Beautified environment rids base of stormwater

By Delonte Harrod
Pentagram Staff Writer

PHOTOS BY DELONTE HARROD

The bioretention area across from the bowling center is shown.

Shown is the permeable pavement across from the bioretention area. This shows the concrete layer of the permeable pavement that has cracks for water to pass through.

This is one of many parking lot inlets on the side of the bioretention area of the Stormwater BMP. Water drains into this inlet and is first filtered by stones before flowing into the grass and then down into the canal.

For months, landscapers worked behind a fence transforming more than half an acre of land into something that would ultimately benefit Joint Base Myer-Henderson Hall. The fence is gone and what remains is an aesthetically beautified area with a specific purpose, to rid the joint base of pollutants.

The new area is called a Stormwater Best Management Practice. It is strategically engineered to help filter out pollutants in the stormwater runoff from the property of the Joint Base Myer-Henderson Hall, according to Jenny Tolbert, stormwater program manager at JBM-HH.

"Stormwater BMPs help to control stormwater pollution in our local waterways by removing pollutants and/or controlling the quantity of water flowing into local streams," Tolbert explained. "They are non- structural practices and procedures, such as street sweeping, or structural. This project is an example of a structural BMP."

According to the Environmental Protection Agency, structural BMPs alter a location by planting shrubs, adding sand, and changing structures. A portion of the parking lot — more than half an acre, according to Tolbert — in front of the bowling alley was converted into two BMPs: a bioretention area and permeable pavement. The bioretention area is furnished with two budding trees, shrubs and small plants, which are positioned along the outer rim of a canal-like area in mulch. The outer "rim" of that area is enclosed with green grass and trees.

On the inside of the canal-like area, are two overflow inlets and a drainage system, which is surrounded by stones. The area also has parking lot inlets, where water from the parking lot along McNair Road is directed into the bioretention area.

When water flows into this area it gets filtered by the rocks, shrubs, small plants and trees as it is absorbed into the ground and eventually flows into streams.

The area next to the bioretention area containing permeable pavement looks like a smooth slab of thin concrete. However, it is constructed for a specific purpose. Its purpose is also to assist with filtering stormwater of its pollutants. The slab of concrete is intentionally engineered with pores so that stormwater can seep through the pavement to the ground and into multiple layers of soil and rocks. In doing so, it is naturally being treated for its pollutants. After traveling through multiple layers it is then guided into a drainage pipe.

Specifically speaking, Tolbert said bioretention area and permeable pavement reduces the amount of nitrogen, phosphorus, and sediment that flow into the Chesapeake Bay via the Potomac River. Nitrogen, phosphorus, according to the Chesapeake Bay Foundation, comes from sewage treatment plants, animal feedlots, and polluted runoff from cropland, urban, and suburban areas. An increase of nitrogen and phosphorus decreases oxygen in the water, resulting in the death of underwater creatures and the unneeded growth of parasites.

"JBM-HH lies within the Potomac River watershed," said Tolbert. "Stormwater discharges from the installation flow to the Potomac River via an unnamed stream that flows through the Arlington National Cemetery; Arlington County storm drains with the Rocky Run watershed; or Lower Long Branch, which drains to Four Mile Run before meeting the Potomac River."

Engineering and installing an intricate system that combats stormwater pollutants has been years in the making. First, it must be noted that Fort Myer is complying with the Environmental Protection Agency's 2010 total maximum daily load, or TMDL for short, for the Chesapeake Bay mandate. According to the EPA, the TMDL is an accountability plan to reduce the pollution in the Chesapeake Bay via the region's creeks, rivers, and streams.

"TMDL is," Tolbert said, "the maximum amount of pollution that can be discharged into a waterway before water quality falls below regulatory standards."

The mandate was put in place because, according to the EPA's website, there was "insufficient progress and poor water quality in the Chesapeake Bay and its tidal tributaries."

"The TMDL was required under the federal Clean Water Act and responded to consent decrees in Virginia and the District of Columbia from the late 1990s. It was also a keystone commitment of a federal strategy to meet (former) President Barack Obama's Executive Order to restore and protect the Bay," reads the act of the EPA's website.

The Virginia Department of Environmental Quality, according to Tolbert, "further (allocated) the TMDL to small municipalities, industrial facilities, and federal facilities."

"Over the course of three permit cycles, VADEQ expects permitted entities to reduce pollutant concentrations in existing stormwater discharges to meet TMDL allocations," Tolbert said. "The installation has a set amount of each of these pollutants that it is required to reduce from its stormwater runoff by 2025."

Installing the stormwater BMPs was a strategic move. The place where the BMPs now reside was once a place, as Tolbert described, of "a paved, impervious surface," in which the stormwater was incapable of passing through the pavement. Stormwater that is unable to pass through the pavement can't be filtered--and therefore potentially picks up more pollutants as it flows along the surface.

"This project involved the removal of that impervious pavement and replaced it with pavement that allows the water to infiltrate the ground," said Tolbert.

Tolbert and her team look to replace other impervious pavements as well. She said they have plans to convert another grass area in that same parking lot into a bioretention area. In addition, they look to convert an area along Sheridan Avenue, near Hatfield Gate into a bioretention area. There are also plans to convert impervious pavement to permeable pavers in an overflow lot off Pershing Drive, said Tolbert. There are plans to transform a small grass area near the Fitness Center parking lot into bioswales, areas designed to concentrate or remove debris and pollution out of surface runoff water.

"All of these BMPs are designed to help reduce pollution in local waters, with the added benefit of being aesthetically pleasing," said Tolbert.

Pentagram Staff Writer Delonte Harrod can be reached at dharrod@dcmilitary.com.