

**PLANNING & DEVELOPMENT**

Date: February 9, 2023

To: Waterford Conservation Commission
From: Maureen FitzGerald, Environmental Planner

Re: 109R & 131 Clark Lane Parcel
Located in Jordan Brook Watershed Area

C-22-14
109R & 131 CLARK LANE
PUBLIC HEARING
EXHIBIT # 38

Commissioners,

The property at 109R & 131 Clark Lane is located in the lower, southeastern portion of the Jordan Brook watershed. State drainage basin mapping incorrectly identifies this riparian wetland complex as being part of the Fenger Brook watershed area. The stream channel which flows through the subject property at Clark Lane is identified as Fenger Brook on state mapping resources, however it does not flow under the railroad to Alewife Cove. The watercourse instead flows west parallel to the railroad, continues west behind the Waterford High School and discharges to Jordan Cove at the millpond dam.

The Jordan Brook watershed management plan identifies the watercourse and adjacent wetlands as "East Brook". The wetland portion contained in the subject property is identified as EM3 and identified as a relatively high value wetland of special significance in the watershed. [Refer to attached watershed boundary mapping and Table 6 from the Jordan Brook watershed management study (2000)].

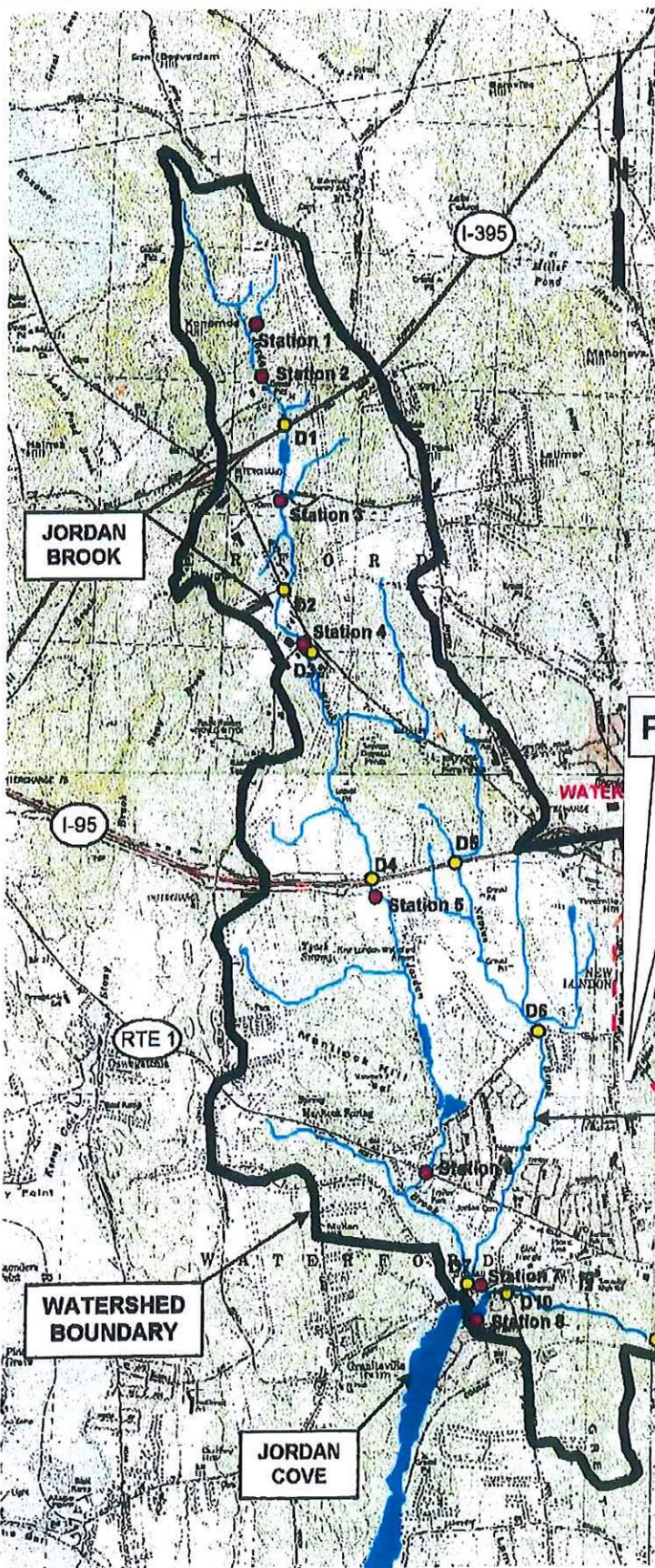
The Jordan Brook watershed management plan recommends measures to protect water quality in wetland EM3, treat stormwater run-off to control pollutant discharge to the wetland with the goal of "no net increase" in pollutant loading compared to existing conditions, considering maximum attainable reductions in stormwater pollutant loadings, maintain groundwater base flows, and maintain a minimum 50 ft. width upland protection zone.

Also attached is a watershed boundary map of the Fenger Brook watershed boundary presented in the 1995 Fenger Brook watershed management study. The Clark Lane parcel is not within this mapped watershed boundary.

The recommendations in the Fenger Brook and Southeast Shoreline documents submitted to the record are pertinent to any watercourse. At the subject site, the implementation of the Jordan Brook watershed management plan recommendations are encouraged.

Maureen FitzGerald
Environmental Planner

attachments:



- Station 1: STREAM CROSSING IN WOODS.
- Station 2: IN WOODS NORTHEAST OF INDUSTRIAL DRIVE.
- Station 3: DOWNSTREAM OF DOUGLAS LANE.
- Station 4: DOWNSTREAM OF CROSS ROAD.
- Station 5: DOWNSTREAM OF PARKWAY SOUTH.
- Station 6: DOWNSTREAM OF POST ROAD.
- Station 7: UPSTREAM OF ROPE FERRY ROAD.
- Station 8: SOUTH END OF DAM AT MILL POND.

MAP REFERENCE:

THIS MAP WAS PREPARED FROM THE FOLLOWING 7.5 MINUTE SERIES TOPOGRAPHIC MAP:
 MONTVILLE, CONN. 1983,
 NIAHTIC, CONN.-N.Y. 1983
 NEW LONDON, CONN.-N.Y. 1984

LEGEND:

- WATER QUALITY MONITORING STATION
- CRITICAL DETENTION LOCATION

SCALE = 1: 48000
 0 1 2 MILE

Project Site



SCALE: 1"= 4000'



FIGURE 1



Fuss & O'Neill Inc. Consulting Engineers
 146 HARTFORD ROAD, MANCHESTER, CONNECTICUT 06040
 (860) 346-2459

LOCATION MAP
JORDAN BROOK WATERSHED

JORDAN BROOK WATERSHED MANAGEMENT PLAN

WATERFORD

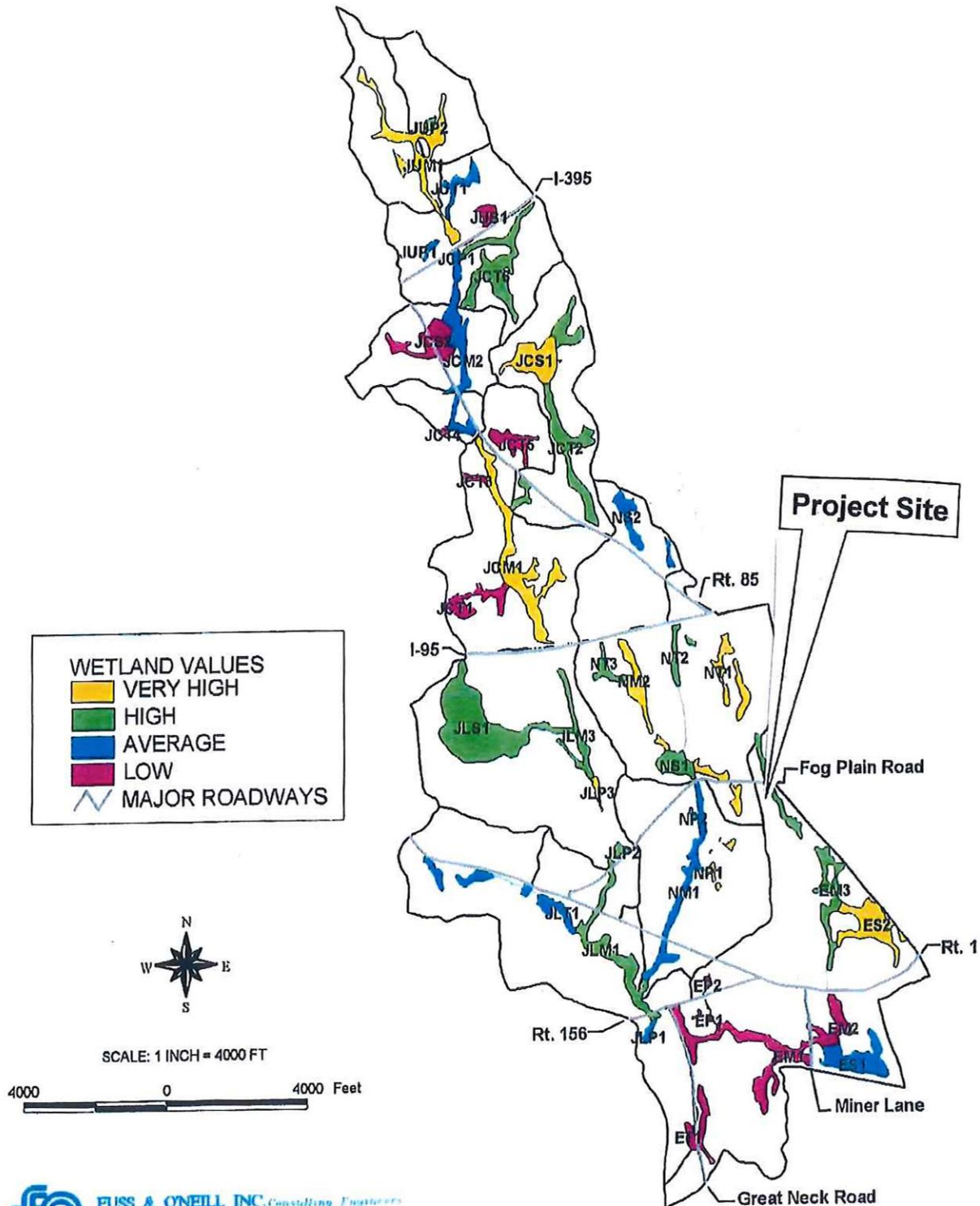
CONNECTICUT

PROJ. NO. 93154A2

DATED : OCTOBER 1998

SCALE: 1"= 4000'

Town of Waterford WETLANDS SUMMARY



EXECUTIVE SUMMARY

Jordan Brook drains from an 8.2 square-mile watershed located along the eastern edge of the Town of Waterford. This watershed includes several major developments, including the Crystal Mall, and is bisected by the I-395 and I-95 highway right-of-ways. While a significant percentage of the southern portion of the watershed has been developed, water quality in Jordan Brook generally meets State drinking water standards, and the watershed wetland systems remain in relatively good condition.

Large areas of the watershed remain undeveloped, especially in its northern reaches. Uncontrolled future residential, commercial, or industrial development in the watershed would increase pollutant loadings from stormwater runoff to receiving wetlands and watercourses, reduce groundwater base flows that are necessary to maintain dry weather flows in streams, increase peak flows and flooding, and continue to encroach on upland fringe areas that "screen" wetlands from development.

The purpose of this study was to evaluate existing watershed resources and develop a recommended plan to protect those resources from potential impacts as identified above. The following paragraphs summarize the major findings and recommendations of this study.

- **Wetland areas generally in good condition:**

Wetland areas within the watershed remain in good condition and many have features that justify the wetlands as having special significance. Some wetlands appear to have been impacted by encroaching development and water quality impacts, and other wetlands would be sensitive to any future impacts to water quality.

- **Surface water quality generally fishable and drinkable:**

Surface water quality in the watershed generally meets "fishable and drinkable" standards established for the State of Connecticut with the exception of total coliforms. Since the source of total coliform can include non-pollution sources such as plant matter, this finding is not conclusive evidence of sanitary contamination.

- **Development impacts water quality:**

While surface water quality still meets standards, in-stream concentrations of pollutants increase downstream as development and impervious surfaces increase. Based on modeling of future pollutant loads, stormwater pollutant loadings could increase by more than 100% for zinc and between 30 and 50% for phosphorous, copper, and lead with future development. Copper, lead, and zinc can be toxic to aquatic life at certain concentrations in aqueous form. Phosphorous is a limiting nutrient for algal growth in surface water impoundments.

- **Water Quality Management Plan:**

A surface water quality management plan has been developed that specifies the levels of controls that would be recommended to be implemented based on the level of risk

that a new development would pose to water quality. Three tiers of controls are recommended.

- I. Base level controls would apply to developments with only small potential for impacts and would require controls to remove gross contaminants and minimize the risk of accidents such as spills causing major water quality impacts.
- II. Secondary controls would apply to developments with greater risk for water quality impacts and would require a minimum of 80% removal of total suspended solids.
- III. Tertiary controls would apply to developments with the greatest risk for water quality impacts and would require developers to demonstrate no net increase in pollutant loads from pre-development conditions.

- **Continue surface water quality monitoring:**

Surface water quality should continue to be monitored to evaluate trends in water quality and confirm that new developments have appropriate controls.

- **No net increase in peak flows:**

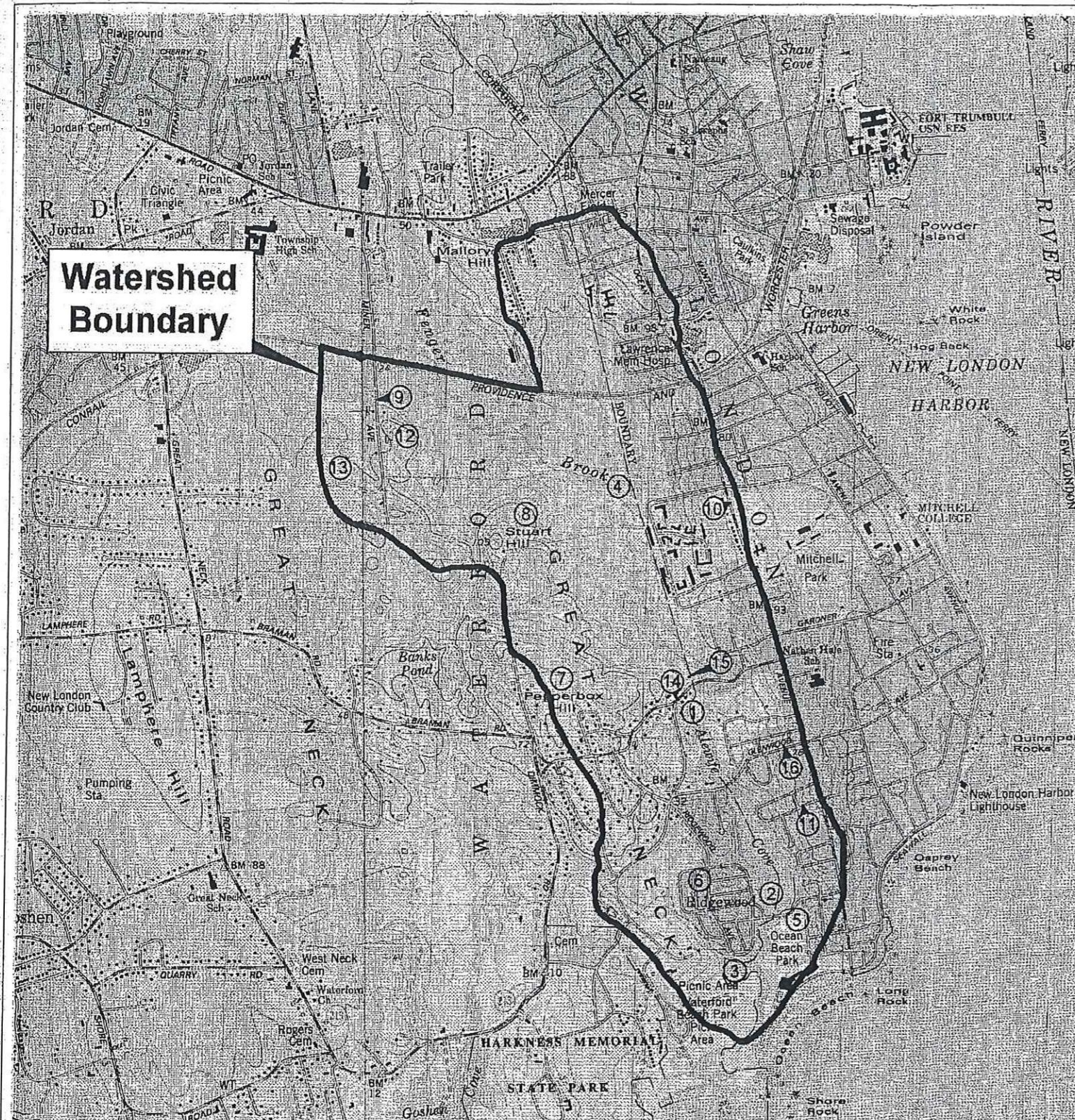
Evidence of flooding and channel scour was observed during watershed visits. It is recommended that future developments demonstrate no net increase in peak flows at downstream points-of-concern. The number of downstream points-of-concern to be evaluated is proposed to be dependant on the size of the development and its potential to increase flooding risk. A watershed-wide hydrologic model has been developed that should be incorporated into future evaluations.

- **Maintain pre-development groundwater base flows:**

Pre-development groundwater base flows should also be maintained. At a minimum, "clean" roof runoff should be infiltrated into the ground. This approach does not require a complicated technical evaluation of current on-site infiltration to groundwater, would typically maintain or increase base flows, and would minimize the risk of groundwater pollution by infiltrating only clean runoff.

- **Designate upland areas as open space and implement Upland Protection Zone:**

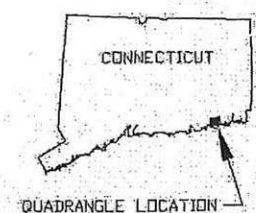
A number of upland areas in the watershed would provide value as open space by improving the value of watershed wetlands by screening developments, providing fringe habitat, maintaining wildlife access, and improving human access to wetlands of special significance. Upland areas that could provide value have been evaluated and ranked in terms of their importance. A 50-foot Upland Protection Zone is also recommended for all wetlands and a 100-foot Upland Protection Zone is recommended for perennial streams. Factors which should be considered in adjusting these widths are discussed.



LEGEND

- ① Upper Alewife Cove
- ② Middle Alewife Cove
- ③ Lower Reach
- ④ Fenger Brook
- ⑤ Ocean Beach Park
- ⑥ Ridgewood
- ⑦ Pepperbox Hill
- ⑧ Stuart Hill
- ⑨ Miner Lane
- ⑩ Ocean Avenue
- ⑪ Greenway Road
- ⑫ Piggery
- ⑬ Waterford Landfill
- ⑭ Niles Hill Road
- ⑮ New London Pump Station
- ⑯ Glenwood Avenue

MAP REFERENCE:
THIS MAP IS PREPARED FROM 7.5 MINUTE
SERIES TOPOGRAPHIC MAP QUADRANGLES
NIANTIC (1983), CONNECTICUT-NEW YORK
AND NEW LONDON (1984), CONNECTICUT-
NEW YORK.



NOT RELEASED FOR CONSTRUCTION

FIGURE NO. 1.1



FUSS & O'NEILL INC. Consulting Engineers
146 HARTFORD ROAD, MANCHESTER, CONNECTICUT 06040
(203) 646-2469

PROJ. MGR.
CHIEF DESIG.
DATE

NEW LONDON/WATERFORD
PPP

SITE LOCATION MAP

FENGER BROOK WATERSHED MANAGEMENT STUDY

DATE: MARCH 1995

JOB NO: 92-603A1

E.1 Summary of Findings

E.1.1 Watershed Management/Land Use

1. The most significant land uses in the watershed are urban and residential.
2. Some existing stormwater management measures in the watershed can be improved. Such improvements include better catch basin maintenance in New London and improved erosion control implementation and street sweeping measures in Waterford.
3. A number of areas adjacent to the Cove remain un-sewered. Additionally, a sanitary sewer pump station along the perimeter of the Cove has historically failed, resulting in the release of untreated sewage to the Cove. Both of these potential sources will be eliminated with tie-ins to a new sewer main and the replacement of the pump station.
4. The regulations for both Waterford and New London are adequate in most sections for reducing non-point source pollution impacts. The most significant shortcoming is the lack of a requirement for buffer zones adjacent to wetlands and watercourses. Enforcement of specific sections of the regulations can also be improved by both municipalities.
5. A portion of the Fenger Brook Watershed has possibly been diverted to a nearby coastal watershed due to the construction of a railway in the 1850s; however, it is not certain that the area in question was a part of the original watershed. The topography of the area makes it difficult to determine whether the area north of the railroad line drained to Fenger Brook or to another watershed prior to the construction of the railroad.

E.1.2. Water Quality Characterization

1. An ecological assessment of Alewife Cove indicates that the Upper Cove is eutrophic. This is consistent with previous studies of the Cove. High nitrogen concentrations are the cause of the eutrophic conditions as the Cove is an estuarine system.
2. Fecal bacteria concentrations in the Cove are above shell fishing standards resulting in the banning of shell fishing.
3. The Cove is subject to high localized sediment loads from discrete stormwater system outfalls.
4. Previous studies indicate that freshwater flushing associated with stormwater causes a high salinity variation in the Cove resulting in stress on organisms within the Cove.
5. The wetland assessment indicated that the wetlands within the watershed are of good integrity. Some impacts to the wetlands as a result of stormwater discharges, specifically channeling, erosion, and sedimentation, were identified.