Hydrologic and Water Quality Investigation of Savin Hill Cove Related to Proposed Improvements to the Morrissey Boulevard Stormwater System

Boston, Massachusetts

Horsley Witten Group, Inc. (HW) worked with Fay, Spofford, and Thorndike, Inc. (FST) to assist the Boston Water and Sewer Authority with evaluating potential impacts to an estuarine system from a proposed stormwater improvement project. The proposed stormwater improvement project involves the storage and treatment of the "first flush" runoff from smaller storm events before that stormwater is discharged to Boston Harbor. For large infrequent storm events, however, later stage runoff is proposed to be transferred from one subwatershed to another. HW contributed through multiple phases of this project, from initial impact evaluation, through permitting, to construction and post-construction monitoring.

Initially, HW conducted a field program and a numerical modeling study to evaluate potential water quality and erosion impacts to the receiving estuarine water body from the proposed stormwater project. This phase of the project included a program of intensive, wet-weather, storm water sampling in order to characterize the stormwater quality in both subwatersheds under existing conditions; and a number of hydrologic modeling activities to predict likely changes in both water quality and water volume (flood and erosion potential). The field water quality data was used to calibrate a Storm Water Management Model (SWMM) (U.S. EPA) which was used to predict changes in pollutant loading under proposed conditions. Further, a HEC-RAS (U.S. Army Corps of Engineers) model was created and used to evaluate potential changes to water quantity and flow in order to estimate potential changes to erosion, siltation, and flooding in the receiving estuarine water body.

Subsequently, HW helped to evaluate watershed-wide stormwater improvements to help incrementally improve stormwater management prior to discharge. HW also contributed to the successful approval of multiple permits for the project, and has been conducting a variety of construction to post-construction monitoring activities to ensure that the project realizes its environmental goals. This monitoring includes automated water quality sampling within the new stormwater infrastructure, bathymetric monitoring of the cove to identify any potential changes in sedimentation/erosion patterns, and in-cove water quality sampling to protect against potential construction-related impacts.

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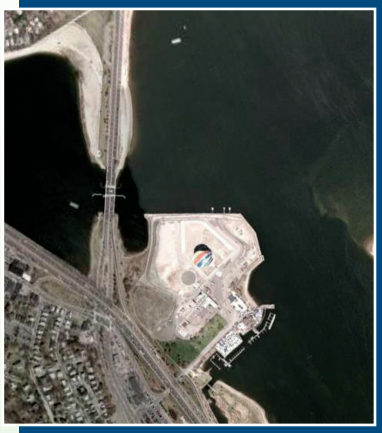

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