

CLIENT

City of Manchester
Department of Highways

LOCATION

Manchester, New Hampshire

COST

Estimated Construction Cost: \$2.5 Million

DESCRIPTION

Because many camps in this area had been expanded/ converted for year-round use, it resulted with many three-bedroom homes on postage stamp size lots with on-site septic systems. This intense land use, the high groundwater in the area, and the age of many of the septic systems was a severe environmental threat to the lake. The City of Manchester wanted to eliminate that threat and assure that it would remain a resource for swimming and recreation.



The City of Manchester Department of Environmental Protection took action to protect this valuable resource. They secured revolving loan funds from the State of New Hampshire, commissioned CLD for the design, and contracted with R. D. Edmunds & Sons, Inc. for construction of a system to collect the wastewater discharge from the homes in the area for treatment at the City's wastewater treatment plant. CLD's challenge was to perform a feasibility study that examined various alignment alternatives based on a cost-benefit analysis. Using the results of the study, CLD was to design a comprehensive system to be constructed in three phases. CLD had to obtain all the required discharge and wetland permits and approvals, meet with the local conservation organizations and neighborhood groups, and coordinate with affected abutters to secure the required easements.

Phase I of the project included the installation of over 12,000 linear feet of 8-, 10- and 15-inch gravity sewer pipe, 1,000 feet of 8-inch force main, and a pumping station. This portion of the project services the larger number of homes that are very close to the lake along West Shore Road, Grove Avenue, and Fern Lane. Mr. David W. Gates, P.E., of CLD was the on-site representative for the City/State and resident engineer for the project. Mr. Gates stated that "Given the close proximity of homes and the narrow streets of these neighborhoods, installing the sewer lines was like threading a needle." The streets of the neighborhood were repaved and the lawn and landscape areas around the homes were all restored. The result of Phase I removed the most significant threat of pollution to the lake. Phases 2 and 3 of the

project called for an additional 24,000 linear feet of gravity sewer to service the neighborhood along Bryant and Lucas Roads as well as Lone Pine and Glen Forest Drives.

- **Compact Site Conditions**
- **Survey**
- **Sewer System Design**
- **Contract Documents**
- **Bidding Assistance**
- **Resident Engineering**