

Section 1

Introduction

1.1 Background and Purpose

Since the early 1970's, the City of Manchester has worked extensively on developing its overall Water Pollution Abatement Program to extend the sanitary sewer system to unsewered areas of Manchester and the neighboring towns. This program has consisted of several major tasks, including the construction of a Wastewater Treatment Plant (WWTP) and installation of over 30 miles of major interceptor sewers and pumping stations. The Cohas Brook Interceptor was identified in the City's 1979 "Facility Plan" by CLD Consulting Engineers Inc. (CLD) and was studied further and conceptually laid out in the 1996 "Cohas Brook Interceptor Feasibility Study" by CLD. Through the construction of several contracts over the last decade, the City has extended the sanitary sewer system to eastern Manchester, within the Lake Massabesic watershed. The next step for the City is to extend lateral sewers from the interceptor to adjacent unsewered streets.

As shown on Figure 1-1, the planning area for this study includes the easternmost portion of the city adjacent to Lake Massabesic and is bounded by Mammoth Road and the Route 93/101 corridor to the west, Hooksett to the north, Auburn to the east, and Londonderry to the south. The Lake Massabesic region of Manchester was identified in prior reports from the 1970's as having sewerage disposal problems. Although some of the area is sewerred, the majority is unsewerred and future development of vacant land is anticipated. The majority of buildings in the area are currently using onsite septic systems and cesspools. The unsewerred homes in the Cohas Brook Sewer Project area are located in either the Lake Massabesic Watershed or the Cohas Brook Watershed.

Lake Massabesic is the source of drinking water for Manchester and six surrounding communities and therefore elimination of existing onsite septic systems will further protect and enhance the water quality. Many of the existing house lots in the project area are generally too small to support a properly operating septic system that would be compliant with current New Hampshire Department of Environmental Services (NHDES) regulations. Also, more than 66 percent of the septic systems are over 15 years old, 13 percent of the properties have reported problems with their existing septic system, and the majority of the properties are located within 500 feet of a water body, stream or wetland. This situation clearly represents a significant potential for contamination of Lake Massabesic resulting from septic systems that are overloaded, failing, or at the end of their useful life.

Cohas Brook winds east to west through Manchester and empties into Pine Island Pond and then flows to the Merrimack River. Pine Island Pond is a manmade pond and is used recreationally for boating, fishing, and occasionally swimming.

Insert figure 1-1

The purpose of the Cohas Brook Sewer Master Plan is to study alternatives and recommend solutions to providing sewers to the Cohas Brook and Lake Massabesic region and potentially eliminating existing pump stations. This sewer master plan also includes identifying permit requirements, geotechnical considerations, funding alternatives, private utility considerations, and estimate project costs. This report provides a solid foundation for completing funding applications and subsequent final design, bidding, and construction activities, with multiple design and construction packages implemented as a coordinated, cohesive program for providing sewer service to the Cohas Brook and Lake Massabesic region.

1.2 Scope

The scope of work for this project included the following activities:

- Collection and review of existing reports, studies, boring logs, and record drawings of existing sewer and pump stations in the project area.
- Distribution of questionnaires to unsewered homes within the project area and compiling the responses into a database.
- Review of existing surveys, pumping records, reports, Geographic Information Systems (GIS), and other maps, from the Highway Department, Board of Health, Conservation Commission, and Planning Board on the existing septic systems throughout the area.
- Conceptual sizing and layout of sewers for each alternative.
- Performing field inspections and limited survey work to evaluate the constructability of each alternative.
- Performing a limited subsurface investigation program.
- Performing a Phase IA archaeological sensitivity assessment.
- Preparation of Sewer Master Plan with recommended construction contracts, layout, and costs.

1.3 Prior Reports

This report incorporates the results of past reports, maps, studies, and record drawings related to the study area including:

- City of Manchester, New Hampshire Department of Highways; Facility Plan; CLD Consulting Engineers Inc.; May 1979
- City of Manchester, New Hampshire Department of Highways; Cohas Brook Interceptor Feasibility Study; CLD Consulting Engineers Inc.; March 1996

- City of Manchester GIS data
- City of Manchester's recently completed master plan, "Master Plan for the City of Manchester, New Hampshire," which was adopted by the Planning Board on December 10, 2009.

1.4 Report Organization

The remainder of this report is divided into six sections as follows:

- Section 2 describes the existing sewer system;
- Section 3 provides an overview of the sewer system planning;
- Section 4 discusses the sewer alternative analysis;
- Section 5 presents the proposed contract areas and estimated project costs;
- Section 6 discusses available funding alternatives and financing options; and
- Section 7 discusses project implementation considerations.