Wastewater Authority Addresses Stormwater at New Hardy County Facility

March 3, 2014- The Moorefield Regional Wastewater Treatment Plant, located in Hardy County, West Virginia went online October of 2013 and will become one of the most significant nutrient reducing components in West Virginia's plan to meet the Chesapeake Bay TMDL. The plant will reduce total nitrogen loads by 90,000 pounds annually and total phosphorus by 93,000 pounds a year. Composting solids will soon become a big step in making further reductions along with recycling some of the water utilized in the process to save resources.

Additionally, stormwater runoff is being addressed at the facility with the conversion of a sediment trap from the construction phase into a Class 2 bioretention area. The rain garden is designed to manage the first inch of rainfall on-site using an extended filtration design with an underdrain as detailed in the West Virginia Stormwater Management and Design Guidance Manual. The area draining to the bioretention filter is comprised of Monongahela silt loam (MhB). The facility site totals 6 acres; however, 2 of those acres are comprised of open topped wastewater treatment tanks. The remaining 4 acres can be broken into 4 different drainage areas that vary in size from 0.5 acre to 2.0 acres. The contributing drainage area (CDA) for this bioretention filter is comprised of 2 acres. The structure is designed for a volume of a 1 inch storm at 54,300 gallon with a surface area of bioretention at 2,500 SF. The filter entails a 2 inch depth of shredded hardwood mulch; a soil media made up of 70% silica based coarse sand, 25% loamy sand, and 5% compost. Number 2 choker stone was used at a 2 inch minimum depth with 12 inches of number 57 underdrain stone. A 6 inch schedule 40 underdrain pipe was installed along with a minimum 2 foot wide overflow channel stabilized with 4 inch gabion stone. The overflow elevation is set to be 6 inches above the invert in of the pipes. Native plants were planted by the contractor.

A typical rain garden is a planted depression or a hole that allows rainwater runoff from impervious urban areas, like roofs, driveways, walkways, parking lots, and compacted lawn areas, the opportunity to be absorbed. This reduces rain runoff by allowing stormwater to soak into the ground (as opposed to flowing into storm drains and surface waters which causes erosion, water pollution, flooding, and diminished groundwater). The purpose of a rain garden is to improve water quality in nearby bodies of water. Rain gardens can cut down on the amount of pollution reaching creeks and streams by up to 30%.

This stormwater demonstration was installed cooperatively by the Wastewater Authority and the West Virginia Conservation Agency. For more information on this project, contact Carla Hardy at chardy@wvca.us .