

**GROWING GREENER GRANT APPLICATION
QUITTAPAHILLA CREEK
BMP SITE 3
LEBANON VALLEY CONSERVANCY**

PROJECT DESCRIPTION

April 2, 2007

EXECUTIVE SUMMARY

A total maximum daily load (TMDL) has been developed for the **Quittapahilla Watershed** to address impairments noted in Pennsylvania's 1996 and 1998 303(d) list and the 2000 305(b) report. This TMDL states, "Excessive sediment and nutrient loads resulting from agriculture activities have been identified as one of the primary causes of impairment in the basin". This TMDL also states, "best management practices will be installed throughout the watershed to achieve the necessary loading reductions."

This grant request would provide funding for the design, permitting, and construction of the first Best Management Practice (BMP) implementation. BMP Site 3 was one of nine available sites identified in the December 2006 Quittapahilla Creek Watershed Assessment - Restoration and Management Plan. Site 3 was selected as the first site for implementation due to the fact that Lebanon County owns the majority of the land area required to construct the BMP and has agreed to donate the land for this use. Once constructed, this BMP will remove an estimated 240 tons of sediment, 2,500 pounds of nitrogen, and 140 pounds of phosphorous annually.

STATEMENT OF ENVIRONMENTAL NEED

Quittapahilla Creek is located in Lebanon County, Pennsylvania (Figure 1). U.S. Route 422 parallels most of the Quittapahilla Creek mainstem. The watershed can be accessed by traveling east on U.S. Route 422 from Hershey, Pennsylvania, or west on U.S. Route 422 from Reading, Pennsylvania. The stream originates in South Lebanon Township and flows for 16.8 miles to its confluence with Swatara Creek near Valley Glenn. There are seven named tributaries in the watershed: Killinger Creek, Gingrich Run, Buckholder Run, Bachman Run, Beck Creek, Snitz Creek, and Brandywine Creek (Figure 2). Quittapahilla Creek drains 77 square miles of the Ridge and Valley and the

Piedmont physiographic provinces. Protected uses of the Quittapahilla Creek watershed include aquatic life, water supply, and recreation. The entire basin is currently designated as Trout Stocking in Title 25 Pa. Code Department of Environmental Protection Chapter 93, Section 93.9o (Commonwealth of Pennsylvania, 1999).

Land use in the basin is dominated by agriculture (67%). Development covers nearly 13% of the basin, with the city of Lebanon and Palmyra Borough being the largest urban areas. Slightly more than 18% of the Quittapahilla Creek basin can be described as “open space” (i.e., forest, wetlands, and/or water bodies).

Surveys conducted in the Quittapahilla Creek watershed by the Department in 1989, 1996, and 1999 clearly identified aquatic life use impairments due to extensive agricultural activities. Lack of riparian vegetation, pastures, croplands that extended right up to streambanks, and unrestricted livestock access to streams have allowed excessive levels of sediment and nutrients to reach surface waters. These same conditions were noted in the watershed during a site visit conducted in August 2000 as part of the TMDL development. Excess nutrients were causing increased algae growths (Figure 4), and sediment deposited in large quantities on the streambed was degrading the habitat of benthic macroinvertebrates (Figure 4).

TMDLs were developed for the Quittapahilla Creek watershed to address siltation, suspended solids, and nutrient impairments identified in Pennsylvania’s 1996 and 1998 303(d) lists and 2000 305(b) report. The 1996 303(d) list included 23.7 miles of impaired streams in the Quittapahilla Creek basin (Table 1). Designated use impairments attributed to nutrient enrichment from agricultural activities were identified in the Bachman Run, Beck Creek, Killinger Creek, and Snitz Creek basins. These listings were the result of chemical and biological sampling conducted by the Department’s Central Office in 1989. The sampling was done as part of a special nonpoint source survey. Chemical sampling consisted of one-time grab samples. Biological sampling included kick screen sampling of benthic macroinvertebrates. Benthic macroinvertebrates were identified to family in the field. Water samples contained elevated levels of nitrogen and phosphorus. Benthic macroinvertebrate communities consisted of five or fewer families.

