



Stormwater Design, Billington Street Park

Town of Plymouth, Massachusetts

The Horsley Witten Group, Inc. (HW) assisted the Town of Plymouth with two separate projects to help improve stormwater-related water quality impairment of Town Brook and, at its outlet, Plymouth Harbor. The first project involved conceptual stormwater improvements at a number of locations along Town Brook. That report was utilized by the Town to secure state grant funding to implement some of the recommended improvements. The second project involved the creation of final design plans and cost estimates for the construction of two of the proposed stormwater sites along Billington Street, adjacent to Town Brook.

Both sites are located in an underutilized grassy area adjacent to Billington Street and along the northern bank of Town Brook.

Currently stormwater from two different drainage areas (totaling approximately 5 acres) is collected by catchbasin along Billington Street and discharged directly to the brook. The completed project continues to deal with each drainage area separately as two offline systems. The first inch of runoff is collected from drainage areas and pre-treated in sedimentation forebays, with final treatment in bioretention areas. Treatment of the first inch of runoff is double the treatment volume required by the Massachusetts

Stormwater Policy and is included to provide increased water quality protection for the brook. Runoff in excess of the first inch of rainfall is relatively clean and will be allowed to bypass the new treatment system directly to the brook to avoid flooding related damage. The new stormwater system is expected to provide water quality improvements of approximately 98% fecal coliform reduction, 60 to 75 % nutrient reduction, 80 to 99 % TSS reduction, 40 to 70 % metals reduction, and 90 % hydrocarbon reduction relative to the former direct discharge.

The Billington Street Park design includes a significant landscaping component which includes attractive native plantings, walking paths, micro-topography, benches, picnic tables, parking, and a dog walking cleanup station. The landscape design also includes land management guidelines to assist the Town with the removal of exotic invasive species existing at the site. The landscaped bioretention design of the proposed treatment system blends in with the surrounding landscape and provides a pocket park through which pedestrians can access the brook and other associated walking trails. The overall redesign of the area increases public use of the area and, therefore, provides a water quality public education component. Appropriate signage is included to call out the stormwater functions of the park land.

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