In-Lieu of	Mt. Chestnut Road	85.04-1-6,6.1,&7						
03-0046	10/13/2003	Marrow E&S Plan	In-Lieu of								
03-0047	10/22/2003	Lowe's Home Improvement	In-Lieu of								
03-0048	10/28/2003	Dooley Borrow Pit	In Lieu of	Carvins Cove Rd	16.00-1-40.1	11.67	owner			384-6851	
03-0049	10/28/2003	Robert Laucher	In Lieu of	Blacksburg Road	13.00-2-2.3	2.00	owner				
03-0050	11/3/2003	Cardinal Glass--Vinton Business Center	03-SP-00032	off Hardy Road			Jess L. Norman	16933	7/2/2006		
03-0051	10/30/2003	Peggy Murray	In Lieu of	Willow Branch Rd	114.00-2-18.3	4.94	owner			483-3882	520-1020
03-0052	11/4/2003	Wedgewood Subdivision	03-SB-00010		40.13-1-1&2	37.20	P.E.				
03-0053	11/5/2003	Corporate Circle Extension Grading Project	03-SP-00012				Joseph D. Bandy	10907	8/22/2004	342-5187	Joe Bandy & Sons
03-0054	11/12/2003	Old Plantation Mill	03-SB-00017	Route 221	95.01-2-29.1&36	51.80	Howard Clark	17543	10/15/2006	774-1052	Clarks Excavating
03-0055	11/17/2003	Applied Sales	03-SP-00028	Industrail Drive		2.24	Russel Short	10578	8/2/2004	330-9783	
03-0056	11/18/2003	Philpott, Rebecca	In-Lieu of		113.00-1-14		owner				
03-0057	11/20/2003	Hidden Valley Crossing (Titan Trail Subdivision)	03-SB-00001	Pleasant Hill Drive	86.08-4-29	4.91	Michael Christley,2nd	14270	6/27/2007	989-3266	
03-0058	11/20/2003	3001 Beacon Drive	In-Lieu of		87.06-2-20		owner				
03-0059	11/25/2003	Roselawn Offsite Sewer Extension	Roanoke County	Along Roselawn Rd			Phil Martin	PE030630	PE030630	529-9893	Roanoke County
03-0060	12/16/2003	Jessup Office Building	02-SP-00031	Corner of S. Pollard Street	60.19-3-21&22		Joe Karnes	14865	9/28/2005	580-1477	Joe Karnes
03-0061	12/22/2003	Allstate Parking Expansion	03-SP-00031	Keagy Road	67.18-1-9,10,&13		Randell Thomas	5146C	2/28/2004		Randall Thomas

Erosion and Sediment Control Training and Certification

<u>Department</u>	<u>Position</u>	<u># of Employees</u>	<u>Required Certification</u>
Parks and Recreation	Parks maintenance foreman (845)	3	Program Administrator
Parks and Recreation	Parks Crew Leader (842)	7	RLD/Contractor
Utility	Motor Equipment Operator III (733)	2	RLD/Contractor
Utility	Utility maintenance supervisor (880)	1	Inspector
Utility	Utility maintenance foreman (875)	6	RLD/Contractor
Utility	Civil Engineer II (216)	2	Plan Reviewer
Community Development	Drainage Engineer (224)	1	Combined Administrator ?
Community Development	Combination Code Compliance Inspector (308)	8	Inspector
Community Development	Construction Inspector (318)	0	Inspector
Community Development	Development Review Coordinator (321)	1	Program Administrator
Community Development	Stormwater Operations Supervisor (873)	1	Inspector
Community Development	Stormwater Maintenance Foreman (820)	2	RLD/Contractor
Community Development	Motor Equipment Operator III (703)	2	RLD/Contractor
Community Development	Civil Engineer I (214)	2	Plan Reviewer
Community Development	Civil Engineer II (216)	1	Plan Reviewer
Community Development	Planner (256)	2	Program Administrator
Community Development	Associate Planner (206)	3	Program Administrator
Community Development	Senior Planner (278)	1	Program Administrator
<u>Employee</u>	<u>Position</u>	<u>Certification</u>	<u>Expiration Date</u>
Altice, Jeff D.	Stormwater Operations Supervisor (873)	Inspector	31-May-04
Anderson, Doug	Utility maintenance foreman (875)	Contractor	28-Feb-04
Bailey, Jeff A.	Civil Engineer II (216)	PE	
Beard, Tim	Planner (256)		
Booth Jr., Jack E.	Utility maintenance foreman (875)	Contractor	31-Jan-04
Bowles, James E.	Combination Code Compliance Inspector (308)	Inspector	30-Nov-04
Bowles, Mark I	Combination Code Compliance Inspector (308)	Inspector	31-May-07
Brizendine, Michael	Parks maintenance foreman (845)	RLD	1/30/2005
Brokaw, Dan L.	Combination Code Compliance Inspector (308)	Inspector	31-May-06
Bryant, Gary L.	Parks Crew Leader (842)		
Burch, Carlin L.	Motor Equipment Operator III (733)		
Carper, Steve	Combination Code Compliance Inspector (308)	Inspector	31-May-04
Carroll Jr., Curtis (Ronald)	Combination Code Compliance Inspector (308)	Inspector	31-May-04
Coleman, Pete D.	Utility maintenance foreman (875)		
Davis, Wayne R.	Parks maintenance foreman (845)		
Entsminger, Lester	Motor Equipment Operator III (733)		
Fronk, Bob C.	Civil Engineer II (216)		
Gilmore, Phillip G.	Parks Crew Leader (842)		
Hines, Zachary R.	Parks Crew Leader (842)		
Hofberg, Aaron S.	Civil Engineer I (214)		
Holladay, David	Senior Planner (278)		
Holland, Dale L.	Combination Code Compliance Inspector (308)	Inspector	31-May-04
Leonard, Raymond J.	Stormwater Maintenance Foreman (820)		
Looney, Benjamin L.	Parks Crew Leader (842)		
Lowe, Chris	Planner (256)		
Martin, Phillip A.	Civil Engineer II (216)	Contractor	31-Jan-04
Mossor, Carl R.	Utility maintenance supervisor (880)	Contractor	18-Apr-04
Mundy, Walter R.	Parks Crew Leader (842)		
Murphy, John	Associate Planner (206)		
Neighbors, Frankie	Stormwater Maintenance Foreman (820)		
Richardson, Bill	Associate Planner (206)		
Robertson, Berkley	Utility maintenance foreman (875)	Contractor	28-Feb-04
Shrewsbury III, Joel	Combination Code Compliance Inspector (308)	Inspector	30-Nov-05
Simpson Jr, Will	Civil Engineer I (214)		
Sledd Jr, Kenneth R.	Utility maintenance foreman (875)	Contractor	28-Feb-04
Sowder, Denise N.	Development Review Coordinator (321)		
Sowers, William M.	Parks Crew Leader (842)		
Vaught, Micheal L.	Utility maintenance foreman (875)	Contractor	31-Jan-04
Waller, Danny L.	Parks Crew Leader (842)		
Wilson, Chuck D.	Parks maintenance foreman (845)		
Wood, Tammi	Associate Planner (206)		
Workman, Butch	Drainage Engineer (224)		
Yates, Morgan (Robert)	Combination Code Compliance Inspector (308)	Inspector	31-May-07

Appendix E

Breakdown of Participants
Household Hazardous Waste Collection Day
September 13, 2003

Locality	# of Participants
City of Roanoke	457
Roanoke County	457
Botetourt County	82
Salem	84
Vinton	39
Bedford County	9
Franklin County	6
Blacksburg	1
Total	1135

Advertising of Event	# of Responses
Newspaper/Magazine	572
RVTv	108
RCC Marquee	111
City's Website	41
Place of Worship	31
City Employee	52
Radio	65
Other	77
Total	1057

Note: Participation totals may be under-reported due to inability to tally several count sheets accurately because of water damage sustained during rain.

Upcoming Events

Sat., September 13, 2003 - Household Hazardous Waste Collection Day

Citizens throughout the Roanoke Valley are invited to rid their homes of poisons, flammables, corrosives and other materials by bringing them to the city of Roanoke's Household Hazardous Waste Collection Day on Saturday, September 13, 2003. The collection will be held at the Roanoke Civic Center parking lot, 9:00 a.m. to 2:00 p.m., rain or shine.

This free event, coordinated by the city of Roanoke with assistance from Roanoke and Botetourt Counties, Salem, the town of Vinton, will allow residents to dispose of items in an environmentally responsible manner. Certain items cannot be accepted, including tires, explosives, medical waste and radioactive waste, including smoke detectors. Also, commercial waste will not be accepted. For more information, contact Paul Truntich at 853-2425.

The following items will be accepted.

- Latex and oil paints in any size can. Paint can be liquid or dried.
- Aerosol cans of any kind
- Paint-related products, such as paint thinner, stains, turpentine, polyurethane, polishes and acetone
- Automotive products, including motor oil, brake fluid, antifreeze and gasoline
- Any battery, from car and truck batteries to button batteries, lead acid batteries, alkaline batteries, nickel cadmium batteries and lithium batteries
- Propane gas cylinders, 20 pound and 30 pound
- Mercury debris (including thermometers)
- Gardening supplies, such as solid or liquid pesticides, insecticides, herbicides and fertilizers
- Household cleaners, such as bleach, oven cleaners, bathroom cleaners and any other alkaline/corrosive or acid cleaner
- Polychlorinated biphenols (PCBs, for example, electrical switches and ballasts)
- Fluorescent bulbs

Please do not bring regular household waste, tar or asbestos. These may be disposed of in regular trash.

Do not bring tires, explosives, medical waste or radioactive waste (including smoke detectors). These wastes cannot be accepted. For information on how to properly dispose of these wastes, call Paul Truntich at 853-2425.

NO COMMERCIAL WASTE WILL BE ACCEPTED.

Not sure what you've got?

If you have some "unknown," unlabeled wastes lurking under the sink or in the basement, chemists on site can test their contents.

KIDS, NEVER TOUCH HAZARDOUS MATERIALS. ASK YOUR PARENTS TO PACKAGE THESE PRODUCTS.

2003 Storm Drain Maintenance and Construction Projects

<u>Project Description</u>	<u>Date</u>	<u># of Men</u>
Worked on pumps, filter box and liner under pond at Dixie Caverns.	1/6/03	4
Worked on as-builts for storm sewer we installed at Valley Gateway.	1/8/03	4
Cleaned off trash racks at HVHS	1/16/03	4
Pumped water at Georgetown Park to keep houses from flooding.	2/22/03	4
Pumped water at Sierra/ Fenwick to keep houses from flooding.	2/22/03	4
Cleaned debris from in front of pipe at Cave Spring Ln.	2/25/03	4
Cut up tree that fell across creek at Palm Valley.	2/25/03	4
Repaired 24" conc. pipe that collapsed at 5825 Cavalier Dr.	2/26/03	4
Removed bricks and blocks from in front of pipe inlet at 3438 Greencliff Rd.	3/5/03	4
Cleaned off trash racks at HVHS	3/5/03	4
Attended NPDES Presentation in Henrico County.	3/6/03	4
Graded road on Will Carter Ln. in Suncrest Heights.	3/7/03	4
Hauled a load trash To Transfer Station from Green Valley.	3/10/03	4
Filled in sink hole at 5546 Deer Park Dr.	3/10/03	4
Filled in sink holes beside DI-7's at 4912 Huntridge Rd.	3/10/03	4
Dug out silt traps at Dixie and helped Jerry work on road.	3/12/03	4
Dug out mud and silt from on top of DI at 5657 Spring Meadow.	3/13/03	4
Fixed rip-rap at outfall of spillway at HVHS.	3/14/03	4
Finished restoration on back yard at 360 Dent Rd.	3/17/03	4
Pumped water out of inlet in front of 5820 Santa Anita Terrace for VDOT	3/20/03	4
Built/ installed guard rail beside drainage channel at 6318 Peters Creek Rd.	3/23/03	4
Hauled another load of trash to Transfer Station from Green Valley.	3/24/03	4
Took slit seeder to 12 o'clock Knob Rd. and reseeded job Lewis did.	3/25/03	4
Shoveled out dirt that built up at outfall of pipe at 3300 Dawn Cir.	3/26/03	4
Picked up trash in pond and cleaned off trash racks at HVHS.	3/26/03	4
Filled sinkhole and repaired MH at 5050 Orchard Park Dr.	2/27/03	4
Dug out silt and stacked rocks on banks of channel at 4704 Wipplewood	3/27/03	4
Hauled another load of trash to Transfer Station from Green Valley.	3/31/03	4
Worked on meter at pond at Dixie and helped Jerry on the road again.	4/10/03	4
Hauled another load of trash to Transfer Station from Green Valley.	4/14/03	4
Hauled another load of trash to Transfer Station from Green Valley.	4/21/03	4
Pulled tree out of creek at Palm Valley	4/22/03	4
Cleaned off trash racks at HVHS	4/22/03	4
Reseeded yards where we tore down houses at Palm Valley.	4/24/03	4
Cut grass around pond at Dixie.	4/28/03	4
Helped Larry TV storm drain lines at Kentland and Bower	5/2/03	4
Pumped water at Sierra/ Fenwick to keep houses from flooding.	5/15/03	4
Helped Larry TV 3 lines at 2044 Denise Cir.	5/21/03	4
Cleared vines and trees from around IFLOWS station on Sugarloaf Mt. Rd.	5/28/03	4
Cleaned off trash racks at HVHS	5/30/03	4
Cut grass around pond at Dixie.	6/3/03	4
Installed 100' of 24" drain pipe under new road under construction at Dixie	6/12/03	4
Graded road on Will Carter Ln. in Suncrest Heights.	6/13/03	4
Dug out ditch and opened up end of pipe that was crushed on Cresthill Dr.	6/19/03	4
Pumped water out of back yard on Goff Rd.	6/19/03	4
Cleaned off trash racks at HVHS	6/20/03	4
Installed MH,cutoff wall, and pipe to catch ground water on Loch Haven Rd	6/23/03	4
Cleaned out 2 MH's and fixed slope failure at HVHS.	6/14/03	4
Cleared out sediment pond and restored top area in front of HVHS.	6/17/03	4
Filled in low area between houses and restored yard at 3415 Cedarmeade.	6/17/03	4
Cleaned off trash racks at HVHS	6/21/03	4

Cut a swale from tennis courts to creek and rip-rapped bank at HVHS	6/22/03	4
Repaired fence post and rail that trash truck broke at Brandywine.	6/30/03	4
Added rip-rap and portland to channel at 5342 Huntridge Rd.	6/31/03	4
Added rip-rap to channel at 4017 Apple Tree Dr.	6/31/03	4
Filled in sink hole at palm Valley.	7/4/03	4
Cut up tree that fell across easement behind 3827 Hummingbird Ln.	7/5/03	4
Cleaned off trash racks at HVHS	7/5/03	4
Installed gate posts and cable at entrance to dump on Cove Rd.	7/6/03	4
Cut trees and cleared easement around DI-7 at the end of Byron Cir.	7/6/03	4
Moved rip-rap around in ditch so water wouldn't pond up at Woodmere int.	7/7/03	4
Cleaned off trash racks at HVHS	7/11/03	4
Cut grass around pond at Dixie.	7/11/03	4
Replaced 48" pipe that washed out of the ground at 6210 Buckland Mill Rd.	7/12/03	4
Worked on filling slope and digging out DI-7s at HVHS	7/14/03	3
Compacted slope, seeded, fertilized, stapled straw blanket, graded around DI-7s	7/15/03	4
Spread dirt at HVHS, hauled, spread and compacted 4 loads of fill at Cedarmeade	7/16/03	4
Hauled, spread, compacted 4 loads fill, spread 2 loads topsoil at Cedarmeade	7/17/03	4
Spread portland over rip-rap, silt fence, seeded fertilized, strawed – Cedarmeade	7/18/03	4
Cut brush and weeds on lot between creek and house on Stonebridge Cir.	7/21/03	4
Cut and graded swale at HVHS, spread rip-rap and coconut straw blanket	7/22/03	4
Built forms for V-ditch at 3190 Loch Haven Rd	7/23/03	2
Finished forms	7/24/03	2
Restored, seeded, strawed at Loch Haven	7/28/03	3
Hauled another load of trash to Transfer Station from Green Valley.	8/3/03	4
Filled sink hole at Palm Valley	8/4/03	4
Mowed 3 lots on West River Rd. where we tore down houses.	8/5/03	4
Cut trees and cleaned D.E. at DI-7	8/6/03	4
Checked straw and trash rack at HVHS, hauled brush	8/11/03	4
Cleaned grates at HVHS, cleared silt from DI-7 at Spring Meadow	8/12/03	4
Reset two joints at 6210 Buckland Mill Rd	8/13/03	4
Cleared area in front of pipe, spread rip-rap, 6210 Bucklad Mill Rd.	8/14/03	3
Spread a load of crusher run on driveway at Dent Rd.	8/16/03	4
Cleaned off trash racks at HVHS	8/19/03	4
Fixed low spot in driveway with #8 stone at corner of Colony & Thompson	10/10/03	3
Cleaned off trash racks at HVHS, and cut trees off side of dam.	10/15/03	3
Cleaned off trash racks at HVHS.	10/10/03	3
Cut grass around pond at Dixie.	10/13/03	3
Cut up tree and hauled away that fell down at 3604 Cedar Ln	10/17/03	3
Filled sandbags and took to 3 houses on Stonebridge Cir	10/18/03	3
Cut up tree that fell across easement behind 3819 Hummingbird Ln.	10/19/03	3
Cleaned off trash racks at HVHS.	10/21/03	3
Started on clearing, grading lots, and widening channel at stonebridge.	10/24/03	3
Spread 3 single axle and 3 tandem loads of fill in ditch at Hyde Park	10/30/03	3
Hauled 12 loads of fill to Hyde Park, Hauled 1 load of trash to Cove Rd.	10/31/03	3
Hauled more fill from Roselawn to Hyde Park	11/3/03	3
Finished ditch behind 3850 Bower, installed joint to 15" storm drain 3857 Vauxhall	11/4/03	3
Finished right side of ditch 3844 & 3838 Bower, buried 3 down spout drains	11/5/03	3
Cleaned brush out of ditch at Bower	11/7/03	5
Cleaned off trash racks at HVHS	11/10/03	5
Dug out area between 15" pipe and concrete channel and formed for concrete	11/10/03	5
Cleared silt traps at Hyde Park, formed 4 new pads at Hyde Park	11/11/03	5
Poured 4 pads, broken corner from previous pad, and v-ditch at Hyde Park	11/12/03	5
Spread topsoil, raked, seeded, fertilized area behind 3851 & 3845 Vauxhall	11/12/03	5
Cut grass around pond at Dixie	11/13/03	5
Hyde Park – formed for concrete, added fill to ditch to repair wash-out	11/14/03	5
Finished cutting grass around pond at Dixie, Cut tree in right-of-way, 3604 Cedar Ln	11/17/03	4

Filled sandbags and installed flood gate on back door of Cole residence	11/18/03	4
Placed 22 sandbags behind 2982 Stonebridge and 2 behind 2988 Stonebridge	11/18/03	4
Cleared tree from drainage easement at 3819 Hummingbird Ln	11/19/03	5
Cleaned off trash racks at HVHS, cleared silt from Hyde Park	11/21/03	5
Cut and chipped trees and brush at Stonebridge Cr.	11/24/03	3
Hauled brush and stumps from Stonebridge	11/25/03	3
Hauled brush and stumps from Stonebridge	11/26/03	3
Started cutting concrete at Stonebridge, placed sandbags to divert water	12/1/03	4
Shot grades in channel to verify cross-sections from plans	12/1/03	4
Finished cutting concrete, dressed back area for seeding, shaped channel	12/2/03	6
Seeded and strawed back area, hauled roots and dirt to cove rd	12/3/03	6
Checked 54" storm drain - 907 Starmount Ave, checked Ingal Blvd, found sinkhole	12/5/03	6
Cut brush from front of pipe outlet at Sunnyvale	12/9/03	6
Chipped brush at West River Rd., hauled to transfer station	12/10/03	6
Cut trench from a low spot at Stonebridge	12/12/03	6
Placed pins beside stakes on Manasses, located MH at 2964 Stonebridge	12/19/03	6
Hauled concrete from Stonebridge, hauled 2 loads dirt to Wolf Creek	12/29/03	5
Dug and hauled tandem and single-axle load from Stonebridge to Wolf Creek	12/30/03	5
6 single loads to resident on Stonebridge Dr, 3 tandem & 2 single loads to HHES	12/30/03	5
Cut, chipped, and hauled trees at Stonebridge Cir	12/31/03	6