

Storm Water Pollution and
Management Program
Report – December 1996

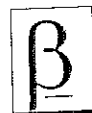
Stormwater Pollution
and
Management Program
Needham, MA

December 1996

Prepared for:

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Section I. Background and Project Description

Background

The United States Environmental Protection Agency (EPA) has set a goal of restoring "fishable and swimmable conditions" in the lower Charles River by the year 2005. Towards that goal, the EPA and the Town of Needham have entered into a "Consent Order" and "Memorandum of Understanding", resulting in requirements which the Town of Needham must complete.

The Consent Order required that the following information be submitted to the EPA by November 30, 1996:

- mapping each of the municipal stormwater discharge pipes and drainage areas flowing into the Charles River
- visual examination and sampling of each discharge during dry weather conditions. Samples must be analyzed for fecal coliform bacteria
- investigation and inventory of potential illicit connections to the stormwater drainage system
- cost estimates to remove the illicit connections

On November 29, 1996, BETA Engineering, Inc., on behalf of the Town, submitted a Report to the EPA entitled "Stormwater Pollution Study of the Charles River Watershed".

The Memorandum of Understanding requires that the following information be submitted to the EPA by December 31, 1996:

- development of a stormwater management program in accordance with the Memorandum
- evaluation of management practices and programs to improve stormwater quality, including source controls
- provide proof of adequate local funding mechanisms
- preparation of an annual report summarizing the results of the program in December of each year

The focus of this report is to complete the work mandated in the Memorandum of Understanding. However, issues of the Consent Order are also included.

Project Description

This project is being conducted in accordance with the Town of Needham's "Memorandum of Understanding" and "Consent Order, Docket No. 96-08", with the Environmental Protection Agency (EPA), Region 1, dated May 28 and April 11, 1996 respectively. The purpose of this report is to develop a stormwater management program for stormwater collection systems which discharge to the Charles River, and to complete the requirements listed above.

The Consent Order specifies that ten (10) drainage areas are to be investigated. The ten areas are identified as follows: Areas N1, N1B, N6C, N8, N10A, N11, N14, N14B, N19 and N22. This investigation is the first step of a comprehensive stormwater management program being undertaken by the Town of Needham. Work tasks included data research, mapping, visual examination and dry weather sampling of drainage systems, and television inspection of drain pipes.

Preliminary investigations involved sampling each of the ten areas which discharged flow during dry weather conditions. Samples were analyzed for several parameters, including fecal coliform bacteria, chloride and fluoride. For this study, dry weather conditions reflect any period following a minimum of 72 hours of antecedent dry period. Additionally, television inspection of storm drains was conducted in areas where potential illicit connections were suspected, based upon the results of the sampling program. The final phase of the project included estimating costs to remove illicit connections and other significant sources of pollution.

Investigations also included: sampling the outfalls during storm events and hydrologic analysis of each of the ten areas to estimate pollutant loadings to the Charles River. Existing municipal stormwater management programs were evaluated, and proposed improvements to these programs which could improve stormwater quality discharged to the Charles River were also developed. A comprehensive stormwater management program was developed in cooperation with the Town of Needham Department of Public Works.

Section II. Mapping of Identified Drainage Areas

An overall map was developed which reflects each of the ten drainage areas which were studied. The map was prepared utilizing the existing Municipal Drainage Map of Needham, prepared by David Greenwood, Needham Town Engineer, in 1988. The maps provide the following information:

- area and sub-area boundaries
- municipal boundaries
- Charles River/wetlands and water bodies
- land use/zoning
- flow directions
- dry weather sampling locations
- discharge locations and sizes

Existing drainage configurations for each of the ten areas were verified in the field. Where discrepancies existed between plan and field data, the mapping was revised to reflect field conditions. Figure 2.1 provides an overall map of the drainage areas.



Figure 2.1 – Stormwater Drainage Areas
Needham Stormwater Management