

April 20, 1976

TOWN OF NORTH STONINGTON
SEWER AUTHORITY ENGINEERING REPORT NO. 2

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1.0 Introduction

The initial North Stonington Sewer Authority Engineering Report was submitted to the Department of Environmental Protection (DEP) on April 29, 1972. In that report it was recommended that a biannual report be made to DEP to provide early warning of conditions which might indicate the need for sewers earlier than predicted in the original report. Since the submission of the 1972 report no formal reply or comments has been received from DEP and the biannual report scheduled for 1974 was not prepared. However, several meetings have been held between DEP and the Sewer Authority over the past two years, and it was mutually agreed that a 1976 report would be issued. (1)(2)* This report is submitted in fulfillment of that obligation and follows the outline of the original report and includes the material requested by DEP. All data presented in the original report remains valid and this report updates only those data required. In addition, the activities of the Authority during the past four years are documented. The conclusions of the original report are still valid and are repeated in this report.

*Number in brackets () refer to documents included in the Appendix.

2.0 Conclusion

It is the conclusion of the North Stonington Sewer Authority that municipal sewerage service will not be required before the year 2020.

The basis for this conclusion was developed in the original report and is reinforced by the succeeding sections of this report. Conclusions are briefly summarized herein without regard to the order of importance:

1. Sanitary survey and sampling analysis show that existing problems are relative few in number and correctable on site.
2. The population growth rates are following the "low" predictions of the 1967 Plan of Development.
3. Growth patterns show no tendency to develop growth centers. The town is rural and is expected to remain so.
4. Zoning and subdivision regulations provide the mechanism to ensure and enforce orderly growth and the development of responsible and technically adequate on-site disposal systems and drainage.
5. Industrial growth is predicted to occur to a modest level within a designated area which has adequate soil conditions to allow safe on-site disposal of wastes.

5.6 Visual Inspection of Sample Sites

A visual inspection of sample sites listed in table 1 was made on April 21 and September 20, 1975, and February 16, 1976, at the time biological test samples were obtained. No appreciable changes occurred from the visual inspection documented in the original report with the exception of N. Stonington Village and Kingswood/Meadowood areas which are discussed below. For record it is noted that Cedar Ridge area has had no additional development since the 1972 report and the appearance of sample sites 30 and 31 are the same as reported in 1972.

5.6.1 Village of North Stonington

Four homes in the Village were identified as discharging sewage into the Shunock River and these homes have been condemned. At a town meeting on May 1, 1976, an appropriation of \$60,000 was authorized for the purchase and demolition of the four homes. As of the date of this report, three of the homes have been purchased, demolished and a bicentennial green constructed in the area. The fourth home is being acquired by the Town but legal complications have delayed its acquisition and it is not known when the sale will be consummated. Only one elderly person lives in the house in question. The appearance of the Shunock River has been greatly improved by the above noted changes.

5.6.3 Kingswood/Meadowood

Ravenswood Drive from Laurel Wood Road to Kingswood Drive and Ronda Lane from Laurel Wood Road to Old Colony Road has been developed. See Figure 4C. It is estimated that 25 homes have been added in the Kingswood/Meadowood primarily in the area noted above. (Unfortunately a precise number cannot be given. This information was requested from Town Officials but never received.) The additional development did not change the appearance of sample sites 32, 33, 34, and 35 which are located in Kingswood/Meadowood.

5.7 Sampling and Testing

Standard membrane filter tests were performed at approximately 30 sample sites on April 21 and September 20, 1975, and February 16, 1976. Unfortunately, tests performed on the September 20 samples were judged to be invalid and are not reported. Many of the test results for the February 16 samples contained non-ideal colony counts and therefore only those results which had actual colony counts between 10 and 100 are given in the body of the report. Laboratory reports of April 21, 1975, and February 16, 1976, are included in the appendix (3)(4).

Dye testing of the North Stonington Village was requested by the Sewer Authority in February of 1973 and accomplished by D. Capellaro, principal sanitarian of the Connecticut State Department of Health. Results are discussed in Section 5.7.5.

5.7.4 Standard Membrane Filter Tests

Tables 1 and 2 and Figure 4 give sample sites and test results. Since there is no direct or simple quantitative correlation between total coliform counts determined by the standard membrane filter test and the MPN (most probable number) used in the original report, a quantitative assessment of improvement or degradation is not possible. However, areas which showed high MPN values in 1972 show high total coliform counts in 1975 and 1976.

5.7.5 Dye Testing in North Stonington Village

In February of 1973 this Authority requested that 33 homes in the village center that border the Shunock and Assekonk Rivers be dye tested (5). A sanitary survey of the Village was made by D. Capellaro in February and March of 1973, and 21 dye tests were performed. In addition to the 4 known violators (4 homes being acquired by the Town), 3 additional dwellings were found to seep sewage into the Shunock and one obvious septic failure was found. Various other marginal and undesirable situations were identified and are definite problems as there is little or no room for repairs. The four systems referred to above were corrected by installing new and/or repairing existing systems but no known action was taken on the marginal systems identified.

As a backup effort, a preliminary feasibility study was conducted on a small joint septic system which would serve 7 homes in the Village. The system would collect the effluent from septic tanks and provide a lift station to pump effluent to a leaching field on Town property at the Town garage. This concept has been judged to be feasible and was sized by Professor R. Laak of the University of Connecticut for 7 homes, but expansion to a maximum of about 20 homes is regarded as practical. If, at some future date, such a plan appears to be appropriate, a definitive proposal could be developed using this concept.

5.8 Evaluation of Sanitary Survey

In North Stonington Village, considerable improvement has been made in eliminating sources of pollution and in repairing defective septic systems. Unfortunately, this progress seems to have stopped and therefore, the Village is still regarded as an existing problem area.

Additional areas of known pollution remain the same as stated in the 1972 report. The most critical problem is Cedar Ridge where no improvements have been made over the past four years.

6.0 Long Range Planning

The Planning and Zoning Commission and the Development and Industrial Commission have reviewed and find no reason to change their reports which were included in the 1972 report. (6)(7)

7.0 Sewer Authority Activities

Important Sewer Authority activities between 1972 and 1976 not reported elsewhere in this report are included in this section.

7.1 Review of Subdivision and Commercial and Industrial Development Plans

The Sewer Authority was successful in attaining approval/disapproval authority on all subdivision plans and proposals as well as commercial and industrial development plans presented to the Planning and Zoning Commission. This power affords the Authority the opportunity to assess and advise on all planned systems. Since 1972, nine sets of plans were received of which five were found to be acceptable and four were rejected.

7.2 Sewer Authority Annual Reports

The annual reports of the Sewer Authority which correspond to the Town Fiscal Year of July 1 of a given year to June 30 of the following year are included in the appendix for record. (8) (9) (10)

7.3 Resignation of North Stonington Sewer Authority

To carry out the Sewer Authority recommendations requires the cooperation of other Town Officials and commissions. Unfortunately, this spirit of cooperation does not exist and therefore, the Sewer Authority will resign as a body after submission of this report. The appendix (11) (12) (13) contains correspondence relating to this condition.

Table 1
Test Results, Standard Membrane Filter Test

Station Number	Total Coliform (100 ml)	
	4/21/75	2/16/75
1	150,170	
1-2		200
2	1210,980	
3	300,240	150
4	100,60	
5	210,350	
6	460,500	
9	350,310	
10	60,50	
11	390,300	
12	510,680	220
14	550,600	
15	290,200	
15-1	150,260	150
15-2	380,280	170
15-3	250,300	
16	1000,880	1200,600
17	190,110	
20	400,530	
21	800,750	
22	310,270	130
23	80,50	
25	230,190	
28	0,0	100
29	550,440	210
30	TNC*	2100,2500
31	750,900	3100
32	230,180	
33	40,90	
35	50,60	190
36	120,140	600

*TNC = too numerous to count and have values at least 3000/100 ml.

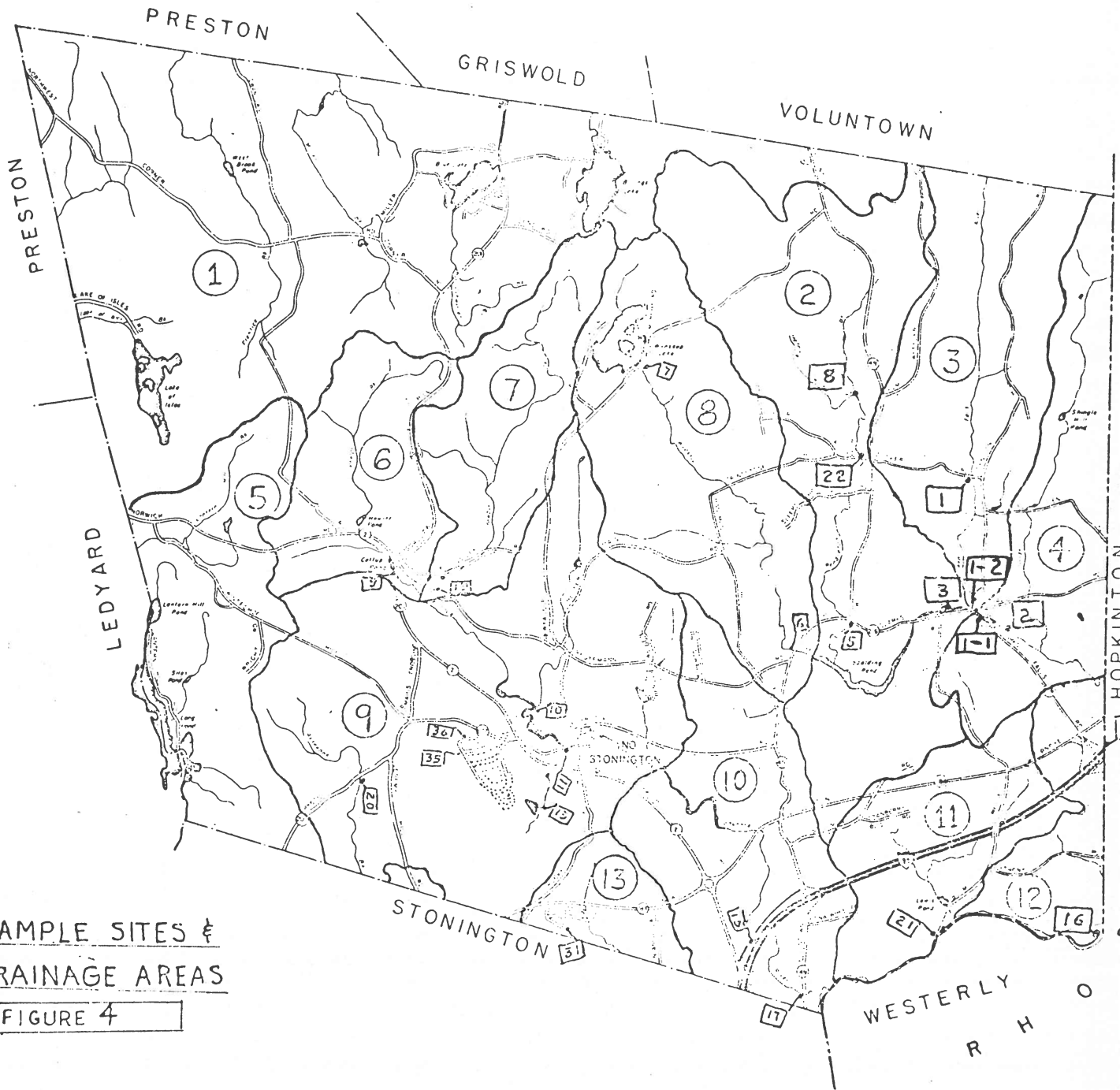
Flow at site 22 on 4/21/75 was 7.6 C.F.S. (Flow Duration 37%)
Flow at site 22 on 2/16/76 was 9.6 C.F.S. (Flow Duration 28%)

Table 2. Listing of Sample Sites

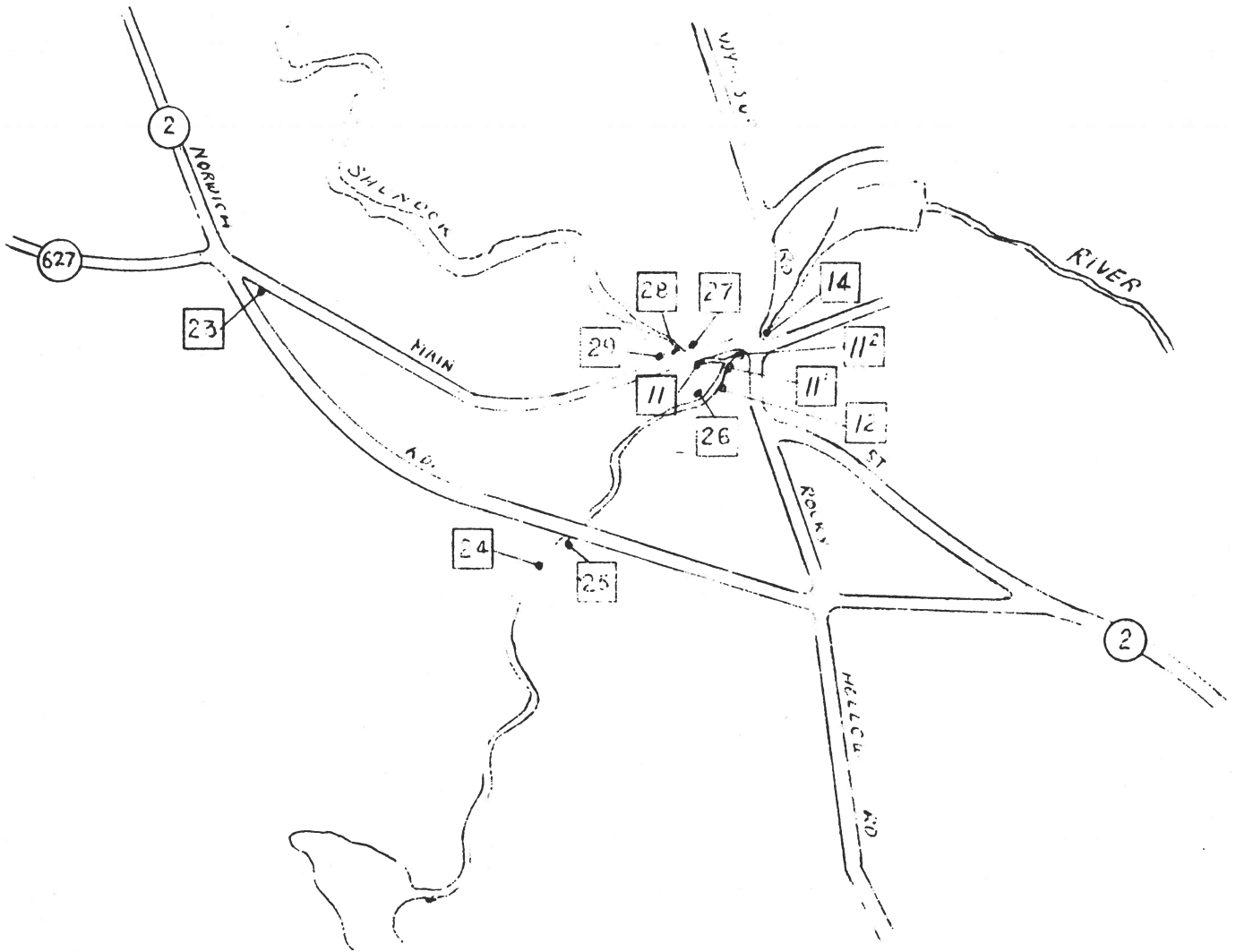
1	Green Fall Br. at Putker Rd.
1-1	Green Falls Br. Rt 216 N.S. & 216 E.W.
1-2	Green Fall Br. above Wyassup Br.
2	Green Fall Br. at Rt. 216
3	Clarks Falls at Grist Mill Dam
4	Green Fall Br. at Old 184 Crossing (Hopkinton)
5	Pendleton Hill Br. at Browning's Corner
6	Wyassup Br. at Rt. 49
7	Wyassup Br. at Dam
8	Pendleton Hill Br. at Old Cemetery Rd.
9	Gallup Pond at Rt. 2 Crossing (Shunock R.)
10	Shunock R. at Hewitt Pond
11	Shunock R. at West Main St. Bridge - N.S. Center
11 ¹	Shunock R./Assekonk B. - at Parking lot, N.S.
11 ²	Shunock R./Assekonk Br. - at East Main St. Bridge N.S. Center
12	Assekonk Br. at Corner Parking lot, N.S. Center
13	Assekonk Swamp at Pine Grove
14	Shunock R. at Store
15	Shunock R. at I-95 Service Road Culvert
15 ¹	Shunock R. at I-95
15 ²	Shunock R. at I-95 - 100 ft up from I-95 Bridge
15 ³	Shunock R. at I-95
15 ⁴	I-95 Service Road - Catchbasin
16	Pawcatuck River at State Line
17	Shunock R. at Rt. 49 (Voluntown Road)
18	Lantern Hill Brook

Table 2 (Continued)

19	Yawbux Br. at Ryder Road
20	Assekonk Br. at Jeremy Hill
21	Boom Bridge - Pawcatuck R.
22	Pendleton Hill Br. (at gaging station)
23	Culvert Corner Rt. 2 and West Main St.
24	Assekonk Br. at Dam
25	Assekonk Br. at Rt. 2 crossing
26	Assekonk Br.
27	Shunock R.
28	Shunock R.
29	Shunock R.
30	Culvert, Cedar Ridge - Hickory Lane at Pond Drive
31	Culvert, Cedar Ridge - Hickory Lane at Oak Drive
32	Culvert, Kingswood at extension of Old Colony Road
33	Culvert, Kingswood at Pinecrest - East
34	Culvert, Kingswood at Pinecrest - West
35	Culvert, Kingswood at Ravenswood Dr.
36	Culvert, Kingswood at Old Colony Rd. - West



SAMPLE SITES &
 DRAINAGE AREAS
 FIGURE 4

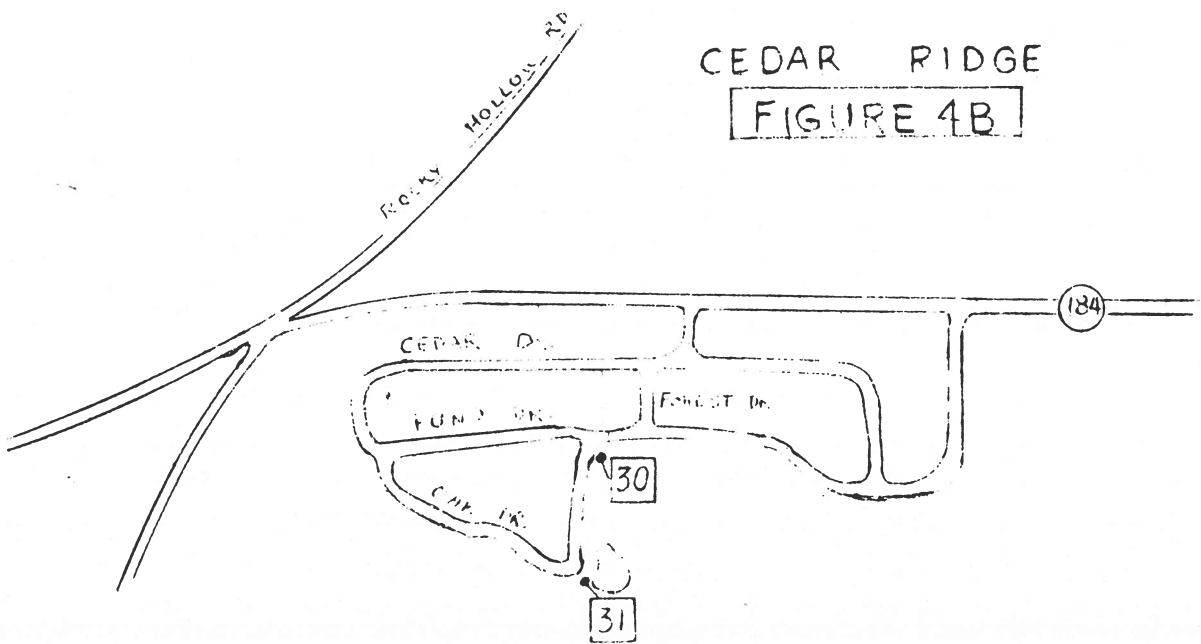


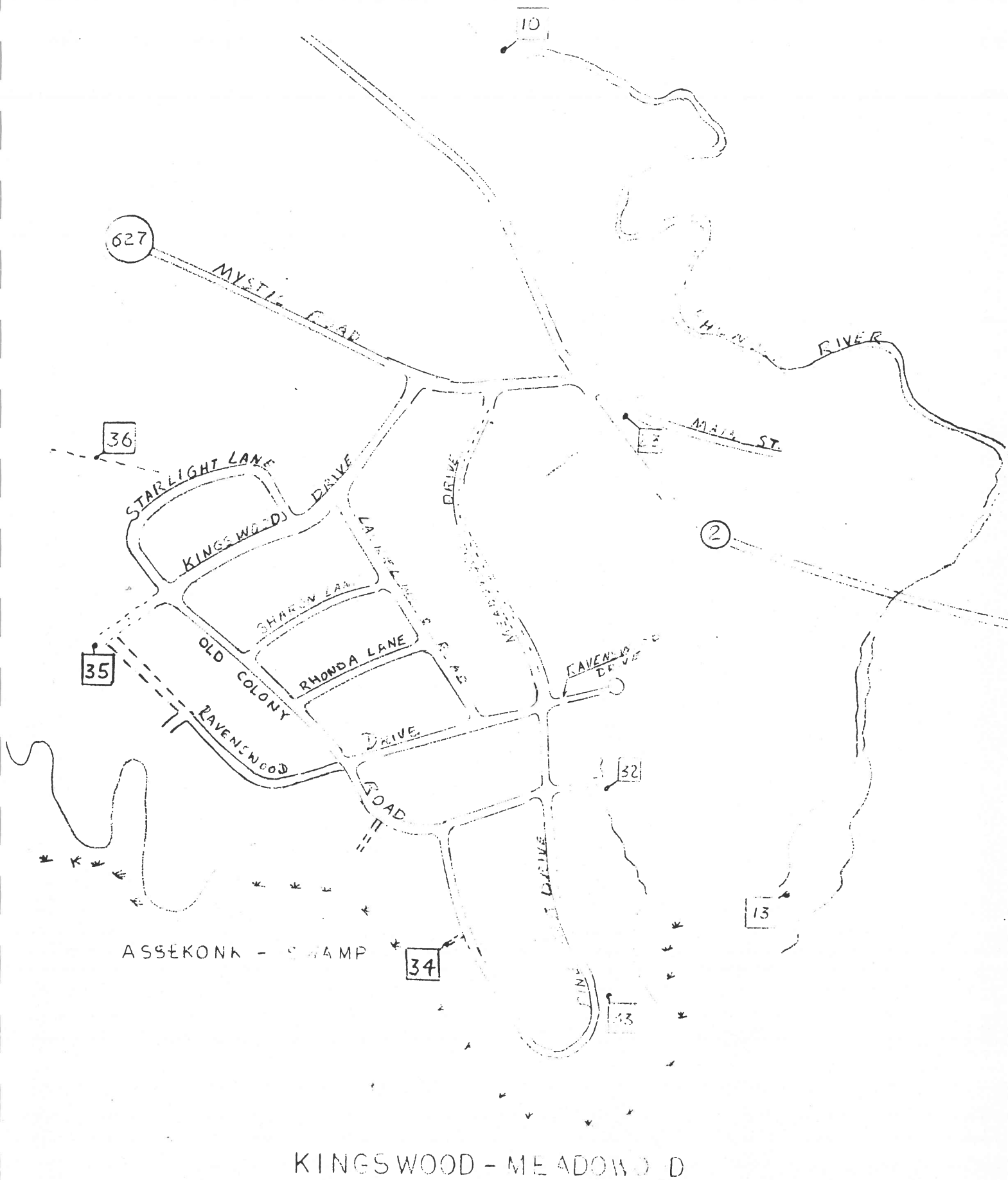
NORTH STONINGTON VILLAGE

FIGURE 4A

CEDAR RIDGE

FIGURE 4B





APPENDIX
BACKGROUND DOCUMENTS

1. State of Connecticut Department of Environmental Protection Letter to Sewer Authority, dated 3 December 1974
2. Letter from R. W. Marble to Mr. Wesley L. Winterbottom, Department of Environmental Protection, dated 14 February 1975
3. Letter, Richard J. Benoit, EcoScience Laboratory, to Mr. Ed Budzik, No. Stonington Sewer Commission, dated 21 April 1975
4. Results of Analyses of Streamwater samples from No. Stonington Collected Monday, February 16, 1976.
5. Letter from No. Stonington Sewer Authority to Mr. Donald Capellaro, dated 1 February 1973
6. Letter, Charles P. Robinson, The Town of North Stonington Connecticut, Planning & Zoning Commission to Mr. Richard W. Marble, Sewer Authority, dated 21 August 1975
7. Letter, Development and Industrial Commission to North Stonington Sewer Authority dated 22 August 1975
8. Sewer Authority Annual Report 1972-1973
9. Sewer Authority Annual Report 1973-1974
10. Sewer Authority Annual Report 1974-1975
11. R. W. Marble letter to Mr. R. S. Lee, First Selectman, North Stonington dated 7 January 1976
12. James L. Schmidt, MD. letter to Roy S. Lee dated 29 January 1976
13. R. W. Marble letter to Roy S. Lee dated 4 February 1976