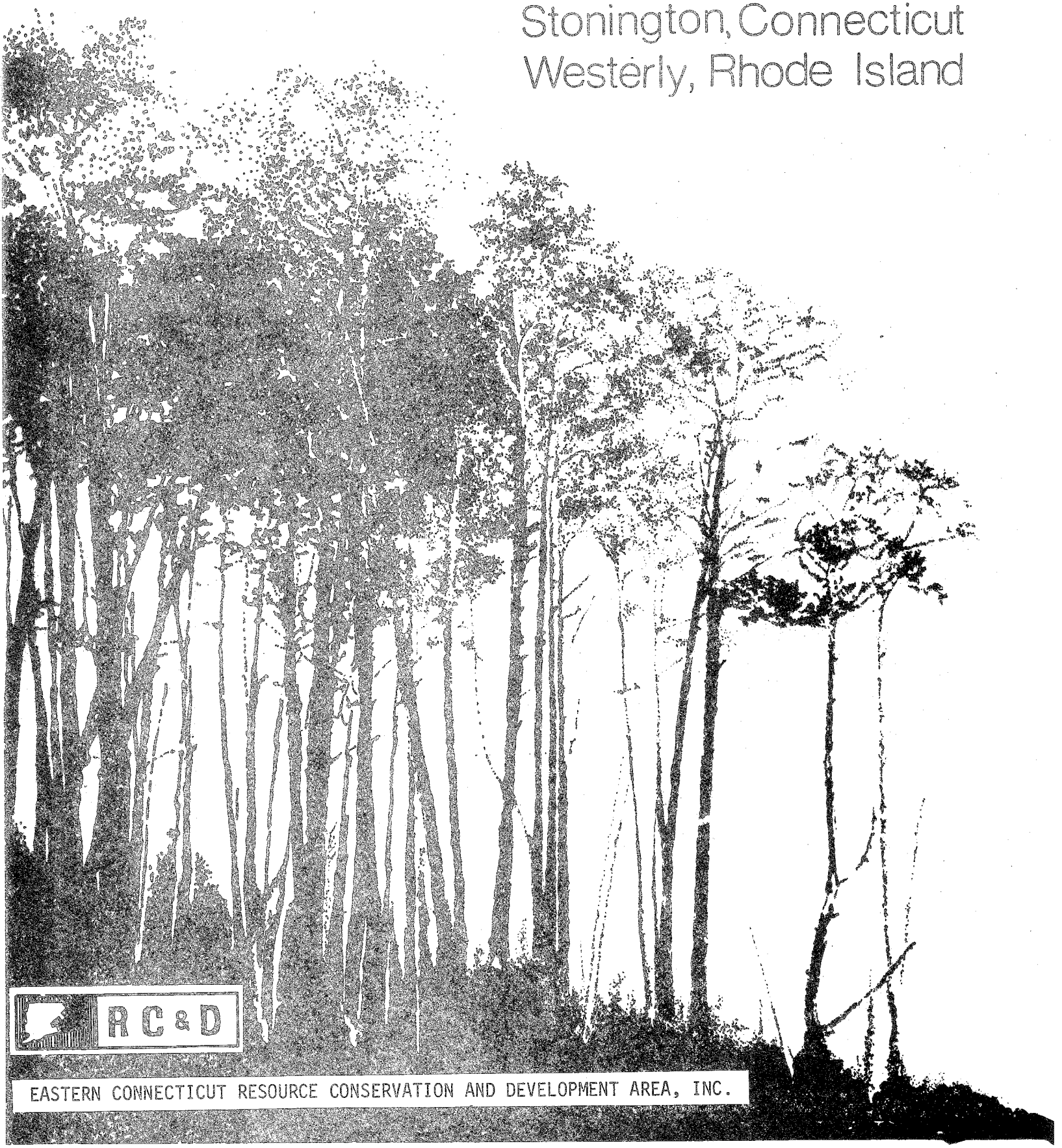
Environmental Review Team Report

Pawcatuck River

Stonington, Connecticut
Westerly, Rhode Island



RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

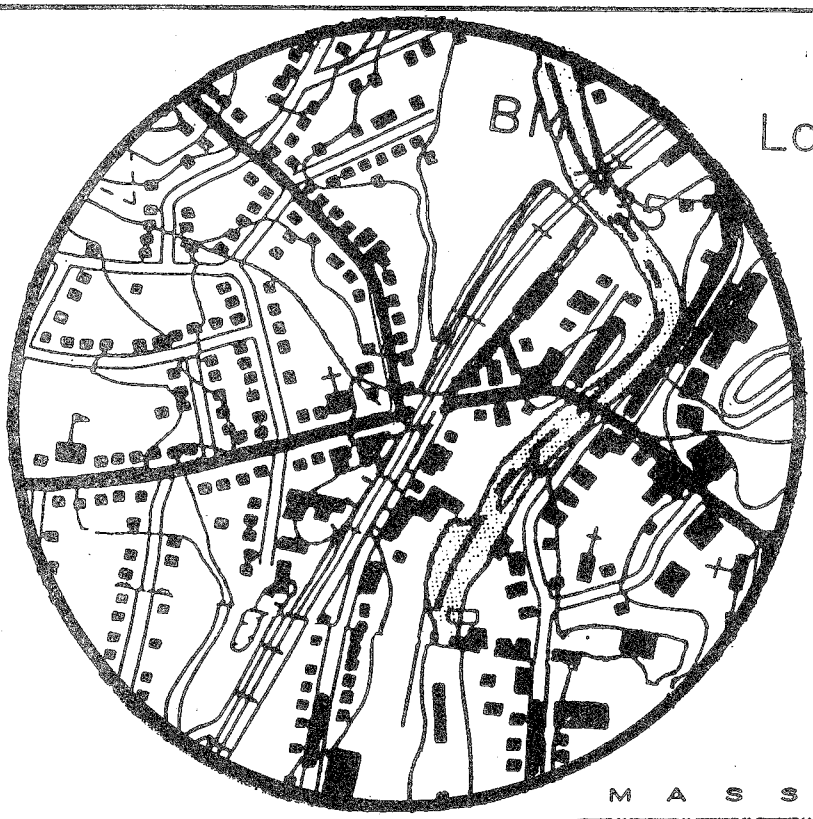
Environmental Review Team Report

Pawcatuck River
Stonington, Connecticut
Westerly, Rhode Island

June 1983

Eastern Connecticut Resource Conservation & Development Area

Environmental Review Team
PO Box 198
Brooklyn, Connecticut 06234



Location of Study Site

PAWCATUCK RIVER REVITALIZATION
STONINGTON, CONNECTICUT
WESTERLY, RHODE ISLAND

EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
PAWCATUCK RIVER REVITALIZATION
WESTERLY, RHODE ISLAND
PAWCATUCK, CONNECTICUT

This report is an outgrowth of a request from the Stonington Planning and Zoning Commission to the New London County Soil and Water Conservation District (S&WCD). The S&WCD referred this request to the Eastern Connecticut Resource Conservation and Development (RC&D) Area Executive Committee for their consideration and approval as a project measure. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist of the United States Department of Agriculture (USDA), Soil Conservation Service (SCS). Reproductions of the soil survey map as well as a topographic map of the site were distributed to all ERT participants prior to their field review of the site.

The ERT that field checked the site consisted of the following personnel: Bill Warzecha, Connecticut Department of Environmental Protection (DEP); Steve Lavigueur, University of Connecticut; Barry Cavanna, Soil Conservation Service; David Poirier, Connecticut Historical Commission; Chuck Phillips, DEP; Joe Piza, DEP; David Manke, DEP; Charles Storrow, Southeastern Connecticut Regional Planning Agency; Harry Siebert, Connecticut Department of Transportation; Lorraine Joubert, Rhode Island Department of Environmental Management (DEM); Judy Benedict, DEM; Todd Bryan, DEM; Jim Beattie, DEM; James Myers, DEM; John Stoglitis, DEM; Victor Parmentiar, Planning; Bob Whritenour, Planning; Ted Sanderson, Historic Preservation; Jeff Anliker, SCS; Everett Stuart, SCS; Steve Davis, SCS; Liz Cook, SCS; Phil Albert, DEM; Joseph Arruda, Rhode Island Department of Transportation; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Tuesday, March 10, 1983. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

This report is not meant to compete with private consultants by supplying site designs or detailed solutions to development problems. This report identifies the existing resource base and evaluates its significance to the proposed development and also suggests considerations that should be of concern to the developer and the Town of Stonington and the City of Westerly. The results of this Team action are oriented toward the development of a better environmental quality and the long-term economics of the land use.

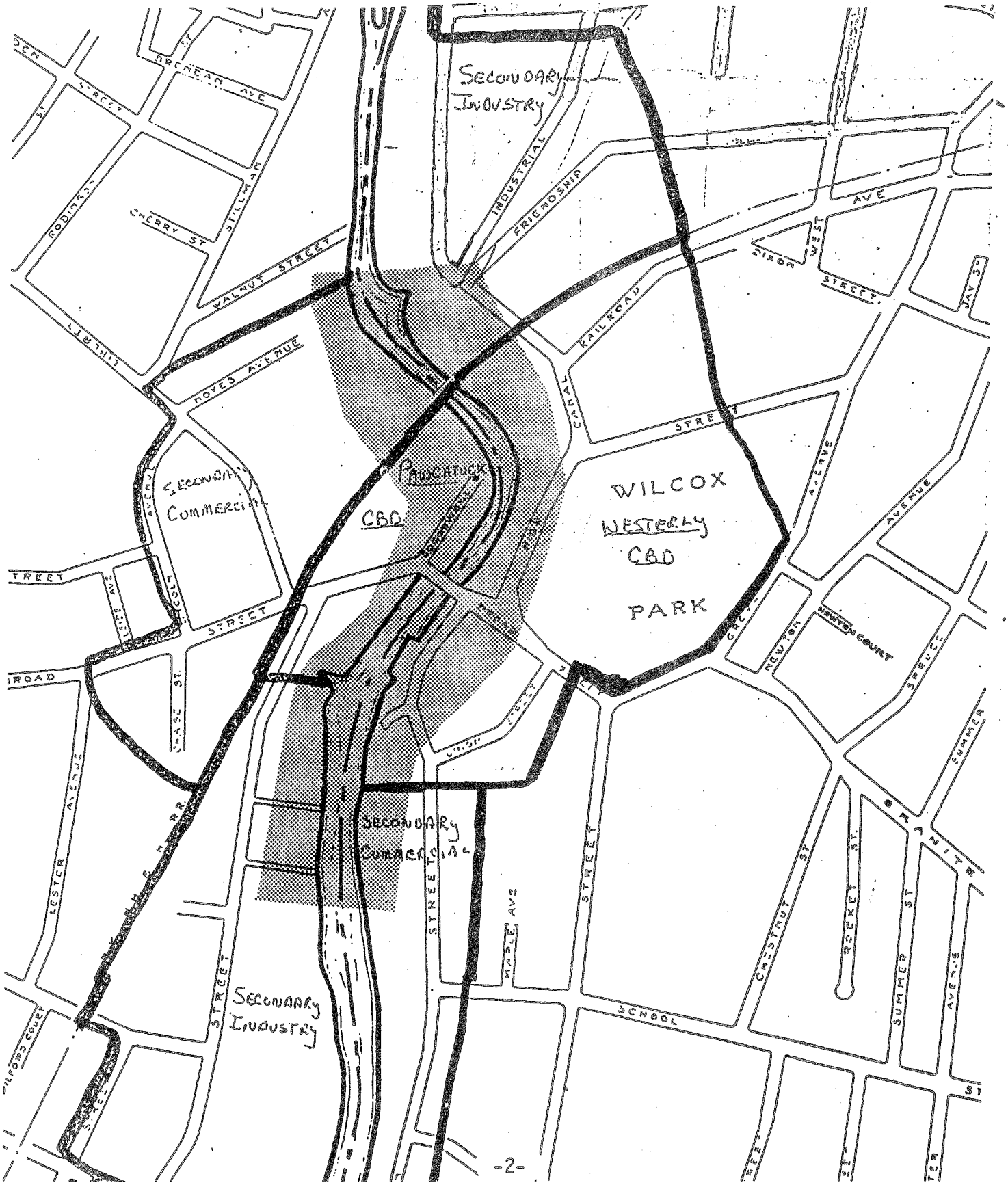
The Eastern Connecticut and Rhode Island RC&D Project Committees hope you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, P.O. Box 198, Brooklyn, Connecticut, 06234, 774-1253.

Project Area

0 400'
scale

N



INTRODUCTION

The Eastern Connecticut and Rhode Island Environmental Review Teams were asked to prepare an environmental assessment and natural resource inventory for a river revitalization project in downtown Westerly/Pawcatuck. The Pawcatuck River flows through the center of the central business district and is the focus of this study. The project area includes a 2000 foot length of the river, approximately 1000 feet on either side of the Route 1 bridge crossing.

Development presently proposed for the study area includes two pedestrian river crossings, a possible vehicular crossing at Coggswell Street, a riverside walkway, location of a picnic pavillion and dredging of a small area south of Route 1 for flood control purposes.

The Westerly Town Council and the Stonington Board of Selectmen has formed a joint council to develop a revitalization strategy and locate funding sources for targetted programs. The Team was asked to provide the natural resource information and serve as the initial forum for discussion of the effect of proposed development on the natural resource base. Team findings are discussed in detail in the following sections of this report as well as recommendations for future land use in the study area.

ENVIRONMENTAL ASSESSMENT

GEOLOGY

The proposed revitalization project site is located in a part of the Pawcatuck section of Stonington and Westerly, Rhode Island that is encompassed by the Ashaway, Rhode Island topographic quadrangle. A surficial map (QR-23) prepared by J.P. Schafer (1968) and a bedrock map (GQ-403) prepared by Thomas Feininger (1965) for the quadrangle has been published by the U.S. Geological Survey (USGS). Both maps are available at the Natural Resource Center of the Department of Environmental Protection in Hartford, Connecticut.

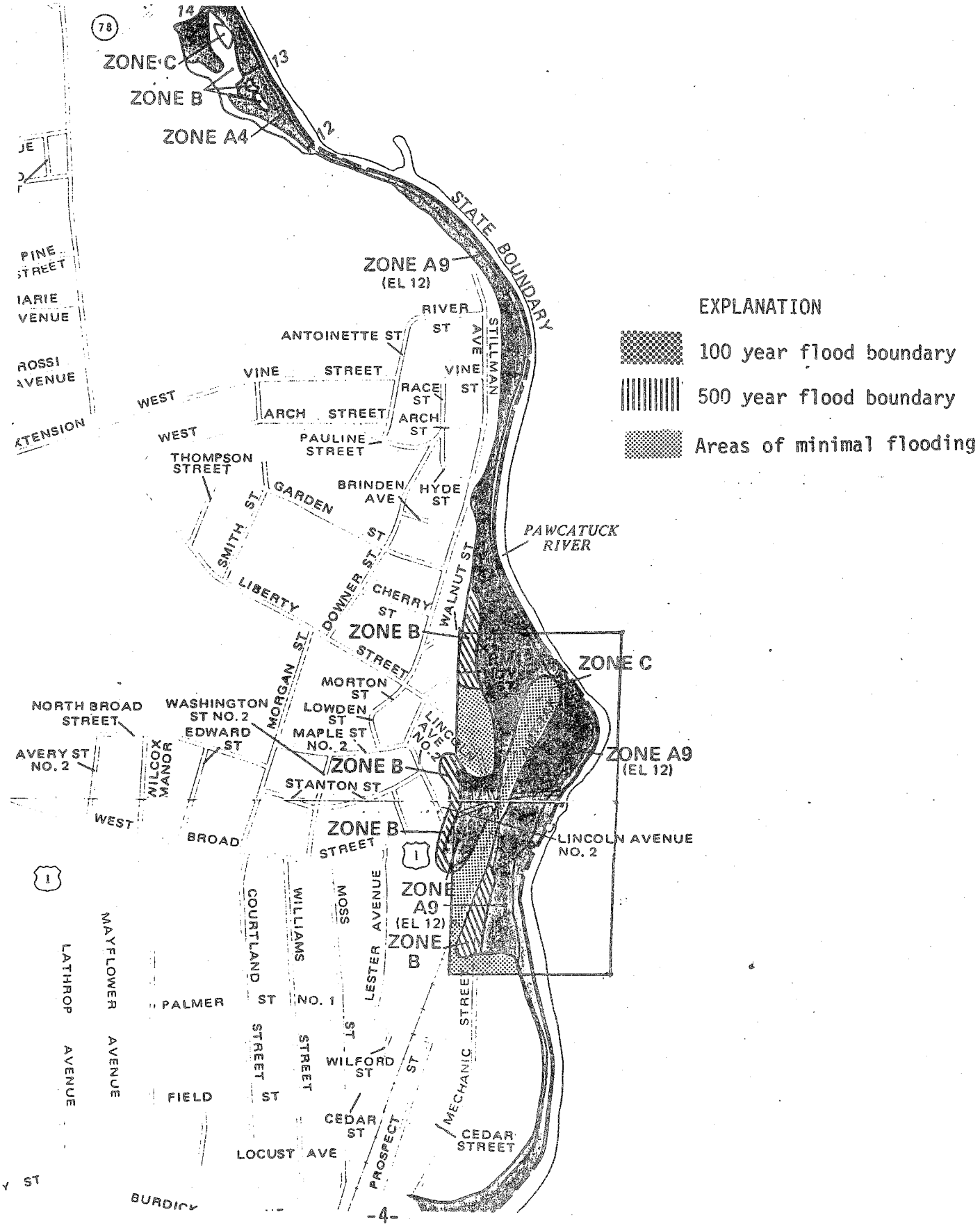
The surficial geologic map indicates that the material overlying bedrock thoughout the project site is sand and gravel of glacial origin. Most of the site has been covered extensively by artificial fill material over the years. Based on test borings conducted in the area, the sand and gravel deposits were found to be +90 feet thick. There is no indication from the surficial geologic map that swamp or marsh sediments underlie the project area. The Team has no information that suggest the soils in the area would be unstable for development. Additional test borings should be conducted in the filled areas to determine the original site material and the nature of the fill material deposited on it.

Bedrock underlying the surficial deposits within the sites are rocks that are of metavolcanic origin. "Metavolcanic rocks" are rocks composed of volcanic materials which have been altered under intense heat and pressure. The rock units underlying the area are referred to as a 1) grey, fine to medium grained, layered gneiss whose principal minerals include microcline and oligoclase, feldspars, quartz and biotite mica; 2) medium to coarse grained, salt and peppered amphibolite.

Floodprone Areas

0 660
scale

N



"Gneiss" is a metamorphic rock (rock that has been geologically altered by high temperature and pressures) which is characterized by thin bands of elongate flaky minerals alternating with bands as layers of more rounded grains. "Amphibolite," like gneiss, is a metamorphic rock consisting mainly of the mineral amphibolite, plagioclase, hornblend, biotite and andesine. It should be noted that as the contents of quartz increases, amphibolite grades into a gneiss. Depth to bedrock in the project area probably ranges between 40 and 50 feet. Underlying bedrock should have no impact on the proposed revitalization project.

SOILS

Most of the area considered in the Revitalization Project consists of cut and fill, or "Urban Land." Careful on-site investigation will be needed to determine the suitability of the soils, particularly where structures are to be built. Fill areas often contain materials other than mineral soil (i.e., old stumps, boulders, rubbish, etc.) and the characteristics of such fill is highly unpredictable without an on-site investigation, which would include soil borings. The area in Pawcatuck near the Town of Westerly's municipal well appears to be naturally occurring soil. It is shown as Pootatuck fine sandy loam on published soils maps available from the Soil Conservation Service.

The Pootatuck series consists of nearly level, moderately well drained soils on flood plains. They formed in recent alluvial sediments. Pootatuck soils have moderately rapid or rapid permeability, are subject to brief but common flooding, and have a seasonal high water table at 18 to 24 inches. Major limitations are related to wetness and flooding.

Erosion Control

Existing riverbank erosion is largely confined to the area south of the U.S. Route 1 bridge. Specifically, the upstream end of the small island and a short section of riverbank on the Westerly side a short distance (approx. 100') downstream from the island show evidence of riverbank erosion. These eroding banks need to be stabilized, or they will lead to much more serious damage. These eroding areas may qualify as an RC&D Critical Area Treatment project in Rhode Island.

Erosion and sediment control practices must be an integral part of any proposed soil disturbing construction in the area. This is particularly important because of the project area's close proximity to the river. The Rhode Island Erosion and Sediment Control Handbook, and the comparable publication in Connecticut, should provide guidance in planning these erosion control measures.

HYDROLOGY

The Pawcatuck River flows in a southerly direction through the middle of the proposed revitalization project area. Runoff created is primarily intercepted by stormwater drains and ultimately discharged into the Pawcatuck River.

The flood prone area bordering the Pawcatuck River has been identified in a map prepared by the Federal Insurance Administration. A reproduction of part of that map, which identifies the approximate boundaries for a 100 and 500 year flood, is included in this report. A "100-year flood" is a flood with one chance in 100

or 1% chance of occurrence in any year; a 500-year flood is one which has .2% chance of occurring in any year. As depicted by the map, portions of the proposed revitalization area on the Pawcatuck side of the river lies within the flood prone area. As a result, public and private buildings in these areas that are newly constructed or undergo major renovations will require flood insurance. These buildings will require flood-proofing, i.e., elevating buildings above flood hazard levels, provision of water tight closure for doors and windows, elimination of gound level openings, etc., as mandated by the town. For further information regarding construction renovation in flood prone areas, it is recommended that prospective developer(s) contact the building official, zoning enforcement officer and/or town planner.

Runoff increases from the proposed revitalization project will result from the creation of impervious surfaces such as paved parking areas, walkways, and roof sites; however, they probably will be of little detriment to the downstream areas in terms of flooding. Nevertheless, developer(s) should prepare and implement a stormwater control plan which also incorporates sediment and erosion control measures.

RIVER FLOODING/DREDGING CONCERNS

The proposed dredging will probably have the greatest impact of the proposed activities on the Pawcatuck River. The impacts associated with the dredging, however, would be short-term and should not have a permanent adverse effect on the river. The impacts would include an increase in turbidity and physical obstructions in the river which would be limited to the actual construction period. To limit the effect of these impacts on anadromous fish, particularly salmon, no dredging should be allowed between March 1 and July 1 of any year. Furthermore, if tests reveal that the dredged material contains a large amount of fine grained material, the dredging prohibition should be extended to October 1 to protect the downstream shellfish resources.

All observations on flooding are based on the visual field inspection and are not based on any review of hydrologic surveys of the area. Final decisions on flood control activities should be made on the basis of formal studies of the area. Visual inspection of the area produced the following observations:

Dredging of the channel immediately downstream of the U.S. Route 1 bridge may have little or no effect on flooding if the water level is controlled by the channel constriction caused by the existing island (with building), the filling done to create the small park in Pawcatuck, and the tidal effect.

Much of the channel between the railroad bridge and the U.S. Route 1 bridge appears to have been narrowed on the Pawcatuck side by filling over the years. If in the process of shoring up the foundations of the buildings on the Westerly side the channel width is narrowed even more, it may be advisable to widen the river on the Pawcatuck side to maintain channel capacity. It is recommended that the revitalization project not place any permanent structures within close proximity to the riverbank, thus allowing for future channel widening, should it be necessary.

If detailed studies show the channel constriction caused by both the island

in the river and the municipal park protruding into the channel is seriously affecting the flood levels, then serious consideration should be given to removing the constrictions in this area.

Permit Requirements:

Although the Pawcatuck River is not tidal in the project area, it is considered navigable under both Connecticut and federal law and permits would, therefore, be required from the DEP and the Corps of Engineers for the proposed dredging and the placement of any structures of fill, including riprap, in the river. Furthermore, the proposed bridges would require permits from the Coast Guard and the DEP.

WATER QUALITY

On 13 August 1980, the Rhode Island Department of Environmental Management conducted a twenty-four hour survey of the Pawcatuck River. This is an interstate stream with a drainage area of 313 square miles. Its water quality is generally characterized as good, although several areas are affected by waste discharges. The watershed is largely rural, with small population centers located along the river or its tributaries.

The survey consisted of thirteen river sampling stations and three industrial waste effluent samples. A map showing these locations as well as tables showing sampling results are included in the Appendix to this report. The first river station was at the Route 2 Bridge at Kenyon (River Mile 31.1) and the last was at the Main Street Bridge in Westerly (River Mile 5.0). The river flow at the Westerly gage (River Mile 5.5) was 144 CFS (cubic feet per second). The three industries sampled were the Kenyon Piece Dye Works, Bradford Dyeing Association and the Imperial Wallpaper Company. There are no municipal sewage discharges to the portion of the Pawcatuck River that was surveyed, although raw sanitary discharges still exist in some of the former mill villages.

The dissolved oxygen levels were all above Class B criteria at all times measured. BOD_5 concentrations were at background levels at all sampling stations. The coliform levels violated Class B standards at all but four of the stations. Nutrient levels were elevated below the waste sources, especially below the Kenyon Piece Dye Works. The alkalinity of the river was doubled by the Bradford Dyeing Association discharge (from 10± mg/L to 20± mg/L).

The only priority pollutants screened during this survey were the metals cadmium, chromium, copper, nickel and zinc. All results were negative at the detection limit of the test used except for one result for zinc which may be attributed to the sampling location near a dam/bridge structure rather than a source of pollution.

In summary, the Pawcatuck River is classified B (Class C in the vicinity of waste discharges) and meets Class B criteria for all parameters except coliform bacteria. It can be regarded as being of fishable but not swimmable quality.

FISHERIES RESOURCES

The Rhode Island Department of Environmental Management for the past few years has built fish ladders and started anadromous fish restoration programs on the Pawcatuck River System. These programs include Atlantic salmon, shad, alewifes and sea trout. The Connecticut Department of Environmental Protection has been working on a sea run brown trout program in Shunnock Brook. White perch are abundant in the area. Smelt use the area above Route 1 (Broad Street) for spawning.

Most of the project area appears to be urban or disturbed land. Further development near the river will result in little or no loss of upland habitat. In this area, the major concern is to protect the fisheries habitat of the Pawtucket River. Sea-run salmon were successfully stocked in the Pawcatuck; 1982 being the first year mature adults returned from the ocean to spawn in the river. Other anadramous species that are established in the Pawcatuck include alewifes and shad. It is important, therefore, that work in or near the river not obstruct fish migration or in-stream movement of fish. Physical obstructions such as debris, turbidity, spills of oil or other materials, and water diversions will not be permitted.

The period of fish migration is naturally the most sensitive time. Beginning with alewifes, and followed by shad and salmon, migration upstream begins about March 15 and continues through July. The downstream migration overlaps this period. In late June Alewifes and then in late September, Shad begin their journey downstream. Both species continue their migration through the end of October. In summary, the migratory period extends from March to October.

COASTAL RESOURCES

The segment of the Pawcatuck River in the redevelopment area is subject to tidal influences and is therefore under the jurisdiction of the Coastal Resources Management Council (CRMC) in Rhode Island. This area is not under the jurisdiction of the Connecticut Coastal Zone Management Program. Activities within the coastal zone or contiguous fresh water wetlands must be consistent with the goals of the Coastal Resource Management Program. Approval from the Department of Environmental Management Division of Water Resources certifying that proposed activities will not effect water quality standards is necessary before the CRMC can issue a permit for work in a coastal area.

The CRMC has a pre-application process in which they will meet with potential developers and review preliminary plans. In this way, it is able to suggest methods of construction and erosion control measures which would be acceptable to CRMC regulations. The earlier CRMC is contacted in the development of a proposal the better the chance that the project can proceed without unnecessary delays.

Many of the development proposals discussed at the pre-review meeting involved restoration of the river banks. CRMC team members point out that the CRMC favors non-structural methods over the placement of rip-rap and steel or concrete retaining methods.

PLANNING CONCERNS

The Pawcatuck River Revitalization Project will require a large and complicated program of activities which will take a period of at least several years to accomplish. These activities must be organized and structured so that the interdependencies between them can be identified; so that the steps necessary to accomplish the project can be understood, and so that they can eventually be performed in the proper sequence. In this section, the Team Planner diagrammed the top level functions which it will be necessary to perform (see accompanying illustration), and has also provided a description of what is involved in each function, or box, on the diagram. These descriptions are a first step towards defining the activities necessary to accomplish the project. The time allocated for this review does not permit the analysis of these lower level functions to proceed further. Were time available, it would be possible to diagram the activities identified in the descriptions, and thus construct a second level of functional diagrams, with further description of each function. This process, or something similar could be an important aid to the organization and management of the project.

The Team Planner relied heavily on Mr. Birmingham's preliminary draft outline of the scope of the project. He has identified most of the considerations which the project will encompass. What the Team has done is to provide an initial attempt at a framework for organizing these topics into the activities necessary to carry out the project.

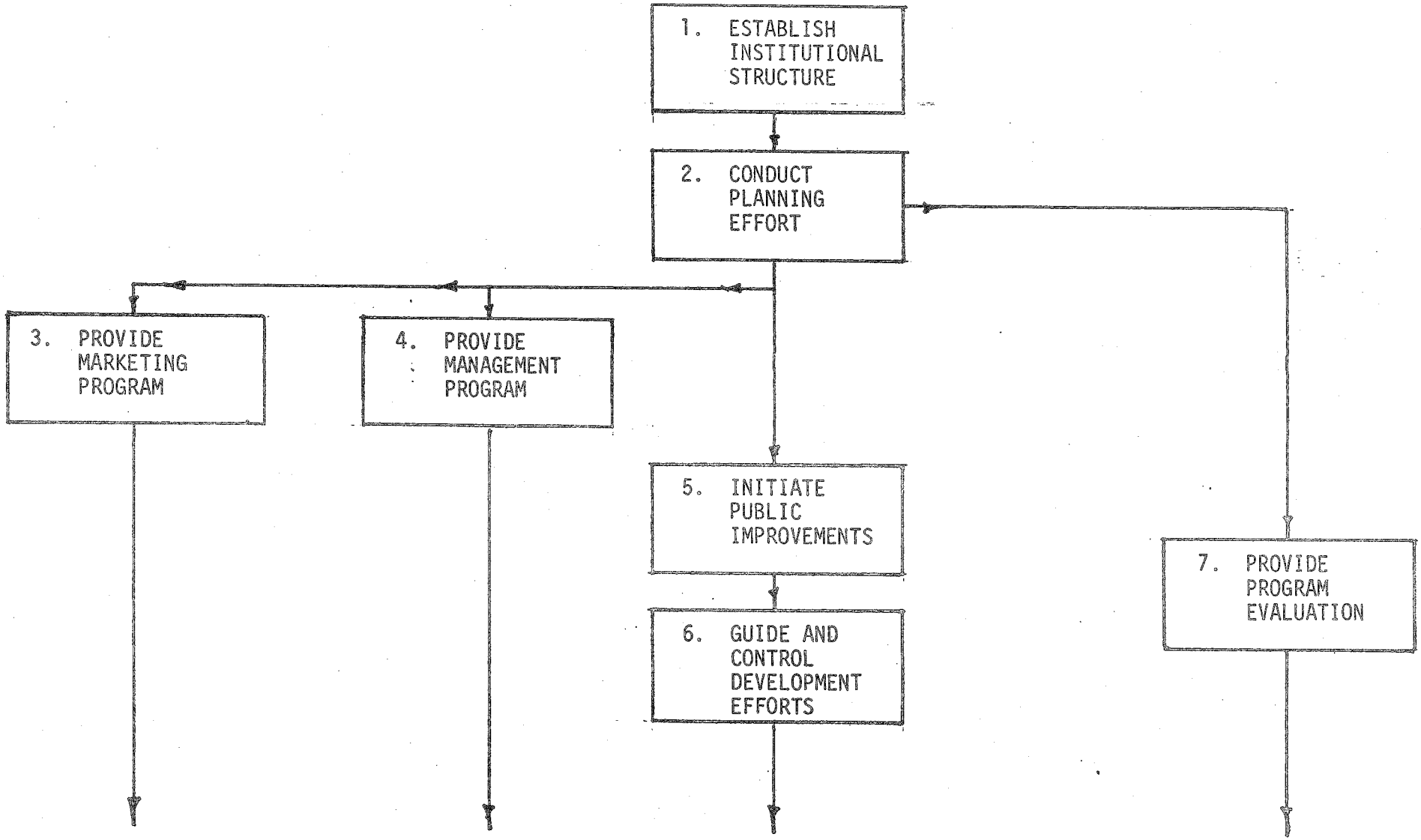
The descriptions of each box in the accompanying diagram are given below:

1. Establish Institutional Structure. This project is made complicated by the fact that the project site straddles the border between Rhode Island and Connecticut, as well as lying in two separate municipalities. There will be a need for a management organization which can cross state boundaries. Mr. Birmingham has identified the important options that will need to be studied. These are a Redevelopment Authority, presumably established jointly by Rhode Island and Connecticut, and an economic development corporation, which could have representation from both states. The other option would be to utilize existing boards and commissions, the Economic Development Board and Redevelopment Authority in Westerly, and the Industrial Development Commission in Stonington, as well as the planning commissions in both communities. These alternatives will have to be carefully studied. The decision on the appropriate institutional structure is a key one for the success of the project, as coordination of all subsequent activities depends upon it.

2. Conduct Planning Effort. Once the organizational structure for the project is established, planning will be necessary to provide guidance for future efforts. The first step in this process will be to inventory existing conditions. Types of physical data required will include land and building use, traffic volumes, traffic origins and destinations, building condition, and historic preservation potential, river channel information and river stabilization requirements. It will also be necessary to inventory financial options.

   As the inventory phase draws to a close, it will be possible to postulate goals and objectives. For example, the overall goal presumably will be concerned with economic development. However, decisions will have to be made

PAWCATUCK RIVER REVITALIZATION PROJECT
TOP LEVEL FUNCTIONS



on the mix of land uses necessary to best support that goal. In order to do this, it may be necessary to develop and evaluate alternate land use, traffic circulation and development concepts. In other words, goals should reflect what is feasible and practical. The process of evaluation of alternate concepts will lead to the choice of a development concept. When this concept is agreed upon, it will be possible to adopt it as a guide plan. However, any plan should be sufficiently flexible to enable development opportunities to be taken advantage of over the life of the project. The plan should be a guide which can be revised to meet changing conditions.

The plan must provide guidance not only for the physical aspects of the project, but also for such non-physical questions as financing and management.

The diagram shows the planning effort leading directly to the initiation of physical improvements. It also leads to the program evaluation function. It is through this latter function that the plan can be revised to reflect changing needs.

3. Provide Marketing Program. This program probably should be continuous throughout the life of the project, but its level of activity can vary according to need. It will be necessary to bring the project to the attention of the public and potential developers and investors. It can be initiated once the plan of the project is finalized.

4. Provide Management Program. Management may well be an outgrowth of the planning process, but management is in one sense the implementation of the plan. Management is envisioned as requiring a staff which would be responsive to the institution or institutions established as having overall responsibility to the project. It might be a special full time staff, or the staff might be assigned from existing institutions on a part-time basis. Once initiated, the management function will be necessary throughout the life of the project.

5. Initiate Public Improvements. Once the planning effort described above has proceeded far enough for necessary public improvements to be identified and described in sufficient detail for engineering to begin, that engineering can be initiated on a project or projects which can be chosen to provide maximum incentive for private investment. One possibility would seem to be stablization of the river banks. Another might be an initial portion of the proposed riverside walk, perhaps in conjunction with construction of parking space. A drainage project is another possible candidate.

The Team Planner recognizes that the strategy illustrated is not the only possible one. However, this strategy seems appropriate at this time. Subsequent events, such as a large-scale private investment in the area, might make it desirable to change this strategy, but the Team cannot foresee such a possibility.

6. Guide and Control Development Efforts. Included here could be not only private development, both new construction and rehabilitation, but such public projects as are not contained in the initial phase of construction as described above (see paragraph 5). Among the necessary activities which will have to be conducted are review of plans, issuance of permits, and coordination of projects to ensure that overall objectives are met. There will be close tie-ins here with the marketing program as described above, and with program evaluation as described in paragraph 7 below. Staff work will be required. Staff considerations are described in paragraph 4 above.

7. Provide Program Evaluation. This function will be continuous, once the guide plan for the project is completed and adopted. The program and its plan must respond to changing needs and to development opportunities as they arise. Thus, this activity includes the necessary revisions to the plan as the project proceeds. Program evaluation will impact all of the later functions shown on the diagram, namely the marketing program (paragraph 3 above), management (paragraph 4), and initial and subsequent development projects (paragraph 5 and 6).

Recreation/Open Space

The goal of taking advantage of the river to encourage its recreational use and to strengthen the attraction of the commercial district is a very good one, and should be pursued. However, merely providing small vest pocket parks and a walkway along the river will not necessarily accomplish this end. Both the walkway and small openings from the river in the form of vest pocket parks must be planned to relate to other surrounding activities. People will not use a walkway that does not link places people want to go. A walkway on the Westerly side would be an excellent idea, especially behind the row of buildings now being renovated because of flood damage. It is strongly recommended, however, that frequent public passageways be created to connect such a riverwalk to High Street. This could be done either by using the existing alleys or by creating new pathways right through the first floor of the buildings.

A river walk on the Stonington side would not, in the Team's opinion, be successful unless the area is redeveloped with either housing or commercial property. It seems like an excellent idea to reserve an easement along the river so that a river walk could be built eventually. However, putting in a walk such as the one next to the park land would be a waste of money at this time because its use would be minimal.

Rather than taking on the entire corridor at once, the towns should be encouraged to focus their efforts on revitalizing the one block north of Broad Street. The buildings on the Westerly side are already being renovated, and Stonington should try to redevelop the parcel directly across the river. The place for the pedestrian bridge should probably be an extension of one of the public pathways through to the river from High Street.

Pedestrian bridges further down the river may be warranted if more development occurs, but a bridge should be built as a result of a need to connect two activity nodes not as an attempt to draw people to a place they would not go otherwise.

The park in Stonington south of Broad Street needs activity around it if it is to be a successful open space. The parking lot behind the park should be reduced in size or moved further south and new development should occur behind the park. Just south of the park where the river widens would seem to be a good site for a marina. Having a marina at the south end of the park and attractive destinations (restaurants, shops, etc.) just north of Broad Street would provide a real reason for people to use the existing river walk.

In general, make provisions if possible for a river walk, pedestrian bridges, and vest pocket parks (they don't need to be much more than an opening from the river walk), but do not build them until adjacent development occurs. Concentrate on revitalizing the river area block by block from the center outward.

Design Considerations

The construction of pedestrian river crossings, a riverside walkway and the creation of picnic pavillions and vest pocket parks are important conceptions in the revitalization of the Pawcatuck River area. The rehabilitation of buildings and existing structures adjacent to the river as well as the introduction of appropriate street furnishings (such as planters, litter receptacles, benches and street trees) should provide an incentive to proceed with the construction of the parks and walkways across and along the river.

In restoring buildings and storefronts (as well as the river side) several important considerations should be:

1. EXTERIOR MASONRY cleaning and rejointing. Owners should be strongly encouraged to remove soot, paint, stains and graffiti and to apply the appropriate jointing material to recapture the original character of the building. This will also aid in halting the further deterioration of the masonry.

2. EXTERIOR DESIGN. Owners should be discouraged from introducing any new design which alters the historical character of the building.

3. SIGNS. Owners should be encouraged to conform to a particular concept or theme which projects the overall character of the area, i.e., nautical. Large obtrusive signs should be discouraged. A nearby village in which single concept signage is displayed is in Mystic, Connecticut.

The need for repairing existing sidewalks in some areas should be examined. The possibility of creating some sort of continuous paving pattern should be studied. This will function to visually connect different areas which may otherwise stand alone. An example in which this has been achieved is in Willimantic, Connecticut, where the sidewalks have been constructed of concrete, granite curbing and brick in a running bond pattern.

If this does not seem economically feasible, it is possible to create the same visual connection with the proper selection of street trees. The repetition of one, two or even three species of hardy trees throughout the downtown areas and along the riversides (especially along the existing boardwalk along the Pawcatuck side) will serve to join the fringe areas with the centers of the towns. This will help to focus in on the river and the adjacent park areas and to connect it to the existing park on Broad and Granite Streets by a belt of foliage. A short list of trees which are hardy, tolerant of pollution and require minimal maintenance are: Katsura Tree, (Cercidiphyllum japonicum); Cornelian Cherry, (Cornus mas); Zelkova, (Zelkova serrata); Bradford Pear, (Pyrus calleryana 'Bradford'); Flowering Dogwood, (Cornus florida). Repetition of an appropriate style tree grate will aid tree survival and add to the aesthetic quality of the paving pattern.

The selection of planters, benches and litter receptacles should be governed mainly by the architecture most inherent in the particular location they are to be placed. They should be functional and easily maintained yet remain subdued. For instance, if a section of town is predominantly greek revival, the street furnishings should resonate this style: not resound contemporary or modern styles.

It may be necessary to develop a theme or concept which captures the flavor of the area. This will be more suitable in sections with mixed architecture and in the proposed picnic and park areas.

Average Daily Traffic

0 1000' scale

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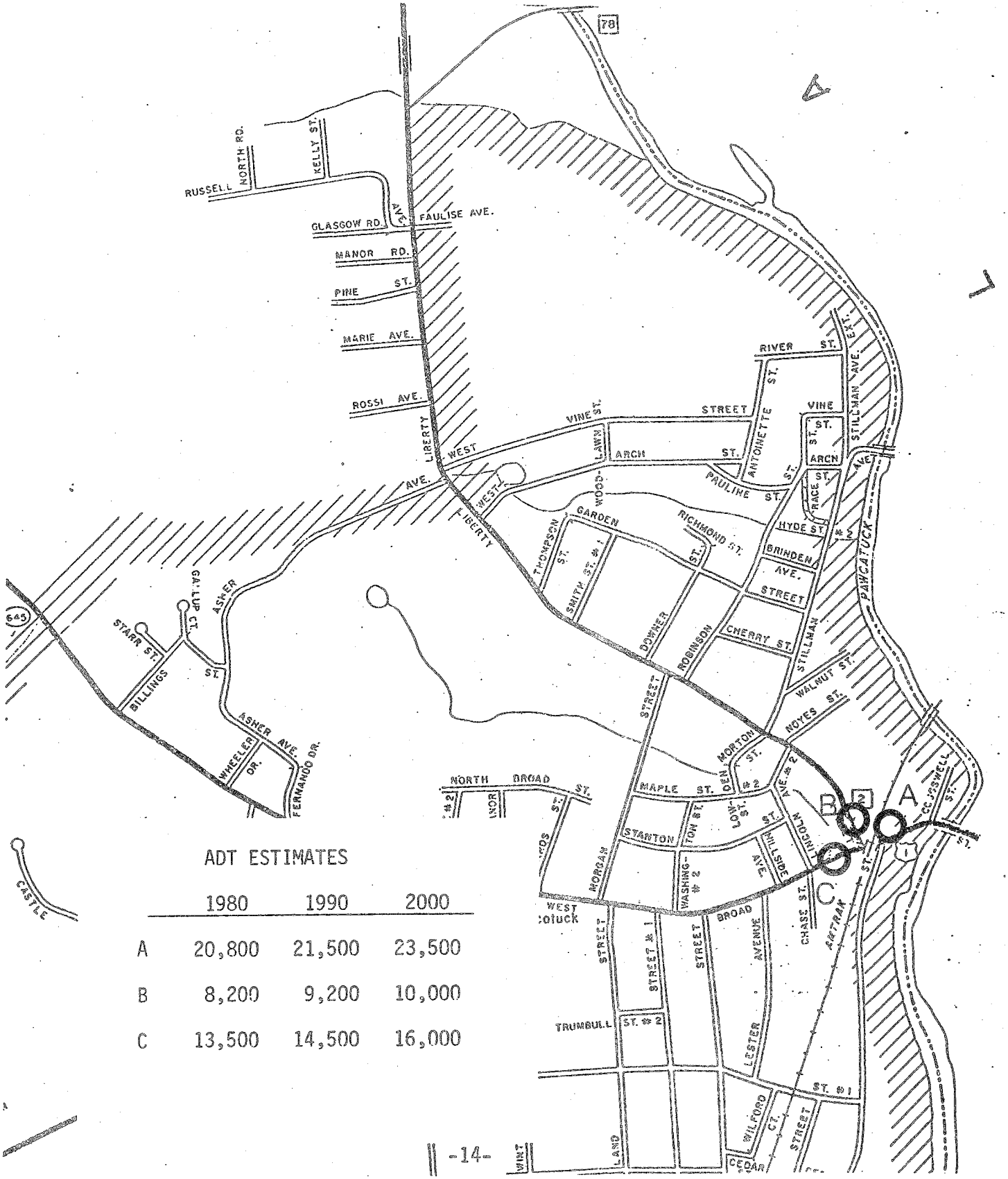


ADT ESTIMATES

	1980	1990	2000
A	20,800	21,500	23,500
B	8,200	9,200	10,000
C	13,500	14,500	16,000

Traffic Improvements

Traffic operations in the study area are constrained due to a single river crossing, a narrow railroad overpass and the two state highways.

Route 1 is a major collector of local traffic from Route 2, SR 645 and numerous local streets. Traffic operations break down in light of the following: on-street parking, conflicting turning movements and narrow roadway widths.

Similar problems exist with Westerly and are compounded by a single river crossing between the two towns. Pertinent traffic volumes and projections are noted on the accompanying map.

A rough estimate of the proposed bridge crossing over the Pawcatuck River by extending Cogswell Street would be $600,000. This would provide a 30' wide structure. The approximate deck elevation would be 20', requiring property takes along Cogswell Street. This elevation would be subject to detailed review relative to scour and flood potential of the river.

The amount of traffic utilizing a narrow roadway without provisions for turning movements and ques would be limited. Improvements to traffic operations for a 30 foot wide roadway are not feasible with reasonable design standards to provide the necessary turning movements.

Further considerations to improve traffic operations:

1. Investigate widening of Route 1
2. Remove on-street parking
3. Review and modify one-way street patterns in Westerly
4. Review Route 1 and local street traffic volumes in Westerly and determine if river crossing north or south of Cogswell Street is feasible.

The Connecticut Department of Transportation does not have funds for a study or future improvements.

HISTORIC RESOURCES

The Public Archaeology Survey Team, Inc. (P.A.S.T.) has conducted an on site inspection of the Pawcatuck River project area, as well as a brief review of pertinent documents. Both P.A.S.T. and the firm of Deleuw, Cather/Parsons and Associates have performed some archaeological reconnaissance work in the general area, the findings from which may be of some use in assessing the area's potential for historic and prehistoric archaeological sites in the Pawcatuck River drainage area. (P.A.S.T. 1978; Deleuw, Cather/Parsons 1978). While early colonial activity along the Pawcatuck River appears to have been minimal, both prehistoric and historic industrial activity was quite extensive along some areas of the river. P.A.S.T. believes that the study area has the possibility of yielding archaeological information on both the prehistory and history of the area. (Even though the area has been subjected to extensive and intensive historic activity, there is a possibility that intact prehistoric sites will be encountered because of the nature of soil development along the river.) Additional work in the form of a Phase I reconnaissance survey of the area would be required to locate any prehistoric sites, as well as to determine the extent and kind of historic activity in the area.

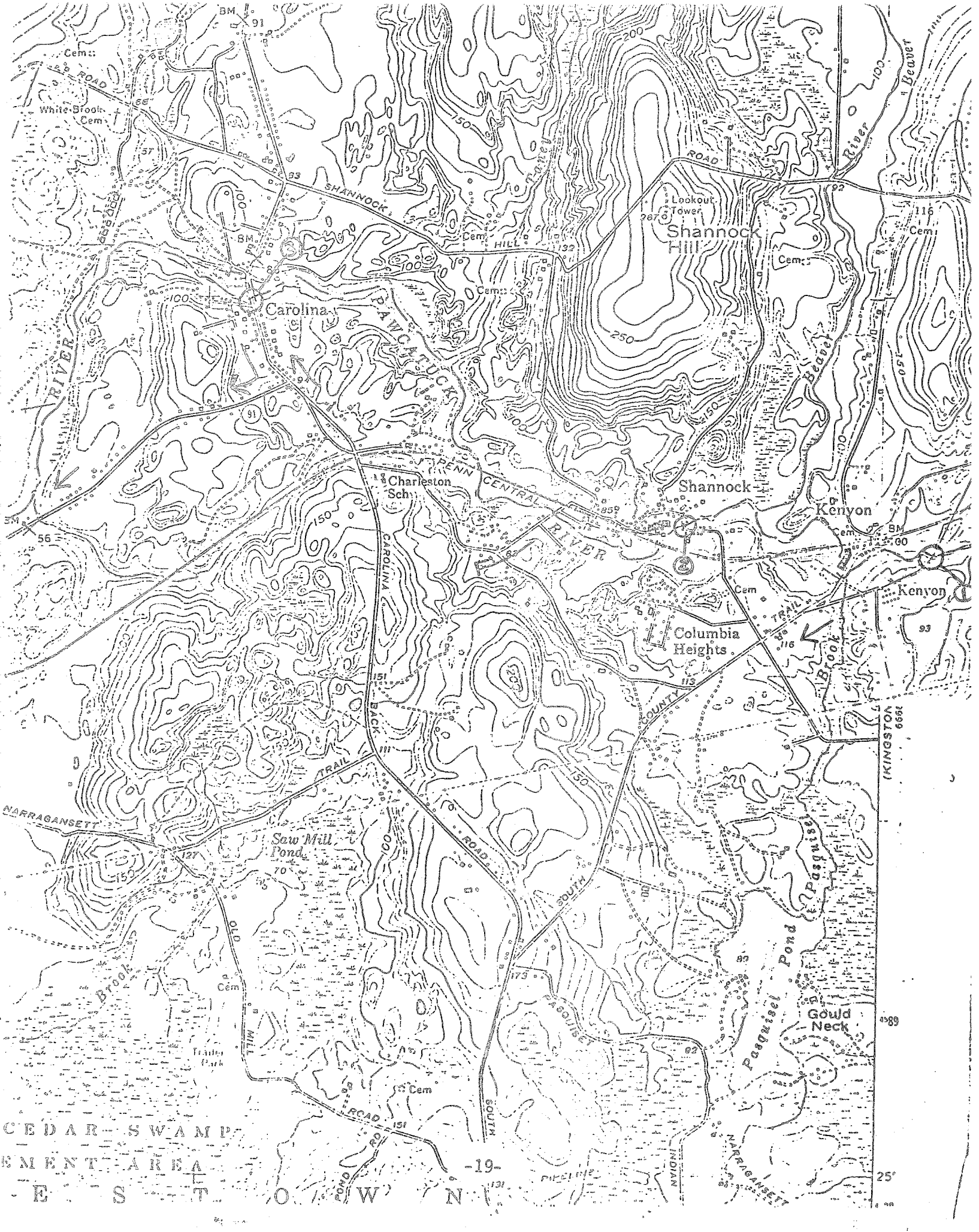
Numerous properties of historical and architectural significance are located within or immediately adjacent to the project's study area. The Mechanic Street Historic District was determined eligible for the National Register of Historic Places by the National Park Service, U.S. Dept. of the Interior. Two properties (C. W. Campbell Company Grain Elevator and the C. B. Cottrell Machine Works) have been identified by the Historic American Engineering Record as possessing historical and industrial significance.

In addition, the Town of Stonington, in cooperation with the Connecticut State Historic Preservation Office, has undertaken a survey and inventory of the historic and architectural resources within the Pawcatuck area.

In general the Pawcatuck area possesses many structures and areas with historical and architectural noteworthiness. Information concerning federal tax incentives provided by the Economic Recovery Tax Act of 1981 for the rehabilitation of income-producing historic structures, as well as additional detailed information about the Mechanic Street Historic District is available at the Stonington Town Planning Office.

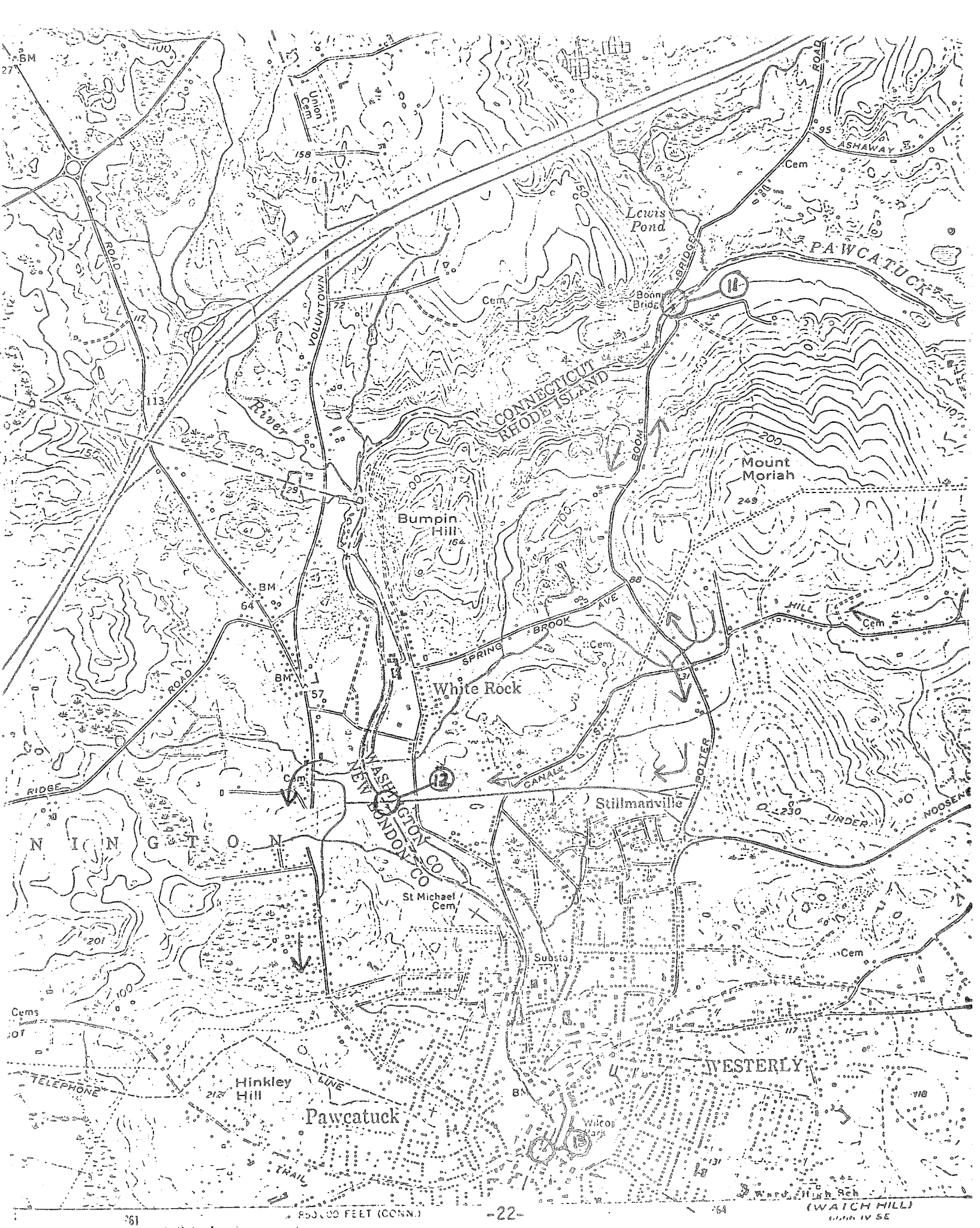
Appendix

SIHTION *	LOCATION
1	Pawcatuck River at Route 2 Bridge
2	Pawcatuck River at Shannock Dam
3	Pawcatuck River at Carolina Dam
4	Pawcatuck River at Alton-Carolina Road (Rte. 91)
5	Pawcatuck River at Kings Factory Road
6	Wood River at Alton-Carolina Road (Rte. 91)
7	Pawcatuck River at Burdickville Road Bridge
8	Pawcatuck River at Bradford Road Bridge
9	Pawcatuck River at Narragansett Electric Co. Substation
10	Pawcatuck River at Meeting House Bridge (Chase Hill Road)
11	Pawcatuck River at Boom Bridge
12	Pawcatuck River at Route 78 (Westerly Bypass) Bridge
13	Pawcatuck River at Main Street Bridge


Cem.
ROAD
White Brook Cem.
SHANNOCK
HILL
Lookout Tower
267'
Shannock Hill
Cem.
Beaver River
Carolina
PAWCATUCK
RIVER
Charleston Sch.
PENN CENTRAL
Shannock
Kenyon
BM
Columbia Heights
TRAIL
Brook
COUNTY
KINGSTON
CAROLINA BACK
NARRAGANSETT
Saw Mill Pond
OLD
SOUTH
Pasquisel Pond
Gould Neck
MILL
Trailer Park
POND
INDIAN
CEDAR SWAMP
EMENT AREA
E S T
O W N


Pond
Cem
Woodville
K I N T O N
Ellis Flats
NARRAGANSETT
Meadow
AREA
WOOD RIVER
Alton Pond
Cem
Alton
PIPELINE
BM
Meadow Brook Pond
PAWCATUCK
Wood River Junction
Cem
Cedar Swamp
RAIL
Burdickville
Cem
Shumunkanuc Hill
SHUMUNKANUC
KINGS
HILL
INDIAN CE
MANAGEM
C H A R L
4
5
6
7


Bethel
Oak Grove Cem
Ashaway
TOMAQUAUG
Ashaway Brook
Mail
Ashaway
OAK
Substation
Potter Hill
Chase Hill
Potter
ROAD
South Hopkinton
BM
VALLEY
WOODVILLE
BRADFORD
Brook
Bradford
LANE
BOWLING
Tomaquag
Hopkinton Cem
CHASE
HILL
Kedinker Island
RIVER
McCarra
Aguntaug
CONRAIL
CONSTRUCTION
Cem
E S T E R L Y
Chapman Pond
WESTERLY
BRADFORD
WOODY HILL MANAGEMENT



blished by the Geological Survey

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #1 Pawcatuck River Rte 2 Bridge
13 AUGUST 1980

Time	Comp(A) 12 M 3:00	am am	Comp(B) 6:00 9:05	am pm	Comp(C) 12:30 3:30	pm pm	Comp(D) 6:00 9:00	pm pm	24 Hour Comp
Dissolved Oxygen, Mg/L	7.5	7.4	6.2	5.5	7.4	7.8	6.1	6.4	
Dissolved Oxygen, %SAT	88	88	96	88	102	95	73	74	
Temperature, °C	23.5	24.0	24.0	24.0	25.0	25.0	24.0	23.0	
pH	6.5		6.5		6.4		6.5		
BOD_5, Mg/L	<1.0		1.0		<1.0		1.0		
Suspended Solids, Mg/L	2.0		0.0		5.0		4.0		
Turbidity, Units	.85		.87		.87		.90		
Total Alkalinity, Mg/L	7.0		7.0		9.0		10.0		
Color, Units	50.0		50.0		40.0		40.0		
M.B.A.S. (Detergents), Mg/L	.09		.05		<.05		.1		
NH_3-N, Mg/L									.84
NO_2-N, Mg/L nitrite	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L nate	.4		.5		.4		.4		
Total Phosphorus-P, Mg/L									.06
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.36
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	9300		23000		9300		2300		
Fecal Coliform, MPN/100ml	430		230		430		23		
TOTAL CADMium cd									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #2 Pawcatuck River Shannock Dam
13 AUGUST 1980

Time	Comp(A) 12:12 pm – 3:10 am		Comp(B) 6:11 am – 9:12 am		Comp(C) 12:30 pm – 3:40 pm		Comp(D) 6:09 pm – 9:12 pm		24 Hour Comp
Dissolved Oxygen, Mg/L	8.2	7.6	6.8	6.9	7.2	7.4	7.2	7.2	
Dissolved Oxygen, %SAT	96	88	79	80	85	88	86	86	
Temperature, °C	23.5	22.5	22.5	22.5	23.5	24.0	24.0	24.0	
pH	6.6		6.7		6.6		6.7		
BOD_5, Mg/L	<1.0		1.0		<1.0		1.0		
Suspended Solids, Mg/L	1.0		1.0		2.0		0.0		
Turbidity, Units	.98		1.1		1.1		1.1		
Total Alkalinity, Mg/L	9.0		11.0		12.0		11.0		
Color, Units	50.0		50.0		50.0		50.0		
M.B.A.S. (Detergents), Mg/L	.12		.06		.06		.14		
NH_3-N, Mg/L									2.0
NO_2-N, Mg/L	.03		.05		.06		.09		
NO_3-N, Mg/L	.6		.6		.6		.8		
Total Phosphorus-P, Mg/L									.22
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn, Mg/L									<.02
Total Coliform, MPN/100ml	43000		23000		23000		75000		
Fecal Coliform, MPN/100ml	930		930		4300		2900		
Total Cadmium Cd.									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

STATION #3 Pawcatuck Carolina Dam

13 AUGUST 1980

Time	Comp(A) 12:35 AM	3:14 AM	Comp(B) 6:27 AM	9:21 AM	Comp(C) 12:35 PM	3:50 PM	Comp(D) 6:17 PM	9:00 PM	24 Hour Comp
Dissolved Oxygen, Mg/L	7.6	7.8	7.2	7.8	9.0	10.2	9.5	9.4	
Dissolved Oxygen, %SAT	88	90	83	90	105	121	113	109	
Temperature, °C	22.5	22.0	22.0	22.0	23.0	24.0	24.0	23.0	
pH	6.7		6.7		6.9		7.0		
BOD_5, Mg/L	<1.0		<1.0		1.0		1.0		
Suspended Solids, Mg/L	1.0		1.0		3.0		0.0		
Turbidity, Units	.95		1.0		.99		1.0		
Total Alkalinity, Mg/L	9.0		9.0		16.0		12.0		
Color, Units	50.0		50.0		50.0		50.0		
M.B.A.S. (Detergents), Mg/L	<.09		<.05		<.05		<.09		
NH_3-N, Mg/L									.10
NO_2-N, Mg/L	<.03		<.05		<.06		<.09		
NO_3-N, Mg/L	.16		.16		.16		.18		
Total Phosphorus-P, Mg/L									.11
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.40
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn, Mg/L									<.02
Total Coliform, MPN/100ml	12000		9300		2300		9300		
Fecal Coliform, MPN/100ml	2130		930		230		2300		

TOTAL Cadmium Cd <.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____

 Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

STATION # 4 Pawcatuck Alton-Carolina Rd (Rte. 91)

13 AUGUST 1981

Time	Comp(A) 12:37 AM 3:37 AM		Comp(B) 6:33 AM 9:29 AM		Comp(C) 12:46 PM 4:40 PM		Comp(D) 6:25 PM 9:28 PM		24 Hour Comp
Dissolved Oxygen, Mg/L	8.3	8.4	7.2	7.1	8.0	8.6	8.7	8.6	
Dissolved Oxygen, %SAT	97	97	81	80	93	99	104	100	
Temperature, °C	23.3	20.0	21.2	21.0	23.0	20.5	24.0	23.0	
pH	6.7		6.6		6.7		6.9		
BOD_5, Mg/L	2.0		<1.0		<1.0		1.0		
Suspended Solids, Mg/L	1.0		2.0		0.0		2.0		
Turbidity, Units	.92		1.1		1.0		.88		
Total Alkalinity, Mg/L	8.0		10.0		12.0		9.0		
Color, Units	40.0		40.0		40.0		40.0		
M.B.A.S. (Detergents), Mg/L	.09		.11		.09		.07		
NH_3-N, Mg/L									.07
NO_2-N, Mg/L Nitrite	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L Nitrate	.5		.6		.5		.6		
Total Phosphorus-P, Mg/L									.09
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.37
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	23000		4300		1500		7500		
Fecal Coliform, MPN/100ml	430		750		93		930		
TOTAL CADMIUM-Cd									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #5 Pawcatuck River - Kings Factory Rd

13 AUGUST 1980

Time	Comp(A) 12:15 AM 3:38 AM		Comp(B) 6:43 AM 9:37 AM		Comp(C) 12:50 PM 4:15 PM		Comp(D) 6:33 PM 9:39 PM		24 Hour Comp
Dissolved Oxygen, Mg/L	8.0	8.3	7.4	7.7	8.6	8.6	8.2	7.6	
Dissolved Oxygen, %SAT	92	94	84	87	97	99	95	85	
Temperature, °C	22.0	21.5	21.2	21.0	21.0	22.5	23.0	21.0	
pH	6.7		6.6		6.7		6.7		
BOD_5, Mg/L	<1.0		<1.0		<1.0		1.0		
Suspended Solids, Mg/L	1.0		2.0		3.0		0.0		
Turbidity, Units	1.24		1.82		1.89		1.96		
Total Alkalinity, Mg/L	9.0		10.0		11.0		12.0		
Color, Units	40.0		40.0		40.0		40.0		
M.B.A.S. (Detergents), Mg/L	.15		.05		<.05		.11		
NH_3-N, Mg/L									.14
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	1.1		1.3		1.1		1.2		
Total Phosphorus-P, Mg/L									.07
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.38
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	9300		9300		7500		930		
Fecal Coliform, MPN/100ml	430		150		93		230		

TOTAL CADMIUM Cd <.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____

 Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #6 Wood River Alton-Carolina Rd. (Rte 91)

13 AUGUST 1980

Time	Comp(A) 12:57 pm / 3:49 pm		Comp(B) 6:52 pm / 9:44 pm		Comp(C) 1:00 pm / 4:35 pm		Comp(D) 6:40 pm / 9:49 pm		24 Hour Comp
Dissolved Oxygen, Mg/L	8.1	7.8	7.4	7.2	7.6	7.6	7.4	7.9	
Dissolved Oxygen, %SAT	98	92	87	86	93	90	90	94	
Temperature, °C	24.5	23.5	23.0	24.0	25.0	24.0	25.0	24.0	
pH	6.7		6.6		6.7		6.7		
BOD_5, Mg/L	1.0		<1.0		0.0		<1.0		
Suspended Solids, Mg/L	2.0		0.0		1.0		1.0		
Turbidity, Units	.66		.72		.70		.79		
Total Alkalinity, Mg/L	8.0		10.0		8.0		8.0		
Color, Units	50.0		50.0		60.0		50.0		
M.B.A.S. (Detergents), Mg/L	.08		<.05		<.05		<.05		
NH_3-N, Mg/L									.20
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.2		.3		.2		.2		
Total Phosphorus-P, Mg/L									<.05
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.62
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									.16
Total Coliform, MPN/100ml	430		930		430		430		
Fecal Coliform, MPN/100ml	43		43		75		150		
TOTAL CADMIUM-Cd									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station # 7 Pawcatuck River Burdickville Rd. Bridge

13 AUGUST 1980

Time	Comp(A) 11:06 Am 3:58 pm		Comp(B) 7:03 am 9:53 pm		Comp(C) 10:47 pm 4:35 pm		Comp(D) 6:47 am 9:55 pm		24 Hour Comp
Dissolved Oxygen, Mg/L	8.1	8.0	7.3	8.0	9.0	9.0	8.3	7.6	
Dissolved Oxygen, %SAT	94	92.5	84	92	105	107	99	91	
Temperature, °C	23.0	22.5	22.0	22.0	23.0	24.0	24.0	23.0	
pH	6.7		6.7		6.8		6.8		
BOD_5, Mg/L	<1.0		<1.0		<1.0		1.0		
Suspended Solids, Mg/L	2.0		0.0		2.0		0.0		
Turbidity, Units	1.2		1.7		1.3		1.0		
Total Alkalinity, Mg/L	10.0		10.0		11.0		9.0		
Color, Units	50.0		50.0		42.0		40.0		
M.B.A.S. (Detergents), Mg/L	.08		.06		<.05		.08		
NH_3-N, Mg/L									.07
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.7		.7		.6		.8		
Total Phosphorus-P, Mg/L									<.05
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.48
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	930		2300		2300		430		
Fecal Coliform, MPN/100ml	93		75		75		43		
TOTAL Cadmium-Cd									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Sta # 8 PAWCATUCK ~~BRANCH~~ RIVER at Bradford Road Bridge

13 AUGUST 1980 ~~2 August 1978~~

Time	Turbidity Units	MBAS	Total Alkalinity MG/L	pH	Temp. °C (5' / 3' / 5' / 9')	Dissolved Oxygen MG/L (5 / 3' / 5' / 9')	Oxygen %Sat (5 / 3' / 5' / 9')	BOD_5 MG/L	Suspended Solids MG/L	Coliform Group Bacteria Total MPN/100ml	Coliform Group Bacteria Fecal MPN/100ml	Color Units	NITRITE AS N	NITRATE AS N
1:20 am					24 / 24 / 24 / 24	7.6 / 6.6 / 5.1 / 4.1	90 / 79 / 61 / 49							
4:12 am					24.5 / 24.5 / 24.5 / 24.5	8.2 / 7.9 / 7.9 / 7.8	99 / 95 / 95 / 94							
Composite (A)	68	.08	10	6.7				1	0	2300	230	40	<.02	.7
7:23 am					23 / 23 / 23 / 23	7.1 / 7.0 / 6.9 / 6.0	83 / 81 / 80 / 70							
10:04 am					23.5 / 23.5 / 23.5 / 23.5	7.9 / 7.7 / 7.7 / 7.7	93 / 91 / 91 / 91							
Composite (B)	.86	.09	11	6.7				<1	0	4300	930	50	<.02	.7
1:15 pm					25 / 25 / 24 / 24	8.4 / 8.4 / 8.2 / 8.0	102 / 101 / 98 / 95							
4:45 pm					25 / 25 / 25 / 25	9.0 / 9.0 / 8.6 / 8.2	110 / 110 / 105 / 100							
Composite (C)	.75	2.05	12	6.7				<1	4	930	430	50	<0.02	0.7
6:55 pm					24.5 / 24.5 / 24.5 / 24.5	8.5 / 8.4 / 8.5 / 7.0	102 / 101 / 102 / 84							
10:07 pm					24 / 24 / 24 / 24	7.8 / 7.8 / 7.8 / 7.8	93 / 93 / 93 / 93							
Composite (D)	.83	.07	10	6.8				1	0	4300	43	50	<.02	.6
Median	.79	.075	165	6.7	24.25 / 24.25 / 24 / 24	8.05 / 7.85 / 7.85 / 7.75	96 / 94 / 94 / 92	<1	0	3300	330	50	<.02	.7
Maximum	.86	.09	12	6.8	25 / 25 / 25 / 25	9.0 / 9.0 / 8.6 / 8.2	110 / 110 / 105 / 100	1	4	4300	930	50	<.02	.7
Minimum	.68	4.05	10	6.7	23 / 23 / 23 / 23	7.1 / 6.6 / 5.1 / 4.1	83 / 79 / 61 / 49	<1	0	930	43	40	<.02	.6

Composite of all samples collected at this station:

MBAS (Detergents) = MG/L
NH_3-N = .84 MG/L
NO_2-N = MG/L
NO_3-N ~~KELDAHL~~ = MG/L
Total ~~Organic~~ Nitrogen-N = MG/L
Total Phosphorus - P = .08 MG/L
~~Fluoride~~ = MG/L

Total Iron = .42 MG/L
Total Cadmium = <.002 MG/L
Total Chromium-Cr = <.02 MG/L
Total Copper-Cu = <.02 MG/L
Total Nickel-Ni = <.01 MG/L
Total Zinc-Zn = <.02 MG/L
~~Total Lead Pb~~ = MG/L

Note: Discharge _____ MGD(CALC.)
Drainage Area _____ Sq.Mi.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #9 Pawcatuck River Narragansett Electric Co. Sub (Station)

13 AUGUST 1980.

Time	Comp(A) 1:30 AM 4:22 AM		Comp(B) 7:36 AM 10:16 AM		Comp(C) 1:28 PM 4:55 PM		Comp(D) 7:12 PM 10:20 PM		24 Hour Comp
Dissolved Oxygen, Mg/L	7.9	8.0	7.4	7.5	7.8	8.2	7.2	7.1	
Dissolved Oxygen, %SAT	94	94	87	89	95	101	88	85	
Temperature, °C	24.0	23.5	23.5	24.0	25.0	26.0	25.0	24.0	
pH	7.3		7.4		7.3		7.3		
BOD_5, Mg/L	1.0		4.0		1.0		1.0		
Suspended Solids, Mg/L	2.0		0.0		2.0		2.0		
Turbidity, Units	.9		1.3		.85		.97		
Total Alkalinity, Mg/L	22.0		23.0		22.0		23.0		
Color, Units	50.0		60.0		50.0		50.0		
M.B.A.S. (Detergents), Mg/L	.09		.17		<.05		.08		
NH_3-N, Mg/L									.18
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.7		.7		.7		.7		
Total Phosphorus-P, Mg/L									.11
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.44
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	930		9300		930		1500		
Fecal Coliform, MPN/100ml	43		230		43		150		
Total Cadmium - Cd.									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #10 Pawcatuck River Meeting House Bridge (Chase Hill Rd).
13 August 1980

Time	Comp(A) 1:40 pm 4:33 am		Comp(B) 7:49 am 10:24 am		Comp(C) 1:35 pm 5:05 pm		Comp(D) 7:18 pm 10:13 pm		24 Hour Comp
Dissolved Oxygen, Mg/L	8.1	8.0	6.9	6.5	7.3	7.4	8.2	7.8	
Dissolved Oxygen, %SAT	98	96	83	78	89	88	100	93	
Temperature, °C	24.5	24.5	24.5	24.5	25.0	24.0	25.0	24.0	
pH	7.4		7.3		7.3		7.4		
BOD_5, Mg/L	2.0		1.0		1.0		4.0		
Suspended Solids, Mg/L	0.0		5.0		0.0		1.0		
Turbidity, Units	.9		1.2		1.1		1.9		
Total Alkalinity, Mg/L	23.0		24.0		25.0		22.0		
Color, Units	60.0		60.0		50.0		60.0		
M.B.A.S. (Detergents), Mg/L	.1		.12		.08		.21		
NH_3-N, Mg/L									.1
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.7		.8		.7		.8		
Total Phosphorus-P, Mg/L									.12
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.41
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	430		2300		930		230		
Fecal Coliform, MPN/100ml	93		120		43		43		
TOTAL Cadmium-Cd.									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station #11 Pawcatuck River Boom Bridge

13 AUGUST 1980

Time	Comp(A) 7:15 AM 4:14 PM		Comp(B) 7:55 AM 10:34 AM		Comp(C) 1:45 PM 5:17 PM		Comp(D) 7:26 PM 10:42 PM		24 Hour Comp
Dissolved Oxygen, Mg/L	7.9	7.7	6.9	7.4	9.0	9.0	8.8	8.4	
Dissolved Oxygen, %SAT	95	92	82	90	110	111	109	102	
Temperature, °C	24.5	24.0	24.0	25.0	25.0	26.0	26.0	25.0	
pH	7.3		7.3		7.5		7.3		
BOD_5, Mg/L	<1.0		1.0		1.0		2.0		
Suspended Solids, Mg/L	0.0		1.0		1.0		0.0		
Turbidity, Units	.79		.91		1.0		1.1		
Total Alkalinity, Mg/L	22.0		22.0		22.0		20.0		
Color, Units	50.0		50.0		50.0		60.0		
M.B.A.S. (Detergents), Mg/L	.06		.10		.07		.07		
NH_3-N, Mg/L									.10
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.7		.8		.7		1.4		
Total Phosphorus-P, Mg/L									.11
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.41
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	750		430		930		930		
Fecal Coliform, MPN/100ml	93		230		430		75		

Total Cadmium-cd. <.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station # 12 Pawcatuck River - Rte 78 Bridge (Westerly Bypass)

13 AUGUST 1980

Time	Comp(A) 2:04 AM 4:56 AM		Comp(B) 8:09 AM 10:45 AM		Comp(C) 1:55 PM 5:28 PM		Comp(D) 7:40 PM 10:52 PM		24 Hour Comp
Dissolved Oxygen, Mg/L	7.8	7.2	6.9	8.7	9.6	9.6	8.6	8.1	
Dissolved Oxygen, %SAT	94	86	82	105	119	119	106	99	
Temperature, °C	24.5	24.0	24.0	24.6	26.0	26.0	26.0	25.0	
pH	7.2		7.5		8.0		7.2		
BOD_5, Mg/L	<1.0		<1.0		1.0		1.0		
Suspended Solids, Mg/L	0.0		5.0		4.0		2.0		
Turbidity, Units	.65		.75		.73		.89		
Total Alkalinity, Mg/L	24.0		22.0		20.0		19.0		
Color, Units	50.0		50.0		50.0		50.0		
M.B.A.S. (Detergents), Mg/L	.06		.09		.10		.09		
NH_3-N, Mg/L									.10
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.7		.7		.6		1.6		
Total Phosphorus-P, Mg/L									.10
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.34
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	23'0		930		230		2100		
Fecal Coliform, MPN/100ml	43		43		93		150		
TOTAL Cadmium-Cd.									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF WATER RESOURCES

Station # 13 Pawcatuck River Main Street Bridge

13 August 1980

Time	Comp(A) 2:13 AM 5:05 AM		Comp(B) 8:15 AM 10:55 AM		Comp(C) 2:10 pm 5:40 pm		Comp(D) 7:53 pm 11:15 pm		24 Hour Comp
Dissolved Oxygen, Mg/L	7.4	7.1	7.7	8.8	10.2	10.2	9.0	7.6	
Dissolved Oxygen, %SAT	89	85	92	107	126	126	111	93	
Temperature, °C	24.5	24.0	24.0	25.0	26.0	27.0	26.0	25.0	
pH	7.2		7.4		8.8		7.5		
BOD_5, Mg/L	1.0		<1.0		<1.0		2.0		
Suspended Solids, Mg/L	0.6		0.0		5.0		3.0		
Turbidity, Units	1.64		.60		.65		1.5		
Total Alkalinity, Mg/L	30.0		24.0		24.0		24.0		
Color, Units	50.0		60.0		50.0		60.0		
M.B.A.S. (Detergents), Mg/L	.06		.09		.11		.10		
NH_3-N, Mg/L									.09
NO_2-N, Mg/L	<.02		<.02		<.02		<.02		
NO_3-N, Mg/L	.7		.7		.6		.7		
Total Phosphorus-P, Mg/L									.08
Total Chromium-Cr, Mg/L									<.02
Total Copper-Cu, Mg/L									<.02
Total Iron-Fe, Mg/L									.36
Total Nickel-Ni, Mg/L									<.01
Total Zinc-Zn Mg/L									<.02
Total Coliform, MPN/100ml	2300		4300		430		930		
Fecal Coliform, MPN/100ml	430		210		230		430		
Total Cadmium-Cd.									<.002

NOTE: Discharge _____ MGD (Calc.)
Drainage Area _____ Sq. ML.
River Mile _____
Weather: _____

About the Team

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state, and regional agencies. Specialists on the Team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, archeologists, recreation specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area.

The Team is available as a public service at no cost to Connecticut towns.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activitis. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, sanitary landfills, commercial and industrial developments, sand and gravel operations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected officials of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the Chairman of your local Soil and Water Conservation District. This request letter should include a summary of the proposed project, a location map of the project site, written permission from the landowner allowing the Team to enter the property for purposes of review, and a statement identifying the specific areas of concern the Team should address. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (774-1253), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, P.O. Box 198, Brooklyn, Connecticut 06234.