

UPPER ZEKIAH SWAMP WATERSHED MS4 RETROFIT INVESTIGATION



DESCRIPTION

PHOTOS

Charles County, MD

BayLand performed an assessment of the Zekiah Swamp Watershed (51.8 square miles) to identify potential sites for implementing pond retrofits, stream restoration, or implementing other types of stormwater management (SWM) best management practices (BMPs) to achieve pollutant and impervious area reduction credits. The work was done to comply with requirements in the County's National Pollutant Discharge Elimination System Municipal Separate Storm Sewer System (MS4) Permit. The permit requires the County to achieve nutrient and sediment reductions equivalent to treatment of 20% of its untreated impervious surface area within the 5-year permit term to the maximum extent practicable.

BayLand prepared a report which included a summary of the assessment methodology, the proposed Capital Improvement Program (CIP) projects, and the estimated impervious area and pollutant reduction credits that could be achieved for each potential stream restoration and SWM BMP CIP project.

Stream Assessment:

BayLand conducted a pre-investigation search by reviewing available Geographic Information System data, previous watershed and stream assessment reports, Maryland Biological Stream Survey index ratings, aerial photos, and other geographic data. BayLand conducted a field review of targeted sites and investigated visual signs of water quality impairments, existing vegetation, bank and bed erosion, and channel instability. The most unstable sites were priorities for restoration. BayLand identified 8 potential stream restoration projects and estimated the contributing drainage area, pollution reduction credits, preliminary property ownership, and prepared planning level construction cost estimates for each project.

Stormwater Management Assessment:

BayLand conducted a SWM assessment to identify potential CIP BMP projects such as pond retrofits, outfall retrofits, rooftop disconnects, regenerative step pool storm conveyance systems, sheet flow to conservation areas, infiltration and filtration systems, impervious removal/reforestation, bioretention, and other practices. BayLand used County data to locate BMP sites, conducted a desktop review of as-built drawings to identify suitable sites for retrofitting, and performed a field investigation to document existing conditions and to further investigate the suitability for retrofitting. BayLand also evaluated the feasibility of installing new BMPs as needed to achieve the necessary impervious area reductions. BayLand narrowed the selected sites into 16 potential SWM projects within the Upper Zekiah Swamp watershed.

Client | Charles County Department of Public Works

Engineer | BayLand

Completed | 2015

