

MEBANE, NC

INSUFFICIENT STORMWATER SYSTEMS

The customer requested maintenance of stormwater management principles located on the property. Lack of routine preventive maintenance had caused overgrowth, leading to insufficient stormwater systems.

PROBLEM

Two ponds on the property exhibited significant areas of bare vegetation and active erosion. Without proper treatment, these conditions escalate to increased sedimentation, and reduced pond capacity potentially causing safety hazards. Excessive sediment buildup in the ponds impacted their effectiveness and would have led to flooding. Understanding the potential for extended damage, the property owners agreed to conduct repairs now before full failure.

Pond 1, in particular, featured a monoculture of cattails along its banks, limiting vegetation diversity and potentially impacting habitat value. Cattails are an invasive species that can choke out beneficial vegetation within a system and harbor mosquitos. Additionally, vegetation around the pond's inlets was overgrown, causing restrictions to water flow and contributing to further erosion. The dissipator pad at the pipe opening was also missing. Dissipator pads are used to reduce the erosive force of stormwater runoff. A missing dissipator pad heavily contributes to water inlet velocity. Due to this missing component, incoming water eroded the area around the inlet pipes.

In pond 2, there was an overgrowth of vegetation within the spillway. A spillway was created so that water could flow freely over a dam during floods. However, the overgrowth of vegetation was preventing this process from properly happening, potentially increasing the risk of water backup or overtopping. Remnants of previous repairs also needed to be removed. These materials not only detracted from the overall appearance of the site but posed potential safety hazards and interfered with proper maintenance as well.

A missing dissipator pad at the pipe opening prevented proper water flow. Overgrowth threatened the stability of the ponds and necessitated restoration and erosion control measures. Several areas lacked sufficient soil, which prevented adequate nutrients from promoting healthy vegetation growth in bare areas. Lacking proper soil conditions increased the risk of continued erosion and sediment migration into the pond system.





SOLUTIONS

This type of project is commonly performed by AQUALIS. Often municipalities require inspections every 3 or 5 years, which is a common timeframe for regular repairs. To start the project, pond 1 was scarified, meaning the team cut and removed debris using proper tools. The area was then treated with seed and erosion control matting. Team members used a mini excavator to remove all cattails that had overgrown in the littoral zone. The littoral zone is the shallow area near the shoreline of a body of water. Sunlight hits the bottom of this area, allowing aquatic plants to thrive, which is why regular maintenance of the littoral zone is essential. Bulk cattail clipping allowed access for dewatering and debris removal.

All overgrown vegetation around the inlet was cut and removed. The severely eroded area below the double-barrel HDPE (high-density polyethylene) pipes was regraded. These pipes are known for their durability and resistance to corrosion, making them ideal for stormwater applicators. After, the pond was stabilized with seeding and matting. A rip rap dissipator was installed in front of the pipes to help prevent future erosion, and filter fabric was placed below the new dissipator pad.

Team members stabilized all bare areas along the interior embankment of Pond 2, using seed and matting. Overgrown vegetation was removed from the spillway, restoring proper water flow. Team members removed all trash and debris from the fence line for disposal. Following final cleanup and demobilization, the team left the property in significantly improved condition. Both ponds were successfully restored to proper working order, ensuring compliance and reducing the risk of future erosion or flooding.