NONPOINT SOURCE MANAGEMENT HANDBOOK

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Long Island Regional Planning Board
Hauppauge, New York

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208 HANDBOOK

INTRODUCTION

The 208 Implementation Program

The Long Island Comprehensive Waste Treatment Management Plan, prepared pursuant to Section 208, of the Federal Water Pollution Control Act Amendment of 1972 (PL92-500), was completed by the Long Island Regional Planning Board (LIRPB) in July, 1978. The Plan identified nonpoint sources of pollution as a major cause of both groundwater and surface water contamination. This Handbook, which has been prepared as part of the U.S.E.P.A. 208 Plan Implementation Program, focuses on existing problems and needed controls for nonpoint sources of contamination. Various nonpoint source impacts on ground and surface waters and relevant legislation are discussed. A series of state, municipal and non-government actions are recommended for the control or mitigation of undesirable impacts. The Handbook has been designed to meet the needs of several diverse groups including laymen, site planners, engineers and architects; professional staff of Municipal Planning, Highway, Environmental, Engineering, Parks and Recreation, and Public Works Departments and elected officials.

Geographic Description of Long Island

Nassau and Suffolk Counties comprise 750,000 acres or 1,172 miles, approximately one-sixth of the entire New York Metropolitan Region (See Map).

Although the pace has slowed in recent years, the bicounty area has been one of the fastest growing areas in the United States since World War II. The 1980 Census of Population counted 2,605,813 persons in Nassau and Suffolk Counties. According to Land Use 1981 (LIRPB-December 1982), about 9.5% of the lands in Nassau and 32.2% of the lands in Suffolk remain vacant and available for development. In addition to the vacant land, there is considerable acreage, particularly in the agricultural category (exclusive of those parcels in the Suffolk County Farmland Preservation Program), and land currently used for sand mining operations that is likely to become available for development.

Long Island is totally dependent on underground aquifers for all of its drinking water. The LIRPB's Waste Treatment Management Plan identified eight hydrogeologic zones comprising both deep recharge and shallow discharge zones in Nassau and Suffolk Counties. Knowledgeable management of these areas is essential to maintain groundwater quality and quantity.

Surface waters are also an important resource for Long Island residents and tourists alike. There are more than 1,000 linear miles of stream, river, ocean, bay and Long Island Sound frontage. The Long Island Sound, the bays and the Atlantic Ocean offer excellent opportunities for recreation and marine-related activities. Both the Long Island tourism and fishing industries rely heavily on the perception and reality of clean beaches and waters.

Purpose of the Handbook

The purpose of the Handbook is to identify cause-effect relationships and to provide the best available guidance for use by public officials, developers and Long Island residents concerned with the protection of ground and surface waters. The major objectives, which underlie the recommendations, are maximization of the recharge of high quality groundwater to the aquifers, minimization of pollutant loadings from all land uses and reduction of the amount of consumptive use of groundwater, particularly in shoreline areas or other areas where quantities are limited.

ACKNOWLEDGEMENTS

This Handbook has been the product of a collective endeavor in the best sense of that term. Interdisciplinary skills, involving a wide array of talents and expertise from all levels of government were required. Extensive reviews, including editing and the addition of essential information, have assisted in the creation of a comprehensive document.

This volume could not have been properly completed without the participation and support of many people whose contributions are too numerous to list here. The names of the major contributors are listed in the credits. The Long Island Regional Planning Board wishes to take this opportunity to express its sincere thanks to them and to the other unnamed individuals who have helped to make this Handbook a reality.

However, the Board would be remiss if it did not express a special appreciation to our professional colleagues in the New York regional office of the Environmental Protection Administration whose support, guidance, encouragement and professional input were so important to us over the past decade in facilitating the conduct of our Long Island Comprehensive Waste Treatment planning; our National Urban Runoff Program; and now this effort on implementation. I also must commend Dr. Edith Tanenbaum and Carole Swick of my staff for their dedicated, diligent application to this complex study.

Lee E. Koppelman

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Nonpoint sources, unlike point sources—which are generally controlled by a clearly identifiable agency—require control through action by several agencies and individuals. The control of runoff-borne contaminants requires the parallel, coordinated efforts of legislators and administrators at all levels of government and of knowledgeable citizens.

In order to obtain the best possible information for the handbook, numerous sources were consulted among them, State, County and local officials and other professionals with specific expertise relative to the subject. The Handbook provides the user with a compilation of materials developed from this knowledge and summarized in a single volume. After chapters were completed in draft form, both the 208 Technical Advisory Committee (TAC) and the Citizens Advisory Committee (CAC) reviewed and commented on them. Their thoughtful criticism, and that of other reviewers is reflected in the final document.

There are ten chapters in the Handbook, eight identify and discuss specific nonpoint sources: Land Use; Well Location, Construction, Use and Abandonment; On-Site Systems; Stormwater Runoff; Fertilizers; Animal Wastes; Highway Deicing and Boat Pollution. The Site Plan Review Process Chapter provides recommendations for minimizing groundwater or surface water impacts through an effective site plan review process. Each of these chapters is divided into three main sections: Key Problems, Existing Management, and Recommendations. The Ordinances chapter includes both existing and proposed ordinances for the control of nonpoint source pollutants.

The reference section provides the user with sources for all the topics in the handbook. The references are presented by chapter to facilitate the location of the sources. A glossary is also provided in this section. Words included in the glossary were chosen based upon the importance of their meaning in relation to the understanding of the subject. Most of these words appear in italics in the chapter; however, some do not. In addition, some words which appear in italics were found to be self-explanatory and therefore were not included in the glossary.

How to Use the Handbook

The 208 Nonpoint Source Management Handbook is presented in a loose-leaf form, with tabs to facilitate the location of specific chapters. The format permits easy removal and reinsertion of needed chapters and additional sections, as available, and any relevant information or notes.

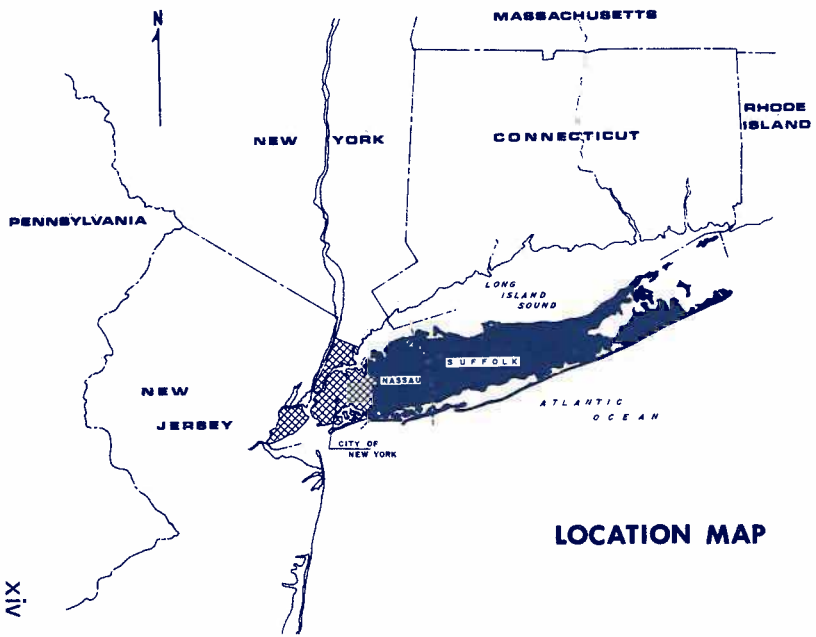
The Handbook—

- Discusses the cumulative impacts of nonpoint source pollutants, thus giving readers a perspective on the problem.
- Recommends various nonpoint source controls for each nonpoint source pollutant.
- Offers guidelines for siting, layout and density of development for single properties and subdivisions.
- Shows how plan implementation strategies can be developed by integrating the information contained in several chapters.
- Facilitates the preparation of Environmental Assessments and Impact Statements.
- Furnishes technical justification for the adoption of needed nonpoint source controls.
- Provides model ordinances.

A detailed explanation of the subject matter of each chapter is provided below.

1. *Land Use*–discusses existing land uses on Long Island, their relationship to the Hydrogeologic Zones, and existing controls. Makes recommendations for necessary controls relative to the location and siting of various land uses in particular areas and zones.
2. *Stormwater*–discusses stormwater processes and constituents, drainage system design and operation, impacts on ground and surface waters and existing management and legislation. Makes recommendations for appropriate stormwater controls and development guidelines.
3. *On-Site*–discusses current siting practices, system functions and maintenance and existing regulations. Makes recommendations for needed legislation, administration, siting, guidelines and proper maintenance.
4. *Highway Deicing*–discusses existing highway deicing and salt storage practices and existing management. Makes recommendations for the control of salt application and salt storage.
5. *Fertilizer*–discusses current fertilizer practices (residential, agricultural) and the effects on groundwater. Makes zoning and site development recommendations for decreasing fertilizer use and the utilization of alternative groundcovers.
6. *Animal Wastes*–discusses existing animal waste (domestic animals and wildfowl) disposal practices and current legislation. Makes recommendations for proper animal waste disposal.
7. *Well Location, Construction, Use and Abandonment*–discusses all of these aspects. Makes general recommendations regarding the permit and review program and techniques for the proper siting, construction and use of wells and appropriate well abandonment procedures.
8. *Boat Pollution*–discusses boating practices, maintenance, disposal of sanitary wastes and the associated effects on surface waters. Makes recommendations for the control of houseboats, boating practices and proper use of marine sanitation devices.
9. *Site Plan Review*–discusses the existing site plan review process and its relationship to controlling some of the nonpoint sources discussed in the other chapters. Makes recommendations for streamlining the process while ensuring that the appropriate nonpoint source controls are implemented.
10. *Ordinances*–The last chapter includes a compilation of existing and proposed ordinances. These ordinances are used to illustrate alternative ways of meeting the water resource protection needs of a particular municipality. The existing ordinances are currently being used on Long Island or in various other states. These ordinances, in the judgment of the LIRPB constitute the best available models for the control of the impact of a particular nonpoint source. Some of these ordinances may be used in their present form, while others may need to be tailored to the specific needs of the municipality.

The Handbook will be distributed on Long Island and to other parts of the country where similar conditions may exist. Ultimately use of the Handbook should help to create a better understanding of existing problems and to improve the environment, particularly ground and surface waters.



LOCATION MAP

KEY TO MUNICIPALITIES IN NASSAU AND SUFFOLK COUNTIES

VILLAGES IN NASSAU COUNTY

Town of Hempstead

1. Atlantic Beach
2. Bellerose
3. Cedarhurst
4. East Rockaway
5. Floral Park (North Hempstead)
6. Freeport
7. Garden City
8. Hempstead
9. Hewlett Bay Park
10. Hewlett Harbor
11. Hewlett Neck
12. Island Park
13. Lawrence
14. Lynbrook
15. Malverne
16. Rockville Centre
17. South Floral Park
18. Stewart Manor
19. Valley Stream
20. Woodsburgh

Town of Oyster Bay

21. Bayville
22. Brookville
23. Centre Island
24. Cove Neck
25. Farmingdale
26. Lattingtown
27. Laurel Hollow
28. Massapequa Park
29. Matinecock
30. Mill Neck
31. Muttontown
32. Old Brookville
33. Oyster Bay Cove
34. Sea Cliff
35. Upper Brookville

Town of North Hempstead

36. Baxter Estates
*37. East Hills (Oyster Bay)
38. East Williston
39. Flower Hill
40. Great Neck
41. Great Neck Estates
42. Great Neck Plaza
43. Kensington
44. Kings Point
45. Lake Success
46. Manorhaven
47. Mineola
48. Munsey Park
*49. New Hyde Park (Hempstead)
50. North Hills
*51. Old Westbury (Oyster Bay)
52. Plandome
53. Plandome Heights
54. Plandome Manor
55. Port Washington North
56. Roslyn
57. Roslyn Estates
*58. Roslyn Harbor (Oyster Bay)
59. Russell Gardens
60. Saddle Rock
61. Sands Point
62. Thomaston
63. Westbury
64. Williston Park

CITIES IN NASSAU COUNTY

65 City of Glen Cove
66. City of Long Beach

VILLAGES IN SUFFOLK COUNTY

Town of Huntington

67. Asharoken
68. Huntington Bay
69. Lloyd Harbor
70. Northport

Town of Babylon

71. Amityville
72. Babylon
73. Lindenhurst

Town of Smithown

74. Head of the Harbor
75. Nissequogue
76. Village of the Branch

Town of Islip

77. Brigthwaters
78. Ocean Beach
79. Saltaire

Town of Brookhaven

80. Belle Terre
81. Bellport
82. Lake Grove
83. Old Field
84. Patchogue
85. Poquott
86. Port Jefferson
87. Shoreham

Town of Southampton

88. North Haven
89. Quogue
*90. Sag Harbor (East Hampton)
91. Southampton
92. Westhampton Beach

Town of Southold

93. Greenport

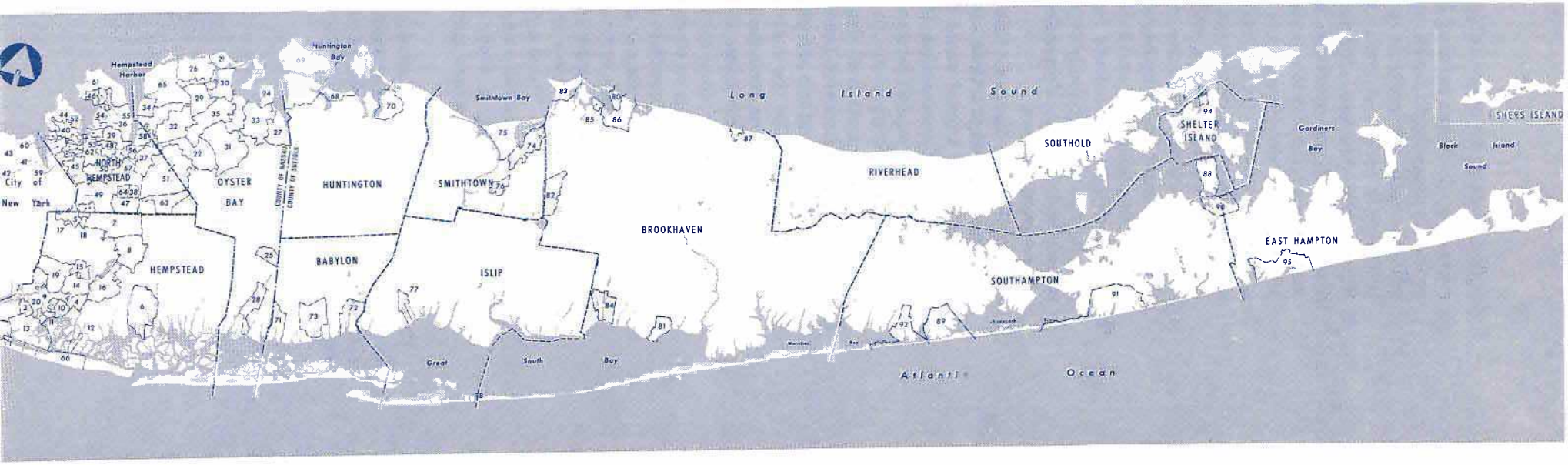
Town of Shelter Island

94. Dering Harbor

Town of East Hampton

95. East Hampton

**Incorporated Villages situated within two towns*



Nassau and Suffolk Counties—Municipal Boundaries

Table of Contents

1. Aquifer Protection Overlay District - Southampton

Purpose

F-1 To promote water recharge and prevent the degradation of the sole source aquifer through the regulation of land use in water catchment regions.

General Provisions

F-5 Requires that a minimum of eighty percent (80%)of each tract or lot within the overlay district shall remain in its natural state.

F-6 Fertilized vegetation should not exceed fifteen percent (15%) or twenty thousand (20,000) square feet for any tract or lot within the district.

F-7 Prohibits the location of new public or private disposal systems used for but not limited to the disposal of septage or waste materials.

F-8 Prohibits the generation, transportation, treatment, storage or disposal of hazardous waste within the overlay district.

2. Water Recharge Overlay District - East Hampton

Purpose

153-24.2B To continue the integrity of the Town's groundwater by promoting the preservation of open space and directing development away from areas of prime recharge.

General Provisions

D. The Town Board may condition site plan approval on the protection of natural vegetation or any other reasonable covenant or restriction necessary to protect groundwater.

E. Limit the utilization of fertilized vegetation.

F. Prohibit any new landfills or private dumping areas utilized for but not limited to the disposal of waste or septage shall be permitted.

3. Special Groundwater Protection Areas - Overlay Districts - LIRPB (Proposed)

Purpose

1.3 To further regulate land uses in selected groundwater recharge areas in order to prevent the degradation of the sole source aquifer.

General Provisions

3.5 All future development within a Groundwater Protection Area shall comply with a plan adapted for the area and performance standards that are consistent with the goals of the plan.

4. Suffolk County Pine Barrens Review Commission - Suffolk County

Purpose

1.0 To ensure the effective management of the land known as the Suffolk County Pine Barrens Zone by protecting sensitive areas, including the underground aquifer, through the creation of a Suffolk County Pine Barrens Review Commission.

General Provisions

3703 Establishes the Suffolk County Pine Barrens Review Commission and gives it the authority to encourage the preparation of, to review, and to evaluate any comprehensive plan which may be adopted for the maintenance and management of the Suffolk County Pine Barrens Zone including plans which provide for increased specificity in protecting significant resources within the Pine Barren Zone, and promote reasonable economic growth within said zone and which create predictability in governmental decision-making;

3704 a. Prior to referring certain municipal zoning actions to the Suffolk County Planning Commission, each town and/or village in Suffolk County having jurisdiction to adopt or amend zoning regulations shall, before taking final action, refer to the Suffolk County Pine Barrens Review Commission any zoning regulation or amendment thereof (herein referred to as "municipal zoning action") which would change the district classification of, or the regulations applying to, real property lying within the Suffolk County Pine Barrens Zone.

b. Prior to referring any application for a special permit to the Suffolk County Planning Commission, each town and/or village in Suffolk County having jurisdiction to issue special permits pursuant to zoning regulations shall, before taking final action, refer to the Suffolk County Pine Barrens Review Commission any application for a special permit which would affect any real property lying within the Suffolk County Pine Barrens Zone.

c. Prior to referring any application for a variance to the Suffolk County Planning Commission, each town and/or village in Suffolk County having jurisdiction to issue variances shall, before taking final action, refer to the Suffolk County Pine Barrens Review Commission any application for a variance which would affect any real property lying within the Suffolk County Pine Barrens Zone.

d. Prior to referring any proposal for the approval of a plat, to the Suffolk County Planning Commission, each municipal agency authorized by a municipal legislative body to approve plats showing lots, blocks or sites, with or without streets or highways, or the development of plats entirely or partly undeveloped and which have been filed in the office of the Clerk of the County in which such plat is located prior to appointment of such Planning Board and the grant to such board of the power to approve plats, shall refer to the Suffolk County Pine Barrens Review Commission any plat of real property lying within the Suffolk County Pine Barrens Zone.

5. Preservation of Open Space - Planned Residential Development - Southampton

Purpose

52.1 A To encourage the flexibility of design and development of land to promote the most appropriate use of land, and to preserve the natural and scenic quality of open lands in order to provide larger areas of open space both for recreational and conservation purposes.

General Provisions

52-4 A The number of dwelling units in no case shall exceed the number which could be permitted if the land were subdivided without the benefit of the local law.

52-7 A The application of the procedure shall result in the preservation of at least twenty-five percent (25%) of the land in its natural state.

52-8 A The use of this procedure shall also result in the preservation of Class I or II prime agricultural soils, located in the agricultural Overlay Districts or a water recharge area.

6. Open Space Preservation - East Hampton

Purpose

110.1 To enable and encourage flexibility of design and development to promote the most appropriate use of the land and to preserve the natural and scenic qualities of open lands in order to provide larger areas of open space both for recreational and conservation purposes.

General Provisions

110-4 B Zoning requirements may be varied or modified to impose conditions for the approval of any plat if the condition is imposed to ensure that the plat complies with any of the requirements of Chapter 131 of the Code or if the condition is imposed in order to perpetuate the existence or prevent the degradation of environmentally sensitive areas or historic places.

110-5A The application of this procedure shall result in the preservation of at least twenty-five percent (25%) of the land on a plat.

110-5A 2 Where land subdivided under this chapter contains prime agricultural soils and where it would implement the Town Comprehensive Plan, the application of this procedure shall result in the preservation of these prime agricultural soils.

7. Nature Preserve Trust - Islip

Purpose

B-1 To manage, protect and preserve unique areas by authorizing the establishment of Nature Preserve Trust areas, whereby land once dedicated may not be taken or otherwise disposed of or used for any purposes not specified in the dedicating resolution.

General Provisions

13-2 B Only properties found to possess natural beauty or estuarine values, including wetlands and shorelines, or of ecological significance, or which have the potential of being restored to their original states, may be dedicated to the Town Nature Preserve Trust. All properties created as a result of dredge spoil management and wetlands rehabilitation programs shall be eligible for dedication.

13-2 C The resolution dedicating town-owned land to the Town Nature Preserve Trust shall provide that all or a specified portion of the property being dedicated shall be kept forever wild or in its natural state, or that it may be used only for the purpose or purposes specified in the resolution.

8a. Cluster Ordinance - Development Pursuant to §281 of Town Law - Brookhaven

Purpose

85-447 To allow the owner or developer of real property to develop it under Town Law §281.

General Provisions

85-447-A The total acreage owned by the applicant or to be included in the proposed development need not be in contiguous parcels or be otherwise contiguous.

85-447-A The owner must specify the number of acres to be dedicated to the town or other municipal agency or to be set aside as open space. The applicant shall state fully the purpose or purposes for which said dedication is to be made or the intended uses, if any, of the open space to be dedicated.

8b. Cluster Ordinance - Cluster Development - Southold

Purpose

100-136 To provide flexibility in the design and development of land, to promote the most appropriate use of land, to facilitate adequate provision of streets and utilities and to preserve the natural and scenic qualities of open space.

General Provisions

100-136 The Planning Board may approve cluster development for one-family detached dwellings in the A Residential and Agricultural District.

100-136 A The maximum number of single-family lots that may be approved shall be computed by subtracting from the total gross area a fixed percentage of twenty percent (20%) of said area and dividing the remaining (80%) of the area by forty thousand (40,000) square feet.

100-136 E A cluster development shall be organized as one (1) of the following: a Homes Association approved by the Federal Housing Administration for mortgage insurance and approved by the Town Board as a Planned Unit Development; a Homes Association approved by the Town Attorney and Town Board; or any other arrangements approved by the Town Attorney and Town Board as satisfying the intent of this chapter.

9a. Transfer of Development Rights - Southampton

Purpose

69-6 B-1 To achieve community planning objectives with reference to natural resources, population, utilities and housing while maintaining the established overall ratio between population capacity at ultimate community development and the safe yield of the fresh groundwater reservoir within the Town's territorial limits.

General Provisions

69-6 B-1 Land from which the development rights are to be transferred must have characteristics such that their permanent preservation as open space will result in the preservation of one or more of the following: porous morainal soils, soils found in the Agricultural Overlay District, tidal wetlands or lands included within the greenbelt park system or an individual park, beach or public recreation area.

9b. Transfer of Development Rights - Sarasota, Florida

Purpose

1.5 To further the public health, safety, and general welfare by providing for the prevention of urban sprawl and the preservation of open space, important agricultural lands, environmentally sensitive areas, and other purposes which serve to otherwise implement the comprehensive plan.

General Provisions

27 Authorizes the transfer of development rights from one location to another where the associated development can be more appropriately accommodated and where such transfer will serve to implement the Comprehensive Plan. At the same time that the development rights are transferred from one property, a Development Limitation is placed on the transferring property to control the nature and extent of its subsequent use and development, and the transferring property will normally be rezoned to reflect the absence of the rights transferred.

135 B The Residential Sending Zone (RSZ) is established to designate areas for the transfer of development rights to other locations in the County.

135 B The Residential Receiving Zone (RRZ) is established to provide areas for the receipt of development rights transferred from other locations in the County.

135 B The residential density of permitted uses shall not exceed one hundred twenty-five percent (125%) of the maximum residential density of the underlying zoning nor shall it exceed under any circumstances the applicable density limitations set forth in the Comprehensive Plan.

10. Special Old Filed Map Overlay District - Southampton

General Provisions

E(2)a Authorizes the establishment of an Old Filed Map Overlay District.

E(2)b No building permit shall be issued for the erection of a one family dwelling on a lot containing less than ten thousand (10,000) square feet in the Special Old Filed Map Overlay District.

E(2)c Each and every lot in the Special Old Filed Map District having a lot area of less than ten thousand (10,000) square feet, lawfully existing in a single and separate ownership and having no dwelling unit thereon is hereby granted a fractional development right.

E(3)b Upon accumulating sufficient partial residential development rights as to amount to one (1) or more full residential development rights, such partial rights may be transferred to any lot in the Special Old Filed Map Overlay District having a lot area of not less than twenty thousand (20,000) square feet.

11. Steep Slopes - Huntington

Purpose

198-60 To protect the health, safety and general welfare of town residents and to maintain the environmental balance and aesthetic quality of the town by providing development and density regulations for hillside development.

General Provisions

198-61 Whenever a parcel of residentially zoned land to be subdivided includes terrain that has a natural slope of ten percent (10%) or greater, the entire parcel shall be considered a hillside development area, subject to erosion and stormwater control requirements.

198-63-B The procedure to determine the number of lots in a hillside development area shall be determined by calculating the natural average slope percentage and applying a lot yield factor.

12. Article 12 - Toxic and Hazardous Materials Storage and Handling Controls - Suffolk County

Purpose

1202 It is the intent and purpose of this article to safeguard the water resources of the County of Suffolk from toxic or hazardous materials pollution by controlling or abating pollution from such sources in existence when this article is enacted and also by preventing further pollution from new sources under a program which is consistent with the Declaration of Policy.

General Provisions

1205 Declares that it shall be unlawful for any person to discharge toxic or hazardous materials in Suffolk County, unless such discharge is specifically in accordance with a State Pollutant Discharge Elimination System (S.P.D.E.S.) Permit or other permit issued by or acceptable to the Commissioner for that purpose.

1210-1216 Regulates the underground, outdoor aboveground and indoor storage of toxic and hazardous materials. Controls the utilization of portable containers and tanks. The transfer of toxic and hazardous materials including associated facilities and operations are also governed by this ordinance.

13. Hydrogeologic Zone - Industrial Zoning - Brookhaven

General Provisions

B(7) All proposed actions and changes in tenants or occupants or new tenancies or occupancies, shall require notification and coordinated review pursuant to the State Environmental Quality Review Act.

B(10) All industries, owners, tenants or occupants, whose activity conducted on site involves storage and handling of toxic or hazardous materials and/or industrial discharges, shall be required to submit adequate financial assurances guaranteeing the immediate clean-up of spills or illegal discharges.

B(11) No industrial discharge shall be permitted unless in conformance with a treatment and disposal system approved by Suffolk County Health Department and the Town of Brookhaven Department of Planning, Environment and Development.

14. Change of Ownership or Tenancy for Industrial or Commercial Buildings - Brookhaven

Purpose

To control the siting of commercial and industrial uses within the Town.

General Provisions

A1. Whenever a building, structure or use or alteration thereof is proposed in this district, except for one family dwelling places, permitted agricultural uses and customary uses related thereto, the Building Inspector shall refer the site plan of the proposal to the Brookhaven Town Planning Board for review.

A1. When a structure or use is changed, sold or leased, the new owner or tenant shall cause notice to be given to the Dept. of Planning, Environment and Development within thirty (30) days of such sale or lease.

15. Change of Occupancy - Islip

General Provisions

68-40 No occupancy or use shall be made of land or a building that is not consistent with the last-issued certificate of occupancy for such building or use of land unless a permit is secured.

16. Extension or Remodeling of Structures Used for Nonconforming Nonresidential Uses - Huntington

General Provisions

198-107A. A structure used for a nonconforming use on nonresidentially zoned premises, excepting nonconforming uses or structures situated in a General Industry District, may be extended or remodeled to an extent exceeding twenty-five percent (25%) of its gross floor area providing that the change is in conformance with this ordinance.

17. Special Surface Water Protection Areas - Overlay Districts - LIRPB (Proposed)

Purpose

1.2 To protect high quality surface waters in order to sustain aquatic, marine, recreational and aesthetic resources for town residents. The ordinance addresses the stormwater-related impacts of pollution, erosion and sedimentation, loss of vegetation and wildlife habitats and damage due to flooding.

General Provisions

3.2.a. Lands within the overlay district are designated Critical Environmental Areas pursuant to the N.Y.S. Environmental Quality Review Act.

3.3 Regulates the location of site disturbance and structures, development density, development upon slopes of 25 percent or greater, stormwater runoff, vegetation protection, and toxic and hazardous materials and wastes.

3.4 An approved landscape plan is required prior to the issuance of certain building permits.

18. Control of On-site Generated Stormwater Runoff Resulting from Development - LIRPB (Proposed)

Purpose

1.3 To reduce the adverse effects of stormwater runoff that may occur during site development and to maintain the integrity of natural drainage systems.

General Provisions

3.2 Activities requiring a permit include grading or stripping affecting more than 20,000 square feet of ground surface, excavation or filling affecting more than 300 cubic yards of material.

3.4 and 4.1 All development, construction, excavation and landscaping activities shall be in accordance with an approved stormwater runoff control plan that indicates the manner in which the applicant will meet the required performance standards.

19a. Site Grading and Erosion Control Ordinance - Brookhaven

Purpose

35-1 To regulate the regrading of land to prevent serious and irreparable damage tonatural resources, depreciation of property values, and to protect persons and property from the hazards of periodic flooding.

Minimum Standards

35-3 Whenever a site plan review and approval is required, the site plan shall indicate compliance with the standards provided in this ordinance.

19b. An Ordinance Relating to the Control of On-site Generated Soil Erosion and Sedimentation - LIRPB (Proposed)

Purpose

1.3 To reduce the adverse effects of soil erosion and sedimentation during site preparation and development.

General Provisions

3.2 Activities requiring a permit include grading, stripping, excavation and site preparation on slopes greater than fifteen percent.

3.4 All development must be in accordance with an approved soil erosion and sedimentation control plan and the requirements of this ordinance.

20. Article 6 Suffolk County Sanitary Code Realty Subdivision and Development

General Provisions

602-1 No developer shall after the effective date of this article:

a. engage in the creation of a realty subdivision, or sell, rent, offer for sale or lease any parcel in a realty subdivision unless Department approval has been obtained of the existing or proposed water supply and sewage disposal facilities in the subdivision;

b. engage in the creation of a development, or lease, rent, give devise, or otherwise dispose of any parcel in a development or erect or cause to be erected any permanent building on any parcel in the development unless Department approval has been obtained for the existing or proposed water supply and sewage disposal facilities in the development.

603-4 Identifies requirements to obtain and furnish water supply and/or sewerage facilities for a realty subdivision or development by connection to an existing community water and/or sewerage system.

605-1 Identifies conditions where a community sewerage system method of sewage disposal is required for a realty subdivision or development.

605-2 Identifies conditions where individual sewerage systems may be approved as the method of sewage disposal for all parcels within a realty subdivision or development.

606-1 Identifies conditions where a community water system method of water supply is required.

606-2 Establishes minimum requirements for community water systems.

606-3 Identifies conditions where individual water supply systems may be approved.

608-1 Identifies conditions where a community sewerage system for sewage disposal is required for the purposes of cluster housing, two-family residences, multi-family housing or commercial or industrial centers.

21a. Vegetation Protection - Southampton

Purpose

62-2. To regulate the destruction or removal of vegetation to protect the town's fresh water supply, natural noise barriers, wildlife habitats and aesthetic character.

General Provisions

62-4. Damage, destruction, or removal of vegetation on private property without the consent of the property owner or on public grounds without the consent of the Town Board or agent is prohibited.

21b. Tree Preservation - Brookhaven

Purpose

70-1. To regulate the destruction and removal of trees and to secure protection of trees in order to protect wildlife habitats, ecosystems and aesthetic quality.

General Provisions

70-3.,-70-6. Submission of a plan and procurement of a permit is required prior to the destruction or removal of any tree growing upon a parcel of real property which is in excess of two acres.

22. Site Clearing And The Preservation Or Conservation Of Vegetation - LIRPB (Proposed)

Purpose

1-3. To regulate the removal of vegetation to conserve soils, and protect ecological resources, groundwater and surface water quality.

General Provisions

31-2. A permit is required for grading or stripping of 20,000 square feet of ground surface or vegetation removal within 300 feet of wetlands or within the 100-year floodplain. The permit application must include a complete planting and restoration plan designed to meet the performance standards contained within the ordinance.

23. Topsoil Stripping - General Regrading and Excavating Ordinance of the Town of Shelter Island

General Provisions

501.6, 502. A finished grading plan is required in accordance with Section 100 of this ordinance. Any top soil stripped on site must be placed, stored and protected in accordance with this section.

24. Animal Waste Controls

General Purpose

To protect groundwater and surface water quality by imposing restrictions and regulations upon the generation, storage and disposal of animal wastes.

24a. Model Ordinance for Dog Waste Control - LIRPB (Proposed)

General Provisions

3.2.4 Regulations for the proper disposal of dog wastes and leash requirements are provided.

24b. Authorize Boarding Stable Use - Village of Old Westbury

General Provisions

1002.25 Repeals and amends the zoning ordinance to authorize boarding stable use subject to the permitted uses, acreage, site standards and management.

24c. Animal Waste Controls - Village of Oyster Bay Cove

General Provisions

5.0 The keeping of dogs, game, birds and livestock shall be subject to requirements and performance standards provided in this ordinance.

24d. Equine Livestock - LIRPB (Proposed)

General Provisions

3.1-3.6 Regulates the density of horses, ownership, storage of feed, waste disposal, housing and distance from abutting properties.

24e. HF Horse Farm - Residence District - Brookhaven

Purpose

To establish requirements and standards for the permitted uses within an HF-Horse Farm-Residence District.

General Provisions

85-184 Identifies temporary uses requiring Planning Board approval such as horse
85-185 shows. Sets standards for minimum lot size and the number of horses permitted per acre. A Soil and Water Conservation Plan is required in order to obtain a permit.

25. Article 4 - Suffolk County Sanitary Code - Water Supply

Purpose

402. To control drinking water supplies and to insure that Suffolk County residents have a healthful and plentiful supply of water.

General Provisions

405. All drinking water made available for human consumption must meet the prevailing standards of the New York State Sanitary code and any standards promulgated by the Board of Health.
407. A plan for water supply facilities approved by the Suffolk County Department of Health Services and filed by the Office of the Clerk of the County of Suffolk is required for all realty subdivisions, transactions or building construction.

26. Boat Pollution Ordinances

26a. Houseboats - Newport, California

Purpose

17.40 To control the mooring, docking or usage of houseboats on the waters of Newport Harbor.

General Provisions

17.40.000 Conditions for the issuance of a Houseboat Marina Permit include the requirement that each space intended for a houseboat be provided with an individual antibackflow valve, a sewer connection leading into a permanent sewer and a permanent supply of electricity.

26b. District Regulations FH - Floating Home District - Babylon (Proposed)

Purpose

To regulate the use of house barges for residential purposes on waterways for environmental, social and safety reasons.

General Provisions

15-608-20 Prohibits the mooring or erection of floating homes over public lands and private lands under water unless these lands are designated as Floating Home Districts, and to regulate floating homes in the FH Districts. A site plan and an environmental assessment is required for each application for a permit.

TABLE 1

Recommended Ordinances To Control Or Minimize Nonpoint Source Impacts

TITLE OF ORDINANCE	General Nonpoint Source	Specific Nonpoint Source							
	Land Use	Storm-water Runoff	On-Site Systems	Highway Deicing	Fertilizers	Animal Wastes	Well-Water Supply	Boat Pollution	Site Plan Review Process
1. Aquifer Protection Overlay District - Town of Southampton	X								X
2. Water Recharge Overlay District - Town of East Hampton	X								X
3. Special Groundwater Protection Areas - LIRPB		X	X	X	X	X	X		X
4. Suffolk County Pine Barrens Review Commission; Amendment to Article 13 and Addition to Article 37 of the Suffolk County Charter	X								X
5. Preservation of Open Space - Planned Residential Development - Town of Southampton	X				X				
6. Open Space Preservation - Town of East Hampton	X				X				
7. Nature Preserve Trust - Town of Islip	X				X				
8. Cluster Ordinances									
a) Town of Brookhaven	X	X			X				X
b) Town of Southold	X	X			X				X
9. Transfer of Development Rights									
a) Town of Southampton	X								
b) Sarasota, Florida	X								
10. Special Old Filed Map District - Town of Southampton	X		X		X				
11. Steep Slope Ordinance - Town of Huntington	X	X							X
12. Article 12 - Suffolk County Sanitary Code Toxic and Hazardous Material Storage and Handling Controls	X								
13. Hydrogeologic Zones - Industrial Zoning - Town of Brookhaven	X		X		X				
14. Change of Ownership or Tenant for Industrial or Commercial Buildings - Town of Brookhaven	X		X						X
15. Change of Occupancy - Town of Islip	X								X
16. Extension or Remodeling - Town of Huntington			X					X	X
17. Special Surface Water Protection Area - LIRPB		X							X
18. Stormwater Control Ordinance - LIRPB									
19. Site Grading and Erosion Control Ordinance:									
a) Town of Brookhaven									
b) LIRPB		X			X				X
20. Article 6 - Suffolk County Sanitary Code - Realty Subdivisions and Development			X						
21. Vegetation Protection:									
(a) Vegetation Control Ordinance - Town of Southampton					X				X
(b) Tree Preservation Ordinance - Town of Brookhaven					X				X
22. Site Clearance Ordinance - Preservation of Vegetation - LIRPB					X				X
23. Protection of Topsoil - Town of Shelter Island					X				
24. Animal Waste Controls:									
(a) Model Ordinance for Dog Waste Controls - LIRPB						X			
(b) Authorize Boarding Stable Use - Village of Old Westbury						X			
(c) Uses in A-1 Districts - Village of Oyster Bay Cove						X			
(d) Equine Livestock - LIRPB						X			
(e) "HF" Horse Farm - Residence District Town of Brookhaven						X			
25. Article 4 - Water Supply - Suffolk County Sanitary Code							X		X
26. Boat Pollution Ordinances:									
(a) Houseboats - Newport, California								X	
(b) "FH" Floating Home /District - Town of Babylon								X	

NOTE: This table provides a list of existing, revised or new ordinances that provide for the management of nonpoint sources of pollution. Some of the ordinances address recommendations in one or more chapters or one or more sources of pollution. It also includes a list of the recommended ordinances and the title of the chapter(s) to which they relate. Additional ordinances are listed in the site plan and subdivision review process table.

TABLE 2
Land Use Management Techniques

TITLE OF ORDINANCES	RESOURCE MANAGEMENT						LAND MANAGEMENT TECHNIQUES SPECIFIED IN THE ORDINANCES			
	Groundwater	Water Supply	Stormwater Runoff	Open Space	Natural Vegetation	Surface Water	Clustering	Transfer Of Development Rights	Old Filed Maps	Conservation — Scenic Easements, Reserve Areas Nature Trusts
1 Aquifer Protection Overlay District - Town of Southampton	X	X		X	X					X
2. Water Recharge Overlay District - Town of East Hampton	X	X		X	X					
3. Special Groundwater Protection Areas - LIRPB	X	X	X	X	X		X			
4. Suffolk County Pine Barrens Review Commission; Amendment to Article 13 and Addition to Article 37 of the Suffolk County Charter	X	X		X	X	X				
5. Preservation of Open Space - Planned Residential Development - Town of Southampton	X			X			X			X
6. Open Space Preservation - Town of East Hampton				X			X			X
7. Nature Preserve Trust - Town of Islip	X	X		X	X	X				X
8. Cluster Ordinances										
a) Town of Brookhaven				Xa			Xa			
b) Town of Southold				Xb			Xb			
9. Transfer of Development Rights										
a) Town of Southampton	Xa	Xa		Xa				Xa		
b) Sarasota, Florida				Xb	Xb		Xb	Xb		Xb
10. Special Old Filed Map District - Town of Southampton	X	X						X	X	
11. Steep Slope Ordinance - Town of Huntington			X		X		X			
12. Article 12 - Suffolk County Sanitary Code Toxic and Hazardous Material Storage and Handling Controls	X	X								
13. Hydrogeologic Zones - Industrial Zoning - Town of Brookhaven	X				X					
14. Change of Ownership or Tenant for Industrial or Commercial Buildings - Town of Brookhaven										
15. Change of Occupancy - Town of Islip										
16. Extension or Remodeling - Town of Huntington					X	X	X			X
17. Special Surface Water Protection Area - LIRPB			X		X	X				
18. Stormwater Control Ordinance - LIRPB										
19. Site Grading and Erosion Control Ordinance:										
a) Town of Brookhaven			Xa							
b) LIRPB			Xb		Xb					
20. Article 6 - Suffolk County Sanitary Code - Realty Subdivisions and Development	X	X					X			
21. Vegetation Protection:										
(a) Vegetation Control Ordinance - Town of Southampton		Xa			Xa					
(b) Tree Preservation Ordinance - Town of Brookhaven					Xb					
22. Site Clearance Ordinance - Preservation of Vegetation - LIRPB	X	X			X	X				
23. Protection of Topsoil - Town of Shelter Island			X							
24. Animal Waste Controls:										
(a) Model Ordinance for Dog Waste Controls - LIRPB	Xa	X	X			X				
(b) Authorize Boarding Stable Use - Village of Old Westbury	Xb	X				X				
(c) Uses in A-1 Districts - Village of Oyster Bay Cove	Xc	X				X				
(d) Equine Livestock - LIRPB	Xd					X				
(e) "HF" Horse Farm - Residence District Town of Brookhaven	Xe		X			X				
25. Article 4 - Water Supply - Suffolk County Sanitary Code		X								
26. Boat Pollution Ordinances:										
(a) Houseboats - Newport, California						Xa				
(b) "FH" Floating Home /District - Town of Babylon						Xb				

NOTE: This table provides a list of existing or new ordinances relating to RESOURCE or LAND MANAGEMENT. The ordinances relating to RESOURCE MANAGEMENT aid in presenting pollution of resources by nonpoint sources. The ordinances listed under LAND USE MANAGEMENT TECHNIQUES will aid in mitigation of adverse impacts upon resources due to development.

AQUIFER PROTECTION OVERLAY DISTRICT
TOWN OF SOUTHAMPTON—DRAFT

69-9 OVERLAY DISTRICTS

F. Aquifer Protection Overlay District

1. FINDINGS

The Town Board of the Town of Southampton is empowered by Section 263 of the Town Law of the State of New York to enact zoning regulations which in accordance with the Town Master Plan facilitate the adequate provision of water to the residents of the Town and also promote the health, safety and welfare of the Town. The sole source of drinking water for the Town of Southampton is its underground aquifers. The federal government has given sole source aquifer designation to this area. These aquifers must be kept pure if a continued source of potable drinking water is to be available for future generations. It is the policy of the Town Board to protect the Town's supply of drinking water in its pristine state and prevent the degradation of this valuable and essential resource.

The Town Master Plan and subsequent studies and updates have located geographic areas in the Town where water recharge into the aquifers is the deepest and greatest recharge occurs. These areas have been designated as water catchment regions.

These water catchment regions affect the water quality for the entire Town. The types of land use which occur above the water catchment regions directly impact upon the aquifer and its quality. Thus, the type of land use in the water catchment regions must be compatible with the function of water recharge to insure the goal of protecting the drinking water supply of the Town.

The recent Cornell University Water Study clearly indicates the importance of regulating certain uses to preserve pure water quality.

The Town Board has already recognized that the density of population and intensity of land use are variables which affect both water quality and water quantity. Programs to reduce population density and promote open space have already been implemented which benefit both water quality and water quantity.

Of equal importance in protecting water quality is the types of land uses which are permitted in water catchment regions. Land use regulations must be implemented which strictly regulate land uses which are incompatible with water recharge and protection of the Town's supply of pure drinking water.

It is the purpose of the ordinance in accordance with findings of the Cornell University Water Study to create an aquifer protection overlay district to regulate land use over those areas which have been found to be water catchment regions in order to promote the goals of the Town Master Plan and the policy of the Town Board to promote water recharge and prevent degradation of the sole source aquifer.

2. APPLICABILITY

The provisions of the section shall apply to lands in the Town, outside of incorporated villages, superimposed upon the Zoning Map of the Town of Southampton, delineated as Aquifer Protection Overlay District.

3. DEFINITIONS

The following terms shall have meanings as indicated.

(a) Crops, shall have the same meaning as provided in Section 301(4) (a), (b), (c) and (d) of the Agriculture and Markets Law of the State of New York.

(b) "Fertilized Vegetation" shall mean areas of vegetation cultivated by man which requires the application of fertilizers, pesticides or other substances in order to grow or maintain its existence.

(c) "Lot" shall mean a single piece of land or building plot which is incapable of further subdivision under Chapter 69 of the Town Code.

(d) "Natural Vegetation" shall mean existing and naturally occurring indigenous vegetation which grows and is maintained without need of irrigation or applications of fertilizers, pesticides or other substances.

(e) "Septage" shall mean the contents of a septic tank, cesspool or other individual sewage treatment facility which receives domestic sewage wastes.

(f) "Hazardous Waste" shall mean those substances so defined and identified as hazardous waste pursuant to Article 27, Title 9, of the Environmental Conservation Law of the State of New York and rules and regulations promulgated thereunder.

(g) "Tract" shall mean any parcel of real property capable of subdivision pursuant to all applicable requirements.

(h) "Waste Materials" shall mean unwanted or discarded solid, liquid or gaseous materials.

4. CONSTRUAL WITH OTHER STATUTES

(a) The provisions of Chapter 52 (Open Space Preservation) of this code shall be applicable to lands located within the overlay district zones for residential use.

(b) Lands within the overlay district are designated critical environmental areas pursuant to the State Environmental Quality Review Act.

5. PROTECTION OF NATURAL VEGETATION

(a) To insure maximum water recharge, a minimum of eighty (80) percent of each tract located in the overlay district shall remain undisturbed and in its natural state. Natural vegetation located on the tract shall be preserved to the maximum extent possible consistent with this policy.

(b) The Planning Board, when considering the subdivision of a tract within the overlay district, shall utilize development or building envelopes, scenic easements, reserved areas, covenants and restrictions or any other reasonable means to implement the requirements of this section.

6. FERTILIZED VEGETATION

To minimize the potential for groundwater contamination from fertilizers, pesticides and other substances, fertilized vegetation shall not exceed fifteen (15) percent of any tract or lot within the overlay district or 20,000 square feet, whichever is less. Lands currently utilized or utilized within the last five years for the production of crops shall be excluded from the requirements of this provision.

(b) Any application for a building permit within the overlay district shall provide a landscape plan if fertilized vegetation is to be utilized.

7. DISPOSAL FACILITIES

The location of new public or private disposal facilities to be used for but not limited to the disposal of septage or waste materials shall be prohibited.

8. HAZARDOUS WASTE

The generation, transportation, treatment, storage or disposal of hazardous waste shall be prohibited in the overlay district.

9. FERTILIZERS AND OTHER SUBSTANCES

The Town Board shall cause to be prepared an inventory of fertilizers, pesticides, herbicides, or other substances which are deemed to be a serious threat to the public welfare. Said inventory shall be adopted as an appendix to this law and the use of said substances shall be prohibited within the overlay district.

(Appendix)

Inventory of Fertilizers, Pesticides, etc.

WATER RECHARGE OVERLAY DISTRICT
DISTRICT USES
TOWN OF EAST HAMPTON CODE

ARTICLE IV

3 **§ 153-24.2. Water Recharge Overlay District. [Added 8-5-83]**

A. Definitions. As used in this section, the following terms shall have the meanings indicated:

FERTILIZED VEGETATION — Unnaturally occurring areas of vegetation (turf, grasses, plants, etc.) cultivated by man from either the planting of seedlings, etc., or placement of sod, which requires applications of a fertilizer, pesticide or herbicide in order to grow or maintain its existence.

HAZARDOUS WASTE — A waste or combination of wastes which, because of its quantity, concentration or physical, chemical or infectious characteristics, may:

(1) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness; or

(2) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed or otherwise managed.

NATURAL VEGETATION — Existing and naturally occurring indigenious vegetation which grows and is maintained without need of applications of fertilizers, pesticides or other substances.

SEPTAGE — The contents of a septic tank, cesspool or other individual sewage treatment facility which receives domestic sewage wastes.

WASTE — Any garbage, refuse and other discarded material, including solid, liquid, semisolid or contained gaseous materials.

B. The provisions of Chapter 110 (Open Space) shall be applicable to lands in the Residence Districts AA and A located within the overlay district, including its special provisions for preserving open space and directing development away from areas of prime recharge within the overlay district.

C. Lands located within the Water Recharge Overlay District are found to be Critical Environmental Areas pursuant to the State Environmental Quality Review Act and Chapter 154 of the Town Code.

D. Any action within the Water Recharge Overlay District requiring an approval from any Town Board or agency may be conditioned upon a grant to the town of covenants and restrictions regarding the protection of natural vegetation, limitation on clearing of land, landscaping, the use of fertilizers, the manner of disposing of waste materials, or any other reasonable condition or restriction necessary to ensure the continued integrity of the town's groundwater. Town boards and agencies shall seek to minimize clearing of natural vegetation and disturbance of lands within the overlay district.

E. Fertilized vegetation on any lot within the Water Recharge Overlay District shall not exceed fifteen percent (15%) of lot area, or twenty thousand (20,000) square feet, whichever is less. This provision shall not be construed to limit existing agricultural activities.

F. No new landfills or private dumping areas utilized for but not limited to the disposal of waste or septage shall be permitted in the overlay district.

SPECIAL GROUNDWATER PROTECTION AREAS OVERLAY DISTRICTS

PROPOSED ORDINANCE

LONG ISLAND REGIONAL PLANNING BOARD*

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

1.1 Statutory Authorization.

The Town Board of the Town of _____ is empowered by Section 263 of the Town Law of the State of New York to enact zoning regulations which in accordance with the Comprehensive Plan facilitate the adequate provision of water to the residents of the Town and promote the health, safety and general welfare. Underground aquifers provide the sole source of drinking water for the Town of _____ .

1.2 Findings of Fact.

The federal government has designated Nassau and Suffolk groundwater as a sole source aquifer. These aquifers must be protected if a continued source of potable drinking water is to be available for future generations. It is the policy of the Town Board to protect the Town's supply of drinking water in its pristine state and prevent the degradation of this valuable and essential resource.

The Long Island Regional Planning Board's (LIRPB) Long Island Waste Treatment Management Plan identifies deep recharge areas where the greatest amount of recharge may be expected to occur and significant shallow recharge areas underlain by saltwater. Other studies have indicated additional areas where special management is required to protect existing groundwater quality. The LIRPB's 208 Nonpoint Source Management Handbook and the New York State Department of Environmental Conservation's Long Island portion of the New York State Groundwater Management Project have identified Special Groundwater Protection Areas (SGPAs). These SPGAs affect the water quality for the entire Town. The types of land use which occur in the SGPAs directly impact upon the aquifer and its quality. The SGPA concept has been adopted by the Town Board and is reflected in the Town's Comprehensive Plan.

The type of land use in these Special Groundwater Protection Areas must be compatible with the function of water recharge to insure the goal of protecting the drinking water supply of the Town. The Town Board has already recognized that the density of population and intensity of land use are variables that affect both water quality and water quantity. Land use measures must be implemented to preclude or mitigate the impact of land uses that are incompatible with water recharge and protection of the Town's supply of pure drinking water.

1.3 Statement of Purpose.

It is the purpose of this ordinance to create a Special Groundwater Protection Overlay District for the further regulation of land use in those portions of the Town which have been found to be catchment areas for high quality groundwater in order to control the quality of recharge and prevent degradation of the sole source aquifer, in accordance with the goals of the Town Master Plan and the policy of the Town Board.

*Source: Partially adopted from the Town of Southampton's Aquifer Protection Overlay District Ordinance.

SECTION TWO: DEFINITIONS

The following terms shall have meanings as indicated.

(a) *Aquifer* shall mean a geologic formation, group of formations or part of a formation that contains sufficient saturated material to yield significant quantities of water to wells or springs.

(b) *Crops* shall have the same meaning as provided in Section 301(4) (a), (b), (c) and (d) of the Agriculture and Markets Law of the State of New York.

(c) "*Fertilized Vegetation*" shall mean areas of vegetation cultivated by man and requiring the application of fertilizers, pesticides or other substances for their growth or maintenance.

(d) *Special Groundwater Protection Areas* shall mean a relatively undeveloped portion of a deep recharge area or of a shallow recharge area underlain by salt water that requires comprehensive management to maintain existing water quality and quantity. These areas may include:

- a relatively undeveloped groundwater recharge area where groundwater withdrawal is occurring or is expected to occur.
- an area underlain by a high quality aquifer that may be contaminated if the land is developed according to existing zoning.
- an area where the presence of extensive groundwater contamination limits or can be expected to limit the amount of potable water that can be made available at a reasonable cost.

(e) "*Natural Vegetation*" shall mean existing and naturally occurring indigenous vegetation that grows and is maintained without need of irrigation or applications of fertilizers, pesticides or other substances.

(f) "*Hazardous Materials or Waste*" shall mean those substances so defined and identified as hazardous waste pursuant to Article 27, Title 9, of the Environmental Conservation Law of the State of New York and rules and regulations promulgated thereunder.

SECTION THREE: GENERAL PROVISIONS

3.1 Applicability

The provisions of this section shall apply to lands in the Town, outside of incorporated villages, superimposed upon the Zoning Map of the Town of _____ , delineated as Special Groundwater Protection Areas in the Long Island Regional Planning Boards' Nonpoint Source Handbook and the New York State Dept. of Environmental Conservation's Long Island portion of the New York State Groundwater Management Project as Special Groundwater Management Areas.

3.2 Activities Requiring a Permit.

No site preparation, grading, excavating, filling or other development within the Special Groundwater Protection Overlay District shall begin without a permit, except for those activities listed in 3.8.

3.3 Construal With Other Statutes.

Lands within the overlay district are designated critical environmental areas pursuant to the State Environmental Quality Review Act.

3.4 Compliance.

In order to minimize pollutant loadings, the density and the layout of the development shall comply with the provisions of any Special Groundwater Protection Plan that has been adopted by (municipality).

For needed erosion and stormwater runoff controls see the related ordinances within the Town Code.

3.5 Protection of Natural Vegetation.

In order to insure maximum recharge, a minimal amount of natural vegetation should be removed from the site.

3.6 Fertilized Vegetation.

To minimize the potential for groundwater contamination from fertilizers, pesticides and other substances minimize the use of fertilized vegetation used in site development.

3.7 Hazardous Materials and Waste.

The generation, transportation, treatment, storage or disposal of hazardous materials or waste shall be prohibited in the overlay district.

3.8 Exemptions.

(a) No permit shall be required for the utilization of those lands included in the Special Groundwater Protection Areas (SPGAs) for passive recreation such as hiking, picnicking, etc. so long as a preliminary review by the Planning Board indicates that this usage will not cause unacceptable changes in existing conditions (ie. an increase in loadings from fertilizers).

(b) No permit shall be required for the thinning of natural vegetation required for normal maintenance.

(c) See Handbook Ordinance number 19b for additional exceptions.

SECTION FOUR: PERMIT PROCEDURES

4.1 Permit

Development permits for sites located within the Special Groundwater Protection Areas shall be required for all development activities not exempted in Section 3.8. The applicant shall be required to submit the following information to the (governing body) of (municipality) for approval prior to any development, construction or excavation activity.

1. Name and address of the applicant.
2. A completed environmental assessment form supplied by the municipality.
3. Description and map of proposed site development plan which includes:
   a) percentage of site in building including actual location.
   b) percentage of site in vegetation and areas where natural vegetation will be removed; where it will remain (see Ordinance #22).
   c) location of areas to be planted in fertilized vegetation.
   d) location of all site development facilities.
   e) type of stormwater runoff management systems (see Ordinance #18).

SECTION FIVE: PENALTIES

5.1 Restoration.

Any development, construction or excavation undertaken in violation of this ordinance shall forthwith be corrected after written notice by the (local authority). In the event that corrective action is not taken as directed within a reasonable time, the (governing body) may, at its own expense, take corrective action to restore the property. The cost thereof shall become a lien upon the property upon which such illegal activity occurred.

5.2 Fines.

Any person undertaking development, construction or excavation in violation of this ordinance is guilty of a misdemeanor, punishable by a fine of not less than ($), nor more than ($). Such person shall be deemed guilty of a separate offense for each day during which a violation of this ordinance is committed or continues.

SECTION SIX: SEVERABILITY

Each separate provision of this ordinance is deemed independent of all other provisions herein so that if any provision(s) of this ordinance be declared invalid, all other provisions thereof shall remain valid and enforceable.

SECTION SEVEN: EFFECTIVE DATE

This ordinance shall take effect on _____ .

LOCAL LAW NO. 7 YEAR 1984, SUFFOLK COUNTY, NEW YORK, A CHARTER LAW AMENDING THE SUFFOLK COUNTY CHARTER BY ADDING ARTICLE XXXVII AND AMENDING ARTICLE XIII TO CREATE A SUFFOLK COUNTY PINE BARRENS REVIEW COMMISSION AND TO CREATE A SUFFOLK COUNTY PINE BARRENS ZONE

BE IT ENACTED BY THE COUNTY LEGISLATURE OF THE COUNTY OF SUFFOLK, as follows:

Section One. Legislative Intent

This Legislature hereby finds that the protection of Suffolk County's water resources is of vital importance to the health and economic well-being of the people of Suffolk County. These resources must be protected by the County in the exercise of its police powers. This Legislature further finds that certain land within the County of Suffolk contains an aquifer through which flows, and within which is located, groundwater of a very high quality and which is highly sensitive to changes in the environment.

This Legislature also finds that there is a County-wide interest in the effective management, potential uses, protection and development of this sensitive land known as the Suffolk County Pine Barrens Zone; that this zone is rich in a variety of natural, commercial recreational, ecological, industrial, and aesthetic resources of immediate and potential value to the present and future well-being of the County of Suffolk; that the increasing and competing demands upon the lands and waters of our Pine Barrens Zone, occasioned by population growth and economic development, including requirements for industry, commerce, residential development, recreation, transportation, waste disposal, harvesting of fish, shellfish, and other living marine resources, have resulted in the loss of living marine resources, wild life, nutrient-rich areas, permanent and adverse changes to ecological systems, decreasing open spaces for public use, and shore-line erosion; that the Pine Barrens Zone, and the fish, shellfish, other living marine resources, and wild life therein are ecologically fragile and consequently extremely vulnerable to the actions of man; that important ecological, cultural, historical, and aesthetic values in the Pine Barrens Zone, which are essential to the well-being of all Suffolk County citizens, are being irretrievably damaged or lost; that special natural and scenic characteristics are being damaged by ill-planned development that threatens these values; that in light of competing demands and the urgent need to protect and to give high priority to natural systems in the Pine Barrens Zone, present State and local institutional arrangements for planning and regulating land and water use in such areas are inadequate; that the way to effectuate more effective protection and use of the land and water resources of the Pine Barrens Zone is to encourage towns and villages in the County to exercise their full authority over the lands and waters in this zone by assisting these localities, in cooperation with the Federal government, State government, and other vitally affected interests, in developing land and water-use programs in this zone, including unified policies, criteria, standards, and processes for dealing with land and water use decisions of local significance.

This Legislature, therefore, determines that said land, designated as the Suffolk County Pine Barrens Zone, must be carefully preserved in order to ensure the quality and quantity of Suffolk County's underground water resources. To this end, the Suffolk County Legislature hereby creates a Suffolk County Pine Barrens Review Commission and the Suffolk County Pine Barrens Zone, within which land use proposals, regulations, determinations, and development by individuals and/or municipalities shall be carefully reviewed by the Suffolk County Pine Barrens Review Commission with a view toward balancing the economic growth and development of such land against the need to protect and enhance Suffolk County's underground water supply.

Section Two. Article XXXVII

Article XXXVII is hereby adopted as an addition to the Suffolk County Charter, as follows:

Section 3701. Commission Created

a.) There shall be a Suffolk County Pine Barrens Review Commission consisting of nine (9) members. Five (5) members shall be appointed by the County Executive, one (1) member shall be appointed by the Presiding Officer of the Suffolk County Legislature, and one (1) member shall be appointed to represent each of the Towns of Brookhaven, Southampton, and Riverhead. The town members shall be appointed by the County Executive from a list of at least three (3) names which shall be submitted to him by the respective supervisor of each town.

b.) Each member shall be appointed for a term of three (3) years commencing on January first and expiring on December 31st, except that, of the five (5) members first appointed by the County Executive, two (2) members shall be appointed for a term expiring December 31, 1984, one (1) member shall be appointed for a term expiring on December 31, 1985, and one (1) member shall be appointed for a term expiring on December 31, 1986. Of the three (3) town representatives first appointed by the County Executive, one (1) town representative shall be appointed for a term expiring December 31, 1984, one (1) town representative shall be appointed for a term expiring December 31, 1985, and one (1) town representative shall be appointed for a term expiring December 31, 1986.

c.) Members of this Commission shall receive no compensation except for ordinary and necessary expenses incurred by them as a direct consequence of the performance of their duties.

d.) One of the nine (9) members shall be appointed as Chairman by the County Executive and shall serve at his pleasure.

e.) Each member shall have one (1) vote. Five (5) members shall constitute a quorum. Any action by this Commission shall require an affirmative vote of at least a majority of the entire membership of said Commission.

f.) Each member shall serve at the pleasure of the person appointing him and, upon his removal from the Commission or the expiration of the term for which he shall have been chosen, shall not hold over nor continue to discharge the duties of his office until his successor shall be chosen and qualifies.

g.) The Commission shall issue and promulgate such rules and regulations as it shall deem necessary to carry out its functions and duties.

Section 3702. Creation of Suffolk County Pine Barrens Zone

The Suffolk County Pine Barrens Zone is hereby created lying and being in the County of Suffolk which zone is more particularly described and bounded as follows:

Beginning at a point where the southerly side of Route 25A intersects the easterly side of Miller Place Road; thence southward along the easterly boundary of Miller Place Road to Helme Avenue; thence southward along the easterly boundary of Helme Avenue to Miller Place-Middle Island Road; thence southward along the easterly boundary of Miller Place-Middle Island Road to Whiskey Road; thence westward along the southerly boundary of Whiskey Road to Mount Sinai-Coram Road; thence southward along the easterly boundary of Mount Sinai-Coram Road to Middle Country Road (Route 25); thence westward along the southerly boundary of Route 25 to Patchogue-Mount Sinai Road (County Route 83); thence southward along the easterly boundary of County Route 83 to Bicycle Path Drive; thence southeastward along the easterly side of Bicycle Path Drive to Mt. McKinley Avenue; thence southward along the easterly boundary of Mt. McKinley Avenue to Granny Road; thence northeastward along the northerly boundary of Granny Road to Port Jefferson-Patchogue Road (Route 112); thence southward along the easterly boundary of Route 112 to Horse Block Road (County Route 16); thence eastward along the northerly boundary of County Route 16 to Maine Avenue; thence northward along the westerly boundary of Maine Avenue to Fire Avenue; thence eastward along the northerly boundary of Fire Avenue to John Roe Smith Avenue; thence southward along the easterly boundary of John Roe Smith Avenue to Jeff Street; thence eastward along the northerly boundary of Jeff Street to Hagerman Avenue; thence southward along the easterly boundary of Hagerman Avenue to the Long Island Expressway (Route 495); thence eastward along the northerly boundary of Route 495 to Southaven County Park; thence southward along the westerly boundary of Southaven County Park to Gerard Road; thence southward along the easterly boundary of Gerard Road to Route 27; thence eastward along the northerly boundary of Route 27 to the easterly boundary of Southaven County Park thence northward along the easterly boundary of Southaven County Park to Route 495; thence eastward along the northerly boundary of Route 495 to the William Floyd Parkway (County Route 46); thence southward along the easterly boundary of County Route 46 to the Long Island Railroad tracks; thence eastward along the northerly boundary of the Long Island Railroad tracks 7,500 feet; thence southward 500 feet; thence eastward 525 feet to the intersection of North Street and Manor-Yaphank Road; thence southward along the easterly boundary of Manor-Yaphank Road to Moriches-Middle Island Road; thence eastward along the northerly boundary of Moriches-Middle Island Road to Sunrise Highway (Route 27); thence eastward along the northerly boundary of Route 27 to an old railroad grade (unpaved); thence southeastward along the northerly boundary of the old railroad grade (unpaved) to Old Country Road (Route 71); thence eastward along the northerly boundary of Route 71 to the Long Island Railroad tracks; thence eastward along the northerly boundary of the Long Island Railroad tracks to Montauk Highway (Route 24); thence northward along the westerly boundary of Route 24 to Sunrise Highway (Route 27); thence eastward along the northerly boundary of Route 27 to Squiretown Road; thence northward along the westerly boundary of Squiretown Road to Upper Red Creek Road; thence westward along the southern boundary of Upper Red Creek to Lower Red Creek Road; thence southward along the easterly boundary of Lower Red Creek Road to Hubbard County Park; thence westward along the northern boundary of Hubbard County Park to Riverhead-Hampton Bays Road (Route 24); thence westward along the southerly boundary of Route 24 to Peconic Avenue; thence northward along the westerly boundary of Peconic Avenue to the centerline of the Peconic River; thence westward along the centerline of the Peconic River to the Forge Road Bridge; thence northward along the westerly boundary of the Forge Road Bridge to Forge Road; thence northwestward along the westerly boundary of Forge Road to the railroad tracks; thence northward along the westerly boundary of Forge Road (unpaved) to the intersection of Route 25 and River Road; thence westward along the southerly boundary of River Road to Edwards Avenue; thence northward along the westerly boundary of Edwards Avenue 3,800 feet; thence westward 4,400 feet to an unnamed; unpaved road; thence northward along the westerly boundary of the unnamed, unpaved road 150 feet; thence westward and northwestward along the eastern boundary of the U.S. Navy/Grumman Aerospace Corporation property (as of 1982) up to the intersection of North Country Road and Sound Avenue (Route 25A); thence westward along the southerly boundary of Route 25A to the point or place of Beginning.

Beginning at a point where the northerly side of Nesconset-Port Jefferson Highway (Route 347) intersects the easterly side of Mark Tree Road; thence northward along the easterly boundary of Mark Tree Road to Pond Path; thence northeastward along the easterly boundary of Pond Path to Storyland Lane; thence eastward along the southerly boundary of Storyland Lane to Robin Hood Lane; thence northward along the easterly boundary of Robin Hood Lane to Cinderella Lane; thence northeastward along the easterly boundary of Cinderella Lane to Upper Sheep Pasture Road; thence northeastward along the southerly boundary of Upper Sheep Pasture Road to Lower Sheep Pasture Road; thence eastward along the southerly boundary of Lower Sheep Pasture Road to the LILCO property; thence southward along the westerly side of the LILCO property to Nesconset-Port Jefferson Highway (Route 347); thence westward along the northerly boundary of Route 347 to the point or place of Beginning.

Beginning at a point where Mecox Road intersects Majors Path; thence north along the east side of Majors Path until it meets Mary's Lane; thence northeast along the east side of Majors Path to its intersection with the southern boundary of the North Sea Landfill (Town of Southampton property); thence east, then north, following the perimeter of the landfill and directly north along a line to its intersection with Great Hill Road; thence west along the north side of Great Hill Road to its intersection with Majors Path; thence north along the east side of Majors Path to its intersection with Noyack Road; thence northeast along the southeast side of Noyack Road to its intersection with Old Sag Harbor Road; thence east along the south side of Old Sag Harbor Road to its intersection with Water Mill Towd Road; thence northwest along the northeast side of Water Mill Towd Road to its intersection with Noyack Road; thence northeast along the southeast side of Noyack Road to its intersection with Rose Grove Road; thence east along the south side of Rose Grove Road to its intersection with Weidner Lane; thence north along a line extending from the point of intersection of Weidner Land and Rose Grove Road to the southeastern most point of Peconic Hills Drive; thence north along the east side of Peconic Hills Drive to its intersection with Woodland Drive; thence northeast along the southeast side of Woodland Drive to a 90 degree northwest turn in said road; thence northwest along the northeast side of Woodland Drive and directly along a line extending to Noyack Road at a point where Lake Drive N. intersects Noyack Road; thence northeast along the south side of Noyack Road to its intersection with Hartwell Lane; thence southeast along the southwest side of Hartwell Lane to its intersection with Chester Drive; thence northeast along the southeast side of Chester Drive to its intersection with Wilson Road; thence northwest along the northeast side of Wilson to its intersection with Noyack Road; thence northeast along the southeast side of Noyack Road until it merges with Deerfield Road; thence north along the eastern side of Noyack-Deerfield Road to its intersection with Noyack Road; thence east along the southern side of Noyack Road to its intersection with the western boundary of the Noyack Golf and Country Club; thence following the perimeters of the club, to its intersection with Noyack Road; thence east along the southern side of Noyack Road to a point adjacent to Poplar St., which lies north of Noyack Road; thence southeast along a line extending from said point on Noyack Road through the terminal points of Crown Lane, Laurel Trail and Island View Drive, respectively; thence east along a line extending from the terminal point of Island View Drive to Stony Hill Road at a point where Hillside Ave. intersects Stony Hill Road from the east; thence southeast along the southwestern side of Stony Hill Road to its intersection with Brick Kiln Road; thence northeast along the southeastern side of Brick Kiln Road to its intersection with Carroll St., thence southeast along the southwestern side of Carroll St. to its intersection with Sag Harbor-Bridgehampton Turnpike; thence north along the east side of the Sag Harbor-Bridgehampton Turnpike to the Village of Sag Harbor boundary of Sag Harbor; thence southeast along the southern side of the Village boundary until it meets the western side of Round Pond; thence north around the perimeter of Round Pond and east along the southern side of the village boundary to its intersection with Sagg Road (Madison St.); thence south along the western side of Sagg Road to its intersection with Mt. Misery Dr.; thence east along the southern side of Mt. Misery Dr. to its intersection with Denise St.; thence southeast along the southwestern side of Denise St. to its intersection with Town Line Road (the Southampton-East Hampton Town boundary); thence northwest along the northeastern side of Town Line Road to a point 1000 feet south of the intersection of Town Line Road with Middle Line Highway (the Sag Harbor Village boundary); thence northeast along a line extending from said point on Town Line Road to the Sag Harbor-East Hampton Turnpike at a point adjacent to the southern boundary of the Sag Harbor Golf Course; thence following the southern perimeter of the golf course and continuing along southern perimeter of Northwest Harbor County Park to its intersection with Northwest Landing (Swamp) Road; thence north along the eastern side of Northwest Landing Road, which follows the eastern boundary of the Northwest Harbor County Park, to a point where the park crosses over to the northern side of Northwest Landing Road; thence north along the boundary of the park until it meets the Northwest Harbor shoreline; thence north along the harbor shoreline until it meets Alewive Brook Road; thence southeast along the southern side of Alewive Brook Road to its intersection with Cedar Point Road; thence north along the eastern side of Cedar Point Road until it meets Bearing East Road; thence east along the southern side of Bearing East Road to its intersection with North Pass Road; to its intersection with Landfall Road to its intersection with Hedgebanks Dr.; thence directly north to the Gardiners Bay

shoreline; thence south along the bay shoreline to a point directly north of a 90 degree turn in Milna Drive to the south; thence south from said point to Milna Drive and then south along the western side of Milna Dr. to its intersection with Old House Landing Road; thence southwest along the north side of Old House Landing Road to its intersection with Alewive Brook Rd.; thence southeast along the southwest side of Alewive Brook Road to its intersection with Hands Creek Road; thence south along the western side of Hands Creek Road to its intersection with Springy Banks Road; thence northwest along the northeastern side of Springy Banks Road to its intersection with Ely Brook to Hands Creek Road; thence south along the western side of Ely Brook to Hands Creek Road to where it intersects Hands Creek Road; thence south along the west side of Hands Creek Road to its intersection with Middle Hwy.; thence east, then southeast along the southern side of Middle Hwy. to its intersection with Rivers Road; thence east along the southern side of Rivers Road to its intersection with Springy Banks Road; thence southeast along the southwestern side of Springy Banks Road to its intersection with Hides Road; thence east along the southern side of Hides Road to its intersection with Three Mile Harbor Road; thence north along the east side of Three Mile Harbor Road to its intersection with Copeces Lane; thence east along the southern side of Copeces Lane to its intersection with Acabonack Road; thence northeast along the southeastern side of Acabonack Road to its intersection with Neck Path; thence southeast along the southwestern side of Neck Path to its intersection with Amagansett Springs Road, thence south along the western side of Amagansett Springs Road to its intersection with Barnes Hole Road; thence northeast along the southeast side of Barnes Hole Road until it meets the Napeague Bay shoreline (at Barnes Landing); thence southeast following the bay shoreline until it meets Fresh Pond Road; thence southwest along the northwestern side of Fresh Pond Road to its intersection with Cross Hwy.; thence southeast along the southwestern side of Cross Hwy. to its intersection with Abrahams Landing Road; thence southwest along the northwestern side of Abrahams Landing Road to its intersection with Stone Road; thence northwest along the northeastern side of Stone Road to its intersection with Town Lane and Amagansett Springs Road; thence southwest along its northeastern side of Town Lane to its intersection with Stony Hill Road; thence northwest along the northeastern side of Stony Hill Road to its intersection with Acabonack Road; thence south along the western side of Acabonack Road to its intersection with Abrahams Path; thence southeast along the southwestern side of Abrahams Path to its intersection with Town Lane; thence west along the northern side of Town Lane to its intersection with Spring Close Hwy. (Jenny's Path); thence north along the eastern side of Jenny's Path to its intersection with Acabonack Road; thence south approximately 100' along the northwestern side of Acabonack Road to its intersection with Queens Lane; thence north along the eastern side of Queens to a point where it intersects Spring Fireplace Road; thence directly west along a line extending from said point to a point on Three Mile Harbor Road approximately 1400' south of the intersection of Springy Banks Road with Three Mile Harbor Road; thence south along the western side of Three Mile Harbor Road to its intersection with Oak View Hwy.; thence west along the northern side of Oak View Hwy. to its intersection with Hands Creek Road; thence south along the western side of Hands Creek Road to its intersection with Cedar St.; thence northwest along the northeastern side of Cedar St. to its intersection with Stephen Hands Path; thence southwest along the northwestern side of Stephen Hands Path to its intersection with the Sag Harbor-East Hampton Turnpike; thence southeast along the southwestern side of the Sag Harbor-East Hampton Turnpike to its intersection with Cove Hollow Road; thence south along the western side of Cove Hollow Road until it meets the village boundary of East Hampton (approximately 375' north of Montauk Hwy.;); thence westerly along the village boundary until it intersects Daniel's Hole Road; thence northwest along the northeastern side of Daniel's Hole Road to its intersection with the L.I.R.R.; thence westerly along the northern side of the L.I.R.R. to its intersection with Wainscott Harbor Road; thence northwest along the northeastern side of Wainscott Harbor Road to a point approximately 600' north of the L.I.R.R.; thence southwesterly along a line extending from said point on Wainscott Harbor Road to Sagg Road at a point where it is intersected by Narrow Lane; thence north along the eastern side of Sagg (Sagaponack Main St.) to its intersection with Haines Path; thence southwesterly along the northwestern side of Haines Path to its intersection with Old Farm Road; thence northwest along a line extending from the Old Farm Road terminus to a point where Huntington Crossway intersects the Bridgehampton-Sag Harbor Turnpike; thence north eastward along the western side of the Bridgehampton-Sag Harbor Turnpike to Scuttle Hole Road, thence westward along the southerly boundary of Scuttle Hole Road (or Huntington Path) to Head of Pond-Scuttle Hole Road; thence southwestward along the northeast side of Head of Pond-Scuttle Hole Road to Deerfield Road; thence northward along the easterly side of Deerfield Road to an extension of Edge of Woods Road; thence westward along the northerly side of the extension of Edge of Woods Road to Water Mill-Towd Road; thence southward along the westerly side of Water Mill-Towd Road to Edge of Woods Road; thence westward along the northerly side of Edge of Woods Road to Private Road; thence southward along the westerly side of Private Road to Mecox Road; thence westward along the northerly side of Mecox Road to the intersection of Mecox and Majors Path to point or place of beginning.

Beginning at a point where Montauk Point State Boulevard meets the eastern boundary of the Hither Hills State Park; thence north along the east side of the park boundary until it meets the Napeague Bay (Block Island Sound) shoreline; thence east following the confluence of the bays shoreline to a point where the L.I.R.R. intersects Navy Road; thence southward along the westerly side of Navy Road to Fort Lane; thence southwestward along the westward side of Fort Lane (terminus) following a line to the intersection of Lincoln Road and Montauk Point State Parkway; thence westward along the northerly side of Montauk Point (Rt. 27) State Parkway to the eastern boundary of the Hither Hills State Park.

Section 3703. General Powers and Duties

The Suffolk County Pine Barrens Review Commission shall have the following powers and duties:

a.) to conduct investigations, studies, and hearings necessary to carry out its responsibilities;

b.) to make recommendations to the County Executive;

c.) to prepare, publish, and disseminate information or reports concerning problems, needs, and resources of the Pine Barrens Zone;

d.) to encourage the preparation of, to review, and to evaluate any comprehensive plan which may be adopted for the maintenance and management of the Suffolk County Pine Barrens Zone including plans which provide for increased specificity in protecting significant resources within the Pine Barren Zone, which promote resonable economic growth within said zone, and which create predictability in governmental decision-making;

e.) to coordinate and simplify procedures in order to ensure expedited governmental decision-making for the management of Pine Barrens Zone resources;

f.) to consult and coordinate with, as well as give adequate consideration to the views of, affected Federal and/or State agencies; and

g.) to give timely and effective notification of any particulars for public and local municipal participation in Pine Barrens Zone management decision-making.

Section 3704. Review Jurisdiction

a.) Prior to referring certain municipal zoning actions to the Suffolk County Planning Commission, each town and/or village in Suffolk County having jurisdication to adopt or amend zoning regulations shall, before taking final action, refer to the Suffolk County Pine Barrens Review Commission any zoning regulation or any amendment thereof (herein referred to as "municipal zoning action") which would change the district classification of, or the regulations applying to, real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this CHARTER.

b.) Prior to referring any application for a special permit to the Suffolk County Planning Commission, each town and/or village in Suffolk County having jurisdication to issue special permits pursuant to zoning regulations shall, before taking final action, refer to the Suffolk County Pine Barrens Review Commission any application for a special permit which would affect any real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this CHARTER. "Special permit" shall be deemed to include any special permit, use permit, exception, or other special authorization which a board of appeals, planning board, or legislative body is authorized to issue under the provisions of any zoning ordinance.

c.) Prior to referring any application for a variance to the Suffolk County Planning Commission, each town and/or village in Suffolk

County having jurisdiction to issue variances shall, before taking final action, refer to the Suffolk County Pine Barrens Review Commission any application for a variance which would affect any real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this CHARTER.

d.) Prior to referring any proposal for the approval of a plat, to the Suffolk County Planning Commission, each municipal agency authorized by a municipal legislative body to approve plats showing lots, blocks or sites, with or without streets or highways, or the development of plats entirely or partly undeveloped and which have been filed in the office of the Clerk of the County in which such plat is located prior to appointment of such Planning Board and the grant to such board of the power to approve plats, shall refer to the Suffolk County Pine Barrens Review Commission any plat of real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this CHARTER.

Section 3705. Review Functions

a.) The Suffolk County Pine Barrens Review Commission shall study each application referred to it under Section 3704 and issue a report to the Suffolk County Planning Commission and County Executive, which report must contain, but not be limited to, an evaluation of the following:

i.) A determination of any land-use resources of County-wide significance, including coastal wetlands, beaches, dunes, estuaries, fish and wild life habitat, and flood plains within the Pine Barrens Zone, which might be affected by the approval of the application;

ii). An inventory and definition of areas of particular concern within the Pine Barrens Zone which might be affected by the approval of the application;

iii.) A definition of what shall constitute permissible land-use and water use within the Pine Barrens Zone which have a direct and significant impact on the application;

iv.) A statement of broad guidelines of priorities of use for the particular area within the Pine Barrens Zone directly affected by the application;

v.) A description of a planning process for the development and use of energy facilities likely to be located in, or which may significantly affect, the Pine Barrens Zone, including but not limited to a procedure for anticipating and managing the impacts from such facilities, as a result of the approval of the application;

vi.) A description of the organizational structure, including responsibilities and interrelationships, of local, area-wide, State regional, and inter-State agencies in the process of managing such Pine Barrens Zone;

vii.) A concise description of the activity contemplated by the application, including the purpose and need for the project to result therefrom;

viii.) A concise description of the topography of the land affected, including a detailed listing of the trees, shrubs or other surface growth on said land together with the nature, content, and type of subsoil;

ix.) A detailed description of the ground water quality and quantity in the affected area together with an evaluation concerning the impact which approval of said application may have on said groundwater quality and quantity.

x.) A detailed listing of any impact on the ecological system within the Pine Barrens Zone which might be caused by the approval of said application;

xi.) A detailed listing of any environmental imbalance which may occur in the ecosystem as a result of the approval of such application;

xii.) A detailed listing of all natural resources which will be consumed or utilized as a direct result of the approval of such an application;

xiii.) A detailed description of economic benefits which may directly result from the approval of such an application;

xiv.) A detailed description of measures which could be taken by the applicant to mitigate any adverse environmental impact calculated by this commission; and

xv.) A detailed listing of any toxic or hazardous substance which may be introduced into the project area as a result of the approval of such application.

b.) The report required by this section must be issued within forty-five (45) days of the submission of the application to the Suffolk County Pine Barrens Review Commission. If the report is issued within said forty-five (45) day period, the Commission may, in its sole discretion, determine whether or not to hold a public hearing prior to the issuance of the report. If within said forty-five (45) day period, this commission determines that additional time is required, then the commission shall be entitled to a further review period of sixty (60) days. During the additional sixty-day (60) period, the Commission shall further review such application. A public hearing shall be held within said sixty-day (60) period concerning said application and prior to the issuance of the report required by this section. The Suffolk County Pine Barrens Review Commission shall give at least seven days' public notice of its public hearing, in the official newspapers of the County of Suffolk and the official newspapers of the town or towns containing the area which is the subject matter of the application, to all interested parties and at least seven (7) days' written notice of such hearing to the clerk of any town or village with jurisdiction over the application or adjacent to the area which is the subject matter of the application.

c.) As part of the report required by paragraph (a) of this section, the Suffolk County Pine Barrens Review Commission shall issue one of the following determinations:

i.) A report approving the proposed application without change;

ii.) A report recommending changes in the proposed application and approving the proposed action conditioned on such changes;

iii.) A report disapproving the proposed application; or

iv.) A report making no determination.

d.) After this report has been referred to the Suffolk County Planning Commission for its consideration under Article XIII of the SUFFOLK COUNTY CHARTER, the following rules shall govern:

i.) If the Suffolk County Pine Barrens Review Commission renders a report approving the proposed application without change or makes no determination within the time period allowed, then the Suffolk County Planning Commission shall review it in accordance with the provisions of Article XIII of the SUFFOLK COUNTY CHARTER.

ii.) If the Suffolk County Pine Barrens Review Commission renders a report disapproving a proposed application or recommending changes in a proposed application and approving the application with such changes, which recommended changes differ from those of the Suffolk County Planning Commission, then the Suffolk County Planning Commission may approve such application only by an affirmative vote of three-fourths of its entire membership prior to returning it to the town or village which referred the action in the first instance under Article XIII of the SUFFOLK COUNTY CHARTER.

e.) The report shall specify the reasons for the above determination.

Section 3706. Annual Reports

a.) The Suffolk County Pine Barrens Review Commission shall prepare a report annually with respect to its operations and finances, which report shall be made a part of the County Executive's Annual Environmental message to the Suffolk County Legislature.

Section 3. Amendment to Article XIII of the Suffolk County Charter

Article XIII of the Suffolk County Charter is hereby amended to read as follows:

Section 1323. Referral of certain municipal zoning actions to planning commission

(a) Subject to the provisions of Section Three Thousand Seven Hundred Four of this Charter each town and village in Suffolk County having jurisdiction to adopt or amend zoning regulations shall, before taking final action, refer to the planning commission any zoning regulation or any amendment thereof (hereinafter referred to as "municipal zoning action") which would change the district classification of, or the regulations applying to, real property lying within one mile of a nuclear power plant or airport, or within a distance of five hundred feet from:

(1) the boundary of any village or town; or

(2) the boundary of any existing or proposed county, state or federal park or other recreation area; or

(3) the right-of-way of any existing or proposed county or state parkway, thruway, expressway, road or highway; or

(4) the existing or proposed right-of-way of any stream or drainage channel owned by the county or for which the county has established channel lines; or

(5) the existing or proposed boundary of any other county, state or federally-owned land, held or to be held for governmental use; or

(6) the Atlantic Ocean, Long Island Sound, any bay in Suffolk County or estuary of any of the foregoing bodies of water; or

which would change the district classification of, or the regulations applying to, real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this Charter.

(b) The term "proposed" as used in this section means a capital project specified in the Suffolk County official map, whether or not the project has been undertaken. In the absence of a Suffolk County official map, duly adopted under this charter, the term "proposed" as used in this section means: (1) in the case of a county item, an item specified in the capital budget; (2) in the case of a state item, an item whose boundaries have been established in accord with state law; and (3) in the case of a federal item, an item whose boundaries have been established in accord with federal law.

(c) Each municipal zoning action referred to the planning commission under this section shall be accompanied by a full statement on the proposed action. The planning commission shall publish guides as to what information should be included in such statement.

Section 1324. Consideration of zoning actions by planning commission

(a) Subject to the provisions of section thirteen hundred twenty-nine and thirteen hundred thirty, upon the referral of a municipal zoning action to the planning commission, the commission within "forty-five" days after receipt of a full statement on the proposed action and after due consideration may by resolution: (1) render a report approving the proposed action without change; (2) render a report recommending changes in the proposed action and approving the proposed action with such changes; or (3) render a report disapproving the proposed action. If the action is subject to the provisions of section three thousand seven hundred four of this charter, then this forty-five day period shall commence with the issuance of the Suffolk County Pine Barrens Review Commission Report or the expiration of the time period set forth in that section, whichever comes first.

(b) In accordance with rules, adopted by resolution of the planning commission, the commission may dispense with a report on the proposed action. Under such circumstances the municipality that referred the proposed action to the planning commission may proceed after "forty-five" days from the date of submission of a full statement as if the commission had rendered a report approving the proposed action without change. If the action is subject to the provisions of section three thousand seven hundred four of this charter, then this forty-five day period shall commence with the issuance of the Suffolk County Pine Barrens Review Commission Report or the expiration of the time period set forth in that section, whichever comes first.

Section 1325. Effect of commission report or municipal zoning action.

(a) If the planning commission renders a report approving a proposed action without a change, the town or village that referred the proposal may adopt it in the ordinary course.

(b) If the planning commission renders a report recommending changes in a proposed municipal zoning action and approving the action with such changes, the town or village that referred the proposal may, unless section thirteen hundred twenty-seven or thirteen hundred thirty applies, (1) amend the proposed action in accordance with the planning commission's recommendations and adopt it in the ordinary course, or (2) decline to adopt any one of the recommendations of the planning commission and adopt the action as originally proposed, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for not adopting the planning commission's recommendations.

(c) If the planning commission renders a report disapproving a proposed municipal zoning action, the town or village involved may, unless section thirteen hundred twenty-seven or thirteen hundred thirty applies, adopt the action as originally proposed, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reason for rejecting the planning commission's report.

Section 1326. Content of report on municipal zoning action

In the absence of an objection by a state agency pursuant to section thirteen hundred twenty-seven of this Charter or a resolution adopted under section thirteen hundred thirty of this Charter, a report by the planning commission disapproving a municipal zoning action or recommending changes in the action and approving it with such changes shall explicitly state the reasons for the commission's conclusions. The statement of reasons shall be designed to assist the municipality to form its own judgment as to what action, if any, it should take with respect to the municipal zoning action involved.

Section 1327. Objection by state agencies concerned with environmental protection

(a) A state agency having a statutory responsibility involving air pollution, water pollution or estuarine values may interpose an objection with the county planning commission to any proposed zoning action referred to the commission on the ground that the action is likely to produce water pollution or air pollution or be destructive of estuarine values, except any municipal zoning action which would change the district classification of, or the regulations applying to, real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this Charter.

(b) In a case in which the planning commission has received an objection under paragraph (a) of this section:

(1) a proposed municipal zoning action disapproved by the commission may not be adopted by the town or village that referred the proposed action; and

(2) a proposed municipal zoning action approved by the commission with change may not be adopted by the referring body, except as amended in accordance with the commission's report.

Section 1328. Notice and opportunity to be heard where objection made by state agency

Where an objection to a municipal zoning action is interposed by a state agency pursuant to section thirteen hundred twenty-seven of this Charter, the planning commission shall schedule a hearing on the action and shall give ten days' written notice to: (a) the municipality that referred the action to the commission; (b) the council on environmental quality established under article one of this charter; (c) the state agency that interposed the objection; and (d) the party that initiated the proceeding before the municipality involved. In addition, the planning commission shall give such notice to any other municipality the commission concludes should be given an opportunity to be heard on the matters.

* * * *

Section 1331. Special Permits

(a) Each town and village having jurisdiction to issue special permits pursuant to zoning regulations shall, before taking final action refer to the planning commission any application for a special permit which would affect any real property lying within one mile of a nuclear power plant or airport, or within a distance of five hundred feet from:

(1) the boundary of any village or town; or

(2) the boundary of any existing or proposed county, state or federal park or other recreational area; or

(3) the right-of-way of any existing or proposed county or state parkway, thruway, expressway, road or highway; or

(4) the existing or proposed right-of-way of any stream or drainage channel owned by the county or for which the county has established channel lines; or

(5) the existing or proposed boundary of any other county, state or federally-owned land, held or to be held for governmental use; or

(6) the Atlantic Ocean, Long Island Sound, any bay in Suffolk County or estuary of any of the foregoing bodies of water;

or which would affect real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this Charter.

(b) The term "special permit" shall be deemed to include any special permit, use permit, exception, or other special authorization which a board of appeals, planning board or legislative body is authorized to issue under the provisions of any zoning ordinance.

(c) The term "proposed" as used in this section means a capital project specified in the Suffolk County official map, whether or not the project has been undertaken. In the absence of a Suffolk County official map, duly adopted under this charter, the term "proposed", as used in this section means: (1) in the case of a county item, an item specified in the capital budget; (2) in the case of a state item, an item whose boundaries have been established in accord with state law; and (3) in the case of a federal item, an item whose boundaries have been established in accord with federal law.

(d) The provisions of this article, except section thirteen hundred thirty, concerning municipal zoning actions shall apply to applications for special permits referred to the planning commission in accordance with this section.

(i) If the planning commission renders a report approving an application for a special permit without any change, then the town or village that referred the application may approve it in the ordinary course of municipal business;

(ii) If the planning commission renders a report recommending changes in a proposed application for a special permit and approving the application with such changes, the town or village that referred the proposal may, unless Section 1327 or Section 1330 of this Charter applies, (a) amend the proposed special permit in accordance with the planning commission's recommendations and approve it in the ordinary course of municipal business; or, (b) decline to adopt any one of the recommendations of the planning commission and approve the special permit as originally applied for, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for not adopting the planning commission's recommendations.

(iii) If the planning commission renders a report disapproving an application for a special permit, the town or village involved may, unless Section 1327 or Section 1330 applies, approve the application as originally proposed, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for rejecting the planning commission's report.

Section 1332. Variances

(a) Subject to paragraph (d) of this section, each town and village having jurisdiction to issue variances shall, before taking final action, refer to the planning commission any application for a variance which would affect any real property lying within one mile of a nuclear power plant or airport, or within a distance of five hundred feet from;

(1) the boundary of any village or town; or

(2) the boundary of any existing or proposed county, state or federal park or other recreation area; or

(3) the right-of-way of any existing or proposed county or state parkway, thruway, expressway, road or highway; or

(4) the existing or proposed right-of-way of any stream or drainage channel owned by the county or for which the county has established channel lines; or

(5) the existing or proposed boundary of any other county, state, or federally-owned land, held or to be held for governmental use; or

(6) the Atlantic Ocean, Long Island Sound, any bay in Suffolk County or estuary of any of the foregoing bodies of water; or

which would affect any real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this Charter.

(b) The term "proposed" as used in this section means a capital project specified in the Suffolk County official map, whether or not the project has been undertaken. In the absence of a Suffolk County official map, duly adopted under this charter, the term "proposed" as used in this section means: (1) in the case of a county item, an item specified in the capital budget; (2) in the case of a state item, an item whose boundaries have been established in accord with state laws; and (3) in the case of a federal item, an item whose boundaries have been established in accord with federal law.

(c) Subject to paragraph (d) of this section the provisions of this article, except section thirteen hundred thirty, concerning municipal zoning actions shall apply to applications for variances referred to the planning commission in accordance with this section.

(i) If the planning commission renders a report approving an application for a variance without any change, then the town or village that referred the application may approve it in the ordinary course of municipal business;

(ii) If the planning commission renders a report recommending changes in a proposed application for a variance and approving the application with such changes, the town or village that referred the proposal may, unless Section 1327 or Section 1330 of this charter applies; (a) amend the proposed variance in accordance with the planning commission's recommendations and adopt it in the ordinary course of municipal business; or, (b) decline to adopt any one of the recommendations of the planning commission and approve the variance as originally applied for, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for not adopting the planning commission recommendations;

(iii) If the planning commission renders a report disapproving an application for a variance, the town or village involved may, unless Section 1327 or Section 1330 applies, approve the application as originally proposed, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for not adopting the planning commission's recommendations;

(d) The planning commission by resolution may adopt rules setting forth the classes of variance applications that need not be submitted to it for consideration.

Section 1333. Subdivision Plats

(a) Each municipal agency authorized by a municipal legislative body to approve plats showing lots, blocks or sites, with or without streets or highways, or the development of plats entirely or partly undeveloped and which have been filed in the office of the clerk of the county in which such plat is located prior to the appointment of such planning board and the grant to such board of the power to approve plats shall refer to the planning commission any plat of real property lying within one mile of a nuclear power plant or airport, or within a distance of five hundred feet from:

(1) the boundary of any village or town; or

(2) the boundary of any existing or proposed county, state or federal park or other recreation area; or

(3) the right-of-way of any existing or proposed county or state parkway, thruway, expressway, road or highway; or

(4) the existing or proposed right-of-way of any stream or drainage channel owned by the county or for which the county has established channel lines; or

(5) the existing or proposed boundary of any other county, state or federally-owned land, held or to be held for governmental use; or

(6) the Atlantic Ocean, Long Island Sound, any bay in Suffolk County or estuary of any of the foregoing bodies of water; or

real property lying within the Suffolk County Pine Barrens Zone as described in Section 3702 of this Charter.

(b) The term "proposed" as used in this section means a capital project specified in the Suffolk County official map, whether or not the project has been undertaken. In the absence of the Suffolk County official map, duly adopted under this charter, the term "proposed" as used in this section means: (1) in the case of a county item, an item specified in the capital budget; (2) in the case of a state item, an item whose boundaries have been established in accord with state law; and (3) in the case of a federal item, an item whose boundaries have been established in accord with federal law.

(c) This section shall apply to any municipal review of a condominium pursuant to Section 339(f) of the Real Property Law of the State of New York.

(d) The provisions of this article, except section thirteen hundred thirty, concerning municipal zoning actions shall apply to plats referred to the planning commission in accordance with this section.

(i) If the planning commission renders a report approving an application for a proposed plat requiring municipal legislative body approval without any change, then the town or village that referred the application may approve it in the ordinary course of municipal business;

(ii) If the planning commission renders a report recommending changes in an application for a proposed plat requiring municipal legislative body approval and approving the application with such changes, the town or village that referred the proposal may, unless Section 1327 or Section 1330 of this charter applies; (a) amend the proposed plat requiring municipal legislative body approval in accordance with the planning commission's recommendations and adopt it in the ordinary course of municipal business; or, (b) decline to adopt any one of the recommendations of the planning commission and approve the proposed plat requiring municipal legislative body approval as originally applied for, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for not adopting the planning commission's recommendations;

(iii) If the planning commission renders a report disapproving an application for a proposed plat requiring municipal legislative body approval, the town or village involved may, unless Section 1327 or Section 1330 applies, approve the application as originally proposed, but only upon an affirmative vote of a majority plus one of the entire membership of the referring body in a resolution that explicitly sets forth its reasons for rejecting the planning commission's report.

* * * *

Section Four. Effective Date

This law shall take effect immediately upon filing in the office of the Secretary of State.

PRESERVATION OF OPEN SPACE
TOWN OF SOUTHAMPTON CODE

ARTICLE I
Planned Residential Development

Local Law
No. 3
1982

A LOCAL LAW IN RELATION TO THE PRESERVATION OF OPEN SPACE IN THE TOWN OF SOUTHAMPTON

§ 52-1. Legislative intent.

§ 52-2. Applicability to certain zones, subdivisions and site plans.

§ 52-3. Authority of Planning Board.

§ 52-4. Yield; parcels in more than one district.

§ 52-5. Manor houses.

§ 52-6. Dimensional requirements.

§ 52-7. Conditions for preservation; property owners' association.

§ 52-8. Farmland and watershed protection.

§ 52-9. Recreational, conservational and cultural uses.

§ 52-10. Screening.

§ 52-11. Limited commercial uses.

§ 52-12. Subdivision map.

§ 52-13. Severability.

§ 52-14. Repealer.

§ 52-15. When effective; effect on prior applications.

[HISTORY: Adopted by the Town Board of the Town of Southampton 11-23-82 as Local Law No. 3, 1982. Amendments noted where applicable.]

GENERAL REFERENCES

Environmental quality review — See Ch. 30.
Subdivision of land — See Ch. 60.
Vegetation protection — See Ch. 62.
Zoning — See Ch. 69.

Be it enacted by the Town Board of Southampton as follows:

ARTICLE I
Planned Residential Development
[Adopted 11-23-82 as L.L. No. 3-1982]

§ 52-1. Legislative intent.

A. Pursuant to Town Law, § 281, the purpose of this local law is to enable and encourage flexibility of design and development of land in such manner as to promote the most appropriate use of land, to facilitate the adequate and economical provision of streets and utilities, and to preserve the natural and scenic qualities of open lands, in order to provide larger areas of open space, both for recreational and conservational purposes and in order to implement objectives of the Master Plan.

B. Further, pursuant to Chapter 412 of the Laws of 1982, Town Law, § 281 and its provisions may now be utilized when the owner of lands so requests and also when the Planning Board so requires pursuant to authorization by the Town Board.

C. The Town Board of the Town of Southampton, wishing to implement the Town Master Plan by preserving larger areas of open space in order to preserve its unique rural character and to promote the other goals of Town Law, § 281, hereby authorizes the Planning Board to utilize the provisions of Town Law, § 281, subject to its conditions and the conditions enumerated herein by this local law.

§ 52-2. Applicability to certain zones, subdivisions and site plans.

A. This local law shall be applicable only to land zoned for residential purposes outside of incorporated villages in the Town of Southampton in Residence Districts CR-200, CR-80, CR-60, CR-40, R-60 and R-40. **[Amended 4-26-83 by L.L. No. 6, 1983]**

B. Nothing herein shall be construed to limit the existing authority of the Planning Board to control the layout of subdivisions or the design of site plans in any other district or zone.

§ 52-3. Authority of Planning Board.

A. If the owner makes written application to avail himself of the provisions of this local law, the Planning Board may use the authority given to it hereunder at the discretion of the Planning Board, if, in said Board's judgment, its application would benefit the town.

B. The Planning Board is hereby empowered to require the use of this local law where it would benefit the town, and it shall adopt rules and regulations setting forth the criteria pursuant to which such an application may be required. Such criteria shall be consistent with the provisions of this local law. In addition, the use of the provisions of this subsection shall not be precluded in the Agricultural Overlay District, lands which contain Class I or Class II prime agricultural soils as delineated in the 1975 Soil Survey of Suffolk County, United States Department of Agriculture, Soil Conservation Service, lands designated as critical areas of environmental concern pursuant to Chapter 30 of the Town Code, or lands designated as water recharge areas under the Town Master Plan.

C. If an applicant wished to subdivide property under the provisions of this local law, he shall so indicate to the Planning Board in writing; if the Planning Board requires such a subdivision, it shall notify the applicant in writing.

D. The applicant shall follow the applicable rules and regulations of the Planning Board of the Town of Southampton.

§ 52-4. Yield; parcels in more than one district.

A. Where application is made or required pursuant to this local law, the Planning Board shall in no case permit the number of dwelling units to exceed the number which could be permitted, in the Planning Board's judgment, if the land were subdivided without the benefit of this local law and conforming to the provisions of Chapter 60 and Chapter 69 of the Town Code and conforming to all other applicable requirements. To demonstrate yield, the applicant shall submit a standard plat with its application pursuant to this local law. Said plat shall be acceptable for determining yield if its form and layout are deemed to be approvable by the Planning Board.

B. For the purposes of this local law, two (2) or more parcels of property of the same record ownership may be treated as a single parcel notwithstanding that they are separated by a public or private road or right-of-way not so owned, provided that the several individual parcels lend themselves to joint planning in the public interest. Where any parcel lies in more than one (1) residential zoning district, such division shall not restrict the configuration or location of lots or units created thereon pursuant to this local law; provided, however, that the Planning Board shall give due

consideration in such cases to the community character, natural resources or other features which the different zoning classifications were intended to foster or protect.

§ 52-5. Manor houses.

A. The Planning Board may allow or require the permitted number of residential dwelling units in the form of manor houses, which is defined as a two-, three- or four-family dwelling. Nothing shall prevent the Planning Board from considering an application which utilizes a mix of single-family dwellings and manor houses. The total yield of permitted units shall not exceed the yield established under § 52-4 of this local law, unless a transfer of development rights is approved pursuant to the Town Code. No building permit shall be issued unless a site plan showing the location of buildings, structures, driveways, parking areas, landscaping, fencing, drainage facilities and pavement specifications has been approved by the Town of Southampton Planning Board, nor unless the method of sewage disposal and water supply has been approved by the Suffolk County Department of Health.

B.[1] In its review of any plat hereunder involving two (2) or more manor houses or individual detached dwelling units on single proposed lot, the Planning Board shall also approve a proposed site plan showing within which structures may be located, the height and spacing of buildings, open space and their landscaping, off-street open and enclosed parking spaces, and streets, driveways and all other physical features as shown on said plan or otherwise described, accompanied by a statement setting forth the nature or such modifications, changes or supplementations of existing zoning provisions as are not shown on said site plan. Said site plan shall be subject to review and public hearing or hearing held by the Planning Board pursuant to §§ 276 and 277 of the Town Law of the State of New York for the approval of plats.

[1] Editor's Note: Former Subsection B, dealing with Town Board approval of applications, was repealed 3-8-83 by L.L. No. 3, 1983, which local law also provided for the redesignation of former Subsection C as Subsection B.

§ 52-6. Dimensional requirements.

A. The minimum floor area requirement for residential dwelling units permitted pursuant to this section shall be determined pursuant to § 69-18 of this Code. For the purposes of this section the terms "apartment" and "manor house" shall have the same meaning.

B. Minimum dimension requirements applicable to each residential dwelling shall not be less than as follows:

(1) For a one-family dwelling, the dimensional requirements applicable to a one-family dwelling in the R-10 Residence District.

(2) For a two-family dwelling, the dimensional requirements applicable to a one-family dwelling in the R-20 Residence District.

(3) For a three-family dwelling, the dimensional requirements applicable to a one-family dwelling in the R-40 Residence District.

(4) For a four-family dwelling, the dimensional requirements applicable to a one-family dwelling in the R-60 Residence District.

C. Notwithstanding any provision of this local law to the contrary, in the case of an attached dwelling to be erected or constructed pursuant to this section, the Planning Board shall require the submission of building elevations to ensure the compatibility of the attached dwellings and dwellings which may exist or would be permitted in the adjacent single-family residentially zoned areas. Such elevations would be available for any joint meetings with the Town Board and would become part of any subdivision approval. The Planning Board shall have the authority to refer such elevations to the Board of Architectural Review for their comments, and any approval which may be granted by the Planning Board under this section shall not eliminate the required review and approval by the Board of Architectural Review specified in Article VI of the Zoning Ordinance.[1]

[1] Editor's Note: See Ch. 69, Zoning, Art. VI.

§ 52-7. **Conditions for preservation; property owners' association.**

A. The application of this procedure shall result in the preservation of at least twenty-five percent (25%) of the land on a plat in its natural state for passive recreational, open space, paleontological, archaeological and historical resources. The Planning Board as a condition of plat approval may establish such conditions on the ownership, use of such lands as it deems necessary to assure the preservation of such lands for their intended purposes. The open space created by the use of the provisions of this local law must be clearly labeled on the subdivision map as to its use and the rights of the owners in the subdivision as well as whether it is to be dedicated ultimately to the town or otherwise under conditions meeting with Planning Board approval. The details as to use and ownership of such open space are further to be set out in a declaration recorded by the owner or other appropriate instrument. Such open space is to be preserved in perpetuity and the Planning Board may require an open space easement running to the town as a condition of approval.

B. If said lands are to be offered for dedication to the town, the Town Board may require that such conditions shall be approved by the Town Board before said plan shall be approved for filing. All or portions of open space may be dedicated to the town or some other municipal corporation.

C. Property owners' association.

(1) If the open space or an open space easement therein is not to be dedicated to the town, or other governmental authority, or to an approved private conservation corporation the applicant must either simultaneously with the filing of the map create a property owners' association or neighborhood corporation embracing all property owners within the map and providing for adequate contributions for maintenance of said open space or otherwise satisfy the Planning Board with regard to the maintenance of said open space.

(2) If a property owners' association is selected by the Planning Board as the method of maintenance of the open space to be preserved, the following must be adhered to:

(a) The property owners' association must be set up before the lots are sold.

(b) Membership must be mandatory for each lot buyer, and any successive buyer, or each lot created must be legally required by duly filed convenants and restrictions to pay to the property owners' association a yearly fee to be used for maintenance of the open space.

(c) The open restrictions must be in perpetuity not just for a given period of years.

(d) The association must be responsible for liability insurance, local taxes and the maintenance of recreational and other facilities.

(e) Property owners must pay their pro rata share of the cost, and the assessment levied by the association can become a lien on the property.

(f) The association must be able to adjust the assessment to meet changed needs.

(g) The applicant shall make a conditional offer of dedication binding upon the property owners' association for all open space to be conveyed to the association, such offer to be accepted by the town, should it so choose, upon the failure of the property owners' association to take title to the open space from the applicant or other current owner, or upon the dissolution of the association at any future time.

§ 52-8. **Farmland and watershed protection.**

A. In addition to the open space requirement of § 52-7 where land subdivided under this local law contains Class I or II prime agricultural soils or is located in the Agricultural Overlay District or is located in an area which the Town Master Plan designates as a water recharge area and where it would be in the interest of good planning and would

otherwise implement the Town Master Plan, the use of this procedure shall also result in the preservation of open space soils as provided in this section.

B. At least sixty-five percent (65%) of the prime agricultural soils shall be preserved on a parcel if:

(1) It has the capability of being unified into a large continuous agricultural area or is not contiguous to other parcels or tracts which would allow for a large unified area of agriculture, however, the parcel is sufficiently large as to allow an open space subdivision on nonprime agricultural soils permitting the conservation of nearly all prime agricultural soils, or there has been some development of the parcel or tract but is capable of unification with other agricultural parcels or tracts, and such development will not impede an open space subdivision which will allow the conservation of nearly all prime agricultural soils, and the parcel or tract is being used for agriculture or has the potential for such use.

(2) Is located in Residence Zone CR-80, CR-60 or R-60.

C. At least fifty percent (50%) of the prime agricultural soils shall be preserved on a parcel if:

(1) It is not contiguous to other parcels or tracts for unification into a large agricultural area, or the parcel or tract may be too small to contribute significantly to a unified area given the developed features of the parcel or tract and the characteristics of development on adjacent parcels tends to constrain agriculture; and

(2) It is sufficiently large as to allow an open space subdivision which does not significantly disturb the prime agricultural soils; and

(3) The parcel is being used for agriculture or has the potential for such use; or

(4) The parcel is located in Residence Zone CR-40 or R-40.

D. In determining the portion of agricultural lands preserved under this section, the preservation of any lands by purchase of development rights pursuant to § 69-9C(4) shall also be computed.

E. Where a parcel or tract contains both prime agricultural soils and nonprime soils, the Planning Board may require that development take place on nonprime soils so as to maximize the preservation of prime agricultural soils.

F. The Planning Board may also require an agricultural easement be granted to the town in perpetuity to ensure the preservation of prime agricultural soils. Agricultural soils preserved under this subsection shall be included in computing the twenty-five-percent open space requirements of § 52-7.

G. Where a parcel is located in Residence Zone CR-80, CR-60 or R-60 and is in an area designated by the Town Master Plan as a watershed or water recharge area, at least sixty-five percent (65%) of the parcel shall be preserved. In all other zones fifty percent (50%) shall be preserved. The Planning Board may require an open space easement running to the town as a condition of approval.

§ 52-9. Recreational, conservational and cultural uses.

The Planning Board may approve uses for open space, and these uses will be clearly indicated on the final map.

A. The Planning Board may approve recreational use such as wooded park areas, bridle paths, hiking trails, beach areas, etc.

B. The Planning Board may approve conservational uses such as open woodland, wetlands, dune areas or farm fields.

C. The Planning Board may approve cultural aspects, such as historic places, buildings and works of art and paleontological and archaeological sites, and such open spaces which will assure that each of the above cultural aspects are adequately protected in the public interest.

D. Areas for active recreation which are to contain substantial improvements, structures, impervious surfaces and other alteration from their natural state shall not constitute open space hereunder, or for the purposes of § 52-7 hereof.

§ 52-10. Screening.

In addition to any screening and landscaping contained in the rules and regulations of the Planning Board, the Planning Board may require additional screening and planting in order to lessen the impact of development hereunder on adjacent properties other than those set forth in existing rules and regulations.

§ 52-11. Limited commercial uses.

A limited area for neighborhood convenience shops may be part of the planned residential development plan, provided that its size shall be regulated so as to serve only the residents of the planned residential development; serve no less than one hundred (100) units of housing; be no closer than two (2) miles from an existing business district; and shall not be constructed until the entire residential portion of the plan is completed.

§ 52-12. Subdivision map.

In addition to the other Planning Board requirements for final maps, upon final approval of the subdivision application by the Planning Board, the applicant shall file the subdivision map in the office of the County Clerk, which map shall contain thereof:

A. A statement that the subdivision has been approved pursuant to the provisions of this local law.

B. The number and types of units which can be erected thereon.

C. The areas in which said units may be constructed.

D. The areas which are to remain open space and under what conditions.

§ 52-13. Severability.

Should any section or provision of this local law be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of this local law as a whole or any part thereof other than the part so decided to be unconstitutional or invalid.

§ 52-14. Repealer.

All inconsistent provisions of the Town Code of the Town of Southampton relating to planned residential developments are hereby repealed.

§ 52-15. When effective; effect on prior applications.

This local law shall become effective immediately, and shall apply to all applications which have not received preliminary approval under Chapter 60 of the Town Code.

OPEN SPACE PRESERVATION
TOWN OF EAST HAMPTON CODE

A LOCAL LAW PURSUANT TO MUNICIPAL HOME RULE LAW PROVIDING FOR THE PRESERVATION OF OPEN SPACE IN THE TOWN OF EAST HAMPTON. THIS LOCAL LAW SHALL BE DESIGNATED AS CHAPTER 110 OF THE TOWN CODE.

§ 110-1. Purpose.

§ 110-2. Adoption of § 281 of Town Law and Laws of 1981, Chapter 859.

§ 110-3. Areas to which chapter applies.

§ 110-4. Procedures before Planning Board and Town Board.

§ 110-5. Open space.

§ 110-6. Uses which may be approved by Planning Board.

§ 110-7. Coverage and setback requirements.

§ 110-8. Screening and landscaping.

§ 110-9. Filing of subdivision map.

§ 110-10. Validity.

§ 110-11. When effective.

[HISTORY: Adopted by the Town Board of the Town of East Hampton 9-18-81 as L.L. No. 2-1981. Amendments noted where applicable.]

GENERAL REFERENCES

Building lots — See Ch. 56.
Excavations — See Ch. 77.
Freshwater wetlands — See Ch. 84.
Subdivision of land — See Ch. 131.
Zoning — See Ch. 153.

§ 110-1. Purpose.

Pursuant to the provisions of § 281 of the Town Law of the State of New York, the purpose of this chapter is to enable and encourage flexibility of design and development of land in such a manner as to promote the most appropriate use of land, to facilitate the adequate and economical provision of streets and utilities and to preserve the natural and scenic qualities of open lands in order to provide larger areas of open space, both for recreational and conservational purposes, and in order to implement objectives of the Comprehensive Plan when adopted. The Town Board of the Town of East Hampton hereby adopts this chapter.

§ 110-2. Adoption of § 281 of Town Law and Laws of 1981, Chapter 859.

The Town Board of the Town of East Hampton hereby elects to adopt the provisions of and exercise the powers granted by § 281 of the Town Law and hereby grants to the Planning Board of the Town of East Hampton the full authority set forth thereby. In addition, pursuant to a Special Act of the Legislature of the State of New York, Laws of 1981, Chapter 859, the Town Board hereby grants said authority to the Planning Board in all the instances specified herein.

[1] **Editor's Note: Former Ch. 110, Open Space Zoning, adopted 5-15-68 as Ord. No. 42, as amended, was repealed 9-18-81.**

§ 110-3. Areas to which chapter applies.

This chapter shall be applicable only to land zoned for residential purposes outside of the incorporated villages in the Town of East Hampton and which are in Residence District AA and Residence District A under the Town of East Hampton Zoning Ordinance,[2] but nothing herein shall be construed to limit the existing authority of the Planning Board to control the layout of subdivisions or the design of site plans in any other district or zone.

§ 110-4. Procedures before Planning Board and Town Board.

A. As provided in § 281(a) of the Town Law, if the owner makes written application to avail himself of the provisions of this chapter, the Planning Board may use the authority given to it hereunder, at the discretion of the Planning Board, if, in said Board's judgment, its application would benefit the town.

B. As provided in the Special Act of the Legislature (Laws of 1981, Chapter 859), the Planning Board's authority to vary or modify zoning requirements, as limited by Town Law § 281 and by this chapter, may be employed to impose conditions for the approval of any plat by the Planning Board, without regard to whether the owner makes application for same, if the condition is imposed in order to ensure that the plat complies with any of the requirements of Chapter 131 of this Code or if the condition is imposed in order to perpetuate the existence of or prevent the despoilation or degradation of the following environmentally sensitive areas or historic places, whether on or off the site:

(1) Environmentally sensitive areas.

(a) Tidal waters, wetlands and watercourses, as defined in § 153-43 of this Code.

(b) Storm Tidal Flood Hazard Overlay Districts, as defined in § 153-34 of this Code.

(c) Dunes in the areas delineated in § 153-33 of this Code.

(d) Bluffs, as defined in § 153-33.1 of this Code.

(e) Beach grass, as defined in § 45-1 of this Code.

(f) Class I and Class II prime agricultural soils as delineated in the 1975 Soil Survey of Suffolk County, United States Department of Agriculture, Soil Conservation Service.

(g) Natural features as delineated in § 153-14F(10) of this Code.

(2) Historic places and cultural features.

(a) Any structure or site on the National Register of Historic Places or the New York State Register for Historic Places.

(b) Cultural features as delineated in § 153-14F(11) of this Code.

C. If lands are situate in Residence District B or Multiple Residence District, the owner may apply, under the provisions of this chapter, to the Planning Board and, upon receipt of tentative approval, must apply to the Town Board for a rezoning to Residence District AA or A. The Town Board may, in its discretion, grant or deny the rezoning. Tentative approval by the Planning Board is not to be construed as implying Town Board approval of the rezoning, and Town Board change of zone is not to imply final approval by the Planning Board. Application by the owner for a rezoning pursuant to this subsection shall be contingent upon the owner's securing final approval by the Planning Board of his subdivision application. In the event that such approval is not secured within one (1) year from date of the Town Board resolution granting the rezoning, the subject lands shall remain in the zoning classification in which they were at the time of the application for change of zone.

(1) If lands are situate in Residence District AA or A and the applicant requests or the Planning Board requires that the dwelling units be in the form of an apartment, as defined in § 110-4G(1) of this chapter, then the procedure outlined in § 110-4G(2) shall be followed.

[2] Editor's Note: See Ch. 153, Zoning.

(2) If the lands are situate in Residence District B or Multiple Residence District and the applicant requests that the dwelling units be in the form of an apartment, as defined in § 110-4G(1), then the procedure outlined in § 110-4G(2) shall be followed, but the Town Board may hold one (1) public hearing as provided in § 110-4C to consider both the required rezoning and the apartment application.

D. If an applicant wishes to subdivide property under the provisions of this chapter, he shall so indicate to the Planning Board in writing. If the Planning Board requires such a subdivision, it shall notify the applicant in writing.

E. The applicant shall follow the applicable rules and regulations of the Planning Board of the Town of East Hampton.

F. Yield.

(1) Where the applicant requests or the Planning Board requires that the provisions of this chapter be utilized to subdivide property, the Planning Board shall require the applicant to submit a standard plat, in order to demonstrate yield, conforming to the applicable minimum lot size and density requirements and conforming to all other applicable requirements. The Planning Board shall allow the number of apartment units, individual detached dwelling units or lots which could be permitted, in its judgment, conforming to said applicable minimum lot size, density requirements and all other applicable requirements. **[Amended 6-18-82 by L.L. No. 5-1982]**

(2) In its review of any plat hereunder involving two (2) or more apartments or individual detached dwelling units on a single proposed lot, the Planning Board shall also approve a proposed site plan showing areas within which structures may be located, the height and spacing of buildings, open spaces and their landscaping, off-street open and enclosed parking spaces and streets, driveways and all other physical features as shown on said plan or otherwise described, accompanied by a statement setting forth the nature of such modifications, changes or supplementations of existing zoning provisions as are not shown on said site plan. Said site plan shall be subject to review and public hearing by the Planning Board in the same manner as set forth in §§ 276 and 277 of the Town Law of the State of New York for the approval of plats.

G. Apartments.

(1) The Planning Board may allow or require a permitted number of apartments, which are defined as structures for seasonal or year-round use, containing separate family dwelling units, including multiple-family dwellings, cooperative apartments, townhouses, garden apartments and condominium apartments, none of which shall include any commercial use as an adjunct. Each unit shall provide cooking and bathroom facilities and a separate entrance to the exterior of the structure or to a public hall, and each unit shall provide, in the average, a minimum of four hundred (400) square feet of livable floor area exclusive of porches, patios, garages, breezeways, terraces and other attached accessory structures. No building permit shall be issued unless a site plan showing the location of buildings, strucures, driveways, parking areas, landscaping, fencing, drainage facilities and pavement specifications has been approved by the Town of East Hampton Planning Board, nor unless the method of sewage disposal and water supply has been approved by the Suffolk County Department of Health.

(2) If the applicant requests or the Planning Board requires that any of the dwelling units be in the form of an apartment, as defined in § 110-4G(1) above, the Planning Board, on the granting of tentative approval, must immediately refer the application to the Town Board. The Town Board, if it deems it to be in

[3] **Editor's Note: See Ch. 153, Zoning.**

the best public interest, may hold a public hearing on ten (10) days' notice. A public hearing must be held by the Town Board prior to approval of such application. No further action is to be taken beyond tentative approval by the Planning Board until it is in receipt of a copy of the Town Board resolution of approval. Tentative approval by the Planning Board is not to be construed as Town Board approval, and approval by the Town Board is not to be construed as final approval by the Planning Board.

(3) The Planning Board must have made computation as provided in § 110-4F(1) above to determine the maximum number of apartment dwelling units to be allowed.

H. Prior to the Planning Board's public hearing as provided in the rules and regulations of the Planning Board and §§ 276 and 277 of the Town Law, a copy of the final submission shall be delivered to the Town Board by the Planning Board at least ten (10) days before said hearing.

I. For the purposes of this chapter, two (2) or more parcels of property of the same record ownership may be treated as a single parcel, notwithstanding that they are separated by a public or private road or right-of-way not so owned, provided that the several individual parcels lend themselves to joint planning in the public interest. Where any parcel lies in more than one (1) residential zoning district, such division shall not restrict the configuration or location of lots or units created thereon pursuant to this chapter; provided, however, that the Planning Board shall give due consideration in such cases to the community character, natural resources or other features which the different zoning classifications were intended to foster or protect.

§ 110-5. Open space.

A. Open space requirements. **[Amended 6-18-82 by L.L. No. 4-1982]**

(1) The application of this procedure shall result in the preservation of at least twenty-five percent (25%) of the land on a plat in its natural state for passive recreational, open space, paleontological, archaeological and historical resources. The Planning Board, as a condition of plat approval, may establish such conditions on the ownership, use and maintenance of such lands as it deems necessary to assure the preservation of such lands for their intended purposes. The open space created by the use of the provisions of this chapter must be clearly labeled on the subdivision map as to its use and the rights of the owners in the subdivisions, as well as whether it is to be dedicated ultimately to the town or other governmental body or to an approved private or conservation corporation or to a property owners' association or otherwise under conditions meeting with Planning Board approval. The details as to use and ownership of such open space are further to be set out in a declaration recorded by the owner or other appropriate instrument. Such open space is to be preserved in perpetuity, and the Planning Board may require an open space easement running to the town as a condition of approval.

(2) In addition to the open space requirement of § 110-5A(1), where land subdivided under this chapter contains prime agricultural soils as defined in § 110-4B(1)(f) of this chapter and where it would implement the Town Comprehensive Plan, the application of this procedure shall also result in the preservation of these prime agricultural soils as provided in Subsection A(2)(a), (b) and (c).

(a) At least seventy percent (70%) of the prime agricultural soils on a parcel or tract shall be preserved where the parcel or tract:

[1] Has the capability of being unified into a very large, continuous agricultural area; and

[2] Is being used for agriculture or has the potential for such use.

(b) At least seventy percent (70%) of the prime agricultural soils on a parcel or tract shall be preserved where the parcel:

[1] Is not continuous to other parcels or tracts which would allow for a large unified area of agriculture, however the parcel is sufficiently large as to allow an open space subdivision on nonprime agricultural soils permitting the conservation of nearly all prime agricultural soils, or there has been some development of the parcel or tract but is capable of unification with other agricultural parcels or tracts, and such development will not impede an open space subdivision which will allow the conservation of nearly all prime agricultural soils; and

[2] The parcel or tract is being used for agriculture or has the potential for such use.

(c) At least forty percent (40%) of prime agricultural soils on a parcel shall be preserved where the parcel:

[1] Is not continuous to other parcels or tracts for unification into a large agricultural area, or the parcel or tract may be too small to contribute significantly to a unified area, given that the developed features of the parcel or tract and the characteristics of development on adjacent parcels tend to constrain agriculture;

[2] Is sufficiently large as to allow an open space subdivision which does not significantly disturb the prime agricultural soils; and

[3] The parcel is being used for agriculture or has the potential for such use.

(d) Where a parcel or tract contains both prime agricultural soils and nonprime soils, the Planning Board may require that development take place on nonprime soils so as to maximize the preservation of prime agricultural soils.

(e) The Planning Board may require that an agricultural easement be granted to the town in perpetuity to ensure the preservation of prime agricultural soils. Agricultural soils preserved under this subsection shall be included in computing the twenty-five-percent open space requirement of Subsection A(1) of this section.

B. If said lands are to be offered for dedication to the town, the Town Board may require that such conditions shall be approved by the Town Board before said plan shall be approved for filing. All or portions of the open space may be dedicated to the town or some other municipal corporation.

C. Property owners' association.

(1) If the open space or an open space easement therein is not to be dedicated to the town or other governmental authority or to an approved private conservation corporation, the applicant must either simultaneously with the filing of the map create a property owners' association or neighborhood corporation embracing all property owners within the map and providing for adequate contributions for maintenance of said open space or otherwise satisfy the Planning Board with regard to the maintenance of said open space.

(2) If a property owners' association is selected by the Planning Board as the method of maintenance of the open space to be preserved, the following must be adhered to:

(a) The property owners' association must be set up before the lots are sold.

(b) Membership must be mandatory for each lot buyer, and any successive buyer, or each lot created, must be legally required by duly filed covenants and restrictions to pay to the property owners' association a yearly fee to be used for maintenance of the open space.

(c) The open restrictions must be in perpetuity, not just for a given period of years.

(d) The association must be responsible for liability insurance, local taxes and the maintenance of recreational and other facilities.

(e) Property owners must pay their pro rata share of the cost, and the assessment levied by the association can become a lien on the property.

(f) The association must be able to adjust the assessment to meet changed needs.

(g) The applicant shall make a conditional offer of dedication binding upon the property owners' association for all open space to be conveyed to the association, such offer to be accepted by the town, should it so choose, upon the failure of the property owners' association to take title to the open space from the applicant or other current owner or upon dissolution of the association at any future time.

§ 110-6. Uses which may be approved by Planning Board.

The Planning Board may approve uses for open space, and these uses will be clearly indicated on the final map.

A. The Planning Board may approve recreational uses, such as wooded park areas, bridle paths, hiking trails, beach areas, etc.

B. The Planning Board may approve conservational uses, such as open woodland, wetlands, dune areas or farm fields.

C. The Planning Board may approve cultural aspects, such as historic places, buildings and works of art and paleontological and archaeological sites, and such open spaces which will assure that each of the above cultural aspects are adequately protected in the public interest.

D. Areas for active recreation which are to contain substantial improvements, structures, impervious surfaces and other alteration from their natural state shall not constitute open space hereunder or for the purposes of § 110-5 hereof.

§ 110-7. Coverage and setback requirements.

If apartments, as defined in § 110-4G(1), are used, the minimum front, side and rear yards for all buildings, structures, playgrounds, parking areas, etc., shall be one hundred (100) feet from the property line of the entire parcel subdivided under this chapter. Minimum side and rear yards for driveways or access roads shall be one hundred (100) feet from the property line of the entire parcel subdivided under this chapter. Height shall not exceed two (2) stories and shall not exceed thirty (30) feet. Coverage, as defined in the Zoning Ordinance,[4] is not to exceed fifteen percent (15%). Parking requirements shall be two (2) parking spaces per each family dwelling unit. The side yard and one-hundred-foot property line setbacks contained in this section may be reduced by the Planning Board if the Board finds in writing that such reduction is necessary to maximize open space preservation and which, because of the natural topography or vegetation existing on the site or to be added thereto, will not increase the detrimental impact or interfere with adjacent properties.

§ 110-8. Screening and landscaping.

In addition to any screening and landscaping contained in the rules and regulations of the Planning Board, the Planning Board may require additional screening and planting in order to lessen the impact of development hereunder on adjacent properties other than those set forth in existing rules and regulations.

§ 110-9. Filing of subdivision map.

In addition to the other Planning Board requirements for final maps, upon final approval of a change of zone by the Town Board and final approval of the subdivision application by the Planning

[4] Editor's Note: See Ch. 153, Zoning.

Board, the applicant shall file the subdivision map in the office of the County Clerk, which map shall contain thereon:

A. A statement that the subdivision has been approved pursuant to the provisions of this chapter.

B. The number and type of units which can be erected thereon.

C. The areas in which said units may be constructed.

D. The areas which are to remain open space and under what conditions.

§ 110-10. Validity.

Should any section or provision of this chapter be decided by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the chapter as a whole or any part thereof other than the part so decided to be unconstitutional or invalid.

§ 110-11. When effective.

This chapter shall become effective immediately.

NATURE PRESERVE TRUST
TOWN OF ISLIP CODE

Chapter 13

Local Law
No. 5
1974

A LOCAL LAW TO ESTABLISH A NATURE PRESERVE TRUST IN THE TOWN OF ISLIP

§ 13-1. **Legislative intent.**

§ 13-2. **Dedication of properties.**

§ 13-3. **Violation of provisions.**

§ 13-4. **Legislative authority; when effective.**

[HISTORY: Adopted by the Town Board of the Town of Islip 7-2-74 as Local Law No. 5, 1974. Amendments noted where applicable.]

Be it enacted by the Town Board of the Town of Islip as follows:

§ 13-1. Legislative intent.

In order to manage, protect and preserve unique areas within the Town of Islip, the town shall establish Nature Preserve Trust areas, whereby land once dedicated may not be taken or otherwise disposed of nor used for any purpose not specified in the dedicating resolution.

§ 13-2. Dedication of properties.

A. By resolution adopted by the Town Board, the town shall dedicate wetlands properties it owns, in addition to any other town-owned lands it sees fit, to the Town Nature Preserve Trust to be established by the implementation of this local law.

B. Only properties found to possess natural beauty, estuarine values, including wetlands and shorelines, or of ecological significance, or which have the potential of being restored to their original states, may be dedicated to the Town Nature Preserve Trust. All properties created as a result of dredging spoil management and wetlands rehabilitation programs shall be eligible for dedication.

C. The resolution dedicating town-owned land to the Town Nature Preserve Trust shall provide that all or a specified portion of the property being dedicated shall be kept forever wild or in its natural state, or that it may be used only for the purpose or purposes specified in the resolution.

D. The Islip Town Planning Department, after counseling with the various town departments, agencies and councils, is charged with the duty to recommend to the Town Board which town-owned properties, consistent with the overall planning of the town, should be dedicated to the Town Nature Preserve Trust and which properties not owned by the town should be acquired for purposes of dedication.

E. Property owned by the town and dedicated under this section to the Town Nature Preserve Trust shall not be taken, leased, sold, exchanged or otherwise disposed of, nor shall they be used for any purpose not specified in the resolution under which the property was dedicated to the Town Nature Preserve Trust. If after dedication the town shall decide to unclassify property from the forever wild classification, it must give public notice and hold a public hearing; provided, however, that such action may not take place for a period of ten (10) years from the property's original dedication.

F. The Islip Town Environmental Control Department is hereby charged with the management of all properties dedicated under this section to the Town Nature Preserve Trust.

§ 13-3. Violation of provisions.

A violation of any of the provisions of this Chapter 13 may be restrained by a suit brought by any citizen of the Town of Islip by making application to any Justice of the New York State Supreme Court.

§ 13-4. Legislative authority; when effective.

This local law is enacted under the provisions of Article 9 of the New York State Constitution, the Town Law and the Municipal Home Rule Law of the State of New York. This local law shall take effect when the appropriate certified copies hereof are filed with the Secretary of State and the Comptroller of the State of New York pursuant to the Municipal Home Rule Law.

SUPPLEMENTARY PROVISIONS
CLUSTER ORDINANCE

TOWN OF BROOKHAVEN CODE

Article XLV

§ 85-447. Development pursuant to § 281 of Town Law. [Added 11-20-73, effective 12-10-73]

A. In the event that the owner or developer of real property desires to develop it under the provisions of the Town Law, § 281, he shall submit an application in a form to be approved by the Planning Board. Said application shall be filed simultaneously with an application for preliminary approval and shall include the following information:

(1) The name and address of the applicant.

(2) The street location of the real property and a metes and bounds description.

(3) The total acreage owned by the applicant or to be included in the proposed development. Said acreage need not be in contiguous parcels or be otherwise contiguous. **[Amended 7-7-81, effective 8-10-81]**

(4) The existing zoning category or categories.

(5) The total number of units proposed to be constructed.

(6) The school district or districts in which said property is located, the total acreage within each school district to be included in the proposed development and the total number of units the applicant proposes to construct within each school district.

(7) The number of acres proposed to be dedicated to the town or other municipal agency or to be set aside as open space. The applicant shall state fully the purpose or purposes for which said dedication is to be made or for which the property set aside for open space may be used, if any.

(8) The type and mixture of the proposed construction, i.e., whether single-family, attached, townhouse, multifamily, etc., or a combination of several different types. If a combination, specify requested percentage of each.

B. The application shall be accompanied by:

(1) A fee as prescribed hereunder.

(2) Five (5) copies of a map which complies with the standards of the Planning Board for a preliminary map showing the lots as developed in accordance with the Zoning Ordinance and conventional subdivision design.

(3) A four-by-four-inch diagram to be approved by the Planning Board prepared by a registered professional engineer or registered land surveyor indicating the location of the property which is the subject of the application with respect to the nearest street.

(4) Five (5) copies of a diagram, drawn to scale, prepared by a registered professional engineer or a registered land surveyor showing by courses and distances the property which is the subject of the application and all of the properties within two hundred (200) feet of the perimeter line of said property, showing to scale all structures within the area indicating the use, showing

the current zoning of all areas depicted and showing the distance and direction from the nearest street. All such diagrams shall contain the following certification:

I do hereby certify that the area map accurately describes the uses of the property surrounding the subject premises as of (date.)

SIGNATURE

(5) A list of all owners to whom notice will be sent, together with a copy of the proposed notice.

(6) A statement or statements in compliance with Chapter 21, Disclosure, of the Code of the Town of Brookhaven.

C. Hearing; notice.

(1) The Planning Board shall schedule a hearing on the application. Notice of said hearing shall be published at least once in a newspaper circulating in the Town of Brookhaven at least ten (10) days prior to the public hearing. Said notice shall include a copy of the four-by-four-inch diagram required hereunder. In addition, the applicant shall cause notice of the public hearing to be sent at least ten (10) days before the public hearing, by certified mail, return receipt requested, to all owners within a distance of two hundred (200) feet from the perimeter of the property which is the subject of the application. In the event that the applicant owns or has an interest in property contiguous to the property which is the subject of the application, such distance shall be measured from the perimeter of such contiguous property; except, however, that the applicant shall not be required to notify any owner owning property more than five hundred (500) feet from the perimeter of the property which is the subject of the application. For the purposes of this section, the word "owner" or "property owner" means the owner as shown on the current Brookhaven Town Assessment Roll. Said notice shall contain the following information:

(a) Date, time and place of the hearing.

(b) That the purpose of the hearing is for the Planning Board to consider the development of the property pursuant to the Town Law, § 281.

(c) The current zoning of the property.

(d) The total number of units requested by the applicant.

(e) The type and mix of proposed construction.

(f) There shall be attached to said notice a copy of a four-by-four-inch diagram required under this section.

(g) A statement that a more detailed diagram of the property which is the subject of the application is on file in the office of the Planning Board and may be examined during regular office hours by any interested person.

(2) The affidavit of mailing to all adjacent owners shall be filed with the return receipts. In the event that all return receipts have not been received by that time, the applicant shall file the same or account for all mailings within thirty (30) days following the public hearing.

D. Following the public hearing, the Planning Board shall forward its recommendation to the Town Board. The Planning Board may recommend approval, approval with modifications or denial of the application for development pursuant to the Town Law, § 281.

E. Following receipt of the recommendation from the Planning Board, the Town Board shall schedule a hearing on said application, notice of which shall be given pursuant to § 85-447C of this ordinance, after which the Town Board may approve, approve with modifications or deny the application. Prior to scheduling the public hearing, the applicant shall pay a fee to the Town Clerk in such amount as shall be equal to the actual cost of publishing the notice of public hearing required herein. If the Town Board shall

grant the application, such resolution shall be contingent upon the submission to the Planning Board and the Town Clerk of a certified survey prepared by a registered land surveyor showing the boundaries of the property which is the subject of the application. All maps filed pursuant to § 281 shall contain the following statement: "The approval of this plan (or map) is authorized pursuant to a resolution of the Town Board of the Town of Brookhaven adopted on . . . . pursuant to § 281 of the Town Law." In addition, all resolutions shall be contingent upon the applicant paying all legal expenses incurred in connection with the application pursuant to the Town Law, § 281. **[Amended 5-16-83, effective 6-6-83]**

F. Simultaneously with the filing of each application for development of property pursuant to the Town Law, § 281, the applicant shall submit to the Planning Board a check in the amount of three hundred dollars ($300.) as the filing fee for such application.

G. The Planning Board shall make appropriate notations on the zoning maps of the Town of Brookhaven which will indicate that the property which is the subject of the application has been approved for development pursuant to the Town Law, § 281.

H. The square footage of all structures shall be determined pursuant to Article XLII of the Zoning Ordinance based on the type of structure proposed to be erected.[1]

I. The Planning Board is hereby authorized to require the owner or developer of real property to submit an application pursuant to this section which reflects modification pursuant to § 281 of New York State Town Law. The Planning Board is authorized to adopt rules and regulations setting forth the criteria pursuant to which such an application may be required. **[Added 5-16-83, effective 6-6-83]**

[1] **Editor's Note: Former Subsection I, which immediately followed this subsection, concerning the effective period of resolutions adopted under this section, was repealed 7-7-81, effective 8-10-81.**

A RESIDENTIAL AND AGRICULTURAL DISTRICT CLUSTER ORDINANCE

TOWN OF SOUTHOLD CODE

Article III

§ 100-136. Cluster development. [Added 5-29-73]

The Planning Board may approve cluster developments for one-family detached dwellings in an A Residential and Agricultural District according to the procedure and requirements specified below. The purpose of such development is to provide flexibility in the design and development of land in such a way as to promote the most appropriate use of land to facilitate the adequate and economical provision of streets and utilities, and to preserve the natural and scenic qualities of open space.

A. The maximum number of single-family lots that may be approved in a cluster development shall be computed by subtracting from the total gross area a fixed percentage of twenty percent (20%) of said area and dividing the remaining eighty percent (80%) of the area by forty thousand (40,000) square feet.

(1) In computing the maximum number of lots that may be created, any lands which are subject to flooding or which are occupied by public utility easements in such a manner as to prevent their use and development shall not be considered part of the total gross area.

(2) In a cluster development, lot area, width, depth, front yard, rear yard and side yards shall not be reduced by more than fifty percent (50%) of the minimum requirements set forth in the "Bulk and Parking Schedule."

B. The area of a cluster development shall be in single ownership or under unified control.

C. Prior to the issuance of a building permit in a cluster development, a site plan shall be submitted to and approved by the Planning Board in accordance with Article XIII of this chapter and the following conditions:

(1) Said site plan shall include areas within which structures may be located, the height and spacing of buildings, open spaces and their landscaping, off-street open and enclosed (if any) parking spaces, and streets, driveways and any other physical features relevant to the proposed plan.

(2) Said site plan shall include a statement setting forth the nature of all proposed modifications of existing zoning provisions.

D. Nothing contained in this chapter shall relieve the owner or his agent or the developer of a proposed cluster development from receiving final plat approval in accordance with the town subdivision regulations.[21] In approving the final plat for a cluster development, the Planning Board may modify the acreage requirement for recreation areas as set forth in the town's rules governing subdivision review, provided that the common land dedicated meets all other requirements of the town subdivision regulations.

E. A cluster development shall be organized as one (1) of the following: a Homes Association approved by the Federal Housing Administration for mortgage insurance as a Planned Unit Development, and the Town Board; a Homes Association approved by the Town Attorney and Town Board; or any other arrangements approved by the Town Attorney and Town Board as satisfying the intent of this

21 Editor's Note: See Ch. A106, Subdivision of Land.

chapter. Whenever a Homes Association is proposed, the Town Board shall retain the right to review and approve the Articles of Incorporation and Charter of said Homes Association, and to require whatever conditions deemed necessary to ensure that the intent and purpose of this chapter are carried out. In consideration of said approval, the Town Board shall, in part, require the cluster development to meet the following conditions:

(1) The Homes Association shall be established as an incorporated nonprofit organization operating under recorded land agreements through which each lot owner, and any succeeding owner, is automatically a member, and each lot is automatically subject to a charge for a proportionate share of the expenses for the organization's activities.

(2) Title to all common property shall be placed in the Homes Association, or definite and acceptable assurance shall be given that it automatically will be so placed within a reasonable period of time.

(3) Each lot owner shall have equal voting rights in the Association and shall have the right to the use and enjoyment of the common property.

(4) Once established, all responsibility for operation and maintenance of the common land and facilities shall lie with the Homes Association.

(5) Dedication of all common areas shall be recorded directly on the final plat, or by reference on that plat to a dedication in a separately recorded document. Resubdivision of such areas is prohibited. The dedication shall:

(a) Save the title to the common property to the Homes Association free of any cloud of implied public dedication.

(b) Commit the developer to convey the areas to the Homes Association at an approved time.

(c) Grant easement of enjoyment over the area to the lot owners.

(d) Give to the Homes Association the right to borrow for improvements upon the security of the common areas.

(e) Give to it the right to suspend membership rights for nonpayment of assessments or infraction of published rules.

F. Covenants shall be established, limiting all lots to one-family use and all common lands to open space uses. No structures may be erected on such common lands except as shown on the approved site plan.

G. Each deed to each lot sold shall include by reference all recorded declarations and other restrictions including assessments and the provision for liens for nonpayment of such.

H. The Homes Association shall be perpetual; it shall purchase insurance, pay taxes, specify in its charter and bylaws an annual homeowner's fee, give provision for assessments and provide that all such charges become a lien on each property in favor of said Association. The Association shall have the right to proceed in accordance with all necessary legal action for the foreclosure and enforcement of liens, and it shall also have the right to commence action against any member for the collection of any unpaid assessment in any court of competent jurisdiction.

I. The developer shall assume all responsibilities as previously outlined for the Homes Association until a majority of the dwelling sites are sold, at which time the Homes Association shall be automatically established.

J. Prior to site plan approval the developer shall file with the Town Board a performance bond to ensure the proper installation of all required improvements, and a maintenance bond to ensure the proper maintenance of all common lands until the Homes Association is established. The amount and term of said bonds shall be determined by the Planning Board, and the form, sufficiency, manner of execution and surety shall be approved by the Town Board.

TRANSFER OF PERMITTED RESIDENTIAL DEVELOPMENT RIGHTS DISTRICT PROVISIONS

TOWN OF SOUTHAMPTON CODE

Article II

B. Transfer of permitted residential development rights.

(1) These provisions are enacted to implement the Town of Southampton Master Plan of 1970 by providing the means of achieving elements of the community planning objectives with reference to natural resources, population, utilities and housing and, more particularly, to do so while maintaining the overall ratio established between population capacity at ultimate community development and the safe yield of the fresh groundwater reservoir within the Town of Southampton's territorial limits. Further, land from which the development rights are to be transferred must have such characteristics that their permanent open space preservation will fulfill one (1) of the following objectives:

(a) Porous moraine soils, found in the CR-80 District, will be retained for the purpose of maximizing groundwater recharge while lessening potential pollution of these groundwaters by individual sewage disposal systems.

(b) Soils found in the Agricultural Overlay District and conforming to United States Soil Conservation Service capability Classes I and II will be retained for permanent agricultural use.

(c) Tidal wetlands, as defined in this ordinance, and their immediate upland environments will be retained for their ecological benefits and held in permanent open space use.

(d) Lands found in an area designated by the Town Master Plan of 1970 for a greenbelt park system or for an individual park, beach or public recreation area will be retained for such open space use.

(2) In pursuit of these purposes, the Town Board of the Town of Southampton may from time to time authorize by ordinance the transfer of permitted residential development rights from one parcel of land to another parcel of land within the same school district where such authorization shall be found to be beneficial to the town through serving to implement the Master Plan of 1970 and to be in accordance with the provisions of this section.

(3) Procedure.

(a) An applicant for the transfer of permitted residential development rights shall present documentation satisfactory to the Town Board, indicating:

[1] The location, land area and related residential development rights permitted under the applicable provisions of this ordinance which the applicant proposes to transfer.

[2] The location and land area of the site to which such rights are to be transferred, the projected total number of dwelling units that would result on the site from such a transfer

[1] Editor's Note: For provisions regarding the specific transfer of development rights, see Art. VIII, Transfer of Development Rights, of this chapter.

and a statement of the character of the projected housing development.

[3] A presentation as to the reasonable and beneficial results anticipated from the authorization applied for with respect to the implementation of the Master Plan of 1970.

(b) If the Town Board decides to consider the applicant's proposal, it shall proceed in the same manner as provided in § 69-39 for amending this ordinance, except that the fee for such application shall be two hundred fifty dollars ($250.).

(c) The Planning Board report to the Town Board shall consider all aspects of the proposal, particularly that of the degree to which the proposal implements the Master Plan of 1970.

(d) Upon favorable review by the Town Board, such an application shall be approved subject to completion of the following actions:

[1] Approval by the Planning Board of a detailed site development plan for the property to which the development rights are to be transferred and a recommendation with regard to the disposition of the property from whence the development rights were transferred.

[2] Execution of an instrument legally sufficient both in form and content to effect such transfer and the transmittal of the fee title for the property from which the development rights are to be transferred to the Town of Southampton, or such other governmental agency as the town shall designate, for use as permanent open space.

[3] Filing copies of the executed legal instrument in the office of the Town Clerk, the Planning Board, the Building Inspector and with the County Clerk as a notice of such transfer incorporated in the deeds of each property affected by the transfer. Such instrument shall specifically set forth the rights transferred and the resultant total residential development rights in each property.

[4] Such other requirements as the Town Board shall establish.

(4) General standards.

(a) Districts in which an increase in the number of dwelling units may be permitted shall be restricted to those listed hereinafter, and, for each district specified, the number of dwelling units permitted shall not exceed the following:

[1] When proposed for transfer to an R-60 or CR-60 District, the number of dwelling units shall not exceed the number which would be permitted in an R-40 or CR-40 District.

[2] When proposed for transfer to an R-40 or CR-40 District, the number of dwelling units shall not exceed the number which would be permitted in an R-20 District.

[3] When proposed for transfer to an R-20 District designated by the Town Master Plan of 1970 as an appropriate location for multifamily housing, the number of dwelling units shall not exceed four (4) per gross acre, and the Tables of Use and Dimensional Regulations for the MF-44 District shall apply.[9] **[Amended 8-20-74]**

(b) Development rights may be transferred within the CR-80 Zone and may be transferred out of said zone, however, nothing contained herein

[9] **Editor's Note: See the Residence Districts Table of Use Regulations and the Residence Districts Table of Dimensional Regulations at the end of this chapter.**

shall be deemed to permit the transfer of development rights into the CR-80 Zone from other residential zones. The resultant density on the parcel within the CR-80 Zone to which the rights are transferred to shall not exceed the number of dwelling units which would be permitted by the standard dimensional requirements of the CR-40 Zone. **[Amended 5-22-79]**

(c) Development rights may be transferred within the Agricultural Overlay District, the Tidal Flood Plain Overlay District or the Tidal Wetlands and Ocean Beach Overlay District and may be transferred out of said districts, the above being subject to the restrictions applicable to the respective zoning district as set forth in this section. However, nothing contained herein shall be deemed to permit the transfer of development rights into any of the aforementioned overlay districts. **[Added 6-23-81[1]]**

(d) The site to which the transfer of development rights is proposed shall be no less than twenty (20) acres in any R-60, R-40, CR-80, CR-60 or CR-40 District and no less than five (5) acres when proposed for a site conforming to § 69-6B(4)(a)[3]. **[Amended 5-22-79]**

(e) All yard requirements of the more restrictive district found along the perimeter of the site shall apply to perimeter yards on the site to which the transfer of development rights is proposed. **[Amended 5-22-79]**

(f) Nothing in this section shall abrogate the requirements of other codes and regulations, including the Town of Southampton Subdivision Regulations,[2] when they are applicable. **[Amended 5-22-79]**

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[1] **Editor's Note: The ordinance adopted on said date also provided for the renumbering of former Subsection B(4)(c), (d) and (e) as Subsection B(4)(d), (e) and (f), respectively.**

[2] **Editor's Note: See Ch. 60, Subdivision of Land.**

TRANSFER OF DEVELOPMENT RIGHTS*

SARASOTA, FLA.

ORDINANCE NO. 82-61

AN ORDINANCE OF THE COUNTY OF SARASOTA, FLORIDA, AMENDING SARASOTA COUNTY ORDINANCE NO. 75-38, RELATING TO TRANSFER OF DEVELOPMENT RIGHTS; PROVIDING FINDINGS; PROVIDING FOR ESTABLISHMENT OF SENDING AND RECEIVING ZONES; PROVIDING CIRCUMSTANCES UNDER WHICH DEVELOPMENT RIGHTS MAY BE ISSUED AND TRANSFERRED; PROVIDING FOR ISSUANCE OF TRANSFERABLE DEVELOPMENT RIGHTS; PROVIDING FOR DISQUALIFYING LAND; PROVIDING FOR CHANGE OF ZONING UPON TRANSFER OF DEVELOPMENT RIGHTS; PROVIDING FOR IMPOSITION OF A DEVELOPMENT LIMITATION ON PROPERTY TRANSFERRING DEVELOPMENT RIGHTS; PROVIDING THE PROCEDURES FOR APPROVAL OF TRANSFER OF DEVELOPMENT RIGHTS; PROVIDING FOR INITIATION OF THE ISSUANCE OF TRANSFERABLE DEVELOPMENT RIGHTS BY THE COUNTY; PROVIDING FOR THE ISSUANCE OF A TRANSFER PERMIT; PROVIDING FOR THE EXERCISE OF RIGHTS GRANTED BY TRANSFER PERMITS; PROVIDING DEFINITIONS; PROVIDING FOR THE RSZ, RESIDENTIAL SENDING ZONE AND THE RRZ, RESIDENTIAL RECEIVING ZONE; PROVIDING FOR PERMITTED USES AND SPECIAL EXCEPTIONS; PROVIDING FOR MAXIMUM RESIDENTIAL DENSITY AND OTHER REQUIREMENTS; PROVIDING FOR SEVERABILITY; PROVIDING AN EFFECTIVE DATE.

BE IT ORDAINED BY THE BOARD OF COUNTY COMMISSIONERS OF SARASOTA COUNTY, FLORIDA:

Section 1. *Findings.* The Board of County Commissioners hereby makes the following findings:

(1) Zoning as applied to land permits certain rights to develop the land for residential and other purposes.

(2) Such development rights are identifiable, valuable, and severable from the parcel where initially permitted.

(3) It is desirable planning practice to permit the transfer of development rights from certain locations in the County to other locations which can accommodate growth without increasing the overall amount of permitted development in the County.

(4) Issuance of development rights for a particular parcel of land and permitting their transfer to other more suitable land can serve to prevent an unconstitutional taking of property rights without just compensation.

(5) In the process of permitting the transfer of development rights from one parcel to another, the public health, safety, and general welfare may be furthered by providing for the prevention of urban sprawl, and the preservation of open space, important agricultural lands, and environmentally sensitive areas, and other purposes which serve to implement the Comprehensive Plan.

*At the present time New York State has not yet enacted enabling legislation for the transfer of development rights, however three separate pieces of legislation are currently being proposed.

Section 2. *Amendment of Ordinance 75-38.* Sarasota County Ordinance No. 75-38 is hereby amended as follows:

(1) In Subsection 6.5, after "RTR, Residential, Tourist Resort" add the following:

RSZ	Residential Sending Zone
RRZ	Residential Receiving Zone

(2) In Subsection 6.6.a, after "RTR, Residential, Tourist, Resort" add the following:

RSZ	Residential Sending Zone
RRZ	Residential Receiving Zone

(3) In Section 7, add Subsection 27 to read as follows:

27. *Transfer of Development Rights.* Transfer of development rights is intended as one method of implementing the Sarasota County Comprehensive Plan, permitting the transfer of development rights from one location to another where the associated development can be more appropriately accommodated. The transferring, or sending, location is designated as an RSZ Residential Sending Zone. The receiving location is designated as an RRZ Residential Receiving Zone. At the same time that the development rights are transferred from property, a Development Limitation is placed on the transferring property to control the nature and extent of its subsequent use and development, and the transferring property will normally be rezoned to reflect the absence of the rights transferred.

a. *Establishment of Sending Zones.* The RSZ district is herewith concurrently established as an overlay sending zone for the transfer of development rights. The RSZ district when applied designates land from which development rights may be transferred upon issuance of a Transfer Permit as provided below; provided, however, the RSZ district shall not be applied unless such zoning is consistent with and serves to implement the Comprehensive Plan and the land involved constitutes:

(1) A platted subdivision which due to the size of the lots, the lack of paved streets or drainage, or other deficiencies fails substantially to conform to the requirements of the Sarasota County Land Development Regulations, Ordinance No. 81-12, in force at the time such zoning is to be applied;

(2) An environmentally sensitive area; or

(3) An area which should be retained in agricultural open space, or other conservation uses.

b. *Establishment of Receiving Zones.* The RRZ district is herewith concurrently established as an overlay receiving zone for the transfer of development rights. Where the RRZ district is applied, land may be used as permitted by the underlying zoning and in addition may be used for single family, two family, townhouse, cluster housing, or multiple family dwellings at a density which combines that permitted by the underlying zoning and that allowed by any development rights transferable to the land in the RRZ district. The RRZ district shall not be applied where such zoning would be inconsistent with the Comprehensive Plan. Further, it is not intended that by designating land in the RRZ district that rezoning to higher density is appropriate for the land generally or its immediate environs.

c. *Circumstances Under Which Transfer of Development Rights May Be Allowed.* After land has been designated under the RSZ district, the Board of County Commissioners may issue transferable development rights for such land and authorize their transfer in accordance with this section where the Board finds that issuance and transfer of the development rights will serve to implement the Comprehensive Plan. Any development rights issued pursuant to this section shall not be used on the property from which they derive, but may be used on any land designated under the RRZ district consistent with the Comprehensive Plan.

(1) *Issuance of Transferable Development Rights.* Transferable development rights shall be issued in dwelling units based upon the amount of dwelling units permitted under the current zoning on the property, taking into consideration any preexisting plats. A suitable numbering system shall be followed by the County to identify particular development rights issued pursuant to this section.

(2) *Disqualifying Land.* In the computation of any transferable development rights under this section, no transferable development rights shall be computed for any land in a right-of-way or easement which precludes its occupation by dwellings or where, by operation of private restrictions or state or federal law, development of the land is prohibited.

(3) *Change of Zoning.* Upon issuance of development rights in accordance with this section, the zoning on the land from which they derive shall be changed to reflect the absence of the rights to be transferred unless the zoning has already been so changed.

(4) *Development Limitation.* Prior to exercise of the transferable development rights issued pursuant to this section, the property owner shall grant a conservation easement to Sarasota County pursuant to Section 704.06, Florida Statutes. Such easement shall limit use of the transferring property to agricultural or open space uses and shall prohibit, except as reasonably incidental to agricultural use, the activities and uses cited in paragraphs (a)-(g) of Section 704.06(1), Florida Statutes. The easement may provide, however, upon Board of County Commissioners approval, for existing uses to continue and for limited development of new uses based upon any residual development rights remaining after the primary development rights have been transferred. Evidence of title satisfactory to the County Attorney shall also be provided. Upon the establishment of conservation easements pursuant to this section, the County shall not authorize their release.

d. *Initiation by Property Owner - Approval Procedure.*

(1) *Application.* A property owner desiring to obtain permission to transfer development rights from particular property which has been zoned RSZ shall apply for issuance of a Transfer Permit. Such application shall be filed with the Planning Director on a form requesting information as the Director may reasonably require and approved by the Board of County Commissioners, which shall include the following:

(a) Name, address and telephone number of applicant and the applicant's agent, if any.

(b) Legal description of the property.

(c) Map drawn to scale of not less than 1 inch equals 400 feet showing existing land use on the property and any existing streets, structures, water courses and easements within or adjacent to the property. This map shall include a North directional arrow and shall also show the gross acreage of the property.

(d) Statement identifying the existing zoning on the property.

(e) The proposed grant of easement to Sarasota County creating the Development Limitation for the property, and evidence of title.

(f) Such fee as the Board of County Commissioners may by resolution establish.

(2) *Agency Review.* The Planning Director shall circulate any application for review by appropriate County agencies, and upon completion of such review shall forward the application to the Planning Commission for review.

(3) *Planning Commission Review.* The Planning Commission shall review the application, the comments of County agencies, and, after notice and hearing as required by Section 20.2 and 20.3 for Special Exceptions, shall make findings of fact and recommend the application to the Board of County Commissioners for approval, approval with modifications or conditions, or denial.

(4) *Board of County Commissioners Action.* The Board of County Commissioners shall review the application and the findings and recommendation of the Planning Commission, and after notice and hearing as required by Section 20.2 and 20.3, shall approve, approve with modifications or conditions, or deny the application for a Transfer Permit. Such approval shall be conditioned upon delivery to the County of an executed grant of easement creating a Development Limitation pursuant to paragraph c(4) above, as approved in the application or as specified by the Board, and recording copies of same together with a copy of the

Transfer Permit in the deed records for Sarasota County, and may include other reasonable conditions including, but not limited to, rezoning related to the transfer and vacation or change to existing plats.

e. *Initiation by the County.* In addition to the foregoing procedures for initiation of a transfer of development rights by a property owner, the Board of County Commissioners on its own motion may issue transferable development rights to a given parcel of property zoned RSZ. Such rights shall only be issued where the Board finds, after review by the Planning Commission in accordance with Paragraph d(3) above and notice and hearing as required by Sections 20.2 and 20.3, that issuance and transfer of the development rights will serve to implement the Comprehensive Plan.

f. *Exercise of Rights Granted by Transfer Permit.*

(1) *Who May Exercise Such Rights.* Upon issuance of a Transfer Permit by the Board of County Commissioners, the Clerk to the Board shall register the identifying numbers of such rights together with the name and address of the person to whom they are issued. Such rights may be subsequently exercised by the registrant or they may be assigned. In the event of assignment, the name and address of the assignee must be registered with the Clerk to the Board identifying the rights assigned prior to their exercise by assignee. All assignments shall also be recorded in the deed records for the property for which the Transfer Permit was issued.

(2) *Application for Building Permits.* Upon application for a building permit in an RRZ district where the applicant seeks to utilize development rights authorized by a Transfer Permit, the applicant shall also submit a copy of the Transfer Permit, evidence of compliance with the conditions of the Permit's issuance, a copy of any assignment of development rights being relied upon in the application, and a certification by the Clerk to the Board that the applicant is the current registrant for such rights as shown by the Clerk's records. Upon such submission, the applicant shall be authorized to utilize the development rights transferred in addition to rights allowed under existing zoning on the receiving parcel, subject to the requirements of the RRZ district and the underlying zoning.

(3) *Extinguishment of Rights.* Utilization of particular development rights transferred shall extinguish such rights.

(4) In Section 28, add Subsections 135A and 135B as folows:

135A. *Transfer of Development Rights.* Transfer of development rights is a means of transferring residential density authorized pursuant to this ordinance from one parcel in an RSZ Residential Sending Zone district to another parcel in the RRZ Residential Receiving Zone district. (See also Section 7.27, Transfer of Development Rights.)

135B. *Transfer Permit.* Transfer Permit means a permit issued by the Board of County Commissioners authorizing the transfer of rights to develop a specified number of units from one parcel in an RSZ Residential Sending Zone district to another parcel in the RRZ Residential Receiving Zone district.

(5) In the Official Schedule of District Regulations make the following amendments:

(a) Amend sheet S-i adding in the three columns on the line after " 'RTR', Residential, Tourist Resort" the following:

"RSZ"	Residential Sending Zone	S-60-f
"RRZ"	Residential Receiving Zone	S-60-g

(b) Add new pages beginning with S-60-f as follows:

"RSZ" - RESIDENTIAL SENDING ZONE
(See also Section 7.27, Transfer of Development Rights.)

A. *INTENT:*
The RSZ Residential Sending Zone is established to designate areas for the transfer of development rights to other locations in the county. It is further

the intent of these regulations that the RSZ district is to operate as an overlay zone in conjunction with the underlying zoning on the land where the RSZ district is applied. It is intended to utilize this district to implement the Comprehensive Plan within locations which meet the requirements of subsection 7.27.a of the regulations for the application of this district.

B. *PERMITTED USES, SPECIAL EXCEPTIONS, AND OTHER REQUIREMENTS:*
Uses permitted by right and by special exception and other requirements in this district shall be as provided by the underlying zoning where the RSZ district is applied.

(c) Add new pages beginning with S-60-g as follows:

"RRZ" - RESIDENTIAL RECEIVING ZONE
(See also Section 7.27, Transfer of Development Rights.)

A. *INTENT:*
The RRZ Residential Receiving Zone is established to provide areas for the receipt of development rights transferred from other locations in the county. It is further the intent of these regulations that the RRZ district is to operate as an overlay zone in conjunction with the underlying zoning on the land where the RRZ district is applied. It is generally intended to utilize this district to implement the Comprehensive Plan within locations which can reasonable accommodate the increased density associated with this district.

B. *PERMITTED USES AND EXCEPTIONS*
1. In addition to the permitted uses and special exceptions allowed by the underlying zoning where the RRZ district is applied the following are allowed as permitted uses with the utilization of development rights transferred in accordance with Section 7.27, Transfer of Development Rights.

a. Single family dwellings.
b. Two family dwellings.
c. Multiple family dwellings.
d. Townhouses (see Section 7.27 and Section 28.131) or cluster housing (see Section 7.26 and Section 28.25).

2. The foregoing uses in addition to being permitted in the RRZ district shall also be deemed to be permitted uses in the underlying district where the RRZ district is applied provided that development rights are utilized as provided above.

3. For multiple family dwellings, townhouses, and cluster housing developments, site plan approval is required (See Section 15.5)

C. *MAXIMUM RESIDENTIAL DENSITY*
The residential density of permitted uses shall not exceed one hundred and twenty-five percent (125%) of the maximum residential density of the underlying zoning nor shall it exceed under any circumstances the applicable density limitations set forth in the Comprehensive Plan. A special exception shall be required to exceed the limit of one hundred and twenty-five percent (125%) provided that in no case shall the residential density exceed eighteen (18) units per acre.

Section 3. *Severability.* If any provision of this ordinance is for any reason finally held invalid or unconstitutional by any court of competent jurisdiction, such provision shall be deemed a separate, distinct, and independent provision and such holding shall not affect the validity of the remaining provisions.

Section 4. *Effective Date.* This ordinance shall take effect immediately upon receipt of official acknowledgment from the office of the Secretary of State of Florida that this ordinance has been filed with said office.

E. SPECIAL OLD FILED MAP OVERLAY DISTRICT (ADDED 4-24-79)

TOWN OF SOUTHAMPTON CODE

(2) General regulations.

(a) The Special Old Filed Map Overlay District shall consist of all land subdivisions situated within any residence district filed in the office of the County Clerk prior to May 13, 1931, and located within the Town of Southampton south of the Montauk Highway (County Road No. 80) between the Shinnecock Canal on the east and the Brookhaven Town line on the west.

(b) Notwithstanding any provision to the contrary in this ordinance, no building permit shall be issued for the erection of a one-family dwelling on a lot having a lot area of less than ten thousand (10,000) square feet in the Special Old Filed Map Overlay District unless such building permit has been authorized by special permit pursuant to § 69-9E(5).

(c) Each and every lot in the Special Old Filed Map Overlay District having a lot area of less than ten thousand (10,000) square feet, lawfully existing in a single and separate ownership and having no dwelling erected thereon is hereby granted a fractional residential development right. The numerator of such fraction shall be the lot area of such lot, and the denominator shall be ten thousand (10,000) square feet. Such partial residential development rights may be transferred in accordance with the provisions of § 69-9E(3).

(d) In the event that § 69-9E(2)(b) is adjudged unconstitutional as applied to a particular lot, or in the event that a special permit application pursuant to § 69-9E(5) is denied and thereafter it is adjudged that such special permit application must be granted, no building permit shall be issued for the erection of a one-family dwelling on such lot unless and until the owner of such lot makes application to the Town Board for a determination as to whether the town elects to permit such construction or to acquire such lot and until the happening of any of the following:

[1] The Town Board renders a determination electing to permit such construction; or

[2] The Town Board fails to render any determination within ninety (90) days from the filing of such application to the Town Board; or

[3] Having rendered a determination within such ninety-day period electing to acquire such lot, the Town Board fails to enter into a contract for the purchase of such lot and fails to institute condemnation proceedings within ninety (90) days from the rendering of such determination.

(3) Supplementary regulations related to the transfer of development rights in the Special Old Filed Map Overlay District.

(a) Partial residential development rights granted by § 69-9E(2)(c) may only be transferred to lots that meet the criteria set forth in this Subsection E(3).

(b) Upon accumulating sufficient partial residential development rights as to amount to one (1) or more full residential development rights, such partial rights may be transferred to any lot in the Special Old Filed Map Overlay District having a lot area of not less than twenty thousand (20,000) square feet. The lot to which such partial rights are transferred may then be divided into building lots, and one (1) one-family dwelling may be erected on each such building lot, subject to the following conditions:

[1] Each resulting building lot shall have a lot area of not less than ten thousand (10,000) square feet.

[2] The maximum number of building lots resulting therefrom shall be limited as follows: the number of building lots which could be created from such lot if such lot were divided or used in conformity with the minimum required lot area set forth in § 69-6F of this ordinance for the residence district in which such lot is situated, plus one (1) building lot for each full residential development right so accumulated and transferred.

(c) Partial residential development rights granted by § 69-9E(2)(c) shall not be transferred out of the school district in which they are located.

(d) Partial residential development rights transferred to lots in the R-40 or R-60 Residence District shall originate from other lots in the R-40 or R-60 Residence District.

(e) Partial residential development rights originating in the R-20, R-40 or R-60 Residence District shall not be transferred out of the old filed map in which they are located unless authorized by special permit of the Board of Appeals. The Board of Appeals may, by special permit, authorize transfer out of such old filed map if such Board determines that there is no other available lot on such old filed map to which such partial rights may reasonably be transferred.

(f) In the event that two (2) or more adjoining lots in single and separate ownership are granted partial residential development rights by § 69-9E(2)(c), and in the event that such adjoining lots taken together have a combined lot area of at least ten thousand (10,000) square feet, such partial rights shall not be transferred unless authorized by special permit of the Board of Appeals. The Board of Appeals may by special permit authorize transfer of such partial rights if such Board determines that such adjoining lots may not reasonably be combined or merged into a building lot having a lot area of at least ten thousand (10,000) square feet for erection of a one-family dwelling thereon.

(4) Transfer of residential development rights procedure.

(a) An applicant for a building permit involving the transfer of residential development rights in the Special Old Filed Map Overlay District shall provide the following documentation:

[1] A guaranteed survey of the subject lot on which the dwelling is to be constructed and a guaranteed survey of all lots from which residential development rights are being transferred. All such surveys shall show the lot area of all such lots.

[2] A title certification in the usual form, from an abstract company regularly doing such

work in Suffolk County or a title insurance company duly licensed to examine and insure title to real property in New York State, for the subject lot and for all lots from which residential development rights are being transferred.

[3] Proof of single and separate ownership in the form and manner provided in § 69-20C(4) with respect to the lots from which residential development rights are being transferred.

[4] An executed instrument in form for recording in the Suffolk County Clerk's office, legally sufficient to transfer such development rights to the lot on which the dwelling is to be constructed, together with the recording fee for such instrument, to be transmitted to the Suffolk County Clerk's office for recording. Such instruments shall adequately describe each lot from which such development rights are being transferred, shall recite the amount or extent of development rights granted to each such lot by § 69-9E(2)(c), shall recite the amount or extent of development rights being transferred and shall adequately describe the lot to which such development rights are being transferred, so as to provide record notice of the transfer and the resulting rights and restrictions.

[5] Such additional information as the Building Inspector may reasonably request in order to determine and provide for compliance with this Subsection E.

(b) Notwithstanding any other provisions to the contrary, the minimum required yard dimensions applicable to a one-family dwelling to be erected on a building lot resulting from the transfer of accumulated partial rights in the Special Old Filed Map Overlay District pursuant to § 69-9E(3)(b) shall be as follows:

[1] In the case of a resulting building lot having a lot area of twenty thousand (20,000) square feet or more, the front, rear and side yard requirements shall be as provided in § 69-6F for the R-20 Residence District.

[2] In the case of a resulting building lot having a lot area of more than ten thousand (10,000) square feet and less than twenty thousand (20,000) square feet, the front and rear yard requirement shall be thirty (30) feet, the side yard requirements shall be as provided in § 69-6F for the R-20 Residence District, or as would be provided by utilizing the relief clause formula contained in § 69-20C(4)(a), whichever is less restrictive.

[3] In the case of a resulting building lot having a lot area of ten thousand (10,000) square feet, the front, rear and side yard requirements shall be as provided in § 69-6F for the R-10 Residence District.

(5) Special permit for reduction of lot area requirement. The Board of Appeals may, by special permit, authorize issuance of a building permit for the erection of a one-family dwelling on a lot having a lot area of less than ten thousand (10,000) square feet in the Special Old Filed Map Overlay District, provided that:

(a) Provisions are made for proper sanitary waste disposal facilities and water supply in conformance with the requirements of the Suffolk County Health Department, the requirements of any other municipal department or agency having jurisdiction over sewage disposal and/or water supply and any requirements of the Town of Southampton.

(b) Such provisions are designed to protect the groundwater reservoir from pollution, saltwater intrusion or excessive demand detrimental to the environment and neighboring properties.

(c) The particular lot involved lawfully exists in single and separate ownership. Proof of such single and separate ownership in the form and manner provided in § 69-20C(4) shall be submitted.

(d) The number of unimproved lots on the same old filed map (the old filed map on which the particular lot involved is located) is established.

(e) The number of unimproved lot having a lot area of less than ten thousand (10,000) square feet on the same old filed map and lawfully existing in single and separate ownership is established.

(f) After taking into account the potential future development of the lots on the same old filed map, it is established that erection of one-family dwellings on all the unimproved lots having a lot area of less than ten thousand (10,000) square feet on the same old filed map and lawfully existing in single and separate ownership will not adversely affect the public health or safety, in that provisions can be made for proper sanitary waste disposal facilities and water supply on all such unimproved lots without causing pollution of the groundwater reservoir, saltwater intrusion into the groundwater reservoir or excessive demand on the groundwater reservoir.

STEEP SLOPE ORDINANCE

TOWN OF HUNTINGTON CODE

Article X

[Added 12-21-76 by Ord. No. 76-ZC-66]

§ 198-60. Findings; purpose.

The Town Board has found that maintenance and protection of natural terrain and vegetation features is essential to the protection of the general health, safety and welfare, protection of environmental balance and maintenance of aesthetic quality; therefore, specific regulations for development and density outside conventional zoning controls are needed in order to protect the health, safety and general welfare of the residents of the town. It is for this purpose that this Article is enacted to establish appropriate safeguards and standards to meet the particular problems associated with development of hillside areas and to ensure proper and orderly development and not adversely affect the site or adjoining area as a result of water runoff, disruption of natural plant and tree growth or soil movement not only during the time of construction but also thereafter, and further to provide for a safe means of ingress and egress of vehicular and pedestrian traffic to and within the site and to furnish required access of emergency vehicles thereto.

§ 198-61. Hillside development area; requirements.

In any applications for subdivision approval of land in residential zoning districts classified R-20, R-15, R-10, R-7, R-5 or R-RM, where the natural terrain of any parcel or any portion thereof has a natural slope of ten percent (10%) [a vertical rise of ten (10) feet in a horizontal distance of one hundred (100) feet] or greater, that parcel or that portion of the parcel shall be considered to be in a hillside development area. When determining lot design for subdivision of land in the hillside development area, this Article shall govern, and the site shall be subject to the following requirements:

A. Prior to Planning Board approval of subdivision plats, it must be found that all applicable measures, including those indicated in the Subdivision Regulations, Erosion and Sediment Control Handbook of the Town of Huntington,[12] have been specified and contained on the subdivision application drawings and plans for the purpose of controlling conditions during development of the site, including but not limited to the following:

   (1) Provision for diverting, or containing and discharging to the ground, incoming storm runoff water, to be established before clearing or earthmoving is begun and maintained until final stabilization is completed.

   (2) If any storm runoff water storage area exists within the site, adequate storage areas or drainage measures will be provided before the original areas are rendered ineffective.

   (3) Capture storage and recharge of runoff from all new impervious surfaces shall be provided for simultaneously with the installation of these new impervious surfaces.

B. The Planning Board will make the final determination of average slope.

§ 198-62. Determination of natural average slope.

The natural average grade shall be measured perpendicular to the natural contour lines and shall be the result of an averaging of measurements made at approximately twenty-five-foot intervals.

[12] **Editor's Note: See Ch. A202, Subdivision of Land; Site Improvement.**

§ 198-63. Determination of number of lots; lot sizes.

A. Procedure to determine the number of lots for that portion of the subdivision which is not in a hillside development area shall be in accordance with current zoning requirements and subdivision regulations.

B. Procedure to determine the number of lots which are in a hillside development area shall be determined by calculating the natural average slope percentage and applying the lot yield factor as shown in the following table:

LOT YIELD FOR STEEP SLOPE AREAS

Natural Slope Greater Than	Average Percentage Less Than	Minimum Lot Area (square feet)	Required Lot Width (feet)	Lot Yield Factor Gross (per acre)
10%	15%	10,000	100	3.27
15%	20%	15,000	100	2.18
20%	25%	20,000	100	1.85
25%		1 acre	125	0.85

C. The number of lots to be permitted in the subdivision shall be the total yield from the hillside development area and the flat area, if a flat area is determined to exist. If there is no flat area, then the total number of lots shall be those yielded from the hillside development area.

D. In no case shall residential lots contain an area less than the minimum required by the zoning district in which such lots are located, except in the case of a modified subdivision approved by the Planning Board pursuant to § 281 of the Town Law.

E. The Planning Board may recommend variation of lot sizes within the subdivision in order to adopt a layout to special conditions and to accomplish the intent of the hillside development requirements.

F. Each applicant in a hillside development area shall submit a drawing indicating the property boundary, topography, lot layout and calculation of average slope to the Planning Board for review prior to the submission of a preliminary application.

§ 198-64. Conflict with other regulations.

If any standard or requirement herein is in conflict with any other ordinance, standard or requirement, the provisions establishing the more restrictive requirements shall apply.

§ 198-65. Notation to be added to Building Zone Maps.

Each sheet of the Building Zone Maps shall be amended by adding the following notations thereto: Special density regulations apply in the case of properties or parcels characterized by steep slopes or irregular terrain features. These regulations will affect the number of building lots which can be designed for properties where slopes exceed ten percent (10%). Refer to Article IX of this chapter for the method of calculating density in such cases.

ARTICLE 12-TOXIC AND HAZARDOUS MATERIALS STORAGE AND HANDLING CONTROLS

SECTION

1201. Declaration of Policy
1202. Statement of Purpose
1203. Definitions
1204. Powers of the Commissioner
1205. Prohibited Discharges, Transporting and Disposal
1206. Construction and Modification Permits
1207. Permits to Operate
1208. Exemptions
1209. Transfer of Permits Prohibited
1210. Underground Storage Facilities
1211. Outdoor Aboveground Storage Facilities
1212. Piping, Fittings, Connections
1213. Transfer of Toxic or Hazardous Materials
1214. Indoor Storage Facilities
1215. Portable Containers and Tanks
1216. Bulk Storage of Toxic or Hazardous Materials
1217. Reporting; Records; Cleanup
1218. Confidentiality of Records
1219. Posting and Labeling
1220. Waivers

Section 1201. Declaration of Policy

The designated best use of all groundwaters of Suffolk County is for public and private water supply, and of most surface waters for food production, bathing and recreation. The federal government has officially designated the aquifer below Suffolk County as a sole-source for water supply. Therefore, it is hereby declared to be the policy of the County of Suffolk to maintain its water resources as near to their natural condition of purity as reasonably possible for the safeguarding of the public health and, to that end, to require the use of all available practical methods of preventing and controlling water pollution from toxic and hazardous materials.

Section 1202. Statement of Purpose

It is the intent and purpose of this article to safeguard the water resources of the County of Suffolk from toxic or hazardous materials pollution by controlling or abating pollution from such sourcees in existence when this article is enacted and also by preventing further pollution from new sources under a program which is consistent with the above-stated Declaration of Policy.

Section 1203. Definitions

Whenever used in the article, unless otherwise expressly stated, or unless the context or subject matter requires a different meaning, the following terms shall have the respective meanings set forth or indicated:

a. **Aboveground**, when referring to tanks, means more than 90 percent exposed above the final ground elevation.

b. **Bulk Storage** means the loose or bagged storage of dry or semi-dry materials.

c. **Commissioner** means the Commissioner of the Suffolk County Department of Health Services.

d. **Discharge** means to release by any means or to relinquish control in a manner that could result in a release to the surface waters, groundwaters, surface of the ground or below ground. Discharge includes but is not necessarily limited to the following, either singly or in any combination:

1. leaks from the failure of a storage facility;

2. spills during transport or transfer of toxic or hazardous materials;

3. disposal or storage of soils, sand or debris containing toxic or hazardous materials;

4. disposal to: storm drains, cooling water, roof drains, sanitary systems, or any other drainage system or leaching system of toxic or hazardous materials;

5. burial, land-spreading or dumping anywhere of toxic or hazardous materials, including but not limited to landfill and scavenger facilities, notwithstanding that the material so buried, spread or dumped was containerized at the time of said burial, spreading or dumping;

6. passing of toxic or hazardous waste materials to any person;

7. abandonment of containers, tanks, pipes, vehicles or premises containing toxic or hazardous materials or residues. For the purpose of this subdivision, abandonment shall mean:

   i. substantially empty and unattended, or

   ii. the relinquishment or termination of possession, ownership or control without full disclosure to the new owner thereof of containers, tanks, pipes, vehicles or premises containing toxic or hazardous materials or residues, whether by vacating or by disposition thereof, and shall not depend on a mere lapse of time.

e. **Double-Walled** means constructed with more than one containment layer with space between the layers sufficient to allow monitoring of any leakage into or out of the space.

f. **Impervious** means a layer of natural and/or man-made material of sufficient thickness, density and composition as to prevent the discharge into the underlying groundwater or adjacent surface waters of any toxic or hazardous substances for a period of at least as long as the maximum anticipated time during which the toxic or hazardous substances will be in contact with the material, and sufficient to allow complete recovery of the spilled product with minimum disturbance of the containment material.

g. **New York State Discharge Standards** means standards of quality and purity and special standards, and groundwater quality standards and effluent standards, and/or limitations as found in Title 6, Parts 701-703 of the Official New York Compilation of Codes, Rules and Regulations.

h. **Pollution** means the presence in the environment of conditions and/or contaminants in quantities or characteristics, which are or may be injurious to human, plant or animal life or to property, or which unreasonably interfere with the comfortable enjoyment of life and property throughout such areas of the county as shall be affected thereby.

i. **Product-tight** means impervious to the material which is or could be contained therein so as to prevent the detectable seepage of the product through the container. To be product-tight, the container shall be made of a material that is not subject to physical or chemical deterioration by the product being contained.

j. **Properly Registered Industrial Waste Scavenger** means a person in the business of collecting industrial wastes who carries a current, valid industrial waste collector registration issued by the New York State Department of Environmental Conservation.

k. **Substantial Modifications** shall mean the construction of any additions to an existing storage facility as defined under Section 1203(m), or restoration, refurbishment or renovation which:

1. increases or decreases the in-place storage capacity of the facility;

2. alters the physical configuration; or

3. impairs or affects the physical integrity of the facility or its monitoring systems.

l. **Single-Walled** means constructed with walls made of but one thickness of material. Laminated, coated, or clad materials shall be considered as single-walled.

m. **Storage Facility** means tanks, pipes, vaults, buildings, yards, pavements or fixed containers used or designed to be used, either singly or in any combination thereof, for the storage and/or transmission of toxic or hazardous materials or for the storage of portable containers containing toxic or hazardous materials.

n. **Toxic or Hazardous Materials** means any substance, solution or mixture which, because of its quality, quantity, concentration, physical, chemical or infectious characteristics, or any combination of the foregoing, presents or may present an actual or potential hazard to human health or to the drinking water supply if such substance, solution, mixture or combination thereof is discharged to the land or waters of the County of Suffolk. Toxic or Hazardous Materials shall include:

1. each and every substance, material or waste found listed in either or both Part 116 and Part 261, Title 40 of the Code of Federal Regulations; or Title 6, Part 366, of the New York State Codes, Rules and Regulations;

2. acids and alkalies beyond the pH range of 4 to 10;

3. heavy metal sludges, mixtures and solutions in excess of standards;

4. petroleum products, including fuels and waste oils;

5. organic solvents, including petroleum solvents, halogenated and non-halogenated hydrocarbons;

6. any material listed in Schedule I, Part 703.6 of the Official Compilation of New York Codes, Rules and Regulations, in excess of the concentration standards thereof, except for iron, manganese, foaming agents and pH unless otherwise provided elsewhere in this article;

7. any substance not included within subdivisions one through six above subsequently declared to be a Toxic or Hazardous Material by the commissioner;

8. any solid or semi-solid material which, if left to stand or if exposed to water will leach out or wholly or partially dissolve forming a Toxic or Hazardous Material as defined in subdivisions one through seven above.

All Toxic or Hazardous Materials are hereby declared to also be offensive materials for the purposes of Article VB.

o. **Toxic or Hazardous Wastes** mean:

1. Toxic or Hazardous Materials as defined in subdivision (n) above, generated by or as the result of operations in or the existence of any manufacturing or other industrial or commercial establishment, which toxic or hazardous materials are not actually used in a final product for sale, and shall include those toxic or hazardous materials retained as byproducts of the operations within such manufacturing or other industrial or commercial establishment for the purpose of recouping salvage value; or

2. Toxic or Hazardous Materials generated by one in possession or control of any residential premises, for which materials disposal is intended, and which waste is not domestic wastewater without the admixture of non-sewage wastewater from any industrial process.

3. All toxic and hazardous wastes are Toxic and Hazardous Materials.

p. **Underground,** when referring to tanks, means 10 percent or more below the final ground elevation.

Section 1204. Powers of the Commissioner

a. The commissioner may make, or cause to be made, any investigation or study which, in his opinion, is desirable for enforcing this article or controlling or reducing the potential for contamination of the waters of the county from toxic or hazardous materials.

b. The commissioner may order the owner or any other person in possession or control of any land, structure or equipment, or agent of such owner or other person, to take whatever action is necessary in the opinion of the commissioner to bring said land, structure or equipment into compliance with the provisions of this article and any standards or regulations promulgated thereunder. Such action may include but is not necessarily limited to the following, either singly or in any combination thereof:

1. ordering tank-testing or the testing of the physical integrity of pipes or any other part of a storage facility or ordering the physical testing of the integrity of an entire storage facility;

2. ordering the removal of the contents of a tank, portable container, storage facility or any part thereof;

3. ordering the removal or abandonment or reconstruction of any installation, tank, storage facility or any part thereof installed in contravention of any of the requirements of this article or any standards or regulations promulgated thereunder;

4. ordering that physical improvements be performed on any tank, storage facility or part thereof before permitting it to be returned to service including such improvements as tank lining removal and replacement, bottom and structural repairs;

5. ordering the drafting of and/or implementation of contingency plans if there is evidence that such plans may be necessary to protect the public from toxic or hazardous materials stored at any particular facility;

6. ordering the posting of a performance bond or other undertaking either prior to or subsequent to the construction or operation of a storage facility within Suffolk County on a case-by-case basis if evidence indicates such may be necessary to protect the public from the effects of operating such a facility.

Section 1205. Prohibited Discharges, Transporting and Disposal

a. It shall be unlawful for any person to discharge toxic or hazardous materials in Suffolk County, unless such discharge is specifically in accordance with a State Pollutant Discharge Elimination System (S.P.D.E.S.) Permit or other permit issued by or acceptable to the commissioner for that purpose.

b. It shall be unlawful for any person to pick up, transport or dispose of toxic or hazardous waste materials in Suffolk County without having a valid and appropriate New York State industrial waste collector registration.

c. It shall be unlawful for any industrial waste collector with a registration issued by the New York State Department of Environmental Conservation to fail to maintain a copy thereof on each vehicle operated by said collector at all times.

Section 1206. Construction and Modification Permits

a. It shall be unlawful for any person to construct, install or substantially modify a storage facility, or part thereof, without a valid permit therefor issued by or acceptable to the commissioner.

b. It shall be unlawful for any person in possession of or acting pursuant to a permit issued under this section to act, allow or cause any act in contravention of any provision of the permit.

c. Any permit issued pursuant to this section shall be effective for the specified duration of time indicated thereon, not to exceed one year from the effective date thereof.

Section 1207. Permits to Operate

a. It shall be unlawful for any person to use, cause to be used, maintain, or fill or cause to be filled with toxic or hazardous materials any storage facility or part thereof without having registered all the tanks at the facility on forms provided by the commissioner, and

without having obtained a valid permit to operate such storage facility or part thereof issued by or acceptable to the commissioner.

b. It shall be unlawful for any person in possession of or acting pursuant to a permit issued pursuant to this section to act, permit or cause any act in contravention of any provision of the permit.

c. No permit to operate a storage facility as required pursuant to this section shall be issued by the commissioner or shall be satisfactory to the commissioner unless and until the prospective permittee:

1. has provided a listing to the commissioner of all of the toxic or hazardous materials to be stored at the storage facility; and

2. has demonstrated that said storage facility complies with all of the provisions of this article and all regulations and standards promulgated pursuant to it applicable to said storage facility based upon submission of such written proof as is required by the commissioner.

d. Any permit issued pursuant to this section shall be effective only for the specified duration of time indicated thereon, not to exceed five (5) years from the effective date thereof.

Section 1208. Exemptions

a. All storage facilities which meet all of the following criteria shall be exempt from all provisions of this article except those contained in Sections 1203 - Definitions; 1204 - Powers of the Commissioner; 1205 - Prohibited Discharges; 1208 - Exemptions; 1210(a) -New Storage Facilities; 1210(e) - General Provisions and Requirements; 1210(g) - Overfill Protection; 1211(a) (4) - Overfill Detection; 1211(d) (1) and (2) - Leaks; Repairs; 1213(b) (1) and (4) - Transfer Operations; and 1220 - Waivers.

1. the materials so stored are not toxic or hazardous wastes; and

2. the volume of the storage facility is less than 1,100 gallons; and

3. the facility is intended solely for the storage of kerosene, number 2 fuel oil, number 4 fuel oil, number 6 fuel oil, diesel oil or lubricating oil; and

4. the intended use of the product stored is solely for on-site heating, or intermittent stationary power production such as stand-by electricity generation or irrigation pump power; and

5. the materials stored are not intended for resale.

b. All storage facilities which meet the following criteria shall be exempt from the provisions of this article contained in Sections 1210(b), 1210(d), 1212(b), 1214, 1219, and any regulations or standards promulgated thereunder:

1. the materials so stored are not toxic or hazardous wastes; and

2. the volume of the storage facility is greater than 1,100 gallons; and

3. the facility is intended solely for the storage of kerosene, number 2 fuel oil, number 4 fuel oil, number 6 fuel oil or lubricating oil; and

4. the intended use of the product stored is solely for on-site heating, or intermittent stationary power production such as stand-by electricity generation or irrigation pump power; and

5. the materials stored are not intended for resale.

c. All storage facilities no longer receiving the benefit of any exemption but which were previously exempted from any or all provisions of this article shall be required to appropriately conform to all of the provisions of this article and all regulations and standards promulgated pursuant thereto by November 1, 1983.

d. Tanks for the storage of number 6 fuel oil, or other petroleum products of equivalent viscosity, are exempt from the internal inspection and tank lining requirements. Further, storage facilities for these products are exempted from the impervious dike and enclosure around the tank requirements if, in the opinion of the commissioner, the location of the facility is so situated that a spill could not run off into storm drains or surface waters.

e. All storage of toxic or hazardous materials in containers of five-gallon capacity or smaller where the total capacity stored at any time does not exceed 250 gallons or where the dry storage in bags, bulk, or small containers does not exceed 2,000 pounds is exempt from all portions of this article unless specifically ruled otherwise by the commissioner on a case-by-case basis.

Section 1209. Transfer of Permits Prohibited

It shall be unlawful for any person to transfer a permit issued pursuant to Sections 1206 and 1207 of this article from one location to another, from one storage facility to another, or from one person to another. Any permit transferred in violation of this section shall be deemed null and void and without any effect whatsoever as of the date of said unlawful transfer. However, upon making proper application, a new owner of a facility which was previously operating under a valid permit may continue operation under the terms of the old permit until such time as the new permit is issued or denied.

Section 1210. Underground Storage Facilities

a. New Storage Facilities

1. All new storage facilities used or to be used for the underground storage of toxic or hazardous materials shall be designed and constructed in a manner which will, in the opinion of

the commissioner provide the maximum reasonable protection available against leakage or spillage from the facility due to corrosion, breakage, structural failure, or other means. Double-walled or equivalent facilities are required for all toxic or hazardous materials except those with a specific gravity of less than one and which are only slightly soluble in water such as oils and gasoline. For these floatable materials, acceptable designs for tank construction include cathodically protected steel; glass fibre reinforced plastic; steel clad with glass fiber reinforced plastic; double-walled steel or plastic; or other equivalent design approved by the commissioner.

2. Approval of design by the commissioner is required before installation, and the determination of equivalency or adequacy lies with the commissioner.

3. Design, construction, fabrication, and installation of new underground storage facilities shall be in accordance with regulations and standards as they may be adopted by the commissioner under this article from time to time.

4. A new storage facility for all facilities not previously covered by this section is one for which construction actually begins on or after November 1, 1982; subject however to the exemptions contained in Section 1208(a).

5. It shall be unlawful for any person to sell for use in Suffolk County, install, use, put into service or maintain the existence of any new underground storage facility or part thereof after November 1, 1982, if said new storage facility or part thereof fails to conform to all of the provisions of subsections (1), (2), and (3) above, and all regulations and standards promulgated thereunder; subject however to the exemptions contained in Section 1208(a).

b. Existing Storage Facilities

1. An existing underground storage facility is one for which construction actually begins prior to November 1, 1982.

2. It shall be unlawful for any person to substantially modify or cause the substantial modification of any existing underground storage facility or part thereof without complying with the provisions of subdivision (a) above and all regulations and standards promulgated thereunder.

3. It shall be unlawful to use, or maintain the existence of any existing underground storage facility beyond January 1, 1995, which is intended for use with toxic or hazardous materials with a specific gravity of less than one and which are only slightly soluble in water such as oils and gasoline, without modifying said storage facility so as to comply with all of the provisions of subdivision (a) above and all regulations and standards promulgated thereunder.

4. It shall be unlawful to use or maintain the existence of any existing underground storage facility beyond January 1, 1987, which is intended for use with any toxic or hazardous materials other than those with a specific gravity of less than one and which are only slightly soluble in water such as oils and gasoline, without modifying said storage facility so as to comply with all of the provisions of subdivision (a) above and all regulations and standards promulgated thereunder.

c. Abandonment

1. It shall be unlawful for any person to use or maintain the existence of an abandoned underground storage facility or part thereof.

2. It shall be unlawful for anyone to sell or transfer to another an improperly abandoned underground storage facility or land containing an improperly abandoned underground storage facility if there exists any reasonable evidence of the existence of such a facility, unless the purchasing party has been made fully aware of the presence of such facility or evidence.

3. It shall be unlawful for any person to repair, alter or prepare for use any abandoned storage facility without first obtaining a permit to construct from the commissioner.

4. It shall be unlawful for the owner or other person in possession or control of any real property, building or place or vehicle to fail to immediately empty of all toxic or hazardous materials and to completely fill with sand or concrete or permanently remove an abandoned storage facility or part thereof within ninety (90) days of the discovery thereof on or in said real property, building or place pursuant to the provisions of subdivision (h) below unless approval is granted by the commissioner to do otherwise.

5. For the purposes of this section, an abandoned storage facility or part thereof means one which has remained out of service for two (2) years or more, or which has been declared by the owner to be abandoned.

6. For the purposes of this section, out of service means substantially empty, meaning five (5%) percent or less filled; or not in use, meaning no regular filling or drawing; or not being maintained, meaning lacking adherence to the requirements of this article; or uncontrolled, meaning not attended or secured; or any combination thereof.

7. For the purposes of this section, discovery means either actual discovery or knowledge of the existence of the abandoned storage facility or part thereof or possession of sufficient knowledge of the facts and circumstances involved so that the existence of the abandoned storage facility or part thereof should have been discovered or known of.

d. Testing and Inspection

1. All existing underground storage facilities or parts thereof which do not meet the construction standards in subdivision (a) above, must be tested and inspected in accordance with the schedule set forth below. It shall be unlawful for any existing underground storage facility owner, operator or lessee to fail to test his tanks and file an acceptable certificate of test completion with the commissioner in accordance with the following schedule:

TESTING SCHEDULE
FOR EXISTING UNDERGROUND TANKS
AGE OF SYSTEM BY 1980
(in years)

	1 - 4	5 - 9	10 - 14	15 - 19	20 or more
1980					
1981					X
1982				X	
1983			X		X
1984		X			
1985	X			X	X
1986			X		

FULL COMPLIANCE FOR ALL FACILITIES
EXCEPT THOSE DESCRIBED IN 1210(b) (4)

	1 - 4	5 - 9	10 - 14	15 - 19	20 or more
1987				X	X
1988		X			
1989	X		X	X	X
1990					
1991		X		X	X
1992			X		
1992	X			X	X
1994		X	X		
1995	FULL COMPLIANCE FOR ALL FACILITIES				

2. If for any reason testing satisfactory to the commissioner cannot be performed, the tank must be removed from service or brought up to the standards of subsection (a) by the first scheduled test date.

3. The Final Test of the National Fire Protection Association (NFPA), Recommended Practice No. 329 or other test of equivalent or superior accuracy as approved by the commissioner must be used to comply with the testing and inspection requirement of Section 1210 (d) (1).

4. Any test and inspection as required by this subdivision shall be performed by a person whose qualifications are acceptable to the commissioner for performing such tests. Certificates of test completion containing the results of such tests as performed shall be prepared by the tester and shall be filed with the commissioner within thirty (30) days after completion of the testing of the storage facility. No certificate of test completion shall be acceptable to the commissioner to indicate satisfactory compliance with the testing requirements of this subdivision if the qualifications of the tester have not been accepted by the commissioner prior to the test. No certificate of test completion shall be acceptable to the commissioner if the test and inspection were not performed in accordance with subsection (3) of this subdivision and in accordance with any regulations and standards which may be promulgated pursuant thereto.

5. The Certificate of Test Completion shall be filed on a form provided by the commissioner and a copy of such form, completed, shall be kept by the storage facility owner, operator or lessee and by the tester for a period of not less than five (5) years from the date of its issuance. It shall be unlawful for the storage facility owner, operator or lessee and for the tester thereof to fail to keep a copy of the Certificate of Test Completion for the required five (5) year period.

6. Certificates of Test Completion shall contain a legally authorized form notice to the effect that false statements made knowingly therein are punishable pursuant to Section 210.45 of the Penal Law.

7. A Certificate of Test Completion not properly completed and/or not subscribed by the tester shall not be acceptable to the commissioner.

e. General Provisions and Requirements

1. When an underground storage facility or part thereof is found to be leaking, the portion containing the leak must be immediately emptied of all contents therein and removed from service. It shall be unlawful to cause or permit a leaking underground storage facility or part thereof to remain in service or to continue to retain its toxic or hazardous contents after the owner, operator or lessee of said storage facility or part thereof knows or should have known of the existence of the leak therein.

2. It shall be unlawful for any person to repair or to permit the repair, in place, of any underground storage facility or part thereof which has leaked or has otherwise failed, for the purpose of reusing said storage facility, unless:

i. such repair will result in the storage facility or part thereof complying with the requirements of subdivision (a) above and all regulations and standards promulgated thereunder; and unless

ii. such repair occurs pursuant to plans therefor previously submitted to and approved by the commissioner.

3. It shall be unlawful for any person to replace or cause the replacement of any underground storage facility or part thereof for any reason if the replacement facility does not meet the requirements of subdivision (a) above and all regulations and standards promulgated thereunder.

4. It shall be unlawful for any person to use, maintain, or put into service any underground storage facility or part thereof without first complying with the testing and inspection requirements of subdivision (d) above and regulations and standards promulgated thereunder.

f. Monitoring and Leak Detection

1. All underground storage facilities or parts thereof must be equipped with means of calculating product delivery and consumption. Accurate records must be kept of all deliveries and consumption and the figures reconciled daily in an approved manner unless a less frequent schedule is allowed by the commissioner.

2. All underground storage facilities or parts thereof must be provided with a means of monitoring frequently and accurately for any leakage and spillage that might occur. All leak detection systems and tanks shall be monitored by the facility operator at least on a weekly basis and the results recorded and kept with the product records. Leak detection and monitoring can be provided by an electrical continuous leak detection system; visually operated or float operated alarms for tanks in pits; pressure, vacuum or fluid level detectors for double-walled facilities; observation wells and collection barriers or membranes for use in high groundwater areas; for gasoline and oil facilities a perforated, properly designed U tube installation is acceptable, or other equivalent design approved by the commissioner. Permanent records of all monitoring shall be kept for a period of five (5) years.

3. It shall be unlawful for the owner or other person in possession or control of a storage facility or part thereof to fail to comply with any of the requirements of this subdivision and of any regulations and standards promulgated pursuant thereto.

g. Overfill Protection

1. A means of overfill protection shall be provided for all new underground storage facilities or parts thereof and for all replacement underground storage facilities or parts thereof. Overfill protection shall consist of either an overfill prevention device or a product-tight containment capable of intercepting and preventing the release to the ground or groundwater of an overfill spill.

2. It shall be unlawful for the owner, operator or lessee to fail to provide satisfactory overfill protection for any new underground storage facility or part thereof in accordance with the provisions of this subdivision and any regulations and standards promulgated pursuant thereto.

h. Removal of Underground Storage Facilities From Service

1. It shall be unlawful for the owner or any other person in possession of control of an underground storage facility or part thereof, to remove it from service unless:

i. said storage facility or part thereof is declared abandoned, emptied immediately and removed within ninety (90) days of so declaring, and is disposed of as junk by first rendering it vapor-free and by sufficiently perforating it so as to render it unfit for further use; or

ii. said storage facility or part thereof is declared abandoned, emptied immediately and removed within ninety (90) days for reuse for the storage of toxic or hazardous materials after having met all of the requirements of subdivision (a) and all regulations and standards promulgated pursuant thereto; or

iii. said storage facility or part thereof is declared abandoned, emptied immediately and removed within ninety (90) days for the storage of other than toxic and hazardous materials in which case the facility shall be emptied, cleaned of all residue, and made safe and vaporfree; or

iv. said storage facility is declared temporarily out of service and maintained in accordance with subdivision (3) of this section;

v. said storage facility or part thereof is declared abandoned, emptied immediately and made inert by completely filling with sand or concrete within ninety (90) days;

vi. said storage facility is declared to be suspected of leaking and maintained in accordance with Section 1210(e).

2. Any declaration of facility abandonment or of taking a facility temporarily out of or returning a facility to service, must be made to the commissioner in writing.

3. It shall be unlawful for the owner or any other person in possession or control of any underground storage facility or part thereof to render it temporarily out of service unless said storage facility or part thereof is planned to be returned to active service within two (2) years of the placement of it temporarily out of service, and it is returned to active service

within said two (2) years, it is emptied of its contents immediately, and the fill line, guage opening and pump suction are capped and secured against tampering, and the vent line is left open. No facility in a temporarily out of service condition shall be returned to use prior to notification to the commissioner and prior to the successful completion of any tightness testing due under Section 1210(d).

4. It shall be unlawful for anyone to place toxic or hazardous materials in a facility which is temporarily out of service.

Section 1211. Outdoor Aboveground Storage Facilities

a. New Storage Facilities

1. For the purpose of this subdivision, a new aboveground storage facility shall be one for which construction actually begins on or after November 1, 1982.

2. It shall be unlawful to fabricate, construct, install, use or maintain any new aboveground storage facility or part thereof in a manner which will allow the discharge of a toxic or hazardous material to the ground, groundwaters, or surface waters of Suffolk County.

3. It shall be unlawful to fabricate, construct, install, use of maintain any new aboveground storage facility or part thereof without having constructed around and under it an impervious containment and dike enclosing the storage facility or part thereof, conforming to the following requirements:

i. The volume of the diked area shall be at least 110% of the volume of the largest tank contained therein excluding the volume below the dike level occupied by other tanks. Additional volume up to 10% of the total volume of all other tanks or vessels contained in the diked area may be required if the configuration, arrangement and spacing of the tanks and dikes do not meet National Fire Protection Association standards.

ii. The dikes and the entire area enclosed by the dikes including the area under the tanks shall be made permanently impervious to the types of products expected to be stored in the tanks. A tank cannot be switched from one product to another unless the barrier is impervious to the new material stored.

iii. Drainage of precipitation from within the diked area shall be controlled in a manner that will prevent any toxic or hazardous material from entering the ground, groundwaters or surface waters of Suffolk County.

4. It shall be unlawful to construct, fabricate, install, use or maintain any new aboveground storage facility without providing a positive means of detecting an overfilling condition therein before any spillage can occur, which detection system shall include, but shall not necessarily be limited to, both visual and audible alarms at a point on the storage facility most frequently manned. The overflow point must be clearly visible to the operator filling the facility or the operator at the receiving facility where possible. If not possible, adequate means must be provided to immediately detect an overflow.

5. It shall be unlawful to fabricate, construct, install, use of maintain any new aboveground storage facility or part thereof without conforming to all regulations and standards promulgated pursuant to this section relating to such new storage facilities.

6. It shall be unlawful to fabricate, construct, install, use or maintain any new aboveground storage facility sitting on the ground and making contact therewith or partially buried in the ground and making contact therewith, or part thereof, unless and until the exterior surface of the area in contact with the ground are cathodically protected in conformance with a design approved by the commissioner.

b. Existing Storage Facilities

1. An existing aboveground storage facility is one for which construction actually begins prior to November 1, 1982.

2. Commencing January 1, 1990, it shall be unlawful for any person to use, maintain or fill with toxic or hazardous materials any existing aboveground storage facility or part thereof without conforming to all of the requirements of subdivision (a) above and all regulations and standards promulgated pursuant thereto, with one exception. It will not be required to place an impervious barrier directly beneath an existing tank that is sitting on or partially in the ground and is too large to be moved. In this case, the interior bottom of the tank shall be coated with a glass fiber reinforced epoxy coating or approved equivalent. In achieving the above compliance, the following schedule shall be adhered to:

By January 1, 1985, all interior coating of facilities shall be completed.

By January 1, 1985, all facilities shall be protected against overfill.

By January 1, 1987, installation of cathodic protection shall be completed on all facilities in contact with the ground which were built prior to 1967.

By January 1, 1988, installation of cathodic protection shall be completed on all facilities in contact with the ground which were built between 1967 and 1972.

By January 1, 1989, installation of cathodic protection shall be completed on all facilities in contact with the ground which were built between 1972 and 1977.

3. It shall be unlawful for any person to use, maintain or fill with toxic or hazardous materials an existing aboveground storage facility or part thereof without complying with the following inspection schedule and all regulations and standards promulgated pursuant thereto, and without submitting to the commissioner a statement of Proof of Inspection.

i. Any owner or other person in possession or control of an aboveground storage facility or part thereof shall file a Proof of Inspection with the commissioner by January 1, 1985. Where interior coating has not yet been applied, such inspection will be performed before coating.

ii. For the purpose of this section, inspection means the inspection of all aboveground tanks and other vessels for the storage of toxic or hazardous materials constituting an aboveground storage facility or part thereof.

iii. Any inspection of an existing aboveground storage facility of greater than 10,000 gallon capacity or part thereof as required by this subdivision shall be performed in accordance with a written protocol submitted to and approved by the commissioner by an authorized tank inspection firm or person or by a professional engineer licensed to practice professional engineering in the State of New York, and it shall be performed in compliance with any regulations and standards promulgated pursuant to this section relating to such inspections.

iv. Aboveground storage facilities or parts thereof sitting on the ground and in contact therewith or partially buried in the ground and in contact therewith, shall be emptied and cleaned to facilitate inspection of portions thereof not accessible from the outside.

v. Proofs of Inspection must be filed with the commissioner on a form provided by the commissioner or one acceptably equivalent thereto within thirty (30) days of each inspection and before the tank is refilled, and a copy of such form shall be kept and maintained by both the owner or other person in possession or control of the aboveground storage facility or part thereof and the inspector for a period of not less than five (5) years from the date of the inspection. The Proof of Inspection form shall be subscribed by both the owner or other person in possession or control of the aboveground storage facility inspected and the inspector. This Proof of Inspection form shall contain a legally authorized form notice to the effect that false statements made knowingly therein are punishable pursuant to Section 210.45 of the Penal Law.

4. It shall be unlawful for any person to substantially modify or cause the substantial modification of any aboveground storage facility or part thereof without complying with the provisions of subdivision (a) above and all regulations and standards promulgated pursuant thereto.

c. General Provisions

1. It shall be unlawful for any person to abandon an aboveground storage facility or part thereof without first cleaning out all residue, venting it until dry and safe and leaving all of the hatches open or with all connections severed and valves blank flanged. For the purpose of this subdivision, an abandoned aboveground storage facility or part thereof means one that has remained substantially empty and unattended for one (1) year or more without being declared temporarily out of service, or has been temporarily out of service for two (2) years or more.

2. It shall be unlawful for the owner or other person in possession or control of an aboveground storage facility or part thereof to remove it from service unless:

i. said storage facility or part thereof is disposed of as junk by first rendering it vapor-free and by sufficiently perforating it so as to render it unfit for further use, and demolishing it and removing it from the site; or

ii. said storage facility or part thereof is demolished for sale or use elsewhere in which case it must be first cleaned and made vapor-free to be safe in transit, and such reuse shall be in accordance with all pertinent portions of this article if relocation is to be within Suffolk County; or

iii. said storage facility is declared abandoned; or

iv. said storage facility is declared temporarily out of service; and

v. the commissioner has been notified of the intended status of removal from service.

3. It shall be unlawful for the owner or other person in possession or control of an aboveground storage facility or part thereof to render it temporarily out of service unless said storage facility or part thereof is planned to be returned to active service within two (2) years of its placement temporarily out of service, and it is returned to active service within said two (2) years pursuant to the provisions of subsections (c) (6) and (7) following, and it is drained of all liquid and the fill line, gauge opening and discharge line are capped and blind flanged and secured against tampering, and the vent line is left open.

4. It shall be unlawful for anyone to place toxic or hazardous materials in an abandoned or temporarily out of service aboveground storage facility.

5. It shall be unlawful for any person to bring an abandoned aboveground storage facility back into service without meeting all of the requirements of subsection (a) above. No a bandoned facility shall be brought back into service without a complete inspection acceptable to the commissioner.

6. It shall be unlawful for any person to bring a temporarily out of service facility back into use after January 1, 1990, without first meeting all the requirements of subsection (a) above.

7. An aboveground storage facility properly declared to be temporarily out of service may be returned to service prior to 1990 by written notification to the commissioner if the requirements of Section 1211(b) (2) have been met.

8. It shall be unlawful for the owner or other person in possession or control of an aboveground storage facility or part thereof to fail to empty, clean, and inspect pursuant to subsection (b) (3) (iii) above, to file Proof of Inspection pursuant to subsection (b) (3) (v) above, to leak test, and/or to recoat if necessary every seven (7) years each tank or vessel for the storage of toxic or hazardous materials within the said storage facility or part thereof.

9. It shall be unlawful for any person to replace or cause the replacement of any aboveground storage facility or part thereof for any reason without complying with the new storage requirements of subdivision (a) above and without complying with the inspection and Proof of Inspection requirements of subsections (b) (3) (iii) and (b) (3) (v), respectively.

10. It shall be unlawful for any person to use, maintain, construct, fabricate, modify or install any aboveground storage facility or part thereof without conforming to all plans and specifications submitted to and approved by the commissioner prior to such use, maintenance, construction, fabrication, modification or installation.

d. Leaks; Repairs

1. When an aboveground storage facility or part thereof is found to be leaking, it must immediately be emptied of all contents therein contained and removed from service unless approval is specifically granted by the commissioner to do otherwise.

2. It shall be unlawful for the owner or other person in possession or control of a leaking aboveground storage facility or part thereof to cause or permit it to remain in service or to continue to retain its toxic or hazardous contents after said owner or other person knows or should have known of the existence of the leak.

3. It shall be unlawful for any person to reuse and repair or cause the reuse and repair of an aboveground storage facility or part thereof which is leaking or which has leaked without:

i. performing or having said repairs performed in accordance with a written protocol submitted to and approved by the commissioner prior to said repairs; and

ii. inspecting or having said leaking storage facility or part thereof inspected by a person whose qualifications are acceptable to the commissioner, with such inspection in accordance with subsection (b) (3) (iii) above and filing a Proof or Inspection in accordance with subsection (b) (3) (v) above, with such inspection performed and Proof of Inspection filed prior to reuse of the storage facility or part thereof or filling it with a toxic or hazardous material but after repairs have been effected.

Section 1212. Piping, Fittings, Connections

a. New Installations

1. For the purpose of this section, new installations means piping, pipelines, fittings, connections for use with toxic or hazardous materials for which installation or construction actually begins on or after November 1, 1982.

2. All new installations shall

i. be fabricated, constructed and installed in a manner that will prevent the escape of the toxic or hazardous materials contained therein to the ground, groundwater or surface waters of Suffolk County; and

ii. be protected against corrosion by the use of non-corrosive materials, cathodic protection with coatings approved by the commissioner of the functional equivalent of the foregoing options approved by the commissioner; and

iii. be designed, constructed and installed with access points as required by the commissioner to permit periodic pressure testing of all underground piping without the need of extensive excavation; and

iv. be designed, constructed and installed with a simple, effective, reliable means of monitoring the new installation for leakage including a warning device to indicate the presence of a leak, spill or other failure or breach of integrity for piping installed underground or in areas where piping is not clearly visible; and

v. be constructed of double-walled pipe or be constructed in product-tight trenches or galleries where the piping is

buried or below grade except that single-walled piping will be allowed for facilities containing products with a specific gravity less than one and only slightly soluble in water such as gasoline and fuel oil.

3. It shall be unlawful for any person to fabricate, construct, install, use or maintain or to cause the fabrication, construction, installation, use or maintenance of any new substantial installation or part thereof for use with toxic or hazardous materials:

i. without previously having submitted plans therefor to the commissioner, and without having received approval of said plans; and

ii. without complying with the plans submitted to and approved by the commissioner as required in subsection (a) (3) (i) above; and

iii. without complying with the provisions of subsections (a) (l) and (a) (2) above and any regulations and standards promulgated thereunder.

b. Existing Installations

1. For the purpose of this section, existing installations shall mean piping, fittings and connections for use with toxic or hazardous materials for which installation or construction actually begins prior to November 1, 1982.

2. Commencing January 1, 1995, it shall be unlawful to use or maintain any existing installation or part thereof in association with any underground storage facility or part thereof unless said existing installation complies with all of the provisions of subdivision (a) above and all regulations and standards promulgated pursuant thereto.

3. It shall be unlawful for the owner or other person in possession or control of any existing piping installation or part thereof associated with any underground storage facility or part thereof to fail to pressure test said existing piping or part thereof whenever the associated underground storage facility or part thereof is tested.

4. It shall be unlawful for the owner or other person in possession or control of an existing installation or part thereof when testing or contracting to test said installation or part pursuant to subsection (b) (3) above to:

i. fail to test or have said installation or part thereof tested by a person whose qualifications are acceptable to the commissioner; and

ii. to fail to test or have tested said installation in a manner acceptable to the commissioner; and

iii. to fail to test or have installation tested in accordance with a written protocol submitted to and approved by the commissioner prior to said test; and

iv. to fail to test or have tested said installation in accordance with any regulations or standards which may be promulgated under this subdivision relating to said testing; and

v. to fail to submit to the commissioner within thirty (30) days of said test a completed Certificate of Test Completion form, pursuant to Section 1210(d) (3-6) and any regulations and standards promulgated thereunder.

c. General Provisions

1. Notwithstanding the requirements of subsection (b) (3) above, it shall be unlawful for the owner or other person in possession or control of a new or existing installation or part thereof not to test said installation or part in accordance with the procedures set forth in subsection (b) (3) above and in all regulations and standards promulgated thereunder whenever the commissioner has determined that such a test is necessary, or whenever the commissioner has ordered that such a test be performed.

2. Whenever an existing or new installation or part thereof is found to be leaking, it must immediately be emptied of all contents therein contained and removed from service.

i. It shall be unlawful for the owner or other person in possession or control of said leaking installation or part thereof to cause or permit it to remain in service or to continue to retain its toxic or hazardous contents after said owner or other person knows or should have known of the existence of the leak.

ii. It shall be unlawful for any person to repair or cause the repair of any new or existing installation or part thereof which has leaked or otherwise failed without performing said repairs or having said repairs performed in a manner approved by the commissioner.

iii. It shall be unlawful for any person to reuse or cause the reuse of any new or existing installation or part thereof which had leaked or otherwise failed without repairing said installation pursuant to the provisions of subsection (c) (2) (ii) above and all regulations and standards promulgated thereunder.

iv. It shall be unlawful for any person to reuse or to cause the reuse of any new or existing installation or part thereof which had leaked or otherwise failed without repairing said installation or part so as to conform to the requirements of subdivision (a) above and all regulations and standards promulgated thereunder.

v. It shall be unlawful for any person to reuse or cause the reuse of any new or existing installation or part thereof which had leaked or otherwise failed without inspecting or having said installation or part inspected subsequent to the completion of any repairs but prior to said reuse by a person whose qualifications are acceptable to the commissioner in accordance with Section 1211 (b) (3) (iv) and any regulations and standards promulgated thereunder and without filing with the commissioner a Proof of Inspection prior to said reuse in accordance with Section 1211 (b) (3) (v) and any regulations and standards promulgated thereunder.

Section 1213. Transfer of Toxic or Hazardous Materials

a. Transfer Facilities

1. Transfer facilities means truck fill stands and/or any other facility for the loading or unloading or toxic or hazardous materials.

2. It shall be unlawful for any person to fabricate, construct or install a transfer facility or part thereof:

i. without first submitting plans therefor to the commissioner and without first obtaining the commissioner's approval thereof; and

ii. without fabricating, constructing and installing said transfer facility or part thereof in accordance with the plans submitted and approved pursuant to subsection (a) (2) (i) above; and

iii. without providing a simple, effective, reliable means of monitoring the transfer facility or part thereof for leakage or spillage, including a warning device; and

iv. without providing a level of spill protection equivalent to that provided by a fill stand area completely paved and curbed with an impervious material and drained to a holding tank of adequate size to contain any spill that could reasonably be expected to occur from the normal operation of the facility, and roofed so as to exclude precipitation which would otherwise tend to fill the holding tank.

3. It shall be unlawful for any person to operate, maintain or use a transfer facility or part thereof so as to permit the escape therefrom of toxic or hazardous materials to the ground, groundwaters or surface waters of Suffolk County. All holding tanks associated with spill control shall be maintained in an empty condition at all times to provide maximum storage capacity at the time of a spill.

4. It shall be unlawful for any person to fabricate, construct, install, use, operate or maintain any transfer facility or part thereof without doing so in accordance with all regulations and standards pertaining thereto which may be promulgated by the commissioner.

b. Transfer Operations

1. It shall be unlawful for any person to transfer, cause the transfer or permit the transfer of toxic or hazardous materials to or from a storage facility, part thereof or vehicle, where conditions at the transfer facility are inadequate at the time of said transfer to ensure a safe transfer operation without the occurrence of spills, leaks or accidents.

2. Failure of a transfer facility to conform and comply with the provisions of subdivision (a) and all regulations and standards promulgated thereunder shall constitute a rebuttable presumption that conditions at said transfer facility are inadequate for the purposes of subsection (b) (1) above.

3. The transfer of toxic or hazardous materials to any storage facility or part thereof which does not comply with all provisions of this article applicable thereto and any regulations and standards promulgated under this article applicable thereto, shall constitute a rebuttable presumption that conditions at said transfer facility are inadequate for the purposes of subdivision (b) (1) above.

4. Conditions at the transfer facility shall be deemed to be inadequate at the time of a transfer if:

i. the transfer facility is constructed so that all possible points of overflow are not visible from the loading and unloading locations; or

ii. the truck, storage facility or part thereof being delivered to does not have adequate capacity to contain the amount of toxic or hazardous material being transferred or to be transferred, or if a person performing or causing said transfer does not insure by some reliable means that the truck, storage facility or part thereof has adequate capacity to contain the amount of toxic or hazardous material being transferred or to be transferred.

Section 1214. Indoor Storage Facilities

a. An indoor storage facility is specifically intended to include within its meaning all tanks, vessels and appurtenant plumbing which contain or are to contain or be used for the transmission of toxic or hazardous materials regardless of the volume of said tanks and vessels and regardless of the duration of time said tanks and vessels may contain the toxic or hazardous materials and regardless of their use.

1. All processing baths and tanks including dip tanks and rinse tanks and tanks associated with wastewater treatment located indoors shall constitute an indoor storage facility or part thereof.

2. All portable containers and tanks with an individual volume of greater than 80 gallons, stored or located indoors and used to contain toxic or hazardous materials, shall be deemed to be an indoor storage facility or part thereof and shall be subject to all of the provisions of this section and any regulations and standards promulgated pursuant hereto, and not the provisions of Section 1215 and the regulations and standards created thereunder.

b. New Storage Facilities

1. A new indoor storage facility or part thereof is one for which construction, fabrication or installation actually begins on or after November 1, 1982, or one consisting of portable containers and/or tanks each with an individual volume in excess of 80 gallons, for which indoor storage of said portable containers and/or tanks containing toxic or hazardous materials actually begins on or after November 1, 1982.

2. It shall be unlawful to fabricate, construct or install a new indoor storage facility or part thereof unless:

i. plans and specifications for said storage facility have been first submitted to and approved by the commissioner; and unless

ii. said fabrication, construction or installation is accomplished in accordance with the approved plans and specifications submitted pursuant to subsection (b) (2) (i) above; and unless

iii. said fabrication, construction or installation is accomplished in accordance with all regulations and standards which may be promulgated under this subdivision; and unless

iv. the fabrication, construction or installation provides for impervious secondary containment for the new storage facility or part thereof equal to or greater than 110% of the entire volume to be contained; and unless

v. said storage facility or part thereof is fabricated, constructed or installed in a manner which will prevent the release into the ground, groundwaters or surface waters of Suffolk County of any toxic or hazardous materials; and unless

vi. any open tanks or vessels containing or to contain toxic or hazardous materials within the storage facility or part thereof in a building equipped with a sprinkler system are provided with head deflectors or automatic covers or the equivalent thereof acceptable to the commissioner to prevent the overflow of the tanks by reason of flow from the sprinkler system; and unless

vii. high level alarms or other adequate means of detecting an impending overfill condition have been provided for all tanks not readily visible by the operator controlling filling.

3. It shall be unlawful to operate, maintain or use a new indoor storage facility or part thereof unless:

i. said storage facility or part thereof has been fabricated, constructed and installed in accordance with all of the provisions of subdivision (b) above and any regulations and standards promulgated thereunder; and unless

ii. said storage facility or part thereof has been inspected prior to said operation, maintenance or use pursuant to the provisions of Section 1211 (b) (3) (iii) and any regulations and standards promulgated thereunder; and unless

iii. Proof of Inspection is filed with the commissioner within thirty (30) days of the inspection conducted pursuant to subsection (b) (3) (ii) above and such filing occurs prior to said operation, maintenance or use, and said Proof of Inspection conforms to all of the provisions of Section 1211 (b) (3) (v) and any regulations and standards promulgated thereunder; and unless

iv. said storage facility or part thereof is operated, used or maintained in a manner which will prevent the discharge of toxic or hazardous materials therefrom into the ground, groundwaters or surface waters of Suffolk County.

4. It shall be unlawful to repair and reuse a new indoor storage facility or part thereof without complying with all of the provisions of subsection (b) (2) above and all regulations and standards promulgated pursuant thereto.

c. Existing Storage Facilities

1. An existing indoor storage facility includes all indoor storage facilities or parts thereof as described in subdivision (a) above, not within the class of storage facilities described in subsection (b) (1) above as new indoor storage facilities.

2. Commencing November 1, 1982, it shall be unlawful to fabricate, construct, install, modify, operate, maintain or use any indoor storage facility or part thereof which does not conform to all of the provisions of subdivision (b) above and all regulations and standards promulgated thereunder.

3. It shall be unlawful for any person to operate, maintain or use an existing indoor storage facility or part thereof in a manner which will allow the discharge of toxic or hazardous materials therefrom into the ground, groundwaters or surface waters of Suffolk County.

Section 1215. Portable Containers and Tanks

a. Storage Facilities

1. It shall be unlawful to fabricate, construct, install or otherwise create a storage facility or part thereof for portable containers and tanks in excess of 250 gallons total capacity containing toxic or hazardous materials if the facility has to be used for more than thirty (30) days without:

i. first having submitted satisfactory plans and specifications therefor to the commissioner; and without

ii. constructing, installing, fabricating or otherwise creating said storage facility in accordance with the reports and plans submitted pursuant to subsection (a) (1) (i) above; and without

iii. constructing, installing, fabricating or otherwise creating said storage facility so as to prevent the discharge of any of the toxic or hazardous contents of the portable containers therein to the ground, groundwaters or surface waters of Suffolk County; and without

iv. providing a chemically resistant pad on which to place the portable containers or tanks, impervious to the toxic or hazardous materials being stored in said containers and tanks; and without

v. providing a complete impervious containment of the storage facility or part thereof sufficient to contain at least thirty (30%) percent of the volume to be stored; and without

vi. constructing, fabricating, installing or otherwise creating a storage facility or part thereof in accordance with all regulations and standards promulgated under this subdivision.

2. It shall be unlawful for any person to use, maintain or operate a storage facility containing portable containers or tanks for the storage of toxic or hazardous materials without:

i. preventing the discharge of any of the toxic or hazardous contents of the portable containers or tanks to the ground, groundwaters or surface waters of Suffolk County; and without

ii. properly securing the portable containers or tanks containing toxic or hazardous materials so as to protect them from vandalism, unauthorized access and damage by traffic, machinery or falling objects; and without

iii. storing the portable containers and tanks containing toxic or hazardous materials indoors except where such storage is prevented by fire regulations, or where sufficient evidence is presented that physical or financial constraints of the facility make indoor storage impractical. Waiver of the indoor storage requirement shall be only by permission of the commissioner; and without

iv. protecting any outdoor storage of portable containers or tanks containing toxic or hazardous materials from damage from heat, cold, rust and other weather-related conditions; and without

v. complying with all regulations and standards promulgated relating to the maintenance, use or operation of a storage facility containing portable containers containing toxic or hazardous materials; and without

vi. complying with all of the provisions of subdivision (b) below and any regulations and standards promulgated thereunder.

b. Handling of Portable Containers or Tanks

It shall be unlawful for the owner or other person in possession or control of a storage facility containing portable containers or tanks which contain toxic or hazardous materials:

i. to stack said portable containers or tanks more than two (2) high without using a properly designed storage rack for that purpose, or to attempt any stacking without adequate equipment; and

ii. to store said portable containers or tanks in a manner so as to prevent all sides thereof from being available for inspection; and

iii. to fail to maintain current inventory records indicating deliveries, consumption, sale and final disposal of all toxic or hazardous materials stored in portable containers or tanks and to maintain said records for five (5) years from the occurrence recorded; and

iv. to fail to handle the said portable containers or tanks in accordance with any regulations and standards promulgated pursuant to this subdivision; and

v. to store said portable containers in numbers in excess of the maximum allowed by the approved design of the storage facility.

c. Inspections

1. It shall be unlawful for the owner or other person in possession or control of a storage facility containing portable containers or tanks for the storage of toxic or hazardous materials to fail to have said facility or part thereof containing said portable containers or tanks inspected:

i. prior to application for the renewal of a permit to operate a storage facility issued pursuant to Section 1207; and

ii. subsequent to any substantial modification of the storage facility or part thereof containing said portable containers or tanks, and prior to the using or putting into service a storage facility or part thereof; and

iii. prior to the using or putting into service said storage facility or part thereof after repairs had been performed on it.

2. It shall be unlawful to fail to have the inspections required by subsection (c) (l) above performed in accordance with the provisions of Section 1211 (b) (3) (iii) and all regulations and standards promulgated pursuant thereto and those promulgated under this subdivision.

3. It shall be unlawful to fail to file a Proof of Inspection with the commissioner within thirty (30) days of the performance of an inspection required by subsection (c) (l) above complying with the provisions of Section 1211 (b) (3) (v) and any regulations and standards promulgated pursuant thereto.

d. It shall be unlawful for any person to repair or modify or to cause or permit said repairs or modifications of a storage facility or part thereof containing portable containers or tanks for the storage of toxic or hazardous materials without performing said repairs or modifications or having them performed pursuant to a written protocol previously submitted to and approved by the commissioner.

e. At the discretion of the commissioner, Sections 1215 (a) (l) (iv), (v), (vi), and 1215(c), may be waived for temporary facilities such as spill cleanup operations.

Section 1216. Bulk Storage of Toxic or Hazardous Materials

a. It shall be unlawful for any person to fabricate, construct, install, repair or modify any bulk storage facility or part thereof without doing so in accordance with a written protocol previously submitted to and approved by the commissioner.

b. It shall be unlawful for any person to fabricate, construct, install, modify, repair, use, maintain or operate any bulk storage facility or part thereof without:

1. doing so in a manner that will prevent the toxic or hazardous materials contained therein from coming into contact with precipitation or other sources of moisture unless there is provision made for collecting and treating the leachate and runoff generated so as to prevent a discharge of toxic or hazardous materials to the ground, groundwaters or surface waters of Suffolk County and so as to prevent the development of an explosive, incendiary or other hazardous or dangerous condition; and without

2. providing for the segregation of and without segregating potentially reactive chemicals which are toxic or hazardous materials or which may react so as to form toxic or hazardous materials, which reaction may present or cause a hazardous or dangerous condition; and without

3. providing for and storing bagged toxic or hazardous materials on pallets, and within a roofed structure which prevents precipitation from reaching the bags; and

4. in the case of an indoor bulk storage facility, without providing for and providing an impervious floor without floor drains with a surrounding impervious dike so as to provide containment for hazardous or toxic materials generated from firefighting within the building; and without

5. providing for and providing adequate security so as to protect the storage facility and toxic or hazardous contents therein from vandalism and accident; and without

6. complying with any regulations and standards which may be promulgated pursuant to this section.

c. Road deicing salt and other deicing materials are toxic or hazardous materials. In addition to the foregoing provisions of this section, road deicing salt may be stored near the shore or other areas where no adverse environmental impact will occur without brine control so long as the commissioner's approval for such a storage facility has been applied for and received in advance.

Section 1217. Reporting; Records; Clean-Up

a. It shall be unlawful for the owner or other person in possession or control of any storage facility or part thereof to fail to report any unauthorized discharge, spill, leak or recognizable loss of toxic or hazardous materials therefrom or the failure of said storage facility to the commissioner within two (2) hours of the time such owner or other person had sufficient evidence that he knew or should have known of said unauthorized discharge, spill, leak, loss or failure.

1. A report to the commissioner shall not be deemed compliance with any reporting requirement of any other federal, state or local law.

b. It shall be unlawful for the owner or other person in possession or control of any storage facility or part thereof to fail to keep records in writing reflecting the types and amounts of toxic or hazardous materials stored in the said storage facility or part thereof at any given time.

1. It shall be unlawful for the owner or other person in possession or control of any storage facility or part thereof to fail to keep records of the disposal or other transfer in or out of the said storage facility or part thereof, such records reflecting the types and amounts of toxic or hazardous materials involved in the transfer. The name and vehicle license and registration numbers of the transporter, and the intended destination must also be included if the material is waste.

2. It shall be unlawful for any person required to keep records by any provision of this article to fail to maintain said records available for inspection by the commissioner for at least five (5) years from the date of the event, occurrence or transaction recorded. Copies shall be provided by the owner or operator for the commissioner if requested.

3. It shall be unlawful for any person required to keep records by any provision of this article to fail to keep, record and maintain said records in accordance with any regulations and standards promulgated pursuant to this section.

c. It shall be the responsibility and obligation of any person who discharges, or causes or permits the discharge of any toxic or hazardous material to the ground, groundwaters or surface waters of Suffolk County to cease said discharge, to reclaim, recover and/or properly dispose of the discharged toxic or hazardous material and any other substance contaminated therefrom, to restore the environment to a condition and quality acceptable to the commissioner, and to repair any damages caused thereby, all to the satisfaction of the commissioner.

1. It shall be unlawful for the owner or any other person in possession or control of any source discharging toxic or hazardous materials to the ground, groundwaters or surface waters of Suffolk County to fail to cease said discharge immediately upon obtaining knowledge or notice of its existence.

2. It shall be unlawful for the owner or any other person in possession or control of any source discharging or which has discharged toxic or hazardous materials to the ground, groundwaters or surface waters of Suffolk County to fail to reclaim, recover and/or dispose of the discharged toxic or hazardous materials. Where time permits, cleanup shall be in accordance with a written protocol previously submitted to and approved by the commissioner.

3. It shall be unlawful for the owner or other person in possession or control of any premises or place to fail to reclaim, recover and/or otherwise dispose of any toxic or hazardous materials discharged thereto, in accordance with a written protocol previously submitted to and approved by the commissioner, in the event the persons described in subsection (c) (2) above are not ascertainable or otherwise fail to comply with the provisions of subsection (c) (2). This provision shall not abridge any existing right of action in any person, nor shall it create any new right of action in any person.

4. It shall be unlawful for the owner or any person in possession or control of any source which has discharged toxic or hazardous materials to the ground, groundwaters or surface waters of Suffolk County to fail to restore the environment contaminated or damaged by the said discharge to its condition prior to the discharge, repairing any damages caused thereby in accordance with a written protocol previously submitted to and approved by the commissioner.

5. It shall be unlawful for any person required by this article or by any order of the commissioner to reclaim, recover or otherwise dispose of discharged toxic or hazardous materials and other substances contaminated therefrom and/or to restore the environment to the condition that existed prior to the discharge of toxic or hazardous materials thereto, to fail to perform said required acts pursuant to any regulations and standards promulgated pursuant to this subdivision.

Section 1218. Confidentiality of Records

a. Any information relating to secret processes, or methods of manufacture or production, obtained in the course of an inspection or investigation, or submitted to the department, shall be kept confidential except for the use and purpose of the department in the enforcement of this article and the rules and regulations promulgated thereunder.

b. In the event that a person claims to be unable to file complete reports and/or plans and specifications on the grounds that it relates to and is part of a secret process or method of manufacture or production, an affidavit signed by an authorized person must be filed with the commissioner, stipulating:

1. location of process or equipment, specifying the building and the section or part of the building in which it is located;

2. in general terms, the name of the process equipment;

3. means to be employed for the control of water contaminants;

4. nature and estimated rate of discharge of contaminants to the ground or surface waters;

5. authority of the person signing the affidavit;

6. a statement that the installation is related to a secret process or method of manufacture or production.

In the event any such affidavit is filed, the commissioner shall determine the extent to which an exemption should be granted. Any information relating to secret processes, methods of manufacture or production which may be required, ascertained or discovered by the commissioner shall not be disclosed and shall be kept confidential.

Section 1219. Posting and Labeling

a. It shall be unlawful for the owner or other person in possession or control of any place, building, land, vehicle or thing to store toxic or hazardous materials therein without conspicuously posting a notice threat or thereon warning of the presence of such materials and providing any safety information necessary to protect the public and assist emergency response personnel in carrying out their responsibilities.

b. It shall be unlawful for any person to use, maintain or operate any storage facility or part thereof:

1. without clearly labeling the specific contents of each portable container conspicuously on said container; and

2. without clearly labeling the specific contents of each indoor and aboveground tank or vessel conspicuously thereon; and

3. without clearly labeling the specific actual, intended and possible contents of piping associated with any storage facility or part thereof at or near the points of filling or drawing; and

4. without conspicuously posting any permit issued pursuant to this article.

c. It shall be unlawful for any person to falsely post or label any container or storage facility or to post an invalid permit.

d. It shall be unlawful for any person to use, maintain or operate any storage facility or part thereof without complying with all regulations and standards promulgated pursuant to this section.

Section 1220. Waivers

Any requirement, mandate, prohibition or time limitation imposed by this article or any regulation, standard or order generated hereunder, may be waived or modified by order of the commissioner.

INDUSTRIAL ZONING ORDINANCE FOR SENSITIVE K BUSINESS DISTRICT HYDROGEOLOGIC ZONES

TOWN OF BROOKHAVEN CODE

Article XXXIII

B. **[Added 5-16-83, effective 6-6-83]** Property located within certain hydrogeologic sensitive zones. In the event that L Industrial 1 zoned property is located within the geographical area described in § 85-367 of this Article, the following standards shall apply:

(1) Height. No building or structure shall be erected or altered to a height in excess of fifty (50) feet.

(2) Building area. The total building area shall not exceed thirty percent (30%) of the total lot area.

(3) Lot area. No building, structure or premises shall be used or occupied, and no building or structure shall be erected or altered on a lot having an area of less than two (2) acres or upon a lot having a frontage of less than two hundred (200) feet. The average lot area shall not be less than three (3) acres.

(4) Front yard. There shall be a front yard having a depth of not less than fifty (50) feet. If the street frontage on the same side of the street between the two (2) nearest intersecting streets shall have been improved with two (2) or more industrial or business buildings or in the event that building permits shall have been issued therefor and work commenced thereon, not less than the average front yard depth as so established by such existing or permitted buildings shall be maintained; provided, however, that any such front yard depth shall not be required to be more than sixty (60) feet.

(5) Side yards. There shall be two (2) side yards, one (1) on each side of the building, the total width of both to be fifty (50) feet and no one (1) side shall be less than twenty (20) feet wide.

(6) Rear yard. There shall be a rear yard having a minimum depth of fifty (50) feet.

(7) State Environmental Quality Review Act. All proposed actions and changes in tenants or occupants, or new tenancies or occupancies, shall be considered as having a potential significant effect on the environment which will require notification and coordinated review pursuant to the State Environmental Quality Review Act, Part 617, with possible preparation of an environmental impact statement.

(8) Natural vegetation. As much of the site's natural vegetation as is possible shall be retained in preparation of the final site plan and final development, including necessary actions to protect natural vegetation during site development.

(9) Landscaping. No greater than fifteen percent (15%) of any lot shall be established in turf and landscaped areas. All other disturbed areas are to be established in a natural type vegetation pursuant to plans which shall be approved by the Town of Brookhaven, Department of Planning, Environment and Development.

(10) Toxic or hazardous materials; financial assurance. All industries, owners, tenants or occupants, whose ac-

tivity conducted on site involves storage and handling of toxic or hazardous materials and/or industrial discharges, shall be required to submit adequate financial assurances guaranteeing the immediate cleanup of spills or illegal discharges. The Planning Board, as part of its site plan review, shall fix the amount of such assurance in such an amount as it deems adequate for the cleanup of spills or illegal discharges. In addition, said Planning Board shall approve the sufficiency of the financial assurance. In addition, the Planning Board shall not approve any site plan for industries involving storage and handling of toxic or hazardous materials and/or industrial discharges unless an irrevocable consent to enter the property for the purposes of inspection and monitoring is supplied by the owners, tenants and occupants. The owner of any such property shall be required to file a covenant on behalf of himself, his heirs, assigns and successors for the Town of Brookhaven to enter said property and clean up any spills or illegal discharges and to assess the costs of any such cleanup against said property to the extent the costs of said cleanup exceeds the amount recovered from any financial assurance.

(11) Industrial discharge. No industrial discharge shall be permitted unless in conformance with a treatment and disposal system to be approved by Suffolk County Health Department and the Town of Brookhaven, Department of Planning, Environment and Development. This subsection shall not apply to an approved sanitary disposal system, a noncontact cooling water discharge system or precipitation collection and drainage facilities. Sampling accessibility must be provided to the above discharges.

§ 85-360. Height.

In the L Industrial 1 District, no building or structure shall be erected or altered to a height in excess of fifty (50) feet or three (3) stories.

§ 85-361. Building area.

In the L Industrial 1 District, the total building area shall not exceed sixty percent (60%) of the total lot area.

§ 85-367. Delineation of hydrogeologic sensitive zones. [Added 5-16-83, effective 6-6-83]

A. All property located within the following bounded and described area shall be considered located within a hydrogeologic sensitive zone:

Beginning at a point where the center line of Sunrise Highway, New York State Route 27, meets the town line of Southampton and Brookhaven; running thence in a westerly direction along the center line of Sunrise Highway to a point where the center line of Barnes Road and the center line of the Sunrise Highway meet; running thence in a northerly direction along said center line of Barnes Road to the school district line between School District No. 21 and School District No. 32; running thence in a westerly direction along said line to a point where the projected center line of Cranford Boulevard meet; running thence in a northerly direction along the center line of Cranford Boulevard to a point where said line meets the center line of Moriches - Middle Island Road; running thence in a generally westerly direction along the center line of Moriches - Middle Island Road to a point where the projected center line of Moriches Road meet; running thence in a northerly direction along the center line of Moriches Road to a point where said line meets the center line of property of the Long Island Railroad; running thence in southwesterly and westerly direction along the center line of Long Island Railroad property to a point where said line meets the center line of Sill Road (C.R. 101); running thence in a generally southwesterly direction along the center line of Sills Road to a point where said line meets the center line of Southaven Avenue; running thence in a westerly direction along the center line of Southaven Avenue to a point where projected line meets the center line of Old Medford Avenue; running thence in a northerly direction along center line of Old Medford Avenue to a

point where said line meets the projected center line of Cedar Avenue; running thence in a westerly direction along center line of Cedar Avenue to a point where said line projected meets the center line of North Ocean Avenue (C.R. 83); thence in a northerly direction along the center line of North Ocean Avenue to a point where said line meets the projected center line of Old Fish Road or Fisk Road; thence in a generally northwest direction along the center line of Old Fish Road to a point projected to the center line of Jamaica Avenue; thence in a westerly direction along the center line of Jamaica Avenue to a point projected to meet the center line of Blue Point Road; running thence in a northerly direction along the center line of Blue Point Road to a point where said line meets the center line of Long Island Expressway (N.Y.S. 495); running thence in a westerly direction along the center line of the Long Island Expressway to a point where said line intersects the center line of Nicolls Road (C.R. 97); running thence in a generally northerly direction along the center line of Nicolls Road to a point where said line meets the projected center line of Mark Tree Road; running thence in a northerly direction along the center line of Mark Tree Road to a point where said line meets the center line of Pond Path; running thence in a continued northerly (25A) to a point where said line meets the town line between the Town of Brookhaven and the Town of Riverhead being the easterly boundary of the Town of Brookhaven; direction along the center line of Pond Path to a point where said line meets the projected center line of Upper Sheep Pasture Road; running thence in an easterly direction along the center line of Upper Sheep Pasture Road to a point where said line meets the center line of Lower Sheep Pasture Road; running thence in a continued easterly direction along the center line of Lower Sheep Pasture Road to a point where said line projected meets the center line of Old Town Road; running thence in a generally southeasterly direction along the center line of Old Town Road to a point where said line intersects the center line of Port Jefferson - Nesconset Highway (N.Y.S. 347); running thence in a northeasterly direction along the center line of Port Jefferson - Nesconset Highway to a point where said line meets the center line of North Country Road (N.Y.S. 25A); running thence in an easterly direction along the center line of North Country Road running thence along the easterly line of the Town of Brookhaven in a generally southerly then easterly then southerly direction to the point and place of beginning.

B. Said bounds shall be delineated on the Zoning Map of the Town of Brookhaven and is intended to include the Zone III hydrogeologic area as described by the Nassau - Suffolk Areawide Waste Treatment Management 208 Plan and the hydrogeologic sensitive area known as the "South Setauket woods."

CHANGE OF OWNERSHIP OR TENANT FOR INDUSTRIAL OR COMMERCIAL BUILDINGS

TOWN OF BROOKHAVEN CODE

PART I (As Amended)

85-36 (new), 85-47 (new), 85-58 (new), 85-69 (new), 85-80 (new), 85-91 (new), 85-102 (new), 85-192 (new), 85-203 (new), 85-252 (new), 85-264 (new), 85-274 (new), 85-284 (delete existing language in entirety and add new), 85-290 (new), 85-312 (delete existing language in entirety and add new), 85-366 (delete in entirety and add new), 85-377 (delete in entirety and add new)

SITE PLAN REVIEW AND APPROVAL

A. Procedure.

1. In each case where a building, structure or use or alteration thereof is proposed in this district, except for one family dwelling places, permitted agricultural uses and customary accessory uses thereto, the Building Inspector shall refer the site plan of the proposed building, structure or use or alteration thereof to the Brookhaven Town Planning Board for its review pursuant to Section 85-428 of this ordinance. The Chairman of the Planning Board may require a public hearing pursuant to Section 85-428(D). With the exception of one family dwelling places, permitted agricultural uses and customary accessory uses thereto, in the event any building, structure or use is changed, sold or leased, the new owner or tenant shall cause notice to be given to the Department of Planning, Environment and Development within thirty (30) days of such sale or lease on such form as is prescribed by said department. The Department of Planning, Environment and Development shall make a determination as to whether a new site plan will be required by reasons of any alterations or changes in the subject building, structure or use. Any landowner found guilty of violating this ordinance shall be fined at the rate of One Hundred ($100.00) Dollars per day.

2. No building permit shall be issued by the Building Inspector without such approval of the site plan and, in appropriate places, all other permits, approvals and authorizations as may be required from other municipal and governmental agencies or departments.

B. In any case where the site plan submitted by the applicant indicates that a variance will be required from the Board of Appeals in order to construct or use the premises as shown on said site plan, the applicant shall submit an application to the Board of Appeals simultaneously with the filing of his application for approval of the site plan. Upon adoption by the Board of Appeals of a resolution granting the application for the variance, said variance shall be deemed to be incorporated in the site plan submitted by the applicant.

CHANGE OF OWNERSHIP OR TENANT FOR INDUSTRIAL OR COMMERCIAL BUILDINGS

APPLICATION OF ORDINANCE; NON CONFORMING USES

TOWN OF ISLIP CODE

Article III

§ 68-40. Change of occupancy. [Amended 3-3-81]

No occupancy or use shall be made of land or a building that is not consistent with the last-issued certificate of occupancy for such building or use of land unless a permit is secured. In case of an existing building, no change of occupancy that would bring it under some special provision of this ordinance shall be made unless the Director, upon inspection, finds that such building conforms substantially to the provisions of this ordinance and the New York State Building Code with respect to the proposed new occupancy and use and issues a certificate of occupancy therefor.

EXTENSION OR REMODELING OF STRUCTURES FOR NON CONFORMING NONRESIDENTIAL USES

TOWN OF HUNTINGTON CODE

§ 198-107. Extension or remodeling of structures used for nonconforming nonresidential uses.

A. Notwithstanding any other provision of this chapter, a structure used for a nonconforming use on nonresidentially zoned premises, excepting nonconforming uses or structures situated in a General Industry District, may be extended or remodeled, provided no structure devoted to such nonconforming use may be extended or remodeled to an extent exceeding twenty-five percent (25%) of its gross floor area existing at the time of the enactment of this chapter or any amendment thereto, and provided further that the Board of Appeals shall find that:

(1) Practical difficulties prevail in operating the premises or structure in the presently existing nonconforming manner, and the proposed extension or remodeling would constitute a reasonable adjustment of the existing nonconforming use.

(2) The proposed extension or remodeling will reduce the deleterious effect on the neighborhood of the existing nonconforming use. In determining deleterious effect, the Board of Appeals shall take into consideration, among other things, traffic generated, nuisance characteristics, hours and manner of operation, total ground area covered by structure and the appearance and condition of premises.

(3) The proposed extension or remodeling will not be more incompatible with nor adversely alter the nature and character of the neighborhood and neighborhood structures, or prejudice value of adjoining properties.

(4) Adequate on-site parking and loading space will be provided for all potential users.

(5) The proposed extension or remodeling will not cause or increase traffic congestion or traffic hazards and will not unduly restrict fire and police protection of the premises.

B. In addition, the Board of Appeals, in granting a special use permit under this section, may also prescribe such further conditions or restrictions with respect to both the proposed extension or remodeling and the existing nonconforming structure or use as in its opinion will increase the compatibility of the nonconforming use, as extended or remodeled, with the general neighborhood, including but not limited to landscaping, redecoration, structural improvements, manner of operation and elimination of offensive uses or procedures.

B. SPECIAL SURFACE WATER PROTECTION AREAS OVERLAY DISTRICTS

PROPOSED ORDINANCE

LONG ISLAND REGIONAL PLANNING BOARD

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES.

1.1 Statutory Authorization.

New York State enabling legislation under Article 12B of the General Municipal Law (or Article 2A of General City Law, or Article 16 of Town Law or Article 7 of Village Law) authorizes the (governing body) of (local unit) to provide and maintain for its citizens standards which insure their health, safety and welfare, including those land use regulations intended to promote the most appropriate use of land throughout the municipality.

1.2 Findings of Fact

The Town of (municipality) finds that the spread of development resulting from rapid growth has placed increasing demands on natural resources and is encroaching on sensitive surface water drainage areas. These high quality surface waters are a unique resource that should be preserved or protected in order to sustain native aquatic or marine resources, significant recreational, environmental and aesthetic characteristics for current and future residents of the town. These resources also serve to provide the basis for economic activities which will falter should these resources be neglected.

The Town recognizes that increased population density and certain land use activities have definite impacts on surface water quality.

The Town Master Plan has designated geographic areas comprised of undeveloped or partially developed lands located directly adjacent to surface waters which are designated as Special Surface Water Protection Areas.

It is necessary to regulate the development and use of lands to be included in Special Surface Water Protection Areas so as to minimize the impacts of erosion and sedimentation, to prevent the destruction of vegetation and wildlife habitats, and the damage due to flooding and to minimize the impacts of pollution.

1.3 Statement of Purpose

It is the purpose of this ordinance to create a Special Surface Water Protection Overlay Area to regulate land use in designated undeveloped areas located directly adjacent to surface waters in order to promote the goals of the Town Master Plan and the policy of the Town Board to maintain high quality surface waters.

SECTION TWO: DEFINITIONS

2. Definitions

The following terms shall have meanings as indicated.

(a) *Cluster Zoning,* shall mean a provision in the zoning ordinance that allows the Planning Board to vary the development pattern for residential, commercial, industrial, institutional or a combination of uses so as to permit a grouping or "clustering" of uses on a portion of the site rather than spread evenly throughout the site. Zoning may permit the use of smaller lots in exchange for the preservation of a portion of the site as open space, or its dedication for community purposes.

(b) *Crops,* shall have the same meaning as provided in section 301(4) (a), (b), (c), (d) of the Agriculture and Markets Law of the State of New York.

(c) *"Fertilized Vegetation"* shall mean areas of cultivated vegetation which require the application of fertilizers, pesticides or other substances in order to survive or flourish.

(d) *Special Surface Water Protection Areas,* shall mean watershed areas requiring management to protect the high quality of selected surface waters.

(e) *"Natural Vegetation"* shall mean existing and naturally occurring indigenous vegetation that grows and is maintained without need of irrigation or applications of fertilizers, pesticides or other substances.

(f) *"Hazardous Materials or Waste"* shall mean those substances so defined and identified as hazardous waste pursuant to Article 27, Title 9, of the Environmental Conservation Law of the State of New York and rules and regulations promulgated thereunder.

(g) *"Tract"* shall mean any parcel of real property capable of subdivision pursuant to all applicable requirements.

SECTION THREE: GENERAL PROVISIONS

3.1 Applicability.

The provisions of this section shall apply to lands outside of incorporated villages located within the boundaries of the Town, superimposed upon the Zoning Map of the Town of _____, and delineated as Special Surface Water Protection Areas.

3.2 Activities Requiring a Permit.

No site preparation, grading, filling, excavating or development affecting property within the Surface Water Protection District shall begin prior to the issuance of a permit.

3.3 Construal With Other Statutes.

(a) Lands within the overlay district are designated critical environmental areas pursuant to the State Environmental Quality Review Act.

(b) Lands within the overlay district are consistent with those situated adjacent to the _____ River (creek, stream) which is designated as a (Wild, Scenic and/or Recreational) River under the New York State Wild, Scenic and Recreational Rivers Act.

3.4 Compliance.

Development shall comply with the provisions of any Special Groundwater Protection Area Plan that has been adopted by the (municipality).

3.5 Hazardous Materials and Waste.

Any new land use or activity that involves the generation, transportation, treatment, storage or disposal of hazardous materials or waste shall be prohibited in the overlay area.

3.6 Exemptions.

No person shall be required to obtain a permit for utilization of those lands included in the Special Surface Water Protection Areas for passive recreation, such as hiking, fishing, etc. as long as this usage does not cause changes in existing conditions (ie. increased erosion and sedimentation. See Handbook Ordinance number 19b for additional exceptions).

SECTION FOUR: PERMIT PROCEDURES

4.1 Permit Requirements.

Development permits for sites located within the Special Surface Water Protection Areas shall be required for all development activities not exempted in Section 3.6. The applicant shall be required to submit the following information to the governing body of municipality for approval prior to any development, construction or excavation activity.

1. Name and address of the applicant.
2. An environmental assessment form supplied by the municipality.
3. Description and map of proposed site development plan which includes:
   a) percentage of site in building including actual location.
   b) percentage of site in vegetation and areas where natural vegetation will be removed; where it will remain (see Ordinance #22).
   c) location of areas to be planted in fertilized vegetation.
   d) location of on-site system where feasible in relation to the surface water body.
   e) type of stormwater management systems.

4.2 Performance Standards.

Development Requirements.

(a) To minimize pollutant loadings, residential development shall be limited to one dwelling unit or less per acre or to open space.

(b) All new structures shall be located no less than 100 ft. from the mean water level of the stream, river, pond or lake or marine waters.

(c) Extensions or additions to existing structures shall comply with the 100 ft. setback requirement.

(d) Development shall be prohibited on slopes greater than 25%. Extensive grading of lots shall be avoided. All slopes shall be stabilized with seeding or other approved plantings.

(e) Where feasible subdivision plats shall provide for the clustering of structures to reduce impacts on surface waters. Wherever possible the area located closest to the surface water body shall be dedicated as open space.

(f) Stormwater detention facilities (temporary detainment) of stormwater runoff, with gradual release to surface or groundwaters shall be provided as necessary to maintain the same volume and rate of site runoff after development as that which existed prior to the development.

(g) Natural vegetation located on the tract shall be preserved to the maximum extent possible consistent with this policy.

(h) To minimize the potential for groundwater contamination from fertilizers, pesticides and other substances, fertilized vegetation shall not exceed _____ square feet or that specified in Handbook Ordinance #22. Lands currently utilized or utilized within the last five years for the production of crops shall be excluded from the requirements of this provision.

SECTION FIVE: PENALTIES

5.1 Restoration.

Any development, construction or excavation undertaken in violation of this ordinance shall forthwith be corrected after written notice by the (local authority). In the event that corrective action is not taken as directed within a reasonable time, the (governing body) may, at its own expense, take corrective action to restore the property. The cost thereof shall become a lien upon the property upon which such illegal activity occurred.

5.2 Fines.

Any person undertaking development, construction or excavation in violation of this ordinance is guilty of a misdemeanor, punishable by a fine of not less than ($), nor more than ($). Such person shall be deemed guilty of a separate offense for each day during which a violation of this ordinance is committed or continues.

SECTION SIX: SEVERABILITY.

Each separate provision of this ordinance is deemed independent of all other provisions herein so that if any provision(s) of this ordinance be declared invalid, all other provisions thereof shall remain valid and enforceable.

SECTION SEVEN: EFFECTIVE DATE.

This ordinance shall take effect on _____.

Prepared by the LIRPB as a part of the 208 Implementation Project.

CONTROL OF ON-SITE GENERATED STORMWATER RUNOFF RESULTING FROM DEVELOPMENT

PROPOSED ORDINANCE

LONG ISLAND REGIONAL PLANNING BOARD

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

1.1 Statutory Authorization.

New York State enabling legislation under Article 12B of the General Municipal Law (or Article 2A of General City Law, or Article 16 of Town law or Article 7 of Village Law) authorizes the (governing body) of (municipality) to provide and maintain for its citizens standards which insure their health, safety and welfare, including those land use regulations intended to promote most appropriate use of land throughout the municipality.

1.2 Findings of Fact.

(a) Man's extensive alteration of the landscape, resulting from the clearing and grading of land and the creation of impervious areas, together with the increasingly intensive use of land, resulting from the concentrated spread of urbanization, have drastically accelerated the natural processes of erosion, sedimentation, and has increased the rate and volume of stormwater runoff.

(b) An increase in runoff has created the need for more extensive stormwater drainage systems to prevent the accumulation of water in streets and highways and in flood-prone areas.

(c) Since stormwater runoff is the transport mechanism for any contaminants deposited on impermeable or relatively impervious surfaces, it is often an important contributor to surface water degradation. A portion of the areas shellfishing grounds were closed partially due to high coliform concentrations carried in stormwater. In addition, changes occurred in the values of aquatic and estuarine water quality parameters with possible adverse effects on aquatic and marine species.

(d) Contaminants deposited on and adjacent to roads and highways are carried by stormwater to recharge basins and possibly to groundwater beneath the recharge basins. Lead and dissolved chloride (highway deicing salts) concentrations and in some cases organic chemicals have been found in the groundwater beneath recharge basins.

(e) Regulation of development by means of environmental performance standards will produce developments that are compatible with the natural functions of a particular site or an entire watershed. It will also provide the flexibility that is particularly important to resource protection given the host of construction and site design techniques that can be combined to mitigate the adverse effects of development.

1.3 Statement of Purpose.

It is the purpose of the ordinance to reduce insofar as possible the adverse effects of stormwater runoff that may occur during site preparation and development through the establishment of requirements for on-site water retention and recharge.

1.4 Objectives.

The objectives of this ordinance are as follows:

(a) to protect public health, safety and welfare
(b) to minimize development-induced soil erosion, sedimentation and stormwater runoff
(c) to minimize public expenditures for soil erosion, sedimentation and stormwater runoff control projects
(d) to maintain the integrity of natural drainage systems

SECTION TWO: DEFINITIONS.

Except as defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

Agricultural Operations
All activities directly related to the growing or raising of crops or livestock for the sale of agricultural produce, including horticultural and fruit operations.

Construction
The siting, building, erection, extension, or material alteration of any structure the use of which requires permanent or temporary location on the ground or attachment to a structure having a permanent or temporary location on the ground.

Development
To make a site or area available for use by alteration. Development includes but is not limited to creating access to and circulation within the site, clearing of vegetation, grading, providing utilities and other services, parking facilities, drainage systems, methods of sewage disposal, and creating landforms. Development also includes significant alteration of natural resources in preparation for development, such as the dredging or filling of wetlands, ponds or other natural drainage areas.

Drainage Systems
Includes gutters, swales, pipes, conduits and superstructures for the collection and conduction of stormwater to an adequate facility for its storage and disposal.

Erosion
The wearing away of land as a result of the action of natural forces or man-related activities.

Excavation
The removal, addition, or alteration of soil, sand, or vegetation by digging, dredging, drilling, cutting, scooping, or hollowing out.

Filling
The deposition of natural or artificial material so as to modify the surface or subsurface conditions of upland or underwater land.

Grading
The alteration of the surface or subsurface conditions of land, lakes, ponds, or watercourses by excavation or filling.

Groundwater Table
The elevation of the top of the water stored in the highest aquifer in the subsoils, at the location of the proposed structure, including but not limited to so-called "perched water," except that where it is demonstrated that removal of the impervious layer underlying the perched water will substantially lower the level of the water, the lower water surface shall be considered the "groundwater table." In locations where the groundwater is subject to tidal action the mean high elevation of the groundwater surface shall be considered the "groundwater table."

Natural Drainage
The stormwater runoff resulting from topographical and geographical surface conditions, prior to clearing, regrading or construction.

Natural Watershed
An area of land which in its natural state and prior to any man-made change, and due to its topography and geography, drains to a particular location within that area.

One-Hundred Year Flood Plain
The land area subject to the highest level of flooding that, on the average, is likely to occur once every one hundred (100) years (i.e., that has a one-percent chance of occurring each year), as said level is shown on the Housing and Urban Development Flood Insurance Administration Flood Insurance Rate Maps on file with the Town Clerk of the Town.

Performance Bond
Is a legal instrument that insures the completion of the project in accordance with the conditions set forth with the provisions of this ordinance. It provides for the release of funds to the municipality in the event that the developer fails to meet his obligations.

Person
Any individual, corporation, governmental agency, business trust, estate trust, partnership, association, two or more persons having a joint or common interest, or any other legal entity.

Sedimentation
The processes that operate at or near the surface of the ground to deposit soils, debris and other materials either on other ground surfaces or in water channels.

Site Preparation
The activities of stripping, excavating, filling, and grading to facilitate construction or other use of the land.

Stormwater Runoff
That part of precipitation that flows over the land surface.

Topsoil
The natural surface layer of soil.

The word "shall" is mandatory and not discretionary.

The word "may" is permissive.

SECTION THREE: GENERAL PROVISIONS

3.1 Lands To Which This Ordinance Applies.

This ordinance shall apply to all property within the jurisdiction of (municipality).

3.2 Activities Requiring a Permit.

None of the following activities shall begin until a permit has been issued under the provisions of this ordinance.

(a) Grading or stripping which affects more than twenty thousand (20,000) square feet of ground surface.
(b) Excavation or filling involving more than three hundred (300) cubic yards of material within any parcel or any contiguous area.
(c) Site preparation on slopes which exceed fifteen feet of vertical rise to one hundred feet of horizontal distance (or site preparation in areas of severe erosion potential, if such areas have been mapped for the jurisdiction).
(d) Site preparation with 300 feet of wetlands.
(e) Site preparation within the hundred year floodplain of any watercourse.

3.3 Exceptions.

(a) Bona fide agricultural or forestry operations, including land-clearing operations in connection therewith; provided, however, if said land is subsequently changed to another type of use, the use of said land shall thenceforth be subject to this ordinance.
(b) Excavations for the basements and footings of single family houses and for septic systems, wells, and swimming pools attendant to single family homes, excepting those excavations required to obtain permits under Section 3.1.
(c) Minor clearing or excavation work not incident to a substantial change in the existing use of the land, which may be reasonably expected not to contribute to any additional on-site generated runoff or degradation of any lands or water beyond the boundaries of the property of the residence involved.
(d) Emergency repairs on public or private objects, necessary for the preservation of life, health or property, or taken to implement and accomplish the beneficial purposes of this ordinance as set forth herein under such circumstances where it would be impracticable to obtain approval of the (governing body) prior to making such emergency repairs.
(e) Routine maintenance or repair work on public or private roads or utility line rights-of-way.
(f) The provisions of this law shall not apply to real property included in any approved subdivision or approved site plan when such approval was granted by the Planning Board prior to the effective date of this local law.
(g) The provisions of this law shall not apply to real property included in any approved Old File Map before Planning Board approvals were required.

3.4 Compliance.

All development, construction, excavation and landscaping activities shall be in accordance with the approved stormwater runoff, planting and erosion-sedimentation control plans (See Handbook Ordinances #16 and 18) and the requirements of this ordinance.

3.5 Performance Bonding.

After the approval of the application and before the issuance of any permit the applicant will be required to furnish a performance bond in the amount necessary to cover the estimated costs for the installation of the required stormwater runoff control

measures. Said bond shall be retained by the (municipality) for a period of up to one year following inspection and certification of completion of development or construction in order to assure compliance with the provisions of the ordinance.

3.6 Interpretation.

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions which impose more stringent restrictions on development, construction, excavation or filling. Where more than one provision of this ordinance applies to a given property, whichever provision imposes the more stringent restrictions shall prevail. Where this ordinance conflicts with or overlaps another ordinance or statute pertaining to the protection of property, whichever imposes the more stringent restrictions on development, construction and excavation shall prevail.

SECTION FOUR: STORMWATER RUNOFF CONTROL

4.1 Stormwater Runoff Control Plan Requirements.

Applicant will be required to submit a stormwater runoff control plan to the (governing body) of (municipality) for approval prior to any development, contruction or excavation activity in accordance with this ordinance.

A stormwater management plan shall be required for any property when:

(a) a plat is to be recorded
(b) land is to be subdivided
(c) an existing drainage system requires alteration
(d) new development is proposed for more than one residential unit on a given plat
(e) new development for any use other than single family residence is proposed
(f) the rate or volume of runoff will be (significantly) increased
(g) on-site water drains to a pond, stream or other surface water body or to a wetland

The stormwater management plan may be a part of a site plan or supportive specifications or other written material, and should indicate the manner in which the applicant will meet the required performance standards. Such plan shall be mapped at a scale of one inch equals one hundred feet or less and shall contain:

(a) A vicinity map drawn to a scale of not less than 2,000 feet to one inch showing the relationship of the site to its general surroundings, and the watershed or drainage basin area.
(b) A plan of the site drawn to a scale of not less than 100 feet to the inch showing the location and description of property boundaries, site acreage, existing natural and man-made features on and within five hundred feet of the site boundary including roads, structures, water sources, utilities, location of the groundwater table topography including existing contours with intervals of not more than five (5) feet where the slope is ten percent or greater and not more than two (2) feet where the slope is less than ten percent (10%), a description of the natural drainage system, soil characteristics, (a copy of the Soil Convervation District soil survey where available), location of wooded areas and other vegetation, location of the 100 year flood plain, location and description of surface waters, freshwater and tidal wetlands and the direction, flow, rate and volume of stormwater runoff under existing conditions.
(c) Location and description of proposed changes to the site and existing development on the site.
   (1) the location of the existing and final grades and spot elevations
   (2) changes in land surfaces (i.e. show locations where vegetation is to be removed and lawns or paving installed)
   (3) proposed site construction and planting areas
   (4) locations of all buildings and structures
   (Items 2-4 may be indicated on the site development plan)
(d) The resultant changes in the volume and rate of stormwater runoff (based upon a given year storm to be determined by the municipality - suggest a 25 year storm) from various locations on the site.
(e) The description of the proposed stormwater drainage system including
   (1) the proposed location of stormwater control measures the designated volume, rate, flow path, detention and retention of stormwater on site

(2) the amount and rate of off site stormwater discharged from the site
(3) the location and description of erosion and sedimentation control measures
(4) the description of the pollutants likely to be generated on site

4.2 Performance Standards

The plan shall be designated to meet the following performance standards:

(a) The natural functioning of the site, including the absorptive, purifying and retentive functions that existed on the site before construction began, shall be maintained.
(b) The post-construction volume and rate of runoff leaving the site shall not exceed the calculated volume and rate of runoff of natural or predevelopment conditions for any storm of any intensity up to and including the 100 year frequency.
(c) All sediment resulting from site development shall be retained on site.
(d) Artificial watercourses shall be designed so that the velocity of flow will not cause erosion.
(e) Where retention or detention ponds are used to detain the increased and accelerated runoff resulting from site development, the release of water from the ponds into streams shall be at a rate and in a manner approximating the natural flow prior to development.
(f) Any new direct discharge of stormwater into surface waters, freshwaters or tidal wetlands shall be prohibited.
(g) The volume and rate of stormwater discharged from the site that is in excess of the volume and rate of stormwater leaving the site under natural or predevelopment conditions shall not exceed the capacity of existing in-place stormwater sewer systems for any storm of any intensity up to and including the 100 year frequency.
(h) In cases of extreme hardship, the Planning Board may waive compliance with one or more of the performance standards conditional upon the implementation of mitigating measures.

NOTE: The plan shall meet the performance standards in the Handbook ordinances #19 and #22.

SECTION FIVE: PERMIT FEE

Upon filing an application for a permit, the applicant shall pay to the (municipality) a fee in accordance with the schedule established by the _____ . The fee shall be a reasonable sum to cover the costs of administration and shall in no part be returnable to the applicant.

SECTION SIX: VARIANCES

A variance may be authorized by the Zoning Board of Appeals of (local unit) upon receipt of an application from a property owner which demonstrates an undue hardship from the imposition of such regulations.

SECTION SEVEN: INSPECTION, RESTORATION AND FINES

6.1 Inspection.

Inspections for stormwater runoff control plan compliance shall be conducted by the (governing body). To determine that the work has been completed in accordance with the stormwater runoff control plan. The plan may be modified by mutual agreement if, after installation, the _____ deems that the installed measures are not adequate to meet the performance standards.

6.2 Fines.

Any person undertaking clearing, excavation or development of land in violation of this ordinance, upon conviction, shall be guilty of a misdemeanor, punishable by a fine of not less than ($), nor more than ($). Such person shall be deemed guilty of a separate offense for each day during which a violation of this ordinance is committed or continues.

SECTION EIGHT: SEVERABILITY

Each separate provision of this ordinance is deemed independent of all other provisions herein so that if any provision(s) of this ordinance be declared invalid, all other provisions thereof shall remain valid and enforceable.

SECTION NINE: EFFECTIVE DATE

This ordinance shall take effect on _____ .

SITE GRADING AND EROSION CONTROL ORDINANCE

TOWN OF BROOKHAVEN CODE

Chapter 35

§ 35-1. Legislative intent.

§ 35-2. Definitions.

§ 35-3. Minimum standards.

§ 35-4. Applications for building permit and certificate of occupancy.

§ 35-5. Penalties for offenses.

[HISTORY: Adopted Brookhaven Town Board 5-19-70, effective 6-11-70. Amendments noted where applicable.]

GENERAL REFERENCES

Excavated lands — See Ch. 27.
Sand and gravel pits, excavations and removal of topsoil — See Ch. 53.
Zoning — See Ch. 85.
Subdivision regulations — See Appendix, Part I.

§ 35-1. Legislative intent. [Amended 7-2-74, effective 8-5-74]

It is the purpose of this ordinance to regulate and control the regrading of land throughout the town in all use district classifications in order to prevent serious and irreparable damage to our natural resources, to minimize and retard the erosive effects of wind and water, to prevent the depreciation of property values, to prevent the removal of lateral support for abutting streets, lands and structures, to prevent damage to natural watersheds, to provided adequate drainage for surface water runoff, to protect persons and property from the hazards of periodic flooding and in general to protect the health, welfare and safety of the residents of the town.

§ 35-2. Definitions.

For the purpose of this ordinance, the following terms, phrases, words and their derivations shall have the meaning given herein. When not inconsistent with the context, words used in the present tense include the future, words used in the plural number include the singular number and words used in the singular number include the plural number. The word "shall" is always mandatory and not merely directory.

DRAINAGE FACILITIES — Includes gutters, swales, pipes, conduits and superstructures for the collection and conducting of stormwater to an adequate facility for the storage and disposal of the stormwater.

FLOOD-PRONE AREA — Those areas designated as Zone V, A-1, A-2, A-3 and A-4 on the Housing and Urban Development Flood Insurance Administration Flood Insurance Rate Maps on file with the Town Clerk of the Town of Brookhaven. [Added 7-2-74, effective 8-5-74]

GROUNDWATER TABLE — The elevation of the top of the water stored in the highest aquifer in the subsoils, at the location of the proposed structure, including but not limited to so-called "perched water," except that where it is demonstrated that removal of the impervious layer underlying the perched water will substantially lower the level of the water, the lower water surface shall be considered the "groundwater table." In locations where the

groundwater is subject to tidal action the mean high elevation of the groundwater surface shall be considered the "groundwater table."

HABITABLE — The "habitable" portion of a building is any enclosed area including cellars and basements except the following:

A. Those areas which are used primarily for storage, repair or access of vehicles and which contains no electrical, mechanical or heating equipment lower than twelve (12) inches above the floor.
B. Crawl spaces not exceeding four (4) feet in height in which no electrical or mechanical equipment is or is to be installed.

LATERAL SUPPORT — The resistance to active horizontal pressure of soils provided by either the passive pressure of the adjoining soils or by a retaining wall or structure.

NATURAL DRAINAGE — The stormwater runoff resulting from topographical and geographical surface conditions, prior to clearing, regrading or construction.

NATURAL WATERSHED — An area of land which in its natural state and prior to any man-made change, and due to its topography and geography, drains to a particular location within that area.

ONE-HUNDRED-YEAR FLOOD LEVEL — The highest level of flooding that, on the average, is likely to occur once every one hundred (100) years [i.e., that has a one-percent chance of occurring each year], as said level is shown on the Housing and Urban Development Flood Insurance Administration Flood Insurance Rate Maps on file with the Town Clerk of the Town of Brookhaven. **[Added 7-2-74, effective 8-5-74]**

REGRADE — To change the elevation of the ground surface, either temporarily or permanently.

STABILIZATION — Treatment of subsoils to increase ability to resist lateral pressures and/or treatment of surface to resist wind and water erosion.

STORMWATER RUNOFF — The amount of rainwater which due to topographical surface conditions and geology of the upstream land, drains to a particular location, or the rate at which the rainfall passes through a particular location.

§ 35-3. Minimum standards.

The following standards for the development of land or the regrading thereof, or both, shall apply in all use district classifications as set forth in Chapter 85 of the Code of the Town of Brookhaven. In all use district classifications wherein site plan review and approval is required, the site plan submitted to the Planning Board shall indicate compliance with following standards. In all other use district classifications the procedure required by § 35-4 of this ordinance shall be followed.

A. Stormwater runoff or natural drainage shall not be diverted so as to overload existing drainage systems, create flooding, cause erosion or the need for additional drainage facilities on other private or public real property.

B. Adequate drainage facilities for stormwater runoff shall be provided.

C. Proposed slope embankments along adjoining property lines and street frontages shall have a slope not steeper than one (1) foot on three (3) feet [thirty-three and one-third percent (33⅓%)] unless an adequate stabilization or retaining wall is provided as approved by the Planning Board. All slopes shall be adequately stabilized with topsoil and seeding or other approved planting.

D. The finished grade at a point not less than ten (10) feet from the building shall be at least one (1) foot below the lowest exterior opening in the foundation of the habitable portion of the structure, except that the finished grade may be no less than six (6) inches at a point no less than ten (10) feet opposite open porches, patios and pedestrian ramps.

E. Floor elevation. **[Amended 7-2-74, effective 8-5-74]**

(1) No habitable floor area shall be less than three (3) feet above the groundwater table, and the lowest opening to that habitable floor area shall not be less than seven

and five-tenths (7.5) feet above the datum established by the United States Coast and Geodetic Survey.

(2) Notwithstanding Subsection E(1) above, in a flood-prone area as above defined, any structure shall be constructed so that the lowest floor, including basement, is elevated to at least one (1) foot above the one-hundred-year flood level. In addition, in a coastal high-hazard area designated as Zone V on the H.U.D.F.I.A. Flood Insurance Rate Maps on file with the Town Clerk of the Town of Brookhaven, any new construction or substantial improvements must be located landward of the reach of the mean high tide; must be adequately anchored to piles or columns; and the area beneath the lowest floor, including basement, must be free of obstructions so that the impact of abnormally high tides or wind-driven water is minimized. **[Amended 12-17-74, effective 1-13-73]**

F. Front and rear yards shall have a grade of not more than five percent (5%) for a distance of twenty-five (25) feet as measured in a horizontal plane from the structure. Side yards shall have a grade of not more than ten percent (10%) for a distance of ten (10) feet as measured in a horizontal plane from the structure. All finished grades within ten (10) feet of the building shall pitch away from the building at a grade rate of not less than two percent (2%).

G. Where roof runoff from any building or structure will produce erosion or drainage problems with respect to adjoining properties, dry wells of adequate capacity shall be installed as an outfall for rainfall roof runoff.

H. The driveway apron shall be at least one (1) foot below the garage floor unless natural topography dictates grading away from the street and protective grading is provided for in the construction of the driveway with respect to adjoining structures and property.

I. Notwithstanding the foregoing provisions of this section, the Planning Board may waive or modify compliance with any of the foregoing minimum standards, subject to appropriate conditions, which in its judgement are not warranted by the special circumstances of any application or matter before it, or required in the interest of the public health, safety and welfare.

CONTROL OF ON-SITE GENERATED SOIL EROSION AND SEDIMENTATION RESULTING FROM DEVELOPMENT PROPOSED ORDINANCE LONG ISLAND REGIONAL PLANNING BOARD

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

1.1 Statutory Authorization.

New York State enabling legislation under Article 12B of the General Municipal Law (or Article 2A of General City Law, or Article 16 of Town Law or Article 7 of Village Law) authorizes the (governing body) of (local unit) to protect the health, safety and welfare, including those land use regulations intended to promote the most appropriate use of land throughout the municipality.

1.2 Findings of Fact

(a) Man's extensive alteration of the landscape, resulting from the clearing and grading of land and the creation of impervious areas, has accelerated the natural processes of erosion and sedimentation.

(b) Per acre soil erosion losses from construction sites are four times greater than those occurring on cropland and up to eighty times greater than those occurring on forest land. The Erosion and Sediment Inventory for New York (EASI), published in 1974 by the Soil Conservation Service identified erosion from construction sites as the major contributor of eroded material in Suffolk County.

(c) Sediment is the end product of erosion. Sediment deposited on roads is a maintenance problem and a safety hazard. Sediment clogs drainage systems and recharge basins, thus increasing maintenance costs. Deposits of sediment must be removed to an appropriate disposal site. Sediment deposits also fill in wetland areas and cover lake and bay bottoms smothering the benthic flora and fauna. All of these associated problems can be minimized through the control of the erosion process at the point of origin, the site of development.

1.3 Statement of Purpose.

It is the purpose of the ordinance to reduce insofar as possible the adverse effects of soil erosion and associated sedimentation that may occur during site preparation and development through the establishment of requirements for site grading and the protection of exposed soil surfaces.

1.4 Objectives.

The objectives of this ordinance are as follows:

(a) to protect public health, safety and welfare; (b) to minimize development-induced soil erosion, sedimentation and stormwater runoff; (c) to minimize public expenditures for soil erosion, sedimentation and stormwater runoff control projects; and (d) to maintain the integrity of natural drainage systems.

SECTION TWO: DEFINITIONS.

Except as defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

Agricultural Operations
All activities directly related to the growing or raising of crops or livestock for the sale of agricultural produce, including horticultural and fruit operations.

Construction
The siting, building, erection, extension, or material alteration of any structure the use of which requires permanent or temporary location on the ground or attachment to a structure having a permanent or temporary location on the ground.

Development
To make a site or area available for use by alteration. Development includes but is not limited to creating access to and circulation within the site, clearing of vegetation, grading, providing utilities and other services, parking facilities, drainage systems, methods of sewage disposal, and creating landforms. Development also includes significant alteration of natural resources in preparation for development, such as the dredging or filling of wetlands, ponds or other natural drainage areas.

Disturbed Area
Land area where the natural vegetative or soil cover has been removed or altered, and the soil is therfore susceptible to erosion.

Erosion
The wearing away of land as a result of the action of natural forces or man-related activities.

Excavation
The removal, addition, or alteration of soil, sand, or vegetation by digging, dredging, drilling, cutting, scooping, or hollowing out.

Filling
The deposition of natural or artifical material so as to modify the surface or subsurface conditions of upland or underwater land.

Grading
The alteration of the surface or subsurface conditions of land, lakes, ponds, or watercourses by excavation or filling.

Groundwater Recharge
Replenishment of existing natural underground water supplies.

Performance Bond
A legal instrument which specifies that funds are being held in escrow in accordance with standard bonding conditions by a state approved bonding institution or by (municipality) as required from developers to assure compliance with the provisions of this ordinance.

Person
Any individual, corporation, governmental agency, business trust, estate trust, partnership, association, two or more persons having a joint or common interest, or any other legal entity.

Stormwater Runoff
That part of precipitation that flows over the land surface.

Sedimentation
The processes that operate at or near the surface of the ground to deposit soils, debris and other materials either on the ground surfaces or in water channels.

Site Preparation
The activities of stripping, excavating, filling, and grading, to facilitate construction or other use of the land.

Structure
A walled and roofed building, having a foundation, an enclosed ground area, or, if elevated, a projected ground area exceeding 200 square feet, that is principally above ground and affixed to a permanent site.

Topsoil
The natural surface layer of soil.

Turbidity
Reduced water clarity resulting from the presence of suspended material.

The word "shall" is mandatory and not discretionary.
The word "may" is permissive.

SECTION THREE: GENERAL PROVISIONS.

3.1 Lands to Which This Ordinance Applies.

This ordinance shall apply to all property within the jurisdiction of municipality.

3.2 Activities Requiring a Permit.

None of the following activities shall begin until a permit has been issued under the provisions of this ordinance.

(a) Grading or stripping which affects more than twenty thousand (20,000) square feet of ground surface within any parcel or any contiguous area.

(b) Excavation or filling which involves more than three hundred (300) cubic yards of material within any parcel or any contiguous area;

(c) Site preparation on slopes which exceed fifteen feet of vertical rise to one hundred feet of horizontal distance (or site preparation in areas of severe erosion potential, if such areas have been mapped for the jurisdiction);

(d) Site preparation with 300 feet of wetlands;

(e) Site preparation within the hundred year floodplain of any watercourse.

3.3 Exceptions.

(a) Bona fide agricultural or forestry operations, including land-clearing operations in connection therewith; provided, however, if said land is subsequently changed to another type of use, the use of said land shall thenceforth be subject to this ordinance.

(b) Excavations for the basements and footings of single family houses and for septic tank systems, wells, and swimming pools attendant to single family homes, excepting those excavations required to obtain permits under Section 3.2.

(c) Home gardening or other minor clearing or excavation work not incident to a substantial change in the existing residential use of the land, which may be reasonably expected not to contribute to any on-site generated erosion or degradation of any lands or water beyond the boundaries of the property of the residence involved.

(d) Emergency repairs on public or private objects, necessary for the preservation of life, health or property, or taken to implement and accomplish the beneficial purposes of this ordinance as set forth herein under such circumstances where it would be impracticable to obtain approval of the (governing body) prior to making such emergency repairs.

(e) Routine maintenance or repair work on public or private roads or utility line rights-of-way.

3.4 Compliance.

All development, construction, excavation and maintenance activities shall be in accordance with approved soil erosion, sedimentation control, planting and stormwater runoff control plans (see Handbook Ordinances #18 and #22) and the requirements of this ordinance.

3.5 Performance Bonding.

After the approval of the application and before the issuance of any permit the applicant will be required to furnish a performance bond, in the amount necessary to cover the estimated costs for the installation of the required soil erosion, and sedimentation control measures, to be retained by the (municipality) for a period of up to one year following municipal inspection and certification of completion of development or construction in order to assure compliance with the provisions of the ordinance. For permanent erosion control measures requiring the establishment of vegetation, an appropriate percentage of the performance bond will be kept in escrow for up to three years following municipal inspection and certification of completion of development or construction in order to ensure establishment of adequate vegetation.

3.6 Interpretation.

(a) This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions which impose more stringent restrictions on development, construction, excavation or filling. Where more than one provision of this ordinance applies to a given property, whichever provision imposes the more stringent restrictions shall prevail. Where this ordinance conflicts with or overlaps another ordinance or statute pertaining to the protection of property, whichever imposes the more stringent restrictions on development, construction and excavation shall prevail.

SECTION FOUR: SOIL EROSION AND SEDIMENTATION CONTROL: LAND CLEARING PERMIT

4.1 Soil Erosion and Sedimentation and Stormwater Runoff Control Plan.

Applicant shall submit a soil erosion, sedimentation and stormwater runoff control plan to the (governing body) of (municipality) for approval in accordance with this ordinance prior to the initiation of any development, construction or excavation activity. Such plan shall be mapped at a scale of one inch equals one hundred feet or less and shall contain

(a) A vicinity map drawn to a scale of not less than 2,000 feet to one inch showing the relationship of the site to its general surroundings.

(b) A plan of the site drawn to a scale of not less than 100 feet to the inch showing the location and description of property boundaries, site acreage, existing natural and man-made features on and within five hundred feet of the site boundary, including roads, structures, water sources, utilities, topography including existing contours with intervals of not more than five (5) feet where the slope is ten percent or greater and not more than two (2) feet where the slope is less than ten percent, soil characteristics, location of wooded areas, the depth to seasonal high water table and a copy of the Soil Conservation District soil survey where available.

(c) Location and description of proposed changes to the site and existing development on the site.

(1) all excavation, filling, and grading proposed to be undertaken, identified as to the depth, volume, and nature of the materials involved,

(2) all areas requiring clearing, identified as to the nature of vegetation affected,

(3) all areas where topsoil is to be removed and stockpiled and where topsoil is to be ultimately placed,

(4) all temporary and permanent vegetation to be placed on the site, identified as to planting type, size, and extent,

(5) all temporary and permanent erosion and sediment control measures including soil stabilization techniques and stormwater drainage and storage systems including ponds, recharge and sediment basins (identified as to the type of facility, the materials from which it is constructed, its dimensions, and its capacity in gallons),

(6) the anticipated pattern of surface drainage during periods of peak runoff, upon completion of site preparation and construction activities, identified as to rate and direction of flow at all major points within the drainage system,

(7) the location of all roads, driveways, sidewalks, structures, utilities, and other improvements; and

(8) the final contours of the site at intervals of no greater than two (2) feet.

(d) A schedule of the sequence of installation of planned soil erosion and sediment and runoff control measures as related to the progress of the project including anticipated starting and completion dates.

4.2 Performance Standards.

The plan shall be designed to meet the following performance standards:

(a) The site erosion and sedimentation control measures shall be appropriate for the existing topography, vegetation, and other natural features of the site. The plan shall indicate how these features will be preserved.

(b) Site grading (excavation and filling) shall minimize destruction of natural vegetation, the potential for erosion, sedimentation and stormwater runoff and the threat to the health, safety and welfare of neighboring property owners and the general public.

(c) Erosion, sedimentation and stormwater runoff shall be controlled prior to, during, and after site preparation and construction.

(d) Soils exposed by site preparation shall remain so for the shortest practical period of time during site clearing, construction and restoration.

(e) Areas exposed by site preparation shall be protected during site construction.

(f) Slopes created during the period of site development shall not be so steep that erosion or sedimentation may result or vegetation cannot be readily established. A maximum slope of 1 to 3 (or a slope of 33%) is perferrable. A slope of 1 to 2 requires a longer period for vegetation to become established.

(g) All fill material shall be of a composition suitable for fill, and free of brush, stumps, and other debris. No organic material shall be disposed of on site.

(h) Site preparation and construction activities shall not result in the encroaching on, or blocking or restriction of swales, storm sewer systems, wetlands or surface waters.

(i) Fill material shall be compacted to prevent erosion or settling.

(j) All top soil removed during site preparation and construction shall be stockpiled and protected in a manner so that erosion from the soil pile will not occur.

(k) A stormwater drainage system shall be provided during and after construction such that sediments or stormwater will not in anyway damage public or private downstream property.

SECTION FIVE: LAND DISTURBANCE PERMIT FEE

Upon filing an application for a permit, the applicant shall pay to the (municipality) a fee if the permit may be required under Sections 3.1 and 3.2 of this ordinance. The fee shall be deemed a reasonable sum to cover the costs of administration and shall in no part be returnable to the applicant.

SECTION SIX: VARIANCES

A variance may be authorized by the Zoning Board of Appeals of (local unit) upon receipt of an application from a property owner which demonstrates an undue hardship from the imposition of such regulations.

Prepared by the LIRPB as a part of the 208 Implementation Project.

SECTION SEVEN: INSPECTION, RESTORATION AND FINES

6.1 Inspection.

Inspections for soil erosion, sedimentation, and runoff control plan compliance shall be conducted by the (governing body) to determine that the work has been completed in accordance with the soil erosion, sedimentation and runoff control plan. The plan may be modified by mutual agreement if, after installation, the _____ deems that the installed measures are not adequate to meet the performance standards.

6.2 Restoration.

Any clearing, excavation or development of land in violation of this ordinance shall be corrected forthwith after written notice by the (governing body). In the event that corrective action is not taken as directed within a reasonable time, the (municipality) may, at its own expense, take corrective action to restore the property. The cost thereof shall become a lien upon the property upon which such illegal activity occurred.

6.3 Fines.

Any person undertaking clearing, excavation or development of land in violation of this ordinance, upon conviction, shall be guilty of a misdemeanor, punishable by a fine of not less than ($), not more than ($). Such person shall be deemed guilty of a separate offense for each day during which a violation of this ordinance is committed or continues.

SECTION EIGHT: SEVERABILITY.

Each separate provision of this ordinance is deemed independent of all other provisions herein so that if any provision(s) of this ordinance be declared invalid, all other provisions thereof shall remain valid and enforceable.

SECTION NINE: EFFECTIVE DATE.

This ordinance shall take effect on _____ .

REALTY SUBDIVISIONS AND DEVELOPMENTS
ARTICLE 6-SUFFOLK COUNTY CODE

SUFFOLK COUNTY DEPARTMENT OF HEALTH SERVICES CODE OF ADMINISTRATIVE REGULATIONS CONCERNING REALTY SUBDIVISION AND DEVELOPMENT, WATER SUPPLY AND SEWAGE DISPOSAL FACILITIES

SECTION

601 Definitions
602 Department Approval of Subdivision or Development Plans
603 Applications for Approval
604 Filing Requirements
605 Sewage Facilities Requirements
606 Water Facilities Requirements
607 Variances
608 Sewage Facilities Requirements for Other Than Conventional Single-Family Residential Subdivisions and Developments.

Section 601 Definitions

As used in this code, unless the context otherwise requires:

a. **Department** means the Suffolk County Department of Health Services.

b. **Realty Subdivision** means a realty subdivision as defined in Section 1115 of the Public Health Law of the State of New York and Section 17-1501 of the Environmental Conservation Law as such statutes may be amended from time to time.

c. **Tract** means any real property, which now or in the future is held, owned, controlled or possessed, either singularly, jointly, commonly or otherwise, by a person or group of persons, or any legally cognizable entity or entities, or any combination of the foregoing, who are acting with reference to such body of land in concert or as part of a common scheme, plan or venture.

d. **Residential Parcel** means a single body of land or single building plot, site or unit, consisting of five (5) or less acres, which is located wholly or partially within the County of Suffolk any point on the boundary line of which is less than one-half mile of the boundary line of another such parcel in the same tract.

e. **Non-Residential Parcel** means a single body of land or single building plot, site or unit which is located wholly or partially within the County of Suffolk any point on the boundary line of which is less than one-half mile of the boundary line of another such parcel in the same tract.

f. **Development** means two, three or four contiguous parcels located wholly or partially within the County of Suffolk, or any tract of land located wholly or partially within the County of Suffolk which has, is or will be divided into two, three or four identifiable parcels.

g. **Developer** means any person or group of persons, or any legally cognizable entity or entities or any combination of the foregoing, who:

(1) is undertaking or participating in the establishment of a realty subdivision:

(a) either individually, or
(b) pursuant to a common scheme, plan

or venture, or

(2) owns, acquires, possesses, controls or creates a development.

h. **Clustered Realty Subdivision** means a realty subdivision consisting of one or more relatively undersized parcels, which is designed in such a manner so as to allow a substantial unimproved portion of the tract to stand open and uninhabited.

i. **Individual Water Supply System** means a single system of piping, tanks, or other facilities together with a source of water intended to supply only a single parcel.

j. **Individual Sewerage System** means a single system of piping, tanks, or other facilities serving only a single parcel and disposing of sewage or other liquid waste into the soil of such parcel.

k. **Community Water System** means a source of water and necessary appurtenances together with a distribution system serving more than one parcel, whether owned by a municipal corporation, private utility, or otherwise.

l. **Community Sewerage System** means a system utilized for the collection and disposal of sewage, or other waste of a liquid nature, including the various devices for the treatment of such wastes, serving more than one parcel whether owned by a municipal corporation, private utility, or otherwise.

m. **Groundwater Management Zone** means one of the eight (8) areas delineated in Suffolk County by the "Long Island Comprehensive Waste Treatment Management Plan (L.I. 208 Study)" to identify critical watersheds. The map indicating the boundaries of the Groundwater Management Zones is on file in the Department.

n. **Two-family Residence** means a dwelling unit designed for occupancy by two separate family units.

o. **Multi-family Housing** means dwelling units designed for occupancy by more than two separate family units.

p. **Commercial or Industrial Center** means a realty subdivision or development to be used for non-residential purposes.

q. **Subsurface Sewage Disposal System** means septic tank and leaching pools and interconnecting piping.

r. **Sewage Collection and Treatment Systems** means the structures, devices and processes installed for the purposes of collecting, treating and disposing sewage and sludge.

s. **Population Density Equivalent** means an expression of the quantity of domestic sewage in terms of the calculated population per unit area which would normally contribute the same amount of sewage.

Section 602 Department Approval of Realty Subdivision and Development Plans

1. No developer shall after the effective date of this article:

a. engage in the creation of a realty subdivision, or sell, rent, offer for sale or lease any parcel in a realty subdivision unless Department approval has been obtained of the existing or proposed water supply and sewage disposal facilities in the subdivision;

b. engage in the creation of a development, or lease, rent, give devise, or otherwise dispose of any parcel in a development or erect or cause to be erected any permanent building on any parcel in the development unless Department approval has been obtained for the existing or proposed water supply and sewage disposal facilities in the development.

2. A tract of land which is, has been, or will be, divided shall constitute a development or realty subdivision notwithstanding:

a. the method or purpose of such division, or the allowable types of use applicable to such tract, whether commercial, residential, industrial, or other authorized use under local ordinances;

b. the method used to describe such tract whether by metes and bounds, or by reference to a map of the property, or otherwise.

Section 603 Applications for Approval

1. Applications for Department approval of existing and/or proposed water supply and sewage disposal facilities, as required by Section 602 above, shall:

a. conform with the standards and regulations prescribed in this code; and

b. conform with all other Department bulletins, regulations, and requirements; and

c. be made on forms provided by the Department; and

d. be accompanied by such maps, plans, reports, specifications and data as the Department may require or direct.

2. Plans other than those for community water and/or sewerage systems shall indicate water and/or sewerage systems located upon each parcel.

3. Plans other than those for community water and/or sewerage systems shall not propose to furnish water to more than one parcel and/or dispose of sewage from more than one parcel.

4. Where the developer proposes to obtain and furnish water supply and/or sewerage facilities for a realty subdivision or development by connection to an existing community water and/or sewerage system, the developer shall supply the Department with a certification in writing by the owner of the utility that such facilities will be furnished and kept available in good operating condition for the realty subdivision or development.

5. The Department, in its discretion, may require the developer to furnish a performance bond to the owner of such utility conditioned upon the developer's making connection to the utility within a specified reasonable period of time.

Section 604 Filing Requirements

Every developer who obtains Department approval of a realty subdivision or development, as required by Section 602, shall thereafter file a map of such realty subdivision or development, bearing the stamp of approval of the Department, in the Office of the Clerk of the County of Suffolk within six (6) months of the date of approval of the Department.

Section 605 Sewage Facilities Requirements

1. A community sewerage system method of sewage disposal is required when any of the following conditions are present:

a. the realty subdivision or development, or any portion thereof, is located within an existing sewer district.

(1) This requirement shall apply in the absence of proof satisfactory to the Department that the developer cannot effect arrangements for the installation and/or connection of the sewerage system to the existing sewer district.

b. the realty subdivision or development is located in an area where the subsoil or groundwater conditions are not conducive to the proper functioning of individual sewerage systems;

c. the realty subdivision or development is locaated outside of Groundwater Management Zones III and VI, and any parcel in the realty subdivision or development is less than 20,000 square feet in area, unless the realty subdivision or development meets the population density equivalent requirements of paragraph 2a of this section; or

d. the realty subdivision or development is located within Groundwater Management Zones III and VI, and any parcel in the realty subdivision or development is less than 40,000 square feet in area, unless the realty subdivision or development meets the population density equivalent requirements of paragraph 2b of this section.

2. Individual sewerage systems may be approved by the Department as to the method of sewage disposal provided all of the following conditions are met:

a. the realty subdivision or development is located outside of Groundwater Management Zones III or VI, and all parcels in the realty subdivision or development consist of an area of at least 20,000 square feet; or in the case of a clustered realty subdivision or development, the population density equivalent is equal to or less than that of a realty subdivision or development of single-family residences in which all parcels consist of an area of at least 20,000 square feet.

b. the realty subdivision or development is located within Groundwater Management Zones III or VI, and all parcels in the realty subdivision or development consist of an area of at least 40,000 square feet; or in the case of a clustered realty subdivision or development, the population density equivalent is equal to or less than that of a realty subdivision or development of single-family residences in which all parcels consist of an area of at least 40,000 square feet;

c. the realty subdivision or development or any portion thereof, is not located within an existing sewer district and is located in an area where subsoil and groundwater conditions are conducive to the proper functioning of individual sewerage systems; and

d. the individual sewerage systems comply with the Department's current Standards and the minimum State requirements as set forth in 10 NYCRR, Part 75, to the extent applicable to Suffolk County; and

e. the requirements of Section 606 hereof are complied with.

Section 606 Water Facilities Requirements

1. A community water system method of water supply is required when any of the following conditions are present:

a. the realty subdivision or development, or any portion thereof, is located within an existing water district or service area; or

b. the realty subdivision or development is reasonably accessible to an existing water district or service area; or

(1) This requirement shall apply in the absence of proof satisfactory to the Department that the developer cannot effect arrangements for the installation and/or connection of the water system to the existing water district or service area facilities;

c. individual wells cannot provide an average yield of five (5) gallons per minute of fresh, potable water; or

d. groundwaters in the area are non-potable, or potentially hazardous; or

e. any parcel in the realty subdivision is less than 40,000 square feet in area.

2. The following are minimum requirements for community water systems:

a. Community water systems shall be capable of delivering water at an average rate of 100 gal/capita/day when service connections are unmetered, or 75 gal/capita/day when service connections are metered.

b. Community water systems shall be designed to deliver water meeting the quality requirements of the New York State Sanitary Code.

c. Community water systems shall provide for continuity of water service to the satisfaction of the commissioner.

d. The community water supply system shall have at least two (2) separate wells as a source of supply.

e. Community water systems shall have at least one day's available storage at design average consumption.

f. The relevant provisions of Part 5 of the New York State Sanitary Code and Bulletin 42 of the New York State Department of Health entitled "Recommended Standards for Water Works" will be the basis upon which all plans, specifications and reports for community water systems will be reviewed for approval by the Department.

3. Individual water supply systems may be approved by the Department as the method of water supply for a realty subdivision or development, provided all of the following conditions are met:

a. all parcels in the realty subdivision or development consist of an area of at least 40,000 square feet; and

b. the realty subdivision or development, or any portion thereof, is not located within an existing water district or service area and is not reasonably accessible thereto, and individual wells can provide an average yield of five (5) gallons per minute of fresh, potable water; and

c. the individual water supply systems comply with the Department's current Standards and the minimum State requirements as set forth in 10 NYCRR, Part 75, to the extent applicable to Suffolk County.

Section 607 Variances

1. The Commissioner of the Department of Health Services, in his discretion, upon written application, may grant a variance from a specific provision of this code, in a particular case, subject to appropriate conditions, where such variance is in harmony with the general purposes and intent of this code, after such variance application has been considered by a Department Review Board.

2. Requirements of this article shall not apply to:

a. realty subdivisions which have previously been approved by the department or the New York State Department of Health, and have been filed in the Office of the Clerk of the County of Suffolk;

b. developments which have previously been approved by the department;

c. developments which have been approved by a town or village planning or zoning board of appeals prior to the effective date of this article and which met the requirements of the department in effect at that time.

d. parcels in single and separate ownership on previously filed maps which are not exempted by a, b, or c above, provided that such parcels were held as single and separate parcels prior to January 1, 1981.

Section 608 Sewage Facilities Requirements for Other Than Conventional Single-Family Residential Subdivisions and Developments

1. A community sewerage system method of sewage disposal is required for a realty subdivision or development for the purposes of a cluster realty subdivision, two-family residences, multiple family housing or commercial or industrial centers when any of the following conditions are present:

a. the realty subdivision or development is located within Groundwater Management Zones III and VI, and the population density equivalent is greater than that of a realty subdivision or development of single-family residences in which all parcels consist of an area of at least 40,000 square feet;

b. the realty subdivision or development is located outside of Groundwater Management Zones III and VI, and the population density equivalent is greater than that of a realty subdivision or development of single-family residences in which all parcels consist of an area of at least 20,000 square feet;

c. the realty subdivision or development, or any portion thereof, is located within an existing sewer district.

(1) This requirement shall apply in the absence of proof satisfactory to the Department that the developer cannot effect arrangements for the installation of the sewerage system to the existing sewer district.

d. the realty subdivision or development is located in an area where the subsoil or groundwater conditions are not conducive to the proper functioning of individual or subsurface sewerage systems.

2. Individual or subsurface sewerage systems may be approved by the Department as to the method of sewage disposal for a realty subdivision or development for the purposes of a cluster realty subdivision, two-family residences, multiple family housing or commercial or industrial centers provided all of the following conditions are met:

a. the realty subdivision or development is located within Groundwater Management Zones III and VI, and the population density equivalent is equal to or less than that of a realty subdivision or development of single-family residences in which all parcels consist of an area of at least 40,000 square feet;

b. the realty subdivision or development is located outside of Groundwater Management Zones III and VI, and the population density equivalent is equal to or less than that of a realty subdivision or development of single-family residences in which all parcels consist of at least 20,000 square feet;

c. the realty subdivision or development, or any portion thereof, is not located within an existing sewer district and is located in an area where subsoil and groundwater conditions are conducive to the proper functioning of individual or subsurface sewerage systems; and

d. the individual sewerage or subsurface systems comply with the Department's current Standards and the minimum State requirements as set forth in 10NYCRR, Part 75, to the extent applicable to Suffolk County.

Adopted 11/19/80
Amended 4/15/81
Amended 6/3/81
Amended 6/24/81
Amended 1/12/83

VEGETATION PROTECTION ORDINANCE
TOWN OF SOUTHAMPTON CODE

Chapter 62

§ 62-1. Short title.

§ 62-2. Purpose.

§ 62-3. Definitions.

§ 62-4. Prohibitions.

§ 62-5. Applicability.

§ 62-6. Penalties for offenses.

[HISTORY: Adopted by the Town Board of the Town of Southampton 5-8-79 as Ord. No. 60. Amendments noted where applicable.]

§ 62-1. Short title.

This ordinance shall be known and may be cited as the "Vegetation Protection Ordinance of the Town of Southampton."

§ 62-2. Purpose.

The Town Board of the Town of Southampton finds that trees and other vegetation perform numerous important and essential functions, including but not limited to the stabilization and preservation of soil, maintenance of watershed areas which are essential to the town's fresh water supply; absorption of air pollution and production of oxygen; establishment of natural barriers to noise, and habitats for wildlife; and creation of a desirable aesthetic quality which is a key factor in the town's existence as a rural resort community. The Town Board further finds that the destruction or removal of trees and other vegetation deprives all sectors of society of these benefits while disrupting ecological systems of which they are an integral part, and that regulation of such destruction or removal will protect and preserve property within the town and promote the general welfare and health of its inhabitants.

§ 62-3. Definitions.

In this ordinance, unless the context requires otherwise, the following terms shall have the meanings indicated:

PERSON — Shall not include any governmental body or subdivision or agent thereof.

VEGETATION — Shall include trees, shrubs, bushes, grasses, flowers and similar plant life.

§ 62-4. Prohibitions.

It shall be unlawful for any person to mar, remove, damage, deface or destroy any vegetation as defined in this ordinance, whether or not such vegetation is living, under any of the following circumstances:

A. On the private property of another without the express prior written consent of the owner and the occupant of such property. Such consent may be revoked at any time by the grantor thereof. Where such express prior written consent has been obtained, the person to whom the same was given shall keep such consent on his person and available for

immediate display at all times during such activity pertaining to vegetation as set forth herein. Such express prior written consent shall not be deemed a consent hereunder as to any person whose name is not set forth therein. Failure to produce such express prior written consent upon demand therefor by any peace or police officer shall be presumptive evidence that such consent has not been given or received; or

B. On any public grounds or property within the town, outside incorporated villages, without the express written authorization of the Town Board or its duly designated agent. The provisions of Subsection A of this section applicable to express prior written consents shall be applicable to Town Board authorization under this subdivision.

§ 62-5. Applicability.

The provisions of this ordinance shall apply to all lands within the Town of Southampton which lie outside incorporated areas.

§ 62-6. Penalties for offenses.

Any person who shall violate any of the provisions of this ordinance shall be guilty of a violation, punishable by a fine of not more than two hundred fifty dollars ($250.) or by imprisonment for not more than fifteen (15) days, or by both such fine and imprisonment.

TREE PROTECTION
TOWN OF BROOKHAVEN CODE

Chapter 70

§ 70-1. Legislative intent.

§ 70-2. Definitions.

§ 70-3. Destruction of trees prohibited.

§ 70-4. Exemptions.

§ 70-5. Administration.

§ 70-6. Applications and permits.

§ 70-7. Effect on parking space requirements.

§ 70-8. Penalties for offenses.

§ 70-9. Severability.

§ 70-10. When effective.

[HISTORY: Adopted Brookhaven Town Board 11-22-77 as Local Law No. 7, 1977, effective 12-12-77. Amendments noted where applicable.]

GENERAL REFERENCES

Tree and debris disposition — See Ch. 72.
Subdivision regulations — See Appendix, Part I.

§ 70-1. Legislative intent.

The vital environmental function which trees serve within the ecological structure of the Town of Brookhaven is well recognized. Trees are recognized to provide various benefits to the environment, including the stabilization and preservation of the soil, the absorption of air pollutants and the provision of oxygen and further provide natural barriers to noise and habitats for wildlife, while maintaining and offering an intrinsic aesthetic quality. The destruction or removal of trees deprives all sectors of society of these benefits while disrupting the ecological systems of which they are an integral part. Thus, it is the intent of the Town Board of the Town of Brookhaven in enacting this local law to regulate the destruction and removal of trees to secure these various benefits for the present and future inhabitants of the Town of Brookhaven.

§ 70-2. Definitions.

For the purpose of this local law, the following terms and phrases shall be given the meanings stated herein:

APPLICANT — The owner of real property, or his duly authorized agent, seeking a permit to remove trees pursuant to the provisions of this local law.

PERSON — Any firm, partnership, association, corporation, company, public utility or individual.

PLANNING BOARD — The Planning Board of the Town of Brookhaven.

TREE — Any living, perennial, woody plant, its branches, its root system and its trunk, if greater than three (3) inches in diameter, measuring three (3) feet from ground level and six (6) feet in height measured from ground level.

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[1] Editor's Note: Former Ch. 70, Traffic Violations Bureau, adopted 6-28-60, effective 8-1-60, was repealed 5-5-70, effective 6-2-70.

§ 70-3. Destruction of trees prohibited.

No person shall destroy or remove from the soil any tree growing upon a parcel of real property which is in excess of two (2) acres in size or commit any act which causes the destruction or cessation of life functions of any tree growing upon such real property, without first having obtained a permit issued therefor as prescribed by this local law. In determining the area of a parcel of real property for the purpose of this local law, whenever any two (2) or more contiguous parcels of property are subject to common ownership, such two (2) or more parcels are deemed merged and the total area thereof shall be the determinant size for the application of this section.

§ 70-4. Exemptions.

A. No person shall be required to obtain a permit as prescribed by § 70-3 of this local law for the destruction or removal of trees incidental to surveying and soil investigation activities.

B. Any person doing business as a public utility subject to the jurisdiction of the New York State Public Service Commission and any duly constituted public agency authorized to provide utility services shall be permitted to trim, prune or alter any tree which may otherwise be lawfully altered by such person, to the minimum extent necessary to enable such person to repair existing utility services, without having first obtained a permit issued therefor pursuant to § 70-3 of this local law.

C. The provisions of this local law shall not apply to real property included in any approved subdivision or approved site plan when such approval was granted by the Planning Board prior to the effective date of this local law.

D. Any person required by the Code of the Town of Brookhaven to submit application to the Planning Board for approval of a proposed subdivision or site plan after the effective date of this local law shall submit with such application the information required for a permit pursuant to § 70-6 of this local law. No subdivision or site plan shall be approved by the Planning Board without due consideration of such information. Approval of a subdivision or site plan pursuant to this section shall relieve the applicant for such approval of the necessity to obtain a permit required by § 70-3 of this local law, and the approval of such subdivision or site plan shall constitute adequate compliance with this local law.

E. Any person who has filed an application for approval of a subdivision or site plan prior to the effective date of this local law and has not received approval of same prior to the effective date of this local law shall submit to the Planning Board such information relative to the preservation of trees as the Planning Board may request.

F. The New York State Department of Environmental Conservation shall be permitted to trim, prune or remove trees pursuant to the New York Environmental Conservation Law without the necessity of obtaining a permit pursuant to this local law.

§ 70-5. Administration.

This local law shall be administered by the Planning Board, which shall have the authority to promulgate rules and regulations for the effective administration of this local law consistent with the legislative intent of this local law. The Planning Board shall have the authority to delegate the administration of this local law to its departmental personnel.

§ 70-6. Applications and permits.

A. Every applicant for a permit required by this local law shall submit an application to the Planning Board on such form as may be prescribed by the Planning Board. Such application shall include the following information:

(1) The name and address of the applicant and owner, if not the same.

(2) The purpose of the proposed tree removal.

(3) The site of the proposed tree removal.

(4) An attached sketch or plan of the area clearly indicating the following:

(a) An outline of existing heavily wooded areas on the site.

(b) The location of any improvements on the property.

B. In acting upon the application, the Planning Board shall take into account the following considerations:

(1) The location and size of the tree or trees to be removed.

(2) The condition of the trees with respect to disease and potential for creating hazardous conditions.

(3) The proximity of the trees to existing or proposed structures and utility appurtenances.

(4) The necessity of the removal for the proposed project.

(5) The environmental effect of the removal.

(6) Any of the considerations enumerated in the legislative intent of this local law.

C. The Planning Board shall evaluate the considerations of § 70-6B upon the advice and recommendations of the Town of Brookhaven Department of Environmental Protection.

D. The Planning Board shall advise the applicant in writing of its decision on the application and, upon the favorable determination of such application, issue a permit therefor.

§ 70-7. Effect on parking space requirements.

In the event that an applicant for site plan approval who submits with the application the information required pursuant to §§ 70-4D and 70-6A is required by the Planning Board to preserve trees and such preservation results in a decrease of the number of available parking spaces otherwise required by the applicable provisions of the Code of the Town of Brookhaven, the Planning Board shall have the authority to waive such parking space requirements commensurate with the number of spaces lost, in acting upon the application for site plan approval.

§ 70-8. Penalties for offenses.

A. Criminal penalties. Any person who destroys or removes any tree without having first obtained a permit issued therefor pursuant to this local law or who destroys or removes any tree in a manner inconsistent with such permit or the requirements of an approved subdivision or site plan shall be guilty of a violation punishable by a fine of not less than two hundred fifty dollars ($250.) nor more than five hundred dollars ($500.) or by imprisonment for a period not to exceed fifteen (15) days, or by both such fine and imprisonment.

B. Civil penalties. In addition to any criminal penalties which may be imposed pursuant to § 70-8A, any person who violates any provision of this local law may be ordered to restore the premises damaged by the unlawful destruction or removal of trees to such suitable conditions as the Planning Board may require. In the event such person refuses or fails to restore the real property to a condition ordered by the Planning Board, the Planning Board or the Town Board may proceed in a court of competent jurisdiction for an order directing such person to restore such real property in conformity with the requirements of the Planning Board. In the event the Town of Brookhaven is compelled to restore such real property, all costs incurred incidental to such restoration shall be assessed against the real property in question.

§ 70-9. Severability.

If any clause, sentence, paragraph, section or part of this local law shall be adjudged by any court of competent jurisdiction to be invalid, the judgment shall not affect, impair or invalidate the remainder of this local law but shall be confined in its operation to the clause, sentence, paragraph, section or part of this local law that shall be directly involved in the controversy in which such judgment shall have been rendered.

§ 70-10. When effective.

This local law shall become effective on the 20th day after its adoption by the Town Board pursuant to the New York State Municipal Home Rule Law.

SITE CLEARING AND VEGETATION PROTECTION

PROPOSED ORDINANCE

LONG ISLAND REGIONAL PLANNING BOARD

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT, PURPOSE AND OBJECTIVES

1.1 Statutory Authorization.

The Legislature of the State of New York under Article 53 of the Environmental Conservation Law and Section 96-b of the General Municipal Law has authorized the (governing body) of (municipality) to protect the health safety and welfare of the community by implementing a program designed to protect and conserve trees and related vegetation thereby maintaining natural watershed areas, habitats for wildlife and a desirable aesthetic quality.

1.2 Findings of Fact.

(a) Areas of the (municipality) are subject to loss of wetlands, habitats for wildlife and rare and endangered species and other environmental resources as a result of the removal of vegetative cover from construction sites. Erosion and attendant sedimentation contribute nutrient and coliform loadings to marine surface waters, thus, degrading their quality. Sediment can have a detrimental effect on wetlands and on both finfish and shellfish populations, smothering their eggs and reducing their overall food supply.

(b) Four types of construction related land clearance - active development, inactive development, intermittent development, and speculative land clearing - can result in the unnecessary and premature removal of vegetation thus exacerbating erosion and sedimentation problems.

(c) The implementation of regulations to control the removal of vegetation can be expected to reduce the loss of soil, and to minimize adverse impacts on groundwater, fresh and marine surface waters, and fish and shellfish.

1.3 Statement of Purpose.

It is the purpose of this ordinance to conserve soil resources and maintain groundwater and surface water quality by the establishment of regulations to control the removal of vegetation thus furthering the objectives stated below:

(a) To protect the health, safety and welfare of the community.
(b) To protect wetlands, wildlife habitats, rare and endangered species, significant stands of vegetation, aquifer recharge areas and other environmental resources.
(c) To prevent the loss of valuable topsoil.
(d) To minimize erosion on steep slopes, bluffs and stream banks.
(e) To protect surface water quality.
(f) To protect fish and shellfish resources.
(g) To minimize public expenditures for dredging activities.

SECTION TWO: DEFINITIONS

For the purpose of this local law, the following terms and phrases shall be given the meanings stated herein:

Applicant - The owner of real property, or his duly authorized agent, seeking a permit to remove trees pursuant to the provisions of this local law.

Clear Cutting - The felling of all trees in an area at one time.

Disturbed Area - An area in which the natural vegetative or soil cover has been removed or altered, and the soil is therefore susceptible to erosion.

Erosion - Wearing away of the land as a result of natural forces or man-related activities.

Ground Cover - Plants which are low-growing and provide a thick growth that protects the soil as well as providing some beautification of the area occupied.

Person - Any individual, corporation, governmental agency, business trust, estate trust, partnership, association, two or more persons having a joint or common interest, or any other legal entity.

Planning Board - The Planning Board of the municipality.

Sediment - Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Shoreline - The landward limit of the high water of a body of water.

Shrub - A perennial woody plant that differs from a tree by its low growth and multiple stems.

Slope - The inclination of the surface of the land from the horizontal. Slopes are categorized as follows:

0-3.0 degrees	(0-5%) level
3.0-8.5 degrees	(5-15%) gentle
8.5-16.5 degrees	(15-30%) moderate
16.5-26.5 degrees	(30-50%) steep
26.5-45 degrees	(50-100%) very steep

greater than 45 degrees (greater than 100%) precipitous

Tree - Any living, perennial, woody plant, its branches, its root system and its trunk, if said trunk is greater than three (3) inches in diameter measure three (3) feet from ground level.

SECTION THREE: GENERAL PROVISIONS

3.1 Lands To Which This Ordinance Applies.

This ordinance shall apply to all property within the jurisdiction of (municipality).

3.2 Activities Requiring a Permit.

None of the following activities shall begin until a permit has been issued under the provisions of this ordinance.

(a) Grading or stripping which affects more than twenty thousand (20,000) square feet of ground surface within any parcel or any contiguous area.
(b) Excavation or filling which affects more than three hundred (300) cubic yards of material within any parcel or any contiguous area.
(c) Site preparation on slopes which exceed fifteen feet of vertical rise to one hundred feet in horizontal distance (or site preparation in areas of severe erosion potential, if such areas have been mapped for the jurisdiction).
(d) Site preparation within 300 feet of wetlands.
(e) Site preparation within the one hundred year floodplain of any watercourse.

3.3 Exemptions

(a) Any person doing business as a public utility subject to the jurisdiction of the New York State Public Service Commission and any duly constituted public agency authorized to provide utility services shall be permitted to trim, prune or alter any tree which may otherwise be lawfully altered by such person, to the minimum extent necessary to enable such person to repair existing utility services, without having first obtained a permit issued therefor pursuant to *Section Three* of this law.
(b) The provisions of this law shall not apply to real property included in any approved subdivision or approved site plan when such approval was granted by the Planning Board prior to the effective date of this local law.
(c) Any remodeling or additions to existing structures unless such structures are located on or adjacent to such environmentally sensitive features as bluffs, dunes, wetlands

and moderate and steep slopes equal to or greater than fifteen (15) percent.

(d) The removal of vegetation which can reasonably be expected to adversely affect the public health (eg. poison ivy, poison oak) in those situations in which the public can reasonably be expected to come into contact with such vegetation.

(e) Thinning of natural vegetation where necessary to maintain the health and vigor of trees, shrubs and ground cover.

3.4 Compliance.

(a) All development, construction, excavation and landscaping activities shall be in accordance with the approved stormwater runoff, planting and erosion-sedimentation control plans (see Ordinances #16 and 18) and the requirements of this ordinance.

(b) The (municipality) shall not issue a certificate of occupancy upon completion of construction unless all cleared soils on the property shall be stabilized in accordance with the approved landscape plan or an approved alternative.

(c) For properties of ____ acres or more the builder or developer shall post a performance bond to assure the implementation of the approved landscape plan.

3.5 Performance Bonding.

After the approval of the application and before the issuance of any permit the applicant will be required to furnish a performance bond, in the amount necessary to cover the estimated costs for the installation of the required landscape plan, to be retained by the (municipality) for a period of up to one year following municipal inspection and certification of completion of development or construction in order to assure compliance with the provisions of the ordinance.

3.6 Interpretation.

(a) This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions which impose more stringent restrictions on development, construction, excavation or filling. Where more than one provision of this ordinance applies to a given property, whichever provision imposes the more stringent restrictions shall prevail. Where this ordinance conflicts with or overlaps another ordinance or statute pertaining to the protection of property, whichever imposes the more stringent restrictions on development, construction and excavation shall prevail.

SECTION FOUR: PERMITS

4.1 No person shall undertake any clearing or removal of vegetation, development, construction or excavation within (municipality) without having first obtained a building permit from the (municipality). Vegetation removal permits shall be required for site clearance activity identified in Section 3.2 of this ordinance. A landscape plan shall be required for any proposed site disturbance involving an area in excess of 20,000 square feet.

The (municipality) may issue such a permit upon receipt of a completed application and a finding to the effect that the application shall include:

1. The name and address of the applicant and owner, if not the same.
2. A description of existing physical and vegetative site conditions eg. trees, ground cover etc.;
3. Grading and planting plans indicating the percent of the site to be disturbed and the boundaries of site disturbance;
4. A site development schedule;
5. A contingency seeding/planting plan if construction plans are suspended;
6. A vegetation restoration plan showing how vegetation will be restored in undeveloped cleared areas and indicating proposed boundaries of the groundcover, other planting areas and lawn area, if a lawn is planned.

4.2 Performance Standards.

The plan shall meet the following performance standards:

(a) Existing natural vegetation (trees and shrubs, and related vegetation) except those within the permitted clearance (see Table 1) shall be conserved and otherwise protected.
(b) Any construction related clearing of trees and shrubs not in accordance with an approved landscape plan shall be prohibited.
(c) Tree and other natural vegetation removal for construction, affecting sites in Critical Environmental Areas, or that would result in the destruction of rare or endangered species on slopes greater than 25%, within 100 feet of the top of a bluff or within 50 feet of the shoreline shall not be permitted.
(d) Vegetation on slopes greater than 35% shall not be disturbed.
(e) Upon completion of construction, all soils on the property shall be stabilized with trees, shrubs and related vegetation that are adapted to the site and purpose of planting.

Note: The plan shall meet the performance standards in the Handbook Ordinances #18 and #19.

TABLE 1

Site Clearance Limits for Lots Located in Undeveloped Forested Areas

Lot Size Square Feet	Builders Acre	Maximum Allowable* Site Clearance %	Sq. Ft.
10,000	1/4	Minimize Site Clearance	
15,000	1/3		
20,000	1/2	30%	6,000
40,000	1	40%	16,000
80,000	2	45%	36,000
200,300 (Approximate)	5	60%	120,180

* In Special Groundwater Protection Areas, Special Surface Water Protection Areas, in areas adjacent to sensitive environmental areas the maximum allowable site clearance should be limited to *(suggest 10-15% of the property)* for parcels of one acre or larger.

4.3 Review

Upon application by the owner of the affected property, the Planning Board of (municipality) shall review the landscape plan and may, after public notice and hearing approve or reject such plan in accordance with the provisions of this ordinance. The Planning Board shall review the plan taking into account the following considerations:

(a) the location and size of the tree or trees to be removed.
(b) The condition of the trees with respect to disease and the potential for creating hazardous conditions.
(c) The proximity of the trees to existing or proposed structures and utility appurtenances.
(d) The necessity of the removal.
(e) The environmental effect of the removal.
(f) Any of the considerations enumerated in the legislative intent of this local law.

SECTION FIVE: LAND DISTURBANCE PERMIT FEE

Upon filing an application for a permit, the applicant shall pay to the (municipality) a fee of _____ if the permit may be required under Sections 3.1 and 3.2 of this ordinance. The fee shall be deemed a reasonable sum to cover the costs of administration and shall in no part be returnable to the applicant.

SECTION SIX: VARIANCES

A variance to the regulations contained in section 4.1 may be authorized by the Zoning Board of Appeals of (municipality) upon receipt of an application from a property owner showing that he/she would suffer an undue hardship from the imposition of such regulations and that a waiver of the regulations, or a portion thereof, would not cause significant damage to the environment.

SECTION SEVEN: INSPECTION, RESTORATION, AND FINES

7.1 Restoration.

Any development, construction or excavation undertaken in violation of this ordinance shall forthwith be corrected after written notice by the (local authority). In the event that corrective action is not taken as directed within a reasonable time, the (governing body) may, at its own expense, take corrective action to restore the property. The cost thereof shall become a lien upon the property upon which such illegal activity occurred.

7.2 Fines

Any person undertaking development, construction or excavation in violation of this ordinance is guilty of a misdemeanor, punishable by a fine of not less than ($), nor more than ($). Such person shall be deemed guilty of a separate offense for each day during which a violation of this ordinance is committed or continues.

SECTION EIGHT: SEVERABILITY

Each separate provision of this ordinance is deemed independent of all other provisions herein so that if any provision(s) of this ordinance be declared invalid, all other provisions thereof shall remain valid and enforceable.

SECTION NINE: EFFECTIVE DATE.

This ordinance shall take effect on _____ .

Prepared by the LIRPB as a part of the 208 Implementation Project. Portions of this ordinance were adapted from Town of Brookhaven Tree Preservation Ordinance.

THE GENERAL REGRADING AND EXCAVATING ORDINANCE PROTECTION OF TOPSOIL

TOWN OF SHELTER ISLAND CODE

ORDINANCE NO. 25

PROTECTION OF TOPSOIL

501.6 No excavation shall be permitted without an adequate plan for finished grading and general rehabilitation of the area consistent with the declared policy of the Town of Shelter Island as found in Section 100 of this Ordinance. Such finished grading and general rehabilitation shall be covered by the performance bond.

TOPSOIL STRIPPING

502.1 No stripping or removal of topsoil shall be made within 10 feet of any property line.

502.2 The collection and storage upon the property of the original topsoil to permit general regrading and excavation work shall be so carried out that it shall not be buried or mixed with material of inferior quality.

502.3 When topsoil has been stripped, collected and stored or removed from the property, there shall be left, or replaced, not less than 6 inches of topsoil upon the surface of the land.

502.4 Dust-down, or its equal, shall be spread to prevent dust from flying.

502.5 No topsoil shall be stripped between the first day of October and the first day of April in the following year.

502.6 All areas from which topsoil is stripped shall during the period between August 20th and October 1st, inclusive, be reseeded as provided in Subsection 504 of this Ordinance, EXCEPT, when the stripping is preliminary to general regrading or excavating, or as provided in Section 100.

504 FINISHED GRADING AND REHABILITATION

504.1 After completion of excavating or stripping, the property shall be finish graded with a surface layer of not less than 6 inches of topsoil of a quality native to the site.

504.2 The finish grade shall promote and be consistent with the declared policy of the Town of Shelter Island as found in Section 100 of this Ordinance.

504.3 Unless the excavation shall be immediately refilled with clean, nonburnable fill containing no garbage, refuse, offal, or any deleterious or unwholesome matter, the property shall be finished graded with appropriate slopes to the level of the adjacent properties and the abutting streets or roads.

504.4 The finished grade shall form an appropriate part of the natural drainage area or some positive drainage system.

DOG WASTE CONTROL
PROPOSED ORDINANCE

LONG ISLAND REGIONAL PLANNING BOARD

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT

1.1 Statutory Authority

This ordinance is enacted pursuant to the provisions of paragraph 126 of Article 7 of the New York State Agriculture and Markets Law. Pursuant thereto, the (governing body) of (local unit) does ordain as follows:

1.2 Findings of Facts and Statement of Purpose

The (local unit) finds that the running at large and other uncontrolled behavior of dogs have caused physical harm to persons and damage to property and have created nuisances within the (local unit). The Long Island Comprehensive Wastewater Treatment Management Plan indicated and the Long Island segment of the Nationwide Urban Runoff Program supported the conclusion that non-human fecal material, primarily from dogs, is entering surface waters via stormwater runoff; thus contributing to the closure of productive shellfish beds. The purpose of this ordinance is to protect the health, safety and well-being of persons and property by imposing restrictions and regulations upon the keeping or running at large of dogs within the (local unit).

SECTION TWO: DEFINITIONS

Except as defined below words or phrases used in this ordinance shall be interpreted so as to give the meaning they have in common usage and to give this ordinance its most reasonable application.

At Large
Off the premises of the owner and not under the control of the owner or member of his family, whether by leash, cord or chain. No dog shall be deemed "at large" if it is accompanied by and under the immediate supervision and control of the owner or other responsible person, is a police work dog in use for public work or is accompanied by its owner or other responsible person and is actively engaged in hunting, or training for hunting on unposted land or on posted land with the permission of the owner of the land.

Dog
Any live dog *(Canis familiaris).* The word "dog" as used herein shall include the singular and the plural and should include both the male and the female.

Harbor
To provide food or shelter to any dog.

Owner
Any person or persons, firm, association, or corporation owning, keeping or harboring a dog.

The word "shall" is mandatory and not discretionary.
The word "may" is permissive.

SECTION THREE: GENERAL PROVISIONS

3.1 Lands To Which This Ordinance Applies.

This ordinance shall apply to _____ within the jurisdiction of (municipality).

3.2 Nuisances

No person owning, harboring, keeping or in charge of any dog shall cause or allow such dog to soil, defile, defecate or commit any nuisance on any common thoroughfare, sidewalk, passageway, bypath, play area, park or any place where people congregate or walk or on any public property whatsoever, or on any private property without the permission of the owner of said property.

3.3 Waste Disposal

Should such dog soil, defile, defecate or commit any nuisance on any of the above mentioned areas, it shall be a responsibility of the owner to remove said fecal material. The fecal material shall be placed in a plastic bag, sealed, and then be deposited in a municipal or residential refuse can.

3.4 Leash Requirement

It shall be unlawful and an infraction hereunder for any owner of any dog to allow such dog, whether licensed or unlicensed, to be at large within the (local unit).

3.5 Enforcement

This ordinance shall be enforced by any dog control officer, peace officer when acting pursuant to his special duties, or a police officer in the employ of or under contract to (local unit).

SECTION FOUR: FILING OF COMPLAINT

Any person who observes a dog in violation of this ordinance, may notify the dog control officer of the (local unit) in order to have the dog removed from the property or immediate area. The complainant shall provide information as to violation, date thereof, a description of the dog and name and residence of the owner of such dog, if known. Such complaint may serve as the basis for enforcing the provisions of this ordinance.

SECTION FIVE: PENALTIES FOR OFFENSES

Any person who shall violate any provision of this ordinance shall, upon conviction, be guilty of offense. Any person convicted of a violation of this ordinance shall be liable to a civil penalty not exceeding $25. Second and third time offenders shall be liable to a civil penalty not to exceed $50.00.

SECTION SIX: SEVERABILITY

Each separate provision of this ordinance shall be deemed independent of all other provisions herein, and if any provisions shall be deemed or declared invalid, all other provisions hereof shall remain valid and enforceable.

SECTION SEVEN: REPEALER

This ordinance shall supercede all prior local laws, ordinances, rules and regulations relative to the control of dog waste within the (local unit), and they shall be, upon the effective date of this ordinance, null and void.

SECTION EIGHT: EFFECTIVE DATE

This ordinance shall take effect on _____ .

Prepared by the LIRPB as a part of the 208 Implementation Project.

BOARDING STABLE USE ORDINANCE
VILLAGE OF OLD WESTBURY

Local Law No. 2 of 1975, is hereby repealed in its entirety and the Building Zone Ordinance is hereby amended by adding thereto a new paragraph 25 to read as follows:

Par. 1002.25. The commercial boarding and training of horses, including the boarding or training of horses belonging to the property owner which earn money racing, is permitted in a B or in a BB residential district as a special exception upon application to the Board of Trustees subject to the following terms and conditions, provided that there are no exemptions from or abatement of real property taxes affecting the property devoted to this use.

This section shall govern the harboring of horses except those kept by the owner of the principal dwelling as an accessory use, pursuant to Local Law No. 1 of 1975.

1. The permitted use may not include any of the following:

a. Storage of horse vans for conveying or vanning of horses, except as may be accessory to the principal use;

b. Sale or rental of equipment;

c. Sale or rental of horses for use by public by the hour, day, month or year;

d. Hacking of horses;

e. Rides on horses by the public;

f. Rides by the public on horse drawn vehicles;

g. Rental of horse vans;

h. Riding lessons to public.

2. The land devoted to this use shall be in single ownership and shall at no time be less than 14 contiguous acres.

3. One principal single family dwelling shall be located on the land devoted to this use and it shall: (a) comply in all respects with the requirements of this ordinance for a principal dwelling including land area (i.e., one acre or two acres, as the case may be) in the district in which it is situated, (b) be occupied by not more than one family. The land area on which the principal single family dwelling is located shall not be considered as part of the land "devoted to this use" as set forth in subdivision 2 of this section, nor shall the land area on which any other single family dwelling is located be considered as part of the land "devoted to this use" under subsection 2 of this section.

4. The number of horses that may be boarded and/or trained at such property shall not exceed 25 horses for the first 14 acres of land devoted to this use, plus one horse for each additional half acre. In no event shall the total number of horses exceed 75 for any contiguous parcel.

5. The stable and the facilities for the storage of manure shall be located on the land devoted to this use at least 200 feet from each boundary line.

6. If the land devoted to this use contains an exercise track and/or paddocks, they shall not be construed as "structures" as defined in section 200(30) of this Ordinance.

Existing tracks shall be permitted to remain as non-conforming uses for purposes of this section, provided said tracks were in use as training or exercise tracks at the time of the effective date of Local Law No. 2 of 1975.

7. Neither fences, the running surfaces of tracks, riding rings, paddocks nor the infield of any exercise track shall be construed as "structures" in determining the area of coverage as required by this section. However, exercise tracks, riding rings and fences shall meet the following requirements:

a. Any riding ring or exercise track shall be at least 150 feet from any boundary line.

b. Horses shall not be left unattended in any roofless area which is enclosed by a fence less than 6'6" in height unless the fence is set back at least 3 feet from the property line. By revocable written instrument the protection intended by this paragraph may be waived by an adjoining owner.

8. Accessory buildings such as barns (not housing horses) sheds and the like, may be located on the land devoted to this use provided that (a) they are set back at least 200 feet from the street line and 100 feet from each side boundary line and (b) they are not used for the storage of manure.

9. a. Structures on the land devoted to this use (not including the principal dwelling) shall not in the aggregate cover more than five percent of the area of the land devoted to this use.

b. No structure shall exceed 35 feet in height.

c. Suitable and adequate off-street parking, in accordance with the reasonable requirements of the Board of Trustees, shall be provided no closer than 200 feet to any of the property lines.

d. Exterior lighting shall be permitted only to the extent necessary to prevent injury to the public and shall be so installed and arranged as to reflect light away from the adjoining streets and prevent any nuisance to adjoining property.

e. No exterior loudspeakers shall be installed or used on the premises.

f. There shall be no display of advertising on the premises except that a suitable identification sign may be placed at or near the main entrance when approved by the Board of Trustees.

g. All stables shall be equipped with suitable devices for fire detection and alarm.

h. No horse vans, farm trucks or other commercial vehicles shall be parked on the premises in such location that such vehicles are visible from ground level from any surrounding residences or public roadways.

i. Buffer planting, walls and fences may be required where appropriate to contain the horses, to screen the building or buildings, or to protect adjoining property.

j. Manure shall be stored and treated in such a manner that it shall not create any odor or attract or harbor any rodents, flies or other pests. Between April 1 and October 31 manure shall be removed from the premises at least weekly.

k. The number of stalls and structural facilities for the shelter of horses shall not exceed those reasonably necessary to accomodate the number of horses permitted on the lot.

l. Suitable and adequate arrangements shall be made and continued for supervising and caring for the horses.

m. The land devoted to the boarding of horses shall be suitable for that purpose.

10. The Board of Trustees may grant the permit hereunder provided the following conditions are met and provided it affirmatively finds, based upon substantial evidence, that the proposed use of the property or the erection, alteration or maintenance of an existing or a proposed structure:

a. Will not depreciate or tend to depreciate the value of other real property in the Village;

b. Will not create a hazard to the health, safety, morals or general welfare;

c. Will not be detrimental to the neighborhood or to the residents thereof; and

d. Will not alter the essential character of the neighborhood.

The Board of Trustees, upon granting a permit hereunder shall impose such additional, reasonable and appropriate conditions and restrictions, including but not limited to modifying (by increasing or decreasing) demensional requirements as it may deem necessary to promote and maintain the health, safety, morals and general welfare of the community, and it shall consider the views of the owners of adjoining property. No permit granted hereunder shall be for a period in excess of five (5) years.

11. The standards set forth herein are not exclusive of other considerations, relating to health, safety and general welfare, all of which shall be considered by the Board of Trustees in determining whether to issue the permit.

12. In authorizing this use, the Board of Trustees may vary any of the requirements set forth herein provided it finds that the applicant will suffer practical difficulties in compliance and provided it finds that the health, safety, public welfare and property values of the community will not be adversely affected by the variance. In no event shall any of the requirements in subdivisions 1 and 4 be varied.

Article X of the Building Zone Ordinance shall not apply to any applicant under this section.

13. The Board of Trustees shall require as an application fee upon submission of an application hereunder to cover public notice, processing fees, inspection fees, legal fees, engineering and stenographic fees, a sum of $1,000 to be paid before the processing of any application hereunder. The fees charged for the aforesaid items shall be those customarily charged in the community, and if, after the completion of the application, a balance remains, it shall be refunded to the applicant.

14. As a condition to the issuance of any permit hereunder, the Board of Trustees may require the posting of a bond or other security in such form as shall be approved by the Village Attorney and in an amount sufficient for one or more of the following purposes: To insure the conformity of all improvements on the property with any plans approved by the Board of Trustees, to recompense the Village for the services of any professional help retained in considering the proposed use or any plans or proposals in respect thereto, to restore the lot to a safe and sightly condition should any construction or improvement thereon either fail to meet the requirements of this Ordinance or the conditions of the authorization by the Board of Trustees or be terminated before completion.

15. The maintenance of the structures and hygenic conditions connected with the use here permitted shall be under the continuous supervision of the Village and by the Nassau County Department of Public Health to the extent necessary. If conditions are found to exist which are dangerous to the health, safety and welfare of humans or horses, or if any of the requirements of this or any other section of the zoning ordinance or of any condition attached to the permit issued hereunder are not complied with by the operator of the boarding stable, the permit issued hereunder may be revoked or suspended by the Board of Trustees after public hearing.

16. To the extent not otherwise authorized by this section or by the terms of the permit issued by the Board of Trustees pursuant to this section, the other provisions of this Ordinance applicable to the uses, plot plans and structures in a B or BB Residence District, as the case may be, shall apply.

17. Every application to the Board of Trustees made pursuant to this subdivision shall conform to the regulations set forth in Sec. 1002, Subd. 15, par. 9 of this ordinance, and in addition, shall set forth what facilities will be provided to store hay and feed, to clean up, store and remove manure and to water the horses.

18. Before scheduling a public hearing on any application under this section, the Board of Trustees shall refer the application to the Planning Board for a report and recommendation, and the Planning Board shall hold a public hearing prior to making its report and recommendation. In addition, the Applicant shall give notice, by certified mail, of all public hearings to the owners of property adjoining the subject property.

19. After a permit has been issued pursuant to this section, the Building Inspector or his designee may enter the property without notice during reasonable hours without the necessity for a search warrant and make periodic inspections of the premises subject to the permit to determine and assure continuing compliance with the requirements of this ordinance and the permit. By accepting the permit the owner and operator of the premises automatically consents to inspection as set forth above by any authorized village representative at any reasonable time.

20. Upon issuance of a permit and annually thereafter the permittee shall pay to the village a fee equal to $50.00 times the number of stalls authorized by the permit.

21. The hours of operation which includes the vanning of horses into and from the land as well as the training of horses and all other aspects of the operation other than mere boarding, shall be between 7:00 A.M. and 11:00 P.M.

22. The final approval of a subdivision or partition of the property devoted to this use shall terminate the permit granted hereunder.

23. This Local Law shall take effect on November 1, 1976, and all applications made under Local Law No. 2 of 1975 presently pending before the Planning Board or the Board of Zoning Appeals shall comply with the terms of this section.

ANIMAL WASTE CONTROLS

VILLAGE OF OYSTER BAY COVE CODE

ARTICLE V

Uses in Residence "A-1" District.

Section 5.0 No building, lot or premises shall be used or maintained for any except the purposes enumerated below and for no other, and no building shall hereafter be erected, enlarged, remodeled, used, maintained or altered if as so erected or as a result of such enlargement, remodeling, use, or alteration, such building or any part thereof is arranged, designed or intended to be used for any except the uses enumerated below.

Such uses shall not include any uses customarily carried on as a business or any billboard or advertising sign except as hereinafter specifically perrmitted. This provision shall not be deemed to permit any driveway or walk giving access to premises used for business purposes or used for purposes not herein permitted in Residence "A-1" district.

(a) Single family detached principal dwelling.

(b) Accessory uses and accessory buildings which are customarily incidental to or accessory to the uses herein specifically permitted in said district and located on the same lot, such as:

1. Buildings defined in (c) of Section 2.0 of Article II.

2. Keeping of dogs, game and birds.

3. Occupants of a dwelling in a residential district shall only be permitted to keep horses or livestock for their personal uses provided there is compliance with the following standards and conditions:

(i) No such use shall be permitted on lots having less than two acres of land.

(ii) The number of horses and livestock and the number of stalls and structural facilities reasonably necessary for the shelter of same, permitted on each lot, shall not exceed the following: Two (2) horses or livestock (in any aggregate combination) for the first two acres of lot area plus one additional horse or livestock for each additional acre of lot area, subject to the provisions of subsection (viii) below.

(iii) Any such horse or livestock shall be beneficially owned in fact, as well as in title, solely by the resident occupants of the lot who shall upon written request of the Building Inspector produce a sworn affidavit and other reasonable evidence of said ownership.

(iv) The boarding or keeping of horses or livestock owned by or for the use or benefit of persons other than those who are the resident occupants of any lot is strictly prohibited.

(v) All grain type feed shall be kept in rodent proof containers.

(vi) No manure shall be stored or permitted to accumulate within seventy-five (75) feet from any boundary line. The Building Inspector shall approve the storage area for manure and it shall be treated in such a manner so that it shall not create a nuisance to adjoining properties.

(vii) The location of private stables, barns and sheds used to shelter horses and livestock shall be subject to the set back requirements for a main building as set forth in Article IV Section 4.0, and in addition shall be set back one hundred (100) feet from any principal dwelling on any adjacent lots, except that any private riding ring, private paddock, corral fencing or other roofless enclosure for horses and livestock and any unenclosed area for their unattended maintenance shall be located not less than twenty (20) feet from any side or rear boundary line, seventy-five (75) feet from any front boundary line, and one hundred (100) feet from any principal dwelling on any adjacent lot.

(viii) No person shall keep more than five (5) horses or livestock on any one lot irrespective of its area unless a special permit for same is authorized and approved by the Board of Zoning Appeals in a manner and in accordance with the standards stipulated in Article X Section 10.2 of this Ordinance.

EQUINE LIVESTOCK

PROPOSED ORDINANCE

LONG ISLAND REGIONAL PLANNING BOARD

SECTION ONE: STATUTORY AUTHORIZATION, FINDINGS OF FACT AND STATEMENT OF PURPOSE

1.1 Statutory Authorization.

New York State enabling legislation under Article 12B of the General Municipal Law (or Article 2A of General City Law, or Article 16 of Town Law or Article 7 of Village Law) authorizes the (governing body) of (municipality) to protect the health, safety and welfare, including those land use regulations intended to promote the most appropriate use of land throughout the municipality.

1.2 Findings of Fact.

The (municipality) finds that the improper disposal of horse waste is a potential source of nitrates, BOD and other pollutants to ground and surface waters. According to the Long Island Waste Treatment Management Plan, the waste from a single horse contains eleven times the Biochemical Oxygen Demand$_5$ (BOD_5) of that of an average human. Increased pollutant loadings concentrated in surface waters can significantly affect these waters by upsetting the natural balance required to sustain aquatic plants and animals.

1.3 Statement of Purpose.

The purpose of this ordinance is to protect the health, safety and well-being of persons by imposing restrictions on the keeping of horses and the disposal of their waste.

SECTION TWO: DEFINITIONS

Aquifer - A geologic formation, group of formations or part of a formation that contains sufficient saturated material to yield significant quantities of water to wells or springs.

Biochemical Oxygen Demand$_5$ (BOD_5) - The amount of oxygen required by the biological population of a water sample to oxidize the organic matter in that water. It is usually determined over a 5-day period under standardized laboratory conditions and hence may not represent actual field conditions.

Equine Livestock - Any live horse. The word horse and equine livestock shall be used interchangeably and shall include both singular and plural and both the male and the female.

One Hundred Year Floodplain - The land area that can be expected to experience the highest level of flooding, which on the average is likely to occur every one hundred years (ie. has a one percent chance of occurring each year). The one hundred year floodplain boundary is delineated on the U.S. Dept. of Housing and Urban Development Flood Insurance Maps on file with the Town Clerk.

Swale - A natural vegetated or unvegetated depression that receives or conducts stormwater runoff.

SECTION THREE: GENERAL PROVISIONS

3.1 Lands To Which The Ordinance Applies.

Residents of the Town of _____ shall be permitted to keep horses in the following residential districts: _____ so long as they are in compliance with the regulations included within this ordinance.

3.2 Density of Horses.

(a) No more than one (1) horse per acre shall be kept on any lands within designated deep aquifer recharge areas or shallow aquifer recharge areas, within 200 feet of surface waters or on land having slopes in excess of five percent.

(b) The number of horses and the number of stalls and structural facilities reasonably necessary for the shelter of same

shall not exceed the following: two (2) horses for the first two acres of lot area plus one additional horse for each additional acre of lot area; however, in no event shall the total number of horses exceed five.

3.3 Ownership

(a) The resident occupants of the lot shall be the beneficial and exclusive owners of the horse(s) and upon written request of the Building Inspector shall produce evidence of title or a sworn affidavit and other reasonable evidence of said ownership.

(b) The boarding or keeping of horses owned by or for the use or benefit of persons other than those who are the resident occupants of any lot is strictly prohibited.

3.4 Storage of Feed.

All grain type feed shall be kept in rodent proof containers.

3.5 Waste Disposal.

(a) Manure shall be stored at least 75 feet from all boundary lines. Between April 1 and October 31, it shall be removed from the premises at least weekly. In all cases, manure shall be stored in adequate plastic, wooden or metal covered containers and treated in such a manner that it shall not create any odor or attract or harbor any rodents, flies or other insects.

(b) Animal wastes shall not be stored at any location within the 100 Year Floodplain, in swales, on steep slopes or adjacent to surface waters.

3.6 Structures and Associated Setbacks

(a) Barns, a stable or other roofed structure or accessory building for the sheltering of horses shall be located a minimum of fifty (50) feet from any side yard line or rear yard line; structures shall not be located within the front yard which lies between the principal residential structure and the street.

(b) Any building in which horses are to be left unattended shall be equipped with suitable devices for fire detection and alarm.

(c) Horses shall not be left unattended in any roofless area that is enclosed by a fence less than 6′6″ in height.

SECTION FOUR: ENFORCEMENT

The maintenance of structures and hygenic conditions connected with the accessory use here permitted shall be under the supervision of the Town _____ and to the extent necessary by the _____ County Department of Public Health. If conditions dangerous to the health, safety and welfare of humans or horses are found to exist, or if the resident occupant fails to comply with any of the requirements of this or any other section of the Building Zone Ordinance or any condition attached to any variance granted in connection with the accessory use here permitted, the Building Inspector may request the Board of Appeals to order the resident occupant to cease and discontinue the keeping of horses until such time as the conditions complained of are remedied to the satisfaction of said Board.

SECTION FIVE: PENALTIES FOR OFFENSES

Any person who shall violate any provision of this ordinance shall, upon conviction, be guilty of offense. Any person convicted of a violation of this ordinance shall be liable to a civil penalty not exceeding $50.00. Second and third time offenders shall be liable to a civil penalty not to exceed $100.00.

SECTION SIX: SEVERABILITY

Each separate provision of this ordinance shall be deemed independent of all other provisions herein, and if any provisions shall be deemed or declared invalid, all other provisions hereof shall remain valid and enforceable.

SECTION SEVEN: REPEALER

This ordinance shall supercede all prior local laws, ordinances, rules and regulations relative to the control of horse waste within the (local unit), and they shall be, upon the effective date of this ordinance, null and void.

SECTION EIGHT: EFFECTIVE DATE

This ordinance shall take effect on _____ .

Prepared by the LIRPB as a part of the 208 Implementation Project. Partially adapted from the Village of Oyster Bay - Uses in Residence "A-1" and the Village of Old Westbury - Local Law to Ammend Zoning Ordinance to Authorize Accessory Horse Use.

HF HORSE FARM-RESIDENCE DISTRICT ORDINANCE
(ADDED 3-15-83, EFFECTIVE 4-4-83)
TOWN OF BROOKHAVEN CODE

ARTICLE XIX[1]

§ 85-184. Permitted uses.

In an HF Horse Farm - Residence District, no building, structure or premises shall be used or occupied, and no building or part thereof or other structure shall be erected or altered, unless otherwise provided in this ordinance, except for one (1) or more of the following uses:

A. Permitted principal uses:

(1) All principal uses as permitted and as regulated in the A Residence District. In the event that any part of an A Residence 1 District or A Residence 2 District abuts the HF Horse Farm - Residence District, the more restrictive requirements of said abutting district shall control the development of the permitted principal uses in the HF Horse Farm - Residence District.

(2) Horse farms.

[1] Editor's Note: Former Article XIX, E Residence District (Great South Beach), amended 3-2-71 and 7-16-81, effective 8-3-81, was repealed 9-1-81, effective 9-28-81.

B. Permitted accessory uses located on the same lot with the permitted principal use:

(1) Accessory uses permitted and as regulated in the A Residence District.

(2) Other customary accessory uses, structures and buildings, provided that such uses are clearly incidental to the principal use. Except with regard to construction on property principally used for agriculture, any accessory building shall be located on the same lot with the principal building, and no accessory building shall be constructed on a lot until the construction of the main building has actually been commenced, and no accessory building shall be used unless the main building on the lot is completed and used.

C. Uses permitted when authorized by special permit from the Board of Appeals.

(1) All uses permitted and as regulated in the A Residence District.

(2) Suitable housing accommodations for full-time farm employees and their families. The application for said housing accommodations shall state the number of units required and the type of housing to be constructed. All such special permits shall be valid for a period not to exceed two (2) years.[2]

D. Uses permitted when authorized by the Planning Board. **[Added 5-3-83, effective 5-23-83]**

(1) Horse shows, special equine events and other equine uses which require a temporary increase in the permissible number of horses per acre. Such use approvals shall be valid for specified periods of time and may not exceed a period of one (1) year. The Planning Board may place such conditions as it may deem advisable on any such use approvals.

[2] Editor's Note: Former Subsection C(3), which immediately followed this subsection and pertained to horse shows and other special equine events as special permit uses, was repealed 5-3-83, effective 5-23-83.

§ 85-185. Standards for horse farms.

A. There shall be located on the subject premises one (1) principal, single-family dwelling which shall be the full-time residence of the owner of the property, the full-time operator of the business conducted on the premises or the full-time residence of a watchman, caretaker or other employee of the principal business.

B. The minimum lot size shall be ten (10) acres.

C. No more than two (2) horses shall be permitted per acre of land or part thereof. However, in the event that the owner of the premises files a "Soil and Water Conservation Plan," the Planning Board may increase the number of permitted horses per acre with a limit of a total of no more than five (5) horses per acre or part thereof. Dependent foals shall not be counted in arriving at the total permitted number of horses. The Soil and Water Conservation Plan shall be submitted to the Planning Board as part of the site plan review process. For the purposes of this Article, "Soil and Water Conservation Plan" shall be defined as a document containing proposals for the conservation of soil and water resources and which provides an orderly method for land-owners and occupiers to follow in limiting soil erosion and reducing the amount of pollutants entering into surface water, groundwater or other lands within the town. **[Amended 5-3-83, effective 5-23-83]**

D. Manure or any other material or substance which causes or creates any noxious or offensive odors or dust or which causes or may cause the presence of or attract any vermin, rodents or other animals shall be stored in such a manner as shall be approved by the Department of Planning, Environment and Development at least one hundred and fifty (150) feet from any property line.

E. There shall be at least one hundred and ten (110) square feet of stable area for each horse.

F. Where the rental of horses is to be one of the uses, the applicant must demonstrate proximate access to suitable trails or areas for the use of horses.

G. Any corral, meadows, or open areas shall be graded in such a manner that stormwater runoff will not drain onto lands of adjacent property owners. Nor shall said stormwater runoff drain into or cause to affect any freshwater or tidal wetlands as defined within Chapter 81 of the Code of the Town of Brookhaven.

H. No structure used for the housing, harboring or stabling of horses may be placed closer than seventy-five (75) feet to any adjacent property line.

I. As part of the site plan review powers, the Planning Board may also require adequate setbacks, screening and/or fencing for any buildings or structures located on the premises or for any corrals, runs, tracks or other open areas used by horses so that there is minimal impact on adjacent property owners. All such buildings, structures, corrals, runs, tracks or other areas shall be maintained in a neat and clean manner.

§ 85-186. Site plan review and approval.

A. In each case where a building, structure or use or alteration thereof is proposed in this district, except for one-family dwelling places, permitted agricultural uses other than horse farms and customary accessory uses thereto, a site plan must be submitted by the applicant. The Building Inspector shall refer the site plan of the proposed building, structure or use or alteration thereof to the Brookhaven Town Planning Board for its review pursuant to § 85-428 of this ordinance. A public hearing pursuant to § 85-428D shall be required. With the exception of one-family dwelling places, permitted agricultural uses other than horse farms and customary accessory uses thereto, in the event that any building structure or use is changed, sold or leased, the new owner or tenant shall cause notice to be given to the Department of Planning, Environment and Development within thirty (30) days of such sale or lease on such form as is prescribed by said Department. The Department of Planning, Environment and Development shall make a determination as to whether a new site plan will be required by reason of any alterations or changes in

the subject building, structure or use. Any landowner found guilty of violating this ordinance shall be fined at the rate of one hundred dollars ($100.) per day.

B. No building permit shall be issued by the Building Inspector without such approval of the site plan and, in appropriate places, all other permits, approvals and authorizations as may be required from other municipal and governmental agencies or departments.

C. In any case where the site plan submitted by the applicant indicates that a variance or special permit will be required from the Board of Appeals in order to construct the use of premises as shown on said site plan, the applicant shall submit an application to the Board of Appeals simultaneously with the filing of the application for approval of the site plan. Upon adoption by the Board of Appeals of a resolution granting the application for the variance, said variance shall be deemed to be incorporated in the site plan submitted by the applicant.

§ 85-187. Exemption from standards. [Added 5-3-83, effective 5-23-83]

In the event that any parcel of property consisting of five (5) or more acres is changed in zone to the HF Horse Farm - Residence District, all those uses permitted and as are regulated within the HF Zoning District shall be permitted on said parcel although such parcel does not meet the width and area requirements for such district, provided that the front yard, side yard, rear yard, building area and lot area requirements in effect immediately prior to inclusion with the HF Zoning District are met. In addition, said parcel must have been in single and separate ownership at the time of its inclusion within the "HF" zoning district. Proof of single and separate ownership shall be submitted in such form as is required in § 85-431C of this ordinance.

ARTICLE 4–WATER SUPPLY
SUFFOLK COUNTY SANITARY CODE

SECTION

401. Declaration of Policy
402. Statement of Purpose
403. Definitions
404. Enforcement Provisions; Powers and Duties of the Commissioner
405. General Provisions
406. Approval of Plans and Specifications
407. Realty Subdivisions and Developments; Approval of Plans

Section 401. Declaration of Policy

The groundwater of Suffolk County, Long Island, is the sole source of drinking water. The federal government has officially designated the Long Island aquifer as a sole source for water supply. Therefore, the policy of the County of Suffolk is to protect the groundwater to insure the availability of an adequate and safe source of water supply for generations to come by: enforcing the local, state and federal laws regulating water supply; promoting the extension of public water supply to all areas of the county; maintaining a process of groundwater planning; carrying out research and development in the field of alternatives to community water supply; and by promoting education and acceptance of the importance of groundwater management and protection.

Section 402. State of Purpose

It is the intent and purpose of this article to protect the public health through the control of drinking water supplies and to insure that Suffolk County residents have a healthful and plentiful supply of water.

Section 403. Definitions

Whenever used in this article, unless otherwise expressly stated, or unless the context or subject matter requires a different meaning, the following terms shall have the respective meanings set forth or indicated.

a. **"Commissioner"** means the Suffolk County Commissioner of Health Services of the Suffolk County health district, or his authorized representative.

b. **"Community Water System"** means a public water system which serves at least five service connections used by year-round residents or regularly serves at least twenty-five year-round residents.

c. **"Contaminant"** means any physical, chemical, microbiological or radiological substance or matter in water.

d. **"Department"** means the Suffolk County Department of Health Services.

e. **"Drinking Water Supply"** means water which is provided for human consumption and other domestic uses.

f. **"Emergency Source of Water Supply"** means a source of water which has not been developed and approved as a regular source of water and which is developed during an emergency for temporary use as a source of water in case of failure or inadequacy of the regular source of public water supply.

g. **"Non-Community Water System"** means a public water system that is not a community water system.

h. **"Private Water System"** means any system to provide drinking water other than that secured from a public water system.

i. **"Public Water System"** means either a community or non-community system which provides piped water to the public for human consumption, if such system has at least five service connections or regularly serves an average of at least 25 individuals daily at least 30 days out of the year. Such term includes: (1) collection, treatment, storage and distribution facilities under control of the supplier of water of such system and used in connection with such system; and (2) collection or pretreatment storage facilities not under such control which are used in connection with such system.

j. **"Replacement of private water system"** means the change in screen setting of an existing private well, screen replacement, or the relocation of the private well.

k. **"Source of Water Supply"** means any groundwater aquifer, surface water body or water course from which water can be utilized for drinking water supply.

l. **"Water Supplier"** means any person(s) who owns or operates a public water system.

Section 404. Enforcement Provisions; Powers and Duties of the Commissioner

1. The commissioner may:

a. inspect public and private water systems for compliance with all applicable rules and regulations;

b. collect appropriate information to determine if water quality is being maintained including but not limited to water samples, and soil, geological and hydrological data;

c. prepare, review, analyze, monitor and evaluate comprehensive water supply plans and prepare studies as may be necessary in the area of water resources management;

d. engage in engineering and enforcement activities for the protection and management of groundwater resources;

e. monitor groundwater and wastewater discharges as they may affect water supply;

f. take appropriate legal action which may include fines for failure to comply with the intent of this article;

g. promulgate and establish standards to effect the purpose of this article.

2. The commissioner may delegate this authority where appropriate.

Section 405. General Provisions

1. No person shall provide or make accessible a supply of water for human consumption or other domestic use unless such water supply is protected from actual or potential sources of contamination and so maintained as to deliver a drinking water supply of potable quality. Such delivered water shall at a minimum meet the prevailing standards of the New York State Sanitary Code and any standards promulgated by the Board.

2. The department shall conduct such studies and investigations pertaining to groundwater supplies where significant groundwater contamination has been identified or is suspected.

Section 406. Approval of Plans and Specifications

1. No owner or operator of a public water system shall make, install or construct, or allow to be made, installed or constructed a public water system or any addition to or modification of a public water system until the plans and specifications have been submitted to and approved by the commissioner and/or received the approval of the New York State Commissioner of Health.

2. "Recommended Standards for Water Works" and "Rural Water Supply" as issued and updated by the New York State Department of Health and other standards promulgated by the commissioner shall be the basis upon which all plans and specifications for public water systems will be reviewed for approval.

3. "Rural Water Supply" as issued and updated by the New York State Department of Health, "Standards for Individual Water Supply Systems" as issued and updated by the department, and other standards promulgated by the commissioner shall be the basis upon which all plans and specifications for private water systems will be reviewed and approved.

4. Approval to construct a private water system will require the submission by the property owner and/or his designee of plans and specifications and any other information necessary to ensure that such system conforms to approved standards.

Section 407. Realty Subdivisions and Developments; Approval of Plans

1. No realty subdivision or development shall be sold, offered for sale, leased or rented by any corporation, company or person, and no permanent building shall be erected thereon, until a plan of such realty subdivision or development has been approved by the department in accordance with Article 6 of the Suffolk County Sanitary Code, including approval of the plans for water supply facilities for said realty subdivision or development and the filing of such approved plans in the Office of the Clerk of the County of Suffolk.

BOAT POLLUTION ORDINANCE
NEWPORT, CALIFORNIA CODE

HOUSEBOATS

Chapter 17.40

Sections:

17.40.010 Definitions.
17.40.020 Moorage Restriction.
17.40.030 Use or Occupancy Requirements.
17.40.040 Houseboat Marina Permit Required.
17.40.050 Application for Houseboat Marina Permit.
17.40.060 Conditions for Permit Issuance.
17.40.070 Revocation of Houseboat Marina Permit.
17.40.080 Grounds for Revocation.
17.40.090 Administration of Chapter—Appeal.

17.40.010 Definitions. For the purpose of this Chapter, the words and phrases herein defined shall be construed in accordance with the definitions set forth unless it is apparent from the context that a different meaning is intended.

HOUSEBOAT. The term "houseboat" shall mean a watercraft structure designed primarily to be occupied as living quarters.

HOUSEBOAT MARINA. The term "houseboat marina" shall mean any area within the City covered by the waters of Newport Bay where one or more sites or location are rented for living quarters either permanently or on a temporary basis. (1949 Code § 8700 added by Ord. 1029; April 22, 1963).

17.40.020 Moorage Restriction. No person shall moor or dock a houseboat on the waters of Newport Harbor except at a pier, slip or dock for which a valid current business license issued by the City is in effect licensing the business of slip rentals or yacht or boat landing. (1949 Code § 8701 added by Ord. 1029; April 22, 1963).

17.40.030 Use or Occupancy Requirements. No person shall use or occupy or permit the use or occupancy of a houseboat for living quarters either permanently or on a temporary basis on the waters of Newport Harbor except in a houseboat marina operated pursuant to a permit issued by the City Council and unless such houseboat meets the following requirements:

There is provided within the houseboat not less than 600 square feet of living area.

The houseboat is designed and maintained so there is a single opening above the water line for waste and sewage removal and such opening is tightly connected to a permanent sewer.

The houseboat is designed and constructed so that it meets the requirements of the Building Code, Plumbing Code, and the Electrical Code to the extent the provisions thereof are applicable. (1949 Code § 8702 added by Ord. 1029; April 22, 1963).

17.40.040 Houseboat Marina Permit Required. No person shall operate a houseboat marina or rent or hold out for rent any site or space for the location of a houseboat to be used or occupied for living quarters either permanently or on a temporary basis without having a current permit for such marina from the City Council. (1949 Code § 8703 added by Ord 1029; April 22, 1963).

17.40.050 Application for Houseboat Marina Permit. Any person desiring to operate a houseboat marina shall file an application for a permit to do so with the City Clerk and submit a fee in the amount to be fixed by the City Council by resolution for processing such application. Such application must be accompanied

by a plan showing the location of the proposed marina and the facilities contemplated therein. It shall be submitted to the City Council for consideration at its next regular meeting following the 10th day after the application is filed with the City Clerk. The City Council shall act on such application within sixty (60) days after it is submitted. (1949 Code § 8704).

17.40.060 Conditions for Permit Issuance. The City Council shall grant such permit if the following conditions are met:

(a) The applicant owns or has a lease on the land over which the marina is proposed to be operated.

(b) There is provided within such marina a minimum of 875 square feet of space for the exclusive use of each houseboat and its appurtenances to be located therein.

(c) Prior to the time any houseboats are located therein, a permanent float, dock or slip for the mooring or docking of each houseboat from which such houseboat may be directly boarded is constructed.

(d) Each space intended for a houseboat must be provided with the following: (1) A permanent water supply with an individual antibackflow valve. (2) A sewer connection leading into a permanent sewer. (3) A permanent supply of electricity.

(e) The marina is in a zoning district of the City where houseboat marinas are permitted or there is a current valid use permit authorizing the houseboat marina at the proposed location.

(f) There is provided on land adjacent to the marina two parking spaces for each houseboat site within the proposed marina.

The City Council may limit the term of such permit and may impose additional conditions on such permit deemed necessary by the City Council to protect the public health, welfare and safety and to promote the general welfare. (Ord 1029 (part), 1963: 1949 Code § 8704).

17.40.070 Revocation of Houseboat Marina Permit. Any permit for a houseboat marina may be revoked by the City Council after written notice to the operator of such marina and an opportunity to be heard before the City Council. Such written notice shall be mailed to the operator of the marina at the address shown on the permit and shall state the date and time the City Council will consider the proposed revocation. (Ord. 1029 (part), 1963: 1949 Code § 8705).

17.40.080 Grounds for Revocation. The grounds for revocation shall be:

(a) The houseboat marina no longer meets the conditions under which the permit was granted.

(b) The houseboat marina has become a source of pollution of the harbor.

(c) The facilities of the marina or the houseboats located therein have fallen into a state of disrepair.

(d) Individual houseboats are permitted or maintained within the marina which do not meet the requirements for houseboats established by this Chapter. (Ord. 1029 (part), 1963: 1949 Code § 8705).

17.40.090 Administration of Chapter—Appeal. The provisions of this Chapter shall be administered by the Community Development Director in coordination with the Marine Director. Any aggrieved person may appeal any decision of the Building Official to the City Council by filing a written notice of appeal with the City Clerk within 15 days after tha date on which notice of the decision is mailed to the applicant. The City Council shall make a decision on the appeal within thirty (30) days and such decision shall be final. (Ord. 1602 § 11, 1975: Ord. 1286 § 11, 1968; Ord. 1029 (part), 1963: 1949 Code § 8706).

"FH" FLOATING HOME DISTRICT
TOWN OF BABYLON

Proposed Amendment of the Unified Code of Ordinances of the Town of Babylon, CHAPTER 15, ARTICLE XXVII, DISTRICT REGULATIONS "FH" FLOATING HOME DISTRICT, SECTION 15-607 through 15-620 as follows:

Legislative Intent:

The Town Board of the Town of Babylon hereby finds and declares that the use of house barges for residential purposes on waterways is a utilization of property which the Town Board should regulate for environmental, social and safety reasons.

The Town Board recognizes the rights of residents and others who use town waters for recreational and commercial purposes to enjoy clean and freely navigable waters. The discharge of sewage, treated or otherwise, may adversely affect the quality of our tidal waters and shellfish contained thereunder. In addition indiscriminately located house barges may constitute a hazard to navigation as well as being aesthetically offensive.

The Town Board also finds there is concern for the suburban character of the Town of Babylon, fire safety for house barges located in close proximity to each other and accessibility by emergency vehicles to waterfront lots.

In view of the foregoing, it is necessary and proper for the Town Board to create a zoning classification for floating homes to preserve and ensure the public health and quality of the tidal waters as well as public safety and welfare.

Section 15-607 Definition.

Floating Home means any vessel designed or, in fact, used or occupied as a dwelling unit, living and sleeping quarters, business office, or source of any occupation or for any private or social club or whatsoever nature, including, but no limited to, a structure constructed upon a barge primarily immobile and out of navigation or which functions substantially as a land structure while the same is moored or docked, whether such vessel is self-propelled or not.

Section 15-608 Prohibition.

A. Floating Homes moored or erected over *public* lands under water shall be prohibited from all zone districts.

B. Floating Homes moored or erected over *private* lands under water shall be prohibited from all zone districts except "FH" Floating Home District.

Section 15-609 Permitted Use.

In "FH" Floating Home District no Floating Home shall be hereafter moored or altered, unless otherwise provided by this chapter, except for the following use.

A. One Family Dwelling.

Section 15-610 Conduct of Business, Professions.

In "FH" Floating Home District the use of a Floating Home for a business or profession shall be prohibited.

Section 15-611 Height of Floating Homes.

In "FH" Floating Homes District no Floating Homes hereafter moored or altered shall be more than twenty-one (21) feet high as measured from the water line.

Section 15-612 Lot Area.

In "FH" Floating Home District no Floating Home shall be moored or altered on or over an underwater lot having an area of less than three thousand five hundred (3,500) square feet.

Section 15-613 Building Area.

In "FH" Floating Home District the total area of a Floating Home shall not exceed twenty-five percent (25%) of the underwater lot area.

Section 15-614 Mooring Distance.

In "FH" Floating Home District there shall be a distance of five (5) feet between the pier or bulkhead line and front wall of a Floating Home.

Section 15-615 Distance Between Floating Homes.

In "FH" Floating Home District where two or more Floating Homes are moored together there shall be ten (10) feet of open water space between the side walls or floats of adjacent Floating Homes.

Section 15-616 Public Utilities and Sanitary Facilities

In "FH" Floating Home District no Floating Home shall be moored or constructed unless provided with electricity, municipal water service and with municipal sewage disposal facilities.

Section 15-617 Off Street Parking.

In "FH" Floating Home District two (2) paved off street parking spaces shall be provided for each Floating Home.

Section 15-618 Construction Standards

In "FH" Floating Home District all Floating Homes shall be subject to the provisions of the State Building Construction Code and the Building Construction Code of the Town of Babylon.

Section 15-619 Application for Creation of District.

In "FH" Floating Home District every application for the creation of a Floating Home District shall be subject to the review of the Planning Board of the Town of Babylon.

Section 15-620 Environmental Quality Review.

Each applicant shall be required to prepare an environmental assessment (similar to that required by the New York State Environmental Quality Review Act (SEQRA) and file this assessment with the Planning Board, and it shall accompany the site plan application.

Chapter One

INTRODUCTION

Land use and related activities are a source of contamination to ground and surface waters; however, many existing land use plans and zoning ordinances fail to reflect current water quality concerns.

Some understanding of the groundwater system and the impacts of past land use activities upon this system is essential to the development of comprehensive plans and implementing measures needed to minimize future impacts upon groundwater. A generalized illustration of the groundwater system is presented in Figure 1.

There are three major aquifers or water-bearing units on Long Island:

- The Upper Glacial is a shallow aquifer
- The Magothy (upper and lower) and the Lloyd are deep aquifers

They are composed of unconsolidated sands and gravels. The Upper Glacial and the Magothy are the primary sources of potable water. The Lloyd aquifer, which underlies the Magothy, is not generally used for water supply except in a few locations.

Approximately fifty percent of the annual precipitation recharges the Long Island aquifers. Rainfall entering the Upper Glacial aquifer moves as groundwater flow as shown in Figure 1. Prior to recharging the aquifer, the infiltration water may be contaminated by inorganic and organic pollutants discharged into the air, on the land, or into the unsaturated zone above the water table. The impacts of these discharges will vary according to location.

In 1978, the Long Island Regional Planning Board published the *Long Island Comprehensive Waste Treatment Management Plan (208 WTMP)*. The plan introduced the concept of hydrogeologic zones based upon differences in underlying groundwater flow patterns and water quality. See Figure 2. The zones are land areas that recharge either deep aquifers or shallow aquifers and/or are discharge zones. The plan identified eight hydrogeologic zones, which are described briefly in the following paragraphs.*

* Since the completion of the 208 WTMP, a USGS study of the groundwater on the South Fork identified additional deep recharge areas in Zones IV and V which are shown in Figure 2.

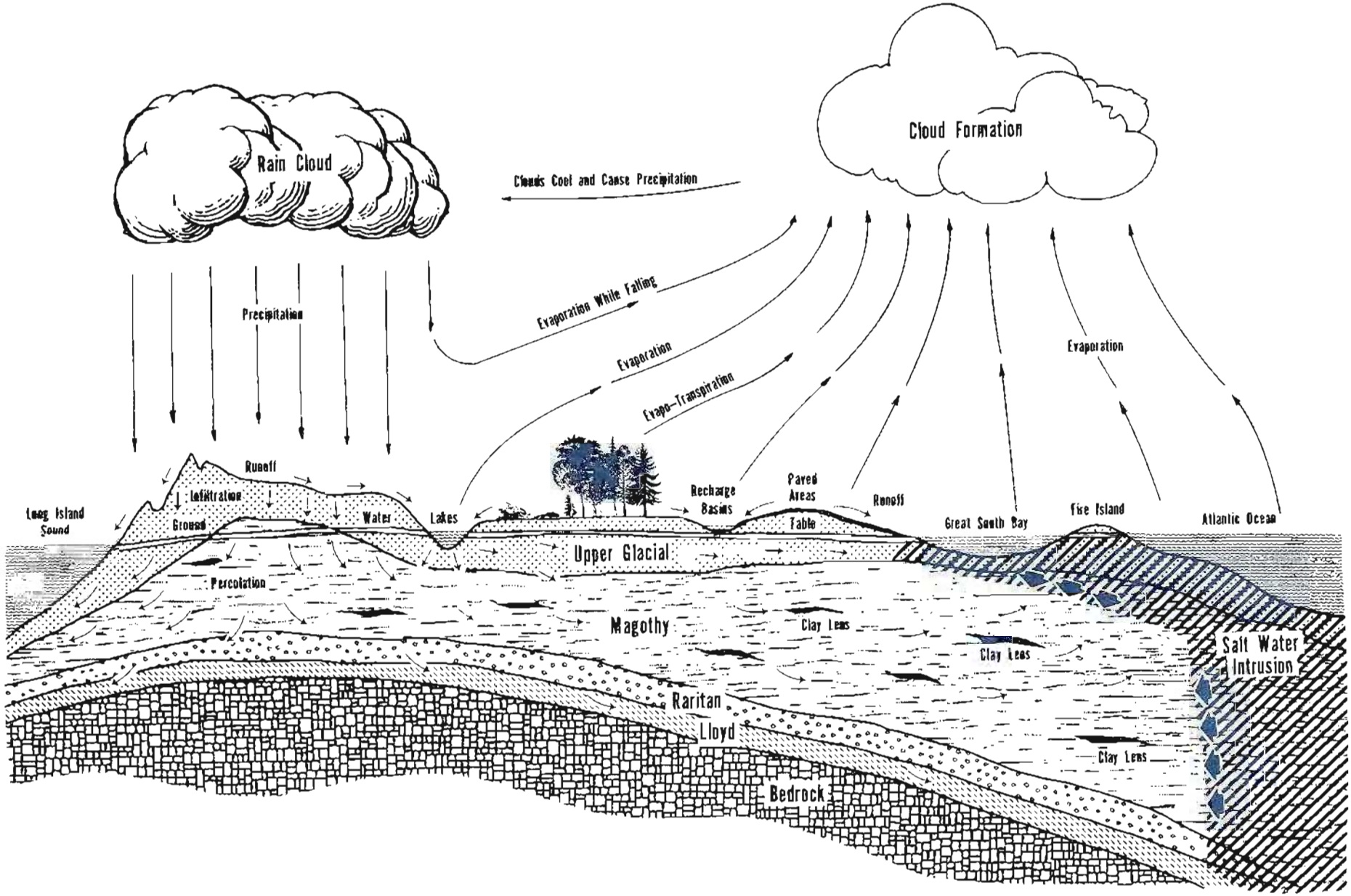


FIGURE 1 *The Long Island Aquifer System*

Source: Suffolk County Water Authority

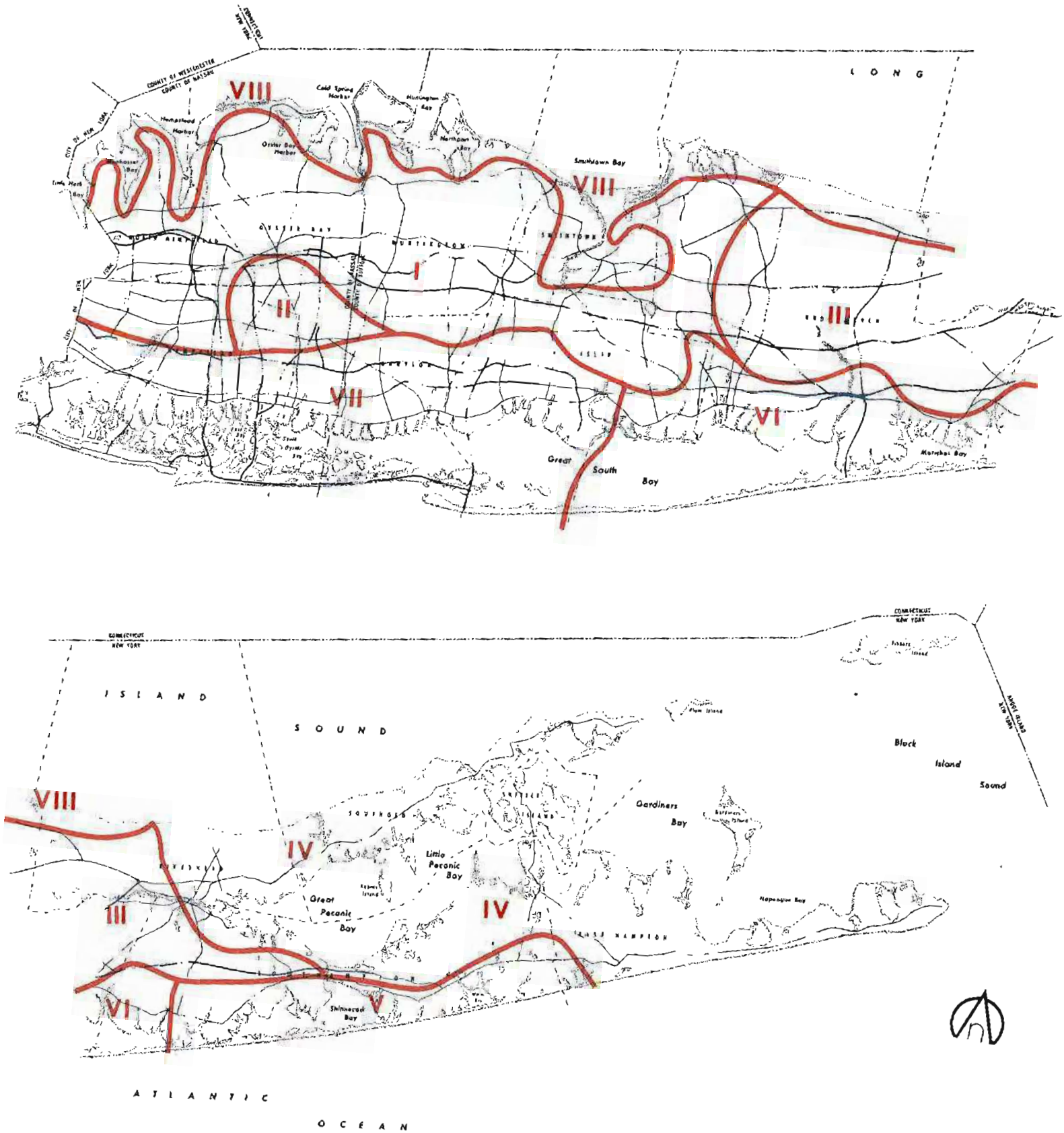


FIGURE 2 *Hydrogeologic Zones*

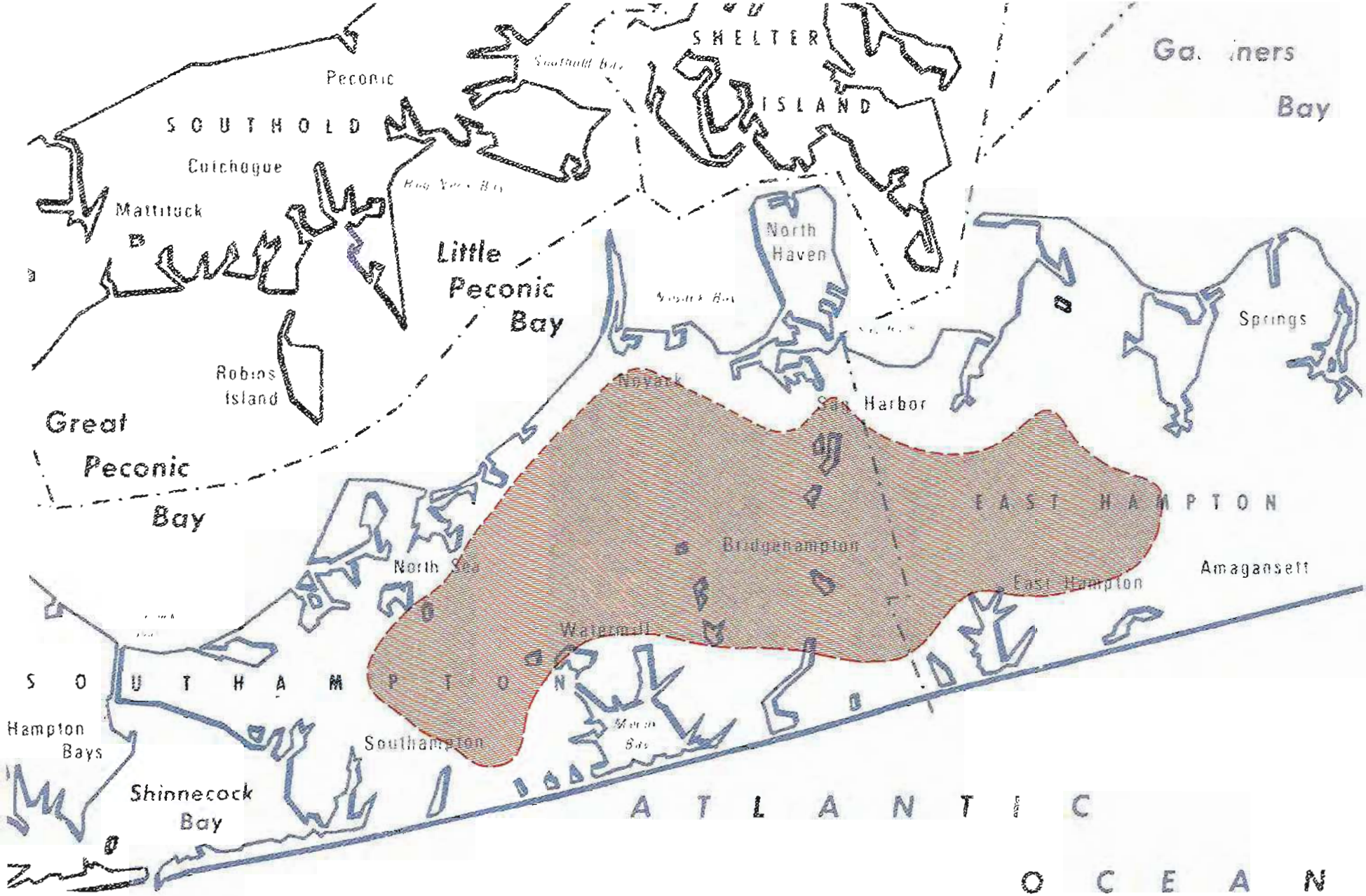
- Zones I, II, III are the major deep aquifer recharge zones. Zone I, located in Nassau County and western Suffolk, contributes water to the middle and lower portions of the Magothy Aquifer. The Glacial aquifer and portions of the Magothy have been contaminated by nitrates from fertilizers and on-site systems and organics resulting from industrial and other discharges. Initially, the nitrate contamination resulted from farming and then, later, from urbanization.
- Zone II, located in eastern Nassau County and a portion of western Suffolk County, is bordered on three sides by Zone I. Groundwater in this zone is generally contaminated and the contamination is spreading beyond the zone boundary.
- Zone III, located in central Suffolk and a small portion of eastern Suffolk County, includes a major portion of the Long Island Pine Barrens. Most of the area within the zone is undeveloped and contains groundwater of excellent quality in the Upper Glacial and Magothy aquifers. Some contamination occurs in the Glacial aquifer in the western portion of the zone, primarily due to the impacts of development, including the discharge of sewage from package treatment plants and on-site systems. It appears likely that there are several small plumes of contamination that originated in old landfills or as a result of spills and other activities.
- Zone IV encompasses the North Fork, Shelter Island, and the eastern portion of the South Fork; Zone V, the remainder of the South Fork. The groundwater underlying the deep recharge areas on the South Fork (See Figure 3) is generally of excellent quality.
- The rest of Zone IV and V, as well as Zones VI, VII, and VIII are characterized by shallow flow systems that discharge to streams and marine waters. Zone IV on the North Fork has been contaminated as a result of agricultural activities. A few areas of Zone V have also been impacted by agricultural activities.
- Zone VI, located on the south shore of Suffolk County, discharges streamflow and underflow to Moriches Bay and eastern Great South Bay. A large portion of these waters are poorly flushed and contaminated in some areas.
- Zone VII is also located on the south shore and discharges to Nassau and western Suffolk south shore bays, where greater tidal exchange facilitates the dilution and dispersion of contaminants.
- Zone VIII is located on the north shore of Nassau and Suffolk Counties. Groundwater flows towards the harbors, bays, or to the Sound.

The land uses on Long Island can be divided into a number of categories. Table 1 represents the Land Use classification used by the Long Island Regional Planning Board. Various activities associated with the different land uses are presented.

In spite of extensive development within Nassau and Suffolk counties in the past fifteen years, vacant, agricultural, recreational and open space land uses still account for approximately fifty percent of the total acreage in the bi-county area. Vacant land and some of the recreational and open space lands serve to protect the groundwater quality.

Land use activities can have significant impacts upon groundwater quantity and quality. The variation in the impacts of land use activities on groundwater is dependent upon the location of the activities, the pollutant loading resulting from the activities, the amount of recharge from precipitation, and the characteristics of the aquifer system.

In the past, land use plans and zoning ordinances, which specify the location and distribution of land uses, often reflected little consideration of the need for groundwater protection. The plans called for the location of industry and similarly incompatible land uses in deep aquifer recharge areas. Other environmental factors were not always considered; non-compatible uses were also placed on wetlands, areas with high water tables and within the 100 year flood plain, along stream corridors and on steep slopes. In recent years, some towns have used upzoning, open space acquisitions, and site plan and subdivision review to reduce environmental impacts and to protect groundwater. Several towns are currently in the process of revising their comprehensive plans to protect water quality and satisfy other related environmental concerns.



Source: Geohydrologic Appraisal of Water Resources of the South Fork, Long Island, N.Y.—Geological Survey Water Supply paper 2073

FIGURE 3 *Approximate Location of The Magothy Recharge Area on the South Fork*

TABLE 1

Land Use Classifications — 1981

Residential -

Low Density	- 1 Dwelling Unit or less/acre
Medium Density	- 2-4 D.U./acre
Intermediate Density	- 5-10 D.U./acre
High Density	- 11 or more D.U./acre

Commercial -

Marine Commercial

Industrial

Transportation, Communications, Utilities
(including expressways, major highways and parking areas)

Institutional

Recreation & Open Space (including parkways)

Agricultural

Vacant (including unused land around large residences)

Water

Residential

Residential	Single Family Two-Family Multi-Family Farm Houses Estates Rooming & Boarding Houses Seasonal Houses Trailers

Commercial

Hotels-Motels	Commercial establishments in which short term lodging is the major business activity — Hotels Motels Cabins
Retail & Services	Establishments whose main purpose is the sale or rendering of a personal service on a retail level and not listed under "offices."
Automotive	Service Stations Dealers Repair, painting and washing Tire sales Seat cover installation
Marine	Boat yards and marinas (private) Sales and services Fishery services Boat Storage
Recreational	Amusement parks Beaches and Pools (profit oriented) Billiards Bowling Dance (school, hall, studio, etc.) Day camps and nursery schools Miniature golf and driving ranges Theaters — indoor and drive-in Sports arenas, skating rinks Race tracks
Offices	Banks, credit agencies and loan companies Investment and securities Advertising, blueprinting and mailing services Doctors, dentists & legal services Medical labs and animal hospitals Employment and travel agencies

TABLE 1 (Continued)

Industrial	
Manufacturing	Production of a product-finished or unfinished Food products Printing, publishing and bookbinding
Non-Manufacturing	Warehousing, wholesaling Distributors Construction material, welding shops General contractors, masonry Salvage and junk yards Coal and oil bulk stations
Mining	Used and abandoned sand pits
Transportation-Utilities-Communications	
Utilities	Pumping Stations Water right-of-way Electric right-of-way Water and sewer treatment plants
Transportation	Railroads Airports Taxi stands, bus depots, truck terminals
Institutional	
Public	Schools (elementary, junior and senior high school) Colleges and universities Municipal buildings Courts Hospitals Post Offices Indian reservations Fire stations
Quasi-Public	Churches, convents, seminaries Colleges and universities Nursing and rest homes Schools-parochial and private Synagogues and temples Fraternal organizations Hospitals
Recreation and Open Space	
Public	Beaches and pools Golf courses, conservation and wildlife areas, arboreta Cemeteries Marinas and boat ramps Parks Playgrounds
Quasi-Public	Beach clubs, golf clubs, gun clubs Cemeteries, scout camps and all non-profit recreation
Agriculture	
Agriculture	Crop Orchard Poultry and ducks Dairy and livestock Nursery Greenhouse
Vacant	Tidal land Land not in use Land containing abandoned buildings Urban renewal-approved areas
Inland	Recharge basins, drainage areas Lakes and inland fresh water
Tidal	South Shore only: Channels and bays (excludes Peconic Bay) Wetlands-conservation water areas
Roadways	
Streets & Parking	All streets, public or private, paved or unpaved Driveways for a single use Public parking Private parking Parking garages
Parkways	Existing and proposed
Expressways	Existing and proposed

KEY PROBLEMS

Land use activites vary in the amount of pollutant loadings to groundwater and surface waters, and in the consumptive use of groundwater. In Nassau and western Suffolk, sewage treatment plants discharge large volumes of groundwater to marine waters causing a long term reduction in available groundwater. As a result, significant reductions in streamflow, stream length and wetland acreage have occurred.

Residential

All of the hydrogeologic zones contain residential land uses. The highest density residential uses are located in Nassau County (portions of Zone I, II and VII). In Suffolk County, 2-4 units per acre density constitutes the major. residential land use category in the western and central portion of the county (Portions of Zones I and most of Zone VII.) (See Land Use 1981 – Quantification and Analysis of Land Use for Nassau and Suffolk Counties, Long Island Regional Planning Board, December 1982). Residential uses generally become less intensive from west to east in Suffolk County.

The pollutant loadings attributable to residential land use activities vary according to residential density and the degree of sewage treatment. Residential densities at or greater than 2-4 dwelling unit/acre have a significant impact on water quality. In areas where septic systems are utilized, nitrate-nitrogen, other inorganic chemicals, toxic and non-toxic metals, organic chemicals, bacteria and viruses are discharged. (See the chapter on On-site Systems.) Sewering also impacts groundwater quality. When sewage treatment plants discharge to groundwater, partial treatment or plant malfunctioning may contribute undesirable nitrate and other pollutant loadings.

A large portion of the developed residential acreage is in turf or other plantings that require the use of fertilizers, pesticides and herbicides that release nitrogen and organic chemicals. Lawns are a major source of nitrates. A one acre residential development with an extensive lawn area and a septic system may contribute nitrate contamination equal to that contributed by a 2 unit/acre residential development with less extensive lawns and septic systems. Lawn irrigation may also impact aquifers through the over-pumpage of the water supply. Other problems may result from the discharge of crankcase oil, paint, paint thinners, solvents and degreasers, from possible spills from oil trucks and gasoline and fuel oil tank leakages.

Commercial

Commercial uses occur in all zones, but they are most prevalent in Zones I and II. In Nassau County the most extensive commercial activity is located in the vicinity of Garden City, Hempstead Village and Roosevelt Field. In Suffolk, major commercial activity is located along Route 110, from the Northern State Parkway to the Southern State Parkway. There are also numerous commercial strips located along the major highways in both Counties. (See Figure 4).

Due to the diversity of activities associated with commercial land uses, there is a wide range of pollutants and pollutant loadings that can impact ground and surface waters. In unsewered areas, large office buildings, hotels, motels, restaurants, theatres, laundromats, dry cleaning operations, and many other commercial uses discharge nitrates and organic chemicals into septic systems. Automotive service, repair, painting, and washing operations may contribute gasoline, oil, paint and paint thinners to groundwater. Medical laboratories and animal hospitals may release radioactive wastes and viruses. Racetracks and equestrian centers may be a source of nitrogen due to the accumulation of animal wastes. (See the chapter on Animal Wastes.)

Surface water impacts of commercial uses are generally associated with automotive service and repair stations located adjacent to surface waters. Contamination from marine-related activities occurs on a seasonal basis, with the discharge of gasoline, oil, and human wastes into marine waters. (See the chapter on Boat Pollution).

FIGURE 4 *Typical Strip Commercial Land Use*

A source of a wide range of pollutants to groundwater

Industrial

Industrial discharges constitute the most serious threat to groundwater quality. Industrial parks or development are generally situated in the deep aquifer recharge Zones I and II along major transportation arteries, within the central corridor of Long Island. (See Figure 5.) The use of central corridor sites offers great locational advantages for industry, but poses a significant threat to groundwater quality, especially in areas where the underlying aquifers are relatively free of contamination and are extremely susceptible to serious long term degradation. Zones I and II have already experienced contamination from extensive industrial development.

Since industrial development is also located along stream corridors, freshwater and estuarine streams may be impacted.

Industrial land use activities comprise the manufacture, assembly, storage and distribution of goods. Manufacturing activities impact ground and surface waters through intentional and unintentional discharges of process water and wastewater, and through improper handling and storage of materials and wastes. Industrial processes can contribute significant contaminant loadings of organics and some heavy metals to ground and surface waters wherever inadequate or malfunctioning treatment systems are utilized (see the following discussion related to state controls).

The impacts of non-manufacturing activities are generally less significant. However, improper storage and handling practices may lead to significant toxic and hazardous accidental spills (oil bulk stations, etc.) (See Figure 6). Junkyards also discharge a number of contaminants: metals, gasoline, oils, etc. Sand mining operations may use large quantities of water for the cleaning of sands causing overpumpage of aquifers and the intrusion of salt water into freshwater aquifers in coastal areas. Sand mining is now permitted to depths only four feet above the water table, thus assuring no more than a minimal layer of unsaturated soil between the land surface and groundwater.

Although there are strict standards for the types of treatment systems required for industrial operation, the illegal disposal of organic (or inorganic) pollutants cannot be completely controlled.

FIGURE 5 *Industrial Development Complex Located In Zone I*

FIGURE 6 *Above Ground Fuel Storage Tanks*

Institutional

The institutional land use category comprises a variety of public and quasi-public uses that are distributed throughout the two counties. Associated land use activities are often intensive and are likely to generate or involve disposal of contaminants. Large hospitals and schools located in unsewered deep aquifer recharge areas are a major concern. Hospitals discharge human wastes, organic chemicals, radiological constituents and viruses. High schools and colleges discharge large amounts of sewage and may illegally discharge contaminants from chemistry laboratories and auto mechanics shops into on-site systems.

Recreation and Open Space

This designation includes both public and quasi-public land uses. Of the two counties, Suffolk contains the larger percentage of open space, mainly undeveloped and low intensity use areas. Nassau County's more limited open space is more intensively developed to accommodate the need for active recreation opportunities. Passive activities, which may include hiking, use of scenic overlooks, etc, generally do not affect water quality. Intensive active recreation facilities may generate high BOD and nitrate loadings discharged into ground and surface waters. Golf course maintenance is a major concern, since extensive use of fertilizers may cause nitrogen contamination and irrigation practices may cause over-pumpage of aquifers. (See Figure 7.) The impacts resulting from the use of beaches and other recreational areas tend to occur on a seasonal basis.

Agricultural

Long Island agricultural land uses include

- potato farms
- vegetable and berry farms
- orchards
- vineyards
- horse, poultry and duck farms
- sod farms
- nurseries
- greenhouses

Currently, most agricultural activities are located on the North Fork and sections of the South Fork. Portions of Nassau and Suffolk have experienced contamination from fertilizers and pesticides. Excessive pumpage from irrigation has resulted in the accelerated movement of pesticide, fertilizer and salt contaminated groundwater resulting in well closure. (See the Well and Fertilizer Chapters).

FIGURE 7 *Golf Courses Are A Major Concern Due To Fertilizer And Irrigation Practices*

Transportation-Utilities-Communication

This category comprises

- roads
- transportation facilities
- landfills
- incinerators
- sewage treatment plants
- oil distribution centers
- energy production and supply
- communication services

Drainage from the extensive paved surfaces required for roadways is a source of runoff borne contaminants such as gasoline and oil from automobiles and chlorides used for highway deicing. (See the Highway Deicing Chapter.) Landfills generate leachate containing inorganic and organic constituents. Incinerators dispose of water used to dissipate heat from fuel gases and gas residue. The contaminants contained in the quench water are similar to those contained in landfill leachate. Sewage treatment plants discharge effluent containing organic and inorganic chemicals. The anticipated use of coal rather than oil to fuel the LILCO plant in Port Jefferson will result in the production of coal ash, bottom ash and fly ash to be landfilled or disposed of in some alternative manner.

Vacant Lands

The vacant lands are basically undeveloped, forested lands some of which may have been disturbed as a result of earlier use, (i.e. loss of natural vegetation, etc.). These lands, scattered throughout Nassau and Suffolk Counties, play a positive role in the maintenance of water quality. Vacant lands allow maximum recharge of relatively uncontaminated stormwater to ground and surface waters.

For a summary of the impacts on groundwater related to the various land use activities, see Table 2.

In the deep recharge zones, the impacts of the land use activities described above may have a very long term effect. Waterborne contaminants reaching the Upper Glacial aquifer near the groundwater divide can take as much as 50 to 100 years just to move to the base of the deeper Magothy aquifer and an additional 400 years to move to the north shore or 800 to move to the south shore. In contrast, under natural conditions, water reaching the Upper Glacial aquifer in one of the discharge zones can be expected to move to the shoreline within the period of one or two generations.

Failure to protect groundwater from the point and non-point contamination associated with land uses and related activities described above, reduces the total quantity of potable water available at reasonable cost. As a result, water must be obtained at greater depth or transported longer distances; or alternatively, contaminated water must be treated at the wellhead.

TABLE 2
Land Use Activities and Associated Contaminants

Associated Contaminants

Activity/Source	Chloride	Gasoline & Petroleum Products	Inorganic Constituents (1)	Metals (2)	Microbiological Contaminants	Nitrogen	Organic Constituents (3)	Radiological Constituents	Saltwater Intrusion	Solvents & Degreasers (4)	Toxic Metals (5)
Animal Wastes						O,A					
Cemeteries						C,T				O	
Consumer Products							R,C,I,IN,O			R,C,I,IN,O	
Diffusion Wells				I							
Fertilizers				R,C,I,A,O		R,C,I,A,O					
Hazardous Wastes		I,C					I,C			I,C	I,C
Highway Deicing	W										
Incinerator Quench Water				I							I,W
Industrial Effluent	I		I	I			I	I		I	I
Landfills	All	All	All	All		All				All	All
Medical Services								C,IN			
On-Site Systems	R,I,IN,O		R,I,IN,O	R,I,IN,O	R,I,IN,O	R,I,IN,O	R,I,IN,O		R,I,IN,O		
Overpumpage									R,I,A		
Pesticides, Herbicides				R,C,I,A,O			R,A,O			R,C,I,A,O	R,C,I,A,O
Product Storage										I	
Salt Storage	I,C										
Sand & Gravel	I										
Scavenger Waste Disposal		I,C				I,C				I,C	I,C
Sewage Treatment Plant Effluent	C,I,IN			C,I,IN	C,I,IN	C,I,IN	C,I,IN	C,I,IN			IN
Sewer Leakage						All					All
Spills		I,C						I,C		I,C	
Stormwater Basins	All	All				All				All	All
Tanks and Pipelines		All								All	
Waterwell Construction & Abandonment	All		All		All	All	All		All		All

R = Residential
C = Commercial
I = Industrial
IN = Institutional
O = Open Space Recreation
A = Agriculture
T = Transportation, Communication, Utilities
W = Roadways
All = All Land Uses

(1) fluoride, sulfates
(2) boron, copper, iron, manganese, sodium, zinc
(3) foaming agents, vinyl chloride, polychlorinated biphenyls (PCBs), chloroform
(4) benzyne, zylene, toluene, 1,1,1-trichloroethane, carbon tetrachloride, trichloroethylene, tetrachloroethylene
(5) arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver

Source: Adapted from: The Long Island Groundwater Management Plan, Chapter 2 - Groundwater and Water Supply Problems and Causes, March 17, 1982.

EXISTING MANAGEMENT

Legislation, Regulation and Administration

Authority for the control of land use and related activities is shared by various levels of government and jurisdictions. New York State has delegated a portion of its police power responsibility relating to land use, planning, zoning, and subdivision design to the counties, towns and village/cities through enabling legislation; but has retained control and, in some cases, direct administration of other related police power functions. The following discussion covers the major federal, state, and local laws affecting land use.

Federal

Federal laws affect land uses, both directly and indirectly. Many of these laws serve as catalysts, encouraging states and/or counties to develop their own laws pursuant to the federal legislation.

In 1972, the *National Pollutant Discharge Elimination System (NPDES)* was developed under the Federal Water Pollution Control Act to establish standards for treatment and to improve receiving water quality through the establishment of a permit program for point sources. (The State Pollutant Discharge Elimination System (SPDES) is the EPA approved, New York State substitute for the federal program — see State Controls below).

The *National Environmental Policy Act (NEPA)* requires an environmental review for all federal projects and activities prior to their approval (The State Environmental Quality Review Act (SEQRA) is a comparable law affecting governmental activities of New York State and its municipalities — see State Controls).

The *Intergovernmental Cooperation Act of 1968 (Title IV)* established the A-95 Areawide Clearinghouse Review process, which has required the distribution of grant applications for federal funding to interested parties, and has made it possible for reviewing agencies to assess and comment on the compatibility of proposed projects with land use plans and with the social, economic and environmental objectives reflected in these plans. While the A-95 review has been terminated by Executive Order 12372, effective October 1, 1983, the Long Island Regional Planning Board will continue to review grant applications for the region in cooperation with the N.Y.S. Clearinghouse.

The *Safe Drinking Water Act of 1974* (42USC 300(f)) enabled the U.S. Environmental Protection Agency (EPA) to designate Long Island's groundwater as a sole source aquifer. This designation precludes federal funding of any project likely to degrade groundwater.

The *National Flood Insurance Program* adopted pursuant to the National Flood Insurance Act (1968) encourages localities to develop land use controls for areas within the 100 year flood zone as identified by the Federal Emergency Management Agency.

The *Internal Revenue Code of 1983* has an indirect influence on development patterns by encouraging donations of lands to the public. This legislation authorizes individuals or corporations to receive a tax deduction for the contribution, sale or bargain sale (below fair market value) of land to a legitimate non-profit organization. Section 1.501-C3 includes the provisions for land trusts to be managed by non-profit organizations (for example, Nature Conservancy). These lands must be managed in the public interest and the non-profit organization must not be subject to political influences. No legislation, just proof of status as a non-profit organization, is needed for the establishment of a land trust. To date, this law contains some incentives for individuals or corporations to donate lands for conservation purposes.

State

New York State enabling legislation authorizes local municipalities to develop and review comprehensive plans and zoning ordinances. Planning and zoning enabling legislation permits local municipalities to control a wide range of activities relating to public health, safety and welfare including the siting and density of residential, commercial and industrial structures. The planning enabling legislation requires that the plan cover the entire area of the municipality, but offers considerable latitude with respect to plan content. A comprehensive plan normally includes the following:

- a statement of community goals and objectives
- policies necessary to the achievement of the goals and objectives
- land use, transportation, housing and other components required to meet the goals and objectives

The plan creates a framework for rational zoning, subdivision and building ordinances along with budgetary and other administrative decisions required for plan implementation.

Article 16-Zoning and Planning, Section 263 of Town Law requires that zoning be based upon a comprehensive plan to insure the orderly growth of the community and protect property values. Recent court decisions indicate a pattern of support for zoning decisions based on a comprehensive plan.

Section 281 of NYS Town Law authorizes the town boards to modify zoning to permit and encourage flexibility in the design of developments. The number of dwelling units permitted in the area may at no time exceed the number of dwelling units that would have been permitted in a conventional subdivision. The dwellings may be detached, semi-detached, attached or multi-story structures, as approved by the planning and town boards. The plat may show lands available for parks, recreation or open space. The planning board may set requirements for the management of these open space areas.

Article 247 of the General Municipal Law of the State of New York allows local governments to purchase or accept donations of easements or development rights in land to preserve open space and agricultural lands. The use of conservation easements can provide permanent protection of lands that are of scenic or ecological value. Easements may cover fresh or tidal wetlands, steep slopes, bluffs, marine, estuarine or fresh surface waters, old fields, grasslands, forests or other natural areas.

The *State Pollutant Discharge Elimination System (SPDES)* (N.Y.S. Law ECL-Article 17, Title 8) requires permits for all industrial, commercial, municipal and residential land uses producing discharges of more than 1,000 gallons per day (see the On-Site Systems Chapter for further discussion of this law). Discharges from commercial and industrial operations are required to meet SPDES sanitary-industrial standards in order to obtain a permit. (For specific discharge regulations, see On-Site Chapter.) Although many of the older treatment systems have been upgraded under the SPDES system, a number of the older facilities apparently still discharge untreated or partially treated wastes to ground or surface water. At the present time there is no complete list of the types and quantities of constituents discharged from various types of commercial and industrial establishments.

Changes in industrial operations, often as a result of change in tenancy, may also result in discharges that are not covered or cannot qualify for a permit. There is no satisfactory system for tracking new tenants and changes in the discharge.

The *State Environmental Quality Review Act (SEQRA)* requires the review of actions that may have a significant impact on the environment, including ground and surface waters. A list of actions has been developed to facilitate the identification of those that require review and those that do not. Type I actions are actions that can be expected to have a significant impact on the environment and require the submission of an *Environmental Assessment Form (EAF)*. Type I actions may require an Environmental Impact Statement. Type II actions are actions that may be expected to have little, if any, impact on the environment; therefore, no further review is required. Unlisted actions may have a significant impact on the environment and require review. All county and local agencies must abide by this law.

Local governments may identify *Critical Environmental Areas* (Section 617.4 SEQRA). Upon designation, all new development within a critical area is a Type I action, subject to the SEQRA procedure. The criteria for the designation of Critical Areas according to Section 617.4 are quoted as follows:

- *a benefit or threat to the public health or public safety*
- *a natural setting (e.g., fish and wildlife habitat, forest and vegetation, open space and aesthetics)*
- *social, cultural, historical, archaeological, recreational, or educational purposes*
- *an inherent ecological, geological, or hydrological sensitivity to change which could be adversely effected by any change*

New York State has several laws dealing with the protection of environmentally sensitive areas. The protection of tidal and freshwater wetlands plays an integral part in maintaining ground and surface water quality. The *Tidal Wetlands Act* (ECL 25-100) and the *Freshwater Wetlands Act* (Article 24 and Title 23 of Article 71, ECL) authorize the state to regulate activities and grant permits in addition to local permits for the use of wetlands and adjacent areas.

In August of 1980, the New York State Legislature passed the *Wild, Scenic and Recreational Rivers Act* (ECL, Section 15-2703) to preserve rivers characterized by outstanding natural, scenic, historic,

ecological and recreational features. The N.Y.S. Department of Environmental Conservation (NYSDEC) is the administering agency. Specific criteria for the identification of wild, scenic and recreational river systems are provided. The Commissioner or agency develops and enforces regulations for the management and control of land uses in designated areas. Predesignation studies are in various stages of completion for Suffolk County's four major rivers: the Carmans, Connetquot, Nissequogue, and Peconic. Following designation and approval of the plans by NYSDEC administrative and implementation responsibilities will be shared by state and local governments.

Several state enabling laws which promote the dedication of lands through contributions and the development of non-profit corporations have an indirect effect upon land use distribution. There are two state laws that authorize the dedication of land through charitable contributions or trusts. Within the *Estates, Powers and Trusts Law, Articles 7 and 8* entitled *Trusts*, and *Charitable Trusts*, respectively, provide the parameters by which these trusts may be upheld in court. Under Article 8:

property may be disposed of to any incorporated village or city of the state to be held in trust for educational purposes, dissemination of knowledge or relief of distress, or for parks, gardens or ornamental grounds, or the exercise of health and recreation.

Land may also be disposed of to the commissioners of common schools of any town or to the trustees of any school district. Article 7 states that a trust may be created for any lawful purpose and the article continues by stating the parameters by which the trust may be created.

The *Not-for-Profit Corporation Law, Article 2*, authorizes the creation of non-profit corporations. Article 5 which discusses corporate finance states that these corporations may not purchase real property and that they may not sell, mortgage or lease its real property unless authorized by a 2/3 vote of the entire board provided that there are 21 or more directors, the vote of the majority of the entire board will be sufficient.

Nassau and Suffolk Counties

In 1970, the Nassau-Suffolk Regional Planning Board* completed the preparation of a *Comprehensive Development Plan* for Nassau and Suffolk Counties. The Plan sets forth policies and programs for the accommodation of growth with minimal degradation of the natural environment (air, water, soils). The *208 WTMP* was completed in 1978 and has been adopted as one component of the Comprehensive Plan. As new studies or information permit the development of detailed policies and programs for specific geographic or functional areas, the additional policies and programs are incorporated into the Plan. The Plan has already been revised for the coastal zone and some other areas of Suffolk County. The *Pine Barrens Planning Council* is assisting the LIRPB in the preparation of a Comprehensive Plan for the Pine Barrens Study Area within Zone III.

Nassau County

Nassau County laws and regulations affect land use or related activities in various ways, such as requiring developers to furnish all utilities leading to and contained within a development (Ord. 157, 1953), prohibiting on-site systems in sewered areas (Public Health ordinance), and authorizing the County to construct, lease, own, operate and maintain sewer facilities (Charter, Art. XII).

The Nassau County Planning Commission reviews all proposed subdivisions located in the unincorporated areas in Nassau County. Pursuant to the Nassau County Planning Commission's Rules and Regulations, the Commission has the authority to require that three percent of the acreage within a subdivision be dedicated as parkland. Cash may be accepted in lieu of a dedication and used to purchase lands adjacent to existing parkland or for the rehabilitation or expansion of existing parks. This is generally done when the area to be dedicated comprises less than ten acres.

The Planning Commission also acts as the lead agency for the review of County projects pursuant to the State Environmental Quality Review Act.

Nassau County Municipalities

The cities, towns and villages can control the type of development that is permitted within their jurisdiction through utilization of zoning, site plan review, and the SEQRA review process. The Towns of Hempstead and North Hempstead are almost entirely developed. Most of the remaining vacant lands in the town have limited suitability for development (tidal or freshwater wetlands, steep slopes, and lands with other environmental constraints). The Town of Oyster Bay and the villages within the Town still contain large undeveloped parcels located within Hydrogeologic Zone I.

*Changed to LIRPB in 1978

Suffolk County

Suffolk County affects land use and related activities through the Planning Commission's review of selected zoning and subdivision proposals pursuant to Article XIII, Sections 1323 and 1333 of the Suffolk County Charter; Department of Health Services administration and enforcement of the Sanitary Code and departmental regulations, and participation in the administration of the State Pollutant Discharge Elimination System; and the Council on Environmental Quality (CEQ) functions pursuant to Article I of the Suffolk County Charter. The CEQ also develops proposals for the dedication of specific lands or structures as part of the Suffolk County Nature Preserve and Historic Trust.

The Suffolk County Department of Real Estate carries out the County's program for the acquisition of environmentally sensitive lands. The County currently owns 17,770 acres of open space lands. Additional lands were recommended for acquisition as a part of the 1970 Bi-County Comprehensive Plan and as a part of the Open-Space Policy Report to the Suffolk County Legislature, May 1980. In the latter, County Executive Peter Cohalan identified additional farmlands, river corridor and greenbelt lands and aquifer recharge areas for acquisition and protection. The County has recently acquired a number of parcels through tax default. Some of these parcels are located in freshwater and tidal wetlands, flood plains, prime aquifer recharge areas, watershed management areas, and wildlife areas. The County expects to dedicate much of this land as County parkland to be designated as *forever wild* subject to Article I of the Suffolk County Charter. This designation virtually insures that these areas will remain as open space.

In January 1982, the Suffolk County Planning Commission's staff completed a paper entitled *Management of Perpetual Conservation Easements*. The paper may be used as a guide for municipalities in the development of management criteria for conservation easements. Although areas have been designated as open space or *forever wild*, they are nonetheless subject to a variety of impacts. Proper management can reduce the potential for adverse impacts. The paper is on file at the offices of the Suffolk County Planning Commission.

Suffolk County Municipalities

Six Towns within Suffolk County: Brookhaven, Southampton, East Hampton, Smithtown, Riverhead and Southold are in the process of revising their comprehensive plans. The revised plans are expected to reflect water quality as well as other environmental concerns.

Some towns have already enacted large lot zoning for the protection of environmentally sensitive areas. The Town of Brookhaven has reclassified 13,000 acres of residentially-zoned land within Zone III from a category requiring one half to one acre zoning to a category requiring two acre minimum lot size. The Town's 1976 Comprehensive Plan recommended inclusion of 36,000 acres within the two acre minimum lot size category. The legality of the reclassification, which had been challenged in the state and federal courts, has been upheld.

The Town of Southampton has recently upzoned 25,630 acres from the two acre category to a five acre minimum lot size for residential and industrially zoned properties. Additional acres are being proposed for upzoning.

On May 20, 1983, the Town of Southold amended the zoning code to upzone approximately 12,000 acres of agricultural and residential zoned lands. The minimum lot size was increased from one acre to two acres. Existing filed subdivisions, wetlands, and parcels in the County Farmland Program were excluded.

The Town of East Hampton has revised a portion of its zoning ordinance by reclassifying 105 acres of land in Napeague from a one acre to a two acre category. The action was initiated in order to preserve fragile dune areas. The Town is considering upzoning critical shallow aquifer recharge areas.

Two towns, East Hampton and Islip, now require mandatory clustering for new residential development in order to protect their environmental resources and groundwater. The Towns of Brookhaven and Southampton are currently in the process of drafting mandatory cluster ordinances. As part of their subdivision regulations, several of the towns require the dedication of land for open space to meet their needs for active and passive recreation and/or the preservation of environmentally sensitive areas.

Various municipalities within Suffolk County have a variety of ordinances that have been adopted pursuant to State laws for the protection of environmentally sensitive areas. The majority of the municipalities have Environmental Quality Review ordinances. The municipalities generally use the State's list of Type I actions. At the present time, the Town of Brookhaven is revising its SEQRA review process for Type I actions and establishing standards for industrial development. (see Recommendations).

RECOMMENDATIONS

Introduction

The following land use recommendations have been developed primarily for the protection of groundwater quality and quantity and surface water quality. They reflect the constraints imposed by the characteristics of the water resources and other local conditions.

There are a number of land use control options available to the municipalities to insure improved groundwater and surface water protection. The revision of comprehensive plans, and the subsequent revision of zoning and other local ordinances to make them compatible with the plans can minimize future environmental impacts in partially developed or undeveloped areas.

Local environmental ordinances, county and state laws are important implementation tools. In some cases new legislation is needed, in others the extension or improved utilization of existing laws may suffice.

The local municipalities could also utilize the NYS Environmental Conservation Law, (SEQRA) Section 617.4 to designate specific geographic areas as critical areas in accordance with the law.

Coordination of the groundwater protection policies, monitoring and, law enforcement of the various levels of government can minimize impacts while reducing the costs of groundwater protection.

Legislation, Regulations and Administration

State

- New York State should enact enabling legislation authorizing municipalities, individually or in concert, to establish Special Groundwater and Special Surface Water Protection Districts.
- New York State should amend the preamble to the Town and Village Zoning Enabling Acts (Article 16-Zoning and Planning, Section 261 of Town Law and Article 6-A-Building Zones, Section 175 of Village Law) to add language explicitly identifying the protection of groundwater and surface water quality as a proper purpose of zoning.

State, Counties and the Long Island Regional Planning Board

- The State, the Counties and the LIRPB should provide technical assistance to the municipalities for the revision of their comprehensive plans.
- The NYSDEC, LIRPB and the County Health Departments should assist in securing designation of Special Protection Districts (see Municipalities). Once the Districts have been designated, the State and Counties should revise any legislation, regulations or administrative actions as required to meet special district management needs.

Counties

- The County Health Departments should establish a listing of non-polluting industries to aid the municipalities in determining which industries may be acceptable in non-sewered critical aquifer recharge areas or other sensitive areas. The list can serve as a guide to the towns in their planning, zoning, site plan and building permit review process.
- The Counties should develop, enact and enforce appropriate controls to minimize pollutant loadings resulting from any land use activities in the following areas:
  - areas recommended for Special Groundwater and Special Surface Water Protection Areas
  - other shallow or deep recharge areas containing high quality groundwater
  - areas where nitrate concentrations are approaching six mg/l, or organic concentrations are increasing and where additional development at the present zoning densities and/or types may be expected to cause ambient groundwater concentrations or the potable water supply to exceed groundwater quality standards.

Municipalities

REVISE COMPREHENSIVE PLANS

The municipalities should evaluate and as necessary revise comprehensive plans to incorporate the objectives and, wherever feasible, carry out recommendations contained in the 1978-208 Waste Treatment Management Plan and the more detailed, updated guidance presented below.

The municipalities should design and adopt plan revisions that will protect undeveloped deep recharge and critical shallow recharge areas where high quality groundwater exists.

- Limit new development, particularly industrial uses, in the deep recharge and critical shallow recharge areas.
- New industries with a *wet discharge* should be located in sewered areas. *Wet* industries should not be allowed in unsewered areas; if they are allowed in unsewered areas, they should be required to have pretreatment and collection and treatment equal to those industries located in sewered areas.
- Concentrate high density or commercial/industrial land uses in existing high density or commercial/industrial areas or in areas located downgradient and within existing contaminant plumes.
- Aggregate uses that would require similar sewage treatment at densities where sewage treatment will be economically feasible in those portions of the deep recharge areas where development is unavoidable.
- Decrease permitted residential densities ranging from two to ten units per acre to one unit or less per acre or open space in the following areas:
  - relatively undeveloped portions of the recharge areas
  - areas where current or increased groundwater usage may result in salt water intrusion, reduction of stream flow or wetland acreage.
- Limit the removal of natural vegetation and the creation of lawn areas.
- See Table 3 for a summary of the land use recommendations for the deep aquifer recharge areas and the critical shallow recharge areas.
- See Figure 8 for selected environmental information required for Comprehensive Plan revision for a selected area and Figure 9 for maps of existing land use, and the recommended land use plan revision.

TABLE 3
Appropriate Residential, Commercial and Industrial Uses For Groundwater And Surface Water Protection

	Groundwater Protection (1,2,3)				Surface Water Protection (1,4)			
	Primary Groundwater Recharge Areas-Deep Recharge and Selected Shallow Recharge Areas				Upland Watershed Areas Adjacent to Surface Waters (Shallow Discharge Zones)			
	Developed Areas		Undeveloped and Partially Developed Areas		Developed Areas		Undeveloped and Partially Developed Areas	
Land Use	Sewered	Unsewered	Sewered or Adjacent to a Sewered Area	Unsewered	Sewered	Unsewered	Sewered or Adjacent to a Sewered Area	Unsewered
RESIDENTIAL:								
Low Density (1 d.u./acre or less)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medium Density (2-4 d.u./acre)	Yes	No	Yes (5)	No	Yes	Yes	Yes	Yes (2)
High Density (more than 4 d.u./acre)	Yes	No	Yes (5)	No	Yes	No	Yes	No
COMMERCIAL:								
Low Intensity (6) - Bakeries, Deli's, Warehouses, etc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medium Intensity - Service establishments, offices, theatres, restaurants, medical labs	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
High Intensity - Hotels/ motels, automotive, laundromats, dry cleaning operations, racetracks	Yes	No	Yes	No	Yes	No	Yes	No
Marine Dependent Activities	—	—	—	—	Yes	Yes	Yes	Yes
INDUSTRIAL: (7)								
Manufacturing:								
Industrial Processes	No	No	No	No	Yes	No	Yes	No
Storage and Handling								
a) Toxic and Hazardous Wastes	No	No	No	No	Yes	No	Yes	No
b) Non-Toxic and Non-Hazardous Wastes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Non-Manufacturing								
Junkyards	No	No	No	No	Yes	Yes	Yes	No

LEGEND:

Developed = The land pattern has been set, a small percentage of the area remains to be developed consistent with existing land uses.
Undeveloped = Over 50% of the land is available for development.
Yes = Allow the described land use development.
No = Do *not* allow the described land use development.

GENERAL DEVELOPMENT GUIDELINES:

Allow development consistent with the existing land pattern.

Permit development in accordance with New York State Environmental Conservation Laws and Regulations, County Health Code, local municipality requirements and zoning and site development performance standards (structural or non-structural) to prevent or minimize environmental impacts.

WHERE DEVELOPMENT IS PERMITTED, THE FOLLOWING ITEMS MAY APPLY:

1. Minimized nitrate loadings to groundwater and surface waters by requiring natural vegetative controls to limit lawn areas, thereby decreasing fertilizer use. (See the Site Plan Review Chapter for recommended controls).
2. In areas where use of on-site systems is permitted, nitrogen removal systems should be utilized.
3. Require or enforce existing controls to prevent any direct discharge of wastes or products to groundwater.
4. Improve enforcement of existing controls to prevent any direct discharge of stormwater, commercial or residential wastes or products to surface waters.
5. Require development to be connected to existing sewage treatment plants (Nassau or Suffolk Counties) or package treatment plants (Suffolk County only).
6. Low Intensity Commercial (300 gal/day) is equivalent to Suffolk County Department of Health Services standards, 1-2 d.u./acre residential designation (as per regulations by Hydrogeologic Zone in the Suffolk County Health Code - Article VI - Realty Subdivisions and Developments).
7. Require site development and operational controls, monitoring and enforcement for industrial uses in special protection districts.

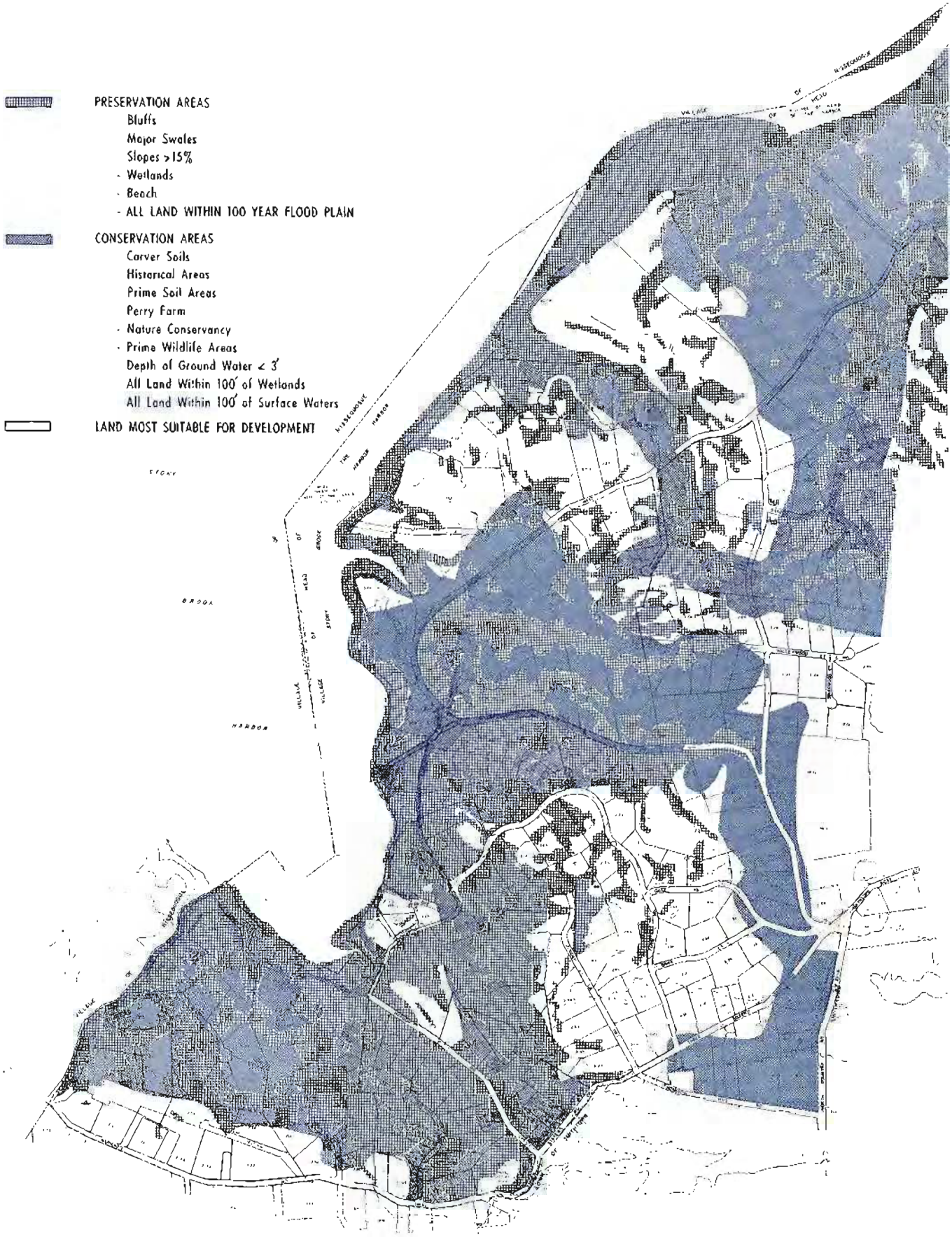
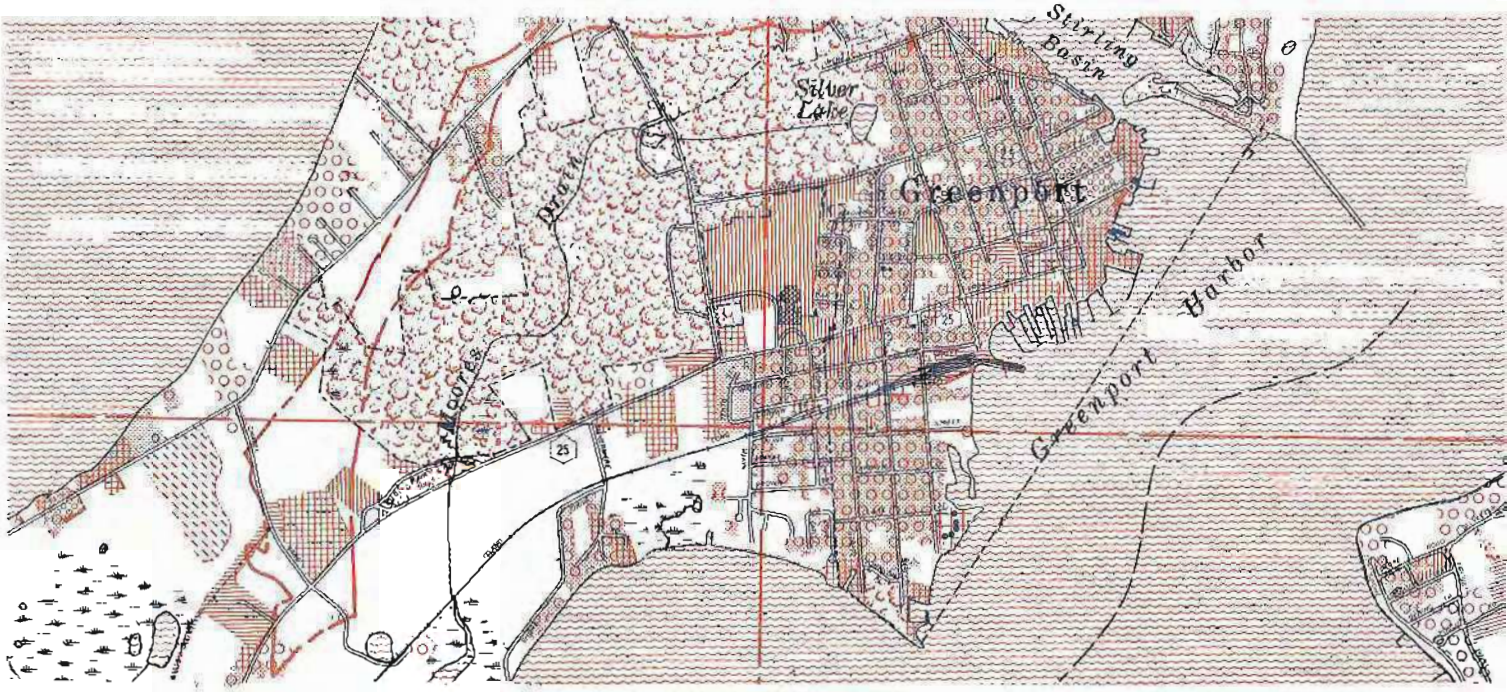
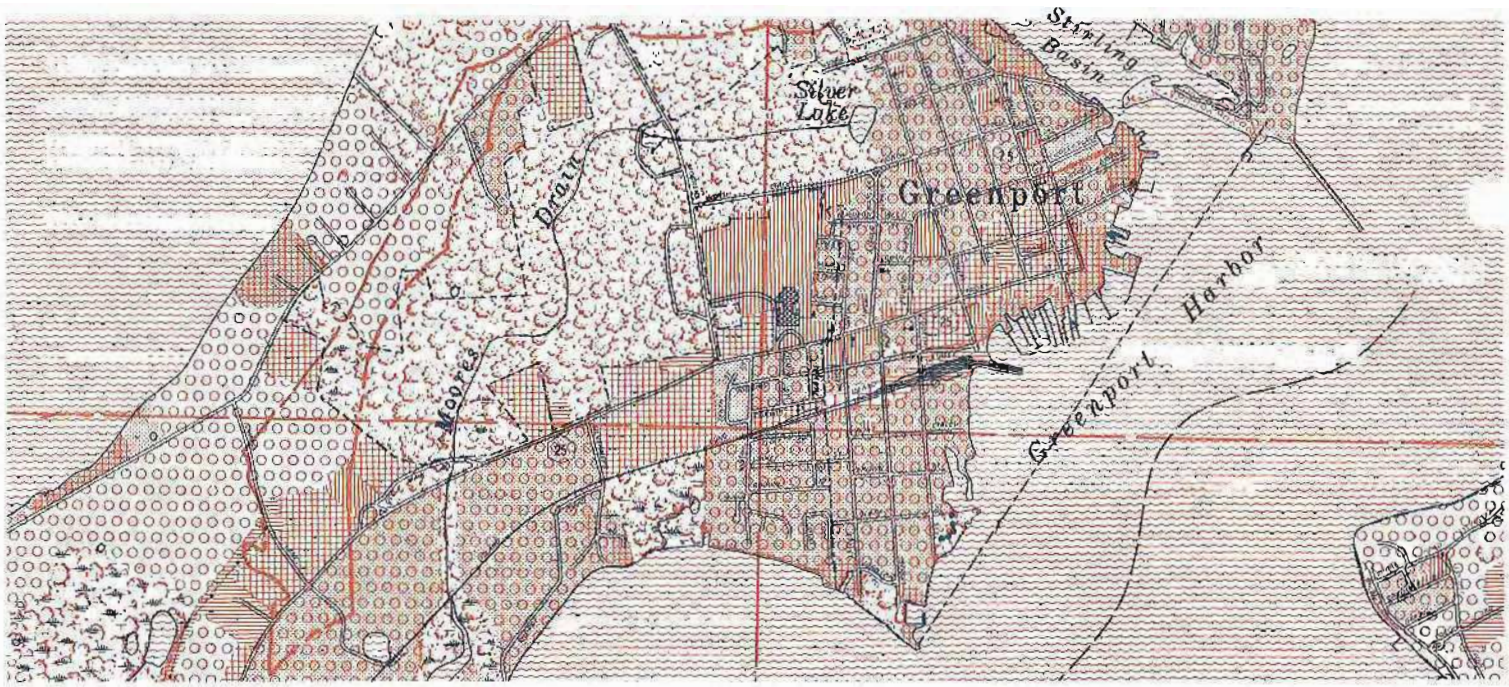


FIGURE 8 *A Sample Of Environmental Mapping Information Used For Comprehensive Plan Revisions*



Existing Land Use



Land Use Plan

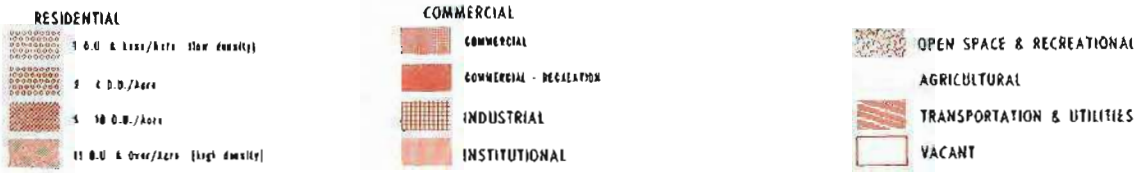


FIGURE 9 *Land Use Plan Revised To Minimize Land Use Impacts Upon Groundwater*

Consider the establishment of Special Groundwater Protection Areas.

A Special Groundwater Protection Area would comprise a relatively undeveloped portion of a deep recharge area, or of a shallow recharge area underlain by salt water, that requires comprehensive management to maintain existing water quality and quantity. Comprehensive management as envisioned here requires coordinated efforts by the various town, county and state agencies in the exercise of their respective responsibilities. NYSDEC Region I, in cooperation with the LIRPB, has undertaken a preliminary identification of candidate areas for the Special Groundwater Protection Areas, based upon the evidence of one or more of the following:

- a relatively undeveloped groundwater recharge area where groundwater withdrawal is occurring or is expected to occur.
- an area underlain by a high quality aquifer that may be contaminated if the land is developed according to existing zoning.
- an area where the presence of extensive groundwater contamination limits or can be expected to limit the amount of potable water that can be made available at a reasonable cost.

  (See Figures 10-13 for the proposed boundaries. The proposed boundary maps are available from the LIRPB and the NYSDEC Region I offices.)

- Each municipality should review the proposed boundaries within its jurisdiction and recommend modifications as necessary to insure needed aquifer protection.
- Once the boundaries are established, the municipalities should undertake the planning, legislative and administrative actions necessary to insure prudent groundwater management.
- The municipalities should incorporate the district designations and policies related thereto in local decisions affecting land use, taxation, and capital programs.

The municipalities should protect fresh and marine surface waters through the selection of minimal impact land uses for undeveloped or partially developed shoreline areas.

Consider the establishment of Special Surface Water Management Areas.

- Special Surface Water Protection Areas would comprise watershed areas requiring management to maintain selected high quality surface waters. The designation by the local municipalities of Special Surface Water Protection Districts immediately adjacent to surface waters could provide the rationale for the imposition of needed controls for areas subject to future development. Performance standards and development guidelines could be used to protect important aquatic or marine resources from future increases in pollutant loadings affecting the aquatic or marine species associated with these waters. Such areas should include but not be limited to the following: important, relatively undeveloped, watershed lands located within the primary coastal zone or lands that drain to marine water as identified in the Long Island Nationwide Urban Runoff Program. (See Figure 14 for a sample proposed Surface Water Protection Area). (See the Site Plan Review Chapter for further discussion).

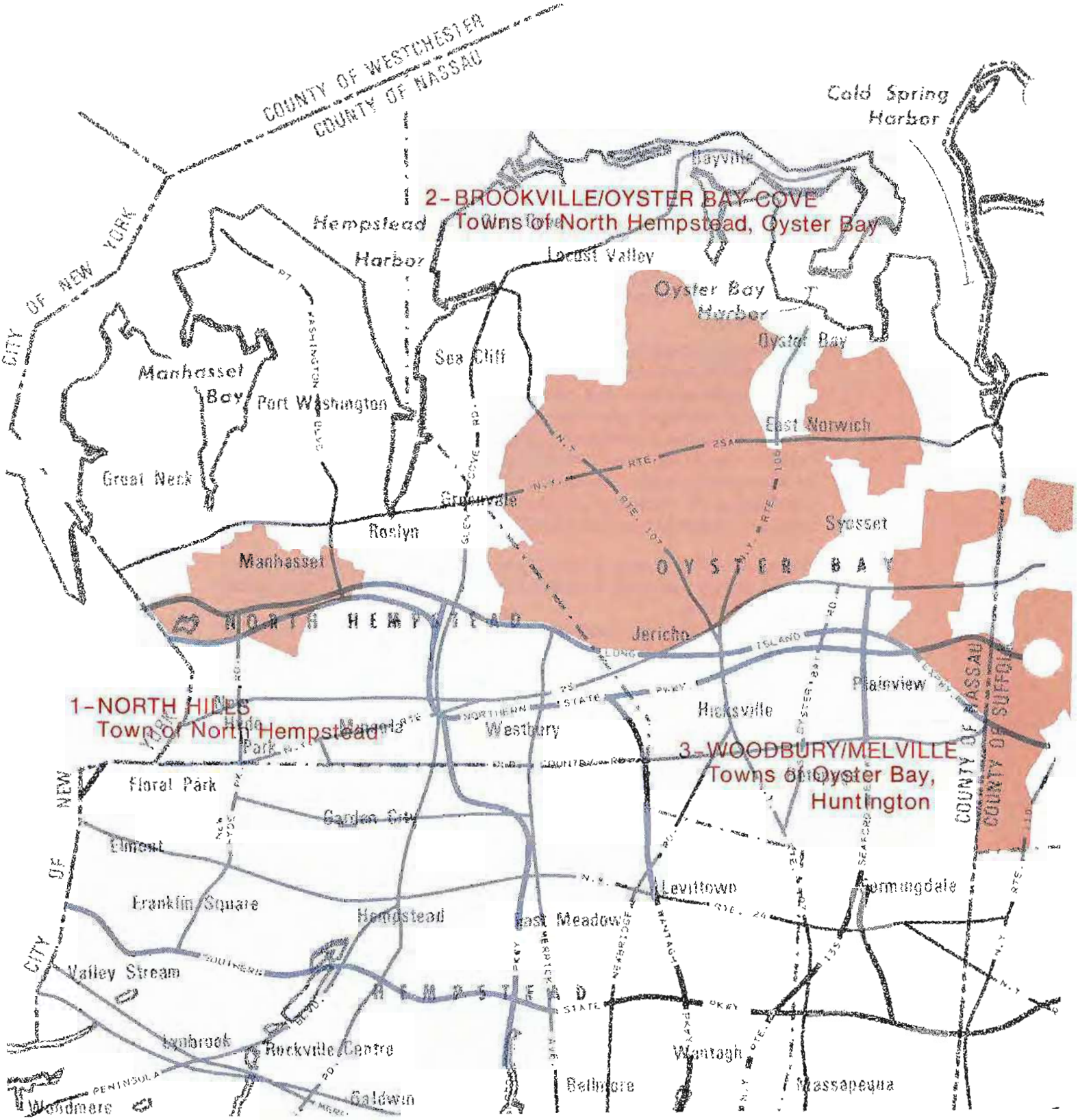


FIGURE 10 *Special Groundwater Protection Areas - Nassau County*

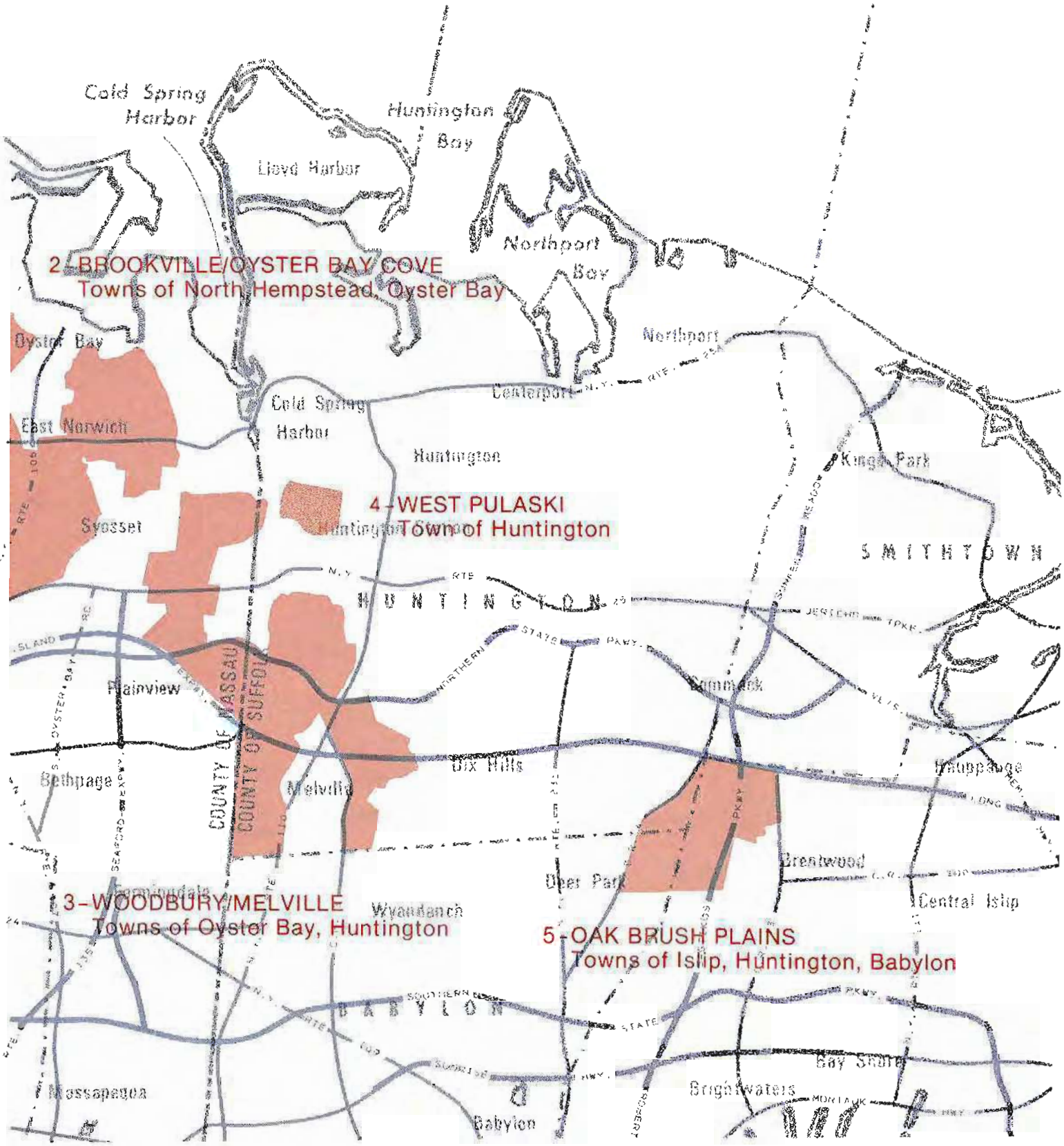
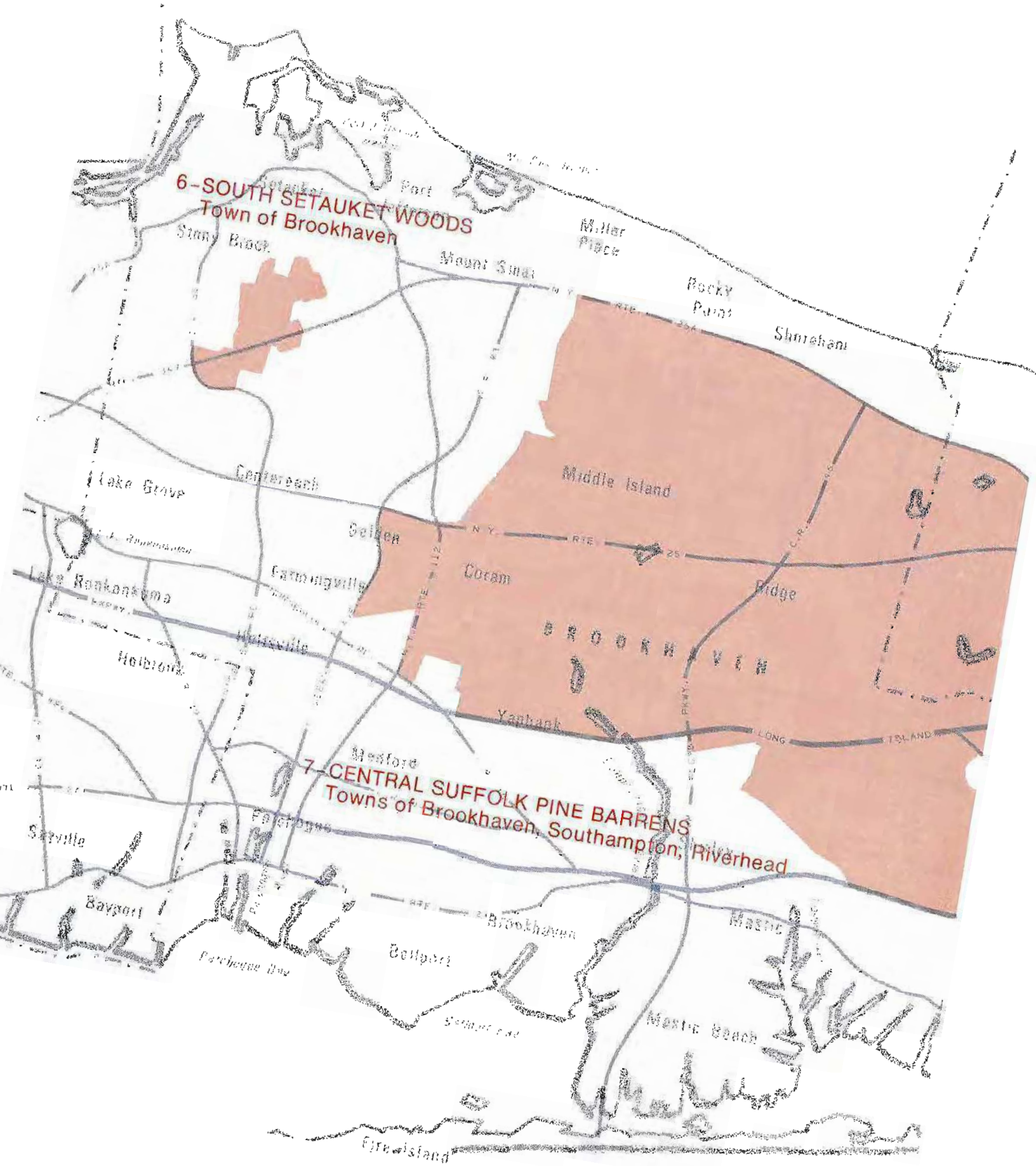


FIGURE 11 *Special Groundwater Protection Areas - Western Suffolk County*


6-SOUTH SETAUKET WOODS
Town of Brookhaven
7-CENTRAL SUFFOLK PINE BARRENS
Towns of Brookhaven, Southampton, Riverhead
Stony Brook
Mount Sinai
Miller Place
Rocky Point
Shoreham
Middle Island
Lake Grove
Centereach
Selden
Coram
Ridge
Farmingville
Lake Ronkonkoma
Holtsville
Holbrook
BROOKHAVEN
Yaphank
Medford
Patchogue
Sayville
Bayport
Brookhaven
Bellport
Mastic
Mastic Beach
Fire Island

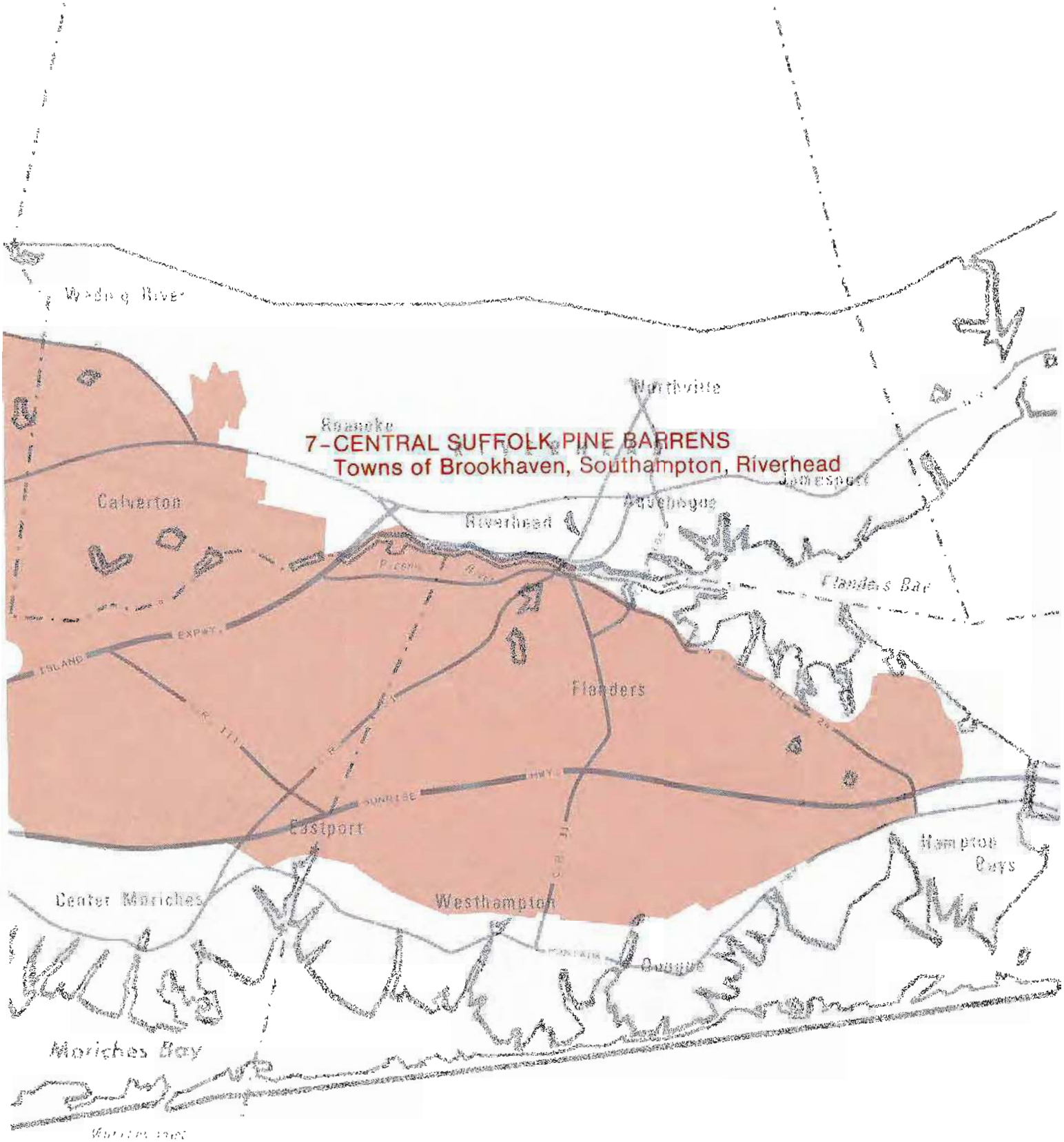


FIGURE 12 *Special Groundwater Protection Areas - Central Suffolk County*

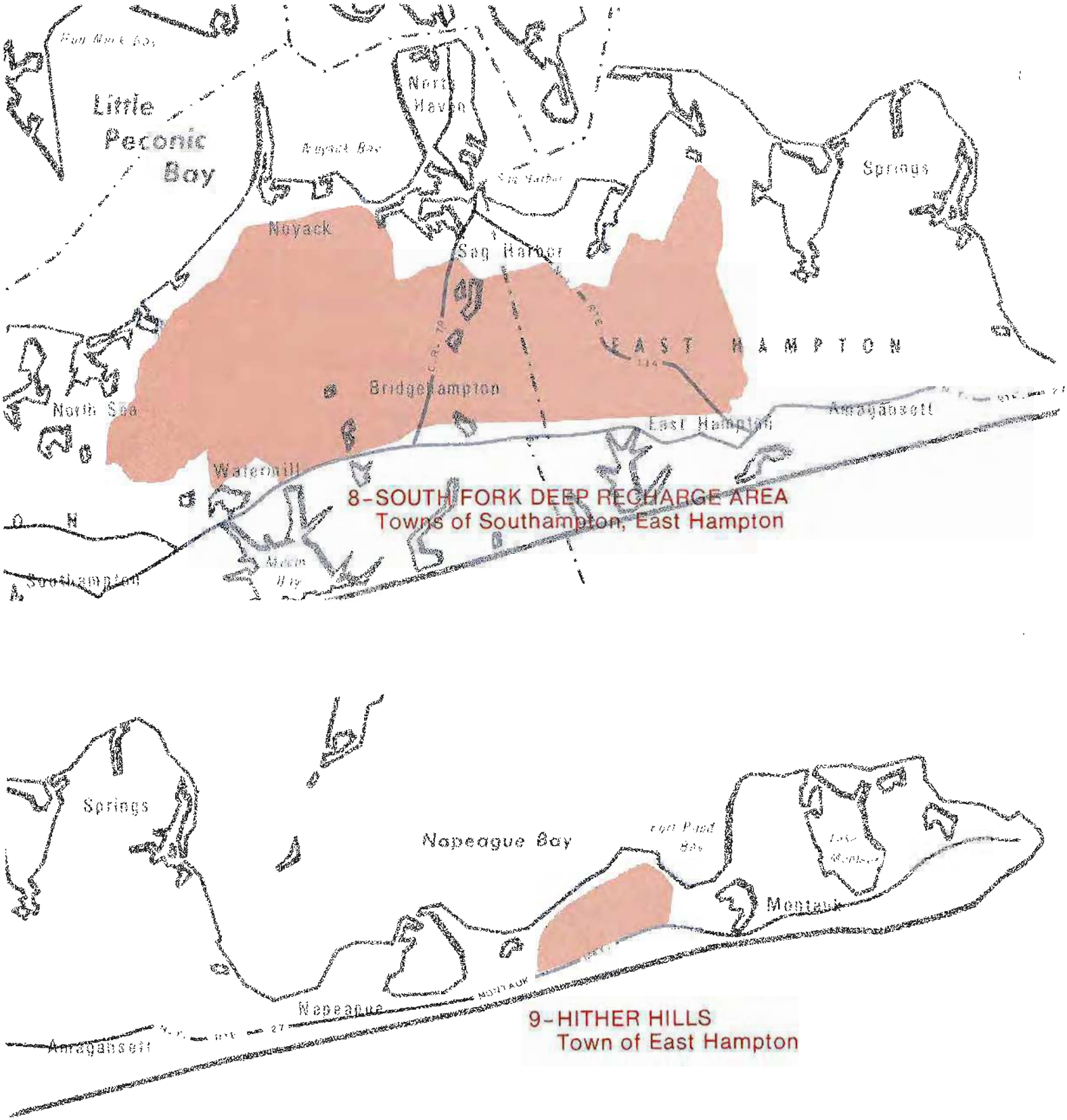


FIGURE 13 *Special Groundwater Protection Areas-Eastern Suffolk County*

FIGURE 14 *Special Surface Water Protection Area*

REVISE ZONING ORDINANCES

The municipalities should revise local zoning ordinances to reflect changes in the comprehensive plan.

- Modify use designations and zoning boundaries to insure consistency with revised comprehensive plans.
- Encourage the establishment of special overlay districts encompassing deep aquifer recharge areas and Special Groundwater or Surface Water Protection Areas. Overlay district provisions should preclude intensive uses except where such uses can meet performance standards designed to minimize groundwater, surface water or other environmental impacts.
- Require SEQRA Type 1 assessment for any down-zoning of residential use or any change from residential to commercial, industrial or institutional use.
- Enact mandatory clustering and site plan review provisions as a part of zoning/subdivision regulations with appropriate applicability and criteria standards to effectuate preservation of groundwater resources. Mandatory clustering should be applied in areas where groundwater recharge, maintenance of the natural terrain and the protection of other environmental resources is required. Undeveloped lands should become the property of the municipality or a homeowners association. If land is deeded to a homeowners association, the conveyance should include a reverter clause providing that in the event of the abandonment or dissolution of the association, ownership would revert to the municipality.
- Revise zoning ordinances by establishing stringent performance standards* such as those being used by the Town of Brookhaven covering the development and operation of industrial activities in the 208 Deep Aquifer Recharge Areas and the Special Groundwater Protection Districts.

All proposed actions within are to be considered as having a potentially significant effect on the environment which will require notification and coordinated review, with possible preparation of an Environmental Impact Statement, pursuant to the State Environmental Quality Review Act, N.Y. ECL § 8-0101 et. seq. *(SEQRA) and the Rules and Regulations issued thereunder of NYCRR, Part 617.* Actions *as used in this paragraph shall have the meaning set forth in Part 617.2(b).*
All changes in tenants or occupants and new tenancy or occupancy and/or existing tenant or occupant industrial process changes will also require notification and coordinated review and possible preparation of an Environmental Impact Statement pursuant to SEQRA and Part 617; provided, however, that this paragraph shall not apply to changes in tenants or occupants and space that is used or occupied exclusively for offices.
Landscaped areas are to be covered using grass, shrub or tree species that have low nitrogen requirements and that are disease and insect resistant. Native plant species are to be used where appropriate.
All industries are to provide access to appropriate government inspectors during normal working hours.

*The performance standards were developed by the Town of Brookhaven in cooperation with the Suffolk County Department of Health Services.

No industrial discharges into the ground shall be permitted, whether by floor drains or otherwise. No permit for a State Pollutant Discharge Elimination System (SPDES) shall be issued except for non-contact cooling water and sanitary sewage disposal systems maintained on the user's property. The sanitary SPDES permit application shall include full plumbing and piping diagrams, showing all subsurface facilities and all internal piping fixtures and connections to the sanitary system. No additions to the approved system shall be added without further review and approval by the Suffolk County Department of Health Services (SCDHS) or the relevant successor agency, if any.

No toxic or hazardous materials, as defined in the Suffolk County Sanitary Code, Article 11, Section 1203, Items n and o, shall be issued under Article 12, Section 1206 and 1207 of the Suffolk County Sanitary Code, but facilities that comply with Section 1208 shall be permitted.

The building area of each lot shall not exceed thirty-five percent of such lot's area without a sewage treatment plant for the lot or unless the building on such lot is connected to a sewage treatment district facility; provided, however, that no such connection or sewage treatment plant shall be required if the discharge of sanitary sewage does not exceed 600 gallons per day per acre of lot area or unless the property shall subsequently become subject to mandatory requirements for sewage system connection by reason of its inclusion in a sewage district.

Each industrial tenant or occupant may be responsible for installation of monitoring wells, both up-gradient and down-gradient in the groundwater flow. The wells will be installed in conformance with the requirements of the SCDHS. The number and location of the monitoring wells shall be as reasonably directed by the SCDHS. The tenant or occupant will be responsible for all costs of these services, as well as costs for groundwater monitoring and evaluation as required by the SCDHS. Well specifications are to be as follows:

- *minimum of 4 inch well casing*
- *screen to be 10 feet below groundwater level to 5 feet above groundwater level for a total of 15 feet.*
- *wells shall be capped, vandalproof, and accessible to SCDHS.*

Any violation of the above provisions shall cause the violator to be responsible for any and all legal fees and expenses incurred by the County of Suffolk and the Town of _____ .

ADDITIONAL ORDINANCES FOR FURTHER PLAN IMPLEMENTATION

Require Site Clearance Permits

- The local municipalities should enact and enforce site plan review regulations as a part of their zoning ordinances and site clearance requirements as a part of their subdivision regulations.

  Regulation should require site clearance permits and the preservation of natural vegetation to minimize extensive clearing and future lawn areas, or to prevent the development of golf courses in critical recharge areas and within the buffer zones mentioned below (See the Fertilizer Use and Site Plan Review Chapters).

Require the Dedication of Conservation Easements

- The municipalities should require the dedication of conservation easements as a part of their zoning ordinances for site plan review and as a part of their subdivision regulations, for new development in critical recharge areas or within any of the special protection districts. The taxes for the dedicated areas should be based on the open space value rather than the development value.

  Conservation easements should include buffer zones (preservation areas) extending for a minimum distance of 50 feet from river, stream, lake, or pond banks in undeveloped or partially developed lands adjacent to surface waters and land required to protect additional resource areas (wetlands, woodlands, wildlife habitats).

ADDITIONAL PLAN IMPLEMENTATION RECOMMENDATIONS

Review and modify Type I and Type II SEQRA Lists

- The municipalities should review and revise their Type I and Type II action lists to insure consideration of potential environmental impacts affecting deep aquifer or important shallow aquifer recharge areas, priority surface water watershed areas and other critical environmental areas.

Acquire Lands for Preservation

- The municipalities should establish priorities for public acquisition and acquire properties located within the Special Groundwater and Surface Water Protection Areas that are necessary for the protection of these areas. (Please see the glossary for a select listing of land preservation tools).

Chapter Two

STORMWATER RUNOFF

INTRODUCTION

Description

Stormwater runoff is that part of the total precipitation that flows over the land surface. Under natural conditions, during and following a rainfall, stormwater flows (within the watershed area) to lower elevations where it is either recharged to groundwater or it drains to streams, rivers, bays, and other surface waters. The amount of runoff from an undeveloped watershed area depends upon

- storm characteristics
- type and amount of vegetative cover
- soils and soil permeability
- slope characteristics
- type and capacity of natural drainage systems

Storms are characterized by their

- duration (period of rainfall)
- total precipitation
- intensity
- frequency
- number of antecedent dry days.

The number of antecedent dry days is one of the most important variables determining the amount of runoff and the concentration of contaminants in stormwater (see Design of Stormwater Drainage Systems).

A portion of stormwater runoff evaporates during overland flow and from surface waters.

Recharge water (infiltration water) is that portion of stormwater that infiltrates the soils and moves downward to recharge the aquifers. A portion of the infiltration water is taken up by soil plants and lost to the atmosphere by *evapotranspiration*.

Due to the gradual percolation of much of the rainfall into the soil in relatively undisturbed watersheds, both the volume of runoff and the rate of overland flow are reduced, thus maximizing aquifer replenishment in some areas and minimizing erosion. In developed watersheds the amount of runoff also depends upon

- amount of impervious surface area
- existing stormwater control measures
- other factors

The presence of impervious surfaces and of stormwater drainage systems that conduct runoff from the site may increase the volume; accelerate the flow; and, in some cases, contribute to the erosion of soils and streambanks.

In upland urban areas where stormwater drainage systems are installed, stormwater flows to recharge basins or to other drainage structures where recharge occurs. In coastal areas stormwater is often discharged directly into surface water bodies; in other cases the overflow of drainage structures is directed into surface waters.

Stormwater as runoff or as infiltration water is the vehicle by which pollutants move across land and through the soils to groundwater or to surface waters.

Contaminants accumulate or are disposed of on natural and urban land surfaces. Sources of contaminants include

- animal wastes
- highway deicing materials
- decay products of vegetation and animal matter
- fertilizers
- pesticides
- air-borne contaminants deposited by gravity, wind or rainfall
- general urban refuse
- by-products of industry and urban development
- improper storage and disposal of toxic and hazardous materials.

The contaminants associated with and carried in stormwater runoff include the following major categories:

- Metals
- Organic Chemicals
  - Base Neutral Compounds
  - Acid Compounds
  - Volatiles
  - Pesticides
- Inorganic Chemicals
  - Phosphates
  - Nitrates
  - Chlorides
- Bacteria & Viruses
- Oxygen Demanding Substances

Raindrops dislodge soil particles and contaminants from land surfaces. This material is carried in solution or suspension and travels with the runoff. Suspended particles are deposited en route if the velocity of stormwater decreases. Contaminants carried in solution in stormwater enter the soil through the larger pores at the soil surface and move downward and horizontally through the pore network. Water diffuses into the smaller pores by capillarity or soil moisture tension. The rate of movement through the soils and surficial materials depends upon the size, shape, continuity and arrangement of the pore network system. Long Island soils are moderately coarse, quite porous, and therefore highly permeable. The most soluble constituents such as *nitrates* and *chlorides* and many organic chemicals continue to move downward through the aquifer system or to the bays. Soils with a high clay, fine sand, or silt content or with the presence of interspersed clay lenses retard the rate of movement of water and some contaminants through the soil. A portion of the constituents may be used by plants and soil bacteria. The above is a generalized description of a very complex system.

Types of Stormwater Systems on Long Island

There are two major types of stormwater systems on Long Island: *nonstructural* and *structural*.

NONSTRUCTURAL

Nonstructural systems attempt to deal with stormwater problems at their source. A variety of techniques are used to minimize stormwater runoff and erosion, maximize recharge and to maintain natural stormwater receiving areas. These include the use of

- ecological and land use planning
- conservation easements
- zoning ordinances (establishment of the amount of site development and coverage)
- maintenance of natural vegetation
- the use of swales, depressions and other grading and planting techniques (see Recommendations)

STRUCTURAL

Structural controls utilize *built systems* such as:

- stormwater sewerage systems
- recharge basins
- sedimentation basins
- dry wells
- other systems

The typical closed stormwater drainage system on Long Island consists of drop inlets, catch basins and manholes connected to pipes of increasing size (See figures 1-5).

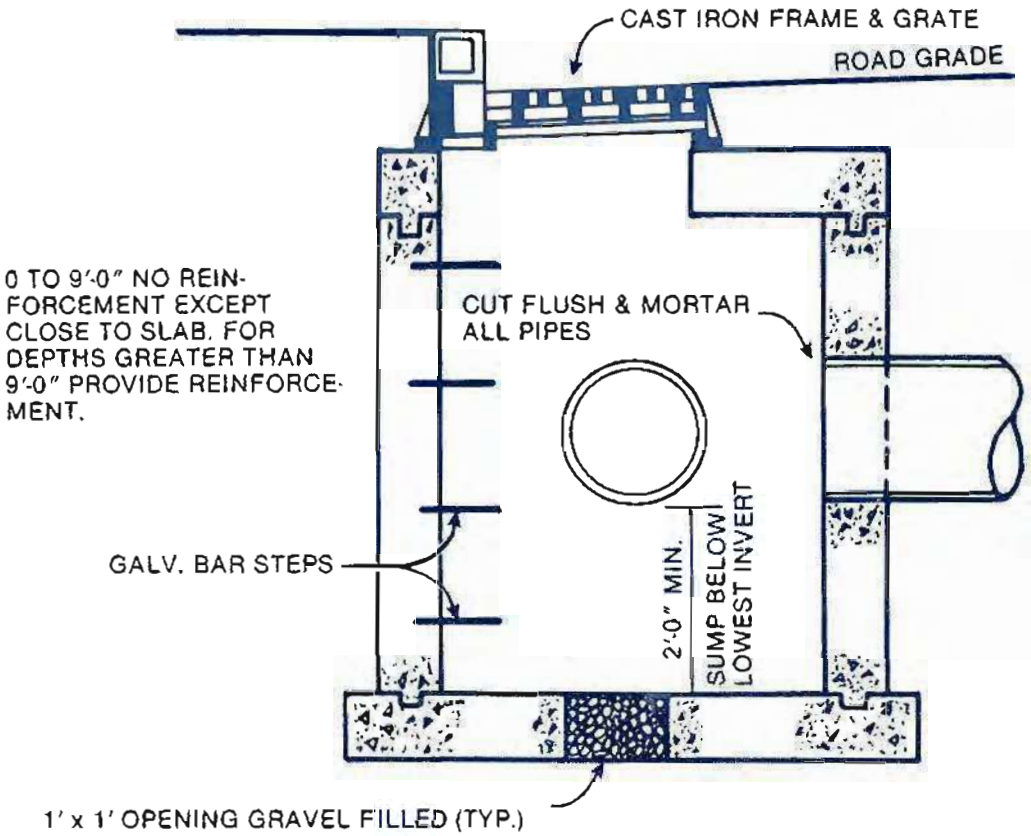


FIGURE 1 *Typical Catch Basin Section*

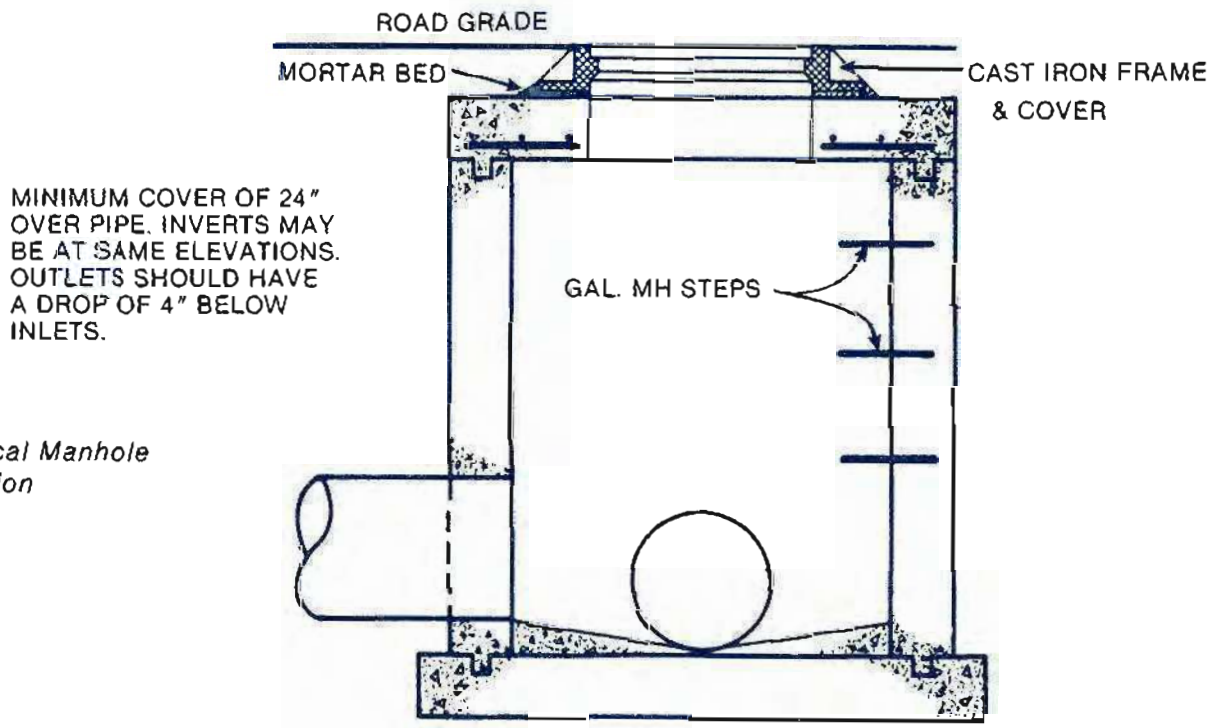


FIGURE 2 *Typical Manhole Section*

Source: Town of Huntington - Road and Drainage Details

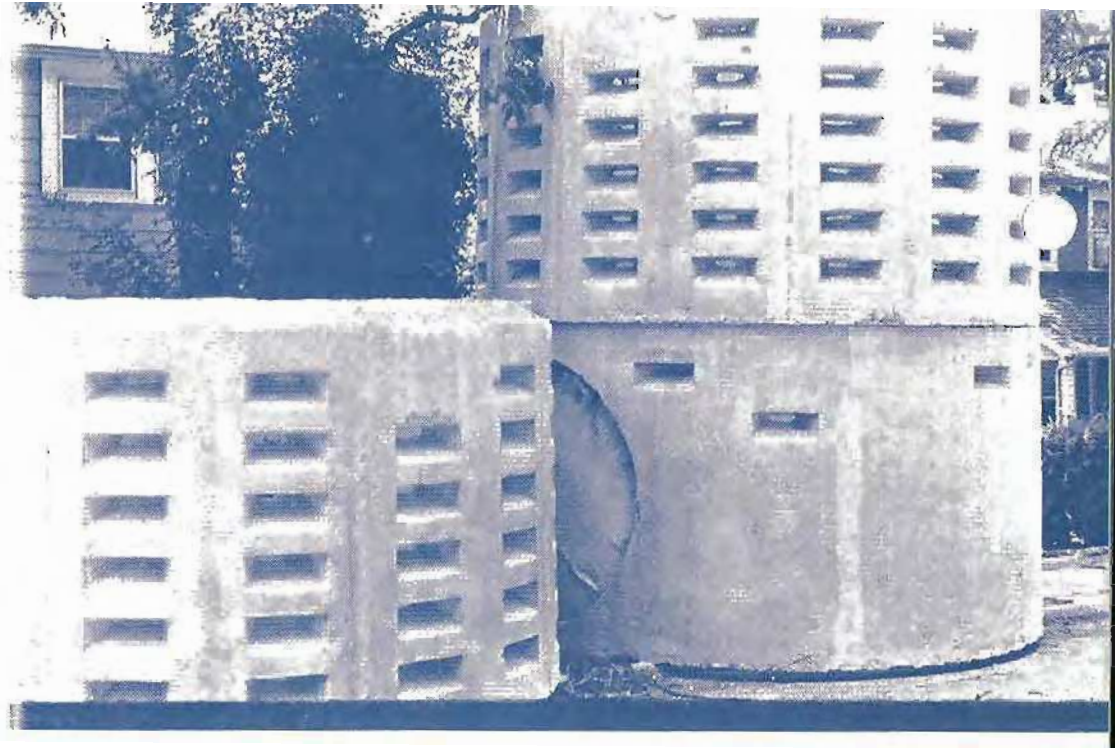
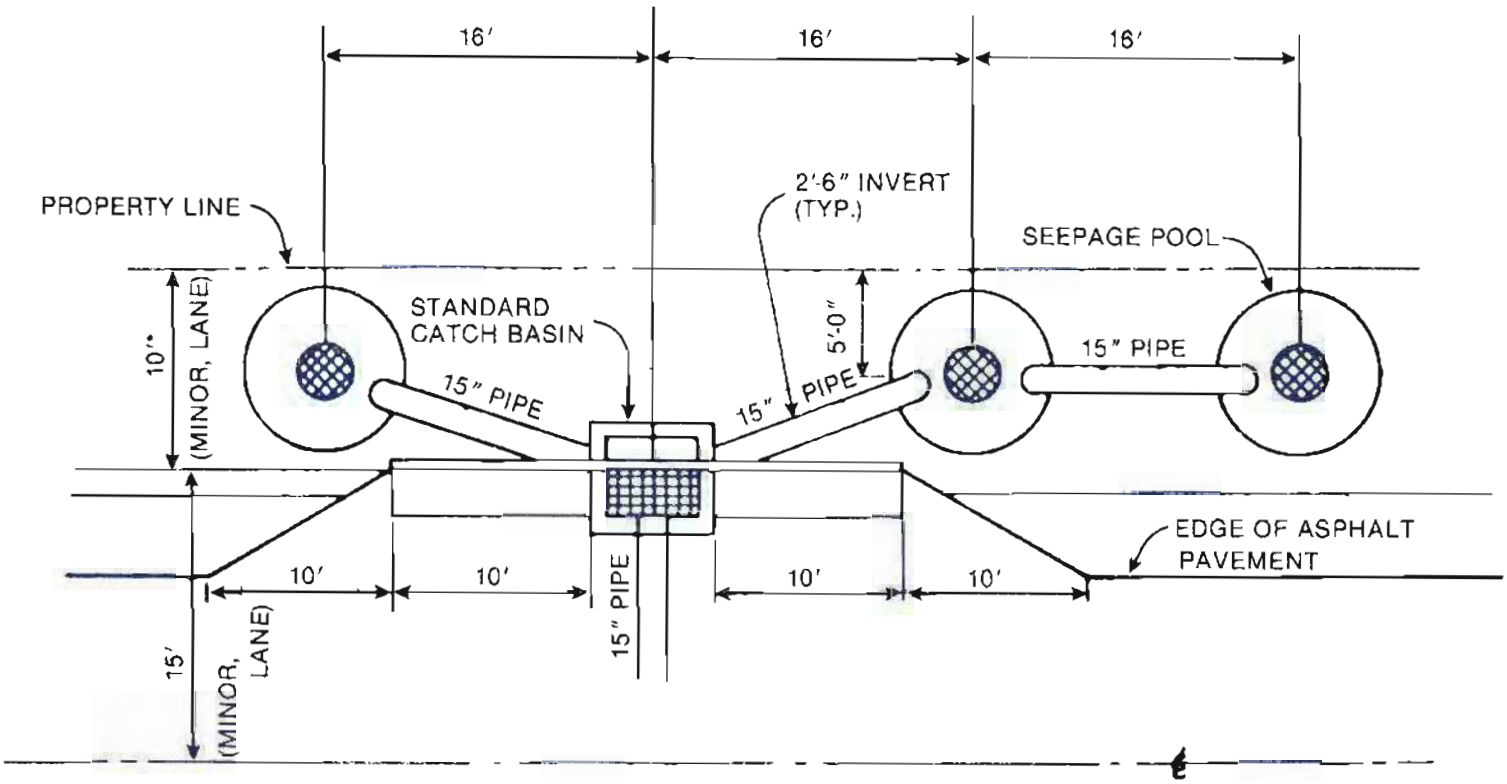


FIGURE 3 *Leaching Pool*



*10′ EASEMENT REQUIRED WHEN ROAD IS A LANE.

FIGURE 4 *Road Drainage Plan - Town of East Hampton*

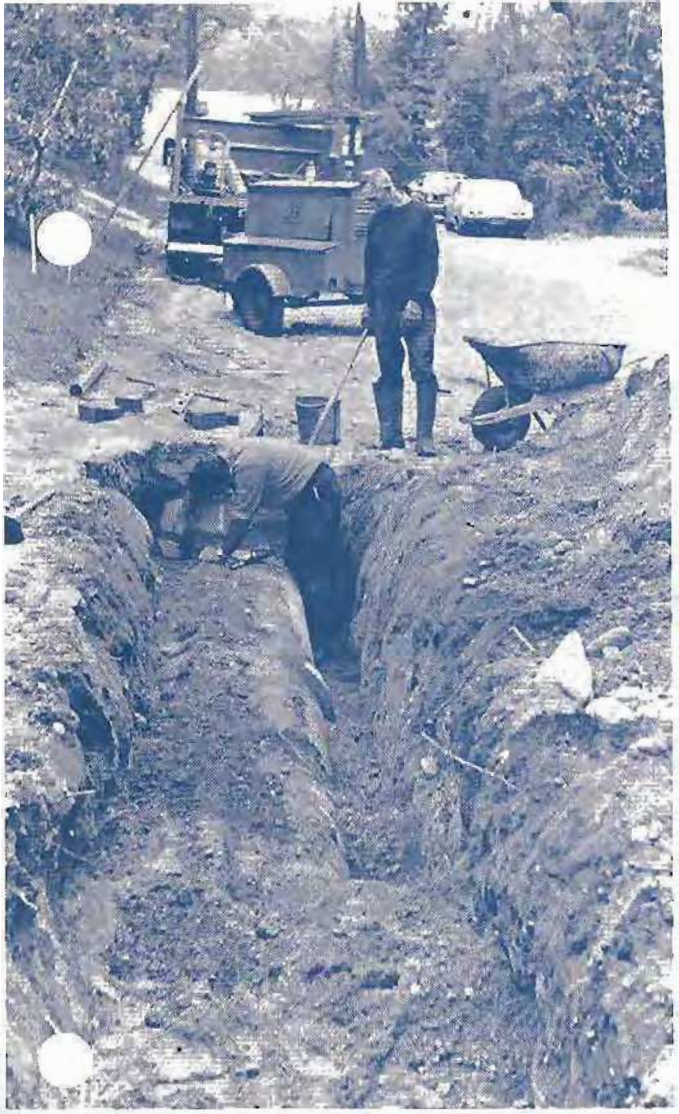


FIGURE 5 *Stormwater Drainage System Being Installed*

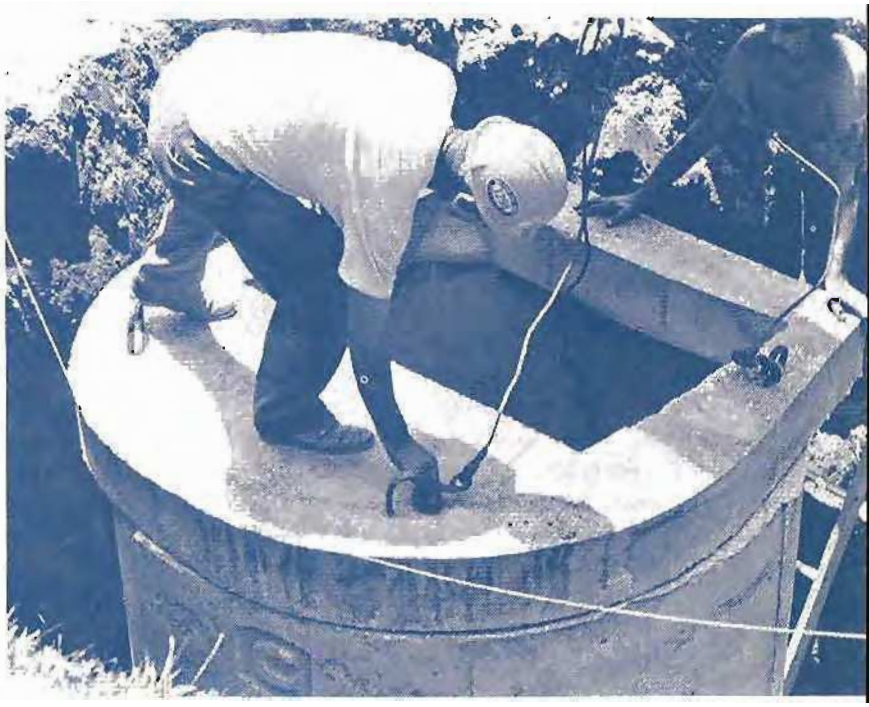


FIGURE 6 *Typical Recharge Basin*

They are usually installed under roadways and parking lots to provide positive drainage. In many cases in the urban areas, stormwater is discharged into recharge basins (See Figures 6-8) which are used in Nassau and in many Suffolk towns to collect and recharge stormwater from the development within the watershed area (drainage basin) including subdivisions, roads, major highways, and some parking lots. Recharge basins are usually designed to provide a storage capacity of five or more inches of rainfall from the catchment area adjusted by the coefficient of runoff. Stormwater may also be discharged into:

- detention ponds (See Figure 9)
- biofiltration ponds (See Figures 10-12)
- energy dissipator — sedimentation basin systems (see Figure 13)
- leaching pools (See Figure 3).

FIGURE 7 *Shallow Recharge Basin*

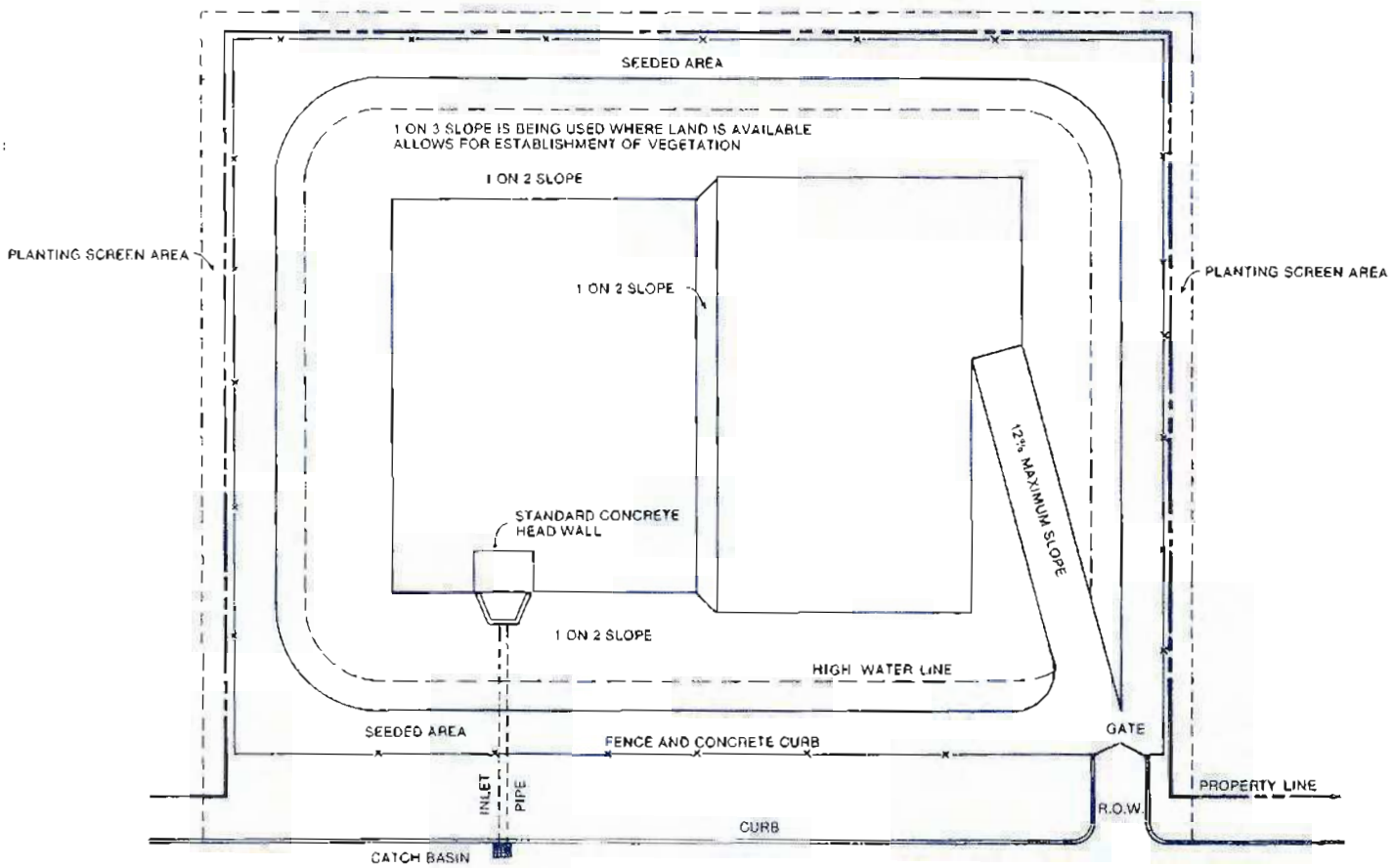


FIGURE 8 *Plan of a Typical Recharge Basin*

Source: Town of East Hampton - Road and Drainage Details

FIGURE 9 *Detention Pond*

FIGURE 10 *Biofiltration Pond*

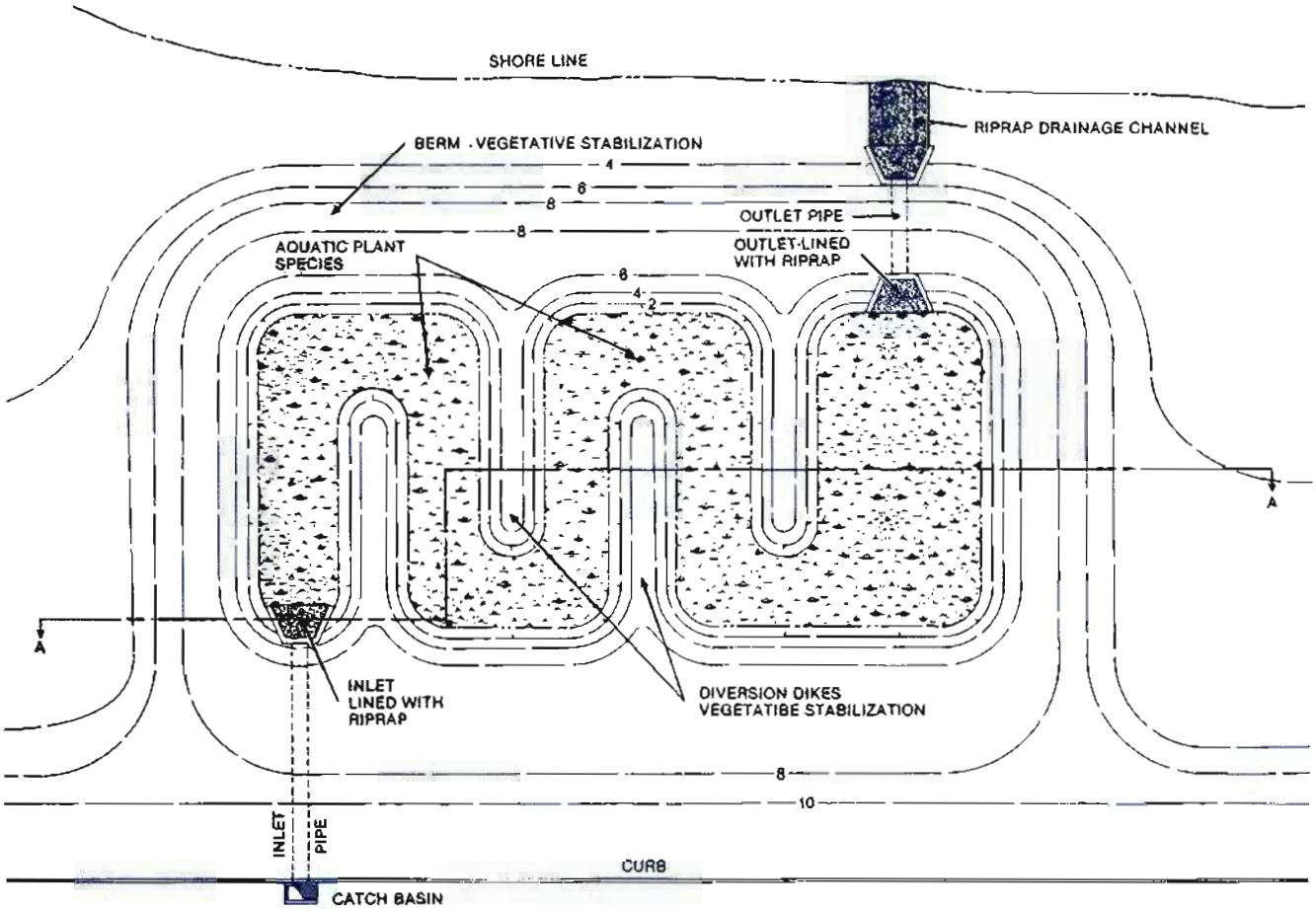


FIGURE 11 *Biofiltration Pond - Plan*

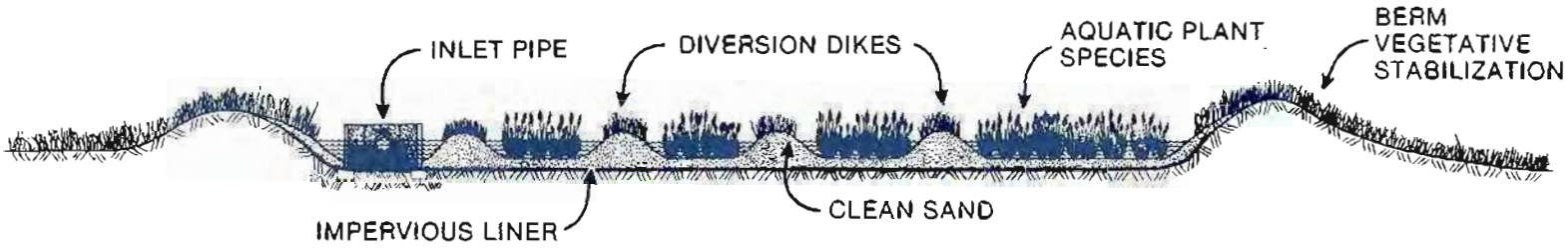


FIGURE 12 *Biofiltration Pond - Section A-A*

FIGURE 13 *Sedimentation Basin*

The overflow from these systems may be discharged into a stream or other surface waters.

Most of the runoff into recharge basins comes from impervious surfaces. Occasionally pervious surfaces are a source of runoff when the infiltration rate and water holding capacity are exceeded due to periods of high intensity rainfall.

A system of leaching pools and pipes (in-line systems) or a system of swales (drainage channels) and shallow depressions may be used to recharge some or most of the stormwater. This technique is most applicable in low density or rural areas. (See Figures 14 & 15). The *in-line system* may also be suitable in areas where the depth to the high water table allows sufficient room for the installation of structures. Ponds and wetlands, kettle holes and other natural land depressions and swales are also used for the disposal of stormwater runoff and in some cases, groundwater recharge.

Design of Stormwater Drainage Systems

Proper management of stormwater requires informed judgement in order to interpret data and evaluate empirical runoff projections. Knowledge of the quantitative and qualitative characteristics of rainfall and the watershed or drainage basin is needed to permit the prediction of rates of runoff. Since there is considerable variation in the frequency, intensity and duration of rainfall, the designer must rely upon data derived from observations over long periods of time. Rain gages have been used for almost a century to measure the intensity, duration and amounts of rainfall from specific storms. Historical records can be used to identify future probabilities (see Field Measurements).

STORM CHARACTERISTICS

Several general conclusions can be drawn in respect to the storms on Long Island:

- Intense storms usually cover small areas and are of short duration; storms of lower intensity tend to cover larger areas and are of longer duration
- Storms of high intensity and/or high total rainfall tend to have relatively lower frequencies of occurrence
- Storms characterized by periods of high intensity often cause flooding and damage due to erosion and sedimentation

FIGURE 14 *Area Where In-Line Storage System Was Installed -Bayville, New York*

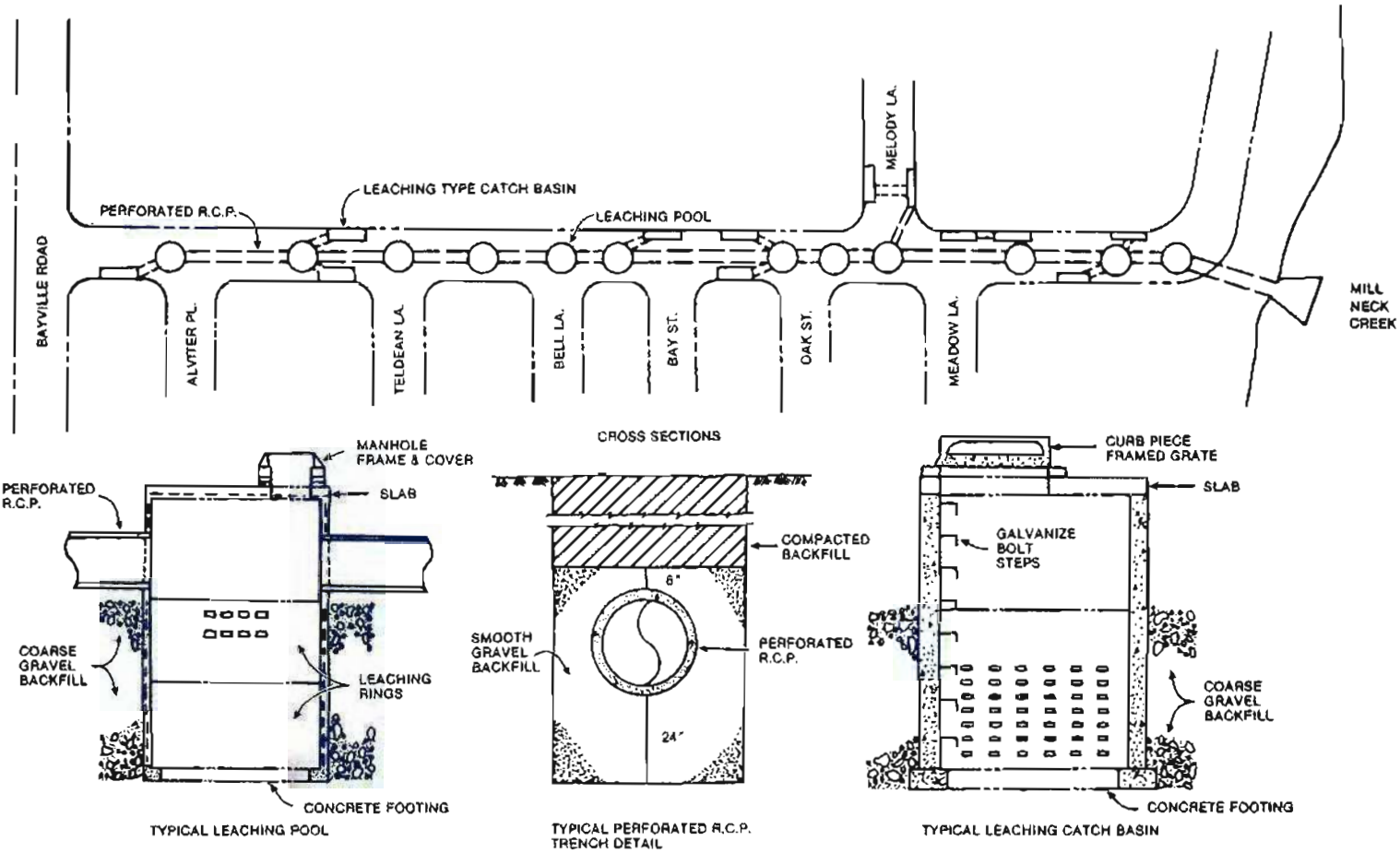


FIGURE 15 *In-Line Storage System*

DESIGN OF CLOSED STORMWATER DRAINAGE SYSTEMS

The Rational Method

The most important consideration in designing stormwater control measures is to provide sufficient capacity to accomodate the peak rate of runoff. It is also necessary to determine the total amount of runoff for a given time period to insure adequate capacity for the storage of runoff. All too often in some locations, stormwater drainage and storage systems are underdesigned due to high costs. The *Rational Method* is generally used as a first step for computing stormwater runoff for the design of closed stormwater drainage systems when the contributing area is less than 200 acres. This method of calculation is based upon selecting a design storm event that is characterized by its duration, average intensity and frequency of occurrence. This technique provides the average peak rate of runoff from a storm, but it does not provide a description of the actual storm. The formula for the Rational Method is **Q = CIA** where

- **Q** equals the amount of discharge (peak runoff rate) in cubic feet per second (cfs)
- **C** equals the runoff coefficient(s) of the drainage area
- **i** equals the intensity of rainfall in inches per hour
- **A** equals the area of the watershed (acres)

RUNOFF COEFFICIENTS

Runoff coefficients refers to the percentage or ratio of runoff to the total amount of rainfall that will reach a stormwater drainage or *storage* system. A watershed that is completely forested and is located on gentle slopes will have minimum runoff even following a storm of relatively high intensity and duration due to the high retention capacity and low runoff coefficients associated with natural groundcover. A watershed that is primarily developed with extensive impervious surface areas has limited storage capacity and high runoff coefficients. The amount of runoff is a function of the amount of rainfall, the amount of evaporation and plant evapotranspiration (seasonally variable), the soil permeability, slope and possibly the texture of the surface area (see Table 1). Runoff from impervious surfaces usually varies from 80 to over 90 percent, therefore the runoff coefficient as a ratio is 0.80 or 0.90 accordingly. The runoff ratios from pervious surfaces usually vary from 0.10 (natural vegatation) to 0.60 (compacted bare soils) or higher. The runoff ratio for a lawn or golf course is approximately 0.20-0.35. The coefficients used to calculate runoff from pervious surfaces may be low in some cases, particularly during a storm that occurs when the ground is frozen. If snow is present, runoff is further increased due to snow melt.

TABLE 1

Runoff Coefficients

$$\text{Value of C} = \frac{\text{runoff}}{\text{rainfall}}$$

	Minimum	Maximum
Roofs	0.90	1.00
Pavement	0.70	0.90
Bituminous Macadam open and closed type		
Concrete or Asphalt	0.90	1.00
Gravel	0.25	0.70
Earth Surfaces with Light Vegetation		
Sand	0.10	0.40
Loam	0.10	0.45
Gravel	0.15	0.50
Clay	0.20	0.60

Source: Adapted from Seelye, E.E., *Data Book for Civil Engineers-Design*, Volume One. 1953.

INTENSITY OF RAINFALL

The intensity of rainfall is defined as the rate of rainfall in inches per hour for a given time period. This rate varies during the storm period. One method of determining intensity is to use a compilation of rainfall probability curves displayed in a *Rainfall Intensity-Frequency Graph* (see Figure 16). The curves indicate a one hour rainfall in inches to be expected to recur on an average of 1, 2, 5, 10, 25, 50 or 100 years.

It is also necessary to determine an accurate time of concentration or the point at which runoff from all parts of the watershed contributes to the runoff volume. An *empirical method* of determining the intensity of rainfall in relation to the time of concentration is

$$I = \frac{x}{t + y}$$

where:

- I equals rainfall intensity for runoff in inches per hour
- t equals time of concentration in minutes (15 or 20 minutes)
- x & y equal constants that vary with geographic location and frequency of storms.

The intensity of runoff (I) that is commonly used for Long Island is determined by using the following formula:

$$I = \frac{120}{t + 20}$$

where:

- t equals the time of concentration in minutes
- x and y have been substituted with constants used for Long Island.

FIG. A. ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 2 YEARS

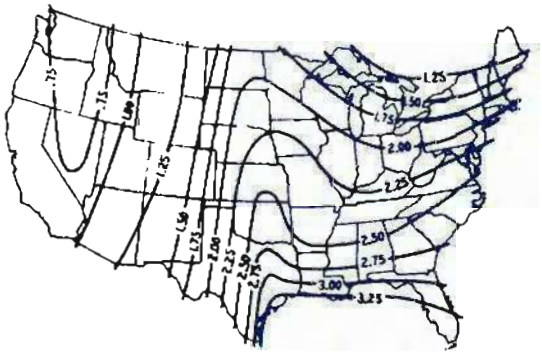


FIG. B. ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 10 YEARS.

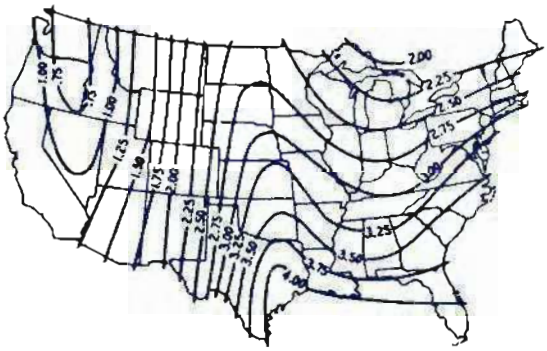


FIG. C. ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 50 YEARS.

FIG. D. ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 5 YEARS.

FIG. E. ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 25 YEARS.

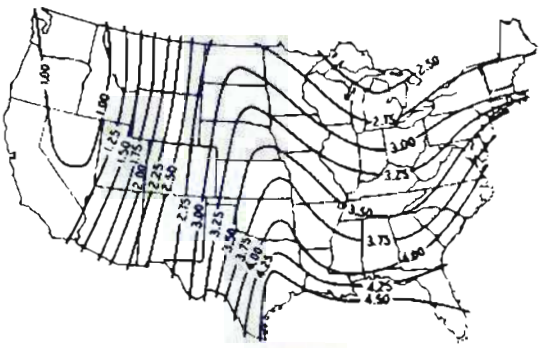


FIG. F. ONE-HOUR RAINFALL, IN INCHES, TO BE EXPECTED ONCE IN 100 YEARS.

FIGURE 16 *Rainfall Intensity Curve Graph*

Source: Seelye, E.E., Data Book for Civil Engineers - Design, Volume One. 1953.

The establishment of maximum time of concentration requires the computation of both overland and channel flow time for many of the remote parts of the watershed. Additional formulas are required to determine the time of channel flow including the *Mannings and Chezy-Kutler* formulas. All of the formulas depend upon the arbitrary assignment of values to represent the hydraulic conditions of the channels.

FORMULA FOR CHANNEL RUNOFF

Runoff in cubic feet per second for channels can be calculated by using $Q = av$ where:

- a = areas of the waterway in square feet
- v = velocity in feet per second.

The specific design of closed drainage systems involving the selection, sizing and location of piping, drop inlets, catch basins, manholes and discharge basins is beyond the scope of this chapter. This material can be obtained from a number of engineering texts that deal with the subject. However, some material for the design of recharge basins and leaching pools is provided in the following paragraphs since this information is not available in standard texts.

Design of Recharge Basins and Other Stormwater Detention and Storage Systems

A commonly used method for the design of recharge, detention and other storage systems is to determine the volume of the recharge basin that is needed to store the required number of inches of rainfall. For instance, the volume of rainfall from a 5" storm for a 100 acre watershed area would be determined as follows:

$$\frac{5''}{12''/\text{ft.}} \times 100 \text{ acres}$$
$$\times\ 43{,}560 \text{ ft.}^2/\text{acre}$$
$$\times \text{ the runoff coefficient } (0.30)$$
$$= \quad 554{,}500 \text{ ft.}^3$$

The retention storage area of the recharge basin is then calculated.

Soil and surficial permeability rates are used to determine the capacity of recharge basins, holding ponds and other stormwater systems. The Soil Conservation Service has classified soils into *hydrologic soil groups* ranging from hydrologic soil group A, which has a low runoff potential and a high infiltration rate, to soil group D, which has a very low infiltration rate. The soils with moderate and high infiltration rates also may have a high recharge capacity. Soil storage capacity is dependent upon other soil characteristics in addition to the infiltration rate. For instance, a fine sandy loam may have the highest storage capacity but will have a lower percentage of large pores than a sand or loamy sand. A fine sandy loam has a high storage capacity because of soil moisture tension. It should be noted that once the recharge basin is in operation, the permeability rates may decrease due to sediment clogging of the soil pores or they may increase due to the establishment of vegetation and associated increased soil porosity. Test drilling should be performed at each proposed recharge basin site to determine whether there is a clay lens beneath the site.

DESIGN OF LEACHING POOLS FOR THE STORAGE AND SLOWER DISCHARGE OF STORMWATER

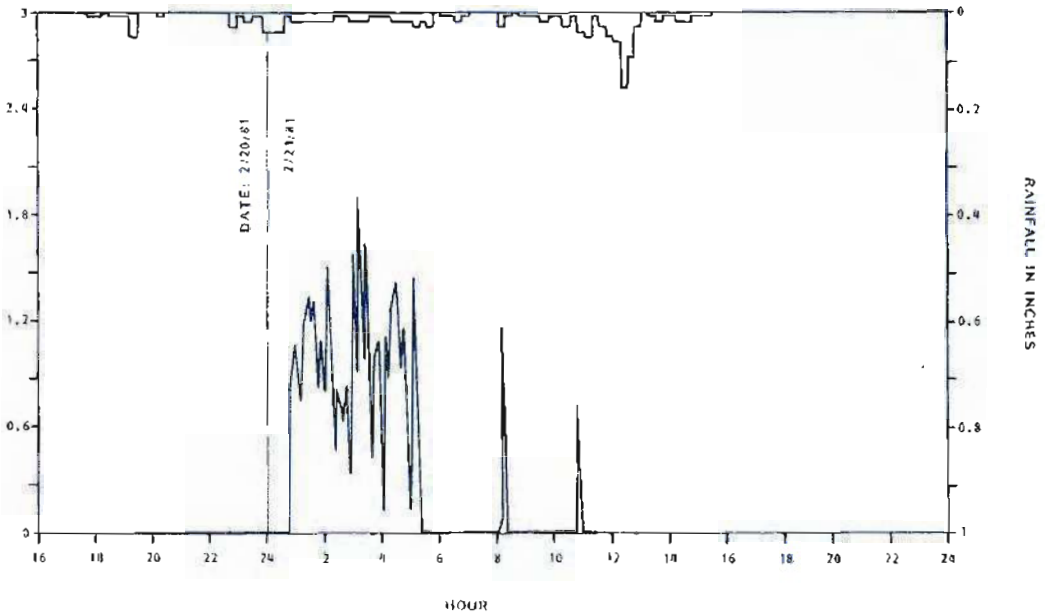
A formula used for seepage or leaching pools is **SC = AAC**, where:

- **SC** equals storage in cubic feet capacity
- **A** equals the tributary drainage area in square feet
- **A** equals rainfall in feet [.33 feet (4 inches)]
- **C** equals the coefficient of runoff of the drainage area

Field Measurements of Rainfall, Runoff and Contaminant Concentrations

A *hyetograph* can be used to portray the rainfall in inches as a function of time (See Figure 17). A typical *hydrograph* for an urban area illustrates the volume of stormwater (or stream) discharge measured in cubic feet per second, according to the hours into a given storm event and the time of peak discharge (see Figure 17). Flow measurements can be taken for storm sewer discharges or for stream flow. The watershed or contributing area that drains to that point must be known. The runoff rate corresponds directly to the flow rate measured at that designated point. (See Figure 18 for a hydrograph illustrating discharge from a relatively undeveloped area).

A *pollutograph* may be used to indicate the concentrations of contaminants in stormwater during the entire period of the storm. See Figure 19 for a pollutograph that displays concentrations of various constituents (i.e., bacteria, lead, chromium) versus time.



The peak flow into the recharge basin occurred four hours after the beginning of the storm. The flow then dropped abruptly returning to normal within a few hours. A similar situation would have occurred if the stormwater had been discharged into a stream. The stream flow would have increased significantly but would have returned to normal within a short time.

FIGURE 17 *Hydrograph/Hyetograph For An Urban Area*

Source: The Long Island Segment of the Nationwide Urban Runoff Program - Long Island Regional Planning Board - 1983.

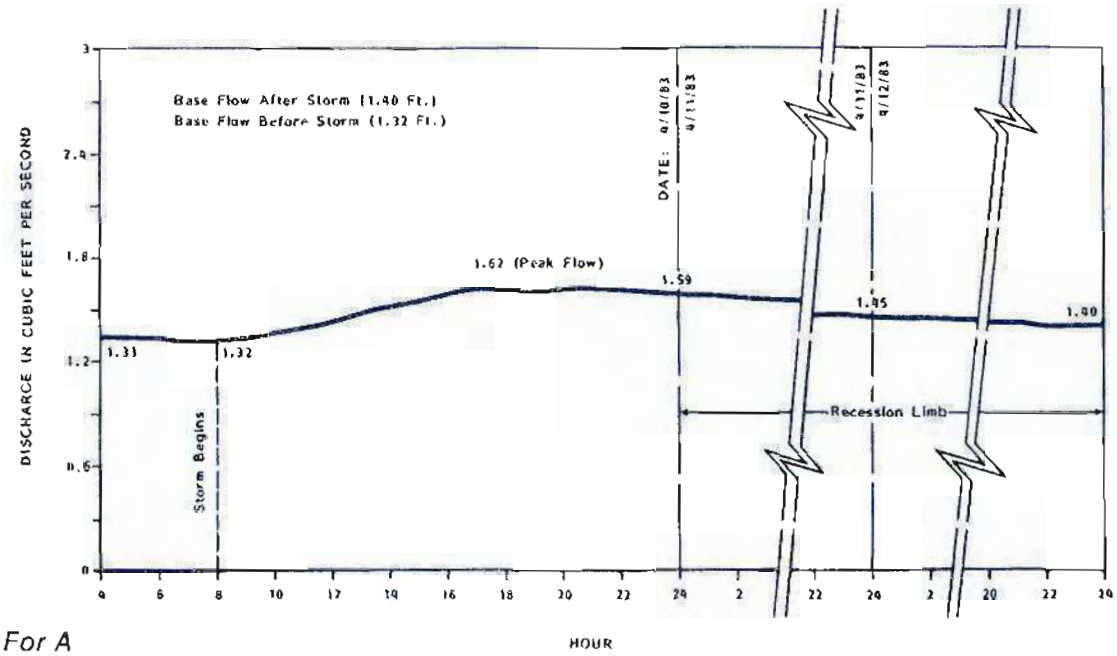
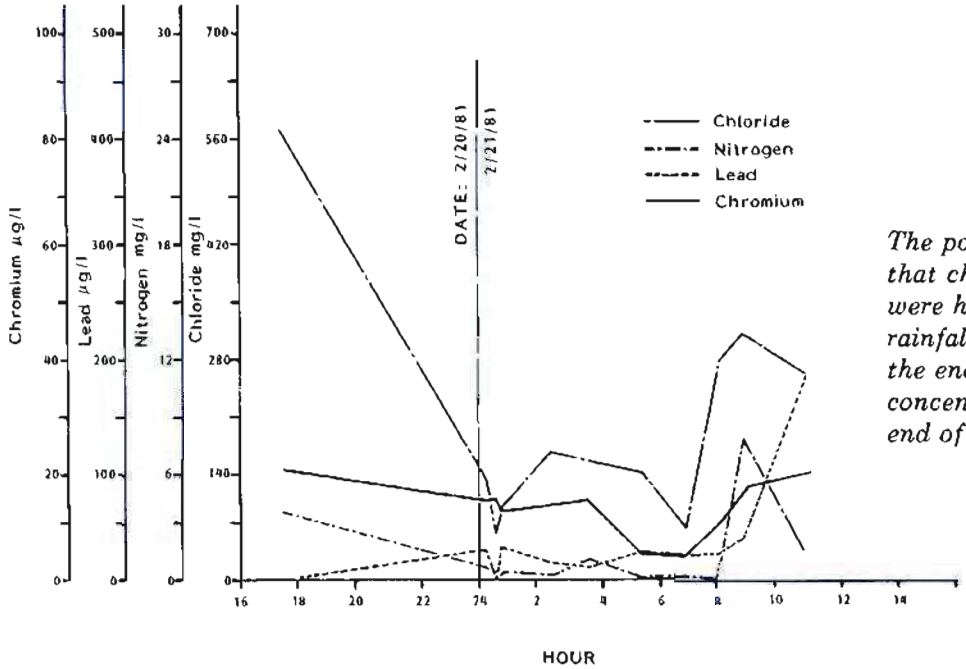


FIGURE 18 *Hydrograph For A Relatively Undeveloped Watershed Area*

Unlike the hydrograph depicted in Figure 17, the hydrograph for the undeveloped watershed revealed a more gradual increase in flow with the peak volume occurring after eight and one-half hours. The flow did not return to base flow condition until at least 48 hours had passed.

Source: Dale Simmons, Hydrologist, USGS, 1984



The pollutograph for a winter storm indicates that chloride and chromium concentrations were highest at the beginning of the initial rainfall and reached secondary peaks towards the end of the storm. Lead and total nitrogen concentrations were the highest towards the end of the storm.

The pollutograph showing counts of bacteria in stormwater indicates that fecal streptococci and total coliform bacteria were the highest during the peak period of runoff. Fecal coliform counts were the highest following the peak runoff period at the end of the storm.

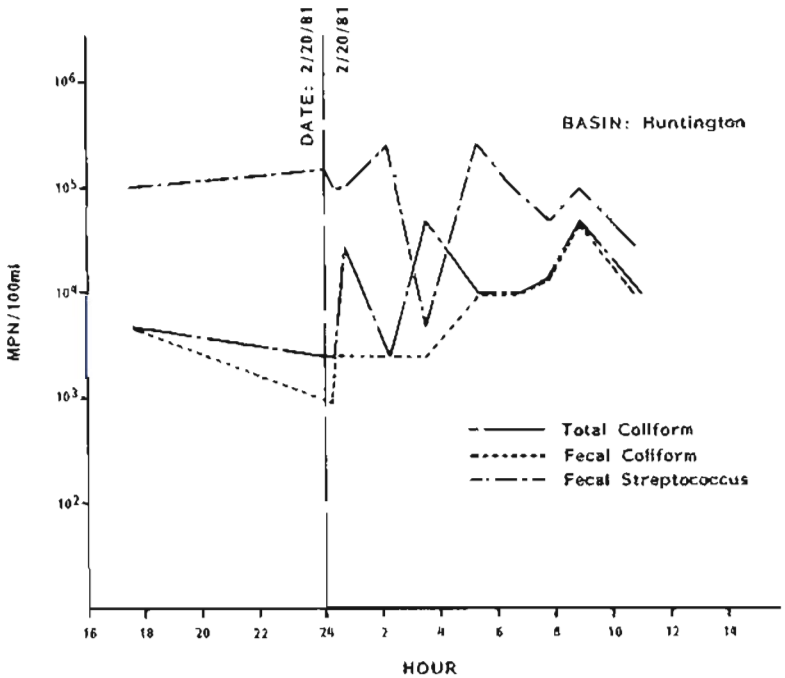


FIGURE 19 *Pollutographs for the Storm of February 20, 1981*

Source: The Long Island Segment of the Nationwide Urban Runoff Program - Long Island Regional Planning Board - 1983.

KEY PROBLEMS

Introduction

In the past, stormwater runoff systems were designed to get the stormwater off the site and into stormwater drainage systems or onto roadways as fast as possible, sometimes at the expense of the neighbors or downstream communities. Although a large portion of the Inland runoff was directed towards recharge basins, most of the stormwater and associated contaminants from areas adjacent to coastal waters were discharged untreated through drainage system outfalls and from roadways into surface waters.

As Long Island became more urbanized, the types and amounts of pollutants generated by land use activities increased and the extent of natural stormwater recharge areas decreased. Natural vegetation was replaced with impervious and modified pervious surface areas. Individual sites were developed without provision of land area for the recharge of stormwater and erosion control measures. Over time, this resulted in increased volumes and rates of runoff. (See Figures 20, 21) Accelerated erosion and sedimentation were associated with the higher rates of runoff. An increase in runoff (and sedimentation) created the need for more extensive drainage systems to prevent the accumulation of water in streets and highways and in flood-prone areas. Since stormwater runoff is a transport vehicle for contaminants deposited on impermeable or relatively impermeable surfaces, it is often an important contributor to surface water degradation. (See the Land Use Chapter). To compound the problem, many coastal and inland wetlands were filled and developed, further reducing the storage area for stormwater, sediments and contaminants associated with the sediments. These conditions resulted in the following major effects:

- increased local expenditures for the installation and maintenance of stormwater drainage systems and the maintenance of roadways
- increased outlays for channel maintenance
- increased flooding of roads and of lowland areas resulting in hazardous driving conditions, dangerous flash floods and property damage
- loss of viable wetland acreages due to sedimentation
- increased concentrations of contaminants in groundwater
- the closing of a large portion of the area's shellfishing grounds due to high coliform concentrations introduced by stormwater (See Health Related Problems).
- changes in the values of aquatic and estaurine water quality parameters with possible adverse affects on aquatic and marine species.

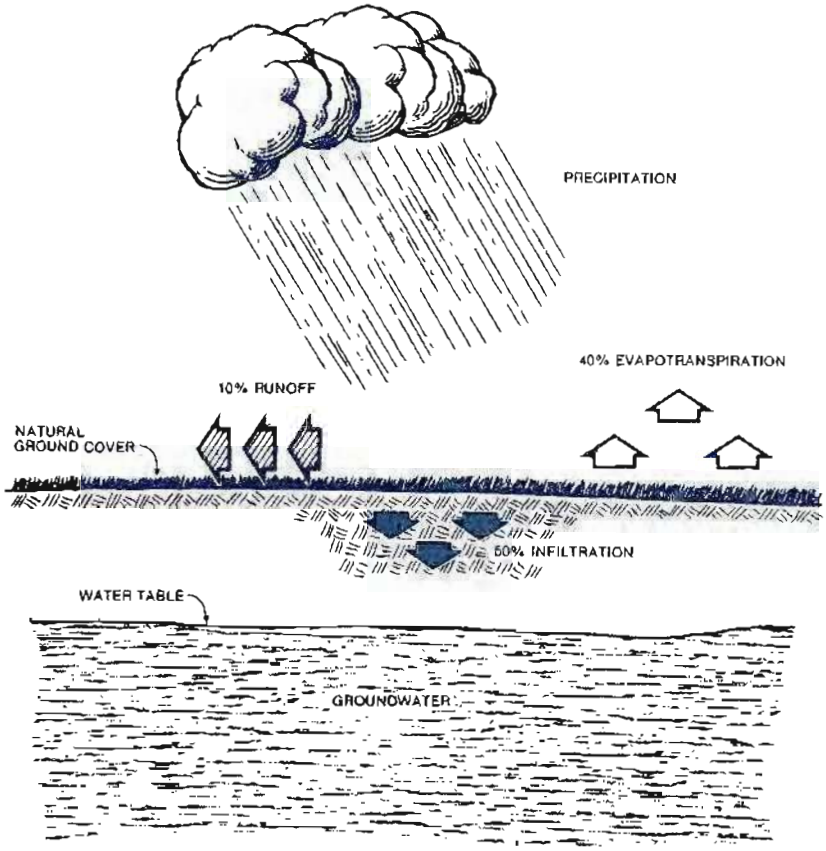


FIGURE 20 *Stormwater Runoff Under Natural Conditions*

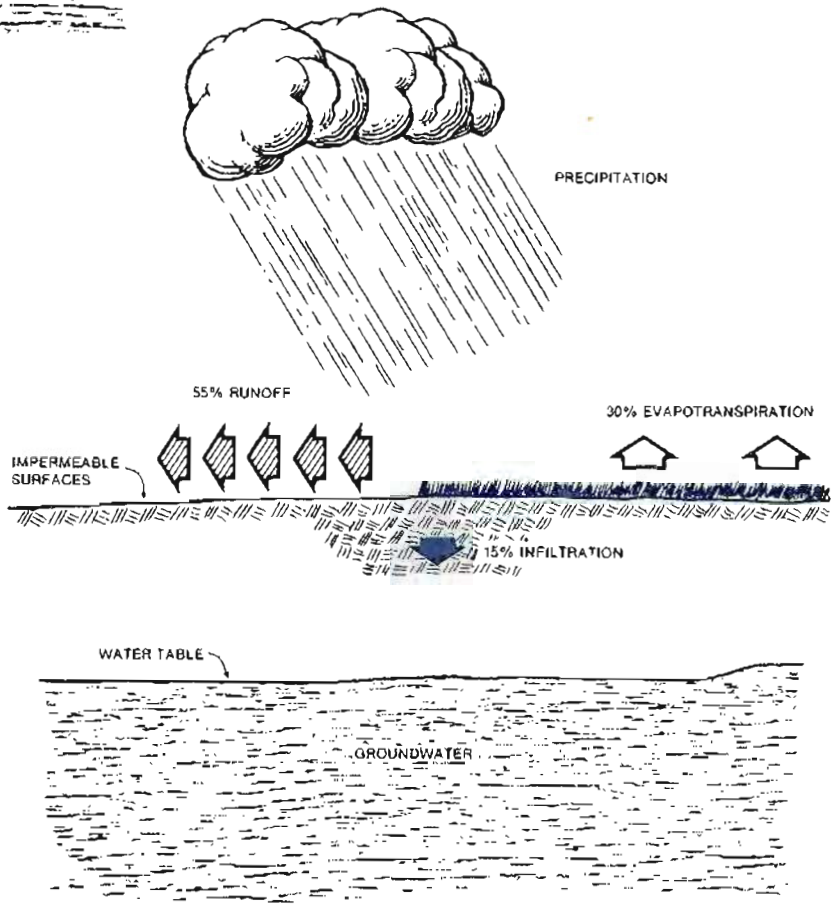


FIGURE 21 *Increases In Stormwater Runoff Due To Increases In Impermeable Surfaces*

Source: Leopold, L.B., Hydrology for Urban Land Planning, *U.S.G.S. Circ. 544, 1968.*

Health Related Problems

Although stormwater runoff may contain high concentrations of one or more contaminants, treatment is rarely provided before discharge into Long Island surface waters. In a few areas a *marsh* pond or *biofiltration* pond is used to trap some of the pollutants for a period of time, thus allowing for reduction of indicator coliform bacteria and the partial uptake of some heavy metals and inorganic nutrients by plants.

A high coliform bacterial count in runoff is equated with the possibility that *pathogens* may also be present. While confined to storm drainage systems, runoff containing pathogenic organisms generally posed little direct threat to public health since stormwater is not ingested. When stormwater enters surface waters it can become a problem. The number of bacteria or viruses that can cause infection vary widely. Although thousands of viable bacteria may be needed to cause infection in humans, it is assumed that a single virus particle is an infective dose. Even though an infection occurs, it may not lead to disease, since the onset of disease is also dependent upon the age, general health and degree of immunity of the host.

There were at least eight clam associated gastroenteritis outbreaks in Broome County between August 26, 1982 and September 2, 1982. The county health department identified 223 cases of illness in these outbreaks and they administered over 450 doses of gamma globulin to persons who consumed clams. Clams in these outbreaks may have come from Prince Edward Island, Canada, North Carolina, Long Island or Rhode Island. Rhode Island clams were served at most of the events, either exclusively or along with clams reported to be from the other listed sources. The State Health Department continues to receive isolated reports of clam associated illness, either gastroenteritis or hepatitis A. The approximate summer totals for reported clam associated illness stands at 400 gastroenteritis and 50 hepatitis A cases.

Reported by: Broome County Health Department - K. Gaffney, M.D., A. Carey, P. Orr.

The harvesting of oysters and clams taken from uncertified areas is a problem since these species are filter feeders and tend to concentrate bacteria and viruses. The role of contaminated shellfish in the transmission of *hepatitis* has been documented in several etiological studies. The Animal Waste chapter discusses other potential health impacts due to animal waste carried in stormwater.

Although stormwater directed into recharge basins or deposited on soil surfaces may cause an increase in the concentrations of certain contaminants in groundwater, the stormwater - borne viruses and bacteria deposited in the soil are usually inactivated by drying, by competition with soil microflora and by other factors. Movement of the bacteria into groundwater is generally limited by filtering effects of the soil and by adsorption to clay particles in the soil.

Bacterial degradation of groundwater may occur when the water table is close to the surface. Viruses carried in stormwater and discharged into recharge basins may become attached to clay particles in the soil.

Occasionally, stormwater carrying microorganisms may enter a drinking water source due to flooding in the area of a well. (For a discussion of this subject, see the Well chapter).

For health related impacts of nitrates carried in stormwater and sources of nitrates to groundwater see the Fertilizer and On-Site Systems Chapters. The Highway Deicing chapter identifies health problems related to increased sodium levels in drinking water.

Stormwater Impacts Upon Groundwater and Surface Waters

The investigations conducted by the Long Island Regional Planning Board as a part of the *Nationwide Urban Runoff Program* (NURP-1983) have contributed to a better understanding of the impacts of stormwater runoff upon groundwater and surface water quality on Long Island. The study has lent further credibility to several findings and assumptions of the 1978 *Long Island 208 Waste Treatment Management Plan.*

IMPACTS UPON GROUNDWATER

Contaminants deposited on and adjacent to roads and highways are carried by stormwater to recharge basins and possibly to groundwater beneath the recharge basins. Samples of the stormwater entering several recharge basins and groundwater beneath the basins were analyzed for a number of constituents. (See the NURP report for a detailed discussion of the sites and monitoring). Stormwater runoff contaminant concentrations were generally low for most of the constituents analyzed.

In most cases they fell within the permissible range for potable water; however, there were two notable exceptions where drinking water standards were exceeded:

- Median lead concentrations in stormwater runoff samples collected at the recharge basin draining a major highway consistently exceeded the drinking water standards
- Dissolved chloride concentrations in stormwater and groundwater were found to be periodically high

Organics discharged into recharge basins were not found to be a significant problem. However, in four cases, priority pollutants were found in excess of New York State guidelines in one sample of runoff at the Plainview site, and in groundwater samples taken below the basins at the Plainview and Huntington recharge basin sites. (The New York State Department of Health guidelines recommend a limit of 50 ug/l or less for an individual organic constituent in drinking water and 100 ug/l or less for total organic constituents and 5 ug/l or less for the known carcinogens vinyl chloride and benzene).

Samples of stormwater runoff collected at the influents to five recharge basins during the course of the Nationwide Urban Runoff Program indicated that the most commonly occurring organic compounds were

- benzene
- bis (ethyl hexyl) phthalate
- chloroform
- methylene chloride
- toluene
- 1,1,1-trichloroethane

Of these, only methylene chloride was consistently found in concentrations greater than 8 micrograms per liter (ug/l). *Organic pesticides* were also found along with *chlorinated hydrocarbons* and *polychlorinated biphenyl compounds (PCB)*. The findings of the 208 WTMP showed that there were nine instances where the concentration of organic compounds exceeded 10 ug/l in groundwater under five recharge basins studied.

In those instances where there was a large influx of heavy metals into a recharge basin, there was considerable attenuation before the stormwater runoff reached the water table. In addition to lead; zinc, cooper, and cadmium were found in local stormwater runoff. It is thought that the infiltration of stormwater runoff through the soil results in the attenuation of heavy metals. However, there was little or no removal of chloride or nitrogen as the stormwater moves through the unsaturated zone beneath the recharge basin.

The chemical constituents found in stormwater runoff did not vary in response to seasonal changes except in the case of chlorides, which increased by two orders of magnitude during the winter months as a result of highway deicing activities. It was determined that the control of chemical constituents in stormwater runoff requires year-round mitigation measures (see the Highway Deicing Chapter).

The type of land use in the drainage area and the length of time that a recharge basin has been in use affect the concentration of pollutants in the basin soil. The limit of the soils' capacity to adsorb and retain various constituents is not fully documented.

IMPACTS UPON ESTUARINE WATERS

Stormwater runoff and stream base flow are important sources of pollutant loadings to the Long Island streams, ponds and bays. Two categories of runoff to estuarine waters have been observed: upland runoff that enters the freshwater portions of the streams and is conveyed thereby to the bays, and overland runoff that enters the bays, (or the tidal portions of the streams) usually by direct overland flow or storm drainage systems. Impervious surfaces constitute the major source of stormwater runoff to streams and bays, but some runoff from pervious surfaces also occurs.

Stormwater runoff has been associated with high concentrations of bacteria in estuarine waters and the closing of shellfishing areas due to high indicator bacteria counts. Another portion of the NURP study involved monitoring bacterial counts following storms in fresh water streams and ponds, at discharge points to estuarine waters and in the bays during and following storm events. It was calculated that stormwater runoff accounted for at least 93% of the total and fecal coliform discharge.

Sedimentation rather than bacteriological die-off appears to be the mechanism for the attenuation of bacteria in stormwater runoff from ponds before discharge into marine water.

Ratios of fecal coliform bacteria to fecal streptococci (FC/FS) are calculated because the ratio can serve as an indicator of the source of the bacteriological contaminants. It appears that the relatively low ratios that were reported can be attributed to the presence of wastes from animal populations, including waterfowl, and domestic animals. The ratios were low enough to indicate animals rather than humans as the primary source.

Although dogs and birds are common throughout the study area, the data are not sufficient to permit identification of any individual source or combination of sources.

Nitrogen (and phosphorus) from fertilizers, general animal wastes, and duck farms enter fresh and marine waters by stormwater runoff, stream flow and groundwater flow. Elevated nitrogen levels can result in phytoplankton bloom and rooted aquatic growth (e.g., eelgrass), since nitrogen is a limiting growth factor in estuarine waters.

IMPACTS UPON FRESH SURFACE WATERS

Biological monitoring has been used to measure the impact of stormwater upon aquatic communities. Increased pollution in urban ponds and streams has resulted in marked changes in the type and number of species present. High concentrations of phosphorus from fertilizers applied to landscaped areas and phosphorus from other sources in the immediate watershed area can result in algal blooms and other eutrophic conditions. (A slug of pollutants can totally decimate aquatic life).

The depletion of oxygen as measured by high BOD_5 values in receiving waters is one of the most important impacts on fresh water systems. When high BOD_5 loadings are discharged to surface waters, the resultant depressed oxygen levels eliminate those species that cannot survive at low oxygen levels. Aquatic life changes over time as high oxygen demanding species are replaced by those that can tolerate lower dissolved oxygen (D.O.) levels. This is especially an important problem in lakes and ponds. A pond that once had species indicative of good water quality such as mayflies, stoneflies and caddisflies, may now have large numbers of worms such as Tubifex tubifex and Limnodrilus udekamianus. Other types of worms may be present that have special types of blood or breathing mechanisms that allow them to adapt to waters with low D.O. levels.

Grease and oil products are sometimes disposed of on the land, into storm sewers or directly into surface waters. If sufficient concentrations of these products are found in the water column or accumulate on aquatic plants, they can harm or kill aquatic biota.

High concentrations of salts from highway deicing practices may also impact aquatic vegetation and aquatic ecosystems.

EXISTING MANAGEMENT

Legislation, Regulation and Administration

Federal

The *Federal Water Pollution Control Act Amendments* (FWPCA) of 1972 authorized the *United States Environmental Protection Agency* (USEPA) to create a comprehensive program designed to restore and maintain the chemical, physical and biological integrity of the nation's waters. As a part of this program, USEPA provided funds to selected agencies to undertake water quality planning. The USEPA mandated the consideration of nonpoint sources of water pollution in the development of areawide and local water quality management planning. The Long Island 208 WTMP identified stormwater runoff as a significant determinant of water quality.

Various 208 studies including the 208 WTMP, documented the need for the control of nonpoint sources, including stormwater runoff, to obtain needed improvements in water quality.

The *Clean Water Act* (P.L. 95-217) amended the Water Pollution Control Act to provide funding for a national stormwater runoff problem assessment and a report of the findings to the Congress in 1983. USEPA established the Nationwide Urban Runoff Program comprising both federal and local components to address the following questions:

- Where and under what conditions is urban runoff likely to cause water quality problems?
- What types of problems can be anticipated?
- What solutions are available and at what cost?

The Long Island Regional Planning Board was among the state and areawide agencies selected to investigate and plan for the mitigation of local runoff related stormwater problems. See Key Problems for the Discussion of the Long Island NURP Study.

State, Counties and Municipalities

Stormwater runoff management on Long Island generally consists of local laws and ordinances, standards and guidelines for stormwater collection systems that are predominantly structural in nature. These standards and guidelines are based on the premise that watershed characteristics and various types of development will produce specific quantities of runoff. Collection systems are based on design standards and engineering practices that include the use of empirical formulas (such as the Rational Method), the construction and use of recharge basins according to a specified storage capacity (number of inches of rainfall), the use of leaching systems, catch basins, dry wells or other structures deemed appropriate. Roadway design standards are provided by the New York State Department of Transportation, the County Department of Public Works and Town Highway Departments.

The use of these standard structural practices has generally been successful. However, they have not always proved to be the best in respect to long term environmental impacts, nor the most cost beneficial in terms of maintenance costs.

A comprehensive approach to stormwater runoff management, in which performance standards and site development techniques are used to protect the natural resources of the site and the *downstream watershed area*, is becoming more widely accepted. Drainage designs are increasingly based upon individual site characteristics and goals of watershed management. This type of approach implements certain stormwater control objectives, such as preserving the integrity of natural drainage patterns in order to prevent flooding and damage to stream channels or other surface waters. It also requires adherence to standards that will insure the attainment of these objectives. The requirement that stormwater runoff from a site when developed not exceed that generated under natural or undisturbed conditions is one example of such a standard. In this instance developers are not held to a specified type of drainage facility, but are given the flexibility to choose the stormwater runoff system or alternative approach best suited to the needs of each development, subject to the requirements of a performance standard. The type of drainage system that should be installed will be determined by system effectiveness given the variations of

- slope
- lot size
- cover type
- soils
- type of development under consideration

Until recently, the focus of stormwater management was on flood prevention and the recharge of groundwater. Recharge basins have been required for suitable areas for over thirty years in Nassau County.

Prior to 1960 it was the practice of most municipalities in Suffolk to discharge stormwater runoff into streams rather than recharge basins. Flooding at culverts was the result. The protection of fresh surface waters, the prevention of soil erosion and sedimentation, and the retention of natural drainageways and vegetation were generally, a secondary concern. Acknowledging the destructive capabilities of stormwater runoff, the state, counties and most of the municipalities in Nassau and Suffolk Counties now employ various types of stormwater control measures to protect against flooding, erosion, sedimentation, and loss of vegetation. The following discussion examines the existing stormwater runoff controls that are used on Long Island.

State

STATE ENVIRONMENTAL QUALITY REVIEW ACT (SEQRA)

For the discussion of this NYS law see the Land Use Chapter, Existing Management — SEQRA Discussion. The SEQRA review process can be used on a local level to incorporate environmental concerns, including stormwater management, into the planning and decision making processes for development. According to the SEQRA Rules and Regulations, each municipality can, under its own local law, provide a list of those critical environmental areas, such as existing natural drainage systems, flood prone areas, wetlands and watercourses (and associated uplands), and/or steep slopes or areas prone to erosive forces where potentially hazardous or harmful environmental impacts may occur. Any development located within these critical areas is then automatically classified as a Type I Action, which would most likely require an in depth review and preparation of an EIS (Environmental Impact Statement), if necessary. This local review procedure can become a tool for the protection of the environment from the adverse impacts of inadequate or improperly designed stormwater controls.

N.Y.S. TIDAL AND FRESHWATER WETLANDS ACTS

See the Land Use Chapter, Existing Management — Wetland Discussion.

NEW YORK STATE DEPARTMENT OF TRANSPORTATION

The New York State Department of Transportation has outlined design procedures for New York State roadway stormwater collection systems. The type of system used depends upon site geology, location of groundwater, watershed hydrology, (including the size of the entire drainage/recharge area, the amount of water moving in and out of the drainage area), soils and other characteristics. Due to the scale of state roadways, recharge basins are usually constructed; however, leaching basins are used for smaller projects. Diffusion wells are used in areas with poor soil permeabilities and, in many cases, siltation chambers are used for discharge into streams or other surface waters.

Stormwater controls for State building sites are designed on a case-by-case basis, according to best management practices. For instance, oil and grease interceptors are provided at many sites as part of parking lot drainage systems.

Counties

SUBDIVISION REVIEW

In Nassau County, the Planning Department is required to review subdivision plans in detail for the effect on the drainage of the area. In Suffolk County, the Planning Department reviews the proposed subdivision if it fronts, has access to or is directly related to a state or county roadway, right-of-way or property. The Nassau County Planning Commission (NCPC) may approve or disapprove a plan based on whether or not the subdivision may be expected to create any hazards to property or existing structures. The Suffolk County Planning Commission's (SCPC) recommendations are advisory. If considered to be in its best interest, any municipal government may override the SCPC decision by a majority plus one vote and the reasons for such action must be part of the public record.

SITE PLAN REVIEW

In both counties, if a single proposed development fronts, has access to or is directly related to a county roadway, right-of-way or property, no building permit will be issued without approval by the respective county Department of Public Works. Again, in Suffolk County only, a local municipality may override the county decision.

Nassau County

Design standards for Nassau County roadways are based on the best drainage management practices of the Nassau County Department of Public Works (NCDPW). The Department guidelines require the use of the Rational Method of stormwater control design. If a recharge basin is required and it contains a natural outflow to pond or to a storm drainage system, the storage capacity of the recharge basin must be sufficient to contain the runoff (adjusted by the coefficient of runoff) from a 5 inch rain falling on the entire tributary area. If there is no outlet, then the storage capacity of the recharge basin must be sufficient to contain the runoff from an 8 inch rainfall.

The stormwater drainage plan for every subdivision located within a Nassau County city, town or village must be approved by the Department of Public Works. The review of the drainage plan for each subdivision is conducted on a case-by-case basis following the best management practices for stormwater runoff control as administered by the NCDPW. This approach has provided a uniform review of subdivisions on a County-wide basis.

Suffolk County

The Suffolk County Department of Public Works (SCDPW) uses the Soil Conservation Service (SCS) method — which considers site specific, physical considerations such as soil types, topography, and land use, in determining the difference between rainfall and the amount of runoff for the design of stormwater runoff controls for county highways. This method provides percolation rates that can be used to predict the effects of development based on the volume of runoff actually produced. In most cases positive drainage systems to a recharge basin are installed. The recharge basins have storage capacity sufficient to contain runoff that accompanies a ten year storm event for the area. As part of departmental policy, the SCDPW does not allow direct discharge of stormwater runoff into surface waters. Where necessary, sedimentation chambers are installed to remove sediments and detain stormwater. A diffusion well was utilized in one project when the soils had poor permeability. Natural swales are used for stormwater drainage where possible and replanting of any area disturbed by site development is required for all highway projects.

Drainage system plans are reviewed to assure that no stormwater runoff directly enters surface waters or adversely affects Federal, State, or county properties including parklands, highways and the shoreline.

Nassau and Suffolk Municipalities

HOUSING OR BUILDING STANDARDS

Towns throughout Nassau and Suffolk either have similar regulations regarding stormwater runoff as it relates to housing or other building specifications or they rely on the use of best management practices to provide proper drainage for individual site developments.

North Hempstead's Administration and Enforcement Ordinance §2; Article II — Plumbing and Drainage, stipulates that:

...in no case will water from any rain leader be allowed to flow upon the sidewalk or adjoining property. In addition, no pipe or drain of any description, such as a stormwater drain, may be allowed to be connected to a sanitary sewer system.

The Town of Smithtown, has established a Building Permit Review Board to examine and review all individual building permit applications. The creation of such a board was intended, among other things, to protect against the failure to consider surface water drainage as part of each site plan. Town regulations further state that no certificate of occupancy may be issued if the proposed development is to be built within the bounds of a pond, marsh or other areas of surface waters that cannot be drained.

The Towns of Riverhead, North Hempstead and Islip provide Housing Standards Ordinances. Islip's ordinance (§27) requires roofs and paved areas to be adequately drained so as to prevent any accumulation of water. Riverhead and North Hempstead also require that surface and subsurface waters be appropriately drained in order to prevent stagnant ponds and protect building structures. In Babylon, the installation of storm drainage gutters, leaders, and drains on all new residential one and two-family construction is to be conducted according to the table entitled, *Maximum Permissive Loads for Storm Drainage, Piping, and Gutters — Table 531* of the New York State Building Code as stipulated in the Babylon Town Code §7 — Buildings and Structural Appertenances.

OTHER REGULATIONS AND ORDINANCES

There are a few additional legal controls that certain local municipalities in the bi-county area utilize to reduce the negative impacts of stormwater runoff. Most towns and villages have enacted Marine Laws or Tidal Wetlands and Watercourse Ordinances that require a permit to dredge, construct docks, or install bulkheads or other structures. Such proposed operations may not substantially change the course of any channel or natural movement (or flow) of any waters unless special permission is granted.

Most municipalities have amended their tidal wetland and watercourse regulations to include protection of freshwater wetlands as well. Babylon added a comprehensive *Freshwater Wetlands Protection Law* (Sub Part Z) requiring a permit to conduct certain activities, including the discharge of stormwater and sediments on any freshwater wetland or adjacent areas. The effective date of the law is dependent upon the final acceptance of the New York State Freshwater Wetlands maps by the NYSDEC. Other towns have adopted similar wetland ordinances in accordance with the procedures and concepts set forth in Article 24 of the New York State Environmental Conservation Law.

Many towns throughout Nassau and Suffolk have ordinances pertaining to the excavation of topsoil, sand and other earthen materials. These ordinances attempt to insure that proposed operations will not interfere with drainage, including the interception and diversion of runoff from natural and man-made drainage channels resulting from filling or otherwise preventing adequate or proper drainage. Any overloading of existing drainage systems, thus creating flooding conditions or causing accelerated erosion is also prohibited.

In addition, a number of towns within Nassau and Suffolk have tree ordinances or vegetation protection ordinances that protect against the indiscriminate destruction of trees and their natural environments. Such regulations have recognized the role of trees in soil stabilization and the prevention of erosion.

SITE PLAN REVIEW

In both Nassau and Suffolk counties, the review of individual site plans is required in accordance with the zoning regulations of the various municipalities. (In an attempt to provide an easier interpretation of the requirements for both subdivisions and individual site developments, towns such as Huntington, Islip and Babylon have integrated them within the same body of regulations). Other towns have included the review of individual site plans within their zoning regulations. Table 2 describes each town's requirements for the review of individual site plans and their associated drainage systems.

Suffolk Municipalities

TOWNS

Explicit details for the control of stormwater runoff are described within the subdivision regulations of each municipality. The most typical approach is the use of design criteria for various structural drainage collection systems, including recharge basins, leaching pools, seepage basins, dry wells and others. In most municipalities, the Rational Method is used to predict the runoff rate for a drainage area to determine the appropriate runoff collection system design. Where recharge basins are required, the storage capacity must contain the runoff resulting from five to eight inches of rainfall per storm event depending on each town's regulations.

TABLE 2

Individual Plan Review For Stormwater Runoff

Nassau County

TOWN	
Hempstead	- Required for development greater than one acre, not including parcels proposed for one or two family dwellings.
Oyster Bay	- Required for all development except for conforming parcels within an approved subdivision.
North Hempstead	- Required for all development greater than one acre, all commercial and industrial development and one and two family dwellings that, on the basis of field inspection, require additional drainage collection facilities.

Suffolk County

TOWN	
Babylon	- Required for all development.
Brookhaven	- Required for all development except for single family dwellings.
East Hampton	- Required for all development except for buildings and structures within retail business districts, commercial-industrial districts and commercial-industrial heavy districts on lots held in single and separate ownership.
Islip	- Required for all development except conforming parcels within an approved subdivision that already has an operable drainage system.
Huntington	- Required for all development, unless it has been shown that drainage structures are present to handle any additional runoff originating from the site.
Riverhead	- Required for all business and industrial zoning districts, residential retirement community districts, residential development community districts and recreational districts. Also required for any special permitted uses within any zoning district.
Shelter Island	- There are no local controls governing stormwater control.
Smithtown	- Required for all development except one or two family dwellings.
Southampton	- Required for all development except conforming parcels within an approved subdivision that already have an operable drainage system.
Southold	- Required for all development.

A summary of municipal stormwater management requirements is provided as follows:

REQUIRE DRAINAGE PLANS OR A DRAINAGE PROFILE

- Most towns require a drainage plan or a street profile including a description of the proposed drainage facilities as part of each site plan. If the site is located on an existing street or within a subdivision that is mostly developed, a new drainage facility is generally not necessary.

RUNOFF MUST BE CONTAINED ON SITE

- Huntington, East Hampton, Southold, Southampton and Babylon require that either the runoff from each plot be self-contained or that all stormwater be recharged *into the ground*. In Southampton, stormwater must be recharged *into the subsurface groundwater reservoir.*

NO OVERLOAD OF EXISTING SYSTEMS

- In other towns, such as Smithtown, no water may be diverted so as to overload existing systems.

NO FLOODING OR NEED FOR ADDITIONAL DRAINAGE STRUCTURES

- Several towns, including Smithtown, do not allow stormwater systems that would create flooding or a need for additional drainage structures.

SITES THAT ARE BEING REDEVELOPED ARE REQUIRED TO UPGRADE DRAINAGE SYSTEMS

- In Babylon, the Town Planning Board requires that the existing drainage system of developed sites now undergoing redevelopment be upgraded to meet new Board specifications.

PREVENTION OF SITE EROSION AND SEDIMENTATION DURING THE CONSTRUCTION PERIOD

- In Huntington, the developer must confine runoff to the site during construction operations in order to reduce the site erosion and sedimentation caused during the period of development. Disposal of any runoff onto existing streets or private property is therefore prohibited.

PREVENTION OF LONG TERM ACCELERATED EROSION AND SEDIMENTATION

- Both Huntington and Southampton utilize an Erosion and Sediment Control Handbook, compiled by the Suffolk County Soil and Water Conservation District Office. The town can require implementation of its control measures where it is deemed necessary to retard the rate of runoff. The Handbook outlines the following general guidelines to minimize erosion:

  - *Choose the land that has the right natural drainage pattern, topography, and soils for the intended development.*
  - *Use areas with soils not well suited to intensified development for parks and other open space uses.*
  - *Save trees and other existing vegetation wherever possible. They enhance the beauty of the subdivision, which has a dollar value; they provide shade for lawns, and they help control erosion.*
  - *Expose as small an area of land as practical at any one time during development.*
  - *Expose the land for as short a period as possible.*
  - *Hold lot grading to a minimum.*
  - *Plan streets to fit the contour of the land in order to avoid long stretches of excessive grade.*
  - *Provide adequate drainage to streets and from streets to storm sewers or other runoff disposal that does not erode the land or flood property below.*
  - *Plant timely, temporary vegetation during development in critical areas subject to erosion.*
  - *Build sediment basins to remove sediment from runoff waters during development.*
  - *Provide for disposing of increased runoff caused by changed land formations.*
  - *Plant permanent vegetation and install structures as soon as possible.*

The Handbook also provides specific control measures for *Non-Critical Area Stabilization* and *Critical Area Stabilization.* Critical Areas are defined as areas where extensive grading and site conditions may require a combination of planting, grading and other nonstructural controls and structural controls (such as retaining walls) to minimize erosion. The control measures include site grading, short term seeding, semi-permanent seeding, installation of permanent vegetation, outlet channel design and waterway and bank stabilization.

In a further step to control erosion resulting from construction in unstable areas, the Town of Huntington has amended its zoning ordinance to include hillside development and steep slope protection by reducing the density of housing on slopes of ten percent or greater. Strict controls of stormwater runoff before, during and after development are described with requirements for refilling and properly regrading the site, replacing topsoil, and seeding with grass or plants specified in the rehabilitation plan.

VILLAGES

In many of the incorporated villages stormwater controls are very similar to the regulations in the town in which the village is located. In a few cases, village stormwater controls are more stringent. A number of villages, however, presently do not have subdivision regulations that include the review of stormwater runoff control measures.

RECOMMENDATIONS

Legislation, Regulations and Administration

The following recommendations comprise preventive measures that can be used to minimize stormwater contamination of surface waters and groundwater resulting from site development and future land use activities as well as suggestions for reducing or eliminating existing impacts. Criteria are also provided for the selection and installation of appropriate stormwater control measures including both nonstructural and structural techniques. This section also describes a number of management practices, sedimentation and erosion control measures and the suitability of these measures for various types of site conditions.

State, Counties and Municipalities

- Limit development and the establishment of impermeable paving on publicly-owned lands located near surface waters and wetlands
- Prohibit any new direct discharge of stormwater into surface waters, freshwater or tidal wetlands. Use appropriate control measures for areas near surface waters (See Municipalities).
- Evaluate existing stormwater systems that currently discharge into surface waters to determine whether the systems can be modified to include additional control measures to minimize impacts upon surface waters and adjacent areas.
  - Inventory direct discharges and assign remediation priority ratings based upon environmental impacts.
  - Determine if there is sufficient land area to develop cost feasible energy dissipation areas, and sediment basins or retention areas to eliminate or reduce the direct discharge and accompanying sediment loadings into surface waters and wetlands, or to reduce peak runoff flows before discharge.

  (See Control Measures.)
- Acquire and maintain those streambeds and the surrounding watershed areas that have *dried up* due to sewering. The retention of these areas will facilitate the recharge of runoff, thus reducing the amount of streamflow following a storm and the subsequent associated high coliform loadings that would otherwise reach the bays. The NURP report indicated that reductions in coliform loadings to the bays can be achieved through the use of streambeds and ponds to retain the sediments thus allowing for the die-off of most of the coliform bacteria.

- Do not remove recharge basin vegetation since plant growth generally enhances infiltration. The root systems keep the soil layer loose and permeable and provide for the infiltration of water.
- Perform shallow (40 foot) test drilling of proposed recharge basin site to determine whether there is a clay unit under the basin.
- Incorporate the erosion control recommendations provided below into State and County agency guidelines (see Municipalities).

Municipalities

- Refer to the recommendations that have been proposed in the other Handbook Chapters to reduce nonpoint sources generated on-site thus reducing contaminant loadings in stormwater.
- Refer to the Land Use Chapter for the following nonstructural stormwater control measures
  - Establishment of Special Surface Water Protection Areas
  - Revision of Comprehensive Plans and Local Zoning Ordinances.
  - Requirement for Site Clearance Permits.
  - Requirement for the Dedication of Conservation Easements.
  - Review and modifification of Type I and Type II SEQRA lists.
  - Acquisition of Lands for Preservation
- Amend local zoning ordinances to include a requirement for the establishment of adequate setbacks, 100 feet from the shoreline for areas adjacent to the edge of lakes, ponds, streams, rivers, bays, wetlands and in areas where the depth to seasonal high water table is less than three feet. Such areas should not be cleared of native vegetation except for cat briar, honeysuckle and other destructive vines. Any stormwater runoff generated from the site development upland and discharged into these areas should be discharged at a release rate that shall not exceed the stormwater runoff rate from the area in its natural state and discharged in a manner so that no erosion and loss of vegetation occurs.
- Require adherence to the following performance standards for all new site development:
  - Protect and maintain the natural functioning of the site by maintaining the absorptive, purifying and retentive functions that existed on the site before construction began.
  - Limit the post-construction volume and rate of runoff leaving the site to that calculated on the basis of natural or predevelopment conditions. The peak release rate of stormwater from all developments where retention is required for the designed storm, should not exceed the peak stormwater runoff from the area in its undeveloped state for a storm of any intensity up to and including the 100 year frequency, and for rainfall of any duration. Calculations of the rate should be based upon an assumed runoff coefficient of 0.20, 0.25, and 0.35 for average slopes of 2 percent, 2-7 percent and over 7 percent, respectively.
  - Design the site drainage system so that the runoff release rate from natural drainage channels will not exceed the natural carrying capacity of the channel.
  - Limit the release rate for drainage systems serving new development. The volume and velocity of runoff discharged should not exceed the safe capacity of the existing drainage systems into which the discharge flows.

- Require a stormwater management plan for any property when
  - a plat is to be recorded
  - land is to be subdivided
  - an existing drainage system may require alteration.
  - new development is proposed for more than one residential unit on a given plat
  - new development for any use other than single family residence is proposed
  - the rate or volume of runoff will be significantly increased
  - on-site water drains to a pond, stream or other surface water body or to a wetland

The stormwater management plan may be a part of a site plan or supportive specifications or other written material, and should indicate the manner in which the applicant will meet the required performance standards.

- The plan should contain the following information:
  1. A description of the existing site conditions including
     - topography
     - location and description of surface waters, freshwater and tidal wetlands, existing woodland or other vegetation, soils, high water table areas, the depth to seasonal high water table, location of the 100 year flood plain
     - existing structures, utilities
     - the direction, flow, rate, and volume of stormwater runoff under existing conditions (if partially developed or developed) or natural conditions (if not developed)
     - the areas on-site or off-site that currently receive stormwater runoff
  2. All proposed site changes including
     - changes in topography
     - changes in land surfaces (i.e. show locations where vegetation is to be removed and lawns or paving installed)
     - proposed site construction and planting areas
     - locations of all buildings and structures
  3. The resultant changes in the volume and rate of stormwater runoff (based upon a given year storm to be determined by the municipality-suggest a 25 year storm) from various locations on the site
  4. The description of the proposed stormwater drainage system including
     - the proposed location of stormwater control measures
     - the designed volume, rate, flow path, detention and retention of stormwater on-site
     - the amount and rate of off-site stormwater discharged from the site
     - the location and description of erosion and sedimentation control measures
     - the description of the pollutants likely to be generated on-site
     - the potential impact upon groundwater, and surface waters
- Incorporate the following erosion and sedimentation controls into local ordinances. The design, construction and maintenance of erosion control systems should be consistent with the following proposed local controls:
  - A ban on the commencement of grading, cutting or filling until erosion and sedimentation control devices have been installed between the disturbed area and waterbodies, watercourses and wetlands.

- A requirement that land which has been cleared for development and upon which construction has not commenced shall be protected from erosion by appropriate techniques designed to revegetate the area.
- A requirement that sediment shall be retained on the site of the development.
- A ban on the use of wetlands and other waterbodies as sediment traps.
- Provision of regular maintenance to insure that erosion and sedimentation facilities continue to function properly.
- A requirement that artificial watercourses should be designed, so that the velocity of flow will not cause erosion.
- The creation of vegetated buffer strips where practicable, and the retention of existing growth along the banks of all watercourses, waterbodies or wetlands. The width of the buffer should be sufficient to prevent erosion, trap the sediment in overland runoff, provide access to the waterbody and allow for periodic flooding without damage to structures.
- The use of retention and detention ponds to retain and detain the increased runoff and sediments that the development generates. Water should be released from detention ponds into watercourses or wetlands at a rate and in a manner approximating the natural flow that would have occurred before development. The banks of detention and retention areas shall slope at a gentle grade into the water as a safeguard against drowning, personal injury or other accidents, and also to encourage the growth of vegetation and to allow the alternate flooding and exposure of areas along the shore as water levels periodically rise and fall.

(The erosion controls listed above were among a number suggested in an article entitled "Stormwater Runoff Control: A Model Ordinance For Meeting Local Water Quality Management Needs" by Maloney, et. al. - which appeared in the Natural Resources Journal. Vol. 20, October 1980.)

- Require an erosion control plan whenever a stormwater management plan is required.
- Withold the certificate of occupancy until the stormwater control measures and erosion and sedimentation control measures are installed in accordance with this plan.

Site Planning Recommendations

SITE ANALYSIS

Success in the reduction of stormwater related impacts and the costs of installing stormwater systems depends in large measure, on proper site analysis and the selection and placement of development suited to the site.

- Undertake a careful site analysis to identify any developmental constraints affecting the design of a stormwater control system that may be imposed by the location of existing on-site and off-site features. The site analysis process should include the following steps:
  - Prepare a key map locating the site within the watershed or drainage basin

- Prepare a watershed analysis map showing the site drainage system in relation to the watershed (see Figure 22). Locate all natural drainage swales, depressions, slopes, high points, low points, flood prone areas, areas with depth to seasonal high water table less than three feet, areas of existing vegetation, sensitive wildlife habitats, and soil constraints listed in Table 3. Stormwater impacts can be minimized by avoiding soil conditions with severe or moderate constraints.
  - a *slight constraint* indicates no limitations or a few that can be overcome with relatively little cost.
  - a *moderate constraint* indicates that the limitations are more difficult and expensive to correct.
  - a *severe constraint* indicates the soil is very poor and will require replacement filling or modification if used. Filling is not recommended.

- Locate on-site areas suitable for the recharge of stormwater
- Locate on-site areas suitable for development. Site building and paved areas only when the presence of the environmental conditions are favorable. The following soil and slope conditions may indicate soil suitability for development:
  - nearly level or moderately sloped terrain; (less than eight percent slope)
  - moderately to rapidly drained soils; (a moderate to high permeability rate)
  - a coarse or medium textured soil
  - a seasonal high *water table* more than five feet below the surface.
  - other soils listed under *slight constraints* in Table 3.
- Consult the County Health Departments for information concerning the movement of groundwater and recorded fluctuations in the water table elevations

SITE PLANNING

Use proper site design as described in the Site Plan Review Chapter, and other chapters and the following:

- Minimize grade changes and site clearing
- Retain native vegetation on steep slopes, in swales, on Carver or other excessively drained sandy-gravelly soils, on soils with a high content of silts, fine sands and clays, and in areas with a high water table or adjacent to surface waters.
- Avoid the use of paved surfaces such as parking lots and roadways where the presence of the following conditions indicate potential problems:
  - severely sloped terrain
  - flood plain areas
  - existing swales
  - lowland areas
  - depressions, kettleholes
  - soil constraints listed as *severe* or *moderate* in Table 3.
- Incorporate the following general stormwater controls checklist into the site design as needed to meet the performance standards listed:
  - Reduce the extent of impermeable surfaces insofar as possible.
  - Use swales and shallow depressions to collect stormwater on-site, wherever possible.

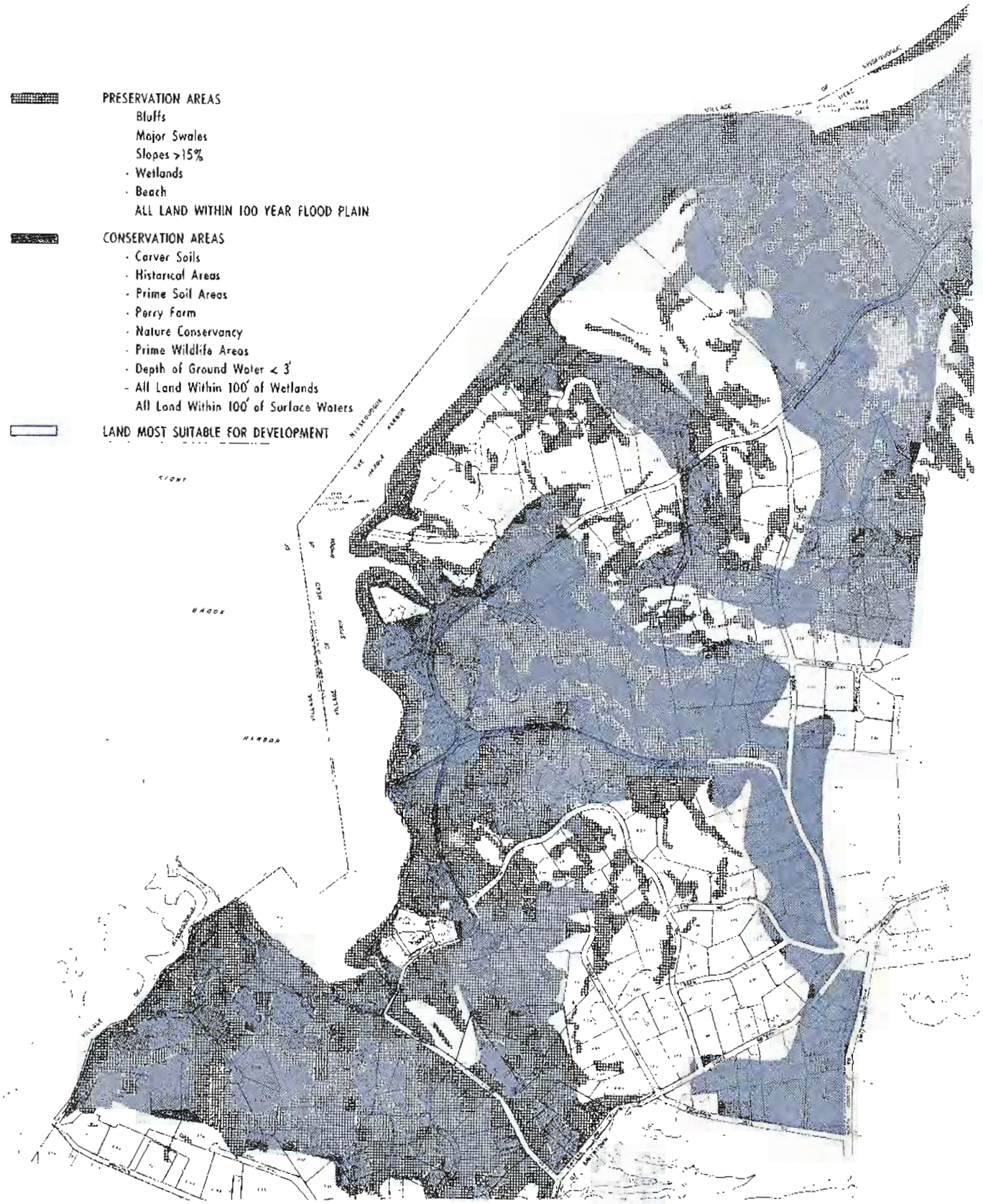


FIGURE 22 *Site Analysis Map*

TABLE 3

Limitations Of Soils For Areas Where Stormwater Runoff Will Be Generated Or Recharged

Severe Constraints	Moderate Constraints	Slight Constraints[1]
Artison sand	Bridgehampton silt loam, till substratum, 6-12% slopes	Bridgehampton silt loam, 0-6% slopes
Beaches	Carver & Plymouth sands, 8-15% slopes	Bridgehampton silt loam, till substratum, 2-6% slopes
Mucky sand	Cut & fill land	Carver & Plymouth sands, 0-8% slopes
Canadice silt loam	Haven loam, 6-12% slopes	Haven loam, 0-6% slopes
Carver & Plymouth sands 15-35% slopes	Montauk fine sandy loam, 3-15% slopes	Made land
Cut & fill land, steep slopes	Montauk silt loam, 3-15% slopes	Montauk fine sandy loam, 0-3% slopes
Deerfield sand	Montauk soils graded, 3-15% slopes	Montauk silt loam, 0-3% slopes
Dune land	Plymouth loamy sand, 8-15% slopes	Montauk soils graded 0-3% slopes
*Fill land, made land	Riverhead sandy loam, 8-15% slopes	Plymouth loamy sand, 0-8% slopes
*Gravel pits	Riverhead & Haven soils, 8-15% slopes	Plymouth loamy sand, silt substratum, 0-3% slopes
Montauk loamy sands 0-35% slopes	Riverhead very stony, sandy loam, 8-15% slopes	Riverhead sandy loam, 0-8% slopes
Muck	Wallington silt loam	Riverhead and Haven soils 0-8% slopes
Riverhead & Plymouth very bouldery soils 15-35% slopes	Walpole sandy loam	Riverhead very stony, sandy loam, 3-8% slopes
Tidal Marsh		Scio silt loam, till substratum, 2-6% slopes
Wallington silt loam		Scio silt loam, sandy substratum, 0-6% slopes
Wareham loamy sand and sandy loam		
Whitman sandy loam		

[1] There also may be moderate constraints for recharge of stormwater for these soils in this category. All soils should be checked for permeability rates.

Source: Soil Survey of Suffolk County. United States Department of Agriculture Soil Conservation Service and the Cornell Agricultural Experiment Station, April 1975.

* variable constraints

- Preserve swales in their natural state. Avoid disturbance of existing grades, vegetation (particularly ground cover) or soils and the alteration of surface hydrology.
- Provide temporary on-site areas to receive stormwater runoff flows that are generated by construction and other site development activities.
- Do not allow increased sediment resulting from the construction or operational phase of site development to leave the site or to be discharged into stream corridors, marine or freshwater wetlands.
- Minimize the amount of soil area exposed to rainfall and the period of exposure. Cover or plant exposed soils as soon as possible.
- Do not allow the dumping or filling of excess soil or other materials generated from site development into swales and surface waters.
- Detain runoff on-site and direct stormwater from road surfaces to sediment basins before discharge to a sump wherever topography limits or precludes the on-site recharge. At sites where vertical drainage is not feasible, all runoff from a 25 year frequency, 24-hour storm from unstabilized soil areas should be collected, desilted, and released into stable channels at an acceptable design velocity appropriate for channel characteristics.

Once the site plan has been partially completed, undertake the following steps:

- Calculate the amount of stormwater entering the site
- Calculate the amount of natural runoff from the site
- Calculate the additional amount of runoff due to the proposed installation of impermeable paving and other surfaces
- Locate areas on-site for the storage and recharge of stormwater
- Reevaluate the site plan if the storage and recharge area capacity is not sufficient.

Stormwater Control Measures for Site Development

- Minimize on-site runoff and erosion by using the following control measures:

SITE PLAN

The residential development plan in Figure 23 illustrates various stormwater control measures, used in combination to minimize impacts upon water quality. Most of the individual control measures are described in greater detail. See Stormwater Control Measures For Site Development. Recommendations for their use are summarized in Table 4.

COMBINE DEVELOPMENT AND STORMWATER CONTROLS

- Use cluster development as a viable alternative to conventional subdivision layout to preserve environmentally sensitive qualities of wetlands, aquifer recharge areas, swales and woodlands (see Figures 24-26).
- Reduce the length of roadways, thereby reducing the extent of cut and fill areas and stormwater runoff volumes and minimizing the possibility of sedimentation/erosion.
- Reduce the area of other impermeable surfaces such as walkways, patios and recreational facilities.
- Allocate open space for recreation and aquifer recharge.

TABLE 4

Structural and Nonstructural Stormwater Control Measures

Measure	Structural	Non-Structural	Purpose	Recommendation For Use
Permeable Paving	X		Reduce the volume and rate of stormwater runoff; allow for increased infiltration.	Patios and walkways; use on slopes less than five percent where soils have a moderate to high rate of permeability; adequate depth to seasonal high water table.
In-Line Storage	X		Collect stormwater runoff from parking lots and roadways; allow for percolation of runoff.	In areas where there is adequate depth between the bottom of leaching pools and leaching catch basins and the seasonal high water table.
Perforated reinforced concrete pipe	X		Allow for recharge of stormwater	General use
Natural Depressions		X	Collect and detain runoff; slow stormwater velocity to allow for recharge; protect low-lying areas and downstream development from flooding.	Upland areas in or adjacent to drainage areas by streams or waterways.
Gutters and Downspouts	X		Collect and convey runoff from roofs to leaching pools or other stable outlet.	For residential and commercial structures where roof top storage is not feasible; any site development, especially dense development where large volumes of roof runoff are anticipated.
Natural Vegetation		X	Control runoff and erosion/sedimentation; slow stormwater velocity to allow for increased infiltration; trap sediment particles; roots hold soil particles in place.	Upland areas, slopes, land area adjacent to surface waters and bluffs, streambanks, drainageways.
Wetlands		X	Buffer and stabilize lowland areas; slow runoff velocity and retain runoff, filter and trap suspended debris.	Along rivers, streams, and other surface water systems.
Sediment Ponds/ Basins	X		Protect surface waters from increased sediment loads; reduce the potential of flooding for downstream lands.	Construction sites; areas of highly erodible soils and sloped terrain.
Energy Dissipation	X		Slow stormwater velocity to a non-erosive level; trap debris, permit the settling of suspended solids and accompanying contaminants.	Adjacent to culverts, outlets, and drainage channels, and along streambanks; to prevent erosion and/or scouring.
Sediment Filter	X		Trap suspended particles and debris from stormwater runoff.	Adjacent to culverts, outlets, and drainage channels, and along streambanks; to prevent erosion and/or scouring.
Stormwater Retention (Ponds/basins)	X		Retain sediments (and runoff) to allow for the die-off of bacteria; reduce peak runoff flows and protect downstream properties from flooding; protect streams from increased sediment loadings.	To receive stormwater from drainage channels in areas where recreational and water amenities are desired; (permanent pond) and in areas where heavy sediment loads are not anticipated.

TABLE 4 (Continued)

Structural and Nonstructural Stormwater Control Measures

Measure	Structural	Non-Structural	Purpose	Recommendation For Use
Stormwater Detention (Ponds/basins)	X		Temporarily detain runoff with gradual release to surface or groundwaters; reduce peak runoff flows; protect downstream development from flood potential	Upland sites and other sites where there is sufficient distance to seasonal high water table, drainage areas adjacent to streams and waterways; can function as a recreation area when properly vegetated and designed to drain completely.
Surface Drainageway	X	X	Direct runoff from areas where it could cause flooding, erosion and/or sedimentation.	Along slopes where soils are exposed during construction; newly constructed fill slopes; and in areas of highly erodible soils.
Grass or Vegetated Waterway		X	Convey runoff to a stable outlet; grasses can reduce energy of flow, permitting infiltration.	Areas where slopes are moderate and runoff velocities are non-erosive; areas where increased stormwater volumes will not exceed the capacity of the channel.
Bare Channel		X	Convey and/or direct runoff on construction sites.	Areas where the slope gradient is minimal and the runoff velocity is low; avoid use in areas with highly erodible soils.
Structurally-lined Channel (riprap, asphalt, concrete)	X		Convey and/or direct runoff; channel outlet must be well-stabilized, there is little or no energy dissipation along an impervious-lined channel.	Drainage areas having a high slope gradient or where runoff velocities are erosive, prohibiting the establishment of vegetation.
Man made Drainage Swales		X	Convey and/or recharge stormwater runoff.	Recommended for most sites where control of low volume stormwater flow is required.
Biofiltration Systems	X		Minimize pollutant loadings carried in stormwater runoff to surface waters; aquatic plants absorb contaminants (coliform, metals, nutrients) and trap suspended solids.	Where there is adequate area to construct such a pond; drainage areas that empty into surface waters; where construction of a recharge area is not feasible due to the shallow depth of the water table.
Soil/Slope Stabilization	X	X	Protect exposed soils from runoff impacts, erosion ad sedimentation (see Table 5); reduce runoff velocities allowing for infiltration; hold vegetation in place until roots are established.	Slopes and other areas where soils are exposed during construction, newly constructed fill slopes; soil stockpile areas.

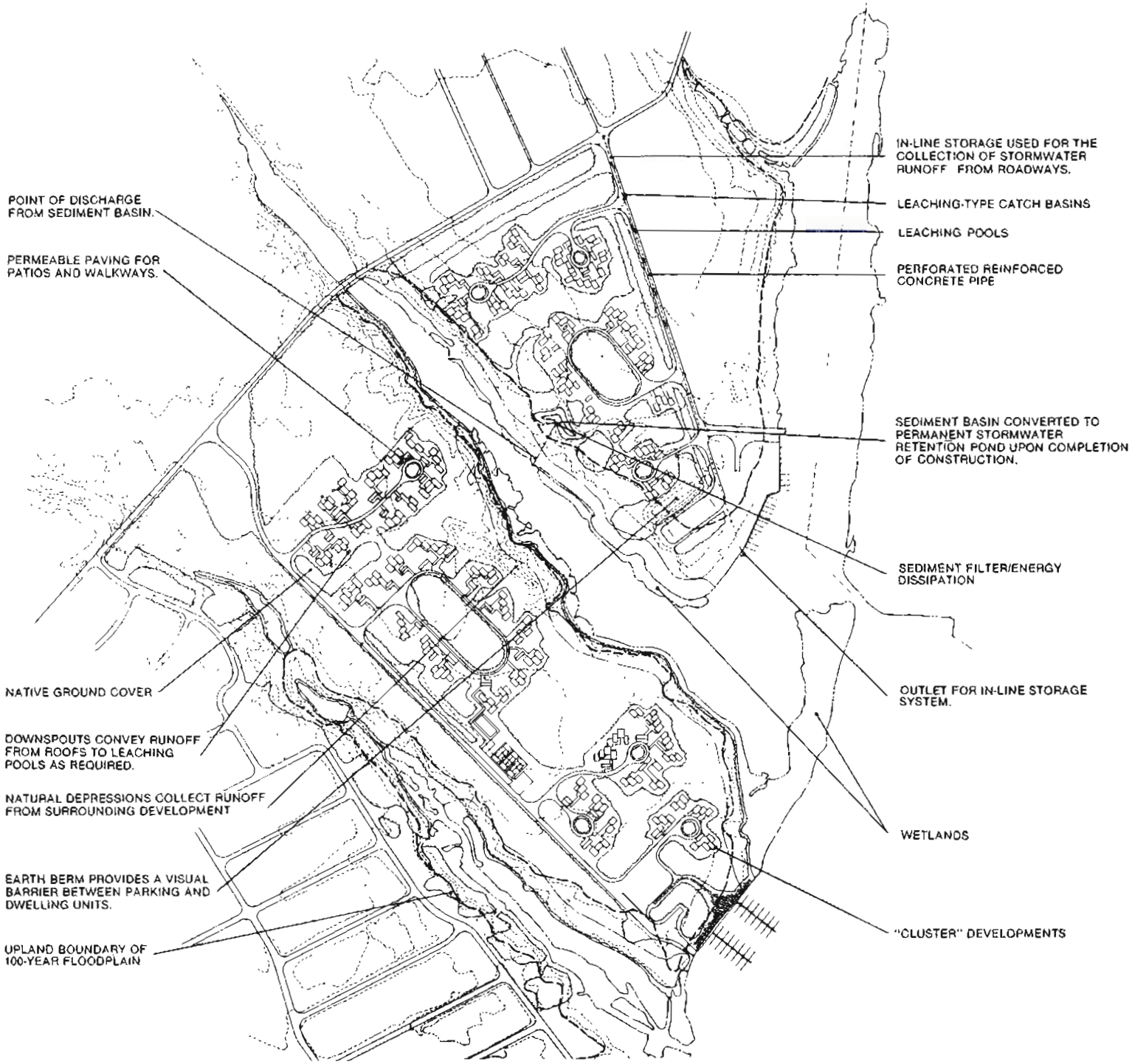


FIGURE 23 *Site Plan Of Stormwater Control Measures*

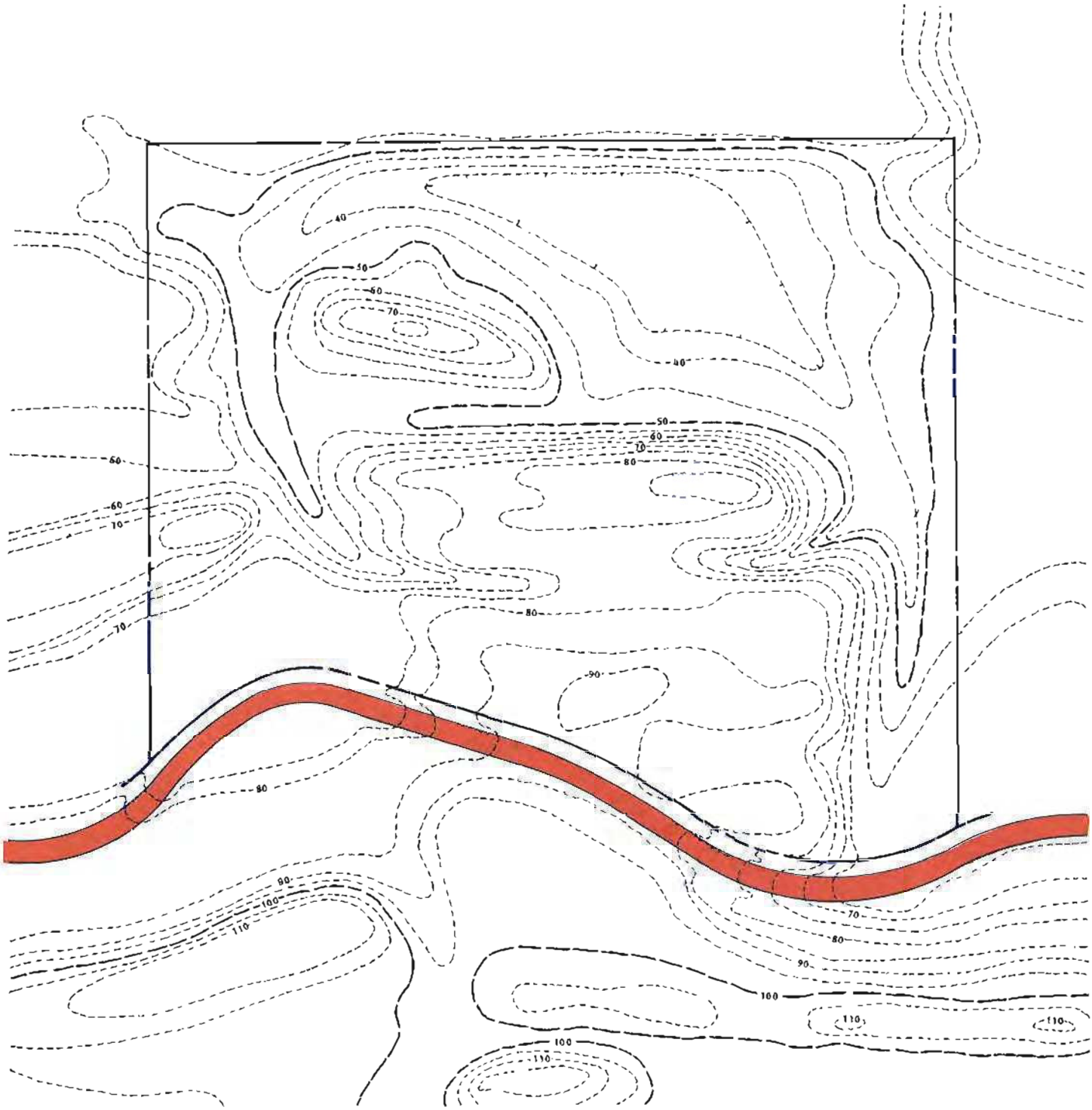


FIGURE 24 *Sample Study Site - Undisturbed*

Shows a vacant parcel of land which is a mature, undisturbed woodland. It is a 21 acre site, containing two major swale areas, steep slopes (greater than 15%), natural depressions, and kettle holes.

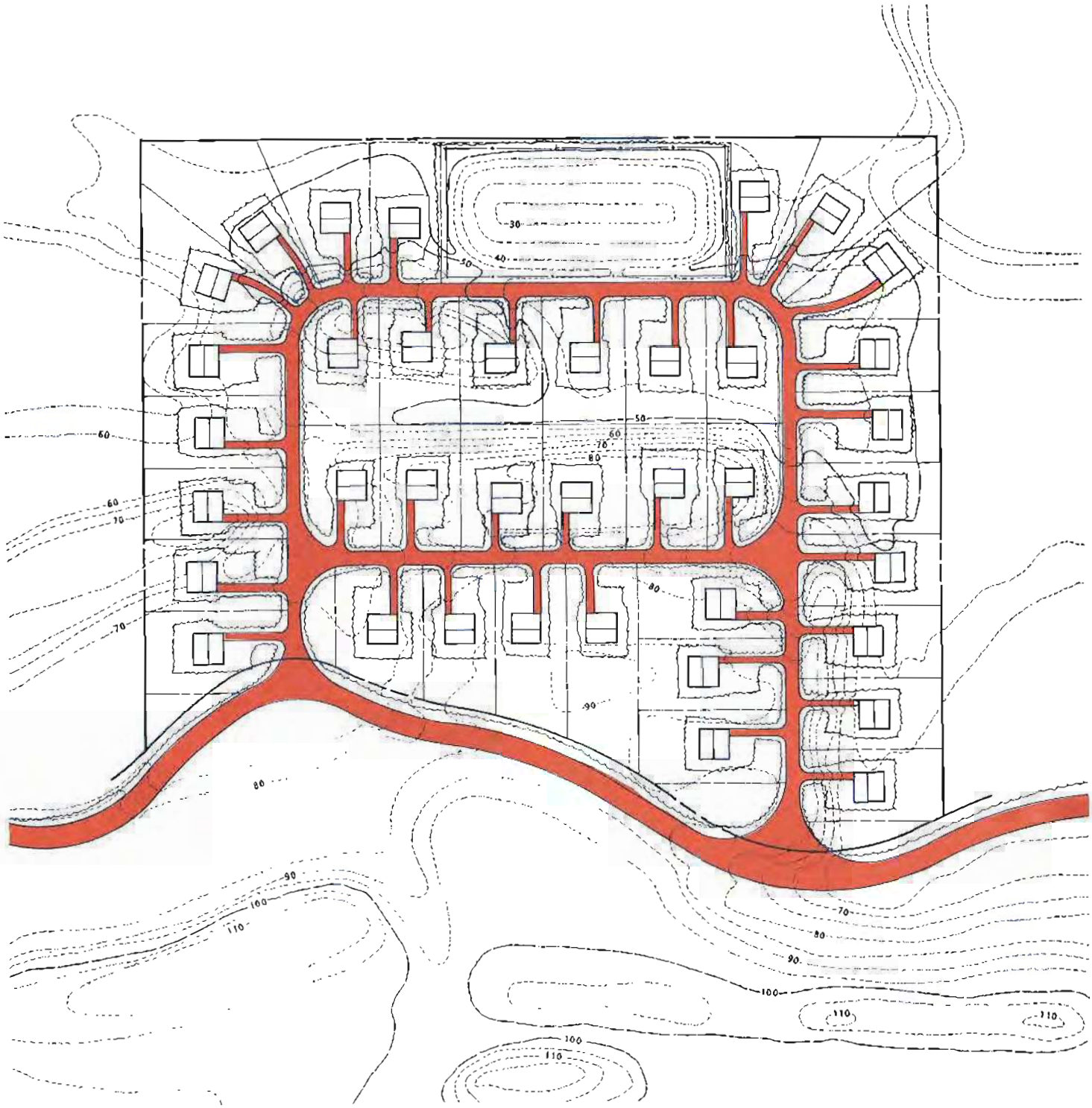


FIGURE 25 *Sample Study Site–Conventional Subdivision*

This is the same parcel of land as shown in Figure 24 but developed as a conventional subdivision. The preservation of environmentally sensitive features (swales, steep slopes, depressions) has been ignored in order to obtain the maximum allowable density. The 21 acre site has been subdivided into 39 half-acre lots, allowing for a recharge basin.

FIGURE 26 *Sample Study Site–Cluster Development*

This is the same parcel of land as shown in Figure 24 but developed as a cluster development (townhouse and attached units) at the same overall density of two units per acre. Cluster development permits a variety in the siting, shape, and orientation of the dwelling units while the allowable density of a particular cluster or group of clusters remains the same as conventional single lot development. Flexibility in site design provides the opportunity to protect the natural features (swales, steep slopes and natural depressions) as open space for stormwater recharge and recreation. Clustering allows the site designer to achieve reduction in the amount of impermeable paving, utilities, vegetation disturbance. Stormwater is collected and recharged close to its source by using swale and natural depressions for drainage and recharge.

NATURAL VEGETATION

- Use natural vegetation as an important nonstructural alternative in the control of stormwater runoff and erosion/sedimentation. Natural vegetation includes woodlands, free standing trees, old fields, grasses, and wetlands. When left undisturbed, vegetation stabilizes steep slopes, streambanks, and drainageways by
  - Reducing stormwater velocity, allowing for absorption of water to occur, thus recharging the aquifer below.
  - Acting as a filter by trapping sediment particles.
  - Holding soil particles in place.
- Identify site locations where existing vegetation will not be disturbed by grading, filling or removal. Removal exposes valuable topsoil, making it highly susceptible to erosion/sedimentation (see Figure 27).
- Do not store top soil on the vegetation.
- Stabilize exposed slopes during and after construction, by using temporary and/or permanent, structural or nonstructural stabilization measures. (See Municipalities-Erosion and Sedimentation Controls and Table 6 for appropriate measures to use for site conditions.) All areas not to be covered with an impervious surface should be temporarily stabilized immediately following disturbance. Permanent stabilization measures should be installed as soon as possible.

NATURAL DEPRESSIONS

- Use natural depressions to collect runoff from the surrounding development and slow its velocity, allowing for recharge. Natural depressions consist of gently sloping land, vegetated with grasses, understory vegetation, and/or trees. Depressions also function as holding areas of runoff, allowing sediment particles and debris to settle out before discharge to nearby surface waters. Except during storm events, depressions may also serve as recreational open space. They are visually pleasing and may be preferable to recharge basins, where the depressions can provide sufficient retention capacity. (See Figure 28).

WETLANDS

- Do not discharge stormwater directly into freshwater or tidal wetlands.

STORMWATER DETENTION

- Use stormwater detention (temporary detainment of stormwater runoff, with gradual release to surface or groundwaters) to maintain the same volume and rate of site runoff after development as that which existed prior to the development. Detention areas are designed to drain completely after a storm. An emergency spillway should be provided to allow release of runoff during storms that exceed the design capacity of the retention area. Except during storm events, detention areas may also serve as recreational open space and should be visually pleasing.
- Provide for maintenance of the control facility to insure sustained flow rates and its visual attractiveness. Prevent standing water which could be a hazard, and remove debris (see Figure 8).

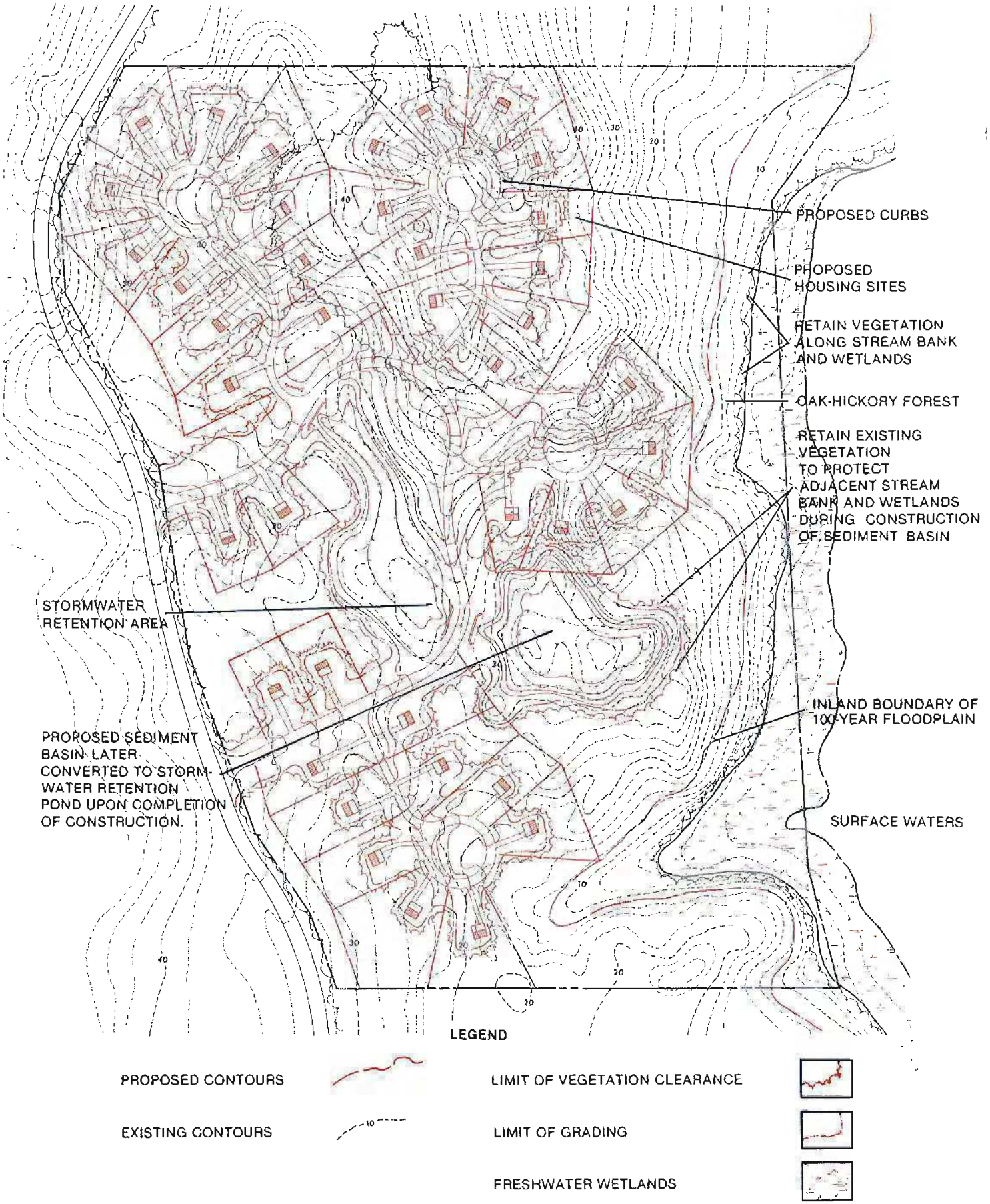


FIGURE 27 *Natural Vegetation Is Used As A Recharge Area For Stormwater*

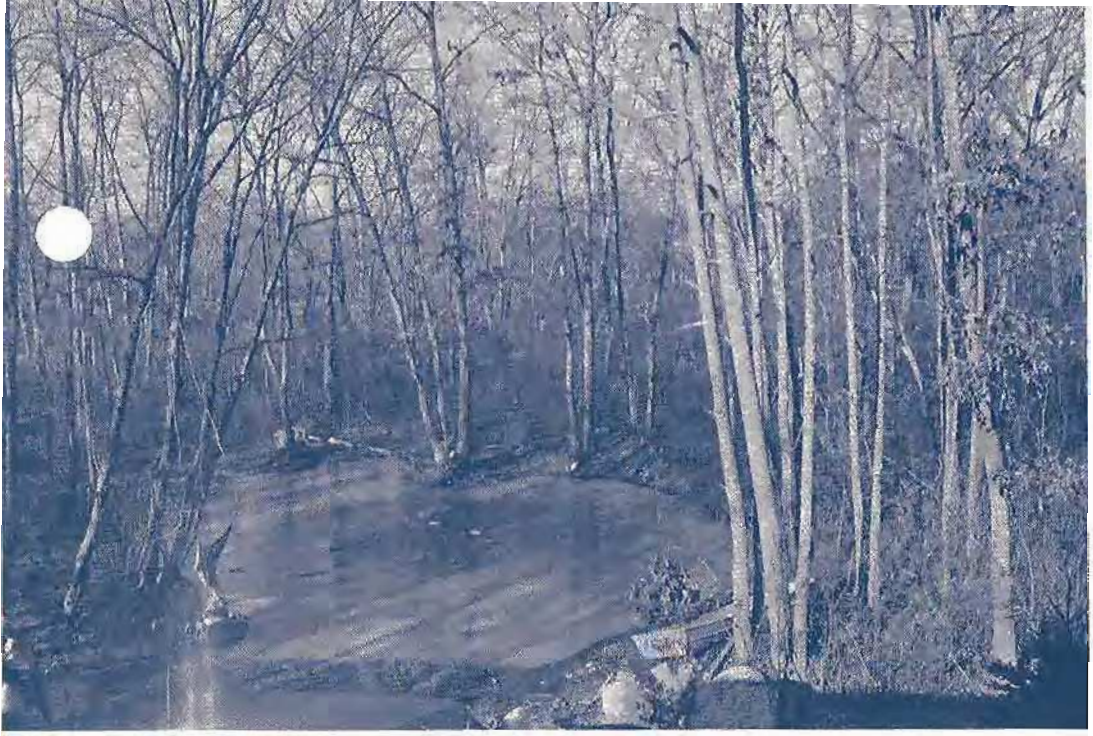


FIGURE 28 *Natural Depressions*

STORMWATER RETENTION PONDS

- Use stormwater retention for the permanent holding of stormwater runoff on the site or for long term detention to allow for the die-off of coliform bacteria. Retention ponds can provide recreational and aesthetic benefits for a development by supporting certain native plants and aquatic life. They also can provide a habitat for wildlife when the pond area is planted with upland and aquatic vegetation. The retention pond should be sized to contain both the normal dry weather water volume and expected runoff flows. It is recommended that the retention pond be designed to accommodate a 100 year-24 hour storm. In areas where heavy sediment loads are anticipated, the aesthetic value of the permanent pond and its surroundings will be severely reduced by deposited sediment and debris, therefore maintenance will be required (see Figure 29).

DRAINAGE CHANNELS

- Use man made swales and other types of drainage channels to carry and recharge stormwater.
- Use bare channels only as a temporary measure for construction sites in areas where the slope is minimal, and the runoff velocity is low. Do not install bare drainage channels in areas with highly erodible soils. The permanent use of bare channels should be avoided.

FIGURE 29 *Stormwater Retention System*

- Use structurally-lined channels as necessary in drainage areas where the slope is high or runoff velocities and concentrations are erosive, particularly in areas of highly erodible soils that preclude the establishment of vegetative cover. The most common structural linings include concrete, rip-rap and asphalt (see Figure 30).
- Use shallow detention and recharge areas upgradient of the natural swales as required so that the existing volume and velocity of runoff into the swales shall not be exceeded. If this is not possible due to a lack of land area or the presence of a high water table, etc. then vegetative and/or structural stabilization measures will be required to provide the swale with the capability to carry and/or recharge runoff without risk of erosion/sedimentation.
- Use grassed or vegetated waterways in areas where design velocities are low and soils have a low erosion potential. Stabilized vegetation also reduces the energy of flow, allowing for infiltration of runoff. Vegetative waterways are usually preferred over structurally-lined channels for reasons of aesthetic value (see Figure 31).
- Protect the channel until a uniform vegetative cover has been obtained, eliminating the risk of erosion and/or sedimentation damage. Common channel stabilization methods include the use of seeding, mulches, and sod. Jute netting and other mulching techniques are frequently used to protect channels until vegetation is established (see Figure 32-Channel Stabilization Measures).

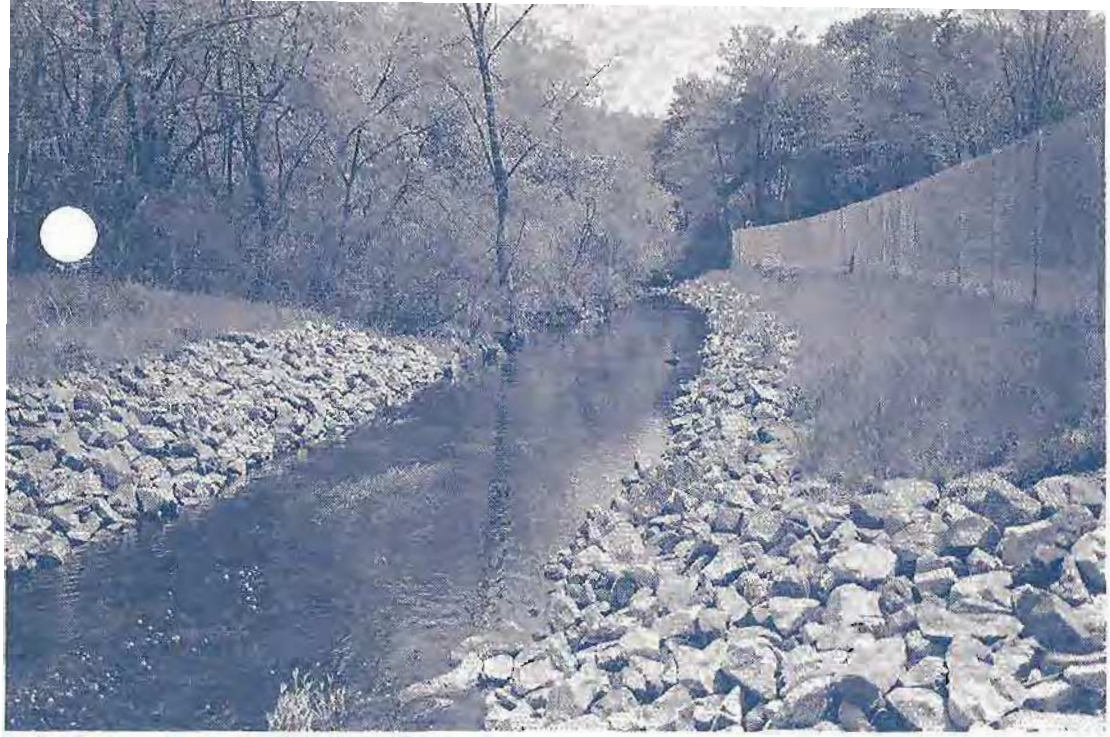


FIGURE 30 *Rip-Rap Drainage Channel*

FIGURE 31 *Grassed Drainage Swale*

FIGURE 32 *Gabions Used As Channel Stabilization*

DIVERSION CONTROL MEASURES

- Use diversion control measures to direct stormwater away from an area where it could cause damage from flooding erosion and/or sedimentation. A surface drainageway is one type of a diversion control measure. It is a natural or constructed channel or waterway used to divert stormwater runoff. A berm is another type of diversion control measure. Surface drainageways and berms should be used to divert stormwater away from natural slopes, bluffs, areas where slopes or soils were exposed during construction, and newly constructed fill slopes. Channels and waterways should have the capacity to provide a path for flow to move at non-erosive velocities to a stable outlet. Diversion control measures should not direct stormwater runoff to an adjacent property (see Figure 33).

ENERGY DISSIPATION

- Use energy dissipation devices to slow the velocity of stormwater runoff to a non-erosive rate. This can be done by establishing a control area immediately adjacent to an outfall or other discharge point. Usually a pile of rocks, stones, gravel/crushed stone or boulders is used to reduce the velocity of the stormwater as it moves through the area. Energy dissipators may also serve as sediment filters, trapping suspended particles and debris.

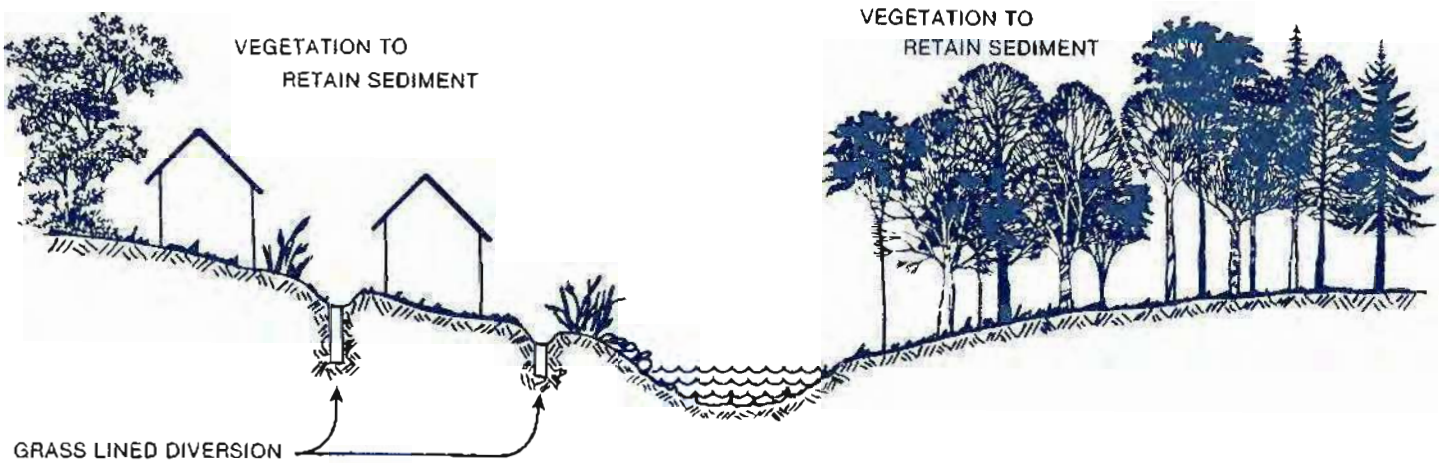


FIGURE 33 *Diversion Control Measure*

SEDIMENT BASINS

- Use sediment basins to protect surface waters from increased sediment loads by trapping the suspended solids before the runoff is released. Figure 34 illustrates how a sediment basin functions, from the collection of runoff to its release to surface waters.
- Remove accumulated sediment and debris periodically, so that the basin will function properly and its visual attractiveness will remain. Wherever possible, retain vegetation, since the roots can increase soil permeability.

SEDIMENT FILTER

- Use a sediment filter to trap suspended particles and debris from stormwater runoff. A sediment filter may consist of a pile of rocks, crushed stone or boulders (see Figure 34).

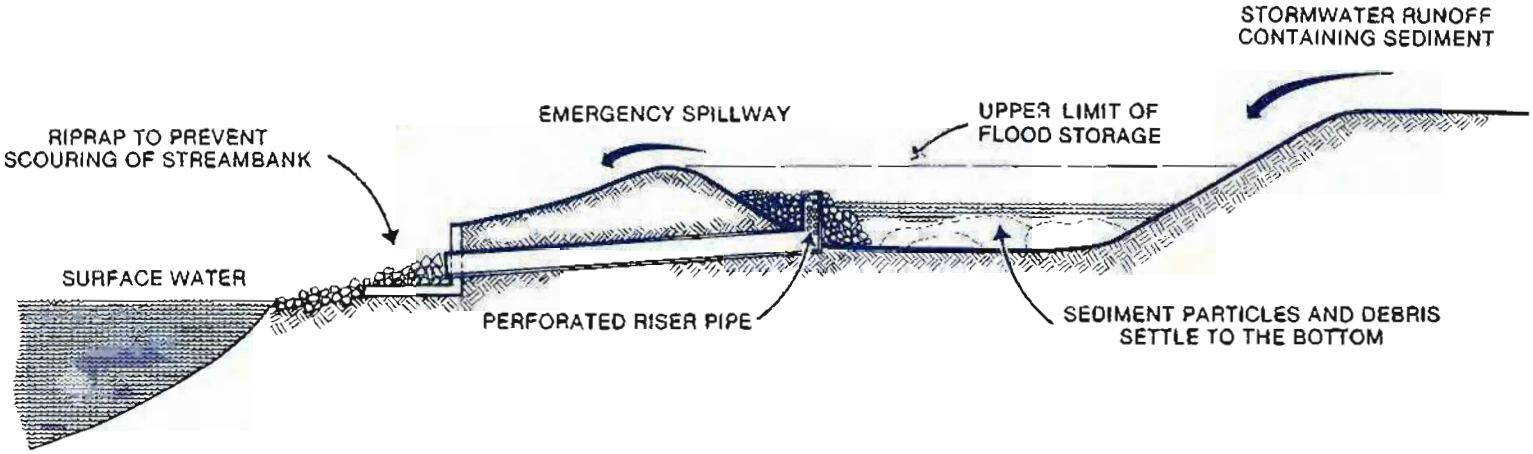


FIGURE 34 *Sediment Basin*

May later be converted to permanent retention pond upon completion of construction

BIOFILTRATION SYSTEMS

- Use a biofiltration system to detain runoff and reduce contaminant loadings. Biofiltration by a combination of physical and biological processes, can minimize concentrations of coliform bacteria, heavy metals, and nutrients carried in stormwater runoff. A biofiltration system is essentially a man-made pond or wetland of approximately five foot depth. The system includes an energy dissipator, located below the inlet pipe, to reduce water velocity and trap suspended solids, (sediment and debris). The entire basin is lined with an impermeable vinyl sheet to prevent leaching of trapped contaminants to groundwaters. The vinyl liner is covered with clean sand and loam, and planted with indigenous aquatic plant species, such as *Typha angustifolia*, or cattails. All above water areas are stabilized by plantings of rye grass, *Lolium multiflorum*, or Tall Fescue, *Festuca arundivacea*, or Red Fescue, *Festuca rubra*, to name a few. Removal of pollutants is accomplished as the runoff moves across the plants. After a detention time of five to seven days, during which the contaminants are absorbed by the plants, significant reductions in contaminant levels occur. The treated runoff is then released to adjoining surface waters. The overflow chamber, located at the pond outlet, (equipped with backflow and adjustable weir) controls the storage capacity (see Figure 9-11).

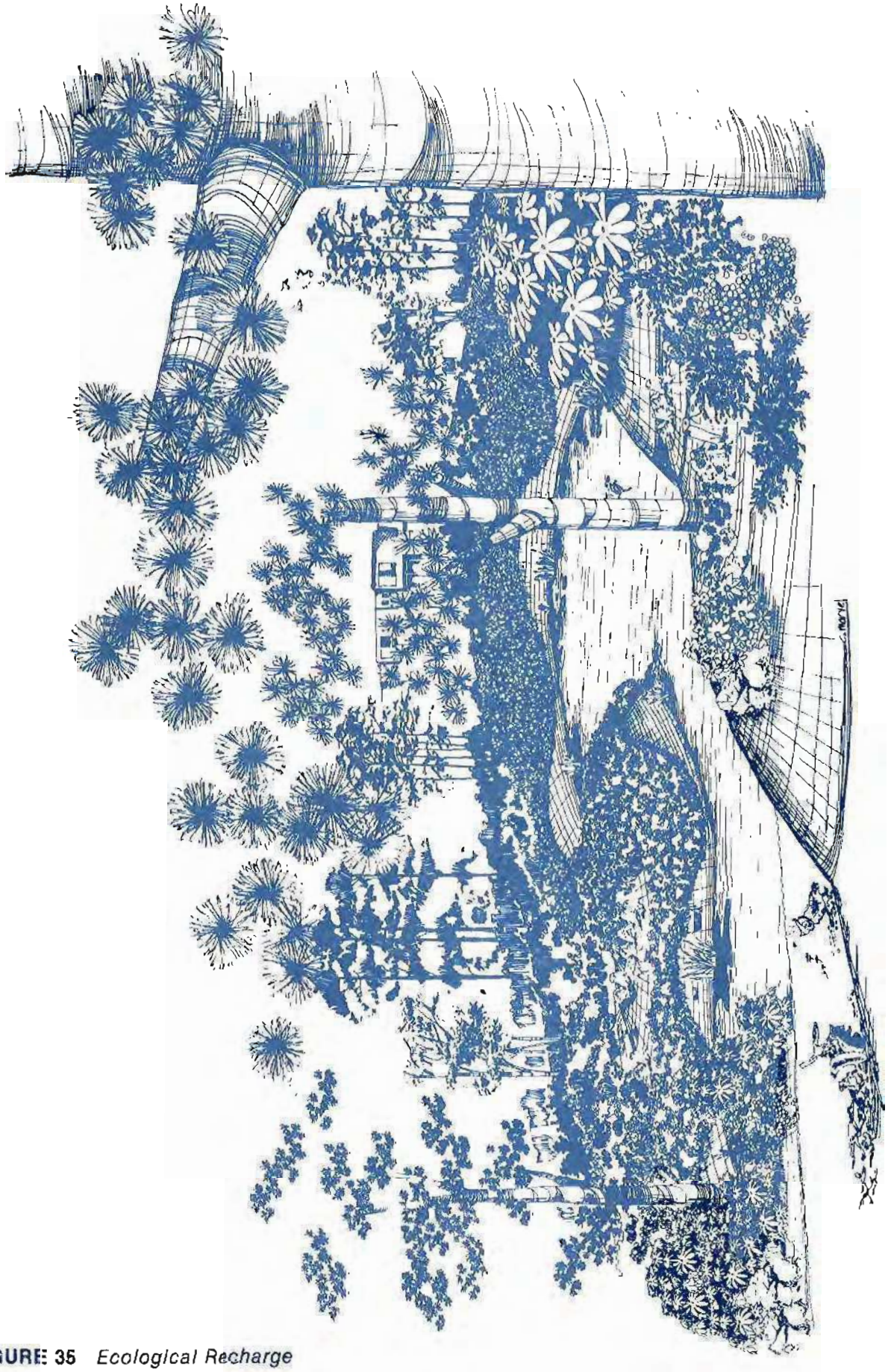
  Maintenance involves the periodic cleaning of the surge tank and overflow chamber of floating debris and sediments, and biannual harvesting of aerial portions of the aquatic plants.

RECHARGE BASINS

- Design recharge basins so that they blend in with the site topography. Consider the use of free form or natural forms and natural slopes for the recharge area instead of using a rectangular basin with steep side slopes. Use convex slopes instead of consistent slopes. See Figures 6 & 7 for an existing recharge basin and Figure 8 for a recommended recharge basin. Consider the use of natural vegetative species instead of exotic landscaping species (see Figure 35 for an ecological recharge basin).

IN-LINE STORAGE (Nationwide Urban Runoff Program)

- Use an in-line storage system for the collection of stormwater runoff from parking lots and roadways. Such systems are suitable in areas where there is adequate distance between the bottom of the leaching pools and top of the water table (minimum of 2 feet). This system consists of a series of catch basins and leaching pools connected by perforated reinforced concrete pipe (see Figure 15). The catch basins in the system in use in Bayville are located every 200 feet at low points and intersections. (The distances between the catch basins vary according to site conditions). Any overflow from the basins enters the perforated pipes (where some leaching occurs) allowing the stormwater to flow from one leaching pool to the next, as each fills. If the stormwater runoff is of sufficient volume to fill all the leaching catch basins and pools, then the excess volume will flow into surface waters or other designated areas.



Sketch provided by: N.Y.S. Department of Transportation

FIGURE 35 *Ecological Recharge Basin*

PERMEABLE PAVING

- Use permeable paving for patios and walkways to reduce the volume of stormwater runoff by increasing infiltration to the ground below, thus allowing for recharge of the aquifer. Permeable paving may be used in areas where permeability of the soil is sufficient to allow rapid drainage and where a seasonally high water table is not anticipated (see Figure 36).

DOWNSPOUTS

- Use downspouts to collect and convey runoff from roofs to leaching pools (see Figure 37).

SOIL AND SLOPE STABILIZATION MEASURES

- Use stabilization techniques to prevent erosion. The options include mechanical, vegetative, impervious and either temporary or permanent measures depending upon the slope and length of time between temporary stabilization and installation of a permanent stabilization measure (see Table 5 for the recommended techniques for given site conditions and Figures 38 - 40).

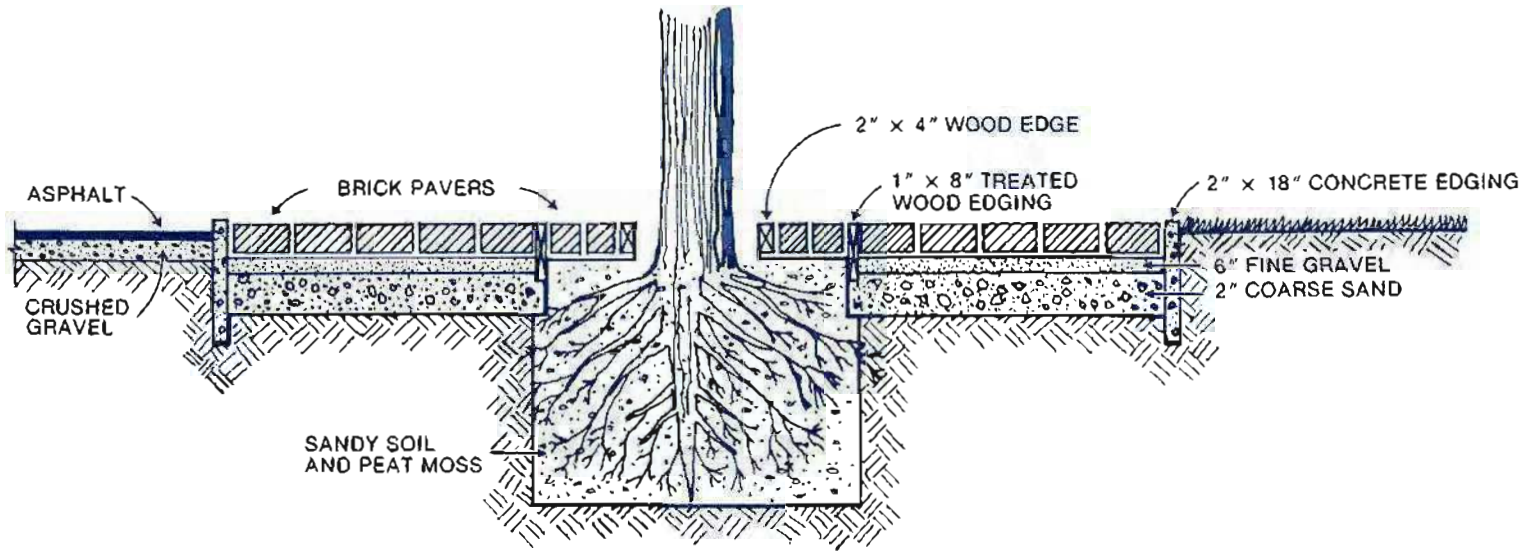


FIGURE 36 *Permeable Paving*

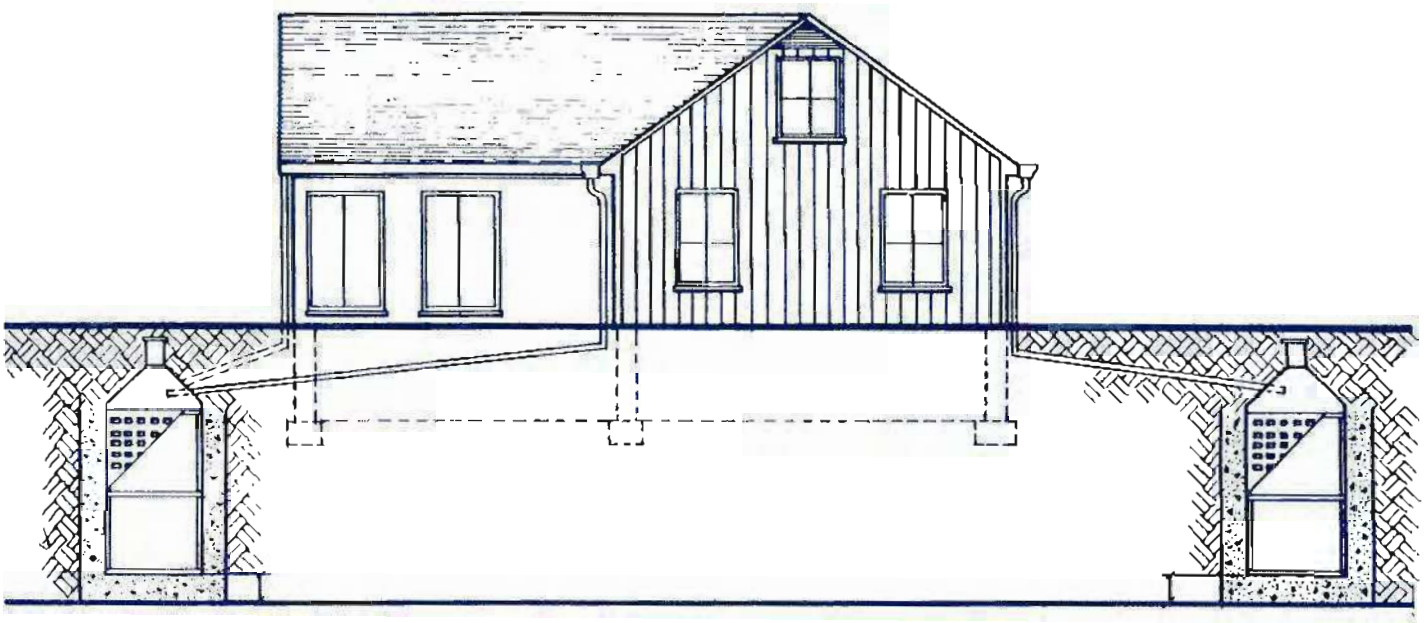


FIGURE 37 *Plan of Downspouts*

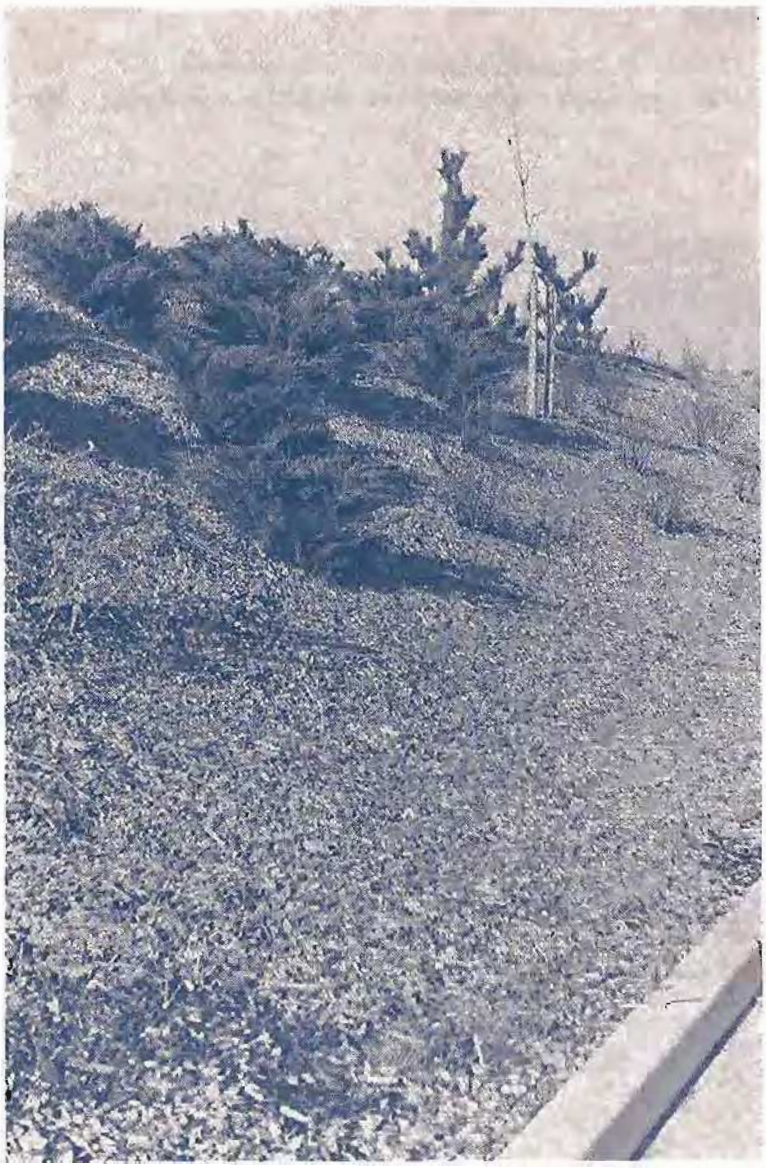
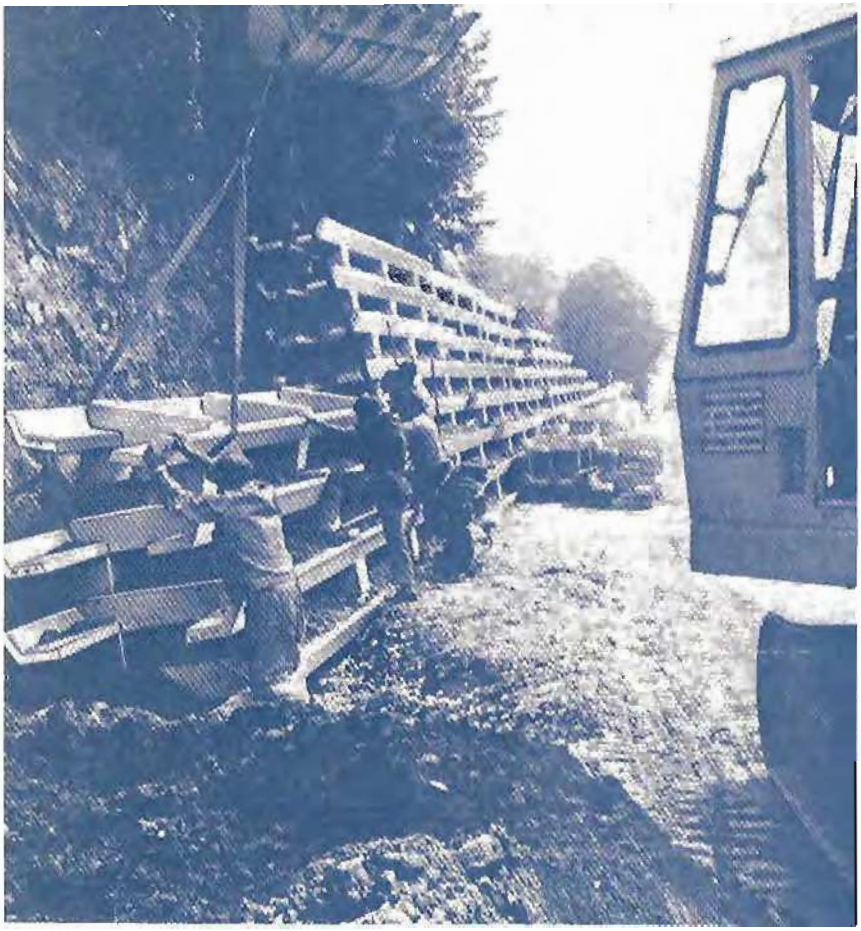


FIGURE 38 *Soil/Slope Stabilization Measure*



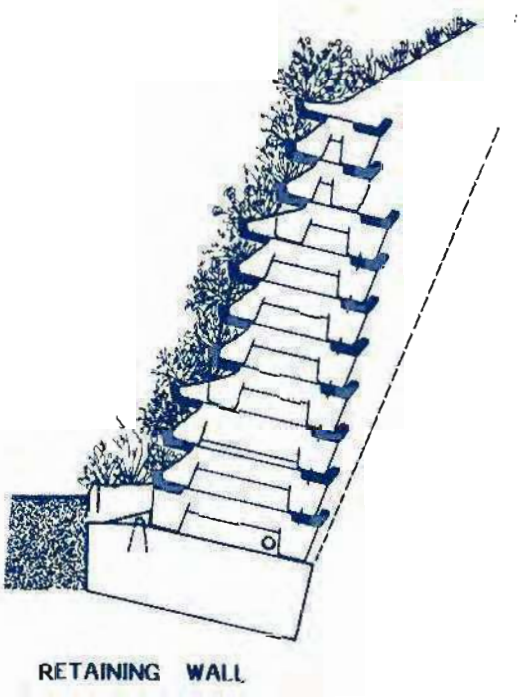


FIGURE 39 *Soil/Slope Stabilization Measures*

Source: Evergreen Systems, Inc., Kings Park, N.Y.
The photo was reprinted from Architect and Builder, May 1983.

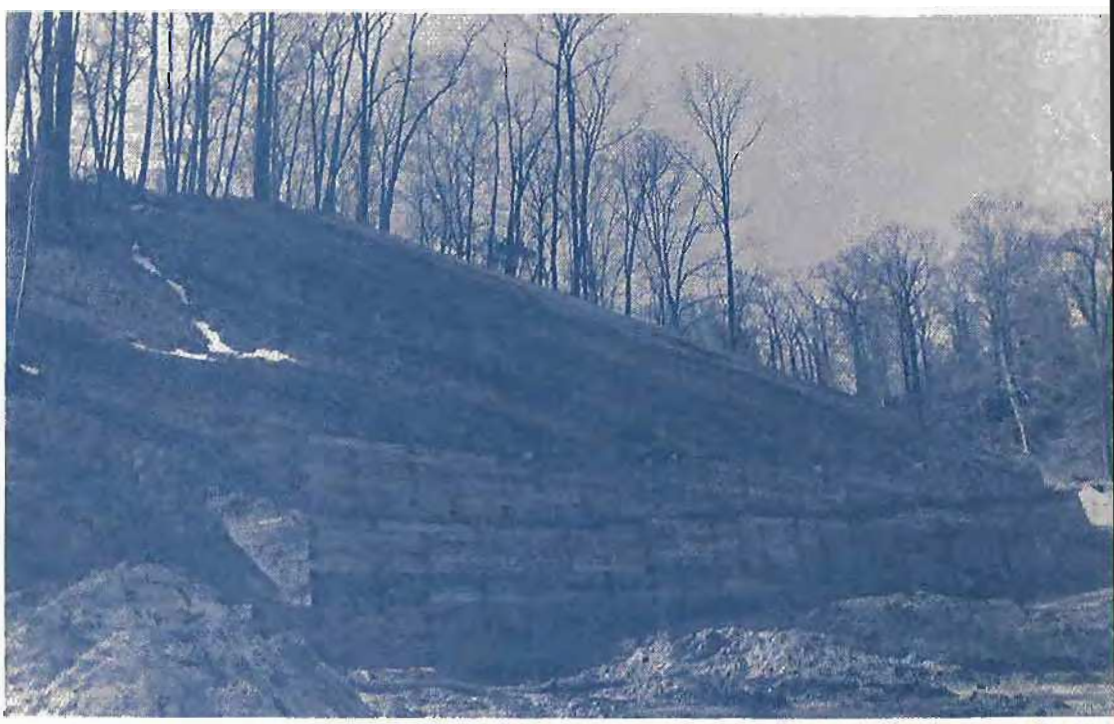


FIGURE 40
Soil/Slope Stabilization Measure

TABLE 5

Permanent and Temporary Slope/Soil Stabilization Measures

Measure	Temporary	Permanent	Purpose	Recommendation For Use
Impervious Surfaces				
Asphalt Concrete		X	Use as roadways and walkways	Use on slopes less than 10 percent.
Mulches				
Salt Hay or Straw	X		Protection of seeded areas until vegetation is established; slow the velocity of runoff, increase the capacity of the soil to hold water, and hold seeds in place. Salt hay is preferred because it does not contain seeds.	Use on steep and other unstabilized areas, where erosion/sedimentation is anticipated, due to rainfall and runoff impacts.
Wood Chips/Ground Bark		X	Improve soil structure and fertility while holding soils in place.	Use in flat areas to protect soil from impact of rainfall, and provide weed control.
Manure	X		Fertilizer; hold soils in place; use with hay or straw; (see above "Salt Hay and Straw").	Use in areas where odor will not be objectionable. Use on slopes less than eight percent. Do not use on slope adjacent to surface waters.
Gravel/ Crushed Stone		X	Protect soils from erosion impacts; can also serve as a permeable road/walkway surface.	Short slopes; including road and walkways.
Haybales	X		To trap sediment and retard erosion along drainage channels during the construction period.	Construction sites, on gentle almost flat exposed areas, subject to stormwater runoff impacts.
Composted Materials	X		Improve soil structure and fertility while holding soils in place.	Use on slopes less than eight percent; use to prepare soil for planting.
Vegetative				
Sod (Grass) Seeding Plantings (trees, shrubs, grasses)		X X X	Stabilize soils on slopes; minimize the effects of stormwater runoff and erosion/sedimentation, and provide a natural aesthetic value.	See Fertilizer Chapter for usage. Do not use sod on steep slopes.
Structural				
Scarification	X		Reduce runoff velocity and increase infiltration rates, hold soil particles in place.	Use on slopes left unstabilized during construction; slope is roughened by running tracked construction equipment across or up and down a slope face creating grooves in the soil, grooves should be perpendicular to slope direction.
Retaining Walls		X	Reduce extremely steep slope gradients.	On slopes too steep to establish vegetation or hold existing vegetation in place.
Benching		X	Reduce the length of slopes, reduce runoff velocity and provide access for slope maintenance.	Steep slopes (15 percent or more) construction sites; slopes of highly erodible materials.
Jute Netting Fibrous Mats Wood Fiber	X X X		Stabilize soils which become exposed during construction, until permanent stabilization measure is implemented.	On slopes and unstabilized areas subject to erosion/sedimentation due to rainfall impacts or overland runoff.
Gabions		X	Stabilize soil and surficial materials, steep slopes and steep channels.	Use as a retaining wall for steep cuts.

Chapter Three

ON-SITE SYSTEMS

INTRODUCTION

Definition of On-Site Systems

On-site systems treat and dispose of sanitary wastes where the wastes are generated. On-site systems include

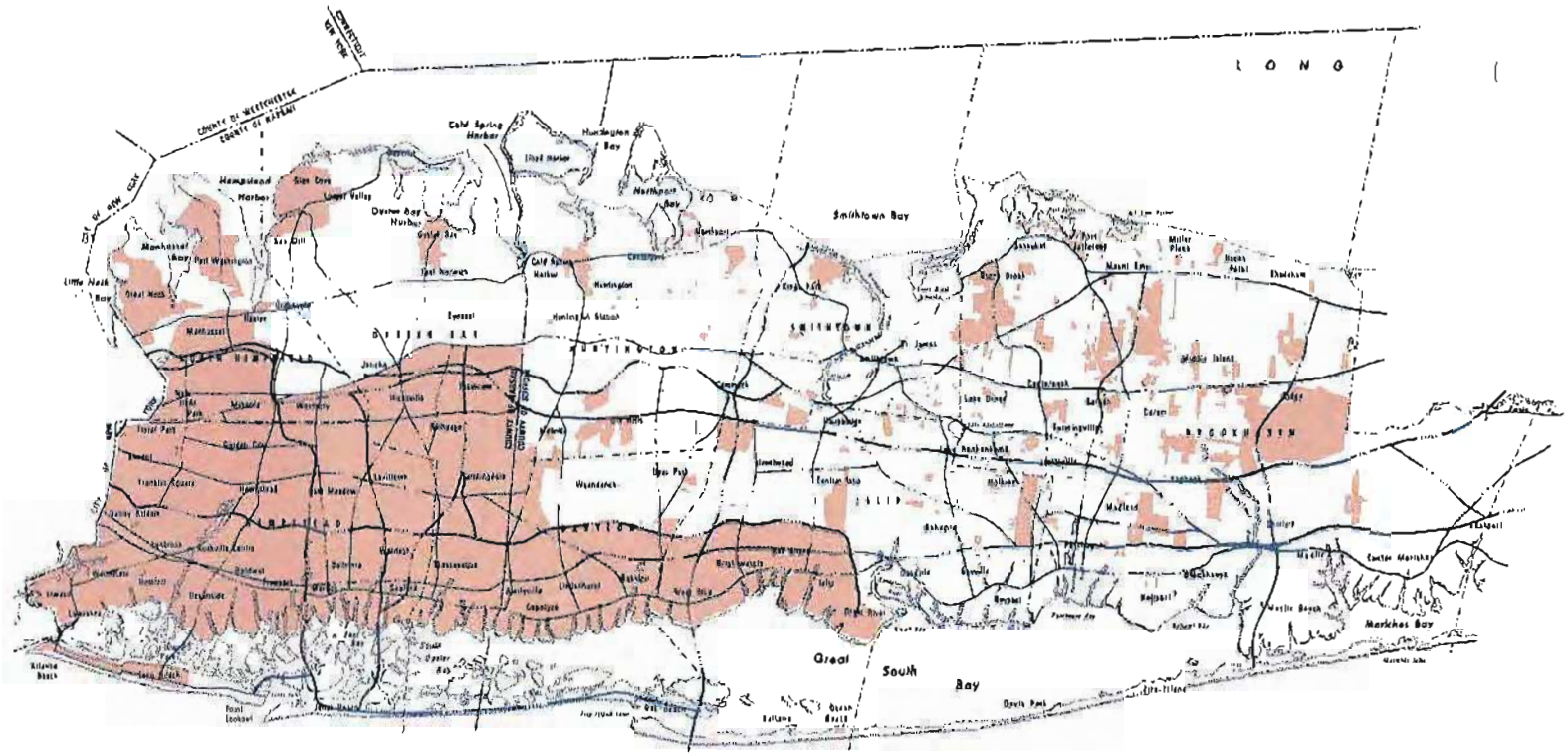
- septic systems
- small sewage treatment systems (package plants)
- drainage fields
- lagoons
- cesspools and other on-site devices

They provide varying degrees of waste treatment. The on-site systems approved for use in Nassau and Suffolk Counties, are generally employed wherever communal sewage collection and treatment systems are neither suitable nor available, and where construction of a new facility or connection to an existing system is economically or technically infeasible. In many situations, particularly in rural or low density areas, septic systems are the best alternative.

Individual on-site systems are used either as a temporary or permanent means of sewage disposal depending on their design. Properly designed, constructed and maintained septic systems can last many years.

Importance of On-Site Systems

Septic systems and cesspools are the most commonly used on-site treatment systems on Long Island. An estimated 150,000 on-site systems contributed 120 million gallons of sewage per day to the ground in 1981. These systems dispose of 30% to 80% of the human wastes in Nassau County and Suffolk County, respectively. Figure 1 indicates areas in Nassau-Suffolk that are presently served by sewers and treatment plants The remaining areas are not serviced.



Advantages and Disadvantages of On-Site Systems

On-site systems have several advantages over sewage treatment plants including

- relatively inexpensive installation
- generally low pollution loadings to groundwater in low density residential areas
- recharge of the groundwater.

When sewage treatment plants discharge to groundwater, *plumes* of contaminants may be generated due to improper operation or inadequate treatment capability. The construction of large sewage treatment systems that discharge to marine waters has resulted in increased pollutant loadings to these waters and the drying up of streams and the loss of wetlands due to the consumptive use of groundwater.

Major disadvantages of on-site systems include

- nitrate-nitrogen and other pollutant contributions to groundwater and nearby surface waters
- unsatisfactory performance in areas with a high water table or poor soil conditions
- the need for regular maintenance to insure proper functioning
- public health problems associated with system failures
- scavenger waste disposal requirements.

Contaminants Associated With On-Site Systems

Pollutants from on-site systems include

- nitrogen
- organic chemicals
- metals
- bacteria
- viruses

Table 1 identifies the most significant known contaminants associated with on-site systems and the resulting groundwater and surface water problems.

NITROGEN

Nitrogen is considered a key indicator of water quality on Long Island since high levels of nitrogen are often associated with the presence of other groundwater contaminants. According to the

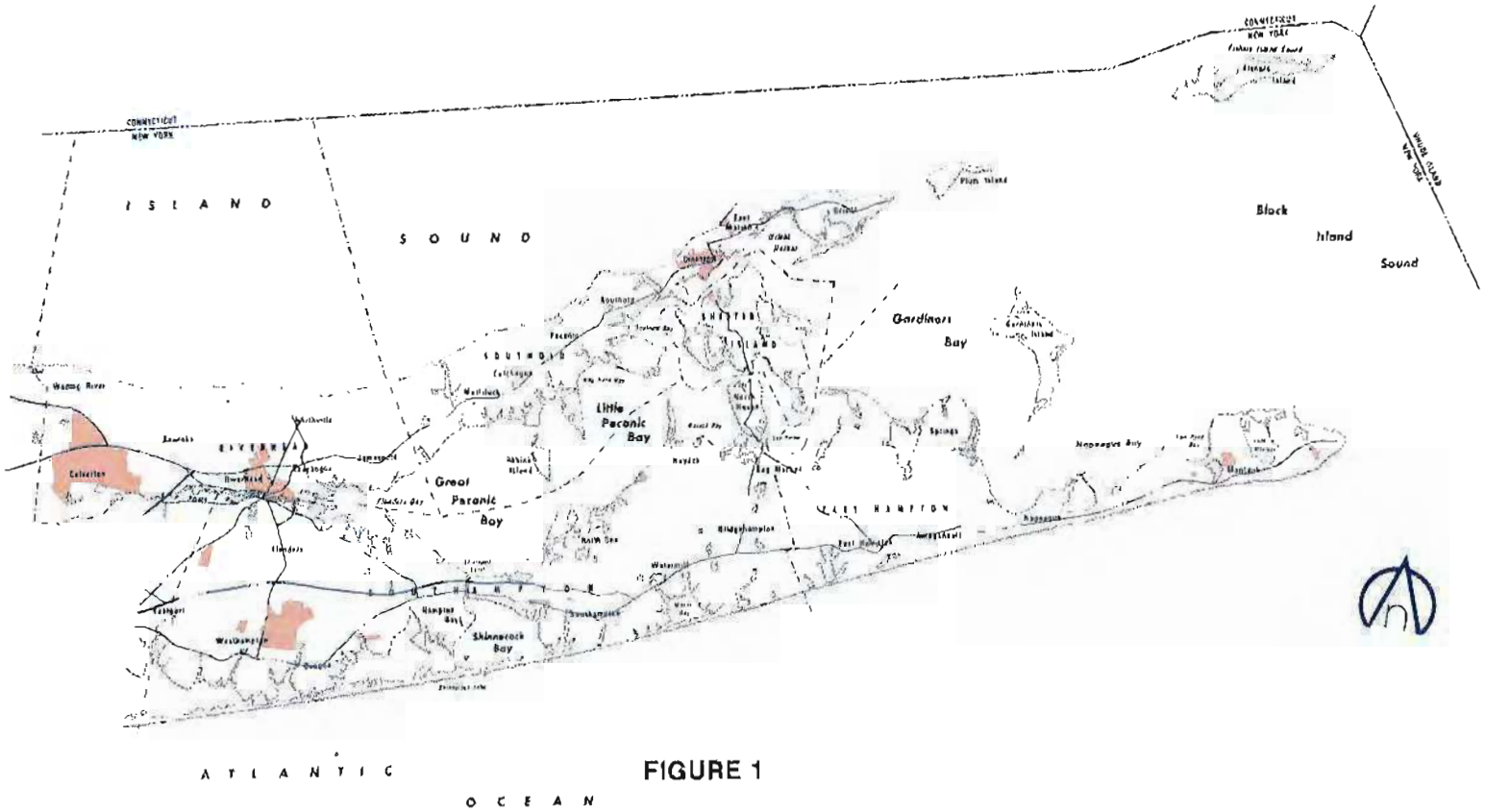


FIGURE 1

Areas serviced by sewage collection and treatment plants within Nassau-Suffolk counties.

federal standard, drinking water supplied to the consumer may not contain more than ten milligrams of nitrate-nitrogen per liter. Nitrate concentrations that exceed or are close to the federal standard have been found in Upper Glacial and Magothy wells.

The amount of nitrate-nitrogen in the groundwater has increased concurrently with urbanization of the region. Approximately 25 percent (or 43,000 tons) of the total estimated annual nitrogen load to groundwater has been attributed to on-site systems. Fertilizers applied to farm crops and lawns are another major source of nitrogen. In developed areas, high nitrate-nitrogen concentrations in groundwater may be the result of past agricultural activities or the more recent contributions of nitrogen from the discharge from small sewage treatment plants, on-site systems and fertilizers applied to the lawns of moderate density residential neighborhoods. Nitrogen from on-site systems can pose a threat to groundwater if housing densities exceed one house per acre and if the nitrate applications to lawns exceed recommended levels.

A portion of the nitrate-nitrogen loading found in the septic system influent is reduced in the average septic tank and leaching field. Initial testing of the *super septic system* by the Suffolk County Department of Health Services (SCDHS) indicates that it could be even more effective in removing nitrogen. (See Super Septic System Discussion in this chapter).

The nitrate found in the effluent from on-site systems is highly soluble and moves easily through the soil to groundwater while most nitrogen in domestic sewage is discharged as *ammonia*. Some organic nitrogen and ammonia may be retained in the soils and taken up by plants. Organic nitrogen is mineralized to ammonia, which can then be oxidized to *nitrite* and *nitrate*. Regardless of the initial form, nitrogen in the unsaturated zone is ultimately subject to leaching to groundwater as nitrate.

Nitrates discharged in deep aquifer recharge areas remain in the groundwater almost indefinitely. Nitrates discharged in shallow recharge areas can contaminate shallow aquifers and surface waters. At the present time, the impact of septic systems upon surface waters and associated aquatic biota is not totally known.

TABLE 1
Impacts of Pollutants From On-Site Systems Upon Surface Waters and Groundwater

CONSTITUTENT	PROBLEM	
	Groundwater (Drinking Water)	Surface Water
1 Nitrate-Nitrogen	High concentrations of nitrate have been known to produce a bitter taste. Water containing nitrogen as NO_3 in excess of 45 ppm has been reported to cause methemoglobinemia in infants.	High concentrations of nitrate-nitrogen may be a problem in marine waters.
2. High Phosphate Concentrations	NONE	Eutrophication may result if there is sufficient concentration of phosphorus in fresh surface waters from sources such as on-site systems and fertilizers.
3. Lead, Tin, Iron, Copper, Zinc, Manganese	These constituents are toxic in excessive concentrations	
4. Chloride, Sulfate	These constituents can present health hazards to some individuals ranging from laxative effects to aggravated cardiovascular or renal disease, if concentrations exceed recommended limits.	
5. Foaming Agent	A nonbiological detergent constituent and an indicator of contamination. Appearance and taste of the water may be unacceptable.	Causes foaming in surface waters.
6. Biochemical Oxygen Demand		In extremely localized situations, excessive BOD in septic fluid discharged to surface water can deplete dissolved oxygen supplies necessary to aquatic life.
7. Chemical Oxygen Demand		Same as above
8. Sodium		Impacts freshwater species
9. Synthetic organic chemicals, including 1.1.1 tricholoethane, tetrachloroethylene, trichloroethylene and chloroform (halogenated hydrocarbons)	These constituents found principally in cesspool additives are suspected carcinogens.	
10. Bacteria and Viruses associated with the presence of fecal coliform	Some private wells may contain significant amounts of pathogens	Failing systems may contribute to high total coliform counts. Bacteria and virus may cause disease in humans. Problems include gastro-intestinal illnesses and rashes.

The blank areas in the above table indicate a lack of identification of a problem-constituent interface. Items 3, 4, and 9 have not been identified as having an impact upon surface waters and items 6 and 7 do not affect groundwater.

INORGANIC POLLUTANTS

Both domestic and industrial on-site systems are also a source of other inorganic pollutants including

- lead
- tin
- iron
- copper
- zinc
- manganese
- sodium
- chloride
- sulfate
- potassium
- calcium
- magnesium

ORGANIC POLLUTANTS

The presence of organic chemicals in Long Island's Upper Glacial and Magothy aquifers has been recognized as a significant groundwater quality problem. Private and public water supply wells in both counties have been closed due to the presence of organic chemicals found in concentrations that exceed recommended state and county guidelines. The sources of these chemicals are numerous and include:

- residential
- commercial
- industrial septic systems
- cesspools

ORGANIC POLLUTANTS ASSOCIATED WITH RESIDENTIAL ON-SITE SYSTEMS

Organics from residential on-site systems include those in

- cesspool cleaning liquids
- solvents and degreasers
- gasoline and petroleum products
- foaming agents
- other organic chemicals identified in federal and state laws and regulations.

Cesspool cleaning liquids have historically constituted the bulk of the *halogenated hydrocarbons* in household discharges. Although Suffolk County banned these additives in September 1980 and subsequently New York State banned them in both Nassau and Suffolk Counties, these chemicals can still be purchased. Organic chemical ingredients found in cesspool cleaners have included

- 1,1,1-trichloroethane
- methylene chloride
- dichlorobenzene

Past extensive use of cesspool cleaners containing these compounds virtually guarantees their continued presence in the aquifers for many years. Different chemicals are found in the cesspool cleaning products now sold legally.

Other household products that are disposed of through on-site systems contain ingredients that may contaminate the groundwater. Table 2 presents a list of organic chemicals associated with consumer products that are frequently disposed of into residential on-site systems.

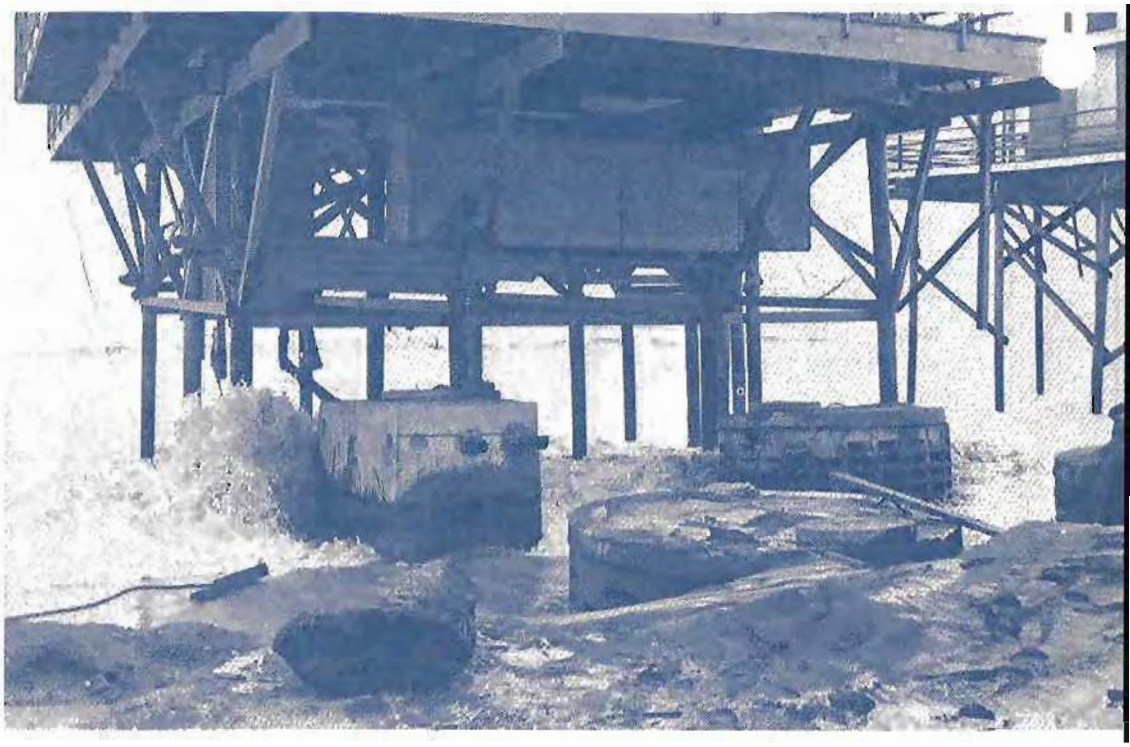
TABLE 2
Organic Chemicals Associated With Consumer Products Disposed Into On-Site Systems

Type of Product	Contaminant
General Household Cleaners:	petroleum distillates glycol ethers xylenols isopropanol
Drain Cleaners:	1,1,1-trichloroethane
Toilet Cleaners:	chlorinated phenols xylene sulfonates
Laundry Soil and Stain Remover:	petroleum distillates tetrachlorethylene
Spot Removers and Cleaning Fluids:	petroleum hydrocarbons benzene trichlorethylene 1,1,1-trichloroethane
Paint Brush Cleaners:	aliphatic hydrocarbons toluene acetone methylethyl ketone methanol glycol ethers
Rug and Fabric Cleaners:	carbon tetrachloride trichloroethylene

Photograph 1

Residential on-site system installed. Note septic and cesspool covers.

Photograph 2



Severe coastal erosion exposed an on-site system.

ORGANIC POLLUTANTS ASSOCIATED WITH COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL ON-SITE SYSTEMS

There are numerous organic chemicals associated with a wide range of commercial, industrial and institutional establishments. Some organics may be peculiar to one or two types of enterprise. For instance, metal degreasers and press cleaners are associated with lithographers; photo processing chemicals are associated with photographic establishments.

Commercial laundries and laundromats are a source of soil and stain removers. Commercial dry cleaners usually try to recycle their dry cleaning solvents, but they do have a solid residue from the dry cleaning process that must be disposed of.

Some of the older, smaller commercial and industrial establishments may still dispose of organic chemicals into their septic systems. Laboratory wastes associated with educational facilities may also be discarded into septic systems.

BACTERIA, VIRUSES AND OTHER PATHOGENS

Septic Systems can be a source of *viruses* and other *pathogens* to groundwater and water supply wells. *Bacteria* from septic systems do not appear to be a significant problem because most bacteria are trapped in the soil or material within the leaching field area. Very little work has been done on viruses. The impact of viruses upon groundwater is still under study and there is some indication that viruses may migrate farther than bacteria.

On-Site Systems Used On Long Island

SEPTIC SYSTEMS

A septic system contains two basic units:

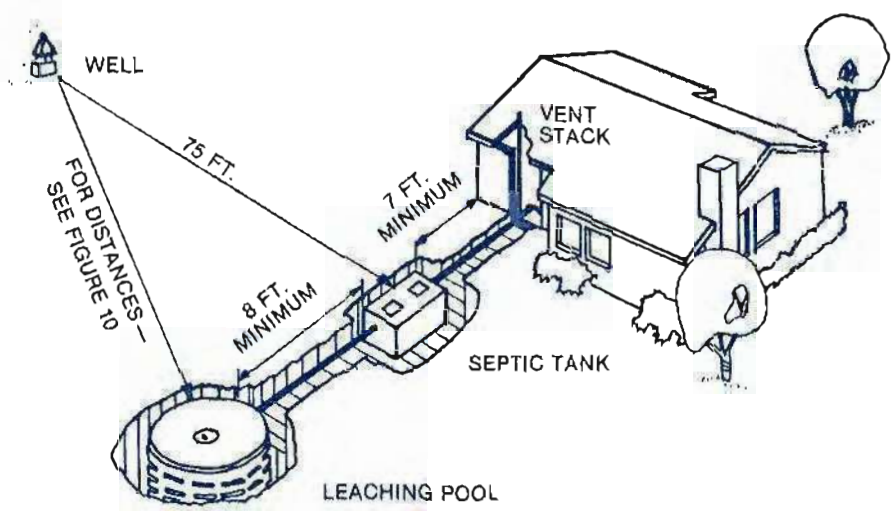
- a watertight tank through which wastewater flows and where removal of solids and grease occurs
- a leaching system which receives and discharges effluent from the septic tank into the ground. (See Figures 2 and 3.)

The wastewater is first discharged to a septic tank where the heavier solids settle on the bottom and the lighter greases and scum rise to the top. Digestion by bacteria and liquefaction of solid materials occurs. In the tank's *anaerobic* environment, the settled sludge decomposes slowly, therefore, over a period of time a sludge and grease layer accumulates. This must be pumped out periodically by a licensed waste hauler, or it may overflow into the adjoining leaching pool or back up the system. The effluent flows into the leaching pool or, in a few locations on Long Island, through a *tile field* and then filters downward through the unsaturated zone of the soil.

Plants, soil, subsoils and subsurface materials in the unsaturated zone can capture or partially retain organic pollutants, heavy metals, nitrates and other nutrients, and microorganisms. This occurs through

- filtration
- sorption
- precipitation
- ion exchange

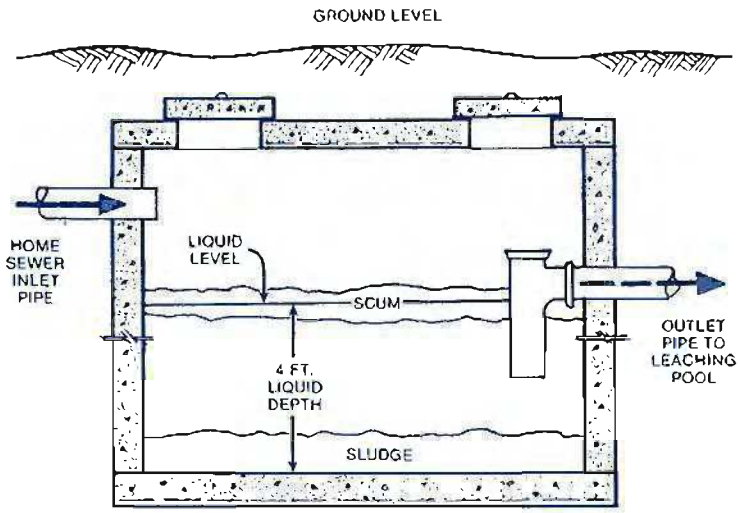
The unsaturated zone allows for some aerobic biological degradation. Therefore, a portion of these contaminants that might otherwise reach the saturated zone may be treated within the unsaturated zone providing that the distance between the leaching system and the groundwater is sufficient to allow for adequate filtering by subsurface materials. It can be as-



IN AREAS WITH A HIGH WATER TABLE, TWO OR MORE SHALLOW LEACHING POOLS MAY BE USED.

Source: Suffolk County Department of Health Services

FIGURE 2 *Typical On-Site Residential System*



Source: Suffolk County Department of Health Services

FIGURE 3 *Typical Cross Section—Concrete Septic Tank*

sumed, however, that the sorptive capacity of these subsurface materials diminishes over time. It can also be assumed that some non-conservative contaminants may also be removed in the saturated zone due to the long residence time. Generally speaking, once a contaminant reaches the saturated zone, it will move through the aquifer systems relatively intact.

CESSPOOLS

A *cesspool* is a unit, similar to a leaching pool, that receives raw sewage from the household drain. Solids tend to settle at the bottom of the cesspool while the liquids seep out through the openings located in the sides and bottom. The groundwater contamination potential from cesspools is higher than that of septic systems.

Although the installation of new cesspools is no longer permitted in Nassau and Suffolk Counties, many cesspools installed prior to the changes in County Health Department requirements remain as the sole means of *waste treatment* for residences located in unsewered areas. Some of the cesspools, primarily those installed prior to 1962, do not function properly due to poor soils, fluctuating or rising high water tables, and improper system maintenance. This problem is quite common in shoreline areas or near lakes, ponds and streams, where on-site systems may contribute to surface water contamination.

SUPER SEPTIC SYSTEMS

The experimental use of modified on-site systems is a logical next step to establish a factual basis for the development of cost-beneficial septic systems that can achieve marked reductions in the inorganic nitrogen and total nitrogen concentrations in the system effluent. Detailed measurements of the influent and the effluent in a *super septic system absorption field* were taken over a twelve month period. It was observed that the average concentration of total nitrogen in the septic system influent was reduced by approximately 50% in the absorption field.

Presently, the SCDHS is approving the experimental use of a number of these sanitary waste disposal systems for commercial and industrial establishments. (See Figure 4.) These systems will be monitored to determine their effectiveness and future use will be decided on the results of the monitoring. It should be noted that the modified systems are only being accepted for non-residential structures that exceed the population density equivalency set forth in Article 6; and with total daily sewage discharges of less than 15,000 gallons per day. Their use is being limited to existing single and separate parcels and in *no* case will a modified system be accepted where a division of land is occurring.

COMMUNAL SYSTEMS

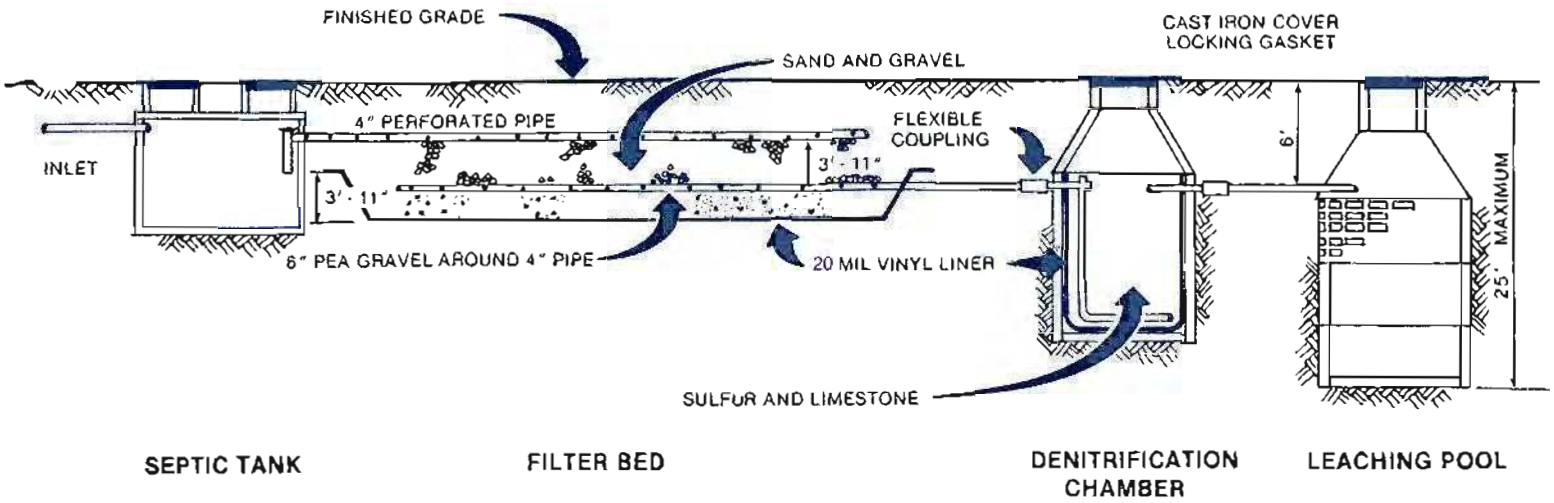
Communal systems are essentially large septic systems that serve a group of residences or commercial establishments. They are appropriate where maintenance districts will be established in the future. (See Figure 5).

SEPTIC SYSTEMS WITH TILE FIELDS

The substitution of tile fields for sewage leaching pools is not recommended or permitted. The installation of several shallow leaching pools can generally compensate for the limited depth to groundwater. Tile fields have several disadvantages:

- improper installation generally results in system failures
- clogging frequently occurs over time
- altered site conditions often cause the systems to fail

They also require a large area, and are subject to damage if a vehicle is driven over the *field* area.



Source: Suffolk County Department of Health Services 1983

FIGURE 4 *Super Septic System—Gravity Flow*

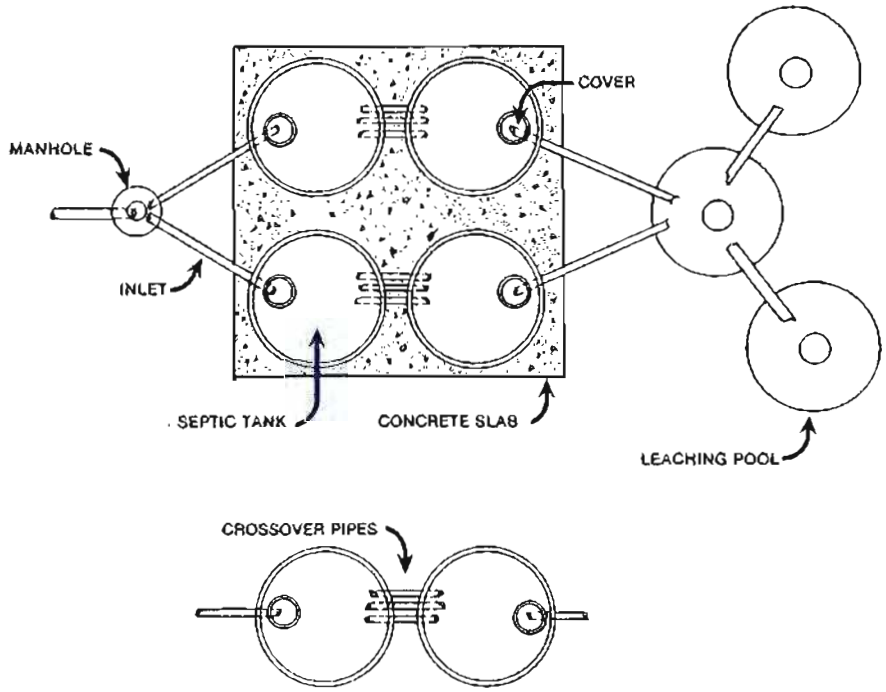


FIGURE 5 *Communal Septic System*

Details:

1. Three or more compartment septic tanks shall be constructed on a common reinforced concrete slab at least 6 inches thick.
2. Each compartment shall be constructed of approved reinforced precast concrete solid rings, solid domes or slab tops.
3. Crossover pipes must be of 8 inch O.D. pipe, 20 inches on center, with center line 18 inches below the liquid level.
4. When using 3 or more compartments, the inlet flow must be split using a minimum 4 foot diameter manhole.

Alternative On-Site Systems

Other types of on-site systems have been installed in various parts of the country. Some evaluation of these systems has been made, and both the negative and positive aspects of these systems have been assessed. EPA has encouraged research into the effectiveness of alternative systems.

Although the use of alternative on-site treatment systems may be appropriate in certain locations in Nassau and Suffolk Counties, the standard septic system is the only approved on-site system at the present time.

KEY PROBLEMS

Improper Siting

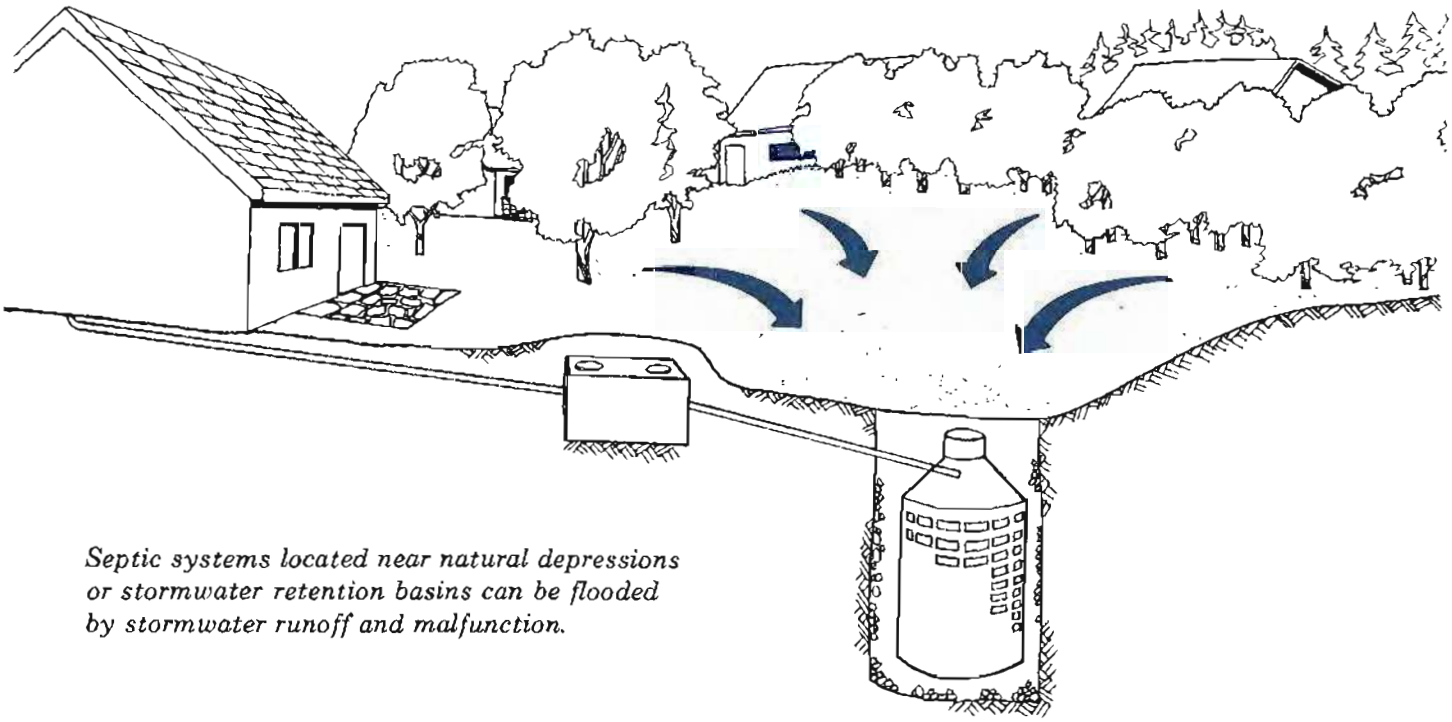
In the past, septic systems and cesspools were sometimes poorly sited, but now revised health department regulations tend to eliminate this problem. However, because much of the new development is taking place in sensitive areas, and available controls are not entirely adequate, some of the following mistakes that have occurred in the past may occasionally be repeated.

STORMWATER IMPACTS UPON SEPTIC SYSTEMS

Septic systems are sometimes located at low points or in swales on the property; as a result, they may not function properly due to stormwater flooding of the leaching field. Improper stormwater system design may compound the problem if stormwater is directed towards the septic system area. (See Figure 6).

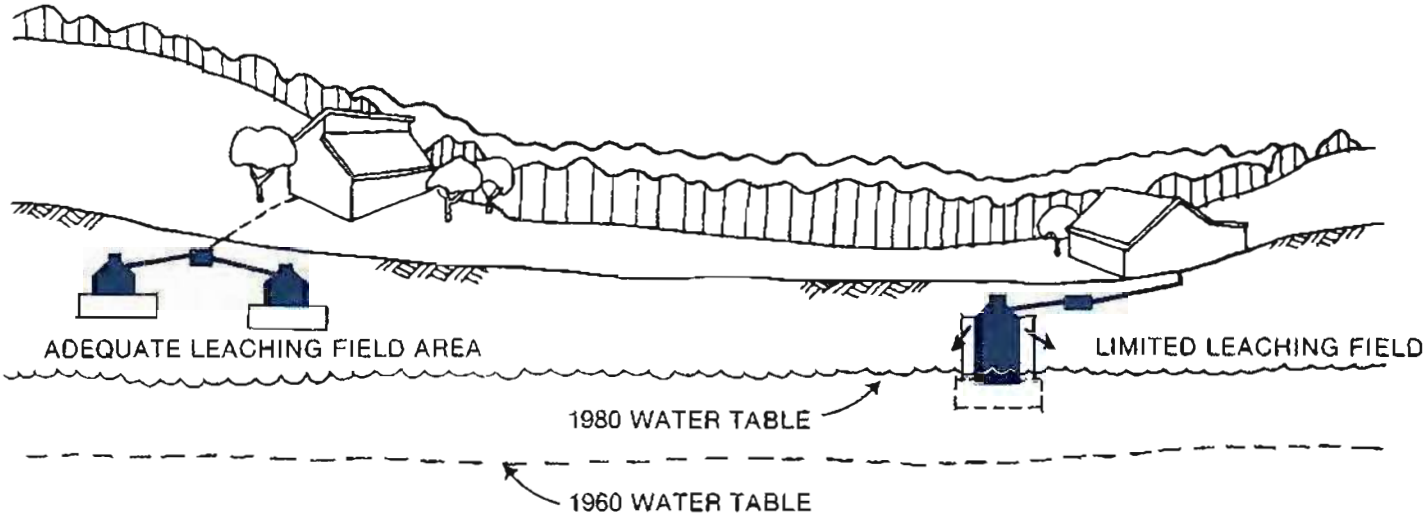
INADEQUATE DEPTH TO GROUNDWATER

Many septic systems or cesspools were installed during the drought of the sixties when the depth to groundwater was much greater than it is now. With the recurrence of normal rainfall in the seventies, the water table rose and many leaching systems were flooded by groundwater and ceased to function. The existing regulations only require a two foot minimum depth between the leaching pool and the highest recorded groundwater level. In areas where groundwater levels tend to fluctuate, flooding of leaching fields may occur (See Figure 7). It may be difficult to determine the highest groundwater level due to a lack of site specific information. In the case of new development, the test borings required by the health departments may only indicate the present groundwater level.



Septic systems located near natural depressions or stormwater retention basins can be flooded by stormwater runoff and malfunction.

FIGURE 6 *Stormwater Runoff Impacts on On-Site Systems*



Septic systems or leaching pools that were installed when the water table was lower may be flooded and malfunctioning due to rising groundwater levels.

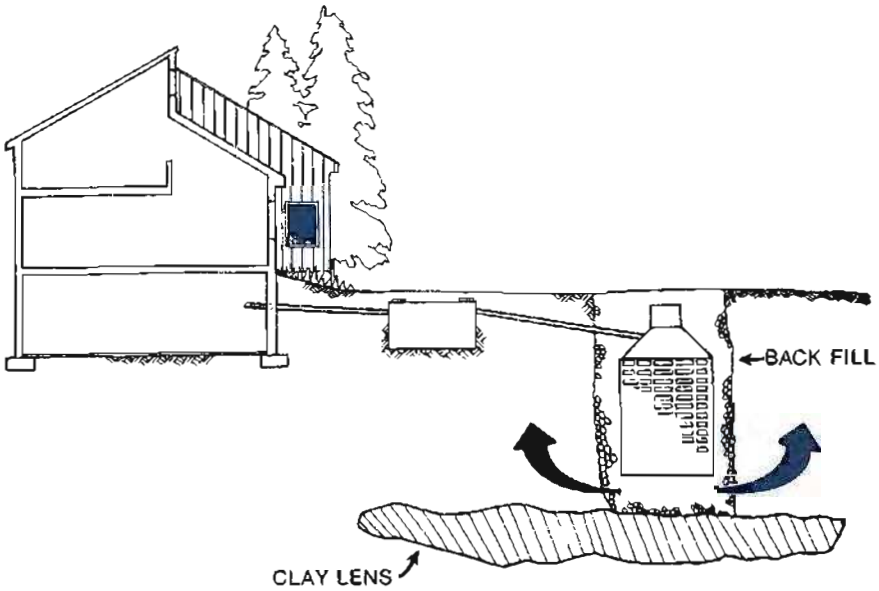
FIGURE 7 *Rising Groundwater Levels*

FAILURE TO REMOVE IMPERMEABLE SOILS

Some of the soils on Long Island have low permeabilities or are underlain with clay. (See Figure 8) When leaching systems have to be installed in low permeability soils, regulations require removal of the clay and its replacement with more permeable soils. Where this is not adequately done, the system cannot function properly.

SEPTIC SYSTEM CONTAMINATION OF PRIVATE WATER SUPPLY WELLS

On-site systems and private water supply wells are sometimes located too close to one another with the consequent contamination and abandonment of wells. In some areas, where single family development is still occurring on substandard lots due to the legally established rights to develop parcels in *single and separate ownership*, septic systems are allowed within 100 feet of private water supply wells.



Prior to 1962 clay lens allowed.

Soils with low permeability, subsurface clay lens can cause septic systems to malfunction and can cause the sewage to deflect back towards the surface.

FIGURE 8 *Failure To Remove Impermeable Soils*

CONTAMINATION OF PUBLIC WATER SUPPLY WELLS

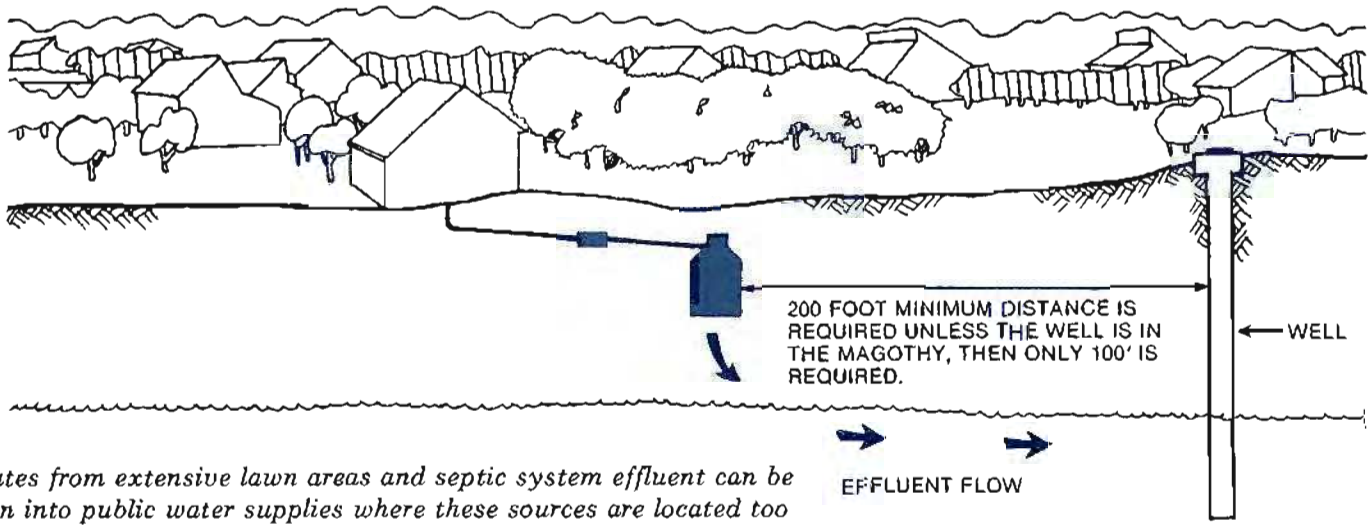
Residential or commercial building on substandard parcels in non-sewered areas outside of *Zones III and VI* is still permitted at densities capable of producing nitrate (or organic chemical) loadings from septic systems and lawns that could lead to the closure of public supply wells (See Figure 9).

CONTAMINATION OF SURFACE WATERS

In shoreline areas, landowners may be illegally discharging a portion of their household wastes directly into surface waters because the high water table limits the capacity of the leaching field (See Figure 10).

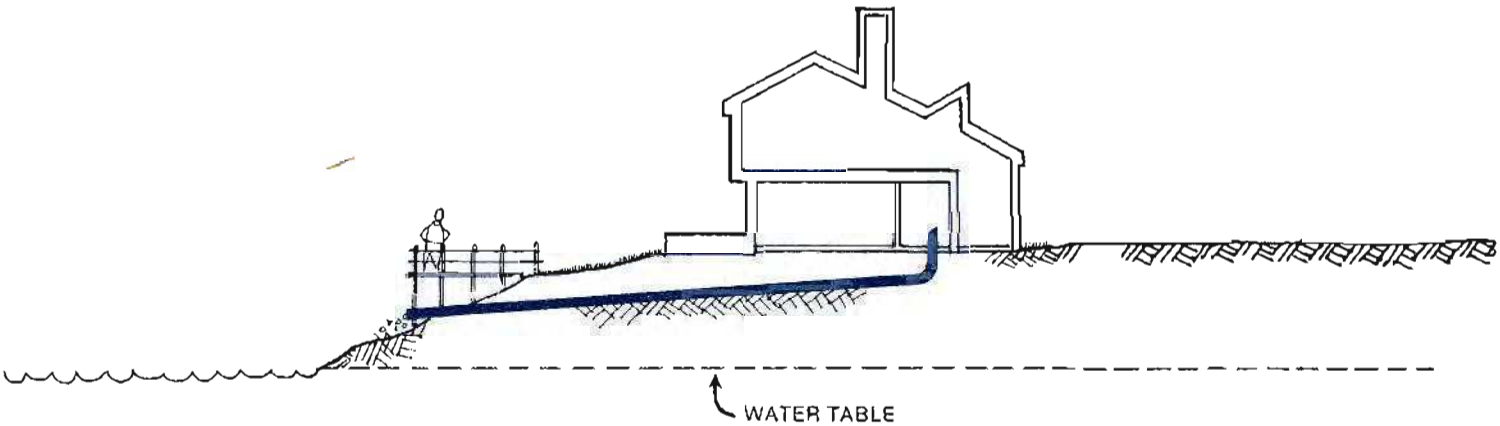
BLUFF EROSION

The siting of leaching pools close enough to the edge of the bluff to cause the discharge of effluent through the bluff face may result in undercutting and slumping of the bluff. (See Figure 11)



Nitrates from extensive lawn areas and septic system effluent can be drawn into public water supplies where these sources are located too close to well fields.

FIGURE 9 *Contaminant Movement To Water Supply Wells*



Direct discharge of residential sanitary wastes, and or wastes from washing machine or dishwasher is illegal.

FIGURE 10 *Illegal Discharges To Surface Waters*

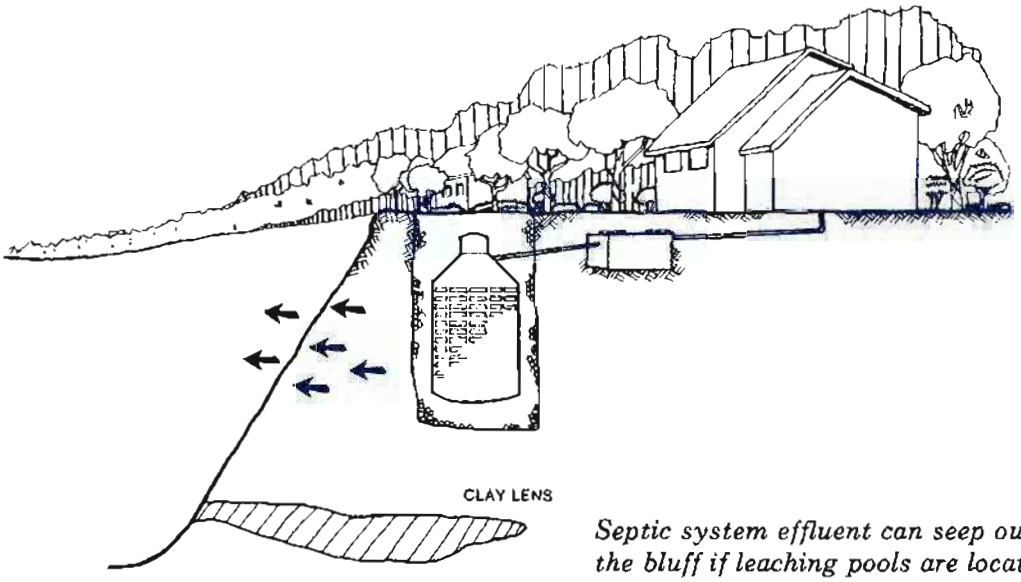


FIGURE 11 *Impact On Bluffs*

Septic system effluent can seep out from the bluff face and undermine the bluff if leaching pools are located too close.

Improper Site Management

There are several important site management problems.

- Stormwater runoff that would normally be discharged elsewhere may flow to the on-site system leaching field causing it to fail.
- Over time, leaching pools or other drainage structures that handle stormwater from buildings and on-site paving may become clogged and cease to function. Excess runoff from these leaching pools, landscaping and/or paving may result in increased stormwater flow to the sewage leaching area.
- The septic system may also be damaged if heavy equipment is allowed to pass over the system.
- Tree roots may enter the piping and leaching pool and eventually prevent proper functioning.

Improper Use of On-Site Systems

The cumulative impacts of discharging small amounts of a number of organic pollutants into septic systems can pose a threat to groundwater.

Improper Maintenance

Many owners of on-site systems do not follow a preventive maintenance program. More often than not, homeowners do not have the septic tanks pumped out as frequently as needed, thus allowing the sludge and the scum to flow to the leaching pool where it clogs the infiltrative surface of the leaching pool and field. As a result, the system begins to malfunction.

Unnecessary or toxic chemicals that contaminate groundwater and harm beneficial bacteria may be poured into the system in an effort to avoid a pump out.

SEPTIC SYSTEM FAILURE

System failure is usually due to

- improper siting
- inadequate depth to groundwater
- poor site management
- maintenance problems described above.

Scavenger Waste Disposal

The wastes pumped from septic tanks or cesspools (scavenger wastes) are an anaerobic slurry that usually contains large quantities of grit and grease. Scavenger wastes vary in the percentage of solids, water and organic content.

The disposal of scavenger waste presents several water quality and logistic problems:

- the lack of conveniently located scavenger waste treatment and disposal sites sometimes leads to illegal dumping in order to avoid the long distances to approved disposal sites and costs of disposal
- haulers may combine industrial waste with scavenger wastes and illegally dispose of the combined waste. Trucks carrying scavenger waste are not clearly labeled as to the type of waste being carried
- the lack of manpower limits enforcement of existing controls, including the requirements for the inspection and sampling of scavenger wastes delivered to disposal sites.

EXISTING MANAGEMENT

Legislation, Regulation and Administration

The term *management* includes legislation and/or regulations, ordinances, and agency guidelines and policies that relate to the control of pollution from on-site disposal systems.

New York State

Table 3 provides a summary of the State laws affecting on-site systems.

County

The two county departments of Health, act as agents for the NYS Departments of Health and Environmental Conservation in the administration and enforcement of laws controlling on-site treatment systems and scavenger wastes. In addition, each county has local legislation affecting the management of on-site systems. Accordingly, each county health department has developed rules, regulations, and standards which guide agency actions.

See Tables 4 and 5 for the summary of county controls affecting on-site systems.

TABLE 3
New York State Legislation Affecting On-Site Waste Disposal Systems

Legislation	Major Relevant Provisions
Article 17, Title 15 New York State Environmental Conservation Law (NYS-ECL)	• Authorizes NCDH and SCDHS to review proposed and existing sewage disposal systems.
Article 17, Title 7 NYS-ECL	• Requires State Pollution Discharge Elimination System permit for discharge of sewage from - a residential building occupied by three or more families; - a residential building occupied by more than 10 persons; - any facility with a design flow of 1,000 gallons or more per day. - any future alteration of existing systems that
Article 27, Title 3	• Authorizes NYSDEC to regulate and require registration of all persons engaged in the business of cleaning septic tanks, cesspools, or marina sanitary wastes.
Article 39, Sec. 39-0105	• Prohibits the sale of septic system cleaners and additives containing halogenated hydrocarbons and aromatic hydrocarbon chemicals in Nassau and Suffolk Counties. • Prohibits the discharge of above-mentioned chemicals into groundwater and surface waters.
Article 8, NYS-ECL (SEQRA)	• Under SEQRA, various review agencies at the state and local levels have the opportunity to review and comment on proposed projects involving sanitary facilities. This provides an opportunity to comment on the impacts of proposed septic system densities and siting problems
Article II, Title II Public Health Law	• Similar to Article 17, Title 15, NYSDEC

TABLE 4
Nassau Controls Affecting On-Site Systems

Legislation	Major Relevant Provisions
NASSAU COUNTY Ordinance #157, 1953	• Planning Commission may require developer to furnish all utilities (including sewage systems) in and to the development. • Planning Commission may require changes to plans based on comments from NCDPW and NCDH. • Construction of on-site systems must be in accord with NCDPW specifications.
Public Health Ordinance, General Sanitation—Article II, Section 4	• Prohibits construction of on-site systems in sewered areas. • Prohibits discharges from on-site systems, that endangers a water-body or public water supply.
Charter, Art. XII	• Enables County to design, construct, lease, own, operate and maintain any sewer facility in the county. • City, Town, Village, district and private sanitary systems are subject to approval of NCDPW. • Authorizes Board of Supervisors to establish sewage disposal districts, and prepare a general sewage facility plan.

TABLE 5
Suffolk County Controls Affecting On-Site Systems

Legislation	Major Relevant Provisions
SUFFOLK COUNTY Sanitary Code, Art. 3	• Authorizes SCDHS to regulate the design and construction and issue approvals for on-site systems. • Prohibits construction of on-site systems in sewered areas.
Sanitary Code, Art. 6	• See text for Discussion.
Sanitary Code, Art. 12	• Regulates discharges of toxic and hazardous materials.
Local Law No. 12-1980	• Prohibits sale of organic chemicals or compounds for the purposes of cleaning or unclogging on-site systems or sewer drains.
Sanitary Code, Art. 7 (proposed)	• Would declare it county policy to maintain ground and surface water resources as near to natural conditions as possible, methods of preventing or controlling water pollution. • Prohibit discharge of industrial, toxic, or hazardous materials into on-site systems.

NASSAU COUNTY

The Nassau County Department of Health (NCDH) is responsible for the administration and/or enforcement of the New York State Laws affecting on-site systems. In accordance with NYS-ECL Article 17, Title 15, NCDH reviews proposed subdivision maps to determine the adequacy of the proposed sanitary and drainage facilities. Approval is valid for a period of five years and any construction of the realty subdivision undertaken after that time will be required to conform to the NCDH standards in effect at the time of construction.

Section 0701 of NYS-ECL Article 17, Title 7 requires that a SPDES Permit be obtained from the NYSDEC to create a groundwater discharge, or construct a new or modified on-site sewage disposal system that meets the threshold criteria listed in Table 3. The NCDH assists in the administration and enforcement of the permit process.

NCDH administers and enforces the rules and regulations of the NYS-ECL Article 27, Title 3 which requires that sanitary waste haulers handle, transport and dispose of such wastes in an approved manner.

Nassau County is responsible for the enforcement of the recently enacted State legislation, NYS-ECL Article 39 which prohibits the sale of specific septic system cleaners.

In addition to the enforcement of state laws, NCDH enforces or assists in the administration and enforcement of the local laws summarized in Table 4.

Discharges from commercial establishments are under town or village jurisdiction if the anticipated system flow is less than 1000 gallons per day. (See Existing Town Controls).

If a *change in usage* of an existing establishment occurs, the NCDH reviews the case to determine if the sewage flow has been increased enough so that a permit is required. If the change in usage results in a significant increase in flow volume, such as the conversion of a card shop to a restaurant, a SPDES permit must be obtained.

If construction of the sewage disposal system does not occur prior to the expiration date of the SPDES permit, an application to renew the permit is required and the sewage disposal system must be installed in accordance with the NCDH standards in effect at the time of renewal.

Past efforts to control pollution from on-site systems in Nassau have focused on the extension of collection and treatment systems. Currently about 90% of the county population resides in sewered areas. However, evaluations performed as part of ongoing *201 Wastewater and Facility Planning Studies* suggest that some areas in the northwest portions of Nassau County will continue to use septic systems. A large portion of northeastern Nassau is expected to remain unsewered.

SUFFOLK COUNTY

The SCDHS is responsible for the enforcement of the NYS-ECL Article 17, Title 15, Article 17, Title 7 (in cooperation with the NYSDEC), Article 27, Title 3, Article 39 Section 39-0105; and Article 8. In addition, Suffolk County's involvement in on-site disposal systems includes a number of water pollution control activities of the SCDHS summarized in Table 5.

Article 6, of the Suffolk County Sanitary Code, *Realty Subdivisions and Developments*, effective November 19, 1980, closes the loophole in the State law, which exempted subdivisions of fewer than five lots from the provisions of the code. The Suffolk County Board of Health now has the authority to control the density of on-site systems in new developments. Where development occurs at higher densities, approved community or public treatment systems are required. The minimum lot requirement for new homes with septic systems, for all areas outside Hydrogeologic Zones III and VI is 20,000 square feet; in zones III and VI, 40,000 square feet (See the Land Use Chapter for the 208 Hydrogeologic Zone boundaries). Another important provision, Section 605, Reg. 82, requires developers of new commercial establishments, apartments, shopping centers and individual buildings to provide treatment for the removal of nitrates to meet effluent standards if the density equivalency of these non-residential properties exceeds comparable allowable densities for residential on-site systems.* Enforcement of this provision should result in reduced contaminant loadings from on-site systems.

*If their estimated yearly effluent loading in gallons exceeds that produced by an average unit on 1/2 acre. (or on one acre for Zones III and IV.)

Public Information

The counties provide guidelines for the permit approval process and site installation procedures. These may be obtained from the respective Health Departments.

Town

In both Counties, the Health Departments are the primary regulatory and enforcement agencies for on-site systems. In Nassau County, however, each town building inspector inspects systems installed in residential developments of four units or less and commercial establishments that generate less than 1000 gallons per day. The developer is required to hire a professional engineer to inspect the installed sewage disposal system for a subdivision development or for a commercial development that uses 1000 or more gallons a day. In Suffolk County, some towns have imposed more stringent controls or review procedures within their respective jurisdictions. Traditionally, the town's primary responsibility toward on-site systems is related to general site plan and subdivision plat approval. Town recommendations are passed along to the SCDHS and the County Board of Health which considers them before granting approval or proposed septic systems. Table 6 summarizes the various town functions in regard to On-Site Systems.

TABLE 6
Town Controls And/Or Review Procedures For On-Site Systems

NASSAU

Oyster Bay

Oyster Bay is the only Nassau County town that contains extensive unsewered areas. The Town Division of Environmental Control acts in an advisory capacity to the Town Board with regard to on-site disposal systems.

SUFFOLK

Babylon

The Town Planning Board reviews site plans. The building department issues the building permit after it has received SCDHS approval for the on-site system.
Article VIII, Plumbing Code: Sewers and Drains Secs. 7-181 to 7-201, specifies construction standards for on-site systems.

Brookhaven

The Brookhaven Code of Ordinances, [Chap. 81, Wetlands] requires Town Board approval for construction of on-site systems located near or impacting wetlands. The Planning Board will grant a development permit only if on-site systems are located to avoid impairment of wetlands or contamination of wetlands in the event of flooding. All proposed subdivisions must locate and construct on-site systems so as to minimize flood damage. [Brookhaven Code of Ordinances, Chap. 33, Flood Damage Prevention].
The Town also requires that whenever there is any change in a building structure or use, the building owner must submit an evaluation form to the Department of Environmental Protection. If the Department determines that an impact upon groundwater could occur, the new owner must complete a new site plan prior to receiving a new Certificate of Occupancy.

East Hampton

Town Board reviews all applications for on-site systems located within the 100 Year Flood Plains.

Huntington

The Town Planning Board reviews site plans after SCDHS and Town Department of Environmental Control (DEC) approve plans. They may advise the Planning and the Engineering, Building and Housing Departments.
Huntington prohibits cesspools and septic tanks in town sewer districts unless undue hardship or physical impossibility prevents compliance (hook-up to sewers). [Huntington Code of Ordinances, Chap. 164, Sewers and Sewage Disposal].

Islip

The Environmental Control Dept., Division of Environmental Services may advise and make recommendations to any division of Town government.

Riverhead

The Planning Board is authorized to approve preliminary and final subdivision plats outside incorporated cities or villages. [Riverhead Code of Ordinances, Chap. 30].

Smithtown

The Town Board reviews each development proposal after SCDHS has approved the proposed on-site system. The Conservation Advisory Council reviews site plan applications in environmentally sensitive areas.

Southold

The Building Department issues construction permits, provided applicants meet SCDHS specifications. The Town Board may hold hearings on permit applications. The Planning Board can advise on approval of a permit.
The Town Trustees and Town Conservation Advisory Council can advise if the proposed on-site system could affect a Town waterway.

RECOMMENDATIONS

Legislation, Regulations and Administration

State

- N.Y.S. legislative action is recommended to amend Article 17, Title 7 of the NYS Environmental Conservation Law to require sewage treatment for sewage discharges greater than 1,000 gallons per day in the deep aquifer recharge areas in Zones I, III, IV and V and in important shallow aquifer recharge areas in Zones IV, V and VI (See the Land Use Chapter for the 208 Zone descriptions, Figure 2.)
- The NYSDEC should complete the review process for SPDES permits prior to granting NYSDEC and/or the health department approval for the construction of an on-site system.

County

- Nassau County should adopt a provision similar to Suffolk County's Article 6 for those undeveloped areas where sewers are not planned.
- Suffolk County should amend Article 6 of the Suffolk County Health Code to extend the 40,000 square feet minimum lot residential requirement and the density equivalent requirements for commercial and industrial development now in effect within Hydrogeological Zones III and VI to include other primarily undeveloped deep aquifer recharge areas within Zones I, IV, V and critical shallow aquifer recharge areas within Zones IV and V.
- In non-sewered areas, the impact of the conversion of single family to two family units should be carefully evaluated by the county health departments. In Suffolk County the density change should be consistent with the density requirements of Article 6. The health departments should require a new on-site system permit for any residential conversion that would result in a significant increase in density.
- Suffolk County should take all feasible measures to limit further residential development of substandard lots. Where appropriate, it should dedicate County-owned old file map parcels as *forever wild*, subject to Article 1 of the Suffolk County Charter; elsewhere, it should negotiate the sale of substandard lots to the owners of contiguous parcels.

- The county health departments should evaluate the total predicted potential nitrate (and organic) loadings to groundwater for proposed major developments. (For potential nitrate loadings see the Site Plan Review Chapter). Whenever the total anticipated nitrate loading exceeds 6 mg/l of nitrates, restrictions should be placed on the size of the lawn area (See town recommendations) and the health departments may need to require treatment systems with nitrate removal for development within the unsewered deep aquifer recharge areas and selected shallow aquifer recharge areas.
- The County Health Departments in cooperation with the towns and villages should identify priority areas for additional septic system maintenance district pilot programs and should assist in the formulation of preliminary pilot program plans. (A maintenance district can be administered by the local municipality or county).
- The County Health Departments, in cooperation with the towns and villages, should identify candidate areas for future maintenance districts. In areas where alternative systems are required or where communal systems have been installed or where existing or proposed on-site systems are subject to failure, the towns or the county health departments should consider whether or not maintenance districts should be required. (See Amendments to the NYS Local Enabling Laws to Allow Creation of Wastewater Disposal Districts). Proposed maintenance districts should be located where the population density is greater than one or more units per acre and where septic systems or cesspools will continue to be the method of sewage disposal. Those areas with numerous existing problems should receive first consideration. Priority locations for maintenance districts should include areas where organic chemical concentrations in groundwater are increasing due to use of cesspool cleaners, the soils are poor and/or the depth to seasonal high water table is minimal. If it is determined that a district is required, the administering agency, designation, district boundaries, regulations governing wastewater disposal and maintenance procedures, and charges or user fees should be included in local legislation.
- Suffolk County should consider extending the existing Southwest Sewer District boundary to permit inclusion of adjacent intensively developed industrial-commercial areas.
- The County Health Departments should encourage developers, whose properties are located outside, but are accessible to existing sewer districts to connect to these districts. (In a few cases, it may be determined that a package treatment plant is more appropriate, particularly if the maintenance of recharge is critical).
- The County Health Departments should request the assignment of additional personnel to monitor and to work with the towns to evaluate changes in commercial and industrial building use in the deep and critical shallow recharge areas. The Health Departments should require all new building occupants to obtain a permit for sewage and any other waste disposal and all new industrial occupants to provide for monitoring access to the effluent discharge.
- The Counties should require commercial and industrial establishments to sign an agreement and to post a bond to guarantee adequate pollution control. The Counties should urge owners of such establishments to obtain long term pollution liability insurance when available.

Municipal

- The towns should consider rezoning unplatted proposed residential areas where nitrate-nitrogen levels approach 6 mg/1, in order to reduce densities in accordance with the 208 WTMP recommendations for the various hydrogeologic zones. The towns should consider prescribing still lower densities for Critical Environmental Areas or Groundwater Protection Districts.(See Land Use Chapter).
- The towns should not allow the conversion of single family homes to two family units in unsewered deep recharge or critical shallow recharge areas.
- The towns should take all possible measures to prevent further development of substandard lots on old filed maps and should adopt local laws for the acquisition, replatting and resale of substandard lots. A sample law adapted from the town of East Hamptons' law is outlined as follows.

Sample Local Law for Acquisition of Substandard Undersized Building Lots*

Section 1. The Town Board pursuant to the provisions of Article 15 of the General Municipal Law of the State of New York, may acquire lots or parcels within the confines of maps filed in the Suffolk County Clerk's Office prior to the creation of the Planning Board of the Town of _____ including but not limited to a list of such maps which is on file in the Suffolk County Clerk's Office pursuant to the provisions of Section 276 of the Town Law of the State of New York, under conditions as set forth in this Local Law.

Section 2. Definitions:

Acquisition: Acquisition of title by the Town of _____ of lots or other portions of old filed maps either for public purposes or for resale as provided in this Local Law.

Lot: A parcel of ground under one sole or undivided ownership separate from that of any adjoining lots.

Old Filed Map: Any map filed in the Suffolk County Clerk's Office without Town of Planning Board approval.

Plan: Comprehensive treatment of an old filed map or portion thereof which shows building lots, roads to be improved for access, roads to be widened, roads not necessary for access to be abandoned, possible scenic easements, possible acquisitions for public purposes, including parks, drainage areas, acquisition of substandard lots to be joined with other lots for possible future resale, and other customary features shown on a modern subdivision map, and which may show topography if required by the Planning Board.

Substandard Undersized Building Lot: Any lot which does not meet minimum area and width requirements of the zoning district in which it is situated and any lot so designated by the Planning Board in its official report.

Section 3. From time to time, upon report and recommendation of the Planning Board, the Town Board may designate an old filed map as an area appropriate for urban renewal in accordance with Section 504 of the General Municipal Law of the State of New York.

Section 4. The Planning Board shall submit a plan for the renewal of an old filed map, or portion thereof.

*Adapted from the Town of East Hamptons' Local Law No. 2, 1976.

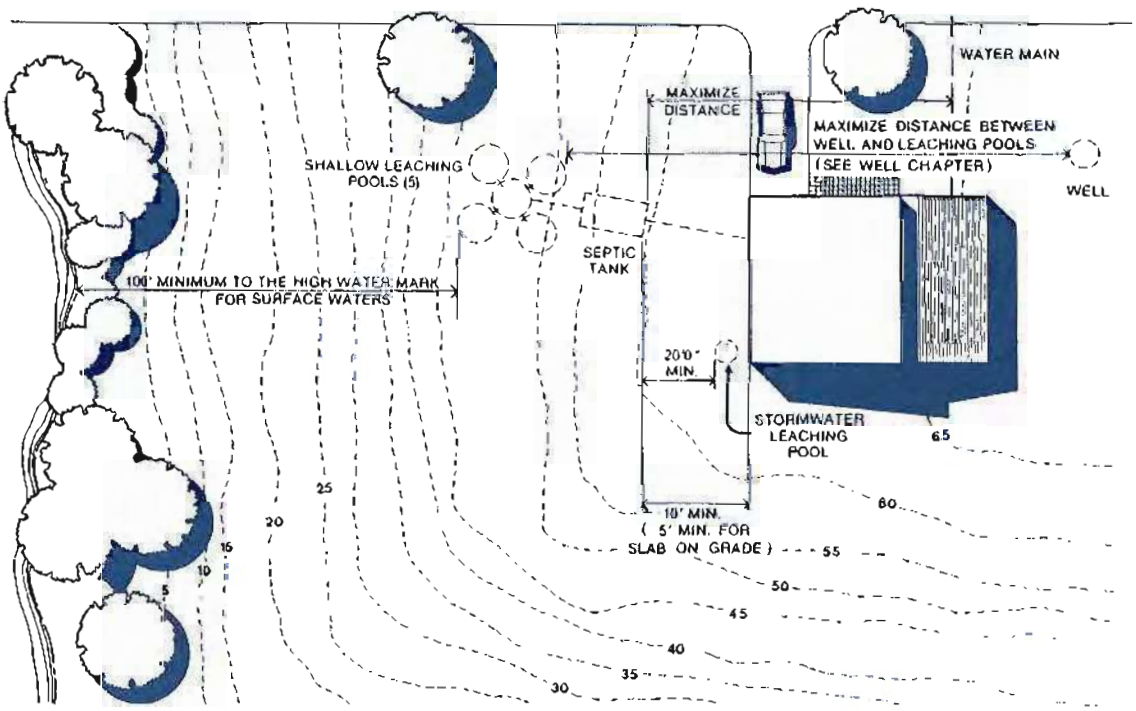
- The local municipalities and cities should develop ordinances to require the retention of natural vegetation and consequent reduction of high nitrate loading from lawns in the deep recharge zones I, III, IV and V and in the shallow recharge areas in zones IV and VI, where septic systems are to be installed (See Fertilizer Chapter Recommendations).
- The towns should consider modifications of local laws to require the submission of information on the changes in use for industrial and commercial buildings. The SCDHS has developed the covenants that have been used in the past. These covenants require enforcement. They should be adopted into formal regulations or codes. (See the Land Use Chapter Recommendations for Covenants).

Site Planning and Development

Adherence to the following procedures should enable the owner or developer to avoid many of the problems described previously in this chapter.

FOLLOW COUNTY HEALTH DEPARTMENT GUIDELINES

The site plan should meet with the standards as shown in the plan and section shown on Figures 12 and 13. Follow the Guidelines provided by the Nassau and Suffolk County Health Departments for the site layout and installation of an on-site system.



*200' MINIMUM TO A PUBLIC WATER SUPPLY WELL. THIS DISTANCE SHOULD BE MAXIMIZED. THE WELL SHOULD BE UPGRADIENT OF THE SEPTIC SYSTEM.

FIGURE 12 *Plan—County Distance Standards*

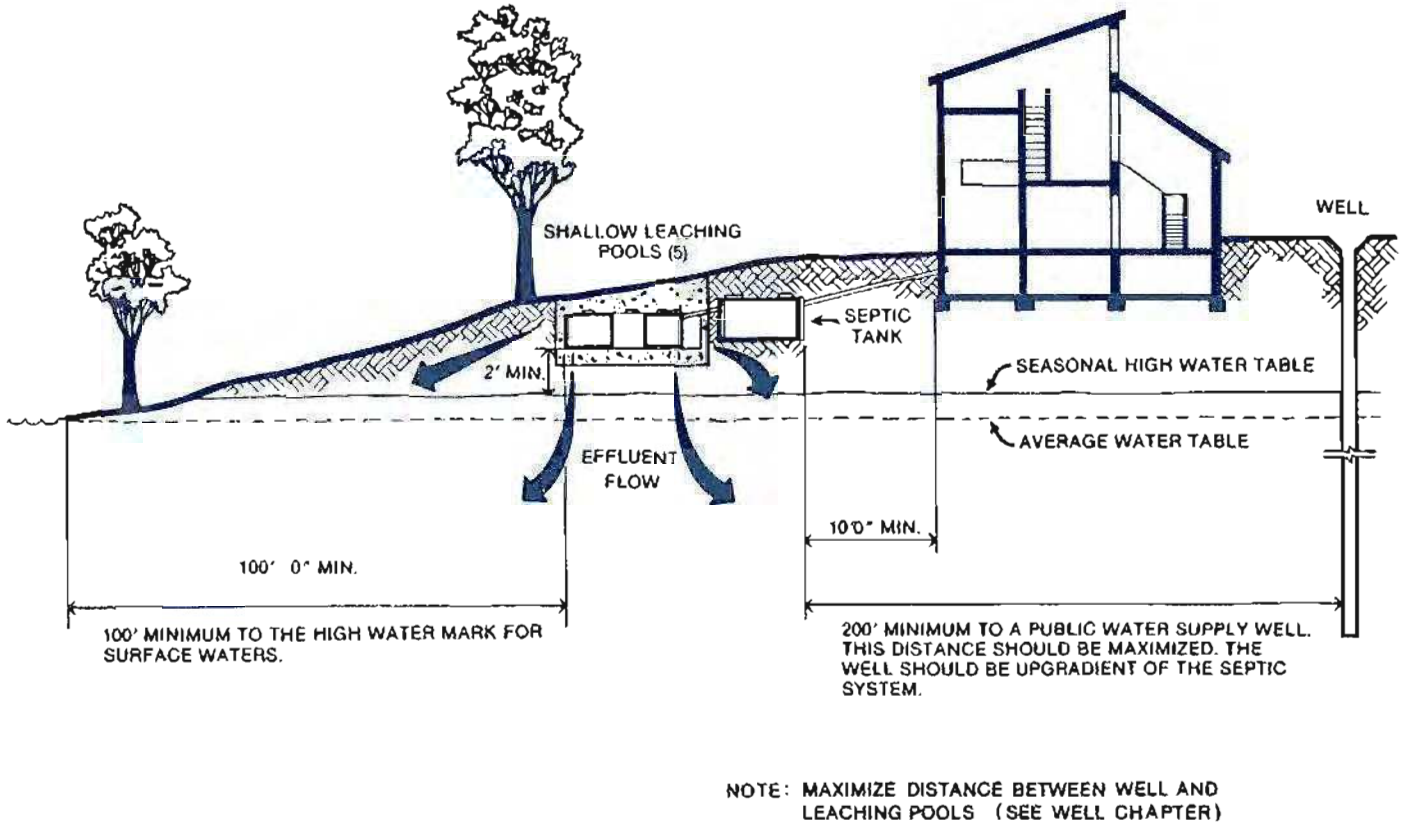


FIGURE 13 *Section—County Distance Standards*

LAYOUT SUBDIVISION PLATS TO MINIMIZE FUTURE SEPTIC SYSTEM PROBLEMS

When developing a subdivision plat, the site planner should provide deep lots or large lots near wetlands, surface waters, bluffs and steep slopes to maximize the distance between the leaching pool and the environmental resource. Cluster developments, public land acquisition and dedication may also provide opportunities for reducing septic system pollution.

Note: A community sewerage system is now required by the SCDHS when a proposed subdivision is to be located in a marsh-lowland area, where fill is placed over subsoils containing meadow mat, bog, silts, clays or other impervious materials that lie at or extend below the groundwater table, or in an area where the subsoils or groundwater conditions are not conducive to the proper functioning of an individual sewerage system or when any lot in any subdivision is less than 20,000 square feet in area. Areas adjacent to wetlands and surface waters are not recommended for development. If development is to occur, the lot sizes should be increased so that all developable properties are at least one acre in area.

DETERMINE THE DEPTH TO SEASONAL HIGH WATER TABLE FOR THE SITE.

Use the maps and text of the most recent Nassau and Suffolk County Soil Surveys (Nassau-1982, Suffolk-1975) to obtain information about the site. If the depth to the highest water table elevation was less than three feet at the time the soil survey was prepared, the site may not meet the requirements for a septic system installation (See Figure 14). If the soil survey indicates a depth to groundwater in excess of three feet, consult the most recent health department or USGS water table maps. In order to determine the depth to water table for a property, determine the location of the property on the water table map. Record the water table elevation from the map and subtract this number from that for the elevation of the property. If the property includes steep slopes, several calculations may be required.

DETERMINE IF THE PROPERTY IS LOCATED WITHIN THE 100 YEAR FLOOD PLAIN

If it is, delineate the flood plain on the site plan map (See Figure 15). Do not place the septic system within 100 feet of the 100 year Flood Plain area or within 100 feet of the high water mark of an adjacent water body. Flood plain maps are on file at the town Planning Departments.

LOCATE PRIVATE WELLS TO MINIMIZE CONTAMINATION FROM SEPTIC SYSTEMS

The developer must consult with the county health departments to determine the best location for the well. If a private water supply well is to be installed on the site, locate the well at the highest groundwater elevation of the site and at the maximum distance from the on-site system and from septic systems on upland-adjoining properties. (See Figures 13 and 14).

MAXIMIZE THE DISTANCE FROM THE SEPTIC SYSTEM TO A PUBLIC WATER SUPPLY WELL

Although the State law currently requires 100 feet between the well and the on-site system, the health departments require a minimum of 200 feet between a glacial public water supply well and the septic system. However, when the well is to be installed in the Magothy, a minimum distance of 100 feet is allowed. (See Figure 16).

DETERMINE THE FINISHED FLOOR AND SEPTIC SYSTEM ELEVATIONS

Locate the building and the approximate locations for the septic tank and leaching pools on the site plan map. Determine the bottom elevation of the leaching pool. This elevation should be a minimum of two feet above seasonal high water table. In high water table areas, determine the elevation of the lowest floor level that will have plumbing. Then determine the length and the slope of the pipes to the septic tank and to the leaching pools. The slope of the pipe from the house to the tank and from the tank to the pool is critical and must be within an acceptable range. The slope should not be reduced to gain depth in the unsaturated zone. If it appears that there will be less than two feet between the bottom of the leaching pool and the water table, then the elevation of the lowest floor containing plumbing should be raised to maximize the distance between the bottom of the leaching pool and groundwater. If necessary, eliminate the basement or raise the portion of the house that contains plumbing.

AREAS INDICATED HAVE A DEPTH TO SEASONAL HIGH WATER TABLE OF LESS THAN THREE FEET.

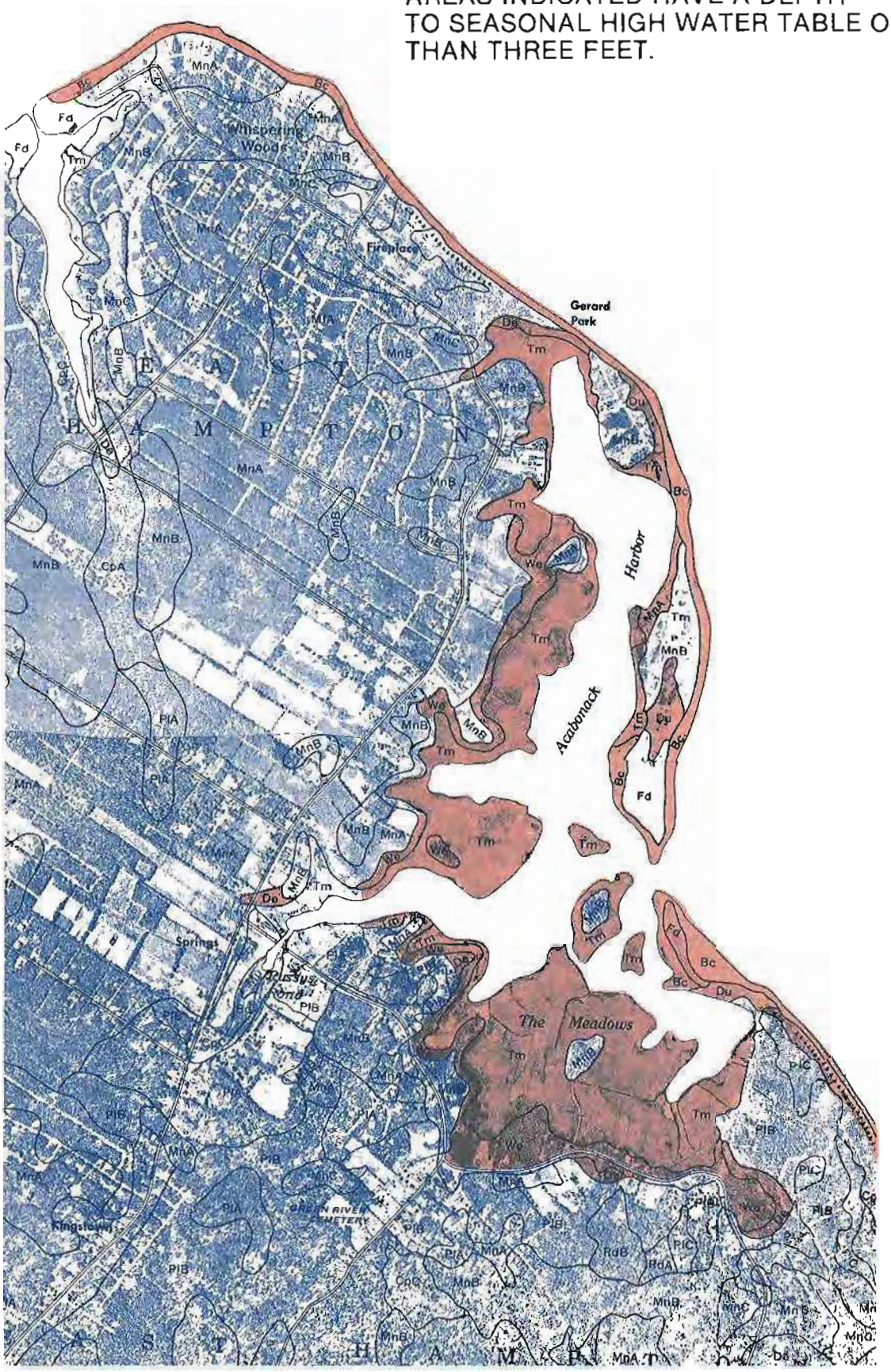


FIGURE 14 *Sample Soil Survey Map*

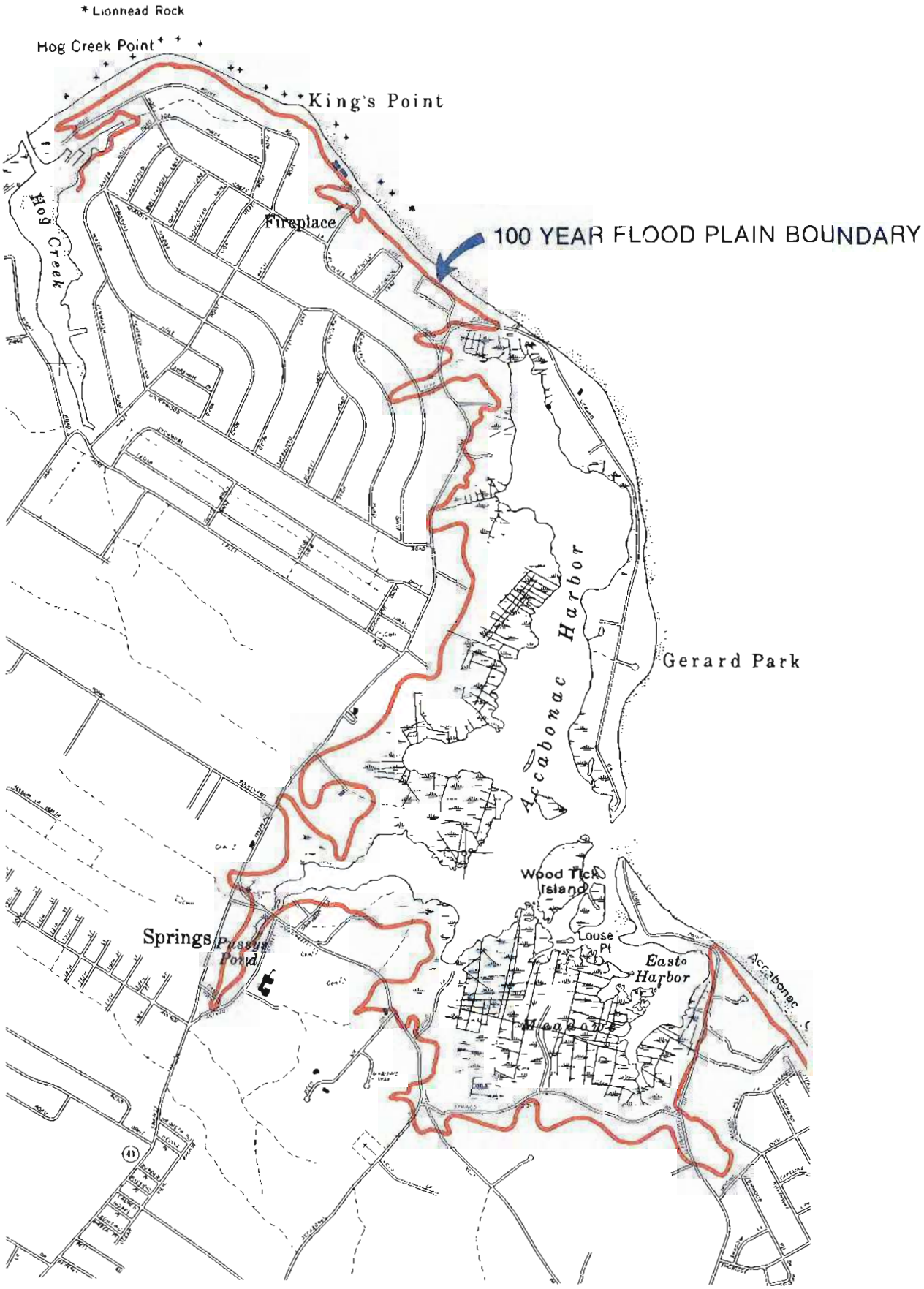


FIGURE 15 *Sample 100 Year Flood Plain Boundary Map*

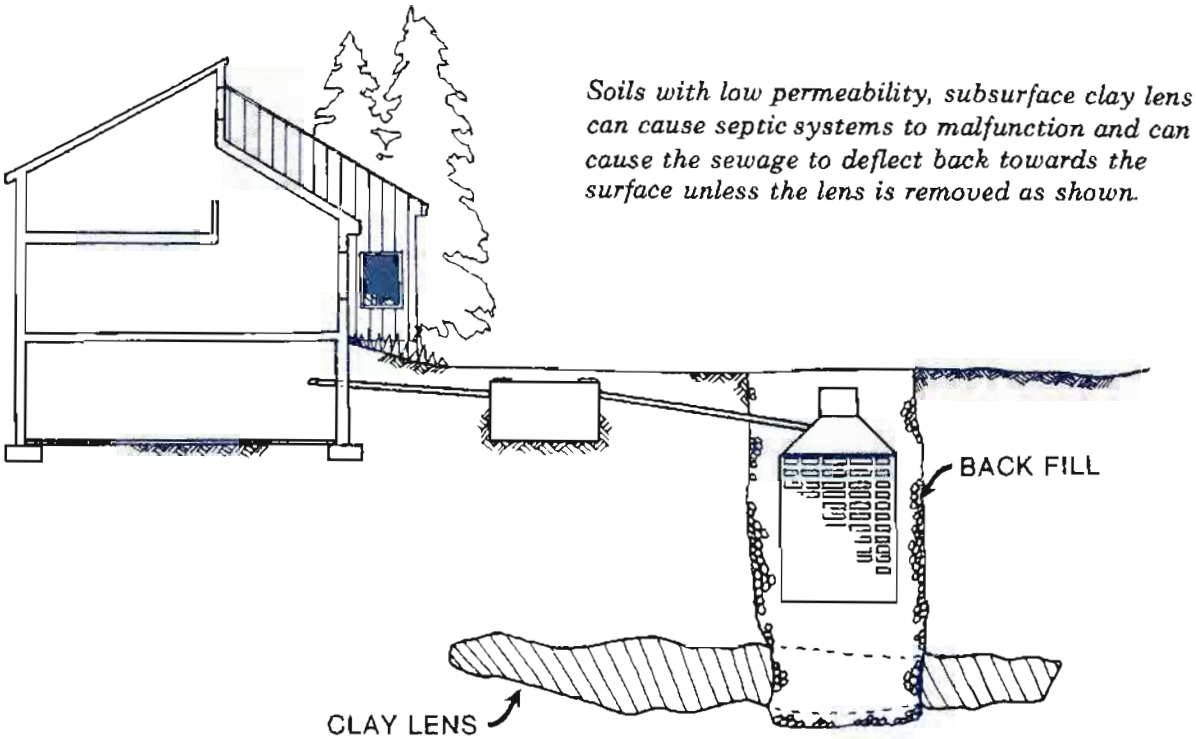


FIGURE 17 *Remove Clay Lens To Allow For Proper Leaching Field Area*

LOCATE SEPTIC SYSTEMS THE MAXIMUM POSSIBLE DISTANCE FROM A BLUFF

Septic systems should not be installed within 100 feet of the top of a bluff. Common leaching pools installed for multiple residential units should be placed the maximum possible distance from the bluff to avoid undermining and erosion of the bluff face. The site developer should consult with an engineer of the Cooperative Extension Sea Grant Office (See Figure 18).

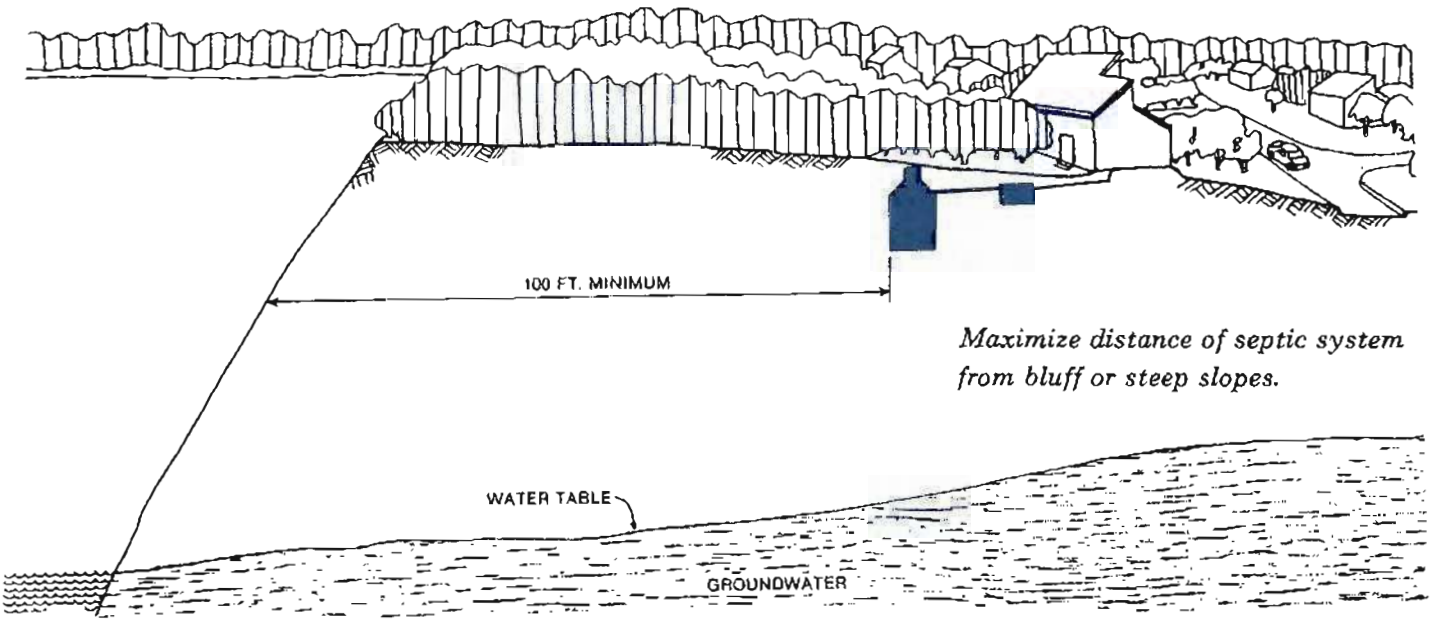
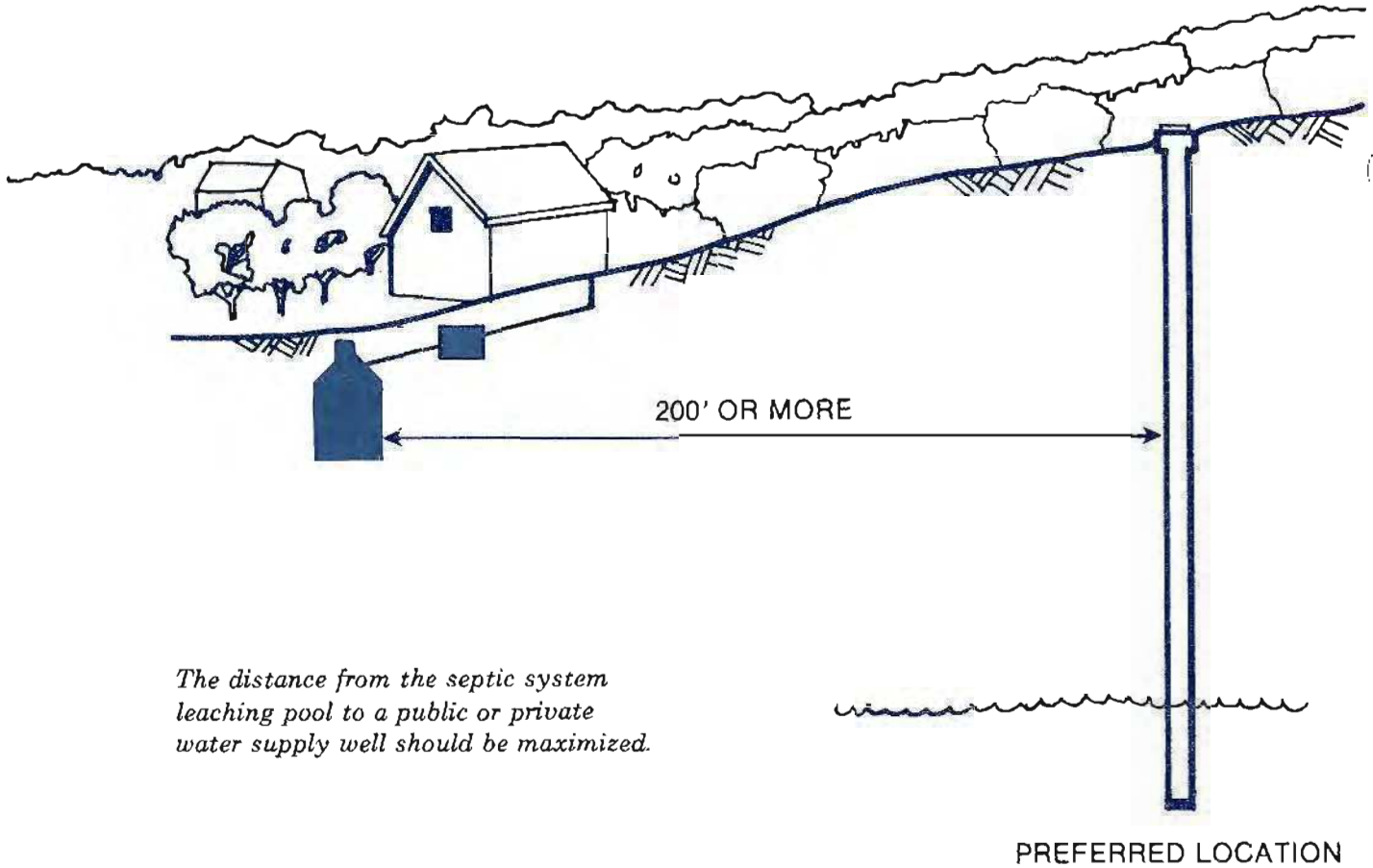


FIGURE 18 *Maximize Distance From Bluff*



The distance from the septic system leaching pool to a public or private water supply well should be maximized.

FIGURE 16 *Maximize Distance Of Septic Systems To Wells*

DIRECT STORMWATER AWAY FROM THE SEPTIC SYSTEM AREA

Septic systems should not be installed in locations where stormwater collects, such as topographic depressions or low points, kettle holes, or swales. In order to reduce the potential for system failure, the site designer should direct all stormwater runoff away from the land area located above the on-site system. All roof, cellar and footing drainage and surface water should be excluded from the on-site system area. Roof downspouts should drain away from the septic system. If the stormwater runoff from higher ground is draining towards the disposal system, install a ditch or berm to intercept the surface water.

LOCATE THE SEPTIC SYSTEM NEAR A ROAD OR DRIVEWAY

Septic systems should be installed on a portion of the site that will always be accessible for *pump-out*. They should not be installed under the driveway or any other place that may be paved or covered with a structure or where heavy equipment may be permitted in the future.

REMOVE LOW PERMEABILITY SOILS OR CLAY LENS TO PROVIDE FOR AN ADEQUATE LEACHING AREA

(See Figure 17.)

Maintenance Procedures

AVOID ADDITIVES

Septic tanks do not require additives for effective operation. Various products (enzymes, etc.) marketed for that purpose do not improve the performance of the septic tank nor do they reduce the need for routine maintenance.

MINIMIZE DISCHARGE OF CHEMICALS

Care should be taken to minimize discharges of chemicals into the tank. A slug of a toxic chemical that kills anaerobic bacteria can cause partial or complete loss of treatment for up to three weeks.

DO NOT DISCHARGE GREASE INTO SEPTIC SYSTEM

PUMP OUT THE TANK AS NEEDED

The septic tank should be pumped every two or three years to prevent clogging of the leaching pool and leaching field.

KEEP THE LEACHING SYSTEM IN GOOD REPAIR

Leaching field repairs are needed once the infiltrative surface of the leaching pool and or the leaching field becomes clogged. Acids used to unclog the leaching field are of dubious value, present a safety problem and at best, offer only a temporary solution. Usually a more permanent repair such as providing an alternative leaching area is needed. This procedure is also necessary in many cases because the original designed leaching area was too small. The old leaching area may be ready for re-use once it has been allowed to recover its infiltration capacity through natural oxidation of the soil clogging materials. Where the volume of the leaching field is limited, the system owner should devise a time schedule for the use of the alternative leaching pools.

Public Education

The Cooperative Extension Service (CES) should acquaint the public with the harmful effects of the use of banned cesspool additives.

The CES should increase awareness of the proper use and disposal methods for the many consumer products used in Nassau and Suffolk Counties. This should include the safe disposal of unused containers of cesspool cleaners that are currently banned.

Chapter Four

HIGHWAY DEICING

INTRODUCTION

This chapter mentions water quality problems related to highway deicing activities, describes and evaluates management practices and recommends techniques to reduce the impacts of highway deicing materials upon the groundwater underlying Nassau and Suffolk Counties.

Highway deicing materials are used to minimize ice build-up on highways and roads in order as to facilitate the safe flow of traffic during severe winter storms. Deicing materials include salts (primarily sodium chloride) gravel, sandy soils and other materials.

Salts are applied to road surfaces to lower the melting temperature of ice. *Sodium chloride*, the most extensively used salt on Long Island, is used either separately, or combined, in varying ratios, with sand and gravel. *Calcium chloride* is used only occasionally. *Urea* is used on airport runways because it is less corrosive to aircraft than salt (See Table 1 for the frequently used highway deicing materials).

Most highway deicing problems result from improper salt storage and highway application of salts. Highway deicing salts are highly soluble in stormwater. A significant impact upon the environment occurs when salts from unprotected salt storage piles and salts applied to highways percolate through soils and subsurface materials to the water table. Some of the leachate may be absorbed by soil particles or it may be taken up by plants. Once in the groundwater, both sodium and chloride ions are conservative (non-reactive) and can persist for centuries. They move with the general groundwater flow and can be carried down to deeper aquifers that are used for public water supply.

Increases over ambient chloride in groundwater can also be attributed to the discharge of sewage effluents, and industrial wastes; leachate from sanitary landfills and fertilizer use, especially in agricultural areas; and saltwater intrusion caused by the overpumping of aquifers. Local precipitation, particularly in the shoreline areas, and land disposal of dredge spoils from marine waters are also sources of chloride.

From a public health standpoint, the leaching of salts, particularly sodium chloride, to groundwater is the primary concern since drinking water contaminated by sodium can pose a health risk to individuals on sodium restricted diets. The New York State Health Department guideline for sodium in public water is 20 mg/l, which is designed to protect individuals on diets requiring minimal sodium intake. However, the State standard for the chloride in drinking water is 250 mg/l.

Monitoring of public supply wells has indicated the presence of sodium in low concentrations in the majority of the wells sampled. In Nassau, the average sodium content of untreated well water from 47 water supply districts ranged from a low of 2.5 to a high of 25.6 mg/l. This range included withdrawal averages from different aquifers. In Suffolk County, sodium concentrations in glacial water supply wells range from 8-10 mg/l; 2-4 mg/l are found in Magothy wells.

Although sodium levels do not rise in direct proportion to increases in chloride levels, it is expected that with the continued use of conventional deicing materials sodium concentrations will increase in both the Glacial and Magothy aquifers. In some areas sodium concentrations are expected to exceed the health standard for persons on sodium restricted diets.

The average chloride content of groundwater concentrations has already been increasing in some portions of Nassau and Suffolk. The Nassau County Department of Health observed rising concentrations in approximately 50% of the wells in the Glacial and Magothy aquifers and in one-third of the Lloyd wells. A few glacial wells in Nassau County have been rendered non-potable as a result of leachate from nearby uncovered salt storage piles. In particular, wells in Mineola and Valley Stream have shown chloride concentrations greater than 300 mg/l as a result of salt storage practices in that area.

In Suffolk County, statistically significant trends have not been identified, although some glacial wells have indicated an increase in chlorides. The most notable problem in Suffolk County occurred recently in Medford, where 21 shallow wells located downgradient of three salt piles (two of which are still in existence), were found to be contaminated with chloride. Homeowners reported that chlorides in the water supply from their private wells caused severe corrosion of their plumbing systems. Groundwater investigations revealed the existence of contaminant plumes moving in a southerly direction from each of the salt piles.

In a separate case, also in the Medford area, a number of wells were closed due to percolation from a recharge basin which receives chloride contaminated stormwater runoff from the Long Island Expressway. These wells are located south of the recharge basin and seven were found to contain excessive chloride concentrations. The highest reported concentration (154 mg/l) occurred in a well on California Avenue, southeast of the recharge basin. In both instances, the affected wells were located in the glacial aquifer. It seems likely that additional nearby private wells will be contaminated in the future.

At the present time, no public water supply wells in Nassau or Suffolk Counties have been closed due to chloride contamination.

As part of the Nationwide Urban Runoff Program (NURP), samples drawn from the groundwater monitoring wells located beneath recharge basins were analyzed. Stormwater runoff was identified as a seasonally significant source of chlorides to the groundwater beneath the recharge basins serving the Long Island Expressway and a nearby major shopping center.

KEY PROBLEMS

Salt Storage Piles

GENERAL SALT STORAGE LOCATION

In Nassau and Suffolk Counties, salt storage piles are located for easy accessibility, usually on or near the Island's major roadways. Some of these piles are located in the deep aquifer recharge zones, Zones I, II and III, and portions of IV and V. (See the Land Use Chapter for a description of the zones and Figure 1 for map of the major roadways within the hydrogeologic zones). Other piles are located in shoreline areas, where stormwater runoff is permitted to drain to or is directly deposited in estaurine or marine waters.

In Nassau County, there are approximately 67 salt or sand/salt piles, including State, County, town and village managed storage sites. In Suffolk County there are a total of 79 State, County, municipal and privately owned salt storage piles. Of this total, eight or nine are privately owned. The twenty-two salt piles currently subject to SPDES permits are located in the Towns of Babylon (1), Brookhaven (12), Huntington (6), Southampton (1), Southold (1) and the Village of Lake Grove (1). There are five sites (Islip [3] and Riverhead [2]) for which permit applications are being processed.

SALT STORAGE FACILITY DESIGN AND OPERATION

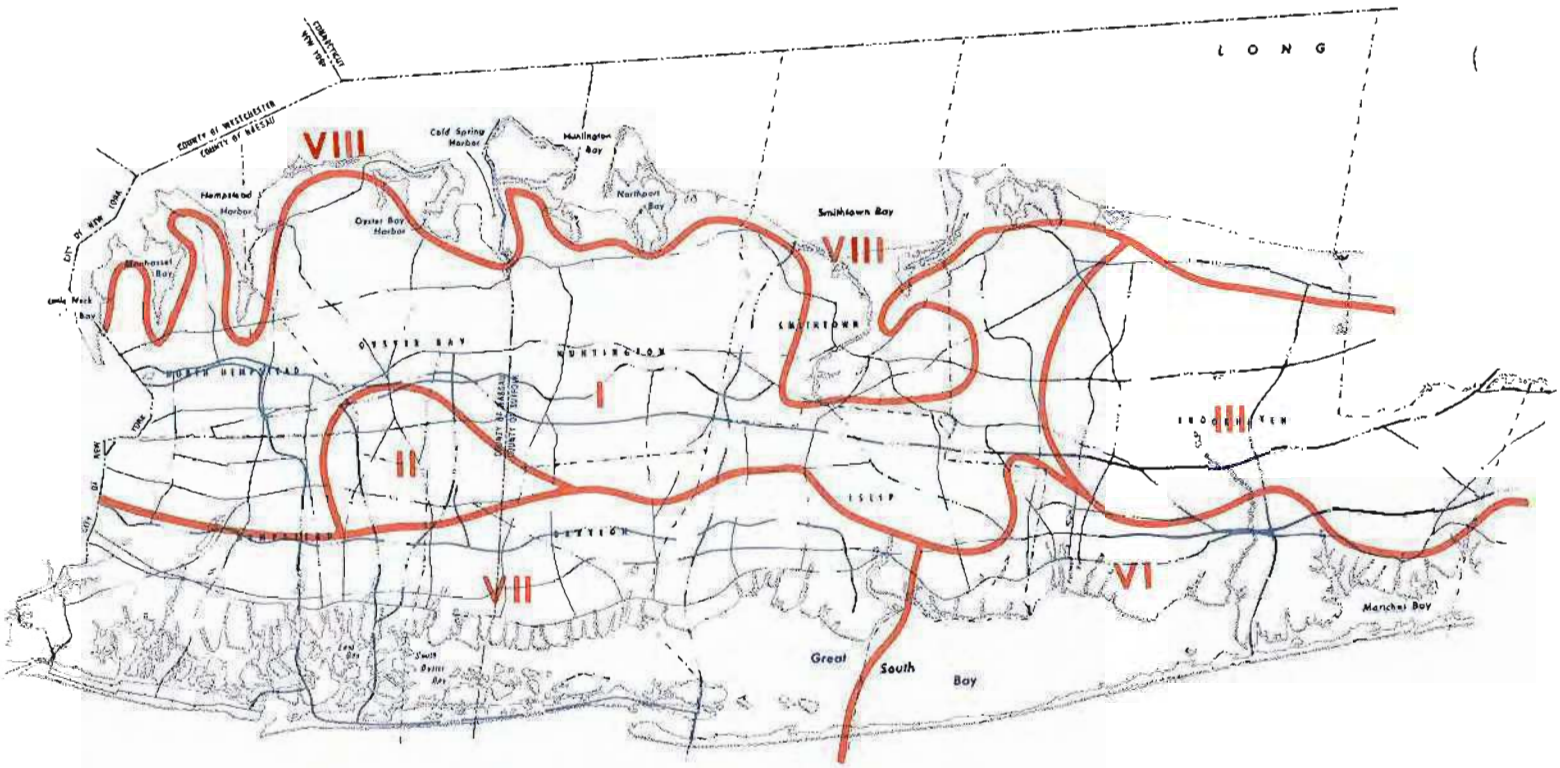
The municipalities and agencies that are responsible for road maintenance use different techniques for building salt storage structures, grading and paving of storage sites, controlling stormwater runoff, and managing brine to minimize the impacts upon the groundwater and the environment. Although a number of salt storage sites now have permanent structures and stormwater control measures, high costs have prevented or delayed the building of structures and the implementation of appropriate management practices at the remaining salt storage sites. Many piles in both counties still remain uncovered, with little or no stormwater control measures in effect and, therefore, permit leaching and uncontrolled runoff.

Deicing salts are stored in a variety of structures including unused buildings, garages, covered sheds, abandoned barns, elevated storage bins, domed structures, and cribs. (See Figures 2 through 5 for examples of existing salt storage facilities).

Inadequately protected salt storage piles generate a leachate containing relatively high levels of chloride. The New York State effluent standard for chloride concentrations from salt piles is *less than 500 mg/l*. This standard is exceeded at many storage sites, because salt storage piles have been placed uncovered on the ground or on asphalt paving without provision for stormwater or brine control. Improper site design, a lack of site facilities and insufficient site maintenance remain significant problems on Long Island. Some sites are covered with a tarpaulin or plastic that must be removed when the salt is being used during a winter storm. (See Figure 6). Throughout the year temporary covers are subject to wind removal and damage, thus allowing stormwater contact with the salt pile.

Highway Deicing

Highway authorities in the United States generally subscribe to the *bare pavement* philosophy, whereby all roads and highways should be clear of snow and ice so as to insure the safety and lives of motorists. In the interest of road safety, approximately 63,000 tons of road salt are applied to Long Island roads each year. In Nassau County, in 1971, 32,400 tons of road salt were applied to 8,990 lane-miles of road. In Suffolk County, during the period of 1969-72, 30,989 tons of road salt were applied to approximately 7,224 lane-miles of road each winter. Parking lots are also included in the deicing programs of the counties, towns and villages. (See Figure 7).



A New York State Dept. of Transportation building

FIGURE 2 *New York State Facility located within Town of Oyster Bay*

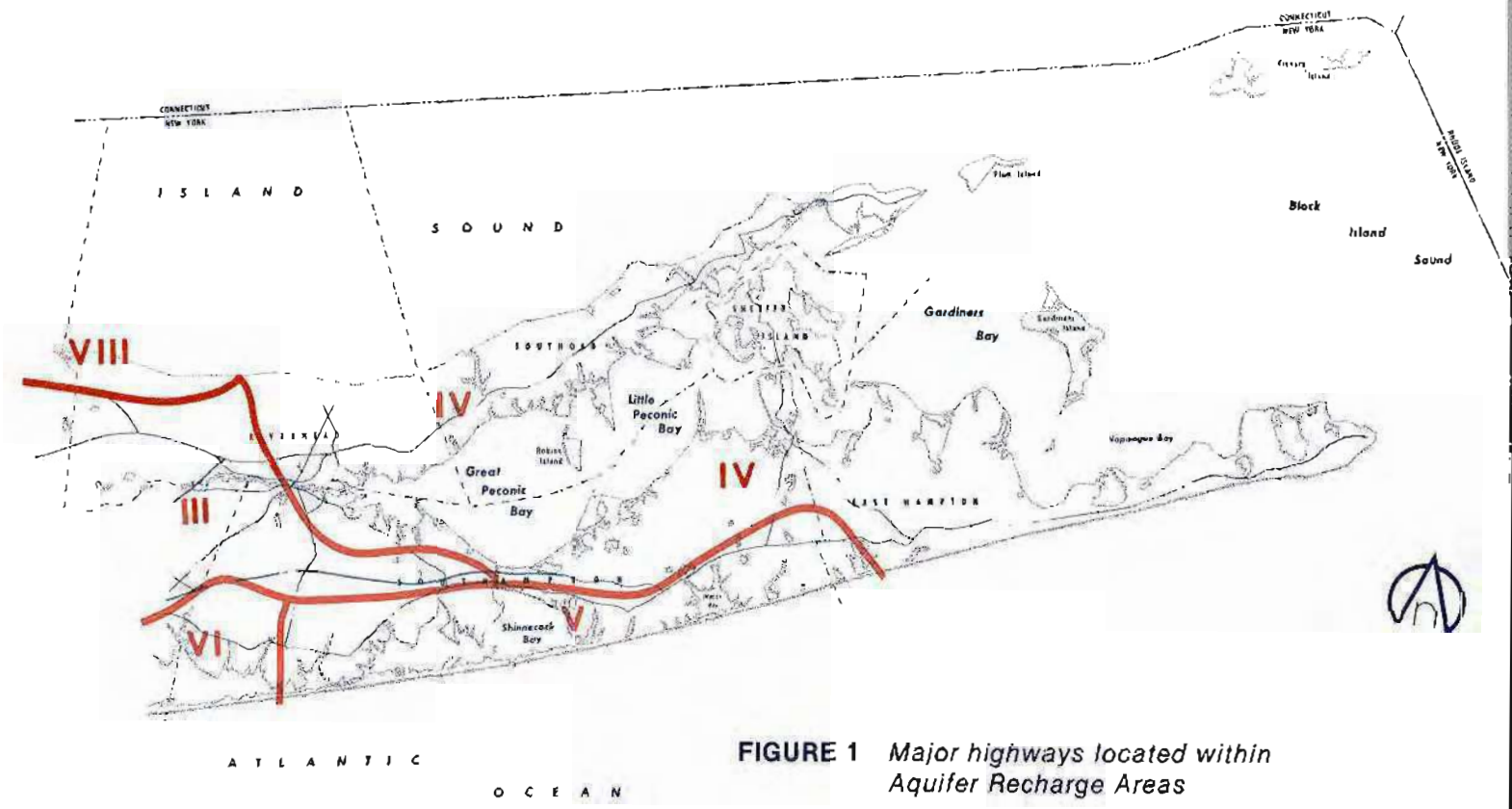


FIGURE 1 *Major highways located within Aquifer Recharge Areas*

FIGURE 3 *New York State Facility*

A New York State Dept. of Transportation building, located just west of Exit 55 of the Long Island Expressway, is of wood construction with a peaked roof covered by asphalt shingles. The building is situated on a concrete base while the area immediately surrounding the building is paved with asphalt.

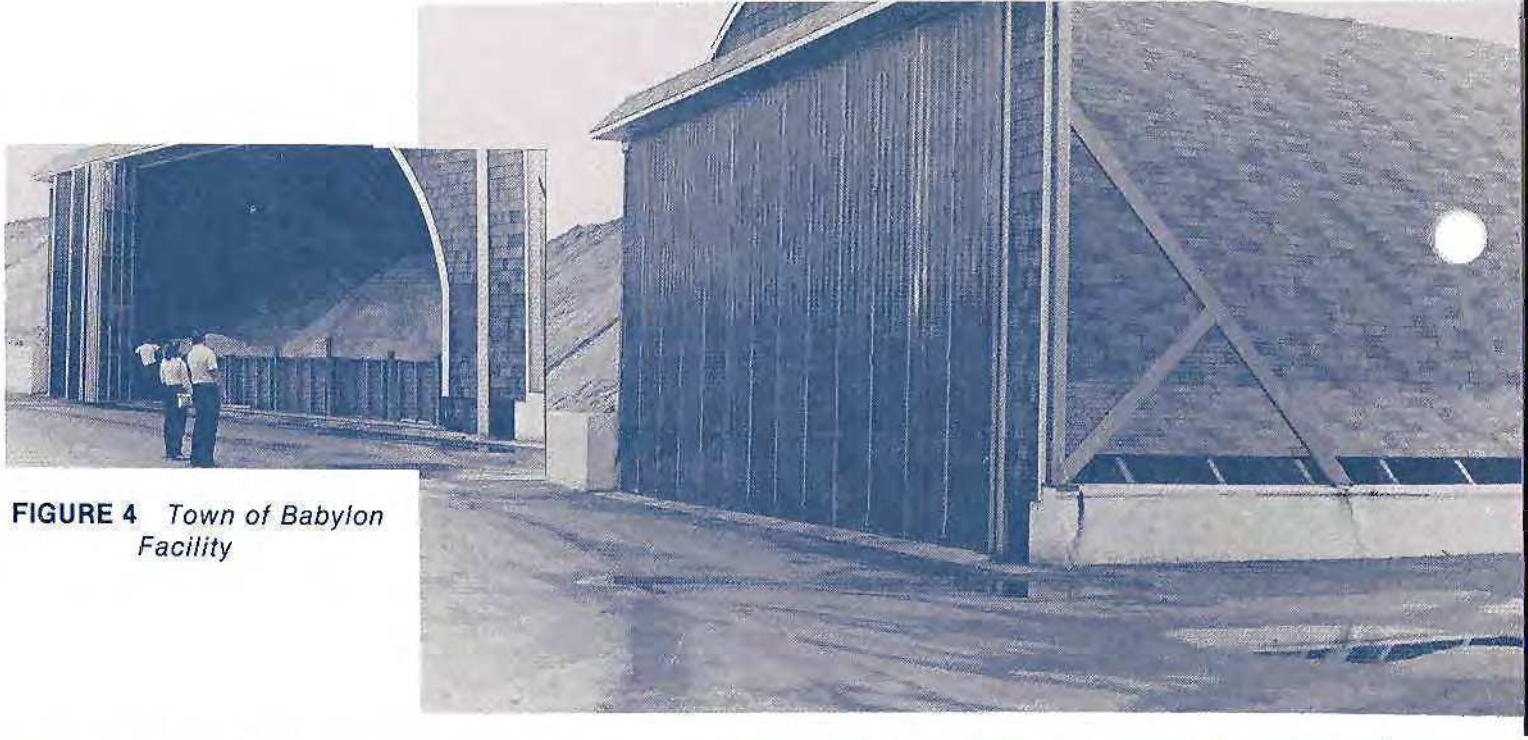


FIGURE 4 *Town of Babylon Facility*

The Town of Babylon's salt storage site is a comprehensive facility where storage, stormwater runoff control, mixing and loading are all performed on-site. (See Figures 12-14 for brine control at this site). This salt storage facility includes a building which formerly belonged to Zahn's Airport. The building is constructed of wood and is situated on an asphalt base. Within the interior, there are 5 ft. high metal sides with 8 ft. high metal braces. The building holds up to 700 tons of salt.

The aluminum door at this facility is situated on a track for ease of opening and closing. Forty yards of material can be loaded at one time.

FIGURE 5 *Port Jefferson Station Facility*

The New York State Dept. of Transportation recently constructed a salt storage structure in Port Jefferson Staton adjacent to the intersection of Route 347 and Route 112. The construction of the building was done in-house and utilizes telephone poles for its major supports. The structure will hold a maximum of 250 tons of salt and is situated on an asphalt pad.

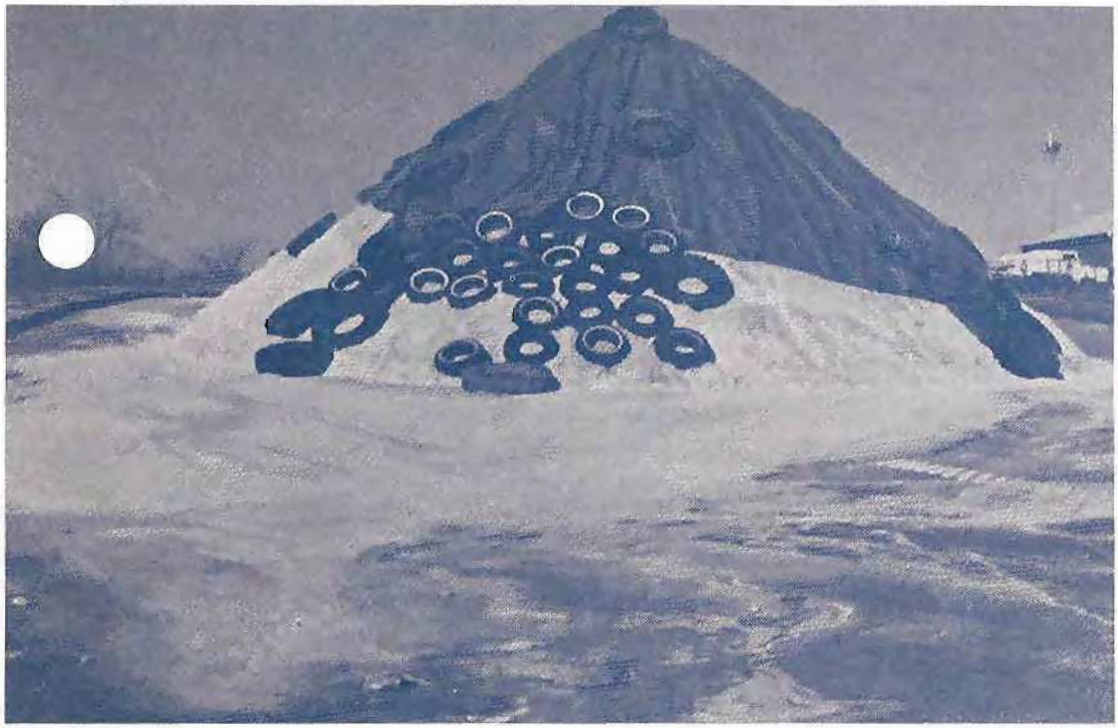


FIGURE 6 *Salt Storage Pile*

A tarpaulin partially covering a salt storage pile. The uncovered portion shows leaching of salt onto surrounding pavement.

FIGURE 7 *Salt Remaining on Pavement*

A view showing salt remaining on pavement after spreading. Some of this salt will eventually runoff into recharge basins and surrounding areas.

DEICING MATERIALS

On Long Island, at the present time, the most frequently used highway deicing material is a mixture of abrasives and salt. On occasion, straight salt (sodium chloride) is applied separately. (See Table 1 for a description of advantages and disadvantages of using a mixture or using straight salt).

The amount of salt mixed with sand or gravel and the application procedures vary by jurisdiction. The towns generally use a mixture with a 3:1 to 7:1 ratio of sand to salt (See Figure 8).

The N.Y.S. Department of Transportation (NYSDOT) uses only salt on highways. The NYSDOT believes that by applying straight sodium chloride as opposed to a mixture,

TABLE 1

Frequently Used Highway Deicing Materials

Abrasives (sand, etc.) Mixed with Salt

Include sand, cinders, granite chips, limestone, other crushed stone.

Method:

Spread with use of trucks.

Advantages:

a. The initial price ton for ton is lower than for sodium chloride
b. No temperature barrier (when stockpiled, must be in heated dry area to prevent freezing)
c. Improves traction.
d. Most effective immediately on ice and hard packed snow.

Disadvantages:

a. Sedimentary material acts as a major water pollutant.
b. Does not melt ice and snow.
c. Requires extensive cleaning after snow ends, clean-up costs are high.
d. Must be spread over entire roadway; 4-7 truckloads to treat same number of lane miles as for one truckload of salt.
e. Frequently blown or brushed away by wind or traffic or covered by falling snow.
f. Freeze and thaw cycles nullify effect.
g. Continued use will usually create a thick uneven mat of ice.
h. Builds up in catch basins and sewers.
i. Impacts roadside vegetation.
j. Wind blown dust from abrasives can affect persons with respiratory problems.
k. When abrasives are mixed with salt, more salt is required to melt the ice than if straight salt is used.
l. The use of abrasives with salt traps salt laden moisture in crevices and continues corrosion on metal surfaces long after salt would have been washed away by rain. It is especially detrimental to structures (ie. bridges, etc.)

Comments:

a. Increase in use, 65.64% increase in ten year period (1969-70 compared to 1978-79).
b. Can be used in combination with salt but it still does not provide clear pavement.

Sodium Chloride (salt)

Method:

Spread with use of trucks: sometimes mixed with sand, cinders, granite chips, limestone, other crushed stone.

Advantages:

a. Cheaper than calcium chloride (1/4 the cost).
b. Effective deicer over a longer period of time.
c. Minimum clean-up required.
d. When straight sodium chloride is used rather than a mixture of sand-salt, less total salt is required to melt the ice.
e. Eutectic temperature −6 F. (lowest point at which sodium will melt ice) which will handle most ice and snow storms. Sodium chloride must be in a 23.8% concentration in order to melt ice at its eutectic temperature.

Disadvantages:

a. Narrower melting temperature range than calcium chloride.
b. Impacts vegetation, surface water and associated habitats, and groundwater.
c. Corrosive to metals.

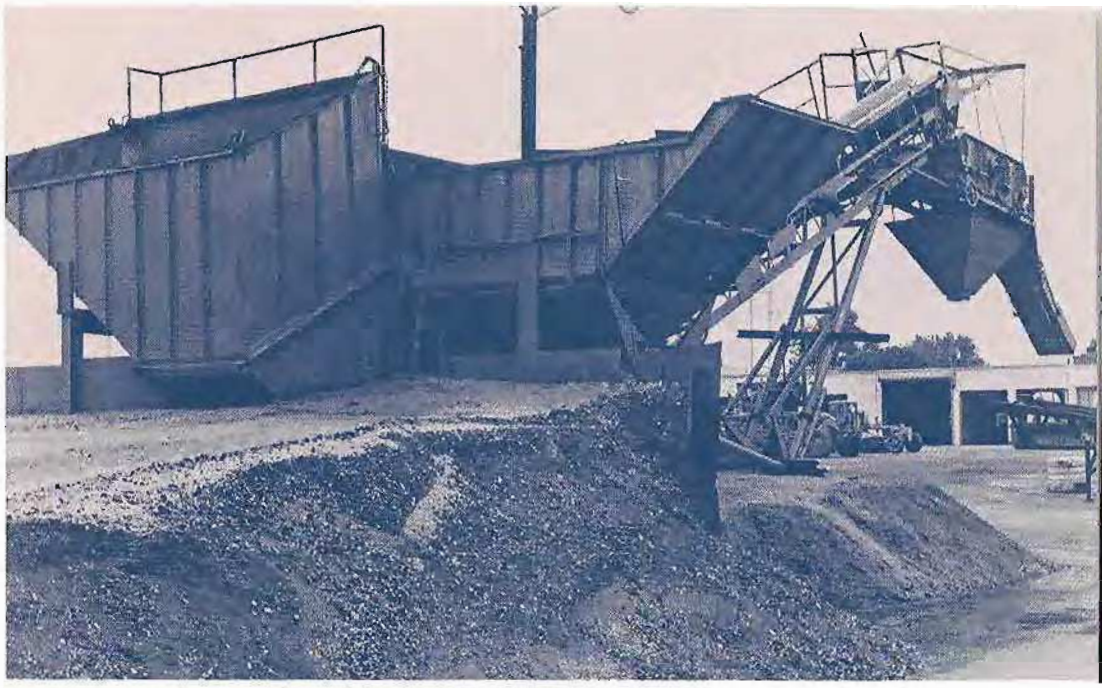


FIGURE 8 *Town of Babylon Portable Screening Operation*

All mixing is done on-site with a portable screening operation consisting of two hoppers, one for salt and one for sand, to achieve the 7:1 ration (sand/salt) which the Babylon Highway Department uses for deicing.

the actual amount applied can be reduced. Another benefit is that the amount of sand and gravel that must be removed from highways and eventually from storm drains is reduced. Table 2 presents a comparison of the total amount of salt used when it is used alone or when it is mixed with sand.

Sometimes sodium is replaced with ammonium or nitrogen based compounds such as urea. Although urea is used on airport runways it is not used on roads and highways. Urea costs five to ten times as much as sodium chloride and one and one-half times as much must be used. It also can cause severe localized effects due to nitrate accumulation in surface waters and groundwater.

RATE OF APPLICATION

Existing highway application practices vary depending upon the storm characteristics, highway conditions, the type and availability of equipment, town policy, and the judgment of the foreman of the salting crew. Salt is not spread uniformly. In actuality, road intersections, hills, curves, low points, and areas with poor drainage receive the greatest attention.

TABLE 2

Comparison of Use of Salt and of a Sand-Salt Mix

The following table shows the comparison between the amount and application rate of salt only vs. a sand/salt mixture, used to handle the same storm emergency.

	Salt Only	Sand/Salt Mix (1:1 by Volume)
Unit Weight	2160/C.Y. (salt)	1080 salt & 1350 sand = 2430/C.Y.
Number of Applications	3 1/3 avg.	3 1/3 avg.
Application Rates		
First	200-250 lbs./la.mi. (Avg. 225 lbs./la.mi.)	750 lbs./la.mi.
Additional 2-3	100-150 lbs./la.mi. (Avg. 125 lbs./la.mi.)	750 lbs./la.mi.
Average Rate/ Application	157 lbs./la.mi.	750 lbs./la.mi. (333 lbs. salt/la.mi.) (417 lbs. sand/la.mi.)

Conclusion: Ratio of Salt: $\frac{\text{Sand/Salt Mixture}}{\text{Salt only}} = \frac{333}{157}$ = 2.12 times salt is used when the sand/salt mixture is applied.

NOTE: C.Y. = cubic yards
lbs./la.mi. = pounds per lane mile
la. = lane
mi. = mile

Source: Thomas Gibbons, Regional Highway Maintenance Engineer, New York State Department of Transportation, File J21-Chemical Application Data, August 1981.

Tables 3 and 4 indicate the annual averages for total amount of salt applied, the number of lane miles treated and the approximate average amount of salt applied per lane mile, by jurisdiction. In general, a greater volume of salt is used per lane mile in the more densely populated than in the sparsely populated areas. Densely populated areas have a greater percentage of intersections and other conditions that need attention due to higher traffic volumes. The average amount applied per lane mile may be higher due to older equipment. These machines do not have control spreaders and may deposit too little salt, which would require an additional application later. They also may apply more than is required.

TABLE 3

Road Salting Information For Nassau County

Jurisdiction	Average Total Amt.	Approx. Average Year Amount/ Lane Mile	Lane Miles Treated
New York State	7,000 tons	7.4 tons	950
Nassau County	14,900 tons	10.7 tons	1,400
Town of:			
Oyster Bay*	1,500 tons	0.9 tons	1,600
N. Hempstead	3,000 tons	5.6 tons	540
Hempstead	6,000 tons	1.3 tons	4,500
County Total:	32,400 tons	3.6 tons (average)	8,900

*The Town of Oyster Bay mainly services less traveled roads (residential areas) in comparison to the other two towns in Nassau County. This town is currently revising their guidelines for application rates.

Source: NCDW as reported in Geraghty & Miller Report on Groundwater. 1977.

TABLE 4

Road Salting Information For Suffolk County

Jurisdiction	Average Total Amt.	Approx. Average Year Amount/ Lane Mile	Lane Miles Treated
New York State	12,000 tons	9 tons	1,300
Suffolk County	5,000 tons	5 tons	1,000
Town of:			
Brookhaven	4,151 tons	2 (sand & salt mixed)	1,750
East Hampton	300 tons	6 tons	50
Huntington	3,409 tons		669
Islip	900 tons	13 tons	65
Riverhead	610 tons	3 tons	205
Shelter Island	60 tons	1 ton	55
Smithtown	1,200 tons	3 tons	360
Southold	600 tons	1.5 tons	400
Babylon	1,759 tons	1.76 tons	1,000
County Total:	30,989 tons	4.2 tons	7,224

Source: Council on Environmental Quality files, Synopses of Information from Suffolk Towns 1969-1972. (1973)

TYPE OF EQUIPMENT

Many agencies in Nassau and Suffolk Counties are already using or are planning to use *ground control spreaders.* These agencies include the N.Y.S. Department of Transportation, Nassau County Department of Public Works, and the towns of Oyster Bay, Smithtown, Babylon and Islip. The most important feature about these spreaders is their ability to regulate the amount of salt that is deposited on the roadway. The regulatory device, which is located in the cab of the truck, controls conveyor belt and spinner speed. The salt in the truck bed is carried along on a metal or rubber belt system and is deposited in a hopper. The spinner, located in the hopper, is set to accommodate the width of the road. The truck's speed regulates the rate at which the salt is distributed. This system reduces the amount of salt used and increases the area that one truck can cover. The amount of salt saved through spreader controls offsets the cost of these spreaders.

EXISTING MANAGEMENT

Legislation, Regulations and Administration

There are few laws controlling highway deicing activities. Those that exist attempt to manage salt storage site impacts upon groundwater and the disposal of brine to surface waters. There are no laws that regulate highway application of deicing salts. Tables 5 and 6 provide a summary of the State, County and Town management affecting highway deicing practices.

TABLE 5

Existing Salt Storage Facility Controls

Agency	Control	Description	Deficiencies
New York State Dept. of Environmental Conservation (NYSDEC)	1. State Pollutant Discharge Elimination System (SPDES) NYCRR, Part 703, Title 6	Permits issued *only* for sites with discharge of groundwater Numerical limitations for chloride of 250 mg/l for ambient groundwater and 500 mg/l for effluent discharge.	Does not address limitations on siting, design or construction of facilities. The SPDES permit system should require inspection and monitoring of salt storage sites for enforcement particularly in Nassau County. The SPDES standard can be applied in legal suits to enforce compliance with state standards. Due to a lack of funds and personnel the system has not been effective in preventing salt contamination.
	2. General Controls	All agencies disposing of brine to marine waters must obtain a permit from NYSDEC. NYSDEC will designate disposal sites. Conservation officers are present as often as possible to ensure that only brine is disposed of.	
	3. Proposed Controls	NYSDEC Region I has submitted a plan recommending a special type of permit to allow each municipality to receive one permit listing all storage areas which require SPDES permits. A combination of this permit system and SC Article 12 (applies to salt storage piles whether or not they require SPDES) would provide Regulatory Control for all salt piles.	
New York State Dept. of Transportation (NYSDOT)		The Department has developed a no-discharge to groundwater policy for NYSDOT sites.	

TABLE 5 . . . Cont'd.

Agency	Control	Description	Deficiencies
Nassau County Health Dept. (NCHD)	State Pollutant Discharge Elimination System (SPDES)	Regulation of uncovered salt piles. Agencies follow a compliance schedule along with guidelines for brine containment and disposal. NCDH will sample based upon reported violations.	At the present time the permit system to be administered by NCDH is not in effect. Once the system is in effect, all county, town and village sites must be in complaince.
Suffolk County Department of Health Services (SCDHS)	Article 12 (Section 1216-Bulk Storage of Toxic or Hazardous Materials) of the Suffolk County Sanitary Code	All of the towns and villages are subject to Article 12 which regulates salt storage. Road salt must be stored in a roofed facility or on an impervious pad equipped with a means of collecting or removing brine. Holding tanks must hold 4" of precipitation. The asphalt pad and stormwater system should hold another 2". Salt may be stored in areas without brine control as approved by the DEC. Approved brine disposal techniques include: discharge to secondary or tertiary sewage treatment plant outfall pipes, primary sewage treatment plants and stormwater systems, all of which discharge to open marine waters, as approved by the DEC.	Article 12-Does not presently require that salt storage piles be covered by a permanent structure. It doesn't set implementation priorities for enforcement of controls in important aquifer recharge areas. Manpower shortages in County Health Dept. staff limit inspection and enforcement programs.
Nassau County (Towns)	General Guidelines	The Towns have adopted policies and guidelines to minimize surface water and groundwater pollution and to insure highway safety.	

TABLE 6

Existing Snow and Ice Control Guidelines

Agency	Control	Description
New York State Dept. of Transportation (NYSDOT)	State Highway Maintenance Guidelines (Section 5000) (See Table 5)	Sets forth standards and operating procedures for snow and ice control. Recommendation for optimal content mix of materials and application rates.
Nassau County (Towns)	General Guidelines	The Towns follow NYSDOT guidelines on the State roads which they maintain under contract with the State
Suffolk County (Towns)	General Guidelines	None of the towns follow specific guidelines for application of deicing chemicals. Generally the respective highway departments establish their own policies on the basis of NYSDOT's guidelines.

RECOMMENDATIONS

Legislation, Regulations and Administration

State and Municipalities

The following recommendations comprise remedial and preventive measures that can be used to reduce or minimize further salt contamination of the region's water supply. The remedial measures include the relocation of existing salt piles, immediate improvement of salt pile sites where necessary to prevent contamination of downgradient water supply wells, and changes in mixing, loading or other operational practices. Preventive measures include *best management practices* for new sites, and operational and highway salt application techniques.

Salt Pile Management

REMEDIAL MEASURES

- *Inventory and Classify Existing Salt Piles*
  The health departments should compile an inventory of the existing salt storage piles within each county and hydrogeologic zone. These sites should then be evaluated in terms of their impacts upon groundwater. The permanent and temporary salt storage sites should be mapped, and the type of chloride should be indicated as follows: unacceptable chloride discharge to groundwater, acceptable discharge to groundwater and no discharge to groundwater. Those sites that have extra storage and treatment capacity to accommodate additional salt piles should also be identified.

- *Relocate Salt Piles*
  The jurisdictions should then analyze highway deicing needs to determine which salt piles could be relocated without impairing storm response time. Wherever possible, the counties and the jurisdictions should identify nonessential piles located in the deep aquifer recharge zones and should move them to other sites where they will be less likely to impact water supply wells or the environment. Not only vacant land, but vacant buildings surrounded by asphalt paving should be considered for conversion to salt storage facilities. Do not locate new salt storage facilities adjacent to fresh surface water, in flood-prone areas, critical aquifer recharge areas and where steep slopes occur.

- *Upgrade Existing Salt Pile Sites in Important Aquifer Recharge Areas*
  Establish priorities for the improvement of the salt pile sites that must remain in the critical recharge zones (including the Special Groundwater Protection Areas), and/or are located upgradient of water supply wells. The priorities should be based upon documented or probable near term and long term impact upon water supply.

- *Develop a Priority System and a Schedule for Clean-up*
  - Develop a schedule for the elimination or reduction of discharges to groundwater. Those sites that are identified as top prirority should be improved within a year, while other sites should be improved soon thereafter.
  - Implement all possible measures to minimize runoff or leachate generation, including temporary measures where necessary. Erect permanent structures to protect salt storage piles from precipitation and moisture. Cover all exposed salt piles during the periods when they are not in use and install stormwater and brine control measures for these sites. (See the Stormwater Chapter).
  - Investigate the feasibility and cost effectiveness, of utilizing smaller, but more numerous facilities as opposed to larger, but fewer facilities in the densely populated areas. Smaller facilities might serve as satellite loading stations. These stations should be strategically located so that trucks could be reloaded on or near their routes in order to minimize the length of time that they would be traveling *empty*. The costs of effective stormwater and brine controls should be considered in the calculations for all sites.

PREVENTIVE MEASURES

- *Cost Reduction Techniques for Salt Storage Facilities*
  - Consider the use of standardized salt storage facilities. Standardized salt storage structures are used in several other states to cut costs, and may be appropriate for Long Island. (See Figure 9 for a typical salt storage structure used by the State of Maryland and other states). Designs for acceptable salt storage buildings should be studied to determine whether one or two lend themselves to standardization and consequent cost savings. The NYSDOT has recently constructed several buildings that are of the same design. The cost, size, advantages and disadvantages of this building type should be compared with other possible alternatives.
  - Choose appropriate and economical materials. Use salvaged materials or mass-produced items, such as telephone poles and railroad ties wherever appropriate. Use other commercially available, mass-produced structures such as structures with a suitable floor and interior load-bearing bulkhead. The municipal highway department may be able to provide the labor for design and construction, thus eliminating the need for an outside contractor (Figure 5).
  - Existing commercial, industrial or transportation buildings may be suitable for salt storage. (See Figure 10). Some structures with multiple bays are ideally suited for deicing operations.

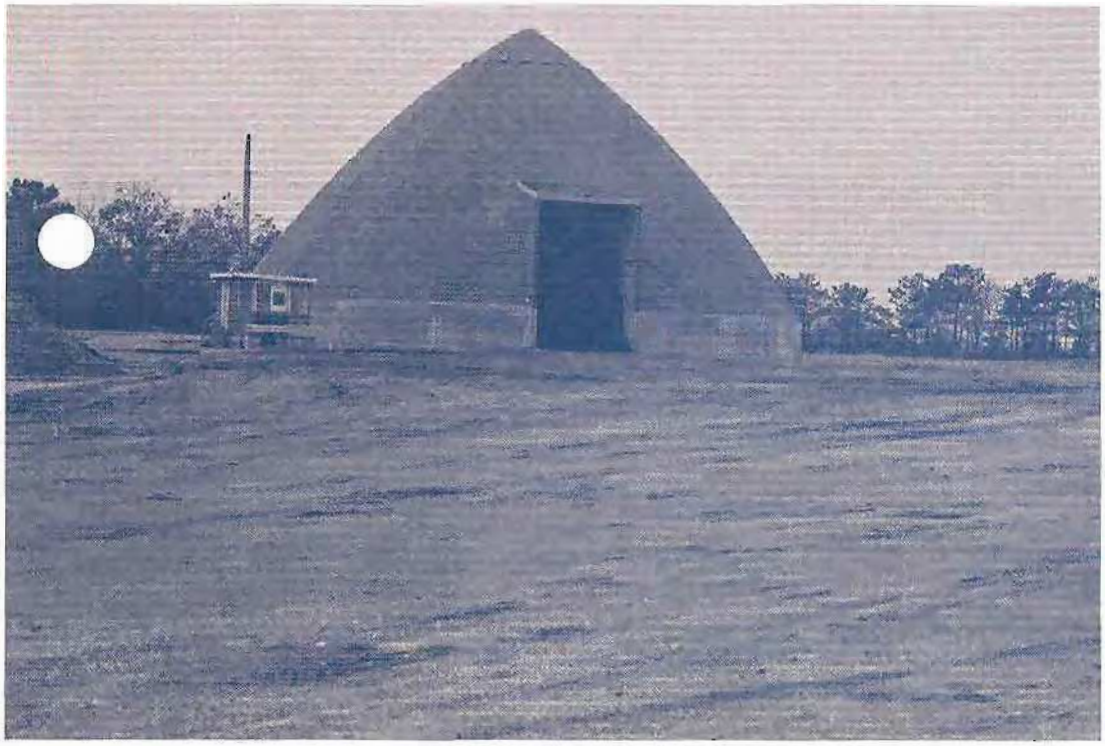


FIGURE 9 *Salt Storage Dome*

A plywood dome currently being utilized in many areas in the United States and Canada. This structure is widely used in Maryland because it is the best method of storing salt both due to its effectiveness and the low cost of construction and maintenance. The plywood frame comes in prefabricated units and is assembled on the site. Site work includes pouring the concrete base pad and a concrete ring to support the dome. One access door is located on the leeward side of the dome.

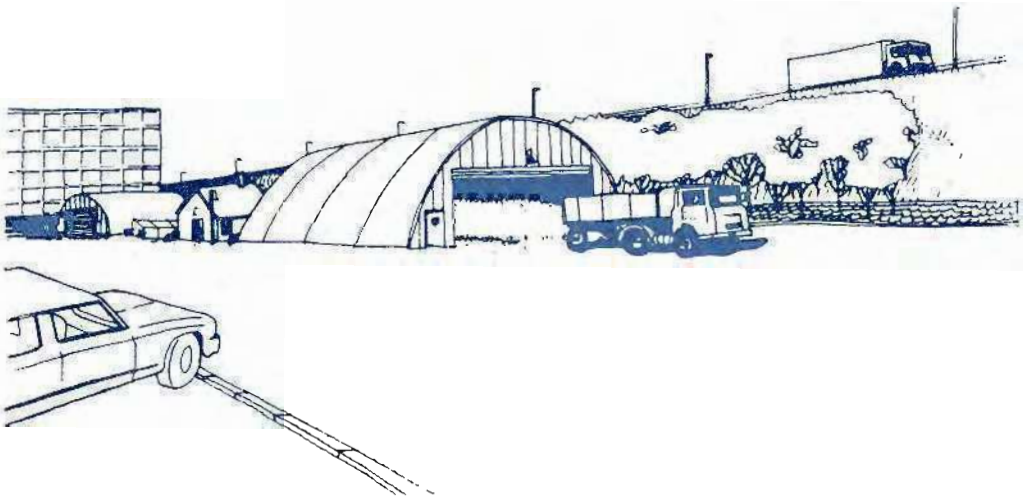


FIGURE 10 *Permanent Salt Storage Area*

This sketch depicts a steel barrel vault frame to which various exterior materials may be attached. Steel doors are connected to the rigid frame and allow access from either side. The covered frame creates a large unobstructed interior. There are a number of existing buildings on Long Island similar to the one shown that may be suitable for conversion to a salt storage facility.

- Consider joint (inter-municipal) use of existing storage facilities. Provisions should be made for possible rental of space on existing salt storage areas for nearby municipalities, which find it less costly to rent space than develop their own facility (i.e. acquisition of land, stormwater runoff controls, etc.)

- *Facility Design and Construction Guidelines*
  - *Storage Structures*

    Design salt storage buildings to provide needed capacity, maximum protection of salt, easy access, and to facilitate environmentally acceptable operations. Central salt storage facilities, that serve major highways, should be large enough to accommodate ten wheel trucks and payloaders. The holding capacity of the building should be large enough to accommodate an average of 5,000 to 7,000 tons or an adequate supply of salt.

    Locate large or multiple doors on both ends or sides of the building for easy access. All doors used on buildings containing salt should be moisture proof.

    Raise the floor elevation of the salt storage building above the 100 year flood level (based upon future maximum stormwater runoff from the upland watershed). This precaution should be taken to prevent any leaching of salt to the groundwater. Assure the impermeability of the floor. Either provide a concrete floor and apply a water-resistant or waterproof sealant and reseal as needed; or provide an asphalt or cement floor with a clay or plastic liner sealed with epoxy placed underneath it. Regardless of the alternative selected, make adequate provision for the containment of contaminated water in the event of a fire.

    Plan for the inevitable accidents or mishandling of mechanical loaders, as well as the considerable wear and tear of normal operations. Any portion of the structure within reach of the front-end loader is vulnerable to damage. Therefore, appropriate choice of construction materials for these areas and providing maximum reinforcement are very important. The corners of any salt enclosure are particularly vulnerable when the front-end loader is working close to the walls. Use a concrete curb or parapet extending up the walls as far as four or five feet. A lighter, more vulnerable wood or metal structure may be used above. Timber bulkheads or bumpers can be used for protecting corners and lower walls in concrete block sheds or in wooden structures, especially those with arched or conical roofs within reach of the front-end loader.

    Protect door jambs and lintels, natural targets for damage during loading and unloading operations. Both can be reinforced structurally by using double timber or metal posts. In addition, the surfaces can be protected by metal pipe columns, or in the case of door jambs, by cast iron wheel guards.

- *Open Storage Sites*
  Equip open storage sites (no structure) with a waterproof concrete base treated with sealant as needed to prevent leaching of salts to the base and soils below. The loading area surrounding the base should be made of concrete or an asphalt with the lowest possible permeability. The subbase and base for the main traffic area should meet New York State Highway Standards; that is, sufficient to withstand the weight of loaded trucks. The size of this area should be minimized to reduce costs and the amount of stormwater to be contained.

  Maintain a *windrow* shaped storage pile in order to minimize the impact of northwesterly winds upon the salt pile. Plant conifers in north, northwestern and northeastern locations to reduce the effect of winds.

  Minimize the amount of salt mixed into the pile. The minimal amount required to prevent a salt pile from freezing is 80 lbs. of sodium chloride to one (1) ton of sand (4% mixture).

  Cover the pile with an acceptable tarpaulin (tarp) material throughout the year, except when in use. The cover should be sufficiently strong to resist tearing during high winds and should be completely moisture proof. It should be secured so that the salt is never exposed to wind or rainfall while the tarp is in place. The upper layer of the pile should be covered with sand, which should be continually replaced.

  Prevent salt contaminated stormwater from reaching the soils beneath or adjacent to the salt pile (see Site Grading).

  Consider the use of a retaining wall to confine a portion of the salt pile and minimize stormwater runoff from several directions (see Figure 12).

- *Site Grading*
  Develop and implement a detailed grading plan to prevent salt contaminated stormwater runoff from the salt pile area from coming into contact with unpaved areas. Minimize the disturbance of existing soils and vegetation. Paved areas should not contain slopes greater than 2 1/2 or 3 percent. Grades may be slightly increased in areas where trucks are stored and in paved areas not used by traffic. Avoid or correct low spots in the pavement surface (see Figure 11).

- *Site Paving*
  Use a mix that has the lowest permeability for any site paving that will come in contact with salt or salt-contaminated stormwater. Maintain the paving with the most skid resistant sealant designed to resist salt solutions and to minimize the leaching of salts to the soils beneath the subbase.

- *Site Stormwater Management*
  Provide control and storage for the maximum runoff that can be expected during a 60 hour period.

  The stormwater system should be designed to contain all salt contaminated stormwater generated on site so that no salt contaminated stormwater will reach the unsaturated zone (see Brine Control).

  Design and size drainage channels for maximum volume of stormwater. Drainage channels should be made of impervious materials. All drainage facilities should be made of non-corrosive materials.

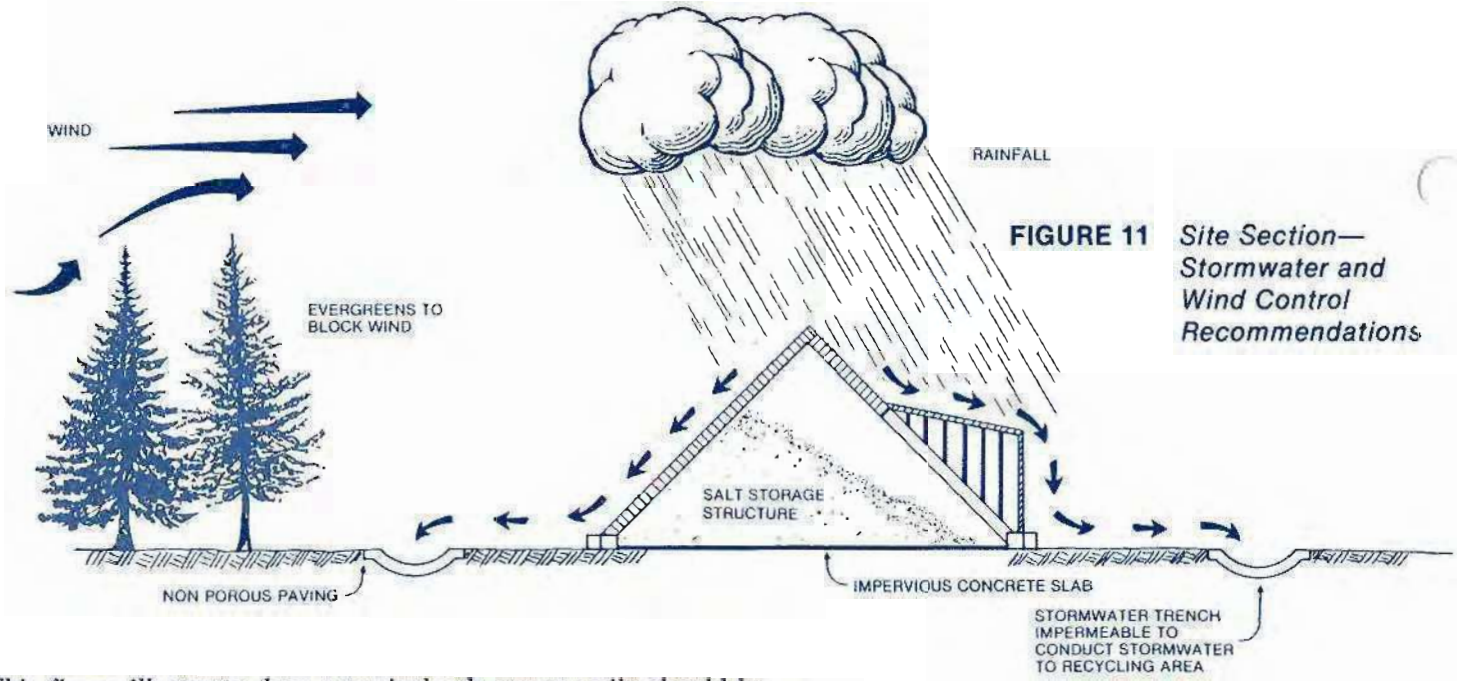


FIGURE 11 *Site Section—Stormwater and Wind Control Recommendations*

This figure illustrates how a typical salt storage pile should be designed to prevent contact of salt with stormwater runoff. The salt pile is enclosed within a permanent structure. Prevailing winds on the site are blocked by coniferous trees. The storage site and any area needed for vehicular access is covered with bituminous concrete and provided with stormwater controls to contain the maximum rainfall occurring within a 60 hour period.

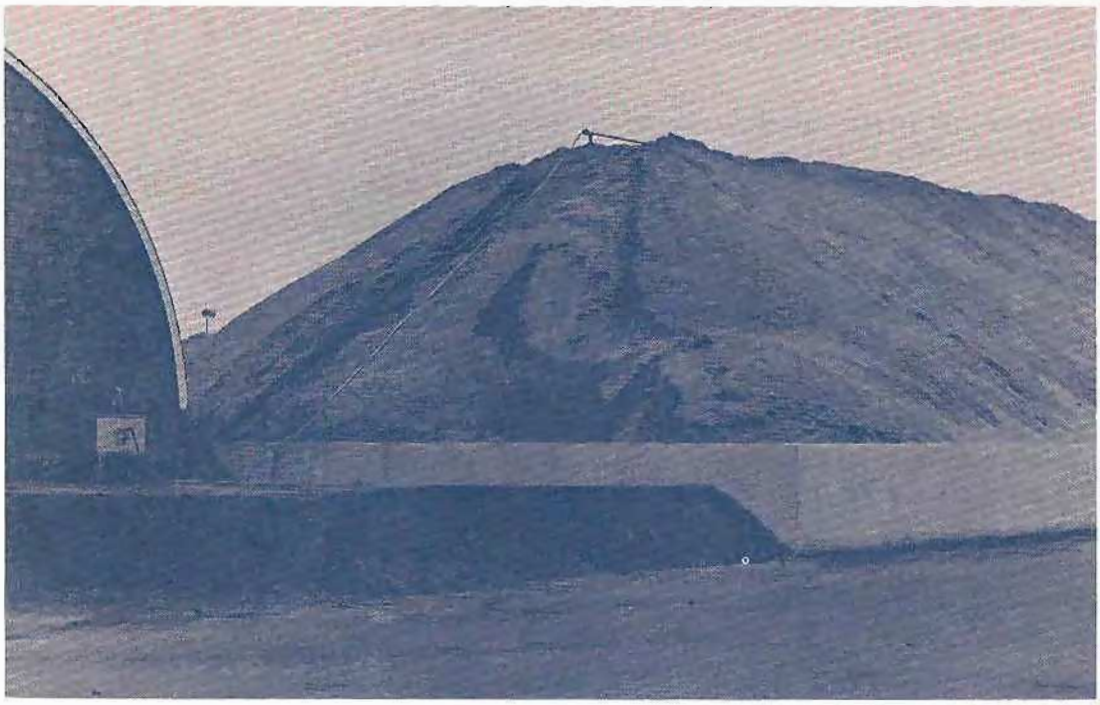


FIGURE 12 *Salt Pile Supported By A Retaining Wall*

At the Town of Babylon facility in Lindenhurst, the sand is mixed and deposited on a pile located directly adjacent to the salt storage building. The salt/sand mixture rests on an asphalt base with a 2 foot retaining wall that extends 5 ft. below the ground. There are also two drainage pits for runoff for brine control.

Locate observation or monitoring wells on site down gradient of the holding tank and catchment area to monitor for possible leaching of salt to the groundwater.

- *Brine Control**

  Require brine control for all salt storage facilities. See Figures 11, 13, 14 for an example of an existing recommended brine control system.

  There are two primary methods of brine control in use at the present time: storing the brine in a holding area, such as a storage tank, until the tank becomes relatively full and then removing the brine for disposal, or storing it on site and pumping it back onto the storage pile. The brine management practices at the Town of Babylon's storage site at North Indiana Avenue in Lindenhurst is an example of the second alternative. The management practices are described in Figures 12, 13, 14. *Never dispose of brine into the soil or fresh surface waters!*

  Provide a brine holding tank of sufficient capacity so that it will not overflow with several minor storms, and so that frequent pumping is not required.

  If the holding tank is not large enough to contain several winter storms, than an overflow containment pond or adequately sized impermeable lagoons should be provided. The holding tank should be of an impermeable material capable of withstanding the pressures of the brine solution. (An expoxy-coated plastic is sometimes used.)

  Remove the brine solution from the holding tank at regular intervals during the year. Dispose of brine by discharging to one of the following:
  - a secondary or tertiary sewage treatment plant outfall pipe (not directly into the treatment plant that discharges to marine waters)
  - primary treatment plants where it may be discharged into marine waters
  - into storm drainage systems discharging to marine waters
  - directly into marine waters

  Discharges must be approved by the DEC

- *Storage Site Operation*
  - *Salt Supply and Mixing*

    Store salt or salt mixed with sand at central sites located outside the deep aquifer recharge area and at a sufficient distance from fresh surface waters and wetlands. The mixture should then remain at these sites until the beginning of the winter storm season and then be transported to numerous smaller facilities. This technique will minimize the potential for groundwater or surface water contamination.

  - *Mixing and Loading*

    Perform all mixing and loading operations within an area where stormwater and brine controls are in effect. (See Figure 8).

*These recommendations apply specifically to the type of deicing materials now in general use on Long Island. Any significant change would require reassessment and possible revision.

FIGURE 13 *Brine Recycling System*

At the Babylon facility a 3 foot berm protrudes out of the back of the salt storage building. There are three 6,000 gallon brine holding tanks contained within the berm. The tanks are square, made of plastic and sealed with epoxy. An electric pump, located adjacent to the back wall of the building, is used to recycle the brine solution back onto the salt storage pile. The brine solution travels up a hose which runs up one end of the pile and into a pipe which runs along the top of the pile.

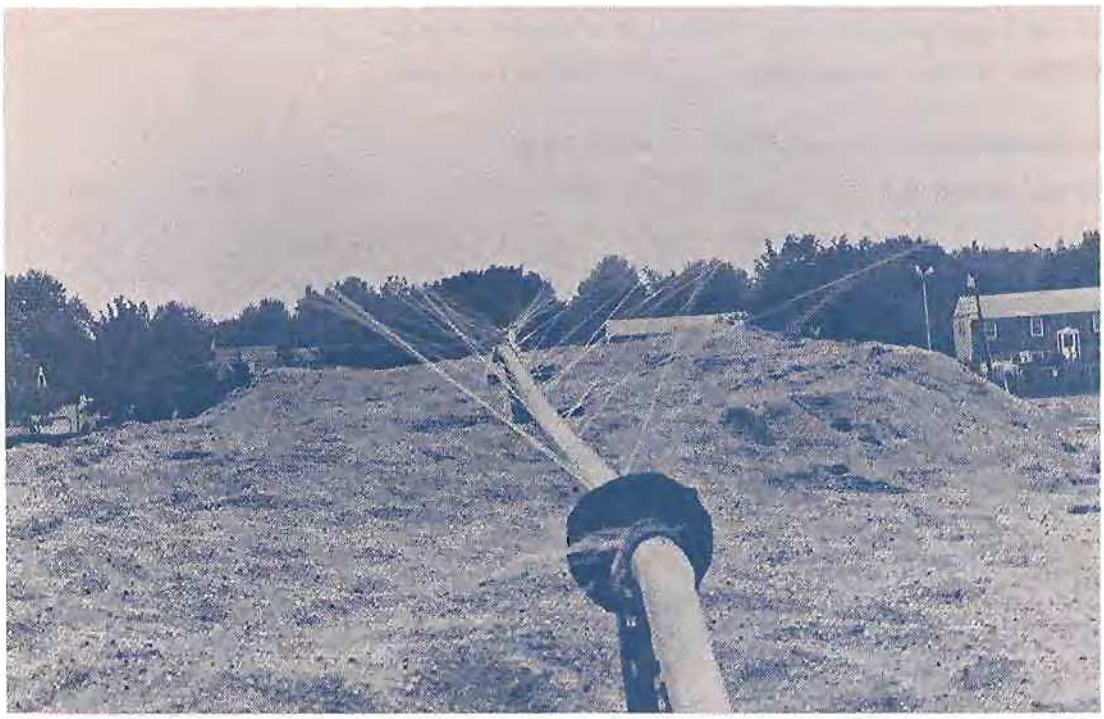


FIGURE 14 *Brine Recycling Sprinkler System*

The brine solution is recycled back onto the pile through holes in the pipe, which acts as a "sprinkler".

- *Maintenance*
  Sweep the site after all loading or mixing operations.

  Clean salt spreading equipment on the loading pad where stormwater and brine control measures are in effect.

  Repair the salt storage structure roof, walls and doors as needed to prevent moisture from entering the building.

  Seal the asphalt site paving and the concrete floor of the building required to maintain the impermeability of the surface.

  Repair potholes, washouts and cracks in the asphalt and/or concrete paving as soon as possible.

  Replace or repair the berms constructed to contain and direct stormwater immediately if they are destroyed or damaged.

  Check the brine circulation system frequently to assure proper operation.

  Replace or repair any damaged tarps.

- *Operator Training*
  Provide in-service education programs for salt mixing and spreading personnel, to insure operator awareness of the environmental impacts of salt spreading.

Management of Road Salt Application and Plowing

PLANNING AND MAPPING OF ROUTES

- Develop and post a master map and chart showing routes, snowplowing and deicing schedules and equipment and operator assignments.
- Each driver should have a pre-set familiar route so that he/she may be aware of special problems which exist in the area, and to prevent duplication of salt application by other drivers.
- Update maps periodically to show new roads, interchanges, streets, bridges, and jurisdictional boundaries.

CONSTITUENTS AND CONSTITUENT MIX(ES)

- Evaluate various salt/sand ratios currently used for maintaining highways to determine which mixture offers the maximum safety for the public with the minimum impact upon groundwater under most storm conditions. The use of straight salt should be considered. (See Table 7 for the NYSDOT recommended snow and ice treatment for two lane roads).

APPLICATION

- Adjust application techniques to reflect traffic density and highway design since they generally determine the type of spreading pattern that should be used. A windrow of salt applied in a 4-8 foot strip along the center line is effective on two-lane pavements with a low to medium traffic count. Less salt is wasted with this pattern and clear pavement is quickly available under at least two wheels of the vehicles. The traffic will soon move some salt off the center line and the salt brine will move toward both shoulders for added melting across the entire width of the road. The full width spreading pattern is used most often on multiple lane pavements with medium to high traffic volumes where all lanes carry equal traffic. Melting action occurs over the full pavement width.

TABLE 7*

Recommended Snow and Ice Treatment for Two Lanes (24' Width)

Condition	Temperature	Highway Class A-1 or A-2	Highway Class B	Highway Class C
Sleet or Freezing Rain		Salt — 500 to 600 lbs./Mile Repeat Application (If Necessary) at 200 lbs./Mile	Salt — 500 to 600 lbs./Mile Repeat Application (If Necessary) at 200 lbs./Mile	Salt — 500 to 600 lbs./Mile Repeat Application (If Necessary) at 200 lbs./Mile
Snow	25° or Above	Salt — 400 lbs./Mile	Salt — 400 lbs./Mile	Salt — 400 lbs./Mile
Snow	20°-25°	Salt — 500 lbs./Mile	Salt — 500 lbs./Mile	Abrasive — Chemical Mix 1 Part Salt to 3 Parts Abrasive — Apply cinder mix at 1,000 lbs./Mile Sand mix at 1,500 lbs./Mile
Snow	10°-20°	Chemical Mix — 2 Parts Salt to 1 Part Calcium Chloride — Apply 400 lbs. of Mix/Mile	Chemical Mix — 2 Parts Salt to 1 Part Calcium Chloride — Apply 400 lbs. of Mix/Mile	Abrasive — Chemical Mix 1 Part Salt to 4 Parts Abrasive — Apply cinder mix at 1,000 lbs./Mile Sand mix at 1,500 lbs./Mile
Snow	Below 10°	Chemical Mix — 2 Parts Salt to 1 Part Calcium Chloride with 3 Parts Abrasive — Apply cinder mix at 800 lbs./Mile Sand mix at 1,100 lbs./Mile	Abrasive — Chemical Mix 1 Part Salt to 6 Parts Abrasive — Apply cinder mix at 1,000 lbs./Mile Sand mix at 1,500 lbs./Mile	Abrasive — Chemical Mix Normally on hills, curves & Intersections — 1 part Salt to 6 parts Abrasive — Apply cinder mix at 1,000 lbs./Mile Sand mix at 1,500 lbs./Mile

1. *For Rising Temperatures* use the recommendations in the temperature range *above* the range the present temperature falls in.
2. *For Falling Temperatures* use the recommendations in the temperature range *below* the range the present temperature falls in.
3. *Dry Blowing Snow* — If pavement is dry and dry snow is lightly falling, *do not apply chemicals* — plow as necessary and treat icy spots, if they develop, as recommended in the table above.
4. All mix proportions are on a volume basis. Salt estimated at 2,000 lbs./Cubic Yard (CY), flake calcium chloride at 1,200 lbs./CY, sand at 3,000 lbs./CY, and cinders at 1,800 lbs./CY.

NOTE: (1) If snow has become hard-packed on pavement, use 1 part calcium chloride, 2 parts salt and 2 parts of any of the abrasive-chemical mixes. Apply early in the day & blade off with grader as the packed material softens.
(2) When the temperature is below 20° and chemical mixes are shown above, be sure to use them *early* in the day to avoid the danger of night-time freezing.
(3) Apply chemicals and mixes early in the storm so that brine develops on the pavement and prevents buildup of packed snow. If the snow continues to fall & accumulates on the pavement, plow and follow this with chemical or mix treatment in the plowed area.
(4) The light 200 lb/mile applications shown above may have to be repeated several times through the duration of the storm — plow as necessary ahead of the application of chemicals.
(5) Apply chemicals and/or mix to middle 1/3 (maximum) of pavement width and on the high side of banked curves.

Source: New York State Department of Transportation, 1981.

*These are statewide guidelines, calcium chloride is very rarely used on Long Island.

- Use abrasives with little or no addition of chemicals in locations where traffic is not heavy enough to remove them rapidly from the road. A mixture of 20 parts sand and one part salt (the minimum amount of salt needed to keep a sand pile from freezing) often supplies enough melting action to provide an adequate level of service on secondary roads and in residential areas.
- Consider the type of road surface to be cleared. Asphalt reacts differently to snow and salting than does concrete or blacktop.
- Apply increased amounts of salt or salt/sand to steep slopes, road intersections, sharp curves and bridges where necessary to prevent hazardous situations.

TIMING

- Apply deicing materials early before traffic becomes heavy or the storm becomes too severe.

RECORD KEEPING OF HIGHWAY APPLICATION

- Supervisors and the spreader operators should complete and retain reports detailing weather and road conditions, lane miles covered and types and amounts of deicing materials used.

EQUIPMENT

Spreaders

- Use ground control spreaders for highway salt application to achieve long-term savings. The replacement of older less efficient equipment by ground control spreaders has been found to pay for itself through reductions in the amount of salt, sand and gravel used in numerous applications.
- Consider the following factors when choosing new equipment:
  Drive configuration (hydraulic or electric) controls located inside the truck because they are more efficient; there is more control over the amount of salt applied, and the driver does not have to get out of the truck to adjust the controls.

  Durability of the materials used in spreader construction. One of the more durable materials is stainless steel.

  Versatility of the spreader. Some spreaders are of a highly specialized nature while others may be removed and placed on other types of trucks. (An ordinary dump truck may be used with slip-in spreaders or tailgate spreaders) (Figure 15).

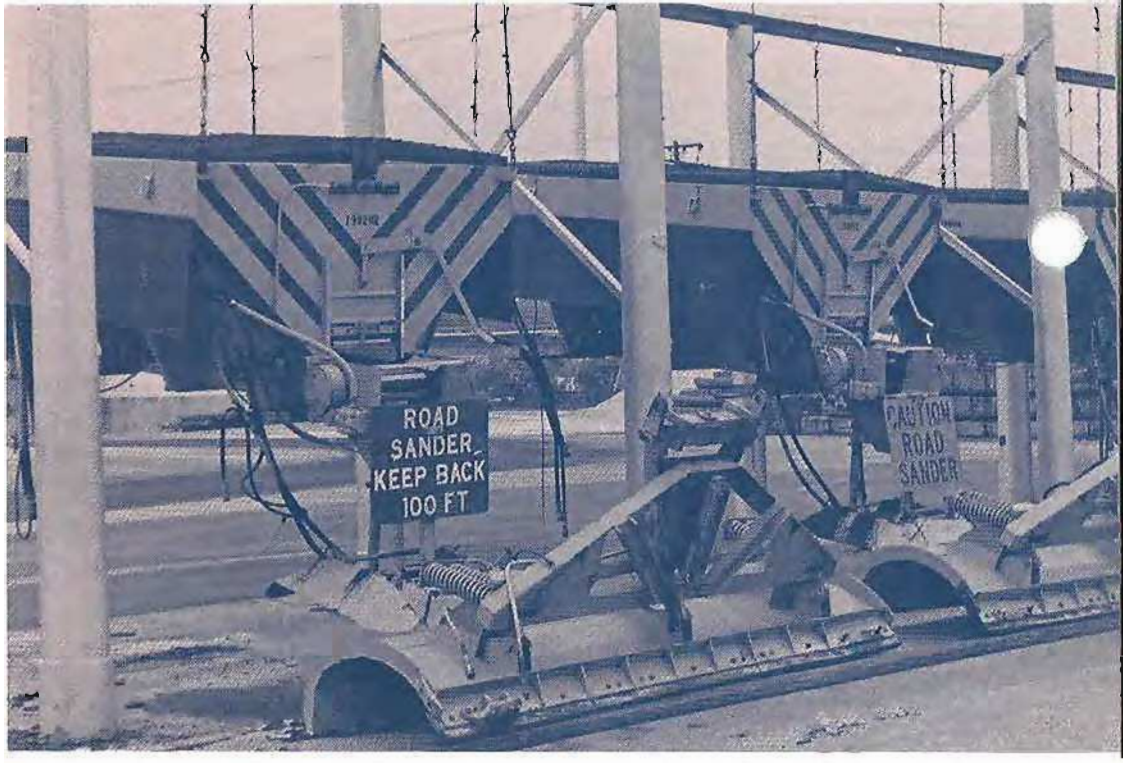
  Calibrated spreaders should be used (i.e. bin spreaders). A spreader may also be chosen for the degree of precision required. Some spreaders dispense a set amount of salt regardless of the truck speed while others respond to changes in the speed of the truck.

  Suitability for intended use. Equipment should meet road needs adequately. Certain equipment is more readily adapted to highway usage while other equipment is more suitable for use on two-lane roads.

PROPER OPERATION OF EQUIPMENT

- Train staff members to properly use spreading equipment.
- Train personnel to follow appropriate application guidelines for various storm and road conditions. Authorize field crews to adjust within prearranged limits as required.

FIGURE 15 *Slip-in Spreader*



These slip-in spreaders can be stored in off season and trucks utilized for other highway purposes.

PLOWING PROGRAM

- Develop a comprehensive plowing program to help minimize the amount of salt or salt/sand that must be used in a storm. Begin plowing as soon as a one-half inch or more of snow starts to accumulate on roadways.
- Avoid dumping material from overhead bridges into roadway or railroad tracks below. The snow should be hand shoveled, if necessary, to make sure all drains in the bridge floor are open and free draining.
- Keep roadway drains and catch basins open to allow melting ice and snow to run off the road. When water forms ponds and puddles around drains, falling temperatures may cause it to refreeze.
- Mark curbs, protruding manholes, catch basins and other obstacles in order to attract the attention of plow operators and prevent injury to personnel and equipment.

• *Road Cleanup*

- Perform road cleanup as soon as is practical. Avoid sweeping or otherwise depositing salts and other abrasives into freshwater or tidal wetlands, natural swales, stormwater systems, fresh surface waters or in aquifer recharge areas.

FUTURE ALTERNATIVES

- Continue to evaluate new deicing materials. If these materials meet safety standards and if the related environmental, social, and economic impacts compare favorably with those of salt, consider them for possible use on Long Island.

Public Education

- Inform the public of the benefits as well as the disadvantages of using salt and other deicing materials needed to maintain highway safety.

Chapter Five

INTRODUCTION

On Long Island, fertilizers are used extensively in the cultivation of

- potatoes and other crops
- nursery stock and sod
- the maintenance of
  - turf and ornamentals in parks
  - cemeteries
  - roadsides and medians
  - golf courses
  - the grounds of institutions, businesses and industrial establishments
  - home lawns and gardens

Fertilizers are substances that make soil more productive and fertile. They include inorganic, natural organic, or synthetic organic compounds that supplement the soil's supply of elements required for plant development and growth. Plants require carbon, hydrogen, oxygen, macronutrients and micronutrients. *Macronutrients* are used in greater quantities than micronutrients. The three primary macronutrients are nitrogen, phosphorus and potassium. Other macronutrients include calcium, magnesium, and sulfur. The *micronutrients* include boron, chloride, copper, iron, manganese, molybdenum, and zinc. If plants cannot obtain nutrients from the soil, fertilization is required.

All fertilizer nutrients, regardless of the source, are *ions* (charged atoms or groups of atoms) that are absorbed by plant roots. Inorganic fertilizers are quickly available for plant absorption. Organic fertilizers must be decomposed (hydrolyzed) by soil microorganisms to inorganic nutrient salts.

Soils vary in organic and inorganic nutrients available to plants and plants vary in the amount and type of nutrients required. Often because of the complexities of varying soil characteristics and plant requirements, more fertilizer is applied than the plant can use. In many cases plants receive the wrong type of fertilization. For instance when plant leaves turn yellow, they usually require iron, a change in the pH or more moisture rather than additional applications of the *primary nutrients*. Since the proper soil pH allows for maximum assimilation of nutrients in the soil, fertilizer applied when the pH is too low or too high may result in increased nitrate leaching to groundwater.

The types of fertilizer used on Long Island are described in Table 15.

KEY PROBLEMS

The Long Island Comprehensive Waste Treatment Management Plan (208 WTMP) identified fertilizers as a source of pollution to ground and surface waters. Of the primary macronutrients, *nitrogen* appears to be the major groundwater contaminant. Since nitrate-nitrogen is highly soluble, the nitrogen that is not volatilized or taken up by plants and bacteria leaches out of the root zone and eventually reaches groundwater or surface waters. The presence of high concentrations of nitrogen in groundwater is usually associated with agricultural and turf fertilization and with the use of septic systems. A portion of the phosphates applied as fertilizer may attach onto soil particles and may be taken up by plants. Depending on the soil type, some of the phosphates move downward through the soil at the rate of approximately 1/2 inch per year. Thus phosphate pollution is minimized by the soil sorption process and the slow rate of movement, except when phosphates are carried along by eroded soil particles. *Potassium* resulting from the use of fertilizers has not been associated or identified as a groundwater pollutant.

Health Effects of High Nitrogen Concentrations in Groundwater

Maintenance of the quality of the groundwater, Long Island's only source of potable water, requires the avoidance of high concentrations of contaminants that pose potential health hazards. Nitrate concentrations in excess of 10.0 milligrams/liter (mg/l) or 10 parts per million (ppm) in drinking water have been correlated with the disease *methemoglobinemia* (nitrate cyanosis), in which there is a reduction in the oxygen carrying capability of the blood. This disease primarily affects infants and can be fatal. Therefore, federal and state drinking water standards limit the nitrate/nitrogen to 10 mg/l concentrations in potable water to prevent this illness.

Other toxic effects of nitrogenous compounds in water are currently being investigated. The possible health effects of nitrosamines, known *carcinogens*, have received much attention. Ingestion of high levels of nitrates may be considered a potential health hazard since these constituents can produce nitrosamines in the body.

Level of Nitrates in Long Island Groundwater

In some areas of Long Island, nitrate concentrations in groundwater wells exceed the federal and state drinking water standards. This problem has been evident in Nassau County for many years and has been observed more recently in Suffolk County. Nitrate levels detected in wells throughout Nassau County during 1980 are shown in Table 1.

Public water supplies in Suffolk, as in Nassau are regularly tested for a number of constituents, including nitrates. Over the period 1979-1981, nitrate concentrations in 15 public wells have exceeded or equaled 10 ppm (nitrate) and 42 public wells have exceeded 6 ppm at least once (The 208 WTMP recommended that a finding of 6 ppm be considered an indicator of the possible need for mitigating action such as sewering). Table 2 indicates the number of public wells in Suffolk County that exceed 6 ppm.

In Suffolk County, private wells are sampled at the request of the owner. According to the SCDHS, water from 6.2 percent (or 666) of

TABLE 1

Nitrate Levels Detected In Nassau County Groundwater Wells During 1980

Aquifer	Number of Wells Tested	Nitrate Concentration: Less than or equal to 1.0 mg/l		Greater than 1.0 to less than or equal to 10.0 mg/l		Greater than 10.0 mg/l	
		#of Wells	% of Wells	# of Wells	% of Wells	# of Wells	% of Wells
GLACIAL	182	31	17%	125	69%	26	14%
MAGOTHY	423	170	40%	235	56%	18	4%
LLOYD	47	37	79%	10	21%	0	0%

Source: Myott, Donald H. and Michael J. Alarcon, *Water Supply in Nassau County, N.Y.*, Briefing Report, Nassau County Department of Health. November, 1981.

TABLE 2

Number of Public Wells Exceeding 6 ppm Nitrate in Suffolk County

Aquifer	# of Wells	Highest NO_3 Concentration
Glacial	47*	15.9 mg/l (ppm)
Magothy	3	10.8 mg/l (ppm)

*This number exludes 2 wells, having depths of 562 ft. and 602 ft. which terminate in Glacial deposits located in buried Magothy valleys in the Town of Huntington.

Source: Suffolk County Department of Health Services, Bureau of Water Resources.

the private wells sampled in 1979-81 exceeded the allowable maximum contaminant level for nitrates. Most of the wells tested were screened in the shallow Glacial aquifer and were located in agricultural areas and older, established communities with high population densities. In these areas, the major sources of nitrates are past and present farming activities, septic system leaching and homeowner use of lawn fertilizers.

The need to minimize nitrate loadings to groundwater to reduce well contamination and closure appears clear. A decrease in fertilizer use is needed to help reduce nitrate concentrations in Long Island ground and surface waters in some areas and to prevent unnecessary increases in nitrate concentrations in other areas.

Fertilizer Use on Long Island

In 1977 and 1978, staff researchers from Cornell University and agricultural industry representatives undertook surveys to determine the amount of fertilizers used on Long Island. According to the findings, a total of 54,618 tons of fertilizers was distributed in 1977, while 54,888 tons were distributed in 1978. Table 3 presents an estimate of the amount of nitrogen in the fertilizers by source distributed in Nassau and Suffolk Counties during the years 1977 and 1978 by class of use.

Turf Areas

Turf areas such as residential lawns, commercial sites, golf courses, sod farms and recreational lands are currently associated with the most prevalent use of fertilizers in the bi-county area. The use of turf areas is expected to increase with further development. In assessing the potential impact of fertilizers on groundwater, it is necessary to obtain reliable estimates of the area covered, the rate of application, and the subsequent fate of the nitrogen after application. Table 4 shows the esti-

mated bi-county acreage in turf, for selected land uses in 1981.

Table 5 presents a summary of the six surveys conducted in a limited number of Long Island residential areas in order to determine the average application rate of nitrogen per 1,000 square feet of turf.

A separate survey of the use of nitrogen on recreational and ornamental turf, such as golf courses, highways, playing fields and parks, revealed a range of application rates. Golf courses had the highest application rate. A summary of the average annual rates of nitrogen application is shown in Table 6.

TABLE 3

Amount of Nitrogen (in Tons/Yr) Found in Fertilizers Distributed on Long Island

Class of Use	Initial Load* 1977	Initial Load* 1978
Farms	2,775	3,076
Turf (Lawns)	3,758	2,900
Ornamentals	73	111
Vegetable Gardens	164	85
TOTAL	6,770	6,172

*Data computed and summarized by the New York State Department of Agriculture and Markets, Division of Plant Industry, Albany, New York.

Source: Adapted from 208 Technical Advisory Committee Work Group, *Fertilizer Nitrogen Usage in Long Island, New York's Nassau and Suffolk Counties*, 1979.

TABLE 4

1981 Turf Area Estimates (in acres) of Selected Land Uses

	Nassau	Suffolk	Total
Residential Properties	61,129	108,148	169,277
Commercial Sites	2,446	6,069	8,505
Golf Courses	4,725	4,557	9,282
Recreational Lands	4,222	12,495	16,717
Sod Farms (Commercial Turfgrass)	100	3,300	3,340
Total Turfgrass	72,622	134,559	207,181

Source: Pike, J. et al., *1980 Survey of Turf Management Practices in Nassau and Suffolk Counties, Long & Island*; draft, 1980

On the basis of field tests by Cornell, it has been estimated that approximately 60 percent of the nitrogen in the fertilizers applied to turf leaches to groundwater. This percentage represents average conditions since application rates and nitrogen uptake by turf is variable. New grasses and grasses in poor soils require more nitrogen. Mature turf in moderately fertile soils requires less nitrogen (approximately 1 lb N/1000 ft^2/year)

Table 7 provides estimates of the average nitrate loading to groundwater in pounds per year for each of the major classes of fertilizer use and the estimated nitrogen concentrations in recharge water.

There are over 200,000 acres of turf in the bi-county area. If turf fertilization occurs as indicated in Table 7, the total annual estimated nitrate loading to groundwater is approximately 11,553,000 pounds.

Agricultural Crop

According to Table 3 fertilizer application loadings are highest for agricultural crops, and turf. There are approximately 45,000 acres in the bi-county area (primarily in eastern Suffolk) devoted solely to crops. Of these, 45% is devoted to potato crops. Under current management programs, fertilizer application rates are higher for potato crops than for any other agricultural use on Long Island. Surveys have indicated a range of 150 to 270 lbs. of nitrogen per acre.

TABLE 5

Summary of Lawn Fertilizer Use Surveys on Long Island

Source of Survey	Location	Year	Average Rate of Nitrogen Applied (Lbs. N/1000 Sq Ft/Yr)
Holzmacher, et al.	L.I. Households	1970	3.0
Rykbost	L.I. Households	1974	3.9
Suffolk County Dept. of Environmental Control	Medford Households	1974	2.2
Suffolk County Cooperative Extension	L.I. Households	1976	2.5
	including Medford	1976	2.2
Suffolk County Cooperative Extension	L.I. Households	1978	3.0
Suffolk County Cooperative Extension	L.I. Households	1980-1	2.3

Source: Pike, J. et al., *1980 Survey of Turf Management Practices in Nassau and Suffolk Counties, Long Island;* draft, 1980

TABLE 6

Estimated Average Annual Use of Nitrogenous Fertilizers Applied to Recreational and Ornamental Turf

Use	Annual Rate Lbs. N/1000 sq. ft.
Golf Courses[2]	
Greens	7[1]
Tees	5[1]
Fairways	3[1]
Weighted Overall Average	3.5[1]
Playing Fields	3
Parks: Approximately 10% of total area	2
Highways	0-1

[1] Source: Porter et al., *Nitrogen on Long Island, Sources and Fate, Center For Environmental Research. Cornell University, Ithaca, N.Y.* 1980.

[2] There is a wide variability in fertilizer application rates on golf courses. The actual annual rate may be higher.

It has been estimated based upon field testing by Cornell University, that under current practices 25 percent of the nitrogen in fertilizers applied to agricultural crops leaches to groundwater. Table 8 presents the Cornell recommendations for the nitrogen application for various crops and soil pH levels.

Cornell simulated nitrogen budgets for potato fields for two dominant soil types (Riverhead sandy loam and Plymouth loamy sands). The simulation was calibrated with field experiments conducted by the Long Island Horticultural Laboratory. Table 9 provides the simulated water and inorganic nitrogen budgets for the root zone of potatoes.

TABLE 7

Estimated Average Pounds of Nitrate Loading from Fertilizer Use to Groundwater Per Year

Type of Use	Total Acreage In The Bi-County Area*	Average Rate of N applied (lbs. N/1000 Sq. Ft. Yr.)*	Percent Leaching to Groundwater*	Lbs. of N per year leaching to Groundwater
Residential	169,277	2.3	.57	9,666,929
Commercial	8,505	3.5	.57	739,103
Golf Courses	9,282	3.5	.57	806,626
Sod Farms	3,340	4.0	.57	331,718
Recreational Lands	16,717	0.2[1]	.57	8,301
Total	207,121			11,552,677

*Source: Pike, J. et al, 1980 Survey of Turf Management Practices in Nassau and Suffolk Counties, Long Island, draft, 1980.

[1] Weighted average assuming fertilizer applied to 10 percent of the total area.

The recommended nitrogen (N) application rates for vegetables (See Table 8) vary widely from less than 20 lbs. N/acre/yr to 150 lbs/N/acre/yr and the nutrient requirements and uptake of vegetables also vary. The nitrogen concentration in recharge water to groundwater for vegetables such as spinach, corn, broccoli, brussel sprouts may produce nitrogen concentrations in groundwater in excess of 6.0 mg/l (with an average nitrate concentration in groundwater of 6 mg/l the probability of not exceeding concentrations of 10 mg/l is 90 percent).

TABLE 8

1982 Cornell Recommendations Regarding Nitrogen and Soil pH Requirements for Potatoes, Vegetables and Turfgrass

Crop	Recommended Soil pH Level	Recommended Nitrogen (N) Application Rate
Potatoes	5.0 - 6.5	150-175 lbs N/acre/yr.
Asparagus and Rhubarb	6.0 - 6.8	50-80 lbs N/acre/yr.
Beans	6.0 - 6.8	20-40 lbs N/acre/yr.
Beets	6.4 - 6.8	75-100 lbs N/acre/yr.
Cabbage, Cauliflower, Broccoli, and Brussels Sprouts	6.0 - 6.8	50-120 lbs N/acre/yr.
Carrots and Parsnip	6.0 - 6.8	50-75 lbs N/acre/yr.
Celery	6.0 - 6.8	80-150 lbs N/acre/yr.
Cucumbers, Muskmelons and Watermelons	6.0 - 6.8	50-75 lbs N/acre/yr.
Eggplant	6.0 - 6.8	50-100 lbs N/acre/yr.
Lettuce and Endive	6.0 - 6.8	50-100 lbs N/acre/yr.
Onions	6.0 - 6.8	80-100 lbs N/acre/yr.
Peas	6.0 - 6.8	40-50 lbs N/acre/yr.
Peppers	6.0 - 6.8	50-150 lbs N/acre/yr.
Pumpkins and Squash	6.0 - 6.8	50-75 lbs N/acre/yr.
Spinach	6.2 - 6.8	75-100 lbs N/acre/yr.
Sweet Corn	6.0 - 6.8	80-140 lbs N/acre/yr.
Tomatoes	6.0 - 6.8	50-80 lbs N/acre/yr.
Turnips, Radishes, Rutabagas	6.0 - 6.8	40-75 lbs N/acre/yr.
Turfgrass (Sod Farms)	6.0 - 7.0	1-3 lbs N/acre/yr.

Sources: Sandsted, Roger F. et al. *Cornell Recommendations for Commercial Vegetable Production;* Ithaca, N.Y., 1983 and Petrovic, A. Martin and Joann Gruttadaurio, *Cornell Cultural Recommendations for Commercial Turfgrass Management,* Ithaca, N.Y., 1983.

TABLE 9

Nitrate Concentration in Recharge (Runoff and Leaching)

	Riverhead Sandy Loam	Plymouth Loamy Sands
Potatoes	7.96 mg/l (as N)	15.59 mg/l (as N)

Source: *Land Use and Groundwater Quality in the Pine Barrens of Southampton*, Water Resources Program, Center for Environmental Research, Cornell University, 1983.

EXISTING MANAGEMENT

Laws, Regulations and Administration

Article 10 of the New York State Agriculture and Markets Law which governs the *Sale and Analysis of Commercial Fertilizer*, is the only legislation directly relating to fertilizer use in the bi-county area. It requires that all fertilizers offered for sale in New York be labeled to indicate the net weight of the contents of the package, the percentages of the constituents, the brands and grades under which they are sold, and the names and addresses of the manufacturers. In addition, all fertilizer distributors must register with the Department of Agriculture and Markets.

Each year the Cooperative Extension Service and the New York State College of Agriculture and Life Sciences at Cornell University, in conjunction with the U.S. Department of Agriculture, publish recommendations for commercial potato production, vegetable production, and turfgrass management. Soil tests to determine pH and nutrient requirements are a critical part of the recommendations since pH levels can significantly affect fertilizer uptake by plants.

RECOMMENDATIONS

Legislation, Regulations and Administration

The following recommendations comprise preventive measures that can be used to minimize nitrate contamination of groundwater resulting from site development as well as suggestions for reducing or eliminating existing lawn areas and techniques for minimizing the amount of fertilizer applied to lawns, ornamental plants and crops. Of these, the most direct measure is the proposed inclusion of requirements for the maintenance of existing vegetation in municipal site development specifications for the various zoning categories. This would limit the areas of lawn and gardens devoted to high maintenance exotic species.

State

The New York State Legislature should consider the feasibility of amending Article 10 of the New York State Agriculture and Markets Law to require that fertilizers offered for sale in New York be labeled with a warning to the effect that the application of fertilizers may contaminate groundwater or surface waters. The label should refer users to their local Cooperative Extension for recommended timing and rate of application.

State, Counties and Municipalities

All public agencies should limit the establishment of high maintenance lawns on public lands. Existing turf areas located in critical groundwater recharge areas and near surface waters should be evaluated to determine whether all of the existing turf areas are required, whether some are suitable for reseeding with red fescue or other grasses that require little or no fertilization, or whether some of these areas should be planted with natural groundcovers and woodland species.

Municipalities

Zoning Recommendations

PRESERVATION OF NATURAL VEGETATION

Percent of Site Disturbance Requirements

Any municipality having developable land located in Special Groundwater Protection Areas, Surface Water Protection Districts and in Critical Environmental Areas should enact an ordinance limiting the portion of any site that may be cleared and, ultimately, used for lawns or other fertilizer demanding areas. The municipalities should require the minimal disturbance of any existing natural vegetation, including the greatest possible protection of natural vegetation during and after construction.

The percentage of site disturbance, and natural vegetation should be based upon allowable building coverage and setback provisions of existing zoning requirements and site characteristics. (See Site Plan Review Chapter).

Buffer Zones

The municipalities should enact local legislation requiring the establishment of buffer zones, where land and natural vegetation should be left undisturbed. This legislation may be in the form of a separate ordinance or an amendment to the zoning and subdivision regulations. Buffer zones should be required between the edge of lakes, ponds, streams, rivers, bays, the top of the bluff face, and dunes or beach and the edge of site disturbance and/or development. (See Table 10 for recommended buffer zones and Figures 1 and 2 for illustrations of buffer zones between residential development and surface waters). The legislation should indicate the size of buffer zones required. The prescribed size of the zones may vary according to the sensitivity of the resource. The legislation should also prohibit the installation of lawns directly adjacent to surface waters, since stormwater runoff may transport fertilizers applied to lawns to surface waters. (See Figure 3.)

TABLE 10

Recommended Buffer Zones

Resource	Minimum Distance Required
Lake or Pond	50 to 100 feet minimum
Stream or Wetland	100 feet minimum
Bluff	50 to 100 minimum feet landward of the top of the bluff
Dune	Dunes should not be developed
Area with Endangered or Protected Species	Leave area sufficient to maintain gene pool and no disturbance of plants
Wildlife	Area required for nesting, food gathering

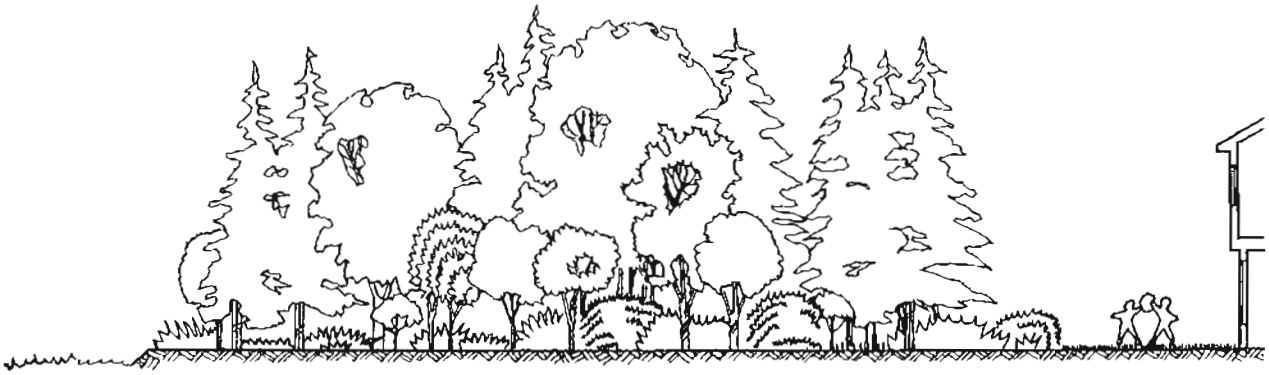


FIGURE 1
Shoreline Buffer

Maintain a minimum of 100 feet of natural vegetation between lawn area and surface water.

FIGURE 2 *Pond Bordered By Woodland*

Provides a natural buffer zone.

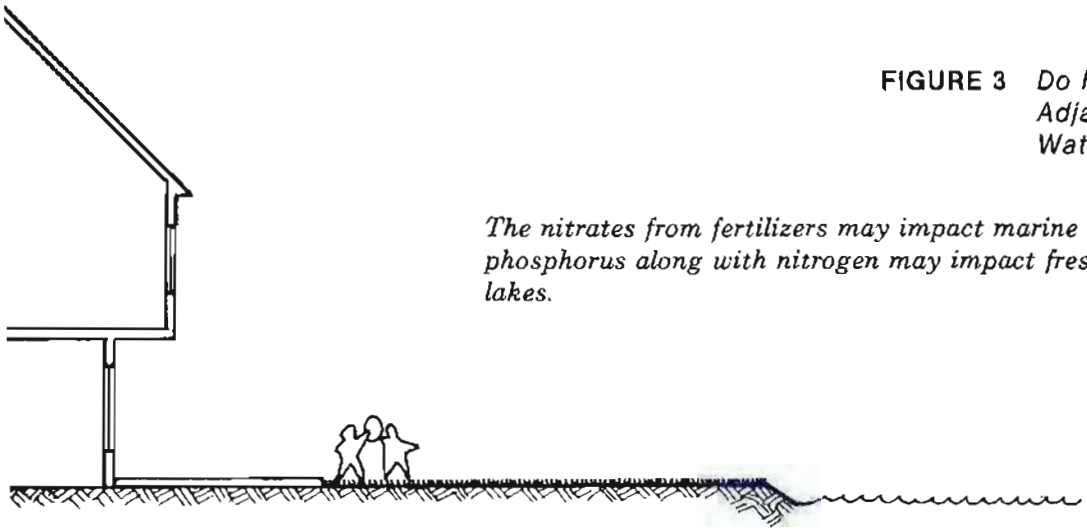


FIGURE 3 *Do Not Plant Lawns Adjacent To Surface Waters*

The nitrates from fertilizers may impact marine waters. The phosphorus along with nitrogen may impact freshwater ponds and lakes.

Subdivision and Site Plan Review

REQUIRE SITE DEVELOPMENT PLAN APPROVAL

The municipalities should require that developers obtain site plan approval and a building permit before beginning any land clearance. The plan should clearly indicate the limits of grading and land disturbance and the dimensions of the natural vegetation to remain, buffer zones and the size and location of any future lawn areas. (See the Site Plan Review Chapter).

Site Planning Recommendations

SITE ANALYSIS

Success in the reduction of fertilizer-related groundwater degradation depends, in large measure, on proper site analysis and the selection and placement of plant material suited to the site. The planner should undertake a careful site analysis to identify any developmental constraints imposed by the location of slopes or swales, soil types, existing vegetation, microclimate and other characteristics of the site. See Figure 4 for an example of a site plan map identifying recommended land preservation and conservation areas.

SITE PLANNING — SELECT PLANT MATERIAL SUITABLE TO THE SITE.

- Retain as much of the natural vegetation of the site as possible. Minimize grade changes and site clearing (See Figures 5-8).
- Retain native vegetation on steep slopes, in steep swales, on Carver or other excessively drained sandy-gravelly soils, in areas with a high water table or adjacent to surface waters.
- Use native plants for the planting of areas that have been disturbed by grading. Many sites on Long Island are suited to vegetation that can adapt to poor soils. Since the establishment of plant species with high nuturient requirements requires soil amendment at the time of planting and may require yearly fertilization, this type of vegetation should be used sparingly, if at all. (See Figure 9 for a site where native vegetation was used in landscaping).
- Avoid the use of lawns where the presence of the following conditions indicate potential problems in the establishment and maintenance of turf:
  - severely sloped terrain
  - soil constraints, such as those listed below:
    - surface textures containing coarse sands, pebbles, or excessively stony or bouldery soils
    - excessively drained or poorly drained soils
    - rapid permeability
    - chronic high water table
    - a seasonal high water table within 6" of surface soil.

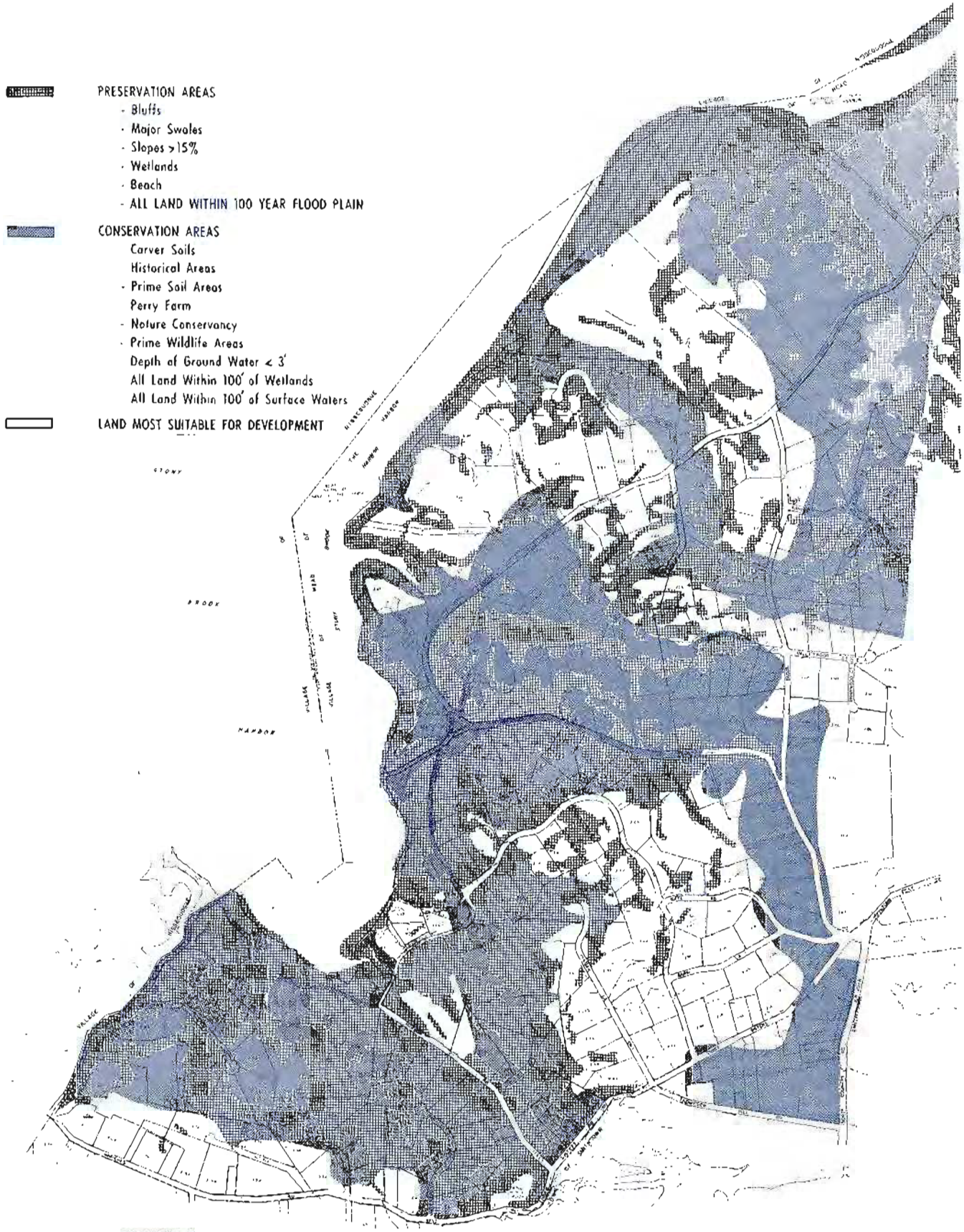


FIGURE 4 *Typical Site Plan Map*

Provide a site analysis map to identify areas where natural vegetation should be protected. Maintain natural vegetation in areas with steep slopes, swales, areas near wetlands, surface waters and areas with poor soils.

FIGURE 5 *Oak Woodland With Native Groundcover And A Lawn Area*

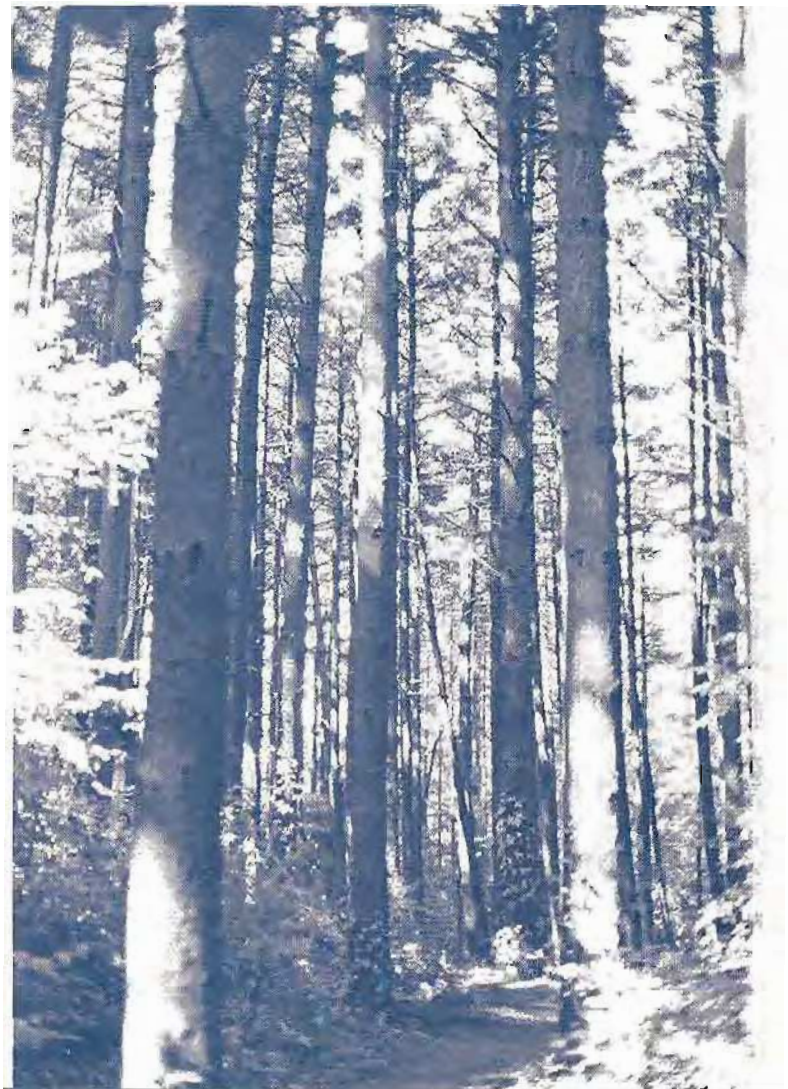


FIGURE 6 *Stand Of White Pine With "Pine Needle" Groundcover*

FIGURE 7 *Woodland Hillside*

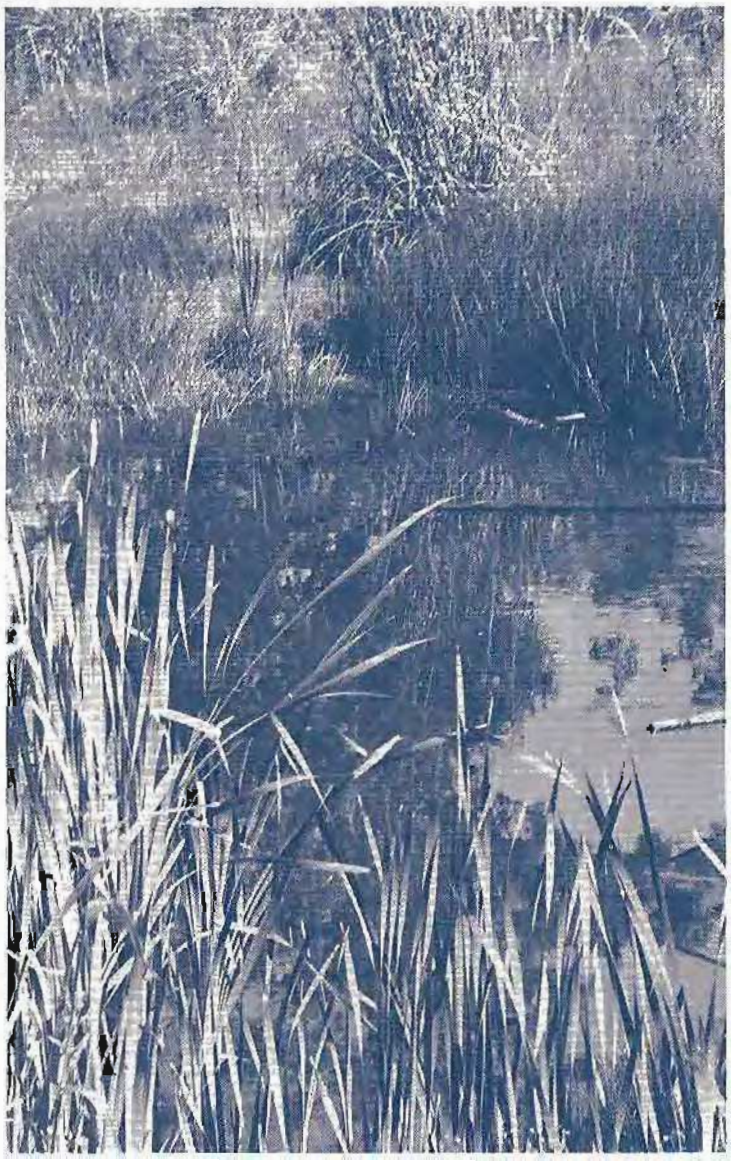


FIGURE 8 *"Volunteer" Wetland Species in a Sedimentation Basin*

These species trap sediments and utilize nutrients that occur in stormwater runoff.

FIGURE 9 *Woodland Planted With Native Shrubs And Ferns*

Native species are planted to enhance existing woodland.
Source: Panfield Nurseries

Table 11 lists the major soils found on Long Island and their limitations or suitability for use as lawns. The following constraints are related to turf quality rather than groundwater or surface water impacts. A *slight constraint* indicates no limitations or a few that can be overcome with relatively little cost, a *moderate constraint* indicates that the limitations are more difficult and expensive to correct, while a *severe constraint* indicates the soil is very poor and will require excessive modification or maintenance if used for lawns.

- Establish or rehabilitate lawn area only when the presence of the following conditions indicates suitability for turf:
  - nearly level or moderately sloped terrain; (less than eight percent slope)
  - moderately drained soils; (a moderate permeability rate)
  - a moderately fine or medium textured surface
  - a small or a moderate amount of stony or sandy soil
  - a seasonal high water table more than 12" below the surface
  - soil or soils listed under *slight constraints* in Table 11.
- Consider the use of alternate types of groundcover and other plant materials to avoid or reduce lawn area and the consequent need for fertilizer applications, extensive watering and maintenance. (See Table 12 for a partial list of plants suitable for Long Island). Lawn alternatives might also include the establishment of one or more of the following:
  - native woodland species
  - meadow grasses
  - perennial or self sowing wild flowers
  - pachysandra, ivy, or other evergreen groundcovers (See Figures 10-12)
  - low growing deciduous or evergreen shrubs (See Figure 13)
  - pine bark or wood chips as a groundcover (See Figure 14)
  - crown vetch on steep slopes located in the sun (See Figure 15.)
  - leaf litter, pine bark or gravel as a mulch.

- gravel as a groundcover. (See Figure 16 and 17) When gravel is used, do not apply herbicides to prevent weeds. To prevent or minimize future weeds, remove the topsoil and relocate to another portion of the garden. Edge the area with wood, brick, cobblestone, metal edging, etc.; apply several inches of sand to the scarified soil, then add gravel to a depth of at least 3" or 4". Remove any weeds that do develop as soon as possible.

TABLE 11

Limitations of Soils For Lawns

Severe Constraints	Moderate Constraints	Slight Constraints
Atision sand	Bridgehampton silt loam, till substratum 6-12% slopes	Bridgehampton silt loam 0-6% slopes
Beaches	Haven loam 6-12% slopes	Bridgehampton silt loam, till substratum 2-6% slopes
Mucky sand	Montauk fine sandy loam 8-15% slopes	Haven loam 0-6% slopes
Carver & Plymouth sands 0-35% slopes	Montauk silt loam 8-15% slopes	Made land
Cut & fill land	Raynham loam	Montauk fine sandy loam 0-8% slopes
Deerfield sand	Riverhead sandy loam 8-15% slopes	Montauk silt loam 0-8% slopes
Dune land	Riverhead & Haven Soils 8-15% slopes	Montauk soils graded 0-8% slopes
Landfill (dredged, sandy)	Wallington silt loam	Riverhead sandy loam 0-8% slopes
Gravel pits	Walpole sandy loam	Riverhead and Haven soils 0-8% slopes
Montauk loamy sands 0-35% slopes		Scio silt loam, till substratum 2-6% slopes
Muck		Scio silt loam, sandy substratum 0-6% slopes
Plymouth loamy sandy 0-15% slopes		
Plymouth gravelly loamy sand 3-15% slopes		
Plymouth loamy sand silt substratum 0-8% slopes		
Riverhead very stony sandy loam 3-15% slopes		
Riverhead & Plymouth very bouldery soils 15-35% slopes		
Tidal Marsh		
Wareham loamy sand		
Whitman sandy loam		

Source: Soil Survey of Suffolk County. United States Department of Agriculture Soil Conservation Service and the Cornell Agricultural Experiment Station, April 1975.

- plan for the eventual replacement of an existing lawn area with trees, and shrubs and groundcover
- in coastal areas, use Dusty Miller, Beach Grass, Rugosa Rose, Virginia Creeper, Beach Plum or Black Pines to stabilize soils (See Figures 18-22).

TABLE 12

Suitable "Groundcovers" for Long Island

Plants Suitable for Sandy or Loamy Soils, Areas Near Salt Water and Dune Areas (Also good for General Use)		Evergreen	Low Growing Groundcover	Shrub Form
Common Name	**Scientific Name**			
Dusty Miller (See Figure 18)	Artemisia stelleriana		X	
Beach Grass (Dunes only) (See Figure 19)	Ammophila breviligulata		X	
Sea Oats (Dunes only)	Uniola paniculata		X	
Bayberrry	Myrica pensylvanica			X
Rugosa Rose (See Figure 20)	Rosa Rugosa			X
White Rugosa Rose	Rosa rugosa alba			X
Virginia Creeper (See Figure 21)	Parthenocissus quinquefolia	X	X	
Beach Plum (See Figure 22)	Prunus maritima			X*
Japanese Rose	Rose multiflora			X*
Memorial Rose	Rosa wichuriana		X	
Shore Juniper	Juniperus conferta	X	X	
Bearberry	Arctostaphylos uva ursi	X	X	
General Use Groundcover				
Juniper (See Figure 13)	Juniper Species	X	varies	varies*
Bugle Weed (See Figure 11)	Ajuga reptans	X	X	
Myrtle or Periwinkle (partial shade) (See Figure 12)	Vinca minor	X	X	
Japanese Spurge (partial shade)	Pachysandra terminalis	X	X	
Purple-Leaf Wintercreeper	Euonymus fortunei radicans coloratus	X	X	
English Ivy (Partial shade)	Hedera helix	X	X	
Baltic Ivy (Partial shade)	Helix helix baltica	X	X	
Curly-Leaf Ivy (Partial shade)	Helex helix conglomerata	X	X	
238th Street Ivy (Partial shade)	Hedera helix cultivar 238	X	X	
Steep Banks-Slopes-Low Maintenance Areas				
Crown Vetch (See Figure 15)	Coronilla varia		X	
Plant the Following Shrubs in Large Numbers to Achieve Effect of Groundcover				
Azalea (1)	Rhododendron species	X	X	X*
Rock Cotoneaster	Cotoneaster horizontalis	X	X	
Early Cotoneaster	Cotoneaster praecox	X	X	
"Skogsholmen" Cotoneaster	Cotoneaster skogsholmen	X	X	
Mountain Laurel (part shade)	Kalmia latifolia	X		X*
Wilson Rhododendron (part shade)	Rhododendron wilsoni	X		X
Japanese Skimmia (shade)	Skimmia japonica	X		
English Weeping Yew	Taxus repandens	X	X	
Potentilla	Potentilla species			X
Blackberries, Blueberries, Raspberry	Hybrid and Native Species			X*

NOTE: All plants in this chart are perennials

*Tall shrubs — over five feet

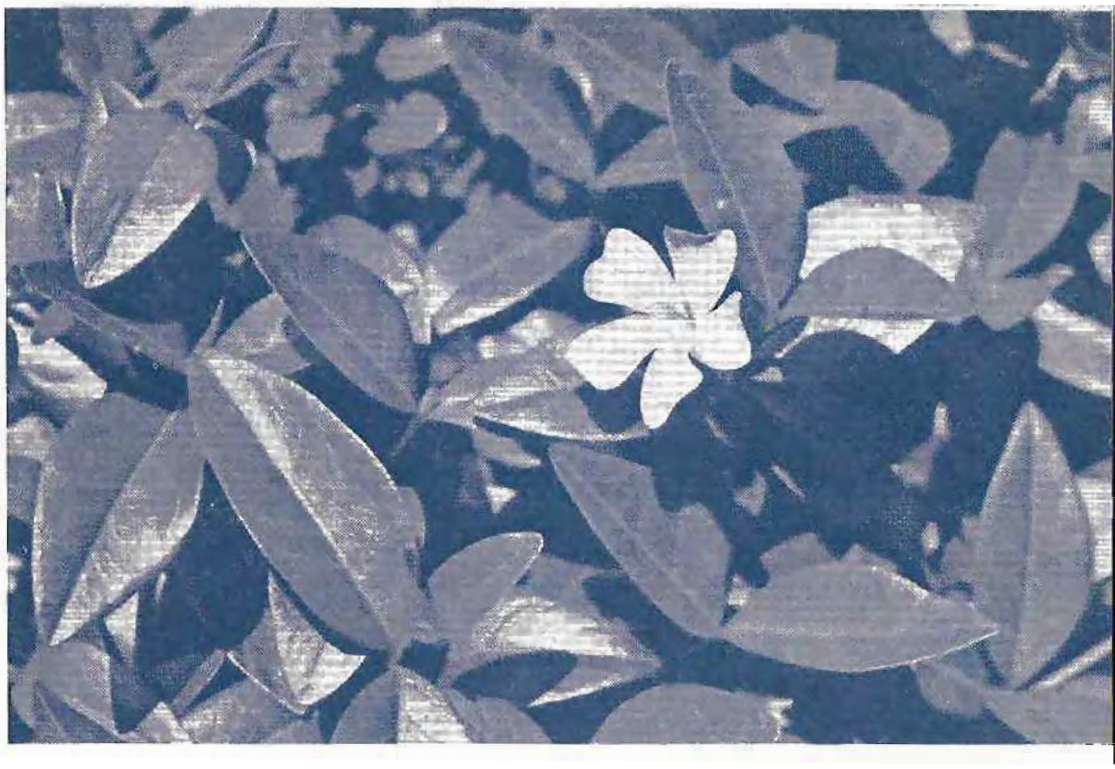
(1) Also includes deciduous plants

FIGURE 10 *Woodland Area Planted With Evergreen Groundcover Species*

FIGURE 11 *Carpet Bugle Ajuga Reptans*

Lawn substitute and groundcover for small areas. Plant at 12" on center in partially sunny areas or shady areas in loamy-well drained soil. Use on flat areas or very gentle slopes.

FIGURE 12 *Myrtle*
Vinca Minor



Lawn substitute and groundcover for large and small areas. Plant in partially sunny or shady areas at 12 inches on center.

FIGURE 13 *Ground Juniper*
Juniper Species

Dense groundcover for sunny slopes. Plant container grown plants in moderately fertile soils at 18 to 36 inches on center, depending upon species.

FIGURE 14 *Woodchips Used As A Groundcover For A Newly-Planted Gentle Hillside*

Do not use wood chips on steep slopes or in areas receiving stormwater runoff. Do not use woodchips from diseased trees.

FIGURE 15 *Crownvetch Coronilla Varia*

Use on sunny slopes where winter appearance is not important. Plant crowns or root divisions in early spring or fall at 12 to 18 inches on center. If seeds are to be used carefully follow seeding instructions for maximum cover.

FIGURE 16 *Driveway Edged With Gravel, Groundcover And Other Plantings*

FIGURE 17 *Lawn Area Replaced With Gravel*

FIGURE 18 *Dusty Miller (Beach Wormwood) Artemisia Stelleriana*

Use in sunny areas for ornamental planting and for sandy area and dune stabilization. Plant two feet on center in well drained soil.

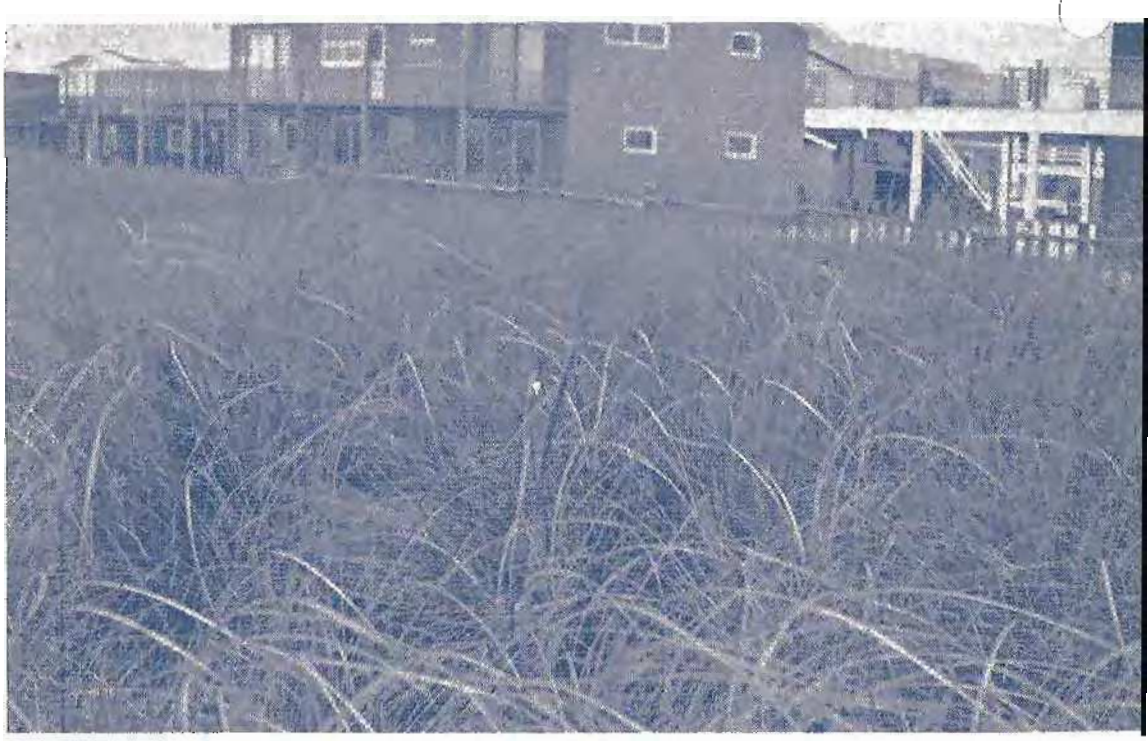


FIGURE 19 *Beach Grass Ammophilla Breciligulata*

Use in sunny areas on droughty soils. Plant nursery-grown culms at 12 inches on center.

FIGURE 20 *Rugosa Rose*
Rosa Rugosa

Use on sandy soil, dunes, as an informal barrier or for general low maintenance planting. Plant one or two year old seedlings in sunny area preferably in medium fertile soils.

FIGURE 21 *Virginia Creeper*
Parthenocissus
Quinquefolia

Use on sandy soils, dunes and elsewhere to provide a partial groundcover. Plant at eighteen inches on center in partially or sunny areas.

FIGURE 22 *Beach Plum*
Prunus Maritima

Use for low maintenance shrub-cover in sunny areas. For dense cover plant bare root or container-grown seedlings at five or six feet on center.

Lawn Installation and Maintenance

Minimize impacts upon groundwater through proper lawn installation and maintenance.

LAWN INSTALLATION

Selection of Grass Species—In areas where conditions are suitable for lawns, select the type or types of grass requiring the minimal use of fertilizers. Use grass species that adapt to low moisture and nitrogen levels and thus require less maintenance. Proper selection can not only reduce the time and expense required to maintain the lawn or turf in satisfactory condition but can minimize nitrogen leaching to groundwater and the need for the use of pesticides. The preferred species include fine fescues, perennial rye grass, and varieties of native grasses that adapt to low nitrogen levels. (See Table 13 for appropriate lawn grasses and field vegetation for various site conditions, and Table 14 for a more detailed description of the various lawn grasses and general growing requirements.)

Cooperative Extension Service (CES) as part of their Home Horticultural Facts, has published specific guidelines for low maintenance lawns. These can be obtained from the Nassau and Suffolk CES offices.

Soil Preparation for Lawn Areas

- Proper soil preparation will maximize grass propagation and minimize the need for fertilizers and maintenance problems.
- Provide a minimum of 5" to 6" of good quality, well screened topsoil such as that of the Bridgehampton, Haven, Montauk soils. The presence of an adequate layer of topsoil including organic matter reduces fertilizer and pesticide requirements.
- Prepare the soil well in order to insure optimum results. Apply ground limestone to maintain the soil pH between 6.0 and 7.0 or if necessary, add organic material to improve water holding capacity, aeration, and nutrient retention. Add sand to soils with a high clay content to improve drainage. Install lawns according to instructions supplied by the CES.

TABLE 13

Appropriate Lawn Grasses and Field Vegetation for Various Site Conditions

Type	(Percent by Weight)	Sun or Shade	Suitable for Droughty Soils	Application Rate	Maintenance Requirements
Lawn	65% Kentucky Bluegrass 35% Perennial Rye Grass	Sunny Areas	No	3-4 pounds per 1000 square feet	Medium to High
Meadow Grass Chewings Fescue Blue Fescue		Sun or partial shade		20-25 pounds per 1000 square feet	low
Native Grasses Tall Fescue Timothy		Sun			
Wildflowers suitable for sunny locations combined with "Clumping-Bunching" grasses		Sun	yes	2 ounces per 1000 square feet	low
Wildflowers mixture only Combination of annuals, bi-annuals and perennials		Sun or shade depending on mix	varies	2 ounces per 1000 square feet	low
Lawn	65% Fine Fescue 35% Perennial Rye or shade tolerant Kentucky Blue Grass		Moderately Suitable May lose Bluegrass	4-5 pounds per 1000 square feet	Medium to High
	100% Fine Fescue lawn	Partially shady and shady areas	yes	5 pounds per 1000 square feet	low
Native vegetation or moisture tolerant or wetland plants	—	Moist soils with high water table	varies	—	low

Timing of Fertilizer Application—Schedule fertilizer applications to coincide with turf needs. Fertilize cool season turf such as perennial rye grass and bluegrass in the spring and late fall and warm season grasses, such as zoysias, in the spring and summer. Since turf grass uptake of nitrogen is relatively steady throughout its growing season, small applications of nitrogen several times during the growing season may be preferable to one or two larger applications. Avoid fertilizing during a drought, when grass is essentially dormant and will not take up nutrients. Fertilize when the soil is moist. To avoid loss of fertilizer and leaching, do not apply fertilizer if there is likelihood of immediate heavy precipitation (to avoid loss of fertilizer and leaching).

Submit Samples for Soil Test

Test soil prior to fertilizer application in order to determine liming and nutrient requirements for both turf and agricultural crops. Since fertilizer is used to add nutrients inadequately supplied by the soil, tests to determine existing pH and nutrient requirements are critical to assure efficient uptake, lowest cost and minimal groundwater impact.

Soil testing services are available through both the Nassau and Suffolk County Cooperative Extension Associations. Soil samples should be taken four to six weeks before seeding lawns or fertilizing existing lawns to allow sufficient time for the receipt of test results prior to the time for fertilizer application. Soil samples should be free of stones and thatch. A minimum of three samples should be taken from different areas. The samples should then be mixed and the composite should be submitted for soil analysis. Soil pH, nitrogen phosphorus, potassium levels should be determined. Soil test kits, which can be used to analyze the nitrogen, phosphorus, potassium and pH of the soil, are also available for a nominal fee at retail establishments selling agricultural and landscaping supplies.

Apply Lime As Needed

Adjust the soil pH to 6.0 to 7.0. The lime (calcium carbonate-CaCo3) should be added to the soil at least two weeks before the fertilizer is applied. If the existing pH is 5.0, then 50 to 100 pounds of 100 percent CaCo3 per 1000 square feet should be added and then mixed into the upper 4" to 6" of the soil. If the lime mixture is less than 100 percent CaCo3, then the application rate should be increased accordingly.

Fertilizer Selection—Utilize a slow release type of fertilizer such as isobutylidene diurea (IBDU), urea formaldehyde (UF), methylene urea, or sulfur coated urea (SCU) in order to minimize leaching.

This type of fertilizer allows for the controlled release of nitrogen to the soil over a longer period of time, thus facilitating increased absorption. Sometimes the application of inorganic fertilizers in either dry or liquid form applied at the rate of 1/2 pound per 1,000 square feet may be an appropriate alternative. Review Table 15 for the advantages and disadvantages of the use of various types of fertilizers.

- *Rate of Fertilization*—Apply a total of one to two pounds of nitrogen per 1000 sq. ft. per year. Since several applications are recommended throughout the growing season, use approximately 1/2 pound of nitrogen per 1000 sq. ft., per application. Do not apply unless the turf appears to need it.

- Estimate size of area to be fertilized.

TABLE 14

Description of Lawn Grasses

Type	Common Name	Scientific Name	Description	Disease-Resistant Varieties	General Growing Requirements	Other Comments
Cool Season Grasses—	Kentucky Blue Grass	Poa pratensis	green, medium textured leaf blade extensive root and rhizome system	Birka, Bonnieblue Fylking, Pennstar Nugget, Sydsport, Touchdown. For sod-Warrens A-20	well lined fertile soils. fertilizer application, adequate soil moisture good drainage, sun-don't plant in shady areas	
Fine Fescues	Chewings Fescue	Festuca rubra	fine-leafed, low growing with very little spreading	Banner*, Cascade, Highlight*, Jamestown Koket, Oregon Chewings Persistent, may be too competitive to be used with bluegrass	Recommended for areas with medium to heavy shade. Low nitrogen requirements.	Most fine fescues require very little maintenance. These grasses tend to go dormant during the summer. Do not fertilize when grasses are dormant. Good for dry areas.
	Creeping Fescue	Festuca rubra, trichophylla Gaud	fine-leafed with a slight underground spreading habit (rhizomes)	Dawson, Golfrood (these varieties may not be available)	Low nitrogen requirements.	
	Spreading Fescue	Festuca rubra	coarser textured fescue, less dense taller growing fescue thicker, longer rhizomes	Illahee, Pennlawn, Boreal, Ruby, Fortress		
	Hard Fescue	Festuca longifolia Thuill	fine-leafed, low growing non-spreading	Biljart (Scott's C-26) Scaldis	(See Other Comments)	May have slower vertical growth and better disease resistance, better adaption to shade and poorer soil than Chewings fescues.
Perennial Ryegrasses	Fine turf-type Varieties	New varieties Lolium perenne	finer, dark green color, lower growth habit	Citation, Derby Diplomat, Eton Manhattan, NK 200 Pennfine Yorktown	Ryegrasses tolerate a wide range of soil conditions, including low fertility, moderate acidity and fairly wet conditions.	Provide a quick cover. No more than 20 percent by weight should be used in bluegrass mixtures. Require frequent cutting with a sharp mower.
	Intermediate Varieties		coarser, lighter green in color. more upright in growth	Barenza, Lomora NK-100, Norlea, Pelo, S-321		
	Coarse	Older				Not recommended for permanent lawns. Usually last for one or two years.
Tall Fescue		Festuca arundinacae Sohreb	tall, weedy, coarse bunchgrass, has short rhizomes	Alta, Goars, Kentucky 31	Low nitrogen requirements.	Coarse features are reduced by frequent mowing. Good for areas where traffic and hard use demand resistance to abuse.

TABLE 14 (Continued)

Type	Common Name	Scientific Name	Description	Disease-Resistant Varieties	General Growing Requirements	Other Comments
Red Top		Agrostis alba L.	tall coarse growing coarse, cool-season grass with short rhizomes			
Warm Season Grasses—						
Zoysia		Zoysia Japonica Steud	dense, attractive mat of green turf in summer. Brown color in winter	Meyer, Midwest Emerald	Does not do well in shade.	Grass goes dormant in the fall (turns brown until spring).

[1] This chart was primarily adapted from information developed by the Nassau County Cooperative Extension.

TABLE 15

Description of Fertilizers

TYPE	NUTRIENT CONTENT	PROBLEMS	PROPERTIES			RECOMMENDED APPLICATION RATE	OTHER COMMENTS
Natural Organic Fertilizers			Nutrient Availability	Solubility (Potential for Leaching to Groundwater)	Burn Potential		
Aged Animal Manure Bone Meal Decayed Plant Material Activated Sewage Sludge Other By-Products	The macronutrient content of organic fertilizers is usually very low. Natural organic fertilizers may contain micronutrients.	Activated sewage sludge could contain heavy metals. Not as efficient as other fertilizers. Decayed plant material used on lawns may cause lawn disease.	Slow release. Low nitrogen content.	Low. Insoluble until decomposition occurs.	Usually low. If applied during hot weather nitrogen may be released too quickly.	As per package instructions.	Used to improve soil and for special plant uses.
Synthetic Organic Fertilizers							
Ureaformaldehyde (UF) Methylol Urea[1] Methylene Urea Sulfur-coated Urea (SCU) Isobutylidene Diurea (IBDU)	These fertilizers may be low in potash and phosphorus.	More expensive. Fertilizer includes combination of small and larger particles. The smaller particles are more soluble. Breakdown of the larger particles is dependent upon soil bacteria that are usually more active during warmer weather. This may result in lush growth that is susceptible to the disease organisms that are also increasing during warmer weather.	Generally slow release. About one-third of the nitrogen is quickly released (during the first week or two after application). The second one-third is released during the next week. The remainder is released over a period as long as six months.	Generally lower solubility.	Low to moderate.	Apply spring and fall at the rate of 1/2 to 1 lb. per 1,000 sq. ft.	More expensive. Considered better for lawns. Some of the nitrogen may be volatized or mechanically lost.

TABLE 15 (Continued)

TYPE	NUTRIENT CONTENT	PROBLEMS	PROPERTIES			RECOMMENDED APPLICATION RATE	OTHER COMMENTS
Inorganic Fertilizers			Nutrient Availability	Solubility (Potential for Leaching to Groundwater)	Burn Potential		
Ammonium Sulphate Ammonium Nitrate Ammonium Phosphate Potassium Nitrate Potassium Chloride (Muriate of potash) Urea[1] (considered an inorganic fertilizer in terms of solubility)	Contain soluble salts of nitrogen and potassium and a complex of phosphorus compounds known as superphosphate. Usually blended with a carrier that prevents caking and allows for storage and use. The supplementary elements are not listed in the fertilizer analysis.	Most of the nitrogen applied in this class of fertilizers is available within two weeks. See solubility and burn potential. Do not apply when grass is damp unless lawn will be watered immediately after the fertilizer is applied. Do not apply during hot weather.	Fast release. Readily available.	High	Moderate to high. If too much fertilizer is applied, then leaf burn may occur (over two pounds per 1,000 sq. ft.). If the burn is severe enough, new growth must replace burned growth.	Apply spring and early fall at the rate of 1/2 lb. per 1,000 sq. ft. In the late fall apply fertilizers high in phosphorus at the rate of 1/2 lb. per 1,000 sq. ft.	Water after fertilization. Avoid heavy applications.

NOTES:

Fescue and perennial rye grasses require less fertilizer than blue grass.

Lawns located in shade or partial shade require less fertilizer.

Turf needs more nitrogen and potash than phosphorus. Combinations such as 10-6-4, 10-5-10, 24-6-12, 18-4-9, 20-5-10 are recommended. In the fall, the phosphorus percentage (middle number) should be increased.

Phosphorus applied tin the upper soil layer before a lawn is planted provides for a denser stand of lawn.

Do not fertilize when seeding a lawn. This should occur at least two weeks before seeding. Liquid fertilizers that include ammonium may inhibit or prevent seed germination.

Liquid fertilization of lawn in the spring (when soils have dryed somewhat) may be the best method.

[1] Moderate release.

- Determine the amount of fertilizer required for the lawn area.

  A 50 pound bag of 20-10-5 fertilizer contains 20% or 10 pounds of nitrogen source(s), 5 pounds of a phosphorus source(s) and 2½ pounds of potassium source(s). If one of the three elements is missing from the formulation, a zero would so indicate. If 1/2 pound of nitrogen per 1000 square feet is to be applied, then two 50 pound bags of fertilizer should be used for 40,000 square feet.

  If the fertilizer bag weighs 25 pounds, and if the formulation is 20-10-5 then .20x25 lb. total = 5 lb. of nitrogen. If the size of the lawn area is 10,000 square feet and the rate of application is 1/2 pound per 1000 square feet, then the 25 pound bag contains sufficient fertilizer for 10,000 square feet.

Fertilizer Application

Select a Proper Fertilizer-Spreader

Use a cyclone type spreader

Calibrate the Spreader so that fertilizer is released at the appropriate speed. Select a 500 square foot area (10'x50' or 20'x25') for a test area. Determine the amount in pounds of fertilizer required to apply at the rate of 1/2 pound per 1,000 square feet. Weigh the amount of fertilizer recommended (on the bag) for 1,000 square feet. Pour it into the hopper. Set the dial at the recommended setting. Go over the 500 square foot area with the spreader. If the setting is correct, 1/2 of the fertilizer should still be in the spreader. If more or less is present readjust the dial setting.

See Tables 16 & 17 for fertilizer application guidelines for Spring and Fall for Kentucky Bluegrass and Perennial Rye Grass. Fertilize fescues in the fall at the rate of 1/2 pound per 1,000 square feet and in the spring (at the same rate) only as needed.

- *Watering*
  Use low maintenance grasses or ground covers, such as fine fescues or wild flower sod, that do not require irrigation. Irrigation is not necessary for all home lawns. Fine fescue grasses do not need watering except during extremely droughty summers. Even then, care is needed to make sure that they are not overwatered. These fine fescues may turn yellow and then brown from lack of water in the summer, but will turn green again in the fall, since they are cool season grasses.

  Irrigate bluegrass and perennial rye grass varieties during dry weather. Apply a minimum of 1/2" to 1" per application once a week or more as needed, depending on weather conditions, to encourage deep root growth. Whenever possible, water in the early to midmorning.

TABLE 16

Spring Application Guidelines

Weight of Bag Pounds	Fertilizer Formulation (N-P-K)	Soil Condition	Rate of Application	Area of Lawn (Sq. Ft.)	No. of Bags Required
50	20-10-5	pH of 6-7	1/2 lbs./ 1000 ft^2	2,000	1/10 bag
				5,000	1/4 bag
				10,000	1/2 bag
				20,000	1/4 bag
				40,000	2 bags
25	20-10-5	pH of 6-7	1/2 lbs./ 1000 ft^2	2,000	1/5 bag
				5,000	1/2 bag
				10,000	1 bag
				20,000	2 bags
				40,000	4 bags

TABLE 17

Fall Application Guidelines

Weight of Bag Pounds	Fertilizer Formulation (N-P-K)	Soil Condition	Rate of Application	Area of Lawn (Sq. Ft.)	No. of Bags Required
25	16-4-8*	pH of 6-7	1/2 pound per 1,000 square feet	2,000	1/4 bag
				5,000	2/3 bag
				10,000	1.25 bag
				20,000	2.5 bag
				40,000	5 bags

*Typical ratio for a fall-winter application

- *Grass Cutting*— Remove no more than 1/3 of the grass blade each time the lawn is mowed. The grass should be kept as high as possible, a minimum of two inches, in order to maximize the root growth depth. The grass clippings should be left on the lawn as long as they do not suffocate the turf.

Planting of Former Agricultural Fields

Many acres of farm fields are being sold for residential development. These large areas are being seeded for lawns since landscaping costs are prohibitive. Several alternatives to the development of lawns are provided as follows:

Alternative 1

- Select a combination of native grasses, fescues and wildflowers. If grasses are desired, use only non-aggressive clump grasses. Include at least 12 species of wildflowers. Consider soil, slope, exposure and moisture availability needs, height, color of the wild flowers and grasses. Wildflowers should include self seeding annuals along with biennials and perennials.
- Prepare soil. Till to a depth of 6-8 inches. Common methods for breaking up the soil include plowing, disking, harrowing. A rototiller may be used for small areas.
- Apply seed. In the spring, apply 4 to 7 pounds of wildflower seeds per acre. Where high visibility is important apply 4 to 5 ounces of seed per 1,000 square feet. For seeding large areas (over 5,000 square feet) consider the use of grassland drills. Drill to a maximum of 1/4 inch and firm soil with a cultipacker. Seed small areas (less than 5,000 square feet) with a cyclone spreader. Rake in seed lightly. Do not cover seeds more than a maximum depth of two to three times the thickness of the seed.
- Maintain constant moisture until the seed germinates and healthy seedlings develop (4-6 weeks). Gradually reduce waterings after this time.
- Do not fertilize wildflowers unless soil has been depleted of nutrients.

Alternative 2

Install a combination of native plants and fescues. See list of plants in Table 12. Red cedars, hawthorns, dogwoods are a few of the attractive and suitable plants for combination with grasses. Red cedars are also attractive when used in combinations of 5, 7, 9 or more, using an irregular planting arrangement. Deciduous trees may be used in groups or alone.

Alternative 3

Where screening is desired, use a combination of evergreen trees with deciduous trees as an accent. Use a mulch under the trees and seed the rest of the area as described in Alternative 1 or 2.

Agriculture

- Cooperative Extension Association should expand its role in reducing groundwater pollution from crop fertilization by educating farmers in the latest management practices that maximize crop yield with minimal fertilizer use. The Soil and Water Conservation Service can also assist in providing such information to farmers.
- Promote fertilizer application based on the soil nutrient and pH levels as revealed by competent soil testing. The new computerized soil test laboratory at Cornell can use soils information and management history of fields to produce site and crop specific recommendations. If farmers provide the necessary information with soil samples, the soils laboratory can advise farmers of sensitive areas where poor fertilizer practices may result in water pollution.
- Promote changes in the scheduling of fertilizer application to maximize crop uptake.
- Encourage the use of shallow irrigation wells that draw water with a relatively high nitrogen content in order to minimize the need for fertilizer.
- Use annual rye grass and other winter cover crops to reduce nitrate leaching in two ways—first, by extracting soil water during fall and spring so that less water is available for leaching; second, by utilizing nitrate remaining from the preceding crops. Some of this nitrogen will become available to the succeeding crop when the cover crop is plowed under in the spring.
- Plant winter crops that require the same pH as the summer crop. Legumimous cover crops such as alfalfa, and clover require a high pH and should not be used with crops such as potatoes. These crops supply substantial amounts of nitrogen to the soil, thus reducing the amount of chemical fertilizer required.

Chapter Six

ANIMAL WASTE

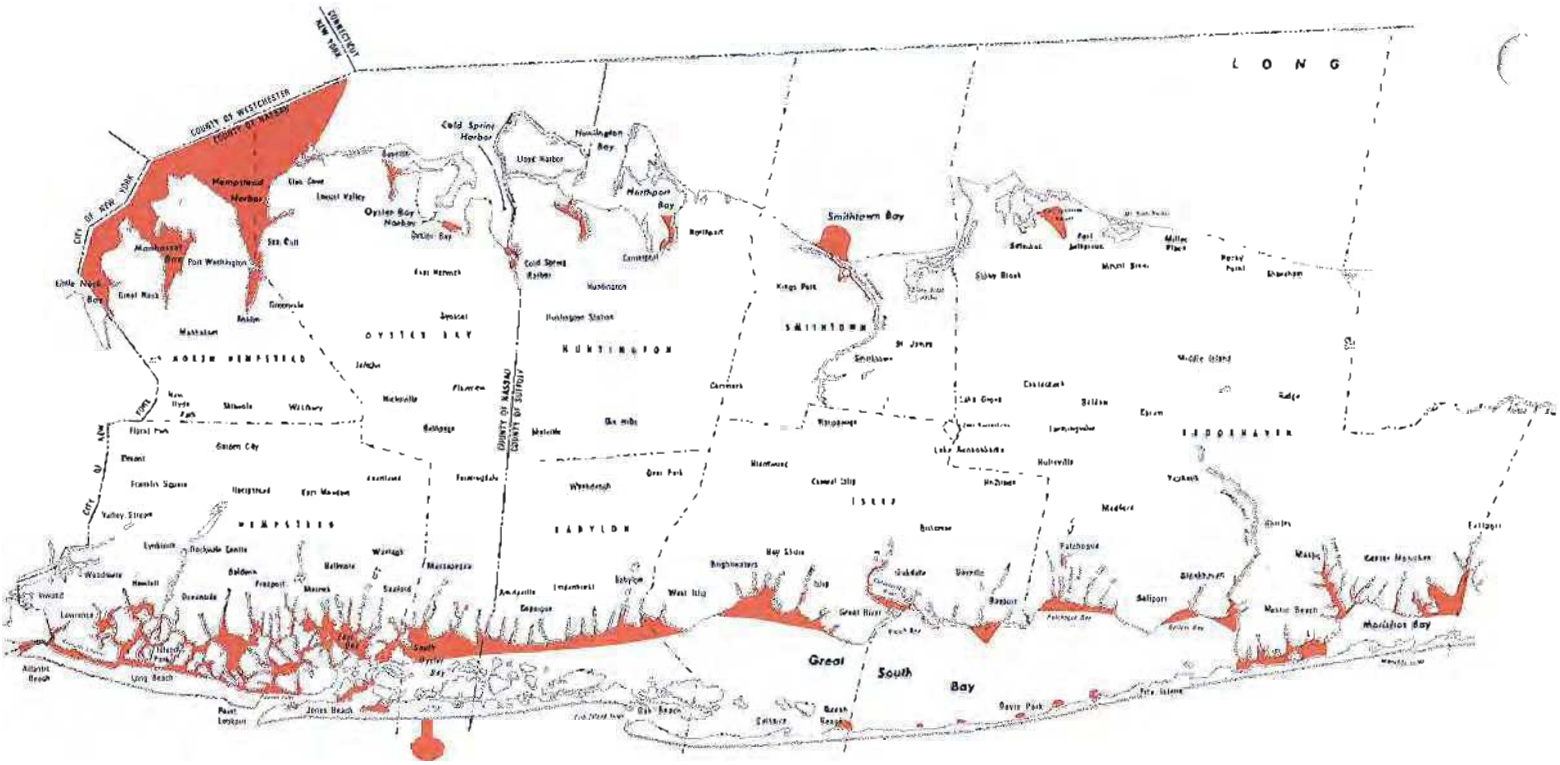
INTRODUCTION

Animal wastes can affect the quality of ground and surface waters. This chapter will

- discuss the impact of animal wastes on these waters
- identify those types of wastes that are of concern
- review the pertinent laws and controls, and their effectiveness in addressing the problems
- recommend certain courses of action

Animal waste, which contains nutrients and bacteria, including fecal coliform and fecal streptococci bacteria and other pathogens, can be either a point or a non-point source of pollution. The more dispersed wastes of dogs, cats, horses, and wildlife including waterfowl are considered non-point sources because they originate in many dispersed locations and are transported by stormwater runoff to surface waters and to groundwater. Dogs are a major general source of non-point pollution in Nassau and Suffolk Counties. Horse, cattle, and waterfowl may be significant pollution sources in certain local areas.

Some of the most heavily populated areas of Long Island are located in drainage basins that discharge directly into marine waters or into inland streams, lakes and ponds. Local roads and highways and stormwater systems are principal drainage channels for stormwater runoff and, in many cases, the runoff is discharged directly into surface waters. Where local laws require that dogs be curbed, heavier concentrations of fecal bacteria from road surfaces intensify the pollution problem. Many of the former natural areas within these drainage basins that once served as *filters* to minimize the impacts of animal wastes, have now been filled and developed.



Animal wastes are an important source of pollution in areas where their contribution to the combined total and fecal coliform bacteria loadings from treated sewage results in the closure of shellfishing areas. In 1982, 19,167 acres of shellfish beds were closed because of elevated coliform loadings in stormwater runoff (See Figures 1 & 2). Animal wastes also are a source of other pathogens that can be ingested by shellfish and can ultimately cause illness in humans. Nutrients from animal wastes, such as *nitrogen* and *phosphorus*, also affect the ecology of estaurine and freshwater systems (See the Stormwater Chapter).

The magnitude and character of the animal waste pollution problem depends upon several factors, including

- the species type and population providing the waste source
- the methods of waste storage and disposal
- the timing of pollutant release or discharge
- the volume of stormwater runoff
- the resultant pollutant concentration
- the characteristics of the receiving waters

For a complete discussion, see the Nationwide Urban Runoff Program (NURP) report, LIRPB, 1982.

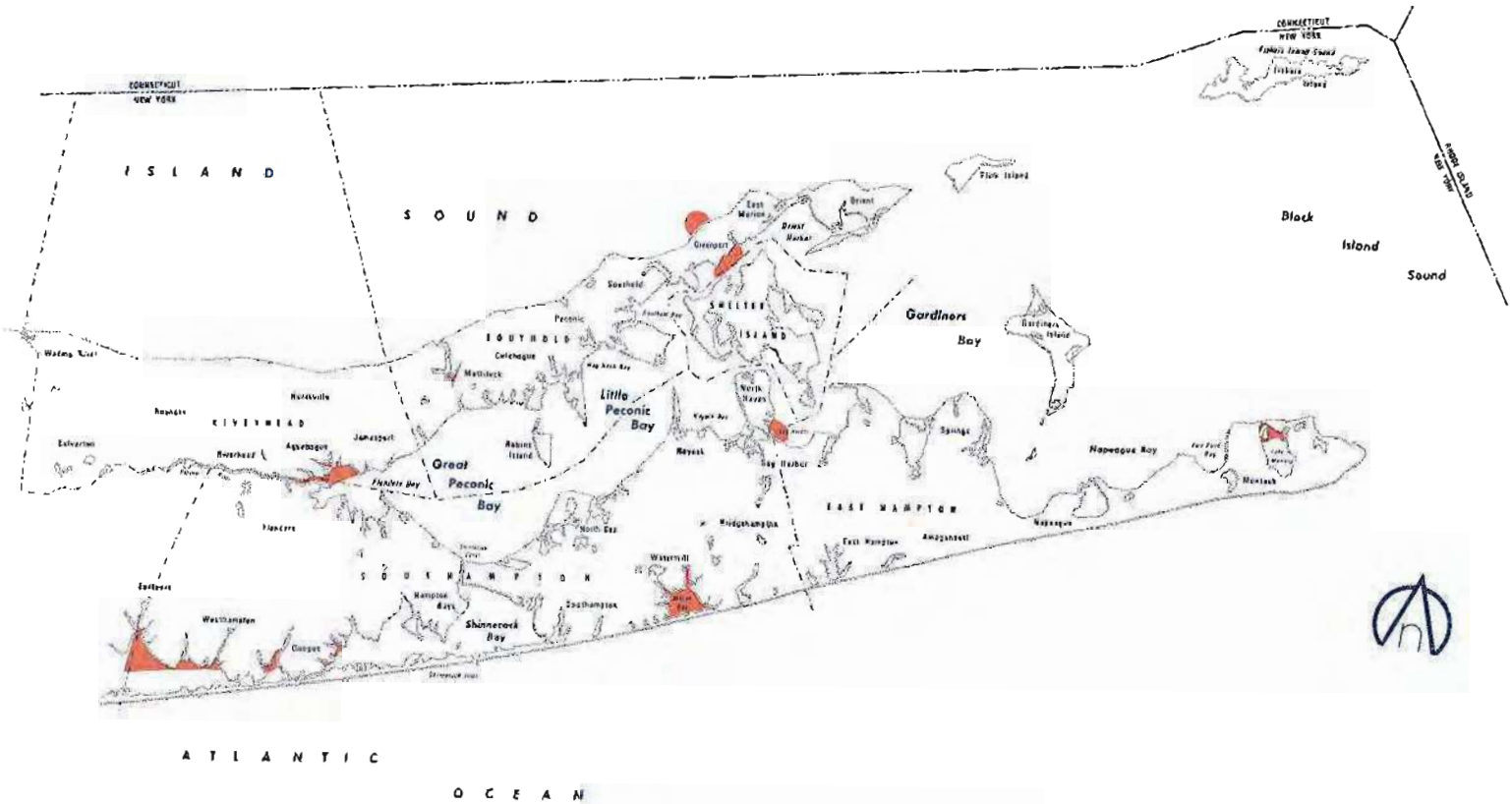


FIGURE 1 *Areas Closed To Shellfishing - 1983*

Animal wastes carried by Stormwater Runoff contributes to closing of shellfishing creas.

FIGURE 2 *Shellfish*

KEY PROBLEMS

The following paragraphs discuss the nature and magnitude of the problems related to various types of animals.

Dogs

Dogs outnumber every other domestic animal found on Long Island and their wastes are considered the major and most widespread pollutant of animals. The Soil Conservation Service (SCS), estimated that in 1975 the dog population in the bi-county region was 425,000 and the annual rate of canine increase was about four percent. This rapid increase of population is a result of uncontrolled stray dogs and the reluctance of owners to neuter their pets. If the SCS estimate was correct, there may be more than 600,000 dogs, or one dog for every 4.3 persons, in the bi-county area in 1983. In urban and densely developed suburban areas, dog wastes, especially those deposited on paved surfaces, are significant sources of Biochemical Oxygen Demand (BOD), fecal coliform and fecal streptococcal bacterial loading to surface waters. At least thirteen diseases which include tuberculosis, salmonellosis, toxoplasmosis and visceral larval migrans, are transmitted to man by parasites in dog feces.

Waterfowl

Waterfowl are a significant source of coliform bacteria into numerous bay areas and fresh surface waters within Nassau and Suffolk Counties.

Non-point source pollution problems caused by waterfowl are attributable to domestic White Pekin Ducks that have been released, abandoned or have escaped to coastal or inland ponds; the semi-wild ducks, which are the offspring of Pekin Ducks that have interbred with wild waterfowl, and the increasing populations of Canada Geese, Mallard, and seagulls in certain areas. Although the numbers of Pekin Ducks and semi-wild ducks found near Long Island ponds are decreasing due to implementation of recommended management techniques, they still remain a problem in some areas. Recent increases in native waterfowl population in the more urbanized areas are partially due to the development of some of the former habitats and partially to the feeding by humans. The number of Mallards has been increasing since the curtailment of local hunting. Large amounts of duck waste can stress small ponds and river systems, especially if these systems are already stressed by nutrients carried in stormwater runoff. (See Figure 3).

Horses

Horse wastes are a potential source of pollutants to groundwater and surface water. They are of greatest concern wherever nitrate and BOD loadings are significant and waste disposal practices are inadequate. An average horse produces almost one third of a pound of nitrogen per day, which is equivalent to the average amount of nitrogen produced by ten to twelve humans. The waste from a single horse also contains eleven times the BODs contained in the waste of an average human (See Figure 4). It has been estimated that 30,000 horses can produce waste having the equivalent BOD_5 (five days) of 330,000 people. The number of horses in the two counties is estimated to be in excess of 40,000.

There are concentrations of horses at approximately 65 riding stables; on an increasing number of farms; and at Belmont and Roosevelt Race Tracks. At the race tracks the number of horses may reach 2,000 in season.

Horse waste management practices vary. For example, Belmont and Roosevelt Race Track officials utilize waste control practices to minimize environmental impact. The waste is removed from stables, stored in bins and shipped daily to mushroom farms in Pennsylvania. (See Figure 5). Some stable and farm owners lime the manure, which helps to lower acidity and promote bacterial decomposition. There is also a year-round demand for horse manure from gardeners, nurserymen and farmers. Application of horse manure to improve the soil does not presently constitute any pollution problem. Health inspectors who have responded to the complaints regarding manure at commercial riding stables have provided guidelines for managing these wastes.

Other Sources of Animal Wastes

WILDLIFE SPECIES (OTHER THAN WATERFOWL)

Very little is known about the significance of the impacts of wildlife wastes upon surface waters. Pollutants from these wastes are carried in stormwater runoff, or are directly deposited into wetlands and surface waters. The pollutant loading is believed to constitute a very small percentage of the total loading in developed areas.

CATS

Cats represent another non-point pollution source in Nassau-Suffolk. Since cats do not have to be licensed, there are no records of the region's cat population. In 1975, the Soil Conservation Service (SCS) estimated the cat population at 285,000.

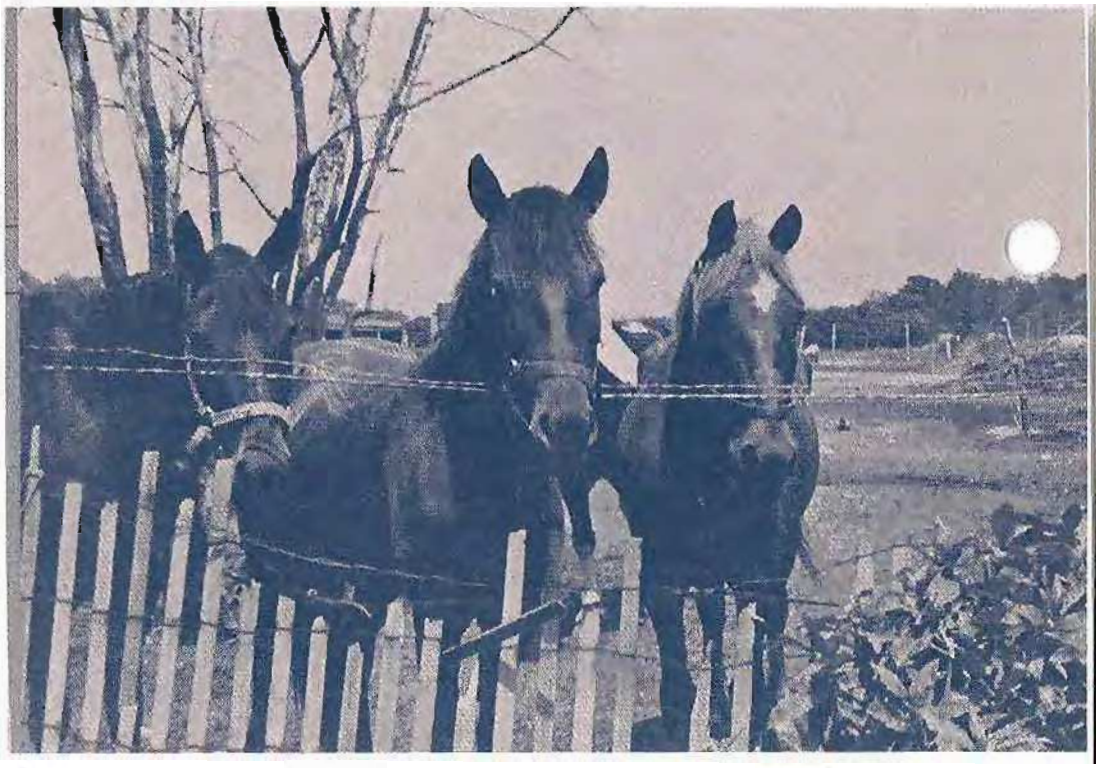
It is not known if the disposal of the contents of cat litter is a significant source of nitrate pollution to ground and surface waters.

AGRICULTURAL ANIMALS

Agricultural animals, with the exception of market ducks, can be found in small groups at widely scattered locations in the bi-county region. They do not constitute a major source of surface or groundwater contamination. In the past, duck farms have significantly impacted surface waters; however, commercial duck wastes are now being managed and the impacts from duck farming have been substantially reduced.

FIGURE 3 *Waterfowl In A Small Pond*

FIGURE 4



Horses within the Bi-County Region are estimated to be excess of 40,000.

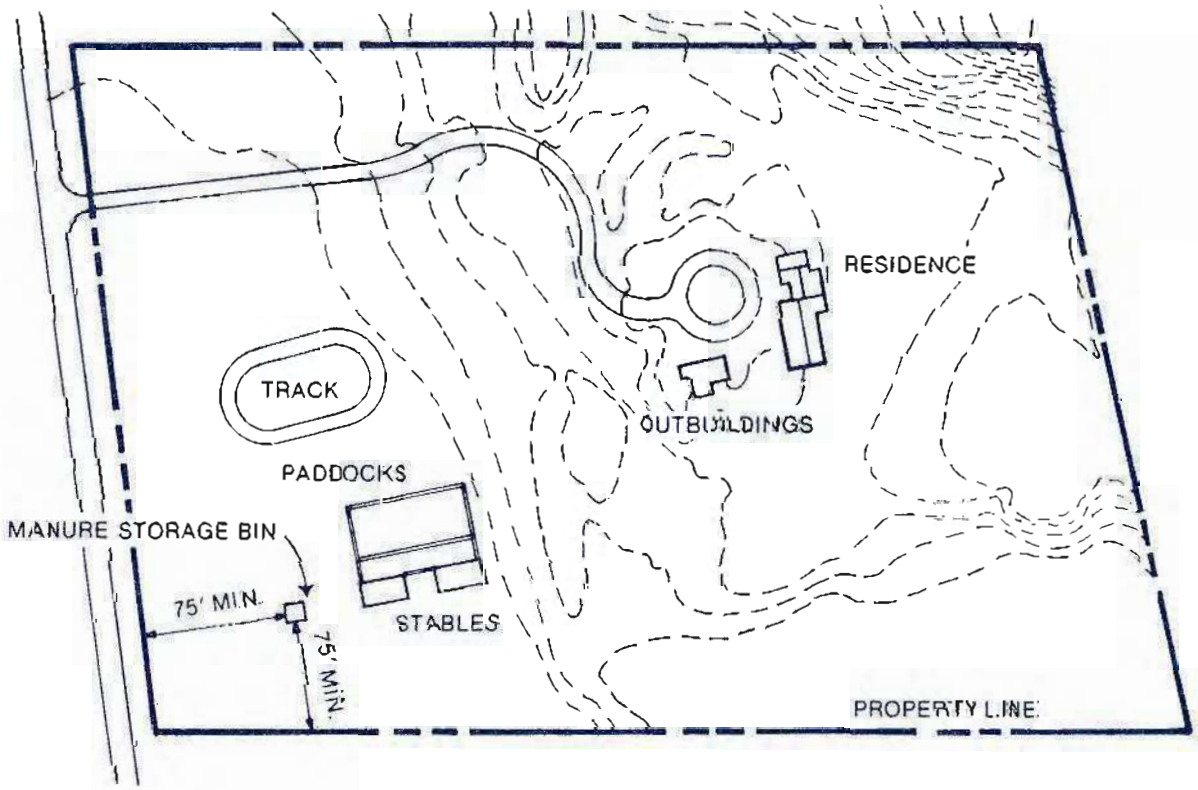


FIGURE 5 *Manure Storage Bin—Distance Standard Recommendation*

EXISTING MANAGEMENT

Legislation, Regulations and Administration

Recognition of the need to control animal waste as a non-point source is a recent development; in the past, dispersed animal wastes were not regarded as a significant problem. There are few laws and regulations governing the proper disposal of animal wastes. Those in existence do not address all aspects of the problem and are also difficult to enforce.

Federal

The Federal Water Pollution Control Act and subsequent United States Environmental Protection Agency guidelines designate concentrated animal feeding operations as subject to the permit requirements of the National Pollutant Discharge Elimination System, and by definition, are a point source rather than a non-point source of pollution.

State

The New York State Sanitary Code classifies animal wastes as offensive material and as sewage when the animal wastes are waterborne. Section 17-0105, Article 17, of the State Environmental Conservation Law defines sewage as the *water-carried human or animal wastes from residences, buildings, industrial establishments or other places together with such groundwater infiltration and surface water as may be present...* This section of the law together with related health rules and regulations provides a limited basis for the control of animal waste pollution by designated state and local agencies.

Present New York State and local health regulations that permit the control of offensive material provide that, upon receipt of a complaint, a health department representative may investigate and cause a hearing to be held relative to a *nuisance*, and may subsequently require the abatement of such nuisance.

According to Article 7, Section 117 of the Agriculture and Markets Law of New York State, any municipality may provide for the establishment and operation of spaying and neutering clinics, or it may contract for pound and animal shelter services. Towns may use impoundment fees or increase license fees for dog neutering programs. They may also establish additional conditions requiring that dogs be spayed or neutered before or after adoption from an animal shelter.

Article 26, Section 354 of the Agriculture and Markets Law attempts to discourage the sale of baby ducks for pets. Article 25 8, Section 35, of the same law, which penalizes an owner for the abandonment of any animal (by fine or imprisonment or both), is unenforceable.

County

Neither Nassau nor Suffolk County has comprehensive laws specifically addressing animal waste. Most laws and control measures pertaining to animal waste are found in municipal ordinances. These laws, which generally relate to dogs or horses, are difficult to enforce.

Local Cooperative Extension Service offices do provide guidelines for animal waste management. The recycling of animal wastes, using horse and poultry manure as a soil amendment or as a fertilizer, has been practiced by farm and livestock operators and organic gardeners for years. Animal wastes were the prime source of nutrients before the advent of commercial fertilizers.

Municipal

DOGS

Dog waste controls deal primarily with the nuisance created by the presence of dog waste on public sidewalks, play areas and private lawns. Many municipalities on Long Island have enacted *curb* laws to require that the feces be deposited between the street curbs; where, presumably, they will be removed during the course of street cleaning operations. These laws exacerbate water quality problems because they facilitate transport of dog wastes into storm sewers, recharge basins, inland ponds or lakes, or near shore marine waters. By contrast, *pooper scooper* laws can be an effective control measure requiring that the dog owner scoop up the pet's feces and dispose of it in a sanitary manner. Unfortunately, the laws fail to define *sanitary manner of waste disposal*. Pet owners may be disposing of the waste into storm sewers, which is precisely where the wastes should not go.

Although population control is the most effective method of limiting animal wastes, existing attempts to control or minimize dog populations have been only partially successful. Under New York State law, a dog six months of age or older must be licensed. The purpose of this law is to provide for the licensing and the enumeration of dogs, and to provide funds for the control and protection of the dog population. Since the dog owner must voluntarily contact the town clerk, fill out the appropriate forms and pay the fee in order to receive a license from the state; a large number of dog owners never bother to license their dogs. The number of licensed dogs has been decreasing since 1976 due to a combination of factors, among them enumeration difficulties experienced by the towns; general apathy on the part of the public; and much later, in 1980, owner resistance to increased licensing fees for fertile dogs. In addition, New York State no longer requires the towns to enumerate dogs within their jurisdiction. The licensed dog population in Nassau and Suffolk Counties was only 129,448 as of October 31, 1981.

The neutering or spaying of dogs (and cats) is the most effective method of animal population control. The number of dogs that are neutered or spayed has increased in recent years, suggesting that public education and reduced costs for these services provided by clinics and shelters are encouraging dog owners to have this done. A grant from the North Shore Animal League of Port Washington has made it possible for the Towns of Islip and Babylon to give a certificate for a free spay or neuter with each adoption from their respective shelters (see Figure 7). On the eastern portion of Long Island, two non-profit organizations provide spaying and neutering services. If the dog has been spayed or neutered, the licensing fee is automatically dropped from $7.50 to $2.50.

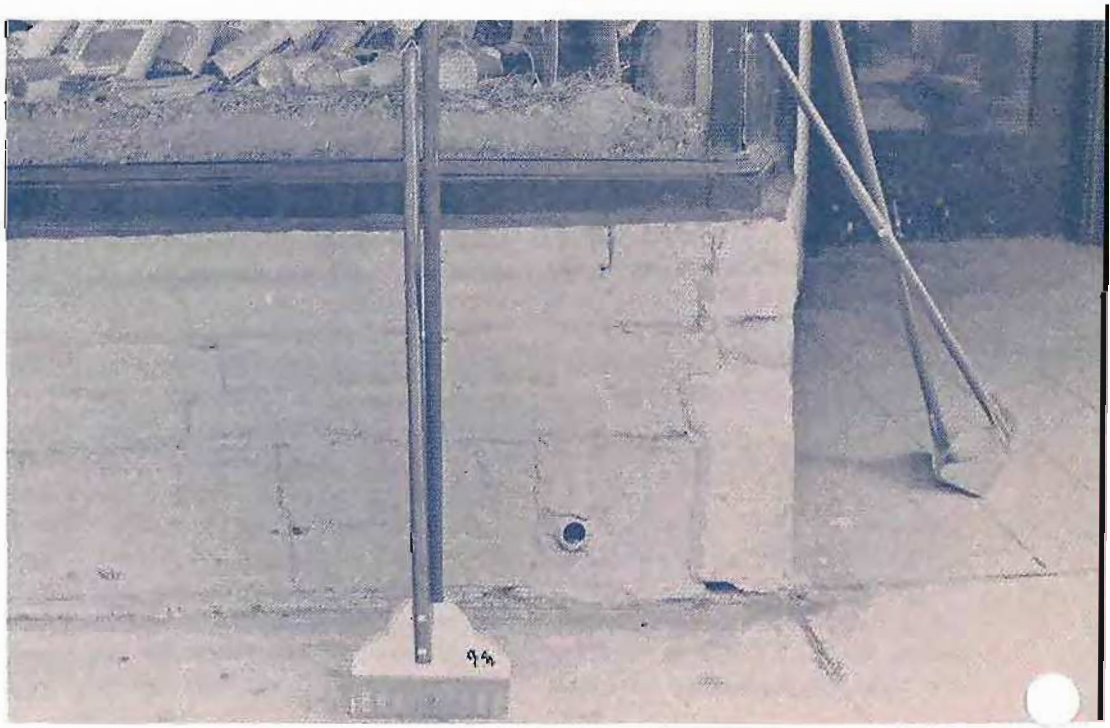


FIGURE 6 *Typical "Pooper Scooper"*

Since stray dogs — defined as any dog running loose — account for a large percentage of the increases in the dog population, the control of stray dogs is the second most important method of reducing dog populations. According to some local officials, the number of stray dogs has decreased in certain areas due to greater enforcement and local public education efforts. In other areas, the stray population has increased. Mandated fines for owners of stray dogs are progressive, and range from ten dollars ($10.00) for the initial fine to thirty dollars ($30.00) for the third fine within a given year. A court summons is also issued for the third offense.

The towns have generally been unable to enact ordinances to limit the number of dogs that can be housed on any property located within a given residential zoning category.

HORSES

There are several ways in which zoning ordinances are often used to control the keeping of horses:

- by setting minimum acreage requirements per horse
- by specifying the distance from the property line where horse waste may be stored
- by restricting the keeping of horses in the more densely populated residential areas
- by prohibiting the keeping of horses except in a few selected locations.

Smithtown, Brookhaven and Islip ordinances specify methods of waste handling and disposal. Closed waterproof containers, located away from property lines, are required for manure storage. A horse manure container may be constructed as a concrete holding pit designed for a 90 day supply of horse manure. Huntington requires tertiary treatment of wastewater at dairies and commercial stables unless served by the municipal sewage system.

CATS

There are no county or town laws or ordinances affecting the keeping of cats within Nassau or Suffolk Counties.

The Town of Brookhaven does have a low cost cat neutering program. The cost for female cats is $25, with an additional charge of $15 for cats that are up to two months pregnant. The Town of Islip refers prospective cat owners to two clinics for the spaying of animals whenever cats are adopted from the Town Animal Shelter.

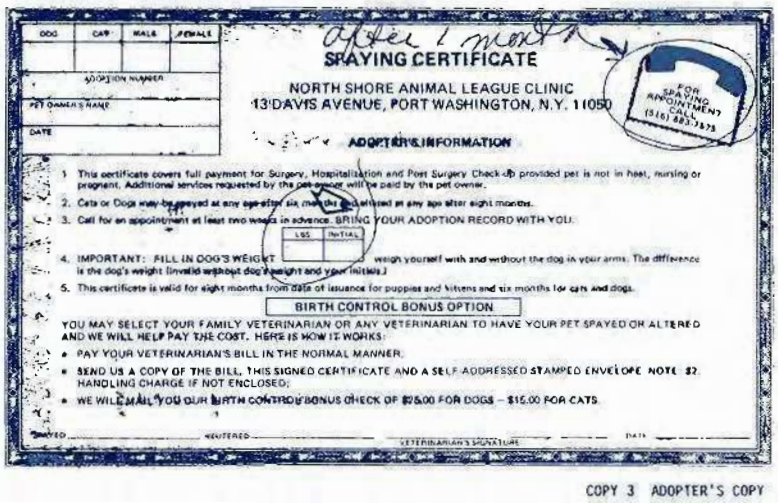
DUCKS (DUCK FARMS)

Duck farms are regulated by Federal and State laws as point-sources of pollution.

WATERFOWL

Efforts to control and manage Pekin and semi-wild duck populations are increasing. Although Pekin ducks are still being released to the environment, the number of Pekin Ducks and semi-wild ducks at various Long Island locations has been noticeably reduced. State law authorizes municipalities to establish dog catchers as peace officers with certain police powers including the authority to remove or impound Pekin Ducks. There have also been attempts to discourage the public from feeding Pekin and semi-wild ducks.

The populations of some migratory waterfowl species are subject to federal and state hunting regulations. Recently Canada Geese have been removed from golf courses and relocated in suitable habitats out of the area.


DOG | CAT | MALE | FEMALE

ADOPTION NUMBER

PET OWNER'S NAME

DATE

after 1 month

SPAYING CERTIFICATE

NORTH SHORE ANIMAL LEAGUE CLINIC
13 DAVIS AVENUE, PORT WASHINGTON, N.Y. 11050

FOR SPAYING APPOINTMENT CALL (516) 883-7575

ADOPTER'S INFORMATION

1. This certificate covers full payment for Surgery, Hospitalization and Post Surgery Check-Up provided pet is not in heat, nursing or pregnant. Additional services requested by the pet owner will be paid by the pet owner.
2. Cats or Dogs may be spayed at any age after six months and neutered at any age after eight months.
3. Call for an appointment at least two weeks in advance. BRING YOUR ADOPTION RECORD WITH YOU.

LBS.	INITIAL

4. IMPORTANT: FILL IN DOG'S WEIGHT ____ weigh yourself with and without the dog in your arms. The difference is the dog's weight (invalid without dog's weight and your initials.)
5. This certificate is valid for eight months from date of issuance for puppies and kittens and six months for cats and dogs.

BIRTH CONTROL BONUS OPTION

YOU MAY SELECT YOUR FAMILY VETERINARIAN OR ANY VETERINARIAN TO HAVE YOUR PET SPAYED OR ALTERED AND WE WILL HELP PAY THE COST. HERE IS HOW IT WORKS:

- PAY YOUR VETERINARIAN'S BILL IN THE NORMAL MANNER.
- SEND US A COPY OF THE BILL, THIS SIGNED CERTIFICATE AND A SELF-ADDRESSED STAMPED ENVELOPE. NOTE: $2 HANDLING CHARGE IF NOT ENCLOSED;
- WE WILL MAIL YOU OUR BIRTH CONTROL BONUS CHECK OF $25.00 FOR DOGS – $15.00 FOR CATS.

SPAYED ____ NEUTERED ____ VETERINARIAN'S SIGNATURE ____ DATE ____

COPY 3 ADOPTER'S COPY

FIGURE 7 *Sample Neuter/Spaying Certificate*

(Provided by the North Shore Animal League upon adoption.)

RECOMMENDATIONS

Legislation, Regulation and Administration

County

- The County Health Departments should develop guidelines for allowable densities for horses (horses/acre). These should be used by the towns in the modification of zoning ordinances to minimize local impacts upon groundwater and surface waters.
- The County Health Departments, The County Soil and Water Conservation District and the Cooperative Extension should develop minimum standards for the proper storage and disposal of manure, especially for use in suburban areas where storage space is minimal or where the recommended per capita animal densities are exceeded.
- The County should enact a law prohibiting the sale of Pekin ducks as pets.

County and Municipal

- Each municipality in cooperation with the County Health Departments should identify and establish priority target areas for the implementation of public education, best management practices and enforcement programs to minimize the impacts of animal wastes upon surface waters. The Health Departments and the municipalities should identify surface waters that are currently impacted and their respective watershed areas. In the selection of priority target areas, the ability of the local government to implement recommendations and the suitability of the land to accommodate best management practices should be considered. The programs should include the municipal provision or subsidization of spaying and neutering services to facilitate canine population control.
- The Counties and towns should prohibit the feeding of Pekin ducks and semi-wild ducks on county and/or town parkland near streams and ponds that discharge to marine waters. Signs should be posted indicating that the feeding of Pekin ducks and semi-wild ducks is prohibited.
- The Counties and towns should acquire parkland, and require the dedication of open space and conservation easements to prevent the destruction of waterfowl habitats wherever possible in order to avoid the further concentration of waterfowl in the remaining habitats.

Municipal

HORSES

- The municipalities should use zoning controls to minimize the density of horses in deep aquifer recharge areas, in selected shallow aquifer recharge areas, in areas immediately adjacent to surface waters, and where slopes are greater than five percent.

DOGS

- The municipalities should enact *pooper-scooper* laws (See Sample Ordinance).
- The municipalities should repeal existing dog curbing ordinances and replace them with *pooper-scooper* laws that require pet owners to pick up their pet's feces. The sample ordinance below provides a good model because it not only mandates waste clean up but also prescribes waste disposal procedures. There are other *pooper-scooper* ordinances in effect, but few deal with the proper disposal of the scooped feces.

SAMPLE DOG ORDINANCE

The following ordinance was adapted from the *Town of Hempstead Local Law No. 5. Chapter 14. Dogs.*

COMMITTING A NUISANCE PROHIBITED

A. *It shall be unlawful for a dog to defecate, urinate or commit a nuisance on public property, including that portion of a public street lying between the curblines, or on private property without the consent of the owner or person in possession of such private property. A person owning or possessing a dog which defecates, urinates, or commits any nuisance as prohibited herein, with or without the knowledge, consent, or fault of such person, shall be guilty of a violation of this Section. It shall be presumed that a dog defecating, urinating, or committing a nuisance on private property of a person other than the dog's owner or possessor does so without the consent of the owner or person in possession of such private property.*

B. *The owner or possessor of any dog shall immediately remove all feces deposited by said dog by placing such feces in a plastic bag which shall be sealed and deposited in a covered garbage receptable.*

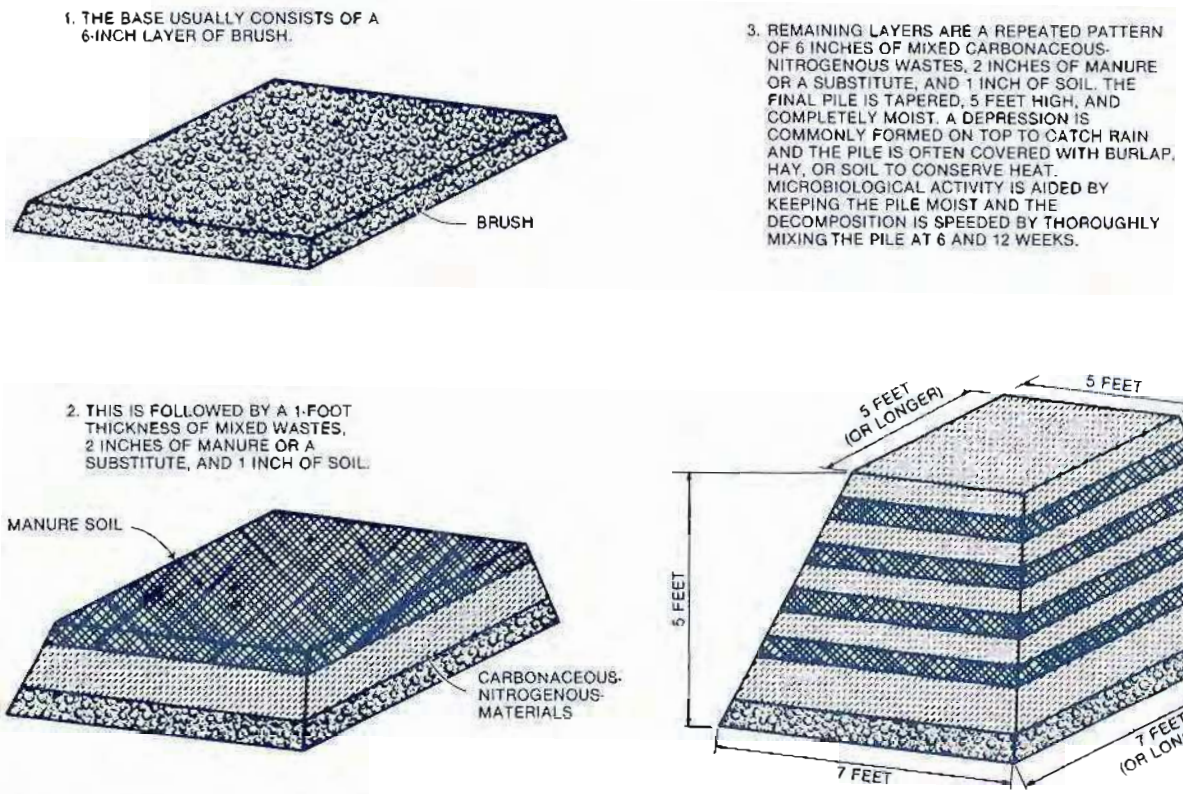
- The municipalities should improve the enforcement of existing pooper-scooper and leash laws, especially in the priority target areas. In some cases, additional personnel may be needed to enforce the law while the courts should support enforcement by consistent punishment of *third-time leash law* offenders.
- The towns should improve enforcement of the dog licensing law. Since the towns now receive a computerized print-out of licensed dogs and expired licenses, the towns should make full use of this service. Any funds received from licensing fees, other than those required for program administration, should be used to subsidize low-cost neutering and spaying clinics and to pay for increased costs of other animal law enforcement.
- The towns, not already doing so, should complement their current shelter operations by providing or facilitating access to free or low cost spaying and neutering services.

Site Management Practices

Recycle animal wastes for cost effective waste disposal and soil improvement. Properly applied animal wastes can build, improve and restore the minimal topsoils that exist on Long Island.

The following recommended procedure should be adopted for recycling animal wastes:

- Cover or otherwise protect stored animal waste from rainfall and runoff. Animal wastes (from horses, ducks, chickens, cows) should be stored in a waterproof container(s), or under a shed or tarp until they can be composted or removed from the site.
- Locate animal waste piles as far as possible from buildings and property boundaries. Consult with the town zoning ordinance to determine the minimum required distances. Animal wastes should not be stored in the 100 Year Flood Plain, in swales, on steep slopes or adjacent to surface waters.
- Compost or age animal wastes before applying to plants. If they have been properly aged through either drying or composting, animal wastes can be used for gardens. (Consult with the Cooperative Extension Service for information).
- Remove unneeded manure or other animal wastes from the site. The property owner who has more animal wastes than he/she can utilize should contact the Cooperative Extension Service for the names of gardeners or farmers needing manure. Larger horse farms, and riding stables should be required to properly dispose of the manure on site on a regular basis or make it available to interested property owners.
- Follow these guidelines for the safe application of animal wastes:
  - Do not apply animal wastes directly to soils. Composted material containing animal wastes or dried manure mixed with other organic matter and Long Island soils are generally suitable as a planting medium and mulch for trees, shrubs, flowers, lawns and other plantings, or as a mulch for flowers, shrubs and trees (See Figure 8 for a compost pile containing animal waste). Since plants vary greatly in their soil, nutrient and other environmental requirements, a plant guide should be consulted for application instructions. Fresh manure should not be applied to vegetable gardens and to the root zone of sensitive plants.
  - Take special precautions when applying animal wastes to large areas. Wastes should be aged over winter or for several months before they are applied to the soils. Since animal wastes may contain high concentrations of nutrients and other pollutants, the potential pollutant loading should be considered. The amount and frequency of manure applications should be based upon plant tolerance, nutrient requirements for the stage of plant growth and soil texture and climatic conditions. If the soil appears to have a high content of organic matter and if the nutrient levels are adequate, then animal waste should not be applied. (See the Fertilizer Chapter.) In *most* cases, the application rate should not exceed 30 tons of dry waste per acre per year for level or gently sloping land (slopes less than six percent). This rate should minimize or preclude nitrate runoff or leaching to groundwater.



Source: Poincelot, Raymond P., The Biochemistry and Methodology of Composting, *Connecticut Agricultural Experiment Station, New Haven, Connecticut. P. 726.*

FIGURE 8 *Compost Pile Containing Animal Waste*

- Protect the site from stormwater erosion. Runoff control measures should be utilized on slopes of six percent or more or on sites directly adjacent to surface waters (See the Stormwater Chapter). Reseed cropland after plowing to minimize soil erosion caused by wind and stormwater.

Public Education

Improve public awareness and understanding of the impact of animal waste upon the environment and of the availability of control measures to minimize possible impacts.

The CES, alone or in cooperation with LIRPB, should prepare informational materials covering all aspects of the animal waste problem. These materials should include educational pamphlets for distribution to libraries, schools, environmental advisory groups and the general public; scripts for public service radio broadcasts, and slide programs to be loaned to various organizations. The CES should work with local environmental and kennel groups, and community organizations that could provide assistance in the implementation of animal waste recommendations.

The following topics should be considered for public education programs:

- The impacts of animal wastes upon groundwater and surface waters
- The need for animal waste controls and the role citizens can play in implementing effective animal waste controls

- The need for proper animal waste management by owners of domestic and commercial animals
- Techniques for the recycling of animal wastes
- The relationship between stray dogs and animal wastes
- The need for public cooperation to control stray dogs
- The importance of dog licensing and the use of licensing for population management.
- The need for neutering and spaying programs. Available low-cost services.

PROVIDE INFORMATION ON THE PROPER DISPOSAL OF WASTES

DOGS

- Municipalities whose ordinances do not prescribe dog waste disposal procedures, should provide information on proper disposal of pet feces.
- Dog wastes can be discarded on the owners property away from natural and man-made storm channels, in compost not used for a vegetable garden, or they can be securely wrapped and disposed of along with other household wastes.
- Dog and cat feces should be composted with garden refuse separately because the feces carry parasites that can be transmitted to humans.
- Animal wastes should not be concentrated (piled up in one area) and left to decay, or disposed of in a storm sewer.

The CES should compile and publish a list of low-cost clinics for the neutering or spaying of pets. Such a list should be included in the telephone book and displayed in public places as an aid to pet owners to neuter or spay their pets.

HORSES

The CES should provide public information concerning environmentally acceptable animal waste management techniques. It should also maintain a listing of persons wishing to dispose of manure and of those wishing to obtain it.

DUCKS

The CES should provide informational materials to increase public awareness relating to the problem created by the release of Pekin ducks to the environment and by the public feeding of waterfowl.

Chapter Seven

INTRODUCTION

Well mismanagement, including improper siting, construction, use, and abandonment of water supply wells, has been identified as an important potential groundwater management problem. A discussion of the possible impacts upon groundwater due to water supply wells, existing controls and recommendations for well management are provided in the following paragraphs.

Public water supply wells are generally properly sited; constructed; used; maintained; and if abandoned, properly sealed. The construction, maintenance and abandonment of these wells are not viewed as sources of contamination to groundwater. Nonetheless, the siting and use of public supply wells can be a problem in certain instances. Problems can occur when wells are located too close to fresh surface waters, wetlands and marine waters and large quantities of water are withdrawn and not returned to the same area. Overpumpage of wells can cause accelerated salt water intrusion; lowering of the water table, resulting in reduction in stream flow and the loss of wetlands (See Well Location). Increases in the demand for public water that result in withdrawal in excess of the recommended permissive yield, will pose greater problems in the future, especially in sewered areas.

There are several other types of wells that may pose additional threats to groundwater. These include

- large capacity industrial, commercial and agricultural wells
- other large capacity wells used for water supply, cooling and irrigation.
- private wells

Large capacity wells can facilitate the movement of pollutants to the groundwater and can affect the movement of contaminants already present in the aquifer. Withdrawals for irrigation purposes may be an improper use of a high quality or limited water supply. Recharge wells can be a direct source of pollutants to groundwater (see Photos 1-4).

Private residential wells are generally of shallow depth, have a low capacity and pose little threat to groundwater when considered on an individual basis. Collectively, these wells may constitute a problem, particularly in high density neighborhoods where private wells are the only source of water and the available potable groundwater is limited.

The total number of wells constructed on Long Island is not known since records of well construction were not required prior to 1935 in Nassau and Suffolk Counties. Table I lists the number of wells for which certified well drillers have filed information with the NYSDEC; however, some agricultural wells, illegal wells, *built-prior* wells, and many wells drilled by homeowners for their own use are not recorded. Many wells have been abandoned due to the construction of replacement wells or the extension of public water service. Some of these have been properly sealed; however, there are probably many more wells that were improperly abandoned.

The problems related to water supply wells are summarized in Table 2.

TABLE 1

Wells in Nassau and Suffolk Counties, 1935-1980

County	Well Type	Active Wells	Inactive Wells	Total Number of Wells on File
Nassau County	Public	428	Unknown (47 on file)	475
	Private	1,000†	Unknown	9,000
	Industrial/ Commercial*	300	Unknown (40 on file)	340
	Agricultural	Unknown	Unknown	——
Suffolk County	Public	510	Unknown	510
	Private	38,000†	29,000†x	
	Industrial/ Commercial*	400	200†	600†
	Agricultural°	600†	600†	1,200†

NOTES:

* Does not include diffusion wells; includes "air conditioning" wells. The number of active wells could be as high as 60-80,000.

† Estimates.

x Many may be used for irrigation or other purposes not requiring potable water.

° Agricultural wells have been exempt from the law requiring permits for wells with an installed capacity larger than 45 gpm to be reported.

Sources:

Donald H. Myott, "Water Supply Statistics," Bureau of Public Water Supply, Nassau County Department of Health, November 17, 1980.

Philip Barbato, "Information on Abandoned Wells, N.Y.S. Groundwater Management Project Draft, March 1981

TABLE 2

Problems Related To Water Supply Wells

IMPROPER LOCATION OF WELLS

- near surface waters and wetlands
- near leachate plumes (wells sited in the path of leachate plume will produce contaminated water. See Figure 3.)
- near salt water bodies
- in flood hazard areas

INADEQUATE DESIGN AND/OR CONSTRUCTION AFFECTING THE PRODUCED WATER

- poor or no grouting
- failure to seal the annular space between the drill hole and the casing
  lack of a seal at the surface opening
- well opening at or below the land surface *
- improper backfill of test holes *
- stray electrical currents due to inadequate grounding causing electrolysis corrosion of casing and screens, resulting in water exchange from one aquifer to another.

IMPROPER USE

- excessive withdrawal can result in lowered water tables which, in turn, can cause upconing of salt water and the vertical or horizontal movement of contaminant plumes towards the well. *
  unnecessary consumptive loss
- recharge of chemically, or microbiologically contaminated water into diffusion wells
- use of split or multiple screens located in two different formations (not permitted on Long Island) *

IMPROPER ABANDONMENT PROVIDING A SITE
FOR ILLEGAL DISPOSAL OF CONTAMINANTS

- improper or no sealing of the casing allowing direct connection with an aquifer *
- improper sealing of the surface area adjacent to the casing *
- no sealing of the annular space *

Table 2 was partially derived from *Rural Water Supply*, New York State Department of Health, 1966 (Reprinted in 1972.)

NOTES:
* Can cause general groundwater contamination. Others may cause contamination of the produced well water of the impacted well or nearby wells.

PHOTO 1

Typical Agricultural Well Installations

PHOTO 2

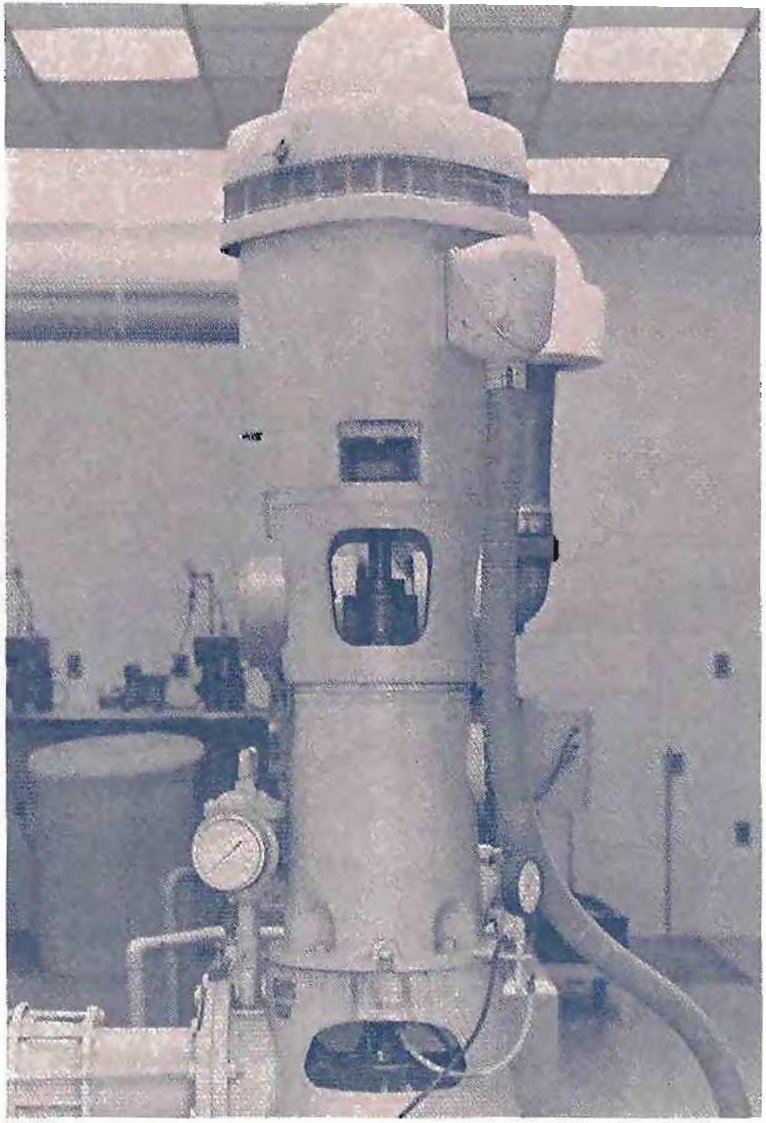


PHOTO 3 *Public Water Supply Well Pump*

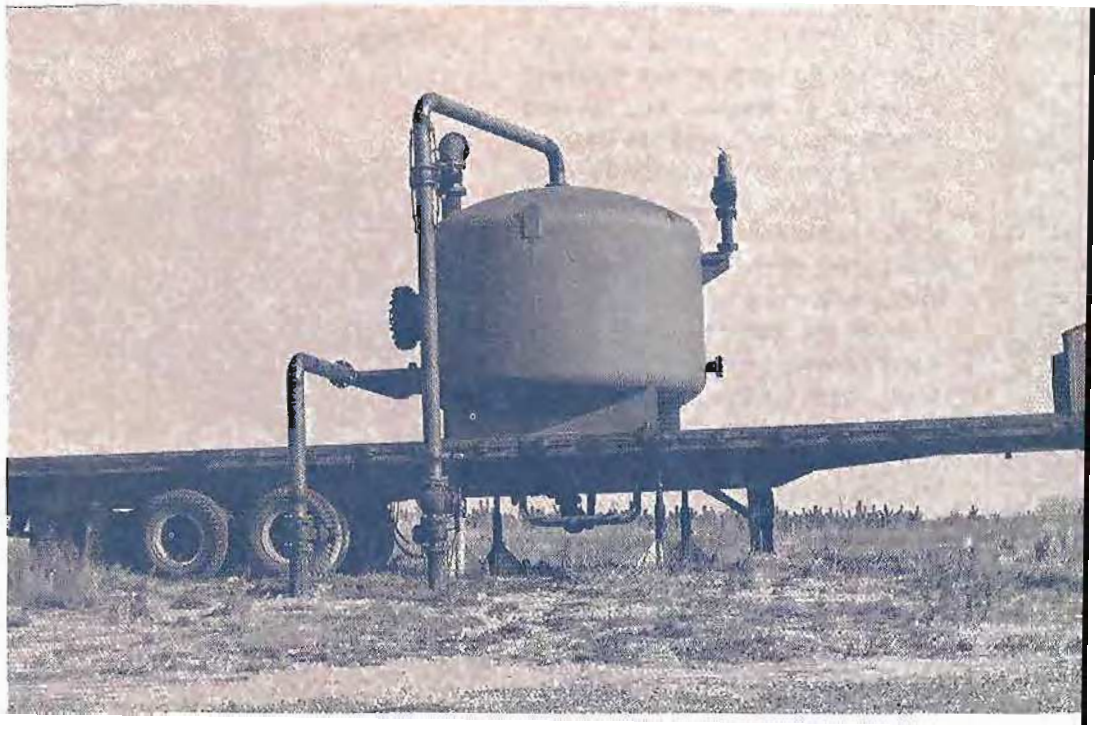


PHOTO 4 *Public Water Supply Well System - Carbon Filter*

IMPROPER CONSTRUCTION PRACTICES

In those instances in which the driller fails to follow recommended procedures faulty construction can contribute to groundwater pollution. Improperly constructed deep wells are of special concern on Long Island because they provide paths for contaminants from affected layers of the Upper Glacial and the upper portions of the Magothy aquifer to the generally unpolluted lower aquifers. (See Figure 5.) Production of microbiologically or chemically contaminated well water from a properly sited well can usually be attributed to one or more of the following causes:

- Inadequate disinfection of the well after construction or repairs
- Failure to seal the annular space between the drill hole and casing
- Failure to provide a tight sanitary seal where pump lines pass through casing
- Manual addition of chemicals (e.g., phosphates) into well chamber
- Improper use of chemicals

Other problems relating to well construction are described in Table 2. Well water contamination does not usually result in groundwater contamination.

On Long Island, split or multiple screens in the same well are generally prohibited if the screens are set in two different aquifers that are separated by a significant intervening clay layer. In such a case, the use of multiple screens may allow contaminated water to flow from one aquifer to another (See Figure 6).

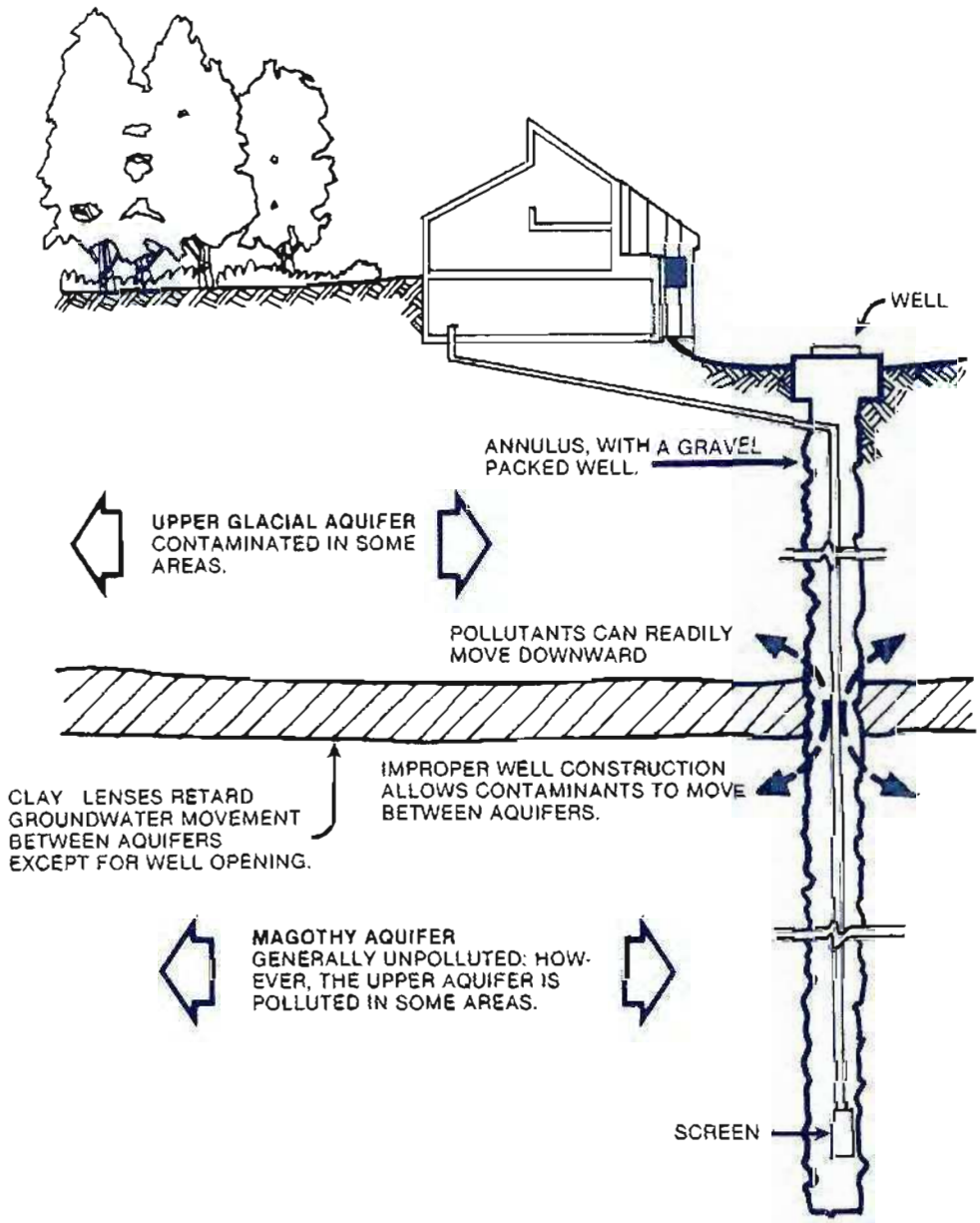


FIGURE 5 *Groundwater Contamination Spread By Improper Well Construction*

KEY PROBLEMS

Well Location

The location of a well is an important factor in determining both its water quality and its potential impact on the surrounding aquifer and environment. Consumptive use of groundwater can cause salt water intrusion, in coastal and nearby inland areas where fresh groundwater is naturally limited. As the groundwater is removed and not returned to the aquifer, the more dense salt water moves landward to replace the freshwater that has been withdrawn. Consequently, the chloride content of the water increases as the water table is lowered and the total volume of the freshwater is reduced. (See Figure 1). The chloride content of water drawn from wells in the southern portions of Nassau County and western Suffolk County has been increasing due to the marine disposal of a significant volume of fresh water in the form of sewage treatment plant discharges to the ocean and south shore bays.

Since the surface water elevations generally reflect groundwater levels, the lowering of the water table due to consumptive use of groundwater can result in significant impacts upon surface waters and wetlands including a reduction in stream flow, stream length and wetland acreage. (See Figure 2). This condition has already occurred in some areas that have been sewered for a number of years.

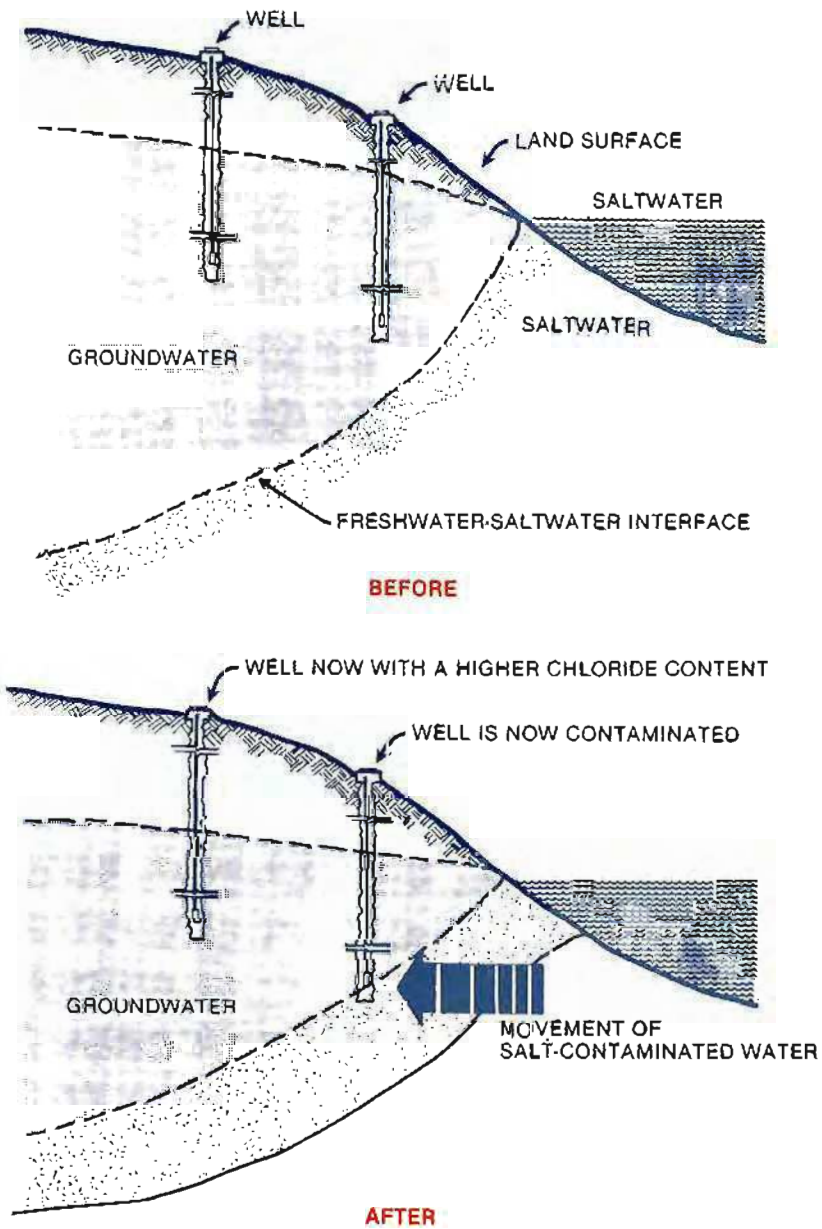
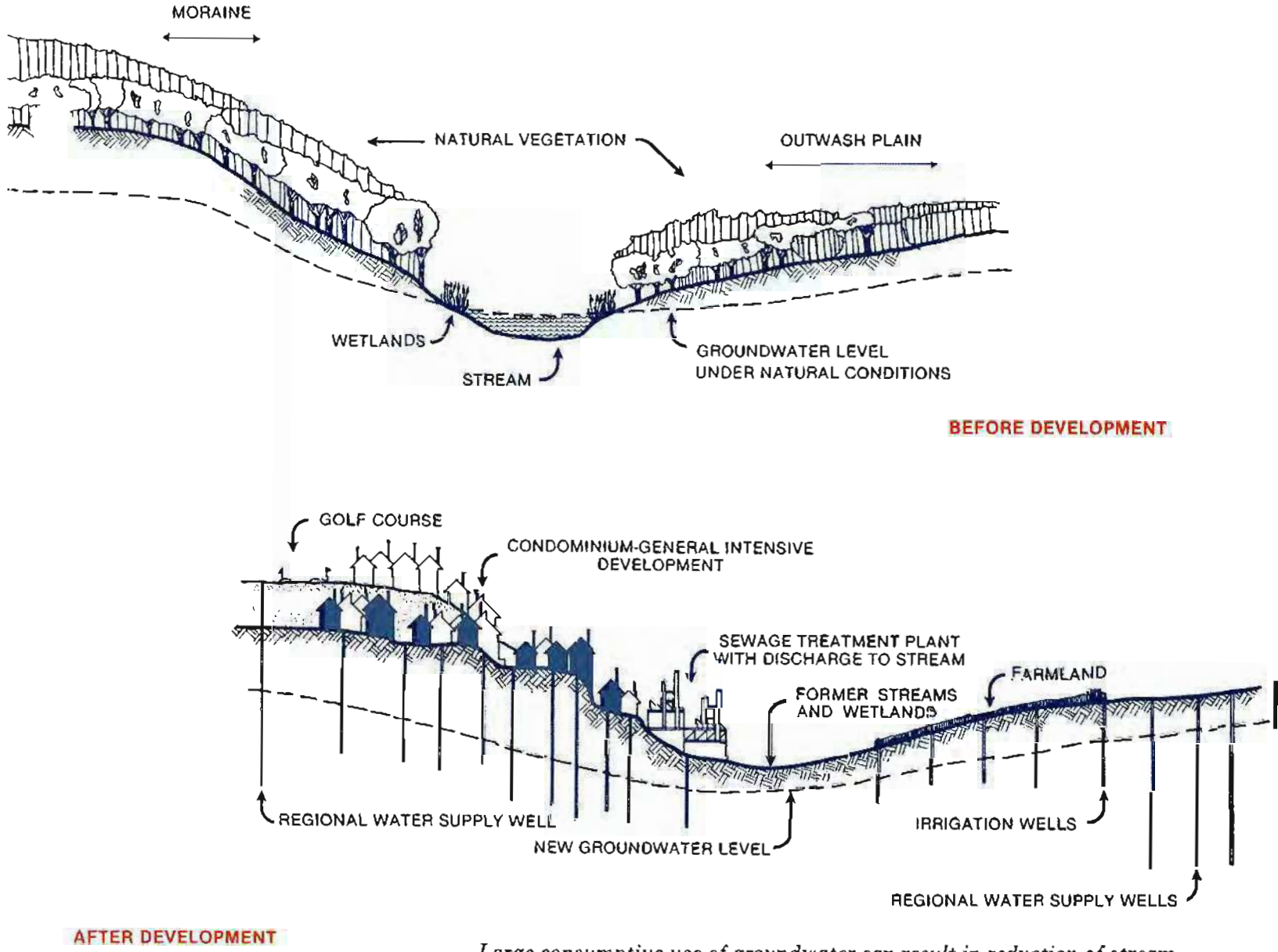


FIGURE 1 *Consumptive Use Of Groundwater Can Result In Saltwater Intrusion*



Large consumptive use of groundwater can result in reduction of stream flows, shortening of stream length and loss of wetlands.

FIGURE 2 *Consumptive Use Of Groundwater Can Result In Impacts Upon Surface Waters And Wetlands*

Well contamination can also occur when wells are sited downgradient and near a source of contamination such as, industrial or commercial discharges, agricultural fields and landfills. (Figure 3 indicates the areal extent and the direction of flow from a known leachate plume located in the Town of Islip). Since dispersion and diffusion of a plume are minimal under natural conditions, withdrawals from a production well may alter flow paths and either divert or accelerate the movement of a plume of contaminated water through an uncontaminated aquifer section. The volume of water to be pumped, the level of drawdown and aquifer characteristics will determine the distance and speed of travel of pollutants from a source to the well.

Bacterial contamination of a private well may occur as a result of flooding when the well is located within the *100 Year Flood Plain* or in inland areas subject to flooding. Improper construction, or highly porous soils or gravel deposited adjacent to the well casing allow vertical movement of flood water to the aquifer. Other pollutants discharged near the wellhead can be transported by stormwater through the unsaturated zone to groundwater.

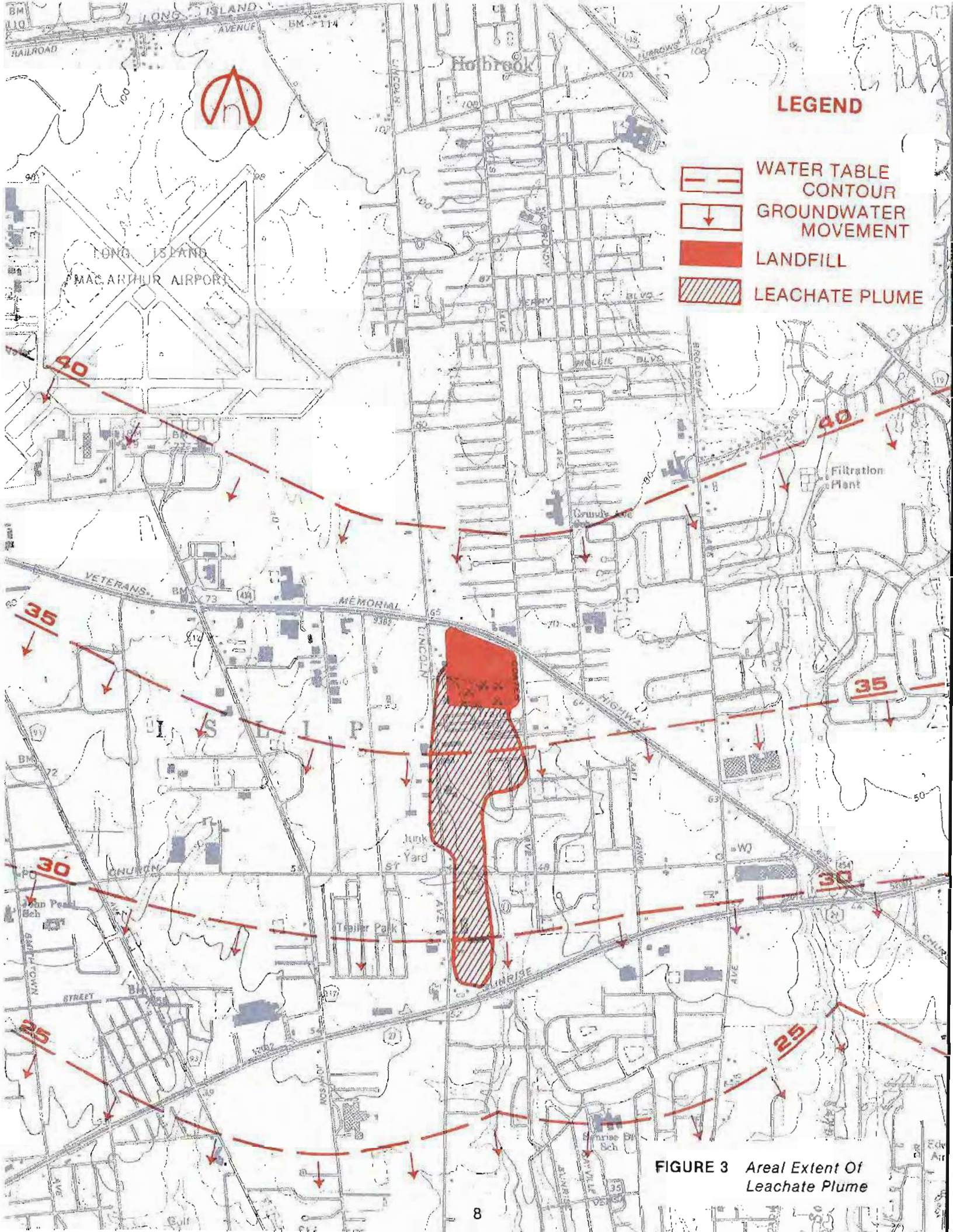


FIGURE 3 *Areal Extent Of Leachate Plume*

Well Construction

There are several ways to construct a well. Generally, the type of construction is determined by the purpose of the well, the hydrology and geology of the site, the quantity of water required, the anticipated depth and diameter of the well, and the cost involved.

The most common drilling method used in the construction of large capacity public water supply wells on Long Island is *reverse circulation rotary drilling*. In this drilling system, a rotating drill bit is used to cut through the formation while a drilling fluid, usually water, is sucked up through the drill rods by a pump on the drill rig. The mixture of drill cuttings and water is discharged into a pit where the cuttings settle out, allowing the water to be recirculated down the annulus between the borehole wall and the drill rods. Holes up to 60-inches in diameter and up to 1,000-or-so-feet deep can be drilled (See Figure 4 for a typical well section).

Deep test borings are occasionally drilled by the *conventional rotary method*. In this system, drilling fluid, usually mud, is pumped down through the drill rods as the drill bit rotates through the formation. The drilling mud picks up the cuttings and floats them up the annulus between the borehole wall and the drill rods, finally discharging them into a mud pit where the cuttings settle out. (The path of the drilling fluid here is the exact opposite of that of the reverse circulation method.) The drilling mud is constantly recirculated down through the drill rods as the drill bit rotates.

The third major drilling system used for public supply wells on Long Island is the cable-tool percussion method, also known as the *driven and bailed method*. A heavy string of drilling tools is lifted and dropped regularly in the borehole. The drill bit loosens the formation material and breaks up occasional boulders into small pieces. The loosened material is mixed with water to form a slurry which is removed from the bore hole with a bailer. The well casing is usually driven down into the borehole as the borehole is deepened.

After the well is drilled, it must be disinfected, sealed, and otherwise completed. The top of the casing must be 18 inches above grade. A concrete slab should be poured around the well and it should be pitched to drain away from the well.

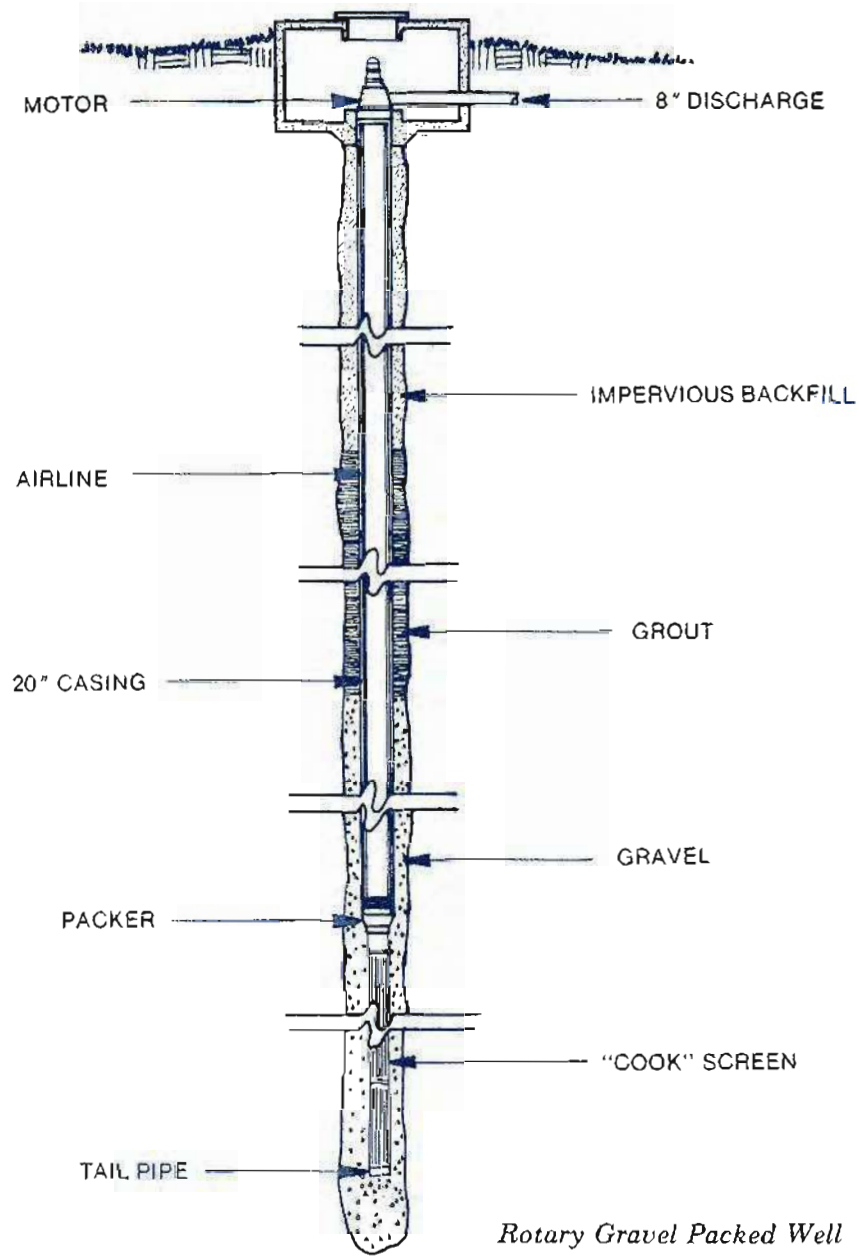


FIGURE 4 *Typical Well Section*

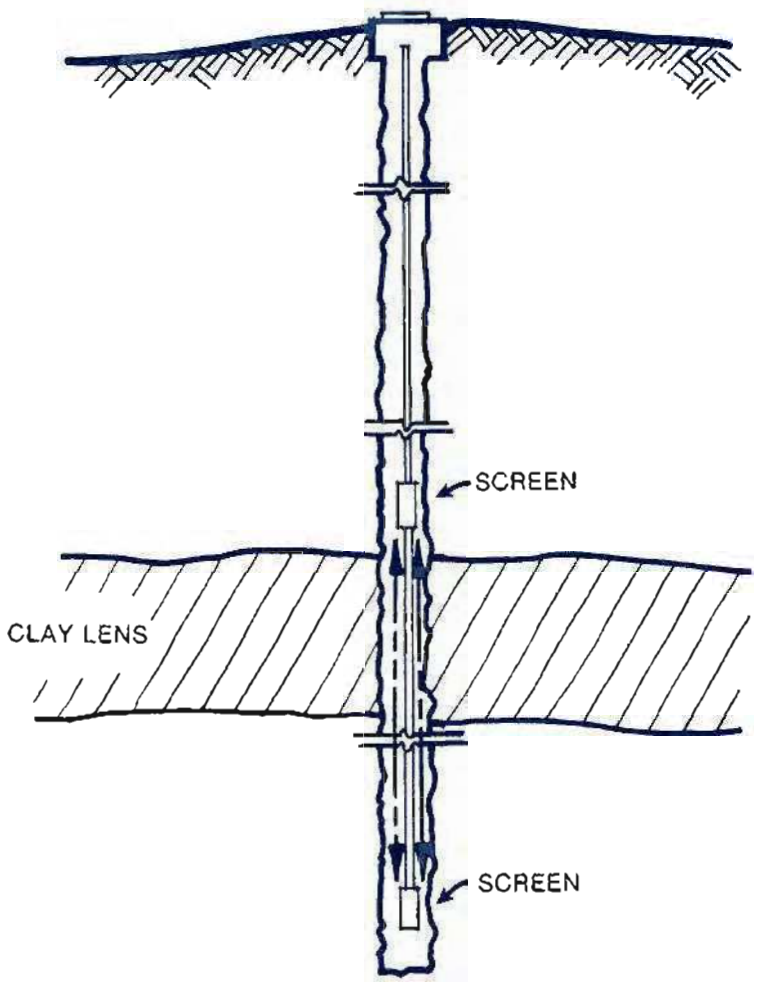


FIGURE 6 *The Use Of Multiple Screens May Allow Contaminated Water To Flow From One Aquifer To Another*

Well Use

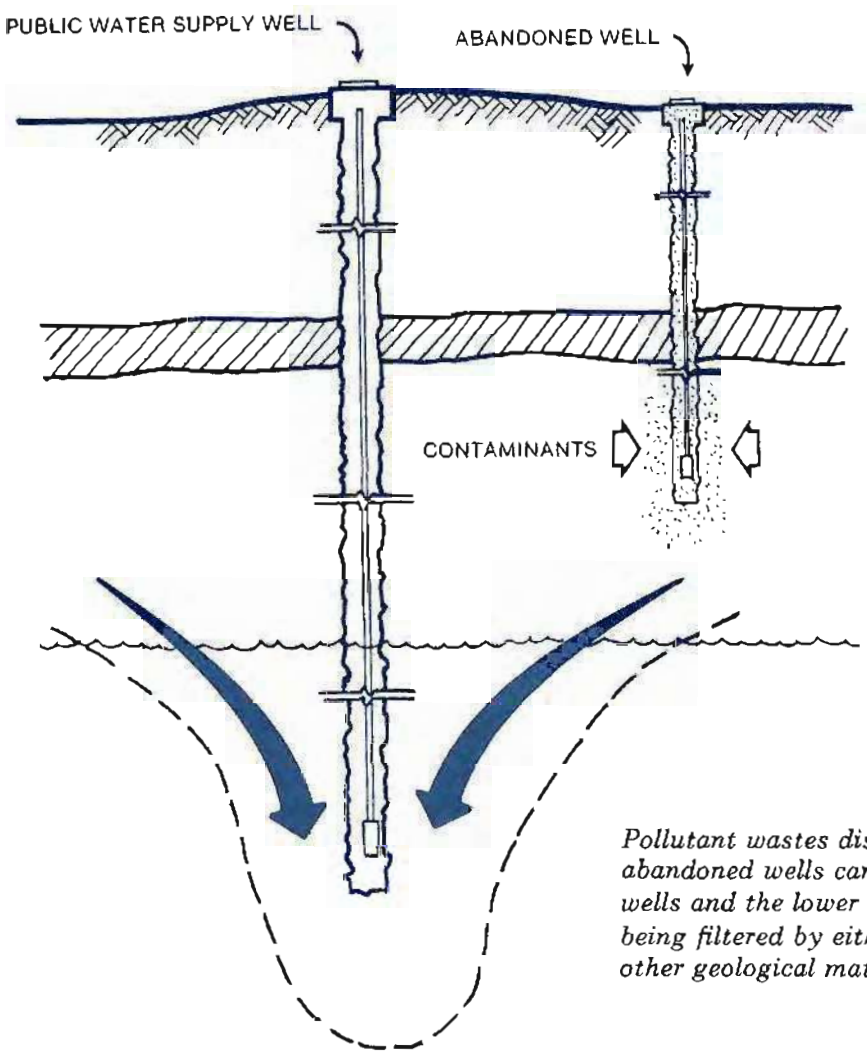
The improper use of wells can diminish the supply of potable water. The use of groundwater for irrigation results in a consumptive loss, because the water either evaporates or is lost by plant evapotranspiration. The extensive withdrawal of high quality groundwater for irrigation purposes, (lawns, nursery plants, sod farms, etc.) is unnecessary if nonpotable groundwater is available.

In the past, cooling water withdrawals have sometimes led to changes in pressure (hydrostatic head) resulting in the alteration of groundwater flows and the movement of contaminants. The problems associated with new water cooling wells have been significantly reduced. The NYSDEC now requires that all establishments using new cooling wells provide a diffusion well to return the water to the same aquifer from which it was withdrawn. In addition, if contaminated water is pumped, even for cooling, the NYSDEC requires treatment before it is returned to groundwater.

Some wells used for air conditioning and refrigeration systems continue to be of concern, especially in those instances where microbiological and/or chemical contamination of the high quality groundwater used for cooling could occur. Chemical contamination could be caused by the leakage of chemicals from the cooling system or by the illegal application of chemicals to the recirculating water.

Well Abandonment

Abandoned wells pose a threat to groundwater resources whenever they are used as receptacles for chemical and/or toxic or hazardous wastes. Since the abandonment of private wells is not adequately regulated, faulty sealing is suspected to be a widespread problem. Pollutant wastes discharged into such wells can reach the nearby wells and lower aquifers without being filtered by either the soil or other geologic materials (See Figure 7). Contamination can also occur wherever the casing or annular space is inadequately sealed.



Pollutant wastes discharged into abandoned wells can reach nearby wells and the lower aquifers without being filtered by either the soil or other geological materials.

FIGURE 7 *Pollutant Wastes Discharged Into Abandoned Wells*

EXISTING MANAGEMENT

Legislation, Regulation and Administration

State

NYSDEC administers a permit program designed to regulate and monitor the construction of new wells and the expansion of existing wells on Long Island.

Article 15, Section 15-1527 of the New York State Environmental Conservation Law requires that a permit be given for the construction of new wells with an installed capacity in excess of forty-five gallons a minute.

There are three types of wells that are exempt from the permit system:

- private and residential wells with a capacity of less than 45 gpm (gallons per minute)
- fire wells installed by a municipal corporation that use auxiliary pumps
- agricultural wells

Agricultural wells include wells used for crop irrigation. They do not include nursery and sod farm wells. They must be installed by a registered well driller who must file a report; a permit is not required.

Since a permit is not required for agricultural wells, the State well permit program's effectiveness in controlling groundwater impacts in agricultural areas is diminished.

The impact of proposed wells upon future water quantity and quality and stream flow are not presently given adequate consideration in the States' well permit program due to shortages in funding and personnel. Program improvements based upon improved use of information and groundwater modeling is planned by the Region I office.

Pursuant to Article 15-Water Resources, Title 15, Section 15-1525, all commercial well drillers are required to possess a *Certificate of Registration* from the NYSDEC. Certified well drillers must file preliminary and completion reports from each well drilled, repaired, deepened or abandoned. Most well construction, repair or abandonment must be done by a certified well driller. NYSDEC recommends that wells be constructed in accordance with guidelines set forth in the American Waterworks Association's *Standards for Deep Wells.*

Part 170 of the State Sanitary Code (10 NYCRR Part 170) establishes maximum contaminant levels at the source (well) of public supplies. Maximum contaminant levels are set forth for certain inorganic and organic chemicals, microbiological, physical characteristics and radioactivity. Also included are monitoring (sampling) requirements. These requirements must be met by the public water supplies in order to ensure safe, potable drinking water to the public.

Permission to abandon a public water supply well or any well with a capacity of 45 gpm or greater is required by the NYSDEC. Legislation authorizing the State regulation of the abandonment of wells and the notification of authorities is contained in Title 10, N.Y.S. Sanitary Code 5.-2.11. Permit recipients are given a list of specifications for the proper sealing which require that the well be filled with sand, gravel, and neat cement grout.

It has been and will continue to be difficult to regulate well abandonment practices. Certified well drillers are required to file a report when they abandon a well; however, well owners may abandon wells without notifying NYSDEC and without properly sealing the abandoned well. Information management deficiencies further compound the enforcement effort, since the existence and location of private wells built prior to the creation of permit requirements are unrecorded. Furthermore well permits are filed either under the name of the builder or of the original owner therefore they are not filed or cross referenced by geographical location. Thus, the more often the property changes ownership, the more difficult it becomes to locate the well record in the NYSDEC files.

County

Nassau and Suffolk Counties act as agents of the New York State Health Department in the review of plans for water supply wells. Such authority is contained in the Public Health Law and the requirements contained in the State Sanitary Code, Part 5. Both County Health Departments inspect and approve the construction of all public water supply wells. The SCDHS now requires a well permit for all wells in advance of site plan approval and the granting of a building permit (Article 4-Suffolk County Health Code). Design standards for new private wells have also been developed. In order to obtain approval, the well must be constructed in accordance with approved plans, be operating and the produced water must meet minimum water quality standards. The municipality cannot issue a certificate of occupancy for any structure unless the well has been approved.

Presently, NYSDEC and NCDH policies require that the owners of public water supply wells either own or control the land within 100 feet of their wells. SCDHS encourages owners of public wells screened in the Upper Glacial aquifer to either own or control the property within 200 feet of their wells. Wells must be located as far as possible from septic systems (See On-Site Systems Chapter).

In Suffolk, county inspection of wells to be abandoned is expected to increase with the implementation of Article 4 of the Suffolk County Health Code, now being revised.

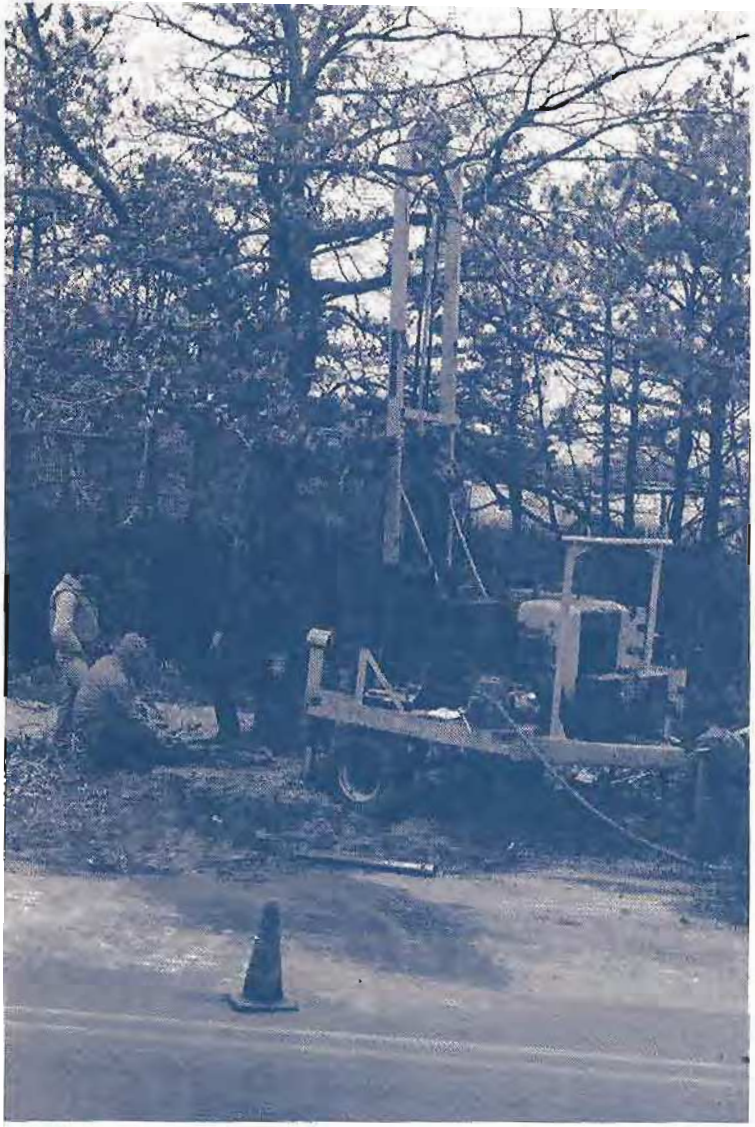
Municipalities

There are few known town, city, or village ordinances that specifically regulate the siting, construction, use or abandonment of water supply wells. Local subdivision regulations generally stipulate that wells be a minimum distance from septic systems and that well designs be acceptable to the local planning board and the county health department.

An additional procedure provides some measure of protection to the occupants of new housing that is served by private wells. It has become common practice for banks to require that the well water be tested and approved before a bank will write a mortgage insured by the FHA or the VA. In addition, tenants receive some protection because the landlord is required to supply water that meets existing health standards. However, it should be noted that only minimum tests are required, usually bacteriological and inorganic chemical analyses. Organic chemical and pesticide analyses may not be required.

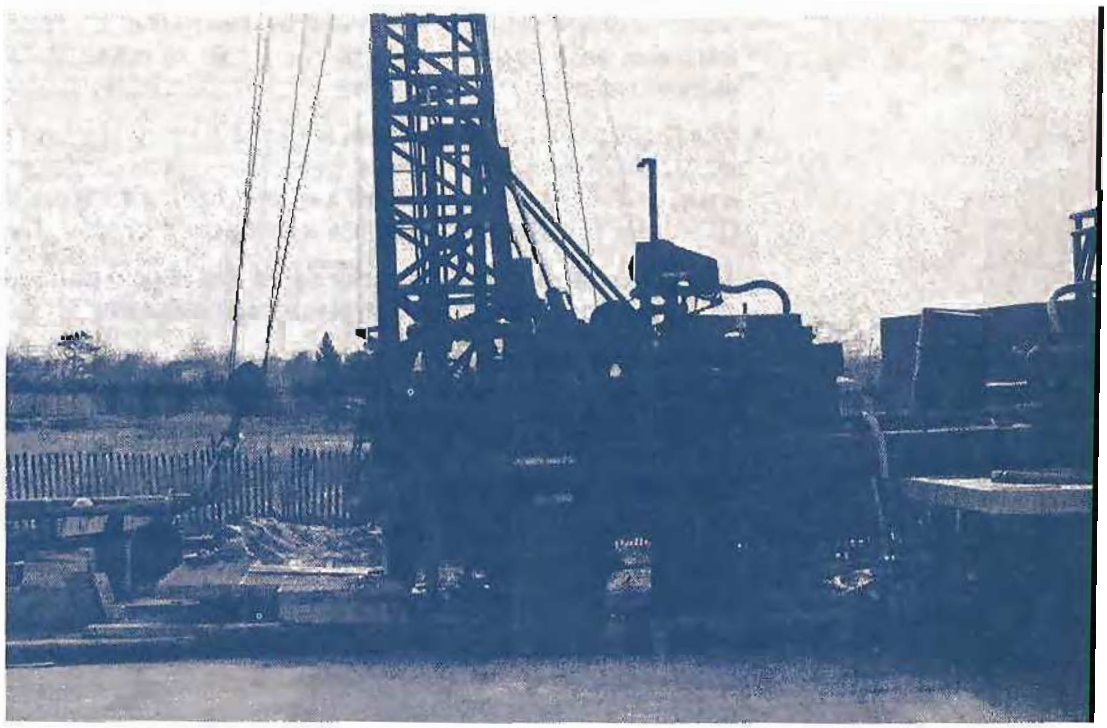
The proper siting and use of wells is not generally understood. Few developers are aware of the important environmental factors such as

- groundwater quantity
- the direction of groundwater movement
- flood hazard areas
- the proximity of leachate plumes or other contaminant sources that should be considered in siting a well



PHOTOS 5 & 6

These photos show the installation of observation wells by The Suffolk County Dept. of Health Services. Two types of rigs are shown.



RECOMMENDATIONS

Legislation, Regulation and Administration

Implementation of the following recommendations will minimize the risk of aquifer contamination and the impacts upon surface waters caused by the improper siting, construction, use, and abandonment of water supply wells. Implementation of some of these recommendations would require additional staffing for the NYSDEC and the county health departments.

State

- The NYSDEC should require laboratories analyzing well water to submit copies of findings to the appropriate county health departments whenever the well water is found to be contaminated.
- The Department should immediately exercise its authority pursuant to Article 15, Title 15 of the Conservation Law in order to reduce the ground and surface water impacts of improper well location and overpumping.
- The Department should evaluate the cumulative impacts on groundwater quantity and quality resulting from well location and pumping practices on an areawide and on a local basis. The impacts of permitted and non-permitted withdrawals should be considered.
- The Department should identify and designate stressed segments or *Critical Areas*, including but not limited to those portions of the aquifer where improper siting or excessive withdrawals could result in salt water intrusion, accelerated movement of leachate or contaminant plumes, marked reductions in streamflow or the reduction in wetlands acreage.
- The Department, in cooperation with the County Health Departments, should develop specific criteria, guidelines or standards for the issuance of a permit for the construction of *any* well having a capacity in excess of 45 GPM that is to be located within a designated *Critical Area*.
- The Department should formally adopt and should publicize the Critical Area well permit policy and implementing measures.
- The Department in cooperation with the counties, should develop and formally adopt standards for the location and construction of all wells regardless of size or type. A leaflet describing these standards should be distributed to permit applicants and well drillers, along with the preliminary permit forms.
- The Department should require that any well driller proposing to construct a replacement well indicate on the permit application that an existing well is to be abandoned.
- The Department should require public water suppliers to report the number and locations of private wells to be abandoned as the result of the establishment of new service.

State and County

NYSDEC or the county health departments acting for the NYSDEC, should undertake the review of well drillers' preliminary reports in order to determine as far as possible the potential impacts of proposed new wells and to make recommendations designed to eliminate or minimize any adverse impacts. The preliminary report format should be examined to assure that needed information is included and that paperwork is minimized.

County

The county health agencies should revise the current standard that requires a distance of at least 100 feet between a private well and septic system leaching pools by adding a provision to the effect that all new wells must also be sited at the maximum possible distance from septic system leaching pools and other sources of contamination. New, increased minimum distances should be considered under certain hydrogeologic conditions. The area within a radius of 100', 200' (or greater) horizontal distance as measured from the well head should be identified by the site designer as a control area, from which all potential sources of ground water contamination should be excluded (see Figure 8).

Municipalities

Whenever a well permit is required, the municipalities should withold all site clearance and building permits pending receipt of a copy of the well permit.

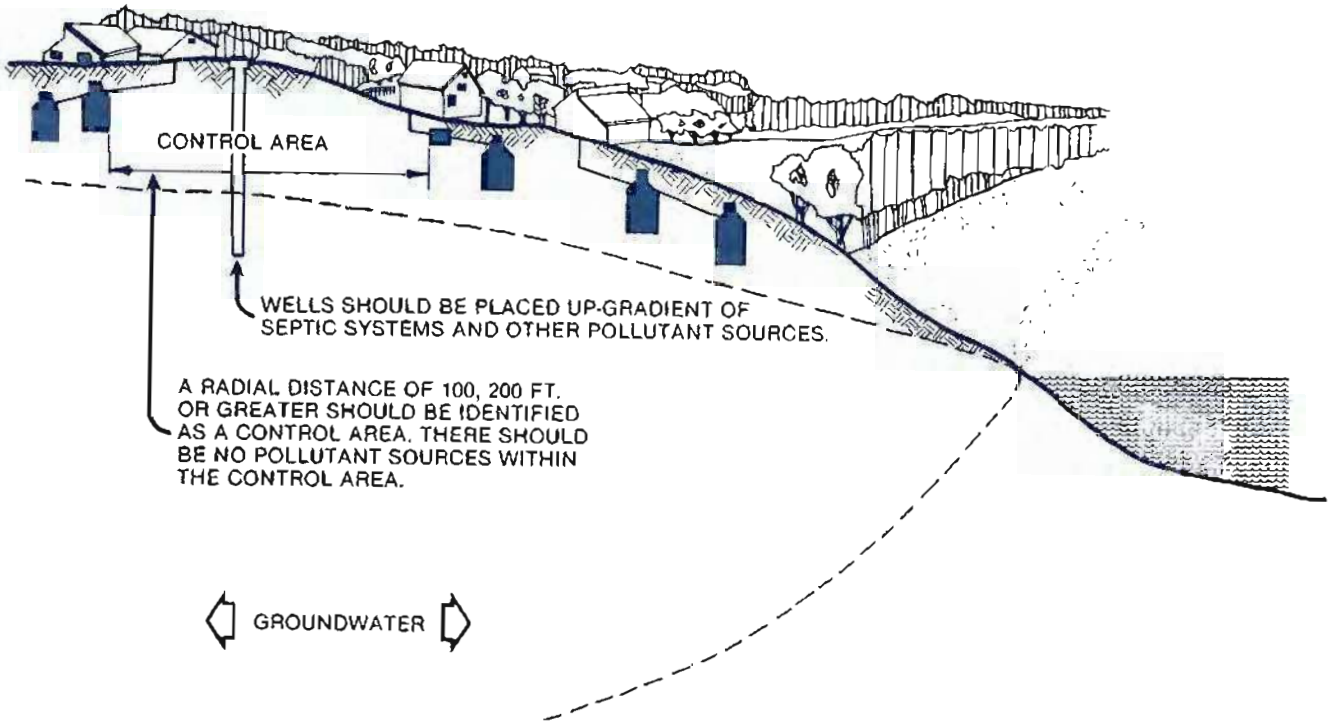


FIGURE 8 *Well Location*

Well Construction

This section is intended to serve as a guide for private industrial, commercial, agricultural and residential well construction. The construction practices itemized in the following paragraphs and commonly used for Long Island public water supply wells should be used for all wells, including those not currently covered by the permit process, in order to protect the quality of the water produced. The NYSDEC, county health departments and well drillers should review, and, if necessary, revise the following recommendations for immediate inclusion in the NYSDEC Well Permit Program.

- Insure adequate elevation of the top of the well casing to minimize contamination from flood waters and stormwater runoff. The top of the well casing must be 18' above the final grade in areas not prone to flooding. The top of the casing should be three feet above the 100 year flood mark or the highest recorded flood, whichever is greater, in any area subject to flooding.
- If the motor is in a vault, the vent for the motor should be carried within the vault so that the motor will burn out and the pumping of contaminated water will be prevented.
- If the method of drilling is such that there is an annulus between the well casing and drilled hole, make certain that it is properly sealed (using neat cement grout or bentonite) in order to prevent the downward migration of contaminants between the drilled hole and well casing. Many states require that the upper 50 feet of the well casing be sealed in this manner.
- Where the top of the well is finished off below grade, in a pit or vault or directly buried, finish off the casing above the pit or vault floor to prevent seepage into the well of water that might collect in the pit or vault. In this type of installation a concrete pad should be installed around the well casing. The concrete pad should be adequately pitched to allow water to drain away from the casing. If the top of the well is buried directly, a pitless adapter should be used with the adapter extension finished above grade for ease of location when repairs to the well are required.
- All well locations must be clearly marked.
- Every well top should be sealed so that there is no possibility of contaminant entry. There are commercially manufactured well seals and pitless adapters that adequately provide this safety factor. Too often, homemade seals that do not properly seal the top of the well are used.
- Provide a minimum space of one inch between the inside diameter of the well casing and the outside diameter of the pumping unit in wells where a submersible or in-the-well jet pump is to be used. Too often, the pump and well casing diameters are so close that eventually when the pump fails, it cannot be removed from the well. The homeowner is then forced to replace both the pump and the well.

- Use only *304 stainless steel* or plastic well screens. Long Island groundwater is generally corrosive and the installation of galvanized or mild steel well screens leads to premature well failure. Care should also be taken in the selection of screen opening to prevent sand pumping, which is as harmful to plumbing fixtures as it is to the well and pump.

- Employ corrective measures whenever a well either loses capacity, pumps turbid water or becomes bacterially contaminated during construction. Usually acid or a phosphate is used to treat for capacity loss or color, and chlorine for bacterial contamination. When these chemicals are used, care must be taken to make sure that they are totally flushed from the well, and tests should be made to ascertain this. After treatment, the effluent from the well must be properly disposed of, by neutralization on-site or by removal from the site and treatment, in order to prevent any harmful effects to the environment in the area of the well.

- Install a well with sufficient capacity to provide for anticipated needs. Before arranging for well installation, the property owner should discuss his or her future water requirements with the driller who should then determine the needed well capacity to meet those requirements.

Note: The preceeding recommendations were provided by Tom Sullivan, Layne-New York Company.

Well Use

- The NYSDEC, USGS and the County Health Departments should develop strategies and guidelines for the use of wells to improve groundwater for specified hydrogeologic and physical conditions. The guidelines, where applicable, should be then incorporated into the NYSDEC well permit procedure.

  Given appropriate hydrogeologic conditions, wells could be used to draw contaminated water away from public or private water supply wells. Similarly, in the future, irrigation wells might be screened at appropriate depths to pump aldicarb contaminated water and treat it or diminish the aldicarb concentration in an approved manner. Irrigation wells could also be used to pump nitrate-nitrogen contaminated water for use on lawns, turf and nursery products.

- The counties should fund an expanded monitoring program to increase surveillance of wells where it is suspected that the water will not meet the federal and state water quality standards. Where contamination precludes the use of untreated water from private wells, the counties, municipalities, or public purveyors should explore other options, including the extension of water mains or the installation of home water treatment units.

- The Cooperative Extension Service in Plainview and Riverhead should supply public information for owners of private wells concerning measures that the public can take to protect the water quality. Cooperative Extension should also publicize the indications of a contaminated well, and the procedure to follow to find out whether well water is contaminated.

Well Abandonment Procedures

When wells are abandoned, they should be sealed to

- prevent contamination of the groundwater by either flooding or the accidental or intentional disposal of waste materials
- prevent the intermixing of water from the various water-bearing zones through which the well casing passes
- conserve the yield and hydrostatic head of the aquifer(s)

[The New York State Sanitary Code (Section 5-2.11) requires that public water supply wells to be abandoned either be sealed or closed in order to protect the aquifer from pollution and to prevent hazards to either life or property.] The American Water Works Association recommends that abandoned wells be sealed with the intent of restoring, to the greatest extent feasible, the controlling geologic conditions that existed before the well was constructed. In non-artesian wells, the well must be sealed with an impermeable material in order to prevent surface water from percolating through the original well opening or along the outside of the casing to the aquifer. Sealing materials such as cement, neat cement, cement grout and clays can be used to plug and seal the interior of the well casing.

Specifications for the sealing of abandoned wells are given to permit applicants by NYSDEC. The specifications are taken from the American Water Works Association Standard for Deep Wells No. A100-66, latest edition dated January 23, 1966. The recommended abandonment procedure for wells in unconsolidated formations follows.

- Obtain permission in writing from the Region I Office of NYSDEC, SUNY at Stony Brook, New York.

- Remove any obstructions that could interfere with the sealing process. All pump bowls, columns, and other debris should be removed from the well to the maximum depth possible. Remove at least the upper portion of casing to prevent surface water from flowing down the casing. If the annular space around outside of the casing was properly sealed when the well was constructed, this last procedure is not necessary. The use of dynamite is expressly prohibited.

- Fill the portion of the well occupied by the screen with clean sand, gravel or clay. In no case should this filling extend above the top of the screen. Fill materials should be disinfected by first filling the well with a chlorine compound having a concentration of at least 50 ppm. The fill can then be deposited.

- Fill the entire casing, including the riser pipes and annular spaces between casings, with sealing material. Concrete, cement grout, neat cement, or clay fluids may be used; cement grout is recommended for most Long Island wells. Cement grout should not contain more than six gallons of water per bag. Grout material shall be placed by *Tremie pouring*. The minimum size Tremie pipe utilized shall be two (2) inches inside diameter. When making a Tremie Pour, the Tremie pipe shall be lowered to the bottom of the well being grouted, and raised slowly as the grout material is introduced. The Tremie pipe shall be kept full continuously from start to finish of the grouting procedure, with the discharge end of the Tremie

pipe being continuously submerged in the grout until the well to be grouted is completely filled. The grout should be continuously piped under pressure to the bottom of the well until it appears at the top of the casing. After the grout has consolidated, as confirmed by the visual inspection, the top of the casing should be closed and sealed with a welded steel plate. Where gravel or coarse material has been added around the inner casing to within 20-30 feet of the surface, the seal should extend outside the casing. (For further information, see the Manual of Water Well Construction Practices)

- Fill and seal wells extending into more than one aquifer in a manner that will prevent the water from flowing from one aquifer to another.
- Where the waterbearing formation consists of coarse gravel and producing wells are nearby, make sure that the sealing materials used do not affect the producing wells.
- Remove all material not utilized in the sealing operation from the site.
- After completion of the sealing operation, clean the site and regrade as necessary.
- Each well abandonment requires different procedures depending on the well construction, hydrological conditions, and the geological formations through which the well passes. The recommendations given above have been adapted to Long Island conditions. In cases of either salt-water intrusion or contamination, well abandonments are subject to individual review and approval by the responsible régulatory agencies.

  Some difficulty has been experienced in the sealing of artesian wells. Instructions for the sealing of artesian wells should be obtained from a qualified well driller.

Chapter Eight

INTRODUCTION

Boating activities on Long Island are an integral part of both an extensive marine-commercial industry and a large recreational pastime. According to the New York State Department of Motor Vehicles, in 1981 25 percent (or 78,976) of the boat registrations in the state were filed by Nassau and Suffolk County residents. In addition, Long Island waters harbor an undetermined number of boats of out of state registry, especially from Delaware and New Hampshire and; unregistered boats and transients.

The number of boats has been steadily increasing as the area has become more urbanized. At present, vessels and houseboats are becoming more popular as year round residences. The term houseboat is defined as a watercraft designed primarily to be occupied as living quarters. They can be found in several harbors and are expected to proliferate as costs for land-based housing continue to rise (see Figures 1 & 2).

Boating activity brings with it an ever present potential for the discharge of human wastes and other pollutants into waters that are utilized for recreational activities and shellfish harvesting (see Figures 3 & 4). These pollutants include

- oil products
- organic solvents and cleaners
- anti-fouling paints
- disinfectants
- bilge water
- garbage
- trash
- engine exhausts

The most significant impact from boating activities is the discharge of untreated and partially treated sanitary wastes into Long Island waters. While discharges from sewage treatment plants and stormwater runoff constitute the major non-point sources impacting marine waters, the discharge of boat wastes can result in elevated fecal coliform counts, and nutrient and Biochemical Oxygen Demand *(BOD) loadings*. Another important impact of boating activities is the contamination of *benthic organisms*, finfish, and wetlands from oil products.

Other aspects of boating activity, such as propeller cutting, prop wash and high speed boat wakes can cause damage to fish, marine invertebrates and wetlands if the activities occur on a continual basis.

FIGURE 1
Houseboats Moored At Seaford
Town of Hempstead, N.Y.

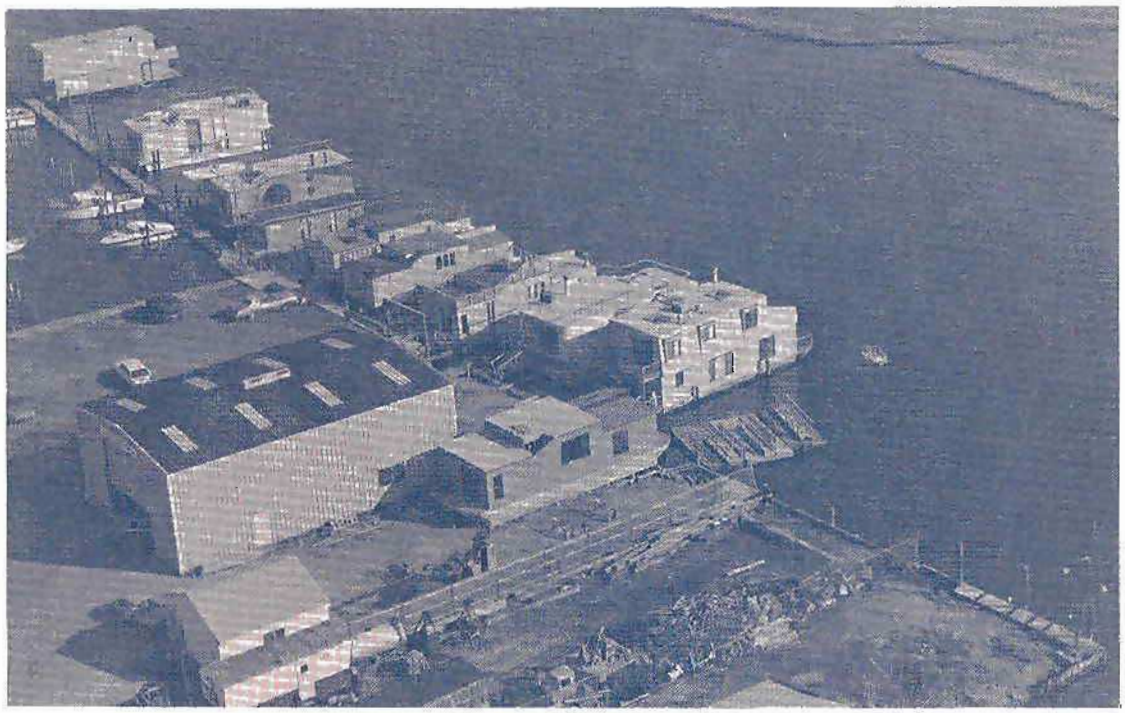


FIGURE 2
Houseboats Moored At Patchogue
Town of Brookhaven, N.Y.

FIGURE 3 *Parking Area Garbage And Trash*

Debris may be blown or washed into waterways.

FIGURE 4 *Boats Moored At A Marina*

Engine exhaust and pumped bilge water contribute to surface water contamination.

KEY PROBLEMS

Boat Sanitary Wastes

Approximately 90 percent or 71,000 of the registered boats in Nassau and Suffolk Counties are less than 25 feet in length. According to Coast Guard regulations they are not required to have sanitary facilities and most do not. These boats tend to be used on a daily basis rather than as live-on vessels. Only a portion of these smaller boats utilize portable toilets that can be carried off the boat and emptied at home or at a marina, in a sewer or septic system. The remaining boats have no sanitary facilities at all. Untreated wastes are discharged into the outer harbors, nearby bays or the Sound.

The larger boats, those 25 feet or more in length, are required to have *Marine Sanitation Devices (MSD's)*. Some of these boats are occupied overnight, or for days at a time while moored in harbors or marinas. In the case of houseboats, the period of occupancy is generally much longer. Boats lacking proper sanitary treatment facilities, can discharge a volume of partially-treated or untreated wastes equivalent to that produced by a household occupying a single family residence.

Most of the larger, older boats have *flow-through Type I MSD's* that are less effective than the *Type II MSDs* in removing fecal coliform bacteria. Some of these devices have not been maintained and are not used properly. As a result, it is not uncommon for the larger vessels to discharge partially treated or untreated waste into the harbors or bays. The newer boats are required to have either a Type II flow-through sanitary treatment system or a holding tank. Those with holding tanks are required to discharge the wastes at approved pump-out stations. However, since the number of pump-out stations has decreased over the past few years, boat owners may have difficulty finding a place to discharge the wastes. Where there are few pump-out stations, boat owners tend to opt for the flow-through Type II MSD. An alternative to this is a MSD that uses energy from the boat battery to incinerate the wastes.

Sanitary boat wastes contain

- ammonia
- nitrates
- phosphorus
- BOD
- COD
- total solids
- suspended solids

and other pollutants similar to those generated by a household on land. (See the On-Site Systems Chapter).

Untreated, sanitary waste may also contain large numbers of fecal coliform and a number of other types of bacteria, viruses, fungi and worms. Once discharged, these microorganisms can be ingested by clams, oysters, mussels and scallops, filter feeders that consume large volumes of water during feeding. If the concentration of pathogenic organisms in shellfish meats is substantial, the shellfish can become vectors for the transmission of diseases such as *viral hepatitis* and *gastroenteritis* (food poisoning).

The extent to which wastewater from boats noticeably affects water quality depends on

- the concentration, frequency and rate of
  - fecal coliform
  - nitrate
  - phosphorus
  - BOD and other pollutant loadings originating within a given water system
- the ability of the system to assimilate wastes

(See the Stormwater Chapter for the related impacts on surface waters). High concentrations of microorganisms that are likely to pose a potential health problem are usually associated with discharges that are large in volume compared to the flushing or dilution capacity of the receiving waters. A limited number of boat waste investigations have indicated that *the degree of pollution due to boating activities in marinas and confined embayments is directly proportional to the number of boats anchored or docked in the area.*

In addition to the health related problems, the introduction of sanitary waste into a body of water can increase the concentration of oxygen-demanding substances, which in turn reduce the amount of available oxygen necessary for the *metabolic* needs of other aquatic species. Over time, severe *anaerobic* conditions may result in changes in the composition of species in the waterbody.

Oil and Gasoline

Hydrocarbon pollution from boating activities in Long Island waters can also cause localized pollution problems. The sources of pollution include

- the operation of boat engines
- the release of bilge water
- spills or direct stormwater runoff from marine fuel docks, gasoline filling stations, oil storage areas, and roadways located close to such waters

Careless or improper pumping or filling practices and leaking gasoline tanks at the marine fuel docks result in a large number of small spills that can severely affect the aquatic environment in the immediate vicinity. Oil released into the water forms droplets of an oil-water mixture, which adheres to the surfaces of benthic organic sediments, sand, silt and debris. Some of the oil is subsequently taken up by the root systems of marine plants (see Figure 5).

The more highly refined oils, such as No. 2 fuel (diesel) are more toxic than crude oil. However, the soluble fractions of oil can be toxic, inhibitory and, in some cases, stimulatory to marine phytoplankton; and have the capacity to alter phytoplankton population structures. In addition the ingestion of water containing low levels of gasoline and oil have been known to affect the taste of clam meat.

Various hydrocarbons have been found to be *carcinogenic* and the severity of their impact may be magnified at each trophic level. At present, however, there is very little information regarding the long-term sub-lethal effects associated with chronic, low-volume spillage.

A film or layer of oil on the water's surface can reduce the amount of light penetration through the water column and can reduce the exchange of oxygen at the air-water interface. The productivity of marine plants that require light for photosynthesis may be reduced and oxygen-requiring organisms, may be stressed.

FIGURE 5
Typical Marine Fuel Dock

Anti-fouling Paints

Most craft are scraped, sanded and painted as part of annual boat maintenance. Anti-fouling paints contain copper, tin, mercury and other toxic compounds (In recent years the use of *polycholorinated biphenyls* (PCB's) in anti-fouling paints has significantly decreased). They are applied to hulls to retard the accumulation of marine grasses, barnacles and other organisms that utilize this surface as a substrate. Floats and buoys are also painted with anti-fouling paints for the same reasons.

The environmental effects of other anti-fouling compounds carried in stormwater runoff to surface waters, of which increasing quantities are being used, are yet not known.

Engine Exhaust Emissions

The direct impacts of boat emissions on the marine environment have not been quantitatively assessed; however, it has been generally concluded that toxic effects on benthic and algal species can only be expected when high levels of fuel are burned and the exhausts emitted into the water.

Garbage and Trash

The U.S. Coast Guard has estimated that one pound of paper, cans and bottles, and a half pound of garbage are discharged by each boater each boating day; much of this is obviously thrown overboard. In the New York Bight an estimated 2,500 tons of litter are dumped overboard each year by recreational boaters, most of it during the peak of the boating season between Memorial Day and Labor Day. It is during this time that litter is most visible on beaches and most likely to be washed ashore.

When garbage is thrown overboard, microorganisms in the water break up and decompose this organic material; and, in the process, consume dissolved oxygen. Commercial and sport fisherman discharge fish and remains of catch overboard resulting in additional contaminant loadings to areas where tidal flushing is limited. Non-biodegradable products, such as plastics and metals, are a large contributor to the visual pollution of shoreline areas and create a hazard in areas used for recreational activities, such as swimming and waterskiing. Discarded aluminum can rings can be harmful to blue fish, and to gulls and diving ducks who get them caught on their beaks or bills. In addition, floatable materials can cause damage to hulls, foul wheels and clog engine cooling water intakes.

Additional Environmental Impacts from Boat Operation, Boat Wake, Propeller Cutting and Prop Wash

The cutting of rooted aquatic vegetation by boat propellers occurs when motorboats traverse shallow waters. The decrease in plant vegetation, along with the accumulation of plant debris on the bottom, may reduce the aquatic population or change the composition of species that depend on these plants for food, shelter, or substrate. The degree of damage incurred by propeller cuttings in shallow areas depends on the intensity of boating activity. Most boaters try to avoid shallow areas with rooted vegetation because of poor maneuverability, and the likelihood of propeller fouling, or damage to the boat itself.

In shallow waters, the wave energy created by boat wakes or the turbulence resulting from the action of propellers in the water (prop wash) can stir up and suspend fine particulate matter. Over a period of time, this constant disruption can physically alter the substrate and habitat of benthic or bottom organisms. Other environmental impacts that can result from boat wakes and prop wash include the release of toxins (when sediments containing these substances are disturbed), the reduction of light penetration causing reduced productivity, and the erosion of wetlands and shorelines by boat-generated wave action.

Boating activity can also significantly impact the breeding and nesting areas of waterfowl.

EXISTING MANAGEMENT

Legislation, Regulation and Administration

Federal

RIVERS AND HARBORS ACT OF 1899

Section 407 of this act prohibits the throwing, discharging, or depositing of any refuse matter (sewage, garbage, trash, etc.) into the navigable waters of the United States.

LEGISLATION RELATING TO MARINE SANITATION DEVICES

In an effort to curtail the discharge of untreated sanitary wastes from vessels, the federal government established Section 312 of the Clean Water Act of 1977, which placed responsibility for the development and enforcement of its regulations within the offices of the U.S. Coast Guard and the EPA. The main objective was to place approved Marine Sanitation Devices (MSDs) on all vessels that contained installed toilets (unless exempted by the Secretary of Defense). The regulations established performance standards and prescribed mandatory installation dates. The MSD's were to be designed either to hold raw sewage for shore-based disposal or to treat the wastes onboard prior to discharge. Effluent restrictions for fecal coliforms and visible floating solids for both existing vessels (construction initiated before January 30, 1975) and new vessels (construction initiated on or after January 30, 1975) were set forth.

The Coast Guard regulations identified three types of MSDs, each having certain requirements.

Type I - *a flow-through device that treats the effluent onboard. Disinfectant chemicals are mixed with the raw sewage which is chopped up with high speed blades and then discharged into the water.*

1. *Fecal coliform count of effluent cannot exceed 1,000 per 100 milliliters*
2. *No visible floating solids may be present.*

Type II - *a flow-through device that treats the effluent onboard. It is either biologically or chemically treated and chopped up. Suspended solid material is removed by sedimentation or filtration prior to discharge.*

1. *Fecal coliform count of effluent cannot be greater than 200 per 100 milliliters*
2. *Suspended solids cannot exceed 150 milligrams per liter.*

Type III - *a holding tank device that does not discharge any sewage. It is stored (usually with disinfectants and deodorants added) until it can be pumped out at a shore-based facility (pump-out station) or in an unrestricted discharge zone (beyond three miles from shore).*

Due to problems in meeting the deadlines established under this act, a number of waivers were issued extending the date for the purchase and installation of MSDs. Table 1 describes the schedule for vessel manufacturer and operator (or owner) compliance as set forth in the latest revisions (July 1981) of the regulations.

TABLE 1

Coast Guard Regulations for MSDs—As of January 30, 1980

Vessels with Installed Toilets [1]	Must be Equipped with a Certified (or Labeled)	Unless Equipped With a
In permitted MSD discharge waters[2]		
65 feet and under	Type I MSD, Type II MSD or Type III MSD	Type I MSD installed on a new vessel (Built on or after January 30, 1975) before January 30, 1980.
Over 65 feet	Type II MSD or Type III MSD	Type I MSD purchased for an existing vessel (Built before January 30, 1975) before January, 30 and installed before January 30, 1979
In No-Discharge Areas[3]		
Any Vessel	Type III MSD	Type I MSD, or Type II MSD that has been secured so as to prevent any discharge

[1] Many boats that are 25 feet or less in length are not equipped with installed sanitary facilities and are therefore exempt from MSD regulations.

[2] Permitted MSD discharge waters include coastal waters, estuaries, the Great Lakes, interconnecting waterways, freshwater lakes, impoundments accessible through locks and other flowing waters that are navigable interstate by vessels subject to this regulation.

[3] No-discharge areas include those freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets and outlets are such as to prevent the ingress or egress by vessel traffic subject to this regulation or in rivers not capable of navigation by interstate vessel traffic.

COMPLIANCE PROBLEMS

Confusion concerning the types of device allowed and the compliance dates for boats of a various ages and sizes has characterized the program from its inception. Continual changes in standards have created difficulties for the manufacturers of MSDs and for boat owners as well. In establishing the initial compliance dates, the federal government failed to consider the possible delays that might be caused by mechanical and operational problems. Long waiting lists for both the purchase and installation of an approved MSD became common. Design defects caused a number of the devices to function poorly. This, in turn, discouraged many boaters from installing or operating these MSDs.

There were additional problems with the Type II and Type III MSDs. MSDs are very costly to install, operate and maintain. In an effort to alleviate some of the financial burdens, the Coast Guard has even suggested that, *small vessel owners, such as day sailors, may find that the cheapest option is to remove their installed toilet and substitute a portable device with a small holding tank, (cost: $80 to $125.)*

Owners of boats generally smaller than 65 feet were not able to install the Type II MSD not only because of its high power consumption, but also its larger size, weight and maintenance requirements. Most sailboat owners found that they could not consider this type as an alternative.

The main objection of many boat owners and operators to utilizing Type III devices (holding tanks) is the lack of sufficient, conveniently located pump-out facilities. (See Figure 6). Nearly 45% of the approved stations that were operating in Nassau and Suffolk in 1975 are no longer in operation, and many marina operators do not feel there is sufficient demand to justify the expense of operating a pump-out facility. The larger private marinas maintain them primarily for their own clientele. Public facilities are scarce. Figure 7 shows the location and lists those pump-out stations in Nassau and Suffolk that were operating in 1982.

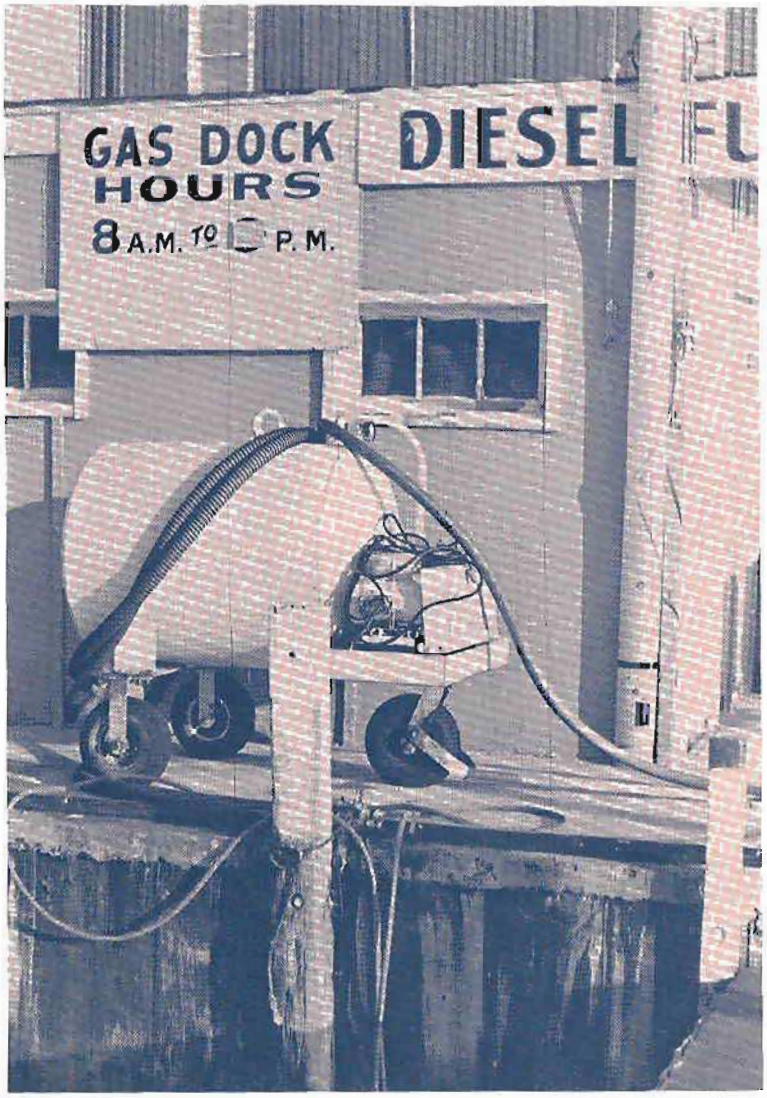
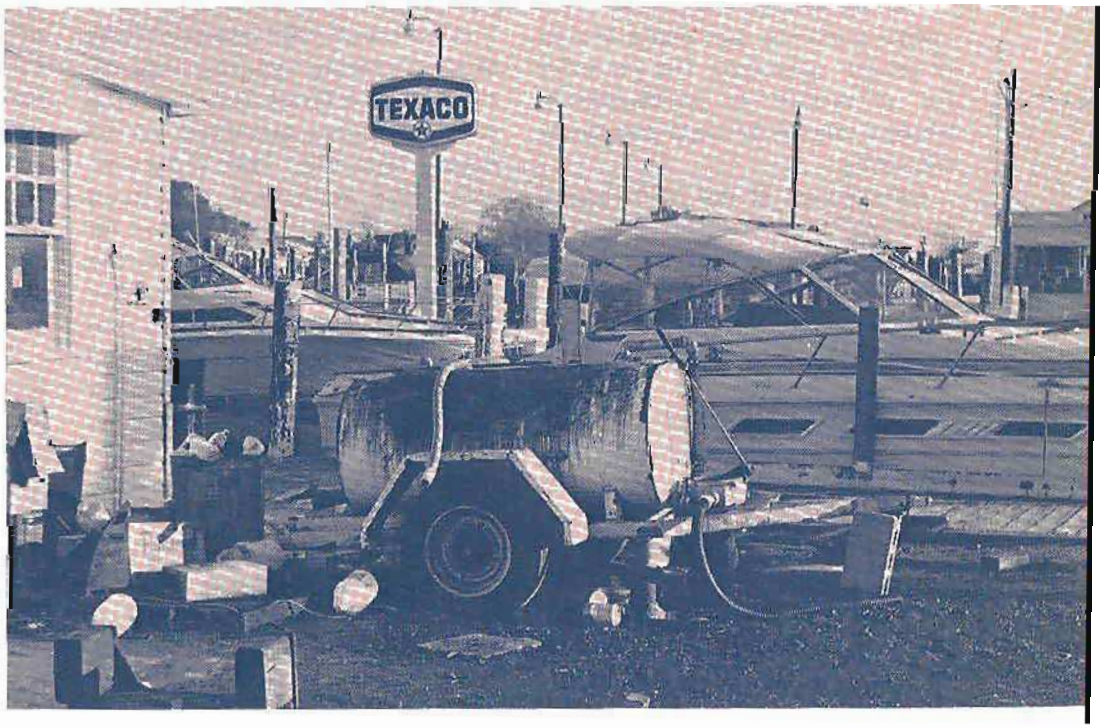
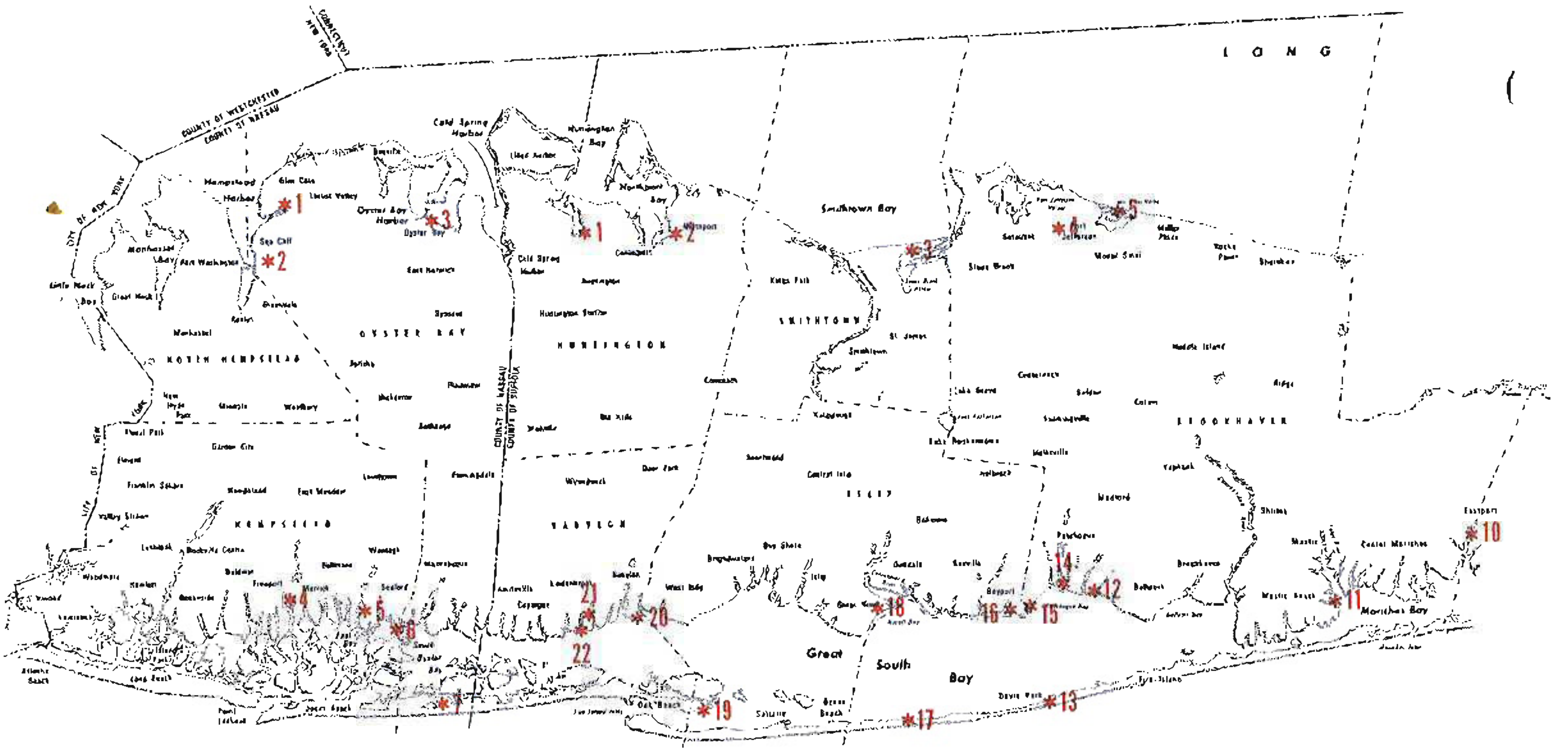


FIGURE 6
Typical Pump-Out Facilities





The installation of an MSD on a vessel does not guarantee its use or proper operation. The potential for untreated or inadequately treated wastes to enter the water still exists.

Enforcement of the MSD regulations has been restricted to vessels (usually commercial vessels over 65 feet) that are subject to mandatory, routine inspections by the Coast Guard. Due to drastic reductions in manpower, the inspection of recreational boats with installed toilets has been minimal. The Town Bay Constables are not authorized to inspect boat sanitary systems.

There has been a dramatic increase in the number of *live-aboards* in numerous areas, some with minimal tidal exchange. This has created a potential health hazard and increasing public concern.

In December 1981, a review of the MSD regulatory program was initiated by the Coast Guard and the EPA. Complaints submitted by the public regarding the program's costs and impractical compliance deadlines were a main reason for this review, which provided for an examination of costs and benefits of alternatives to the existing program. The results of the review and possible changes in legislation are currently under consideration (see Figure 8).

DISCHARGE OF OIL

According to the federal regulations on the Discharge of Oil (Title 40: Chapter 1: Part 110), *discharges of oil or hazardous substances that cause a film or sheen upon the water's surface or cause a sludge or emulsion below the surface or upon adjoining shorelines are prohibited.* The regulations administered by the United States Coast Guard, exempt oil discharges that occur during the proper functioning of a vessel engine; however, oil accumulated in a vessel's bilges is not exempt.

During the last few years, the U.S. Coast Guard has required the installation of oil separators on bilges of large vessels in order to prevent oil from entering marine waters through bilge discharges. The Coast Guard however, does not check bilge containment areas on most recreational or small commercial vessels.

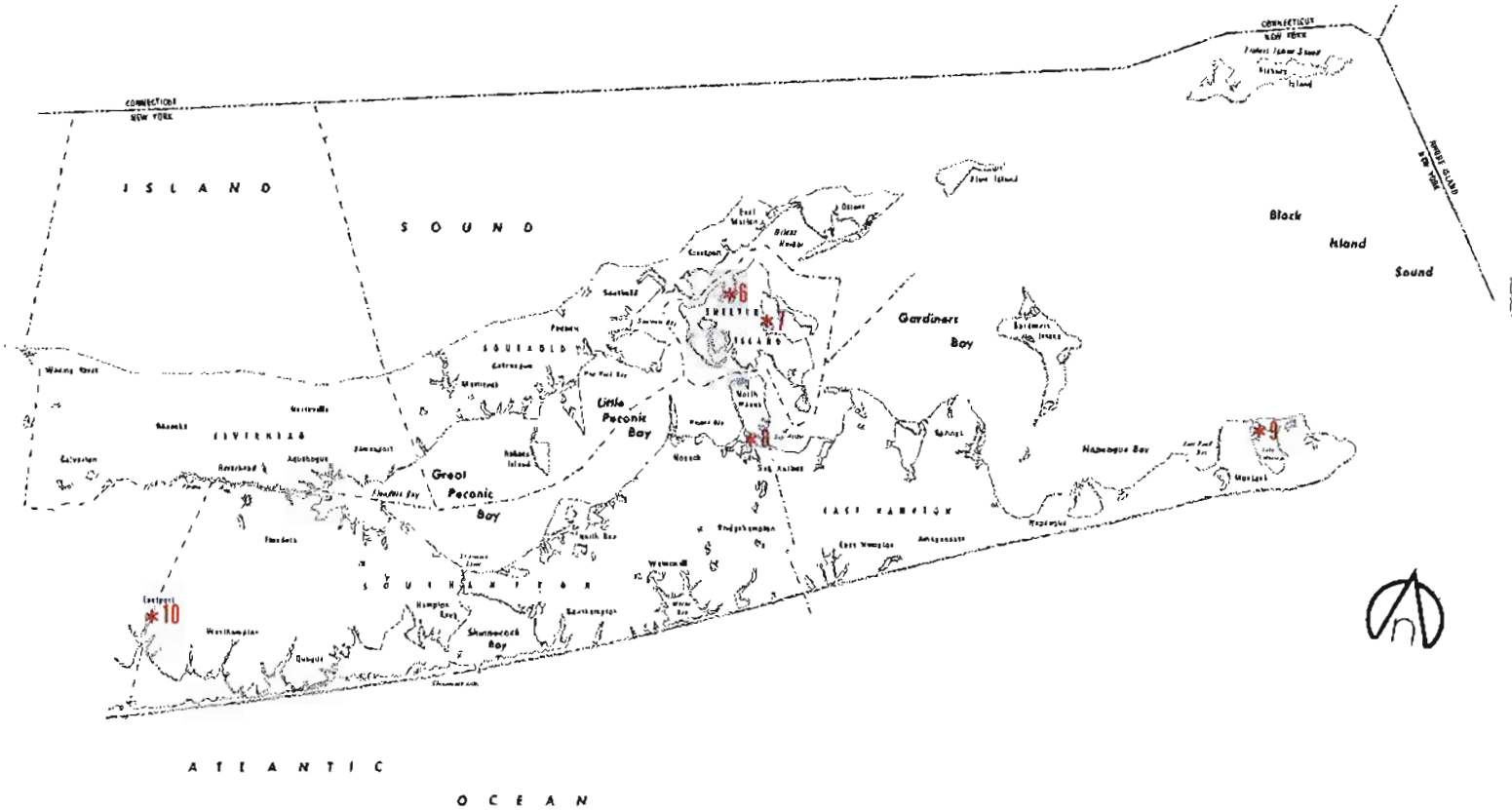


FIGURE 7 *Locations of Pump-Out Facilities In Nassau And Suffolk Counties**

NASSAU COUNTY

1. Glen Cove Yacht Service, 88 Shore Road, Glen Cove.
2. Tappan Beach Marina, Shore Road and Tappan Beach, Glenwood Landing.
3. Roosevelt Memorial Park, 58 Main Street, Oyster Bay.
4. Al Grover's Hi and Dry Marina, 500 South Main Street, Freeport.
5. Wantagh Park County Marina, Wantagh Parkway and Merrick Road, Hempstead.
6. Treasure Island Marina, 2880 Ocean Avenue, Seaford.
7. Tobay Beach Basin, Ocean Parkway, South Oyster Bay.

SUFFOLK COUNTY

1. Halesite Marina, Huntington Harbor, New York Avenue, Huntington.
2. Woodbine Marina, Woodbine Avenue, Northport Harbor, Huntington.
3. Long Beach Marina, Long Beach Road, Nissequogue.
4. Port Jefferson Marina, Port Jefferson Harbor, West Broadway, Port Jefferson.
5. Cedar Beach Marina, Mt. Sinai Harbor, Harbor Beach Road, Mt. Sinai.
6. Dering Harbor Marina, Dering Harbor, Rte. 114, Shelter Island Heights.
7. Coecles Harbor Marina, Coecles Harbor, Hudson Avenue, Shelter Island.
8. Baron's Cove Marina, W. Water Road, Sag Harbor.
9. Deep Sea Marina, Star Island Road, Star Island, Lake Montauk.
10. Seatuck Cove Marina, South Bay Avenue, Eastport.
11. Forge River Boat Basin, 9 Oceanview Drive, Mastic Beach.
12. Dockside 500, 90 Colonial Drive, East Patchogue.
13. Watch Hill, Davis Park, Fire Island.
14. Sandspit Marina, Brightwood Street, Patchogue.
15. Corey Creek Marina, Blue Point.
16. Watchhill Marina, 38 South Gillette Avenue, Bayport.
17. Sailor's Haven, Fire Island.
18. Timber Point County Park, Great River Road, Great River.
19. Captree State Park, Robert Moses and Ocean Parkways, Babylon.
20. Babylon Cove Marina, 415 Fire Island Avenue, Babylon.
21. Anchorage Marina, 401 E. Shore Road, Lindenhurst.
22. Boatland, 710 S. Wellwood Avenue, Lindenhurst.

*Updated August 1982 from the June 1, 1975 list prepared by the New York State Department of Environmental Conservation.

State and Local Municipalities

In order to minimize the proliferation of conflicting state or municipal standards for MSDs, Section 312 (f) (1) of the Clean Water Act now limits the role of the states to the following:

- assistance to the Coast Guard in enforcement activities when requested (section 312 (k));
- designation of No-Discharge Areas covering some or all of the waters of a state, following application by the state, and subsequent EPA approval of such designation (section 312 (f) (3)).

Presently, there are no approved No-Discharge Areas within the region.

Local

There are a limited number of municipal laws that prohibit living aboard a vessel within municipal waters. In the Town of Southampton, there are specific regulations regarding *live aboards*. According to Article V, Section 7-E, of the Town's Rules and Regulations for its waters, *no person...occupying a watercraft shall use same for living or sleeping purposes while moored in or upon town waters, or at any dock or marina for more than four consecutive days.* The Towns of Hempstead and Huntington also restrict persons from living on board their boats within town marinas. Likewise, the Town of Shelter Island has declared that *no boat on which persons are residing shall be moored within 400 feet of the shore in the inland waters or waters bounding the town...*

The Town of Brookhaven has several laws that are used to control or minimize the impacts boat wastes. Chapter 10 of the Town Code, states that *the Commissioner of Parks and Recreation, or his duly designated representative, may reject any application for any type of boat for any reason which in his judgement, may jeopardize the safety of any other permit holder and the boats stored in a town marina. The Commissioner shall reject any application to tie or dock a boat which has living quarters that is neither a sailing vessel nor mechanically propelled.* The Town Clerk may reject any seasonal application for any type of boat for any of the reasons listed above.

Chapter 13, of the Brookhaven Town code, states that *persons in charge of or occupying boats docked at or moored to land, docks, piers, or wharves abutting navigable waters shall observe all the health or sanitary regulations of the Town of Brookhaven and of the County of Suffolk.* Discharging of toilets or of oil is prohibited in areas designated as boat basins, anchorages or bathing areas (Certified shellfishing areas were not included). According to Chapter 8 of the Town Wetlands Code *any form of pollution including but not limited to liquid wastes and sewage treatment effluent shall not be discharged into or go as to drain into a tidal or freshwater wetland.* The Town Board also has the authority to restrict the mooring of boats to town-owned bay bottoms.

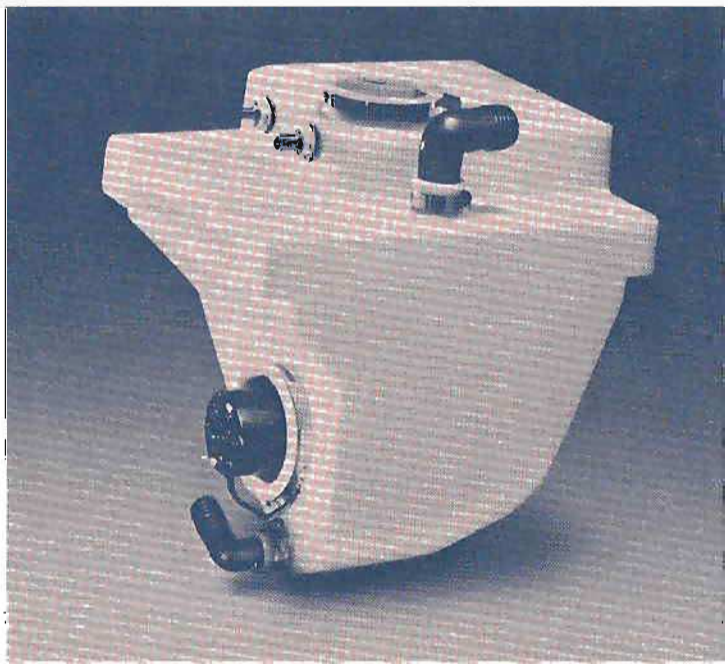


Photo — Courtesy of Mansfield Sanitary Plumbing Products

FIGURE 8 *A sanitation system that is adaptable to existing sanitary facilities. This device meets the requirements of the U.S.C.G. Certified Type I Marine Sanitation Device.*

RECOMMENDATIONS

Studies and environmental data have pointed to local effects rather than a large scale pollution problem from boat wastes and usage. In the absence of further federal guidance, the following recommendations are directed primarily toward local involvement, with emphasis on locating potentially vulnerable waters and preventing certain types of pollution through the education of the boating public. These recommendations should be implemented in the Long Island area regardless of any federal decisions that may be made concerning MSDs.

Legislation, Regulations and Administration

Municipal Government Involvement

- The State should encourage town actions leading to the establishment of NYS recommended, EPA approved *No-Discharge Zones*.

- The municipalities, in cooperation with the State should initiate local action leading to the establishment of *No-Discharge Zones* where appropriate. This designation would require holding tanks (Type III MSDs) for all live-on vessels moored in the *No-Discharge Zones*. The occupancy of houseboats would be prohibited in these zones unless the houseboats were hooked-up to an approved land based sewage treatment facility. The following procedure is suggested.

  Identify all marinas and anchorage sites located in enclosed or semi-enclosed basins, where boating activities may have a significant impact on water quality.

  Organize and, to the extent feasible, participate in a monitoring program with the NYSDEC, NCHD and SCDHS to identify those problem areas where the potential impacts from boat wastes and boat uses are the greatest.

  Based upon the data developed from the above program, the NYSDEC, the county health departments and the towns and villages should select and map several pilot *No-Discharge Zones*, including one or more of the following:

  - marina and anchorage areas identified as subject to high pollutant loadings,
  - bathing beach areas
  - especially productive shellfish beds
  - prime marine, aquatic or other habitats.

  The maps should be distributed to the boating public.

  The State in cooperation with the towns should establish *No-discharge Zones* as required and develop a program to manage these areas.

  In conjunction with the State, the towns should apply to the EPA for the designation of the *No-discharge Zones* which have been identified above.

- The municipalities should provide informational workshops for the people who will be responsible for the enforcement of the *No-Discharge Zones*.

- Once the *No-Discharge Zones* have been established, the National Oceanic and Atmospheric Administration should map these zones on the navigational charts.
- The Coast Guard, the counties and the municipalities should jointly resolve the question of jurisdiction over the discharges from live-aboard vessels and houseboats in order to prevent an increasingly serious pollution problem. Pending further clarification of the responsibility for the control of sanitary wastes from live-aboard vessels and houseboats permanently berthed or moored in local waters, the municipalities should use all available mechanisms including but not limited to the imposition of requirements for the hookup to approved land based treatment facilities, the immediate termination of occupancy or remove the offending vessel or house boat from municipal waters.
- The municipalities should also identify *Limited Access Zones* that include shallow waters, wetlands, prime wildlife and marine life habitats. The Harbor Masters or Bay Constables should direct boaters away from these areas. Appropriate signs and markers should be provided by local municipalities.
- The Counties and/or municipalities enact a law requiring the provision of pump-out stations and their use, especially in or near the *No-Discharge Zones*. A properly operating pump-out station should be mandatory at marinas that accommodate over night boaters and/or full-time *live-aboards*.
- The municipalities should require the provision of adequate trash receptacles at marinas, boat ramps and near anchorage areas, and should prohibit the discarding of any trash or garbage other than in proper receptacles.
- The Counties and/or towns should encourage proper maintenance procedures at marine fuel docks to prevent needless overflow into the adjoining waterways.
- The towns should require owners to prevent runoff to surface waters from all new development in shoreline areas, including marinas and boat yards in order to reduce the contamination from land- based sources. The direct discharge of stormwater runoff containing oil products should be prohibited. A stormwater management plan should be required by the towns before the Site Clearance and Building Permit is given.
(See Stormwater and Site Plan Review Chapters).

Public Education

- The U.S. Coast Guard and the Power Squadron should utilize their boating courses to promote public awareness of the impacts of boat pollution and boat operation in Nassau and Suffolk Counties.
- The N.Y.S. Dept. of Motor Vehicles should include educational pamphlets describing the environmental impacts associated with boating activities as part of its mailing of new boat registrations and renewals.
- The towns should alert boaters to the designation of *No-discharge Zones* in their region and should provide a clear description of the conditions and restrictions associated with these Zones.

Chapter Nine

SITE PLAN REVIEW

INTRODUCTION

Description of the Existing Site Plan Review Process

The site plan review process provides a means of plan implementation which is used by counties, cities, towns and villages. The process includes both individual *site plan review* and *subdivision review*.

The site plan review and approval of site development and construction plans is an important part of local water quality protection efforts. Certain types of potentially adverse impacts can be addressed and effectively eliminated or minimized as a part of the review process. Adequate site plan review can contribute to the achievement of the community goals set forth in local plans, policies, and ordinances.

The municipal *comprehensive land use plan* is a statement of the community goals and objectives and policies. It is usually expressed in a report and maps dealing with land use, housing, transportation, public facilities and other components, as required to achieve the goals and objectives. The plan creates a framework for the zoning, subdivision and environmental ordinances and for the administrative actions needed for plan implementation. State law requires that zoning and subdivision ordinances be based upon a comprehensive plan. In most instances, the zoning ordinance, subdivision and environmental ordinances, either individually or in combination, provide the legal basis for the site plan review process.

This chapter is concerned with the entire *Site Plan Review Process* (SPRP). The main emphasis is upon the site plan and subdivision review. Zoning changes, variances, and special permits are also addressed, since the approval of these items directly affects the development of the site plan and can have significant effects upon groundwater and surface waters. The process comprises a series of activities beginning, in some cases, with a request for a zoning change; in others, with site data gathering, analysis and preliminary plan preparation. It continues through the municipal review and the issuance of a building permit and terminates upon issuance of the certificate of occupancy and/or to the release of the performance bond, if any.

The remainder of the chapter is divided into five parts:

- a description of the legislative, regulatory and administrative controls that directly affect the site plan review process
- a brief description of the site plan
- an overview of the existing site plan review process
- a summary of some of the problems associated with the process
- recommendations for increasing the effectiveness of the review process as a mechanism for reducing the impacts of nonpoint sources upon groundwater and surface waters and directions for the preparation of a site plan consistent with surface water and groundwater protection

Measures to simplify and to improve coordination with the *State Environmental Quality Review Act* (SEQRA) are also outlined. *Environmental Impact Statement* (EIS) scoping, the use of performance standards, performance bonds, certificates of occupancy, restrictive covenants and municipal ordinances that can be used to insure that an environmentally acceptable plan is implemented are included.

Other chapters that may be used in conjunction with this chapter are the Land Use chapter, which contains recommendations for general changes in land use, zoning ordinances and environmental ordinances to provide a better basis for the site plan review process; and the Ordinances chapter, which provides samples of existing and recommended groundwater and surface water protection ordinances.

EXISTING MANAGEMENT

Zoning and subdivision ordinances provide standards and guidelines, and establish procedures and timing for the site plan review process. Municipal environmental ordinances, state and county laws provide further authority for the site plan review process. The State of New York has delegated authority for the imposition of various land use controls through the enactment of enabling legislation:

- granting zoning powers (General City Law §20, Town Law §361 and Village Law Article 7, §7-700)
- authorizing the establishment of a board of appeals procedure (General City Law §81, Town Law 267, Village Law 7-712)
- providing for the review of subdivision plats (General City Law §32, Town Law 276 and Village Law 7-728)
- providing for the approval of site plans (General City Law §30-07, Town Law §274-a and Village Law §7-725)

In addition to the zoning and subdivision ordinances and county and municipal environmental ordinances, other laws — most notably sections 239 *l* and *m* of the General Municipal Law and sections 1323-1333 of the Suffolk County Charter — furnish the legal basis for site plan review.

The New York *State Environmental Quality Review Act* (SEQRA) is a relatively new and increasingly important element in the general site plan review process. Statutory authority for the New York State Environmental Quality Review Act is provided in the Environmental Conservation Law §8-0113. Part 617 1-18 provides a regulatory framework for SEQRA implementation by all state and local agencies.

A number of permits may be required as a part of the review process. These include

- well permits
- sewage and industrial waste disposal permits
- tidal and freshwater wetland permits.

The procedures used in the processing of applications for permits required by certain sections of the New York State Environmental Conservation Law are described in Title 6, NYCRR, Part 621. (The statutory authority for these regulations is the Environmental Conservation Law §70-0107). The authority and regulations for the permits subject to the Uniform Procedures Review are listed in Table 1. In addition to the State and municipal laws and regulations there are a number of Federal and local laws that require compliance for development and site activities. A number of regulations have been described in the various Handbook chapters. The procedure for obtaining these permits is described as a part of the site plan review process (see NYSDEC, Nassau County, Suffolk County).

TABLE 1

Permits Required for the Site Plan Review Process

Action	Permit Required	Agency	Authority
Project area on or within 100 feet of a freshwater wetland or freshwater body of 12.4 acres or larger (Town regulations may be more stringent) Project involving draining, dredging, filling, excavating, erecting structrures, roads, utilities or other alterations or placing any form of pollution in a wetland. (Consult the Regional Environmental Assessment Unit at 516/751-7900 if unsure)	Freshwater wetland	NYSDEC (Authority may be delegated to the municipalities)	ECL Article 24; 6 NYCRR Parts, 662 and 663
Project changing, modifying or otherwise disturbing the course, channel or bed of any stream classified C(T)[1] or higher.	Protection of Waters Permit	NYSDEC (Towns also have permits or review)	ECL Article 15; Title 5: 6 NYCRR Part 608
Project involving the temporary or permanent artificial obstruction of a natural stream or watercourse			
Project involving the construction or repair of a permanent dock, pier or whar having a top surface area more than 200 square feet.			
Project involving any excavation or placing of fill in the navigable waters of the State and adjacent wetlands.			
Future restricted activities within the boundary area.	Wild, Scenic and Recreational Rivers Permit	NYSDEC (Towns)	ECL Article 15; Title 27 Regulations have not yet been adopted
Acquisition, conservation, development or use of land or construction of facilities for water supply or distribution purposes	Water Supply Permit	NYSDEC (or County)	ECL Article 15; Title 15: 6 NYCRR Parts 601 and 602
Construction of new well or deepening or increasing capacity of an existing well to withdraw water at rate greater than 45 gpm or if project will lower groundwater levels for construction purposes.	Well Permit	NYSDEC	ECL Article 15; Title 15: 6 NYCRR Part 602
Project located in tidal waters or within 300 feet of either the landward edge of a tidal wetland boundary or a tidal body of water	Tidal Wetlands Permit	NYSDEC (Towns)	ECL Article 25; 6 NYCRR Part 661
Any subdivision of land or physical alteration of land or water.			
Exemptions to the above regulated locations if - Project will be located at a ground elevation of 10 feet or higher above mean sea level (excepting on the face of a bluff or cliff). - A substantial, manmade structure (such as a paved street or bulkhead) 100 feet or longer exists between the project site and tidal wetlands or tidal water.			
Any quantity of industrial waste	SPDES	NYSDEC (County	
Industrial hazardous waste greater than 1,000 kg/month	Part 360 Article IX NCDH Code Article 12 SCH Code	Health Departments Municipalities (Zoning))	
Mining of greater than 1,000 tons of mineral within a 12 calendar month period	Mining Permit	NYSDEC (Towns)	ECL Article 23; Title 27; NYCRR Parts 420-426
Construction or modification of facilities (such as highways, stadiums, large shopping centers and parking lots) which, by generating significant traffic, may contribute to air quality deterioration.	Permit to Construct Indirect Sources	NYSDEC (Towns)	ECL Article 19; 6 NYCRR Part 108

[1]The best usage of class C waters are fishing, propogation, survival and growth of fish, other aquatic life and wildlife, secondary contact recreation. "C" waters are not used as a source of water supply or for swimming. "T" represents waters suitable for trout habitat and spawning areas.

Zoning

Traditionally, *zoning* provides for the uniform application of adopted standards and regulations to all properties assigned to a specific zoning district.

A zoning ordinance is generally composed of three elements:

- the *text*, which describes the intent of the ordinance, delineates the various districts or zones and specifies the general uses and densities allowed therein, sets forth administrative procedures, and defines the terminology used
- the *zoning standards*, including a tabular listing of the building bulk and lot and yard requirements for each zone
- the *zoning map*, showing the boundaries of each of the zones

See Figure 1 for a typical zoning map. By setting standards for development, this document controls the use and intensity of development of every property within the municipality.*

The more sophisticated zoning ordinances include descriptive statements of purpose (i.e., to protect groundwater, guide future growth) for each of the zoning districts, setting forth the local legislative intent for that district. These statements of purpose can be particularly helpful to the zoning and planning boards deliberating on the matters before them.

Zoning ordinances that provide standards, guidelines, timing and procedural information for site plan review often include some or all of the following:

- Identification of the site plan review agency (local municipality and county agency), where mandated; i.e. condominium development
- Requirement of a site plan review and approval procedure
- Identification of zoning districts where site plan approval is required
- Timing for the site plan review process
- Identification of objectives and standards for site plan review
- Development standards and/or design criteria for zoning districts
- Site plan requirements
- Requirement for preliminary site plan review prior to consideration of a change in zone
- Requirement for site plan approval before grading or tree removal may begin
- Compliance requirements before a building may be occupied
- Procedure for zoning board of appeal review

Examples of some of the provisions found in Long Island municipal codes are presented in Table 2.

Enforcement of the zoning ordinance on a day-to-day basis is usually the responsibility of the building inspector or other officials selected by the municipality's legislative body. Disputes arising out of his/her interpretation of the municipal zoning ordinance may be appealed to the zoning board of appeals for resolution. (See Zoning Variances).

A developer may request a change of a zoning category from one classification to another, before submitting site development plans to the municipality and to the county and state permitting agencies. The proposed zoning change is then reviewed by the municipality. The basic review process is outlined as follows:

- Applicant files proposal with the municipal clerk, who transmits it to the planning board
- Planning board staff meets with applicant
- Applicant submits revised application to the municipal clerk who transmits it to the planning board
- Municipality holds hearing or votes on application
- If the project is partially or totally located within prescribed jurisdictional limits, the application is sent to the county planning commission which reviews the proposal and approves, disapproves or approves with modifications (in Nassau County, the municipality must wait until the County acts on the zoning actions or site plan review)
- The municipal board then approves the requested change, with or without conditions or rejects the proposal
- If the county planning commission disapproves the change of zone, the municipal board may override by a vote of a majority plus one

*Adapted from the Municipal Planning Primer, The Zoning Board of Appeals. Westchester Municipal Planning Federation, White Plains, N.Y. 1982.

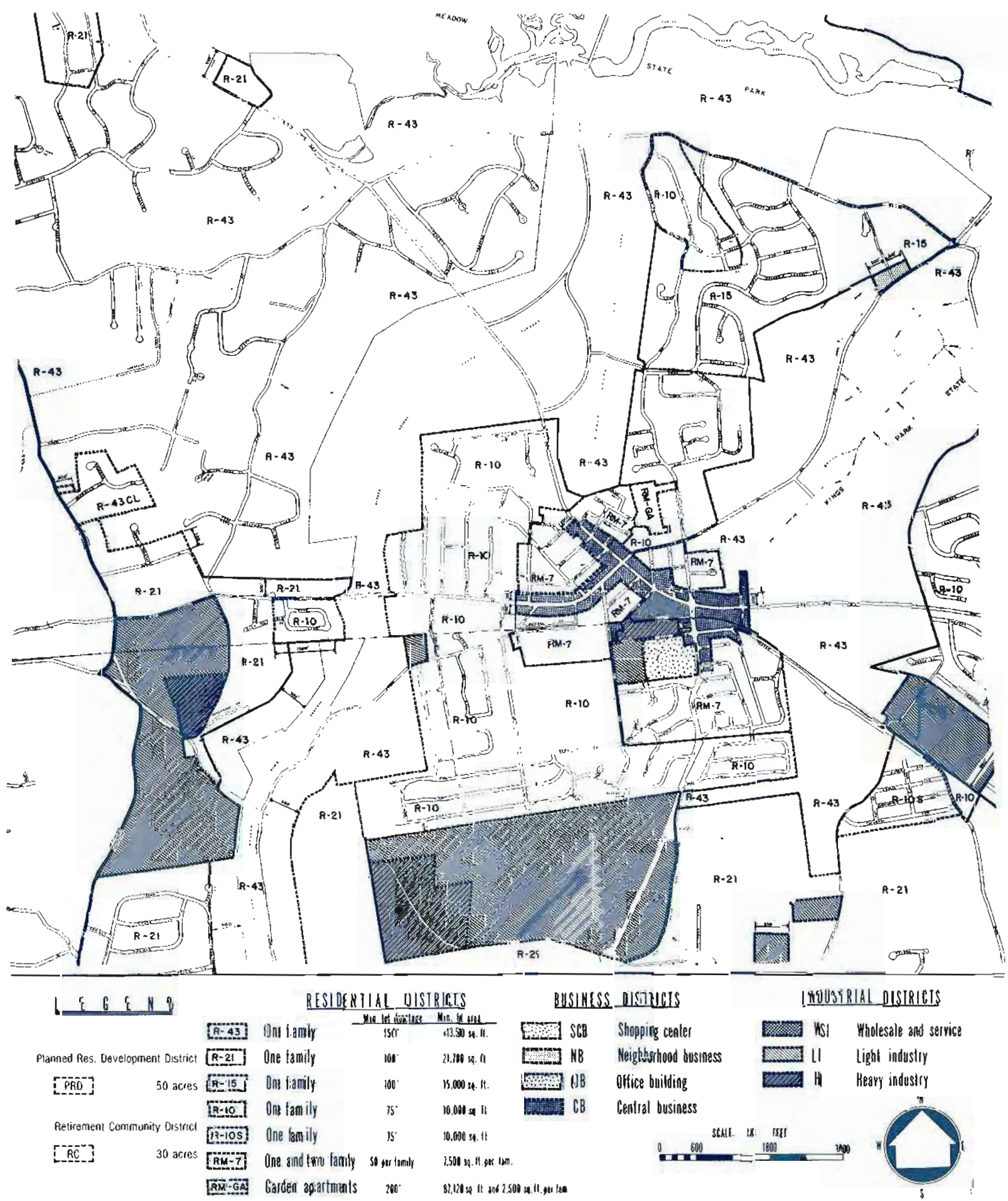


FIGURE 1 *Typical Zoning Map*

Source: Smithtown Planning Board

TABLE 2

Summary of Site Plan Review Guidelines, Objectives and Standards Set Forth in Municipal Ordinances

NASSAU COUNTY

Site plan approval is generally the responsibility of the town board but review powers may be delegated.

Hempstead Town Code
§G-7.1

(c) Upon the receipt of such site plan, the Town Board may, in its discretion, either refer such plan to the Town of Hempstead Planning Board for the purpose of making a report and recommendations with respect thereto, or delegate to the Planning Board the authority to approve such plans.

The town board may be empowered to alter site plans.

Hempstead Town Code
§G-7.1

(e) The Town Board shall have the right at all times to modify or alter said site plan after issuance of said Building Permit and/or Certificate of Occupancy with the consent of the holder thereof or his successor in interest.

Penalties for violations are included in actions not in compliance with the site plan.

Hempstead Town Code
§G-18.0

PENALTIES. For any and every violation of the provisions of this Ordinance the owner, general agent or contractor of a building or premises where such violations have been committed or shall exist, and the lessee or tenant of an entire building or entire premises where such violations have been committed or shall exist or the owner, general agent, contractor, lessee or tenant of any part of a building or premises in which part such violation has been committed or shall exist a general agent architect, builder contractor, or any other person who knowingly commits, takes part or assists in any such violation or who maintains a building or premises in which any violation shall exist shall be guilty of an offense punishable by a fine not exceeding $250.00 or imprisonment for a period not to exceed six months or both. Each week's continued violation shall consistute a separate violation. For the purpose of conferring jurisdiction upon Courts and judicial officers generally, violations of this Ordinance shall be deemed misdemeanors and for such purpose, provisions of law relating to misdemeanors shall apply to such violations. (eff. 12/2/74)

The towns require additional information in conjunction with site plans submitted for cluster developments.

Hempstead Town Code
§CR-8.0

D. In addition, the site plan shall be accompanied by: sketches showing proposed architectural treatment; single line floor plans showing layout of all buildings, and the text of all filed or proposed restrictions on the use of the land and buildings. The applicant shall submit a general statement describing the type of development proposed which shall include a description of the proposed management and ownership of the various elements of the condominium development, including:

1. dwelling units;
2. common areas and facilities ownership;
3. ground, building and facility maintenance;
4. street ownership and maintenance;
5. parking area ownership and maintenance.

E. The applicant shall submit any other information deemed by the Town Board to be necessary to a reasonable determination of the application. Such information shall be provided by the applicant.

TABLE 2 (Continued)

The town may designate a Gasoline Service Station District. A bond is required to secure compliance with district regulations.	**Hempstead Town Code** §GSS 3.0 B. BOND: That upon a new application for inclusion in the Gasoline Service Station District subsequent to an order of revocation the application shall be accompanied, in addition to the accompanying papers required for an initial application, by a bond in the amount of $10,000, to secure the performance of all terms and conditions on the part of the owner under the accompanying covenants and agreements. Such bond shall be in the form required by the Town Board and shall provide, among other things, that the remedies thereunder shall be non-exclusive and additional to the remedies under the covenants and agreements and as otherwise provided by law.
The town may require applicants to meet performance standards in Planned Industrial Park Districts.	**North Hempstead Town Code** §70-154 **Performance standards** No land or building may be used or occupied in any manner so as to create dangerous, injurious, noxious or otherwise objectionable fire, explosive, radioactive or other hazardous condition; noise or vibration; smoke, dust, odor or other form of air pollution; electrical or other disturbances; glare or heat; liquid or solid refuse or wastes; conditions conducive to the breeding of rodents or insects; or other dangerous or objectionable elements in an amount or manner as to adversely affect the surrounding area. Any use of land permitted under this Article may be undertaken and maintained if it conforms to all district regulations including the regulations of this section referred to herein as performance standards. All uses of land in a Planned Industrial Park District shall operate in conformance with the limitations.
The town may prescribe specific drainage requirements for Planned Industrial Districts.	**North Hempstead Town Code** §70-165 (13) Location and type of drainage facilities with top and invert elevations. Drainage shall be provided on existing roads as required by the Town Engineer. (14) Drainage requirements. Areas under two (2) acres of impervious surface may be designed with a leaching basin field designed by a licensed professional engineer to adequately dispose of surface drainage.
The town will not issue a certificate of occupancy until the facility is connected to a sewage disposal system.	**North Hempstead Town Code** §70-222 E. No certificate of occupancy, either temporary or permanent, shall be issued for any building unless such building is connected to a sewage and waste disposal system that complies with all federal, state and local requirements. Whenever approval of such sewage and waste disposal system is required by law, no certificate of occupancy, either temporary or permanent, shall be issued until final written approval for such system is granted by the agency charged with reviewing and inspecting such systems. [Added 5-22-84 by L.L. No. 3, 1984]
The town may require that natural resource information be contained within the application for site plan review.	**Oyster Bay Town Code** §80 (2) *Natural features.* (a) If applicable, existing contours with intervals of two (2) feet or less, referred to a datum satisfactory to the board. (b) Approximate boundaries of any areas subject to flooding or storm water overflows. (c) Location of existing isolated trees with a diameter of eight (8) inches or more, measured three (3) feet above the base of the trunk, and any other significant existing natural features.

TABLE 2 (Continued)

SUFFOLK COUNTY

The municipal planning board may be authorized to undertake site plan review in accordance with the objectives and standards set forth in the municipal ordinances and regulations.	**East Hampton Town Code** §153.14 B. The Planning Board shall administer site plan review and shall follow such objectives and standards as set forth in this and other ordinances and regulations of the town of East Hampton and may, from time to time, call upon expert advice in varied disciplines to assist in its determinations. The Planning Board may formulate procedures by which the intent of these provisions may be expedited.
Site plan approval is usually required for a number of zoning districts within the town.	**East Hampton Town Code** 153.14 C. [Amended 1-16-81, 9-17-82] Site plan review by the Planning Board shall be required of all building permit applications and the construction of bulkheads and docks and any regrading preparatory to lot, parcel or site improvement for future use, sale or subdivision within the Town of East Hampton, in the Park and Conservation District, Multiple Residence District, Waterfront Marina District, Waterfront Business District, Retail Business District, Wholesale and Service Commercial District, Commercial-Industrial District, Commercial Industrial Heavy District and for those special purpose uses indicated in § 153-18B, except for these hereinafter exempt from such review.
Site plan review and approval procedure for site plans and change in structure or use are provided in the town code.	**Brookhaven Town Code** §85-47. Site plan review and approval. [Added 7-16-81, effective 8-3-81] A. Procedure. (1) In each case where a building, structure or use or alteration thereof is proposed in this district, except for one-family dwelling places, permitted agricultural uses and customary accessory uses thereto, the applicant shall submit a site plan of same to the Building Inspector for approval. The Building Inspector shall refer the site plan of the proposed building, structure or use or alteration thereof to the Brookhaven Town Planning Board for its review pursuant to § 85-428 of this ordinance. The Chairman of the Planning Board may require a public hearing pursuant to § 85-428D. With the exception of one-family dwelling places, permitted agricultural uses and customary accessory uses thereto, in the event that any building, structure or use is changed, sold or leased, the new owner or tenant shall cause notice to be given to the Department of Planning, Environmental and Development within thirty (30) days of such sale or lease on such form as is prescribed by said Department. The Department of Planning, Environment and Development shall make a determination as to whether a new site plan will be required by reason of any alterations or changes in the subject building, structure or use. Any landowner found guilty of violating this ordinance shall be fined at the rate of one hundred dollars ($100.) per day. [Amended 5-4-82, effective 5-24-82] No building permit shall be issued by the Building Inspector without such approval of the site plan and, in appropriate places, all other permits, approvals and authorizations as may be required from other municipal and governmental agencies or departments.

TABLE 2 (Continued)

Timing for site plan review is set in the town code.	**Huntington Town Code** §198-116. Building and site development plans. [Amended 7-10-73 by Ord. No. 73-ZC-45 A. Whenever the district regulations require the submission of a building and site development plan before a building permit is issued, the Planning Board shall act thereon within forty-five (45) days after the date of submission unless such time is extended by mutual consent, expressed in writing, of the applicant and the Planning Board; provided, however, that such extension shall not exceed forty-five (45) days. If deemed appropriate by the Planning Board, a public hearing may be held on such application, and in this event such public hearing shall be held within forty-five (45) days after the date of submission, held upon five (5) days' notice public notice published in the official newspaper, and the Planning Board shall act on said application within forty-five (45) days after such hearing, unless such time is extended by mutual consent of the applicant and the Planning Board. Otherwise such plan shall be deemed to have been approved.
The town code usually sets forth the standards for new development subject to site plan review.	**East Hampton Town Code** §153.14 . . . . and shall encourage development conforming to the following standards: (1) Vehicular ingress and egress, interior traffic circulation, parking space arrangement, loading facilities and pedestrian walkways shall be planned so as to promote safety and efficiency. (2) Lighting facilities shall be placed and shielded in such a manner as not to cause direct light to shine upon adjacent properties, and such illuminating source together with lighted signs shall not cause a hazard to be created upon a public street. (3) Parking areas and driveways shall be sufficienty drained so as to prevent ponding. All drainage, paving, access driveways and parking areas shall be in conformance with the section of Chapter 131 (Subdivision of Land) of the Code of the Town of East Hampton pertaining to subdivision roads. The Planning Board may, in case of uses which traditionally exhibit extended periods of low parking demand on a weekly or seasonal basis, allow for not more than thirty percent (30%) of the required parking spaces to be on prepared, well-drained, dust-free grassed areas so as to lessen the visual impact of paved areas. (4) When the site is located adjacent to a dwelling or a residence district, appropriate buffer landscaping, natural screening and fencing are to be provided in order to protect property values of existing and future dwellings. (5) The rural, open space environment of the town shall be fostered by preserving, whenever possible, large trees and other unique natural features of the site. When extensive clearing and grading are necessary, the Planning Board may require a landscaping plan demonstrating that plant materials acceptable to the town will be planted and nurtured. Where extensive parking areas are involved, the Planning Board may require trees and shrubbery planting to break up and screen the area.

TABLE 2 (Continued)

Site Plan requirements may be specified in the town code.	**Southampton Town Code** §69-38. Site plan procedure and standards The site plan shall, if applicable, show the following: (a) Property lines and related street, right-of-way and easement lines as determined from a survey prepared by a licensed land surveyors, dated not more than one (1) year prior to date of building permit application. (b) Location of existing and/or proposed buildings and structures and horizontal distance from adjacent fresh and tidal waters. (c) For all sites adjacent to tidal waters, the elevation of the first floor of all buildings in relation to mean high water as measured from United States Coast and Geodetic Survey map datum. (d) Layout of existing and proposed off-street parking areas showing the details of aisles, driveways and each parking space. (e) Existing topography of the site and immediately adjacent property as revealed by contours of key elevations as may be required by the Planning Board and any proposed regrading of the site. (f) Existing and proposed stormwater drainage facilities, sidewalks, curbs and curb cuts and similar structures. (g) Existing and proposed street trees, landscaping and fences. (h) Existing streams or stream beds, ponds, lakes, tidal waters, fresh and salt water marshes, barrier beach dunes, canals and bulkheads. (i) Existing and proposed outdoor lighting and sign locations.
Design Criteria for a zoning district is provided.	**Huntington Town Code** §198-115. Special design criteria for land in I-1 or I-2 District. When a site development plan or plat of a tract of land fifty (50) acres or more in area is submitted to the Planning Board and such tract is located in an I-1 or I-2 Light Industry District, the Board simultaneously with the approval of the plat may establish special design criteria for lot area and yards as necessary to encourage sound industrial development patterns and good land use practice. Such special design criteria shall be limited as follows: A. The minimum site area for a principal building may be reduced by not more than one-third (⅓) for not more than one-third (⅓) of the total building sites within the project, but the average site area of all building sites therein shall not be less than six (6) acres for I-1 Districts nor less than three (3) acres for I-2 Districts. B. No building site reduced in area as provided in Subsection A hereof shall have principal frontage on a major street. C. Minimum lot width for lots reduced in area may be reduced to not less than three hundred (300) feet in I-1 Districts and not less than two hundred (200) feet in I-2 District. D. Minimum front yard depth for lots reduced in area may be reduced to not less than sixty (60) feet. E. Minimum street frontage for lots reduced in area may be reduced to not less than one hundred fifty (150) feet. F. No special design criteria shall be applied to lots or building sites adjacent to residence district boundaries.

TABLE 2 (Continued)

A preliminary site plan review is required before a change of zone (i.e., to Downtown Development District ('DDD') in the Town of Islip).	**Islip Town Code** §68-180.7. Site plan review. A. Preliminary site plan. (1) Before application for a change of zone to "DDD" is made to the Town Board, a preliminary site development plan for the entire subject property shall be submitted to the Department of Planning and Development for its review. There shall be submitted with the site plan a copy of any deed restrictions or covenants running with the land, or, if there are not such restrictions, the applicant shall furnish an affidavit to that effect.
The procedure for obtaining a zoning variance may be specified in the town code.	**Brookhaven Town Code** §85-47 B. In any case where the site plan submitted by the applicant indicates that a variance will be required from the Board of Appeals in order to construct or use the premises as shown on said site plan, the applicant shall submit an application to the Board of Appeals simultaneously with the filing of his application for approval of the site plan. Upon adoption by the Board of Appeals of a resolution granting the application for the variance, said variance shall be deemed to be incorporated in the site plan submitted by the applicant.
Site plan approval may be required before grading or tree removal may begin.	**East Hampton Town Code** §153.14 A. No grading or tree removal may take place until site plan approval has been obtained.
The developer must assume responsibility for compliance with the site plan. All required work must be completed or bonded before occupancy of any structure.	**Southampton Town Code** Compliance with site plan. [Added 7-10-79] (1) A statement shall be placed on all site plans approved by the Planning Board to the effect that the owner(s) agree(s) to comply with the plan and all conditions noted thereon. The owner(s) or a bona fide agent responsible for completion of the work shall be required to sign such statement before any approved plans will be released by the Planning Board. In the event that the site plan is not signed by the owner or his agent within forty-five (45) days of the date of the resolution of the Planning Board approving the plan, said resolution shall be deemed null and void. (2) The site plan shall be fully completed in accordance with the approved plan, or the outstanding items of work bonded with acceptable surety to the Town, before any new building or structure shown on the approved site plan is occupied or any existing building shown on the approved site plan is occupied with a new use, pursuant to § 69-37C.

Variances

ZONING BOARD OF APPEALS (ZBA)*

Although all land in a zoning district is theoretically subject to the same rules, the fact that no two parcels of land are the same will occasionally call for the relaxation of zoning regulations as they apply to a specific site. The most common way of providing relief from the provisions of a zoning ordinance is through the granting of a *variance*. This is an authorization by the zoning board of appeals waiving one or more of the requirements set forth in the zoning ordinance.

Variances are given on appeal only after a proposal has been denied by the zoning enforcement officer, and evidence of practical difficulty or unnecessary hardship in complying with the ordinance is provided. Variances may be conditioned on the compliance with certain stipulations set by the board, such as the provision of landscaping or the inclusion of some other design feature to mitigate the effect of the variance upon the neighborhood. Variances are permanent and run with the land, and should be viewed as a derogation of the zoning ordinance. For this reason they should be granted sparingly.

The most common variance is an *area variance*, which deals with the application of the zoning district's bulk and lot requirements. This type of variance relates to those elements of the zoning ordinance that prescribe the arrangement of structures on the land, including proposed setbacks, bulk, density, and the like. Area variances are granted on grounds of practical difficulty; that is, evidence of inability to comply with the regulations because of a constraining physical feature of the land.

Although specific criteria for the granting of a variance have not been set forth in statute, they have been defined in case law. The court system, through its appeal process, has developed requirements that an applicant must meet. The municipality must be able to justify the granting of a variance by showing that it is reasonably related to a proper purpose of zoning.

The cumulative effect of numerous variances could undermine the zoning ordinances and comprehensive plan. The zoning board of appeals must consider the long-range objectives and development policies of the community. Therefore, in some municipalities, the notice of zoning board hearings must be sent to the planning board to elicit its comment. Although the zoning board is not bound by planning board opinion, the comment of the planning board is often an important and helpful part of the evidence collected. The zoning board of appeals also must refer certain applications to the county planning board. A description of a zoning board of appeals review procedure is provided in the appendix.

Special Permits

There are some land uses that are useful and necessary to a community, but that are significantly different from the primary uses permitted within a zoning district. These are permitted uses that may have a greater impact on the area than the general range of uses and, therefore, may be subject to the issuance of a *special permit*. In some municipalities, the zoning board of appeals is empowered to issue special permits, in others the municipal board or the planning board is given the administrative responsibility.

The uses regulated by special permits are those that have the potential for adversely affecting surrounding properties, or themselves require protection from neighboring uses. In some of the more recently enacted ordinances, the flexibility of the special permit process has been used to regulate density or intensity of use in cases where this would further public policy. Schools, churches, hospitals, nursing homes, cemeteries, museums, and a variety of recreation uses are often controlled by special permits because of the noise and traffic that they could generate. Uses that pose safety hazards, such as gasoline stations, power stations, or airports, are also often the subject of special permits. The Town of Hempstead has a special gas station district.

The task of determining whether or not to grant a special permit is considerably simplified when a checklist providing guidance is contained within the ordinance.

Subdivision Review Process

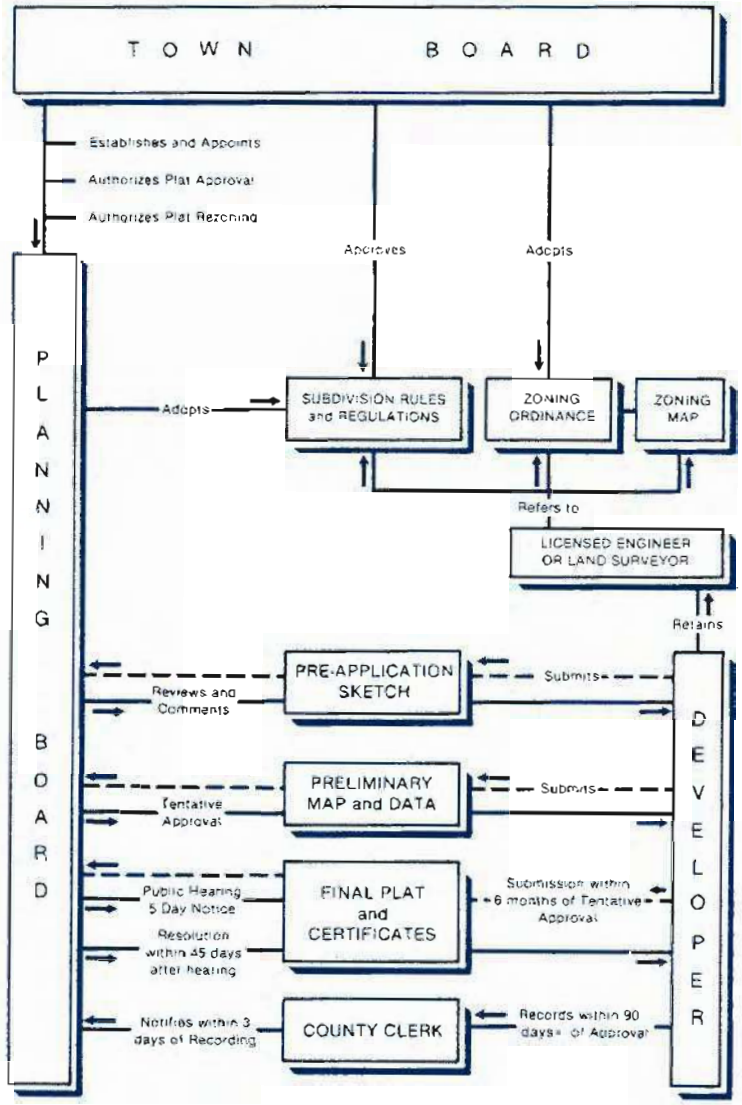
Subdivisions are reviewed by the local municipalities and also by the counties as required by the General Municipal Law, County Charter provisions or the need for county permits. (See Nassau and Suffolk Counties). Approval by the municipal planning board is required for the subdivision or resubdivision of real property. The map of the subdivision (or resubdivision) must comply with the subdivision regulations and site improvement specifications provided by the municipality. See Table 3 for a general procedure for the subdivision review process and Figure 2 for a diagram of the subdivision procedure used by the Town of Huntington.

*Adapted from the Municipal Planning Primer, The Zoning Board of Appeals. Westchester Municipal Planning Federation, White Plains, N.Y. 1982.

TABLE 3

Subdivision Approval Process

- Preapplication conference
- Applicant may submit a pre-application sketch. The municipal planning board staff reviews and comments on the sketch.
- Applicant submits a preliminary map and data to the municipal planning board.
- If the subdivision is located within a town, the planning board holds a public hearing.
- Applicant obtains tentative approval from the municipal planning board.
- Applicant submits plans to the County (Health and Public Works Departments) and the State (NYS Department of Transportation and the NYSDEC) for required permits.
- Preliminary plans may also be sent by the local municipality to the county planning departments for comments, if required.
- Applicant prepares final plat.
- Applicant submits final plat, certificates, drainage and road plans and profiles to the municipal planning board for final approval (within 6 months of tentative approval).
- If required, County planning commission reviews plans (See Nassau and Suffolk Counties).
- Municipal board or planning board holds public hearing and prepares a resolution within 45 days after the hearing.
- Applicant submits final plan to the board with the required performance bond, inspectors fee, etc.
- Municipal Board grants or witholds approval.
- County Health Department, the NYSDEC and other permitting agencies finalize review and grant permits.
- Applicant records plat in County Clerk's Office within 90 days of approval.
- Applicant files *as built* survey, showing required subdivision improvements.
- Municipalities and other permitting agencies complete final inspection.
- Engineer certifies plans upon approval.
- Plan showing subdivision as completed *as builts* is submitted to the planning board and the performance bond is released.



*As per the revised (January 1981) Law §276 Approval of plats; development of filed plats, the 90 day period for recording a plat has been reduced to sixty days. However, if a plat is recorded in sections, the first section must be recorded within sixty days and the second section within thirty days thereafter.

FIGURE 2 *Sample Subdivision Procedure*

Source Huntington Town Planning Board

Criteria for the modification of subdivision regulations are provided in the municipal codes.

In Suffolk, at the county level, condominium site plan proposals are regarded as subdivisions for the purpose of review by the Suffolk County Planning Commission.

SEQRA Review Process

All of the towns have environmental quality review ordinances adopted pursuant to the *State Environmental Quality Review Act* (SEQRA). A simplified SEQRA review process is shown in Figure 3. A more detailed diagram of the SEQRA process, with the citation of the relevant provisions of the law for each step, is shown in Figure 4. A generalized diagram of the integration of the SEQRA process with site plan review and the subdivision review processes in the Town of Brookhaven is shown later in Figure 10.

A number of towns require applicants for site plan review to complete an *Environmental Assessment Form* (EAF) (short form) as required by municipal laws enacted pursuant to the New York State Environmental Quality Review Act. The form is designed to provide sufficient information to alert municipal officials to proposed development that may have a significant impact on the environment and to permit a determination of the need for further environmental review. (See Recommendations - a modified sample EAF for the Town of Smithtown.)

Type I actions require SEQRA review. Unlisted actions may require SEQRA review. Under SEQRA the localities may develop their own list of Type I actions (those that may have a significant impact on the environment) and Type II actions (those that do not have a significant impact), so long as the list is as stringent as the NYS SEQRA list. Various towns have made additions or alterations to the State's list of Type I or Type II actions. For example, the Towns of Babylon and Brookhaven consider a residential development of 25 or more units in an unsewered area or 50 or more units in a sewered area as a Type I action. The Towns of Islip and Southold consider the construction or alteration of residences accommodating no more than fifty persons as a Type II action except when located in critical areas. The Town of Oyster Bay's Type I action list includes subdivisions of up to four houses in critical areas. The Town of Southampton regards minor subdivisions and site plans as Type II actions unless the subject property is located in a critical area. Section 1611 of the Nassau County Charter states that less than five units is a Type II action.

Site Development Plan

The *site development plan* is an integral part of the site plan review or subdivision review process and also may be used for a proposed change of zone, a zoning variance or a special permit.

The site plan specifies the present and future characteristics of a parcel of land and its surroundings. The plan is usually presented in graphic form, possibly with a narrative to explain those portions of the plan that cannot be described graphically. The plan indicates the design, arrangement and intended activities for the parcel to be improved. See Figure 5 for a sample site plan.

The site development plan may be prepared by a licensed landscape architect, architect, civil engineer, land surveyor or other professionally qualified person, as specified in the municipal ordinance. The site plan is reviewed to determine if the proposed development is compatible with existing zoning and environmental ordinances and to determine the potential physical, social and economic impacts of the plan upon the community, including the need for additional facilities and services. The site plan should be comprehensive so that the municipal reviewers will have sufficient information for a thorough review. See Table 4 for a list of typical design considerations.

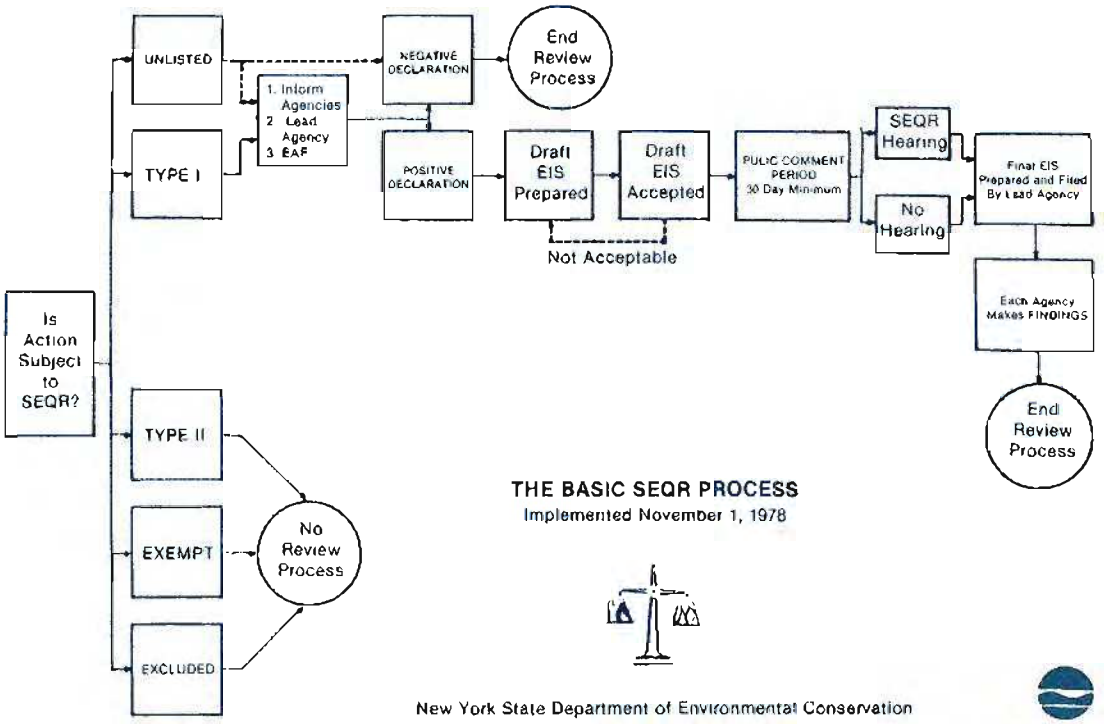
State law allows local regulations to specify the site development plan components that must be submitted for approval. These components can be categorized generally as

- legal data
- impact on the environs
- natural features
- existing man-made features
- proposed development *

A local ordinance or law can identify the submission requirements in either general or specific terms. If they are stated in general terms, the detailed review requirements can be spelled out in the regulations promulgated by the planning board. The reviewing agency usually develops a checklist, in accordance with its plan submission requirements, for the purpose of making certain that all components of the application have been received. The checklist may be broadened to include other information, such as a procedural history of the proposal, so that its status can be easily determined.*

A checklist is provided in Table 5.

*Adapted from Local Government Technical Series, Site Development Plan Review, Procedures and Guidelines, New York State, Department of State. 1984.



SEQR Time Frames

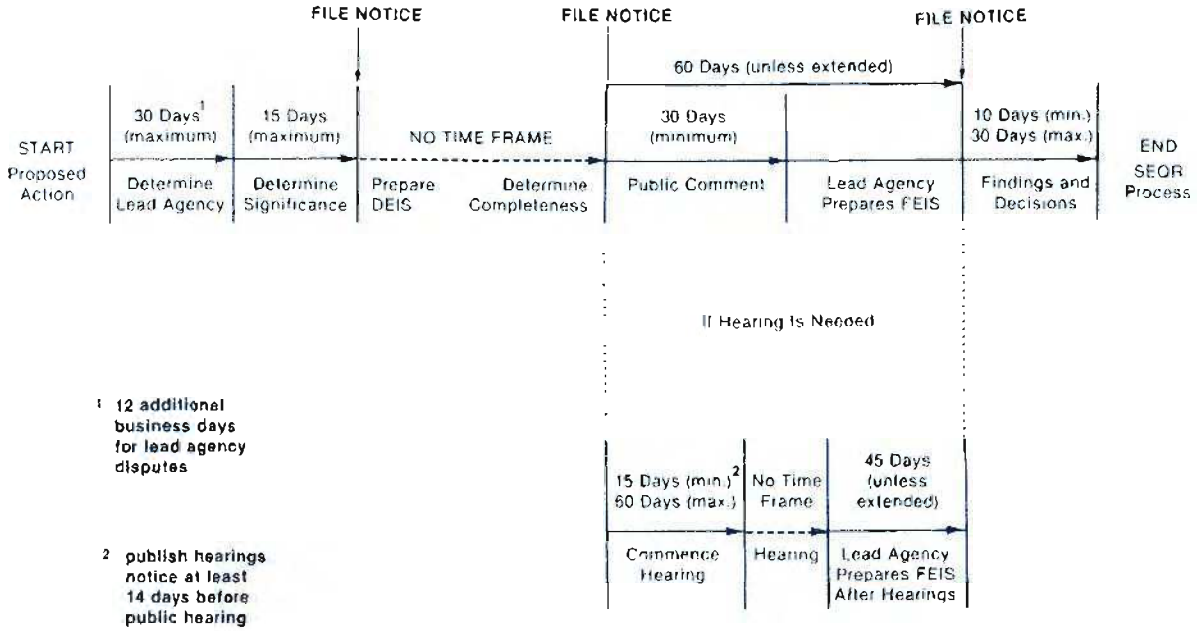


FIGURE 3 *Simplified SEQR Procedure*

Source: N.Y.S.D.E.C.

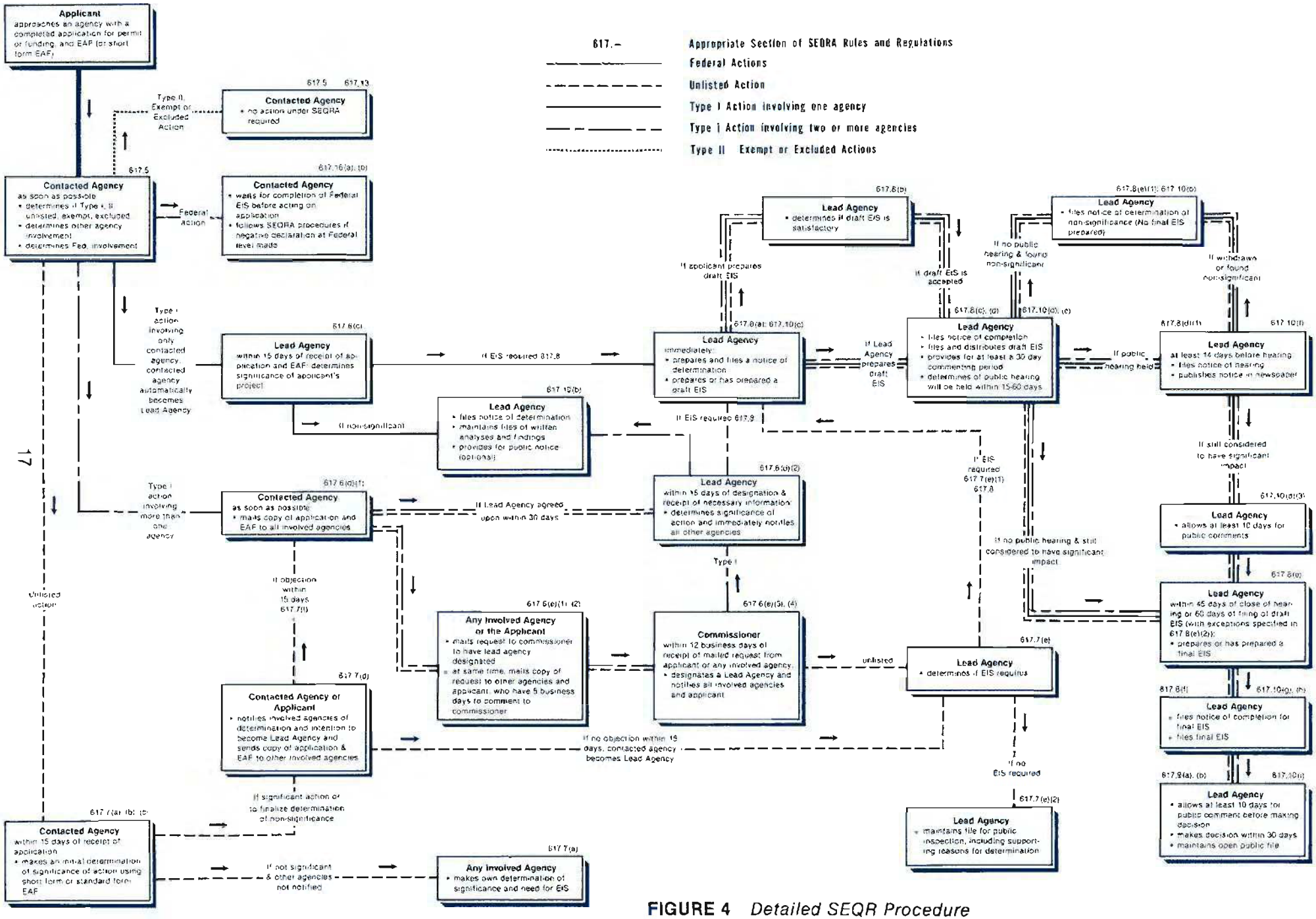


FIGURE 4 *Detailed SEQR Procedure*

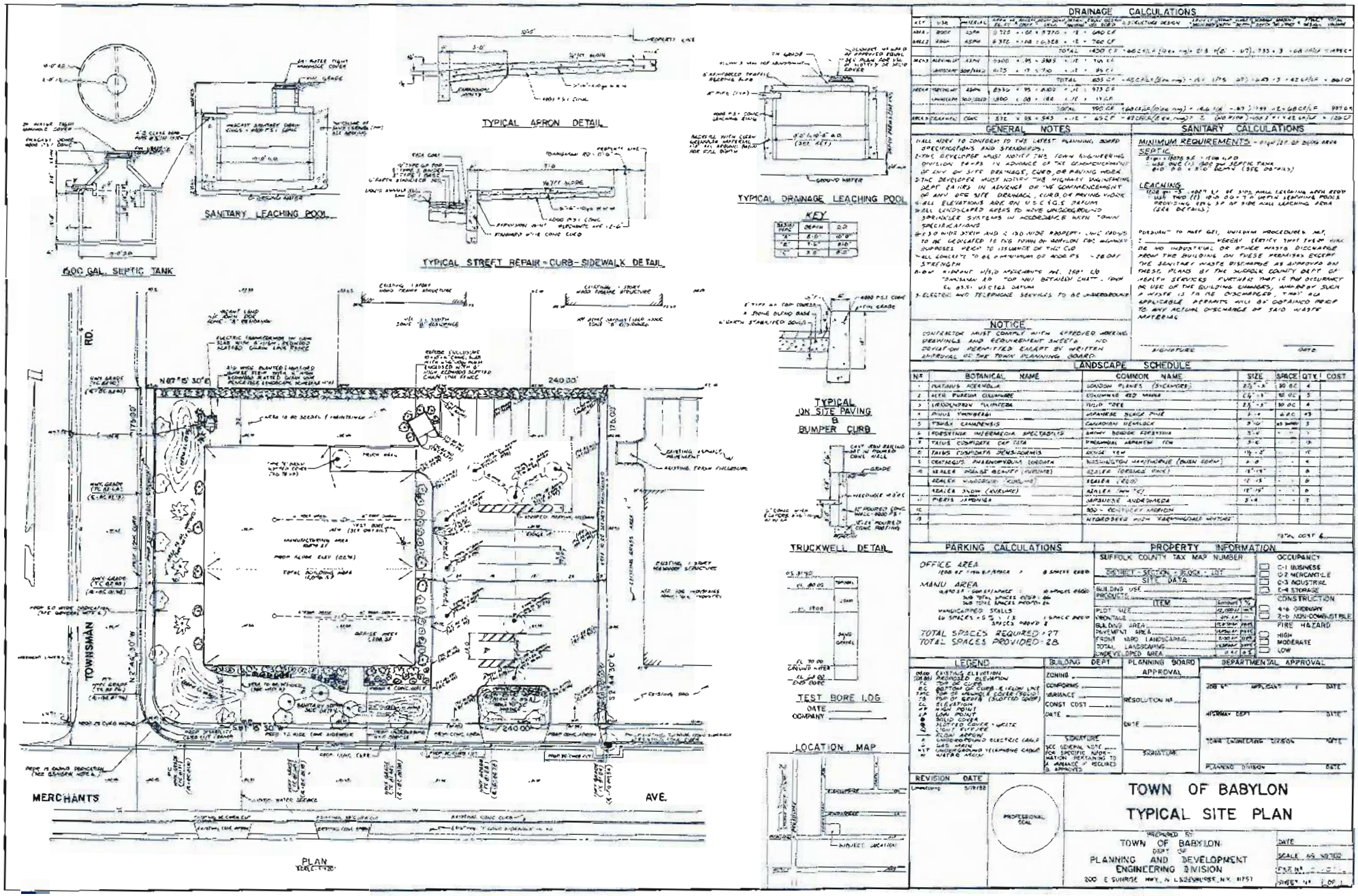


FIGURE 5 *Typical Site Plan (Final)*

Source: Town of Babylon

TABLE 4

Typical Development Considerations

Regional and Local Environs	Natural Features	Design and Aesthetics	Circulation	Miscellaneous
Relationship to Comprehensive Plan	Geology	Site Usage	Vehicular	Construction Specifications
Compatibility with Surroundings	Topography	- Density	- Ingress and Egress	Utilities
Accessibility	Soil Characteristics	- Geometrics	- Road Layout	Maintenance
- Pedestrian	Vegetation	Structures	- Parking Areas	Staging of Development
- Automobile	Micro-climate	- Relationship to Site	- Loading Areas	
- Trucking	Wildlife	- Plans	- Traffic Control	
- Public Transportation	Open Space	- Elevations	Pedestrian	
Economic Impact	Erosion	- Functional Adequacy	- Walkways	
Fiscal Impact	Surface Drainage	Architectural Features	- Safety	
- Air, Water, Noise	Groundwater	Signs		
Facilities and Services Availability	Wetlands	Landscaping		
Visual Compatibility	Flood Hazard Areas	Recreation Areas		
Historic and Archeologic Considerations		Incidentals		
		- Fencing		
		- Buffer strips		

*Adapted from Local Government Technical Series, *Site Development Plan Review. Procedure and Guidelines*. New York State and Department of State February 1984.

TABLE 5

Site Development Plan Review Checklist

Legal Data

1. Name and address of applicant and authorization of owner if different from applicant.
2. Name and address of owner(s) of record, if different from applicant.
3. Name and address of person or firm preparing the plan and map.
4. Ownership intentions, such as purchase options.
5. Current zoning classification of property, including exact zoning boundary if in more than one district.
6. Property boundary line plotted to scale. Distances, angles and area should be shown.
7. North arrow, scale and date.
8. Locations, widths, elevations and names of existing and proposed adjacent streets.
9. Property lines and names of owners of adjoining parcels.
10. Location, width and purpose of all existing and proposed easements, set-backs, reservations and areas dedicated to public use within and adjoining the property.
11. Description of all existing deed restrictions or covenants applying to the property.
12. Record of the application and approval status of all necessary state and county permits. (Final only.)

    Another element, necessary to determine conformity with the intent of the regulations, is the identification of any state or county permits required for execution of the project.

Impact of Proposal on Environs

1. Relationship to adjacent and nearby land uses, both public and private.
2. Relationship to existing and proposed traffic patterns.
3. Relationship to existing and projected water supply, sewage disposal and similar service capabilities.
4. Relationship to the community's ability to provide adequate recreation, education, fire protection and similar facilities and services to its residents.
5. Visual compatibility with surroundings.
6. Effect on air and water quality.
7. Effect on energy consumption and conservation. Draft Environmental Impact Statement (DEIS) and Environmental Impact Statement (EIS) will be required if the reviewing agency deems the proposal to be significant pursuant to the State Environmental Quality Review Act (SEQRA).

TABLE 5 (Continued)

Natural Features

1. Geologic features, such as the location of kettle holes, erratics, eskers, or other geologic features.
2. Topographic features, including a map showing existing contour intervals of no more than five feet. Two-foot contour intervals should be required if the topography is relatively flat. Areas of steep slopes should be delineated as necessary.
3. Vegetative cover, including existing wooded areas, significant isolated trees and similar features.
4. Soil characteristics, such as load bearing capacity and drainage capacity.
5. Hydrogeologic features should include drainage and runoff patterns, flood hazard areas, wetlands and depth to groundwater, groundwater and surface water quality data, Special Groundwater Protection Areas, and Deep Aquifer Recharge Areas.

Existing Development and Infrastructure

1. Location and dimensions of major buildings and structures.
2. Location and width of roads and paths, including site access.
3. Location, size and flow direction of sewers, water supply lines and culverts. Major electric, gas and telephone lines and appurtenances should also be shown.
4. Location of other existing development and uses, including parking and loading areas, fences, trees and landscaping.

Proposed Development

1. Grading and drainage plan showing proposed topography at appropriate contour intervals. This information can be combined with the map of existing topography if it can be clearly depicted.
2. Location, proposed use and height of buildings and other structures, such as retaining walls, fences, outdoor storage tanks, air conditioning units and waste disposal units.
3. Location, proposed use, design and construction materials of improvements not requiring structures, such as parking, loading, and outdoor storage areas.
4. Location and arrangement of site access and egress, including all paths for pedestrian and vehicular travel within the site. Information should include profiles and cross-sections of roadways and sidewalks showing grades, widths and location and size of utility lines.
5. Location and size of water and sewer lines and appurtenances. Any means of water supply or sewage disposal other than extensions of existing systems should be described, including location, design and construction materials.
6. Location, design and construction materials of all energy distribution facilities, including electric, gas and solar energy.
7. Location, size and design of all outdoor lighting facilities and public address systems.
8. Location, size design and construction materials of all outdoor signs.
9. General landscaping plan and planting schedule, including the treatment of buffer areas and the location and types of trees to be planted.
10. Estimated project construction schedule with possible phasing plan for large projects. (Final only.)
11. Additional specifications for materials.
12. Performance bond, amount, completion schedule, public improvements covered, inspection and bond approval.

* Adapted from Local Government Technical Series, *Site Development Plan Review. Procedure and Guidelines.* New York State and Department of State February 1984.

Site Plan Review for Single Parcels and Subdivisons

SINGLE PARCELS

Large and small parcels of land proposed for development may be subject to *site plan review*, depending on the intended use of the property. Most municipalities require review for high density residential, industrial and commercial development. Single family low and medium density residential, residential-retirement, neighborhood business, special exception and special purpose area developments may also be subject to site plan review. Architectural review is also part of the process in some towns.

Since 1976, town planning boards have assumed the primary responsibility for the approval or disapproval of site plans (Town Law 274-A). (Previously, the planning boards performed an advisory function.) Various other departments, including building, environmental control or protection, highway and engineering act in an advisory review capacity. Planning board (or municipal board) site plan review is required before a building permit may be issued.

SINGLE PARCELS AND SUBDIVISIONS

In addition to municipal review, items such as the construction of wells, septic systems, the connection to sewage treatment plants, or the proposed use of lands adjacent to surface waters or fresh water or tidal wetlands require review and approval at the county or state levels (See Tables 1, 9, 10 and 12 for a listing of the types of permits required.)

Site plan review provides a mechanism for protecting the community health, safety and welfare by ensuring that the site plan conforms to the municipality's land use recommendations and zoning. Important considerations in making site plan review decisions include

- location of structures
- provision of adequate means of access, parking, landscaping, buffers and architectural features
- provisions for water supply, sewage treatment and stormwater control
- impact on adjacent land uses
- other factors relating to the maintenance of the general welfare of the community

The local legislative body (the town board – and/or the planning board) normally establishes the regulations and criteria for the review of site plan applications. These are usually specified in the zoning ordinance. The review agencies may make revisions periodically in order to incorporate recently developed laws, guidelines and knowledge. The review criteria are usually specific enough to facilitate compliance but are also somewhat flexible in order to enable the site developer to provide the best possible design. See Figure 6 for a sample review sheet used by the Town of Brookhaven. Criteria may include mandatory setbacks and structural height limits for various zoning districts within the municipality, such as those shown in Table 6.

The site plan review process differs for each town. Representative types of processes are described in this section. The NYS statutes allow for either a single phase review procedure or a two-phase or three-phase (multi-phase) review procedure.

THE SINGLE PHASE REVIEW PROCEDURE

The basic single phase site development plan review procedure outlined in Figure 7 can be considered representative of the less complicated project reviews on Long Island.

See Figures 8 and 9 for flow charts that represent two different specific review processes for the towns of Oyster Bay and Babylon, respectively. See Figure 10 for an integrated SEQRA and site plan review process for the Town of Brookhaven.

THE MULTI-PHASE REVIEW PROCEDURE

The multi-phase review procedure is especially appropriate for large-scale development and for development proposed for sensitive environmental areas. A multi-phase procedure is shown in Figure 11 and the generalized procedural sequence is presented in Table 7. A description of the process is a follows:

PRELIMINARY PHASE

A municipality may mandate a presubmission conference or a preliminary approval phase. The purpose of this conference is to provide a needed exchange of information between the applicant and the municipality prior to site plan development, so that recommended site plan controls and guidelines can be effectively incorporated into the plan at an early stage. This avoids any unnecessary commitments of time and money, while increasing the likelihood of ultimate approval by assuring the timely exchange of information needed by both parties at the Preliminary Conference. This procedure may appear more costly to communities, but if it is properly organized, it may ultimately save time and expense.

TOWN OF BROOKHAVEN
PLANNING BOARD
SITE PLAN REVIEW SHEET

SITE PLAN FOR: _____

DATE OF APPLICATION: _____ ZONE _____

1. Field Inspection Completed.....
2. Drawing: Scale 1" = 20' or larger.....
3. Boundary:
   (a) Metes and bounds from actual survey by licensed land surveyor.....
   (b) One copy of referred survey.....
4. Topography:
   (a) Contours or elevations.....
   (b) Physical features adjacent to property boundary, elevations out from property line.....
   (c) Town road cross-sections every 50'.....
   (d) Town of Brookhaven datum (National Geodetic Survey).....
5. Key Map: Scale 1" = 1,000' showing zoning limits.....
6. Adjoining property:
   (a) Zoning.....
   (b) Use.....
   (c) Record Owner.....
7. Site Data:
   (a) Intended use of property.....
   (b) Area of site from title survey.....
   (c) Area of buildings.....
   (d) Parking spaces provided.....
   (e) Graphic representation of test hole.....
8. Proposed Site Work:
   (a) Grading contours with spot elevations of critical points, building corners at entrances, catch basin inlets, change of gradient, etc.....
   (b) Walks, curb, paving.....
   (c) Seeding, planting and fencing.....
   (d) Outline of all buildings with offsets from property lines.....
   (e) Striping for parking and traffic control with dimensions.....
   (f) Lighting layout and specifications.....
   (g) Estimate of quantities data.....
   (h) Cross-Sections:
      (1) Transition of parking to highway.....
      (2) Transition to adjoining property.....
   (i) Drainage:
      (1) Catch basins, manholes, etc.....
      (2) Pipe size, type, gradient, invert.....
      (3) Method of recharge or discharge.....
      (4) Design data.....
9. Standard Town Notes.....
10. County - State Letter.....
11. Building Plans.....
12. Plans prepared under the seal of a licensed Engineer, Architect or Land Surveyor.....
13. Deeds:
   (a) Road Widening.....
   (b) Other.....
14. Property Checked for Covenants.....
15. Agency Approvals:
   (a) Suffolk County Health Department
      Date _____ Number _____.....
   (b) Town of Brookhaven Environmental Protection.....
   (c) Town of Brookhaven Fire Protection.....
   (d) Town of Brookhaven Board of Appeals
      Date _____ Number _____.....
   (e) Town of Brookhaven Traffic Review.....
   (f) Town of Brookhaven Planning Board
      Meeting Date _____.....
   (g) Signs.....
16. Fees:
   (a) Application fee paid.....
   (b) Inspection fee paid.....
   (c) Recreation fee paid.....

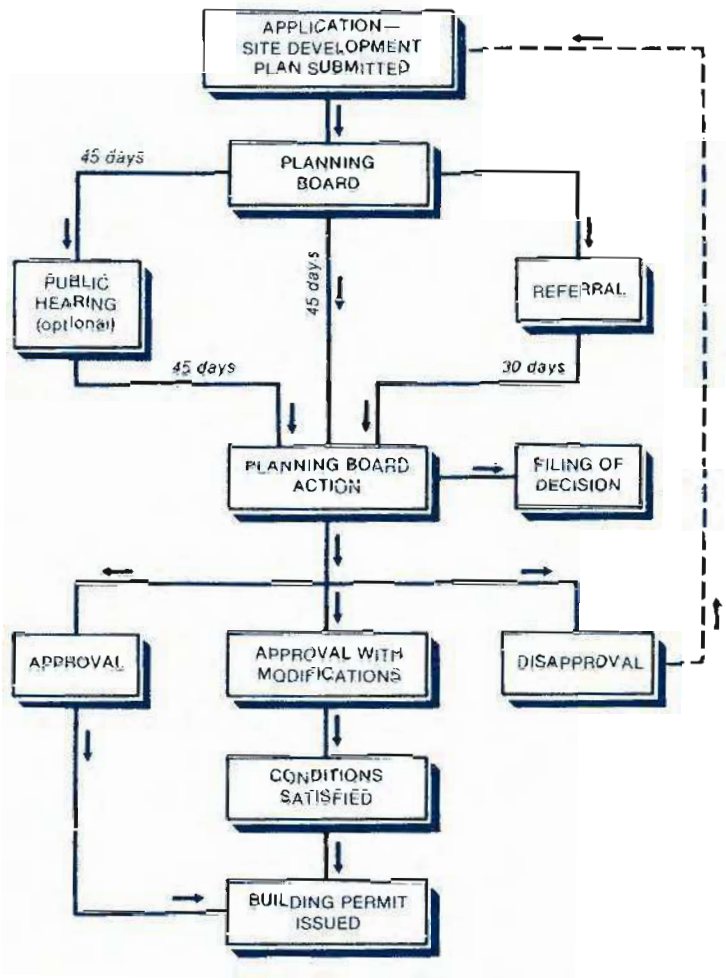
FIGURE 6 *Sample Site Plan Review Sheet* *Source: Town of Brookhaven*

TABLE 6
Sample Zoning Regulations

ARTICLE IX
Height, Area and Bulk Regulations

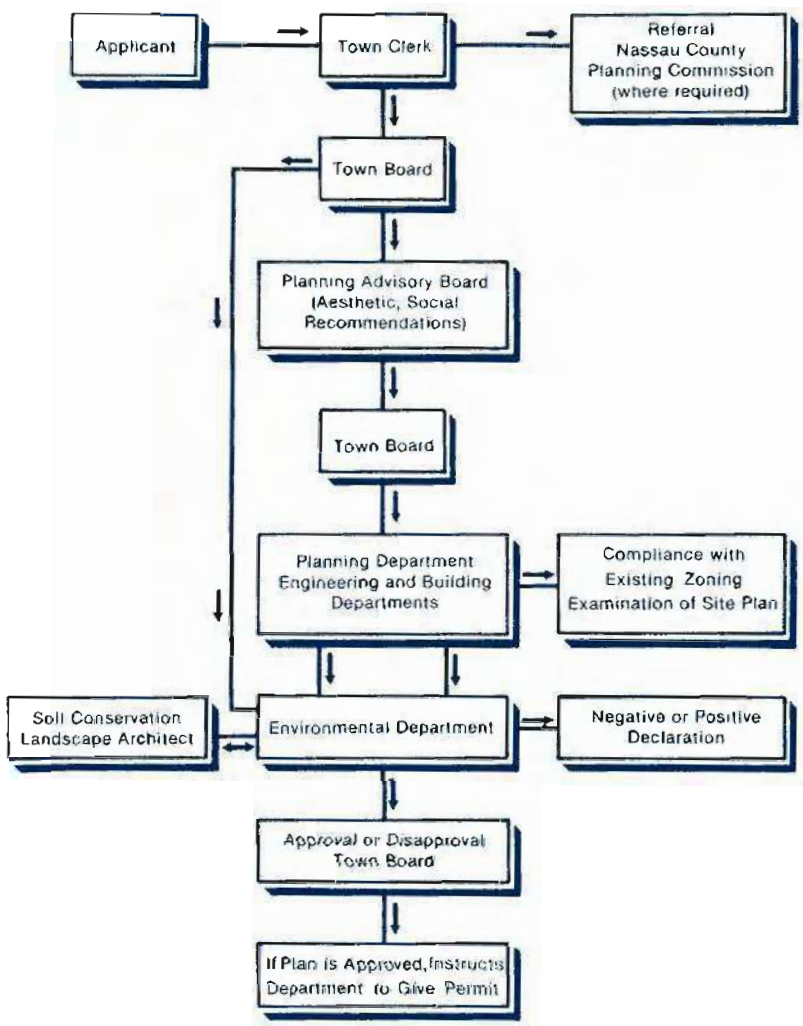
Symbol	Section Number	Districts	Uses Permitted in District to Which Standards Apply	Maximum Building Height (stories)	Maximum Building Height (feet)	Minimum Depth of Yards: Front Yard (feet)	Minimum Depth of Yards: Rear Yard (feet)	Minimum Side Yards: Number of Yards	Minimum Side Yards, Interior Lots: Width of One Yard (feet)	Minimum Side Yards, Interior Lots: Combined Width of Two Yards (feet)	Minimum Side Yards, Corner Lots: Width of Yard on Street Side (feet)	Minimum Side Yards, Corner Lots: Width of Interior Side Yard (feet)	Minimum Lot Area: Area per Dwelling Unit (square feet)	Minimum Lot Area: Gross Area (square feet)	Minimum Lot Width (feet)	Minimum Lot Frontage (feet)	Maximum Percent of Lot Covered by Building
	198-13	R-60 Residence	All uses	2½	35	50	50	2	25	50	50	25	2 acres	2 acres	150	40	—
	198-14	R-40 Residence	All uses	2½	35	50	50	2	25	50	50	25	1 acre	1 acre	125	40	—
	198-15	R-20 Residence	All uses	2½	35	50	50	2	20	40	50	20	20,000	20,000	100	40	—
	198-16	R-15 Residence	All uses	2½	35	30	25	2	12	24	30	12	15,000	15,000	100	40	—
	198-17	R-10 Residence	All uses	2½	35	30	25	2	12	24	30	12	10,000	10,000	100	40	—
	198-18	R-7 Residence	All uses	2½	35	25	25	2	7	15	25	7	7,500	7,500	75	40	—
	198-19	R-5 Residence	Single-family dwellings	2½	35	20	25	2	5	13	20	5	5,000	5,000	50	40	—
			Two-family dwellings	2½	35	30	25	2	12	24	30	12	5,000	10,000	100	40	—
	198-20	R-3M Residence	All uses	3	45	30	25	2	12	24	30	12	3,000	15,000	100	40	—
	198-21	R-RM Residence	All uses	2½	35	100	100	2	100	100	100	100	3,000	15 acres	—	—	25
	198-22	C-1 Office-Residence	Single-family dwellings	2½	35	20	25	2	5	13	20	5	5,000	5,000	50	40	—
			Two-family dwellings	2½	35	20	25	2	12	24	20	12	5,000	10,000	60	40	—
			Multiple-family dwellings	2½	35	20	25	2	12	24	20	12	3,000	15,000	100	60	—
			Other uses	2½	35	20	25	2	12	24	20	12	—	5,000	50	40	—
	198-23	C-2 Single-Purpose Office Building	Offices and research uses	2	30	75	75	2	40	80	75	40	—	3 acres	—	—	25
	198-24	C-3 Special Business	Dwellings	2½	35	30	35	2	15	30	30	15	5,000	—	50	40	—
			Other uses	2½	35	30	35	2	15	30	30	15	—	—	—	—	—
	198-25	C-4 Neighborhood Business	Dwellings	2½	35	See §198-25	25	2	12	24	30	12	5,000	5,000	—	40	—
			Other uses	2	35		35	—	—	—	20	—	—	—	—	—	40
	198-26	C-5 Planned Shopping Center	All uses	2	35 See § 198-26	50	35	2	35	70	50	35	—	2 acres	—	—	25
	198-27	C-6 General Business	All uses	3	45	None except as provided in § 198-27							—	—	—	—	—
	198-28	C-7 Highway Business	All uses	2	30	50	25	2	25	50	50	25	—	—	—	—	25
	198-29	C-8 General Business A	Dwellings	2½	35	35	15	2	12	24	30	12	3,000	3,000	50	40	—
			Other uses	2½	35	35	15	—	—	—	20	—	—	—	—	—	50
	198-30	C-9 Harbor Use	All uses	3	45	20	None except as provided in § 198-30						—	—	—	—	—
	198-31	C-10 Planned Motel	All uses	2	35	75	50	2	50	100	75	50	1,500	3/5 acres See § 198-31	—	200	25
	198-32	C-11 Automotive Service Station	All uses	1	—	25	25	2	25	50	25	25	—	20,000	—	150 on all frontages	25
	198-33	C-12 Professional	All uses	3	—	50	25	2	25	50	50	25	—	3 acres	—	—	—
	198-34	I-1 Light Industry	All uses	—	45	100	50	2	50	100	50	50	—	6 acres	400	200	30
	198-35	I-2 Light Industry	All uses	—	45	75	25	2	25	75	50	25	—	3 acres	250	150	33⅓
	198-36	I-3 Light Industry	All uses	—	45	50	20	2	10	35	25	10	—	1 acre	125	50	40
	198-37	I-4 Light Industry	All uses	—	35	50	10	2	10	20	50	10	—	1½ acres	200	100	60
	198-38	I-5 General Industry	All uses	—	45	25	25	2	25	50	25	25	—	—	—	—	—
	198-39	I-6 Generating Station	All uses	—	200	200	200	2	200	400	200	200	—	50 acres	—	—	—

Source: Town of Huntington



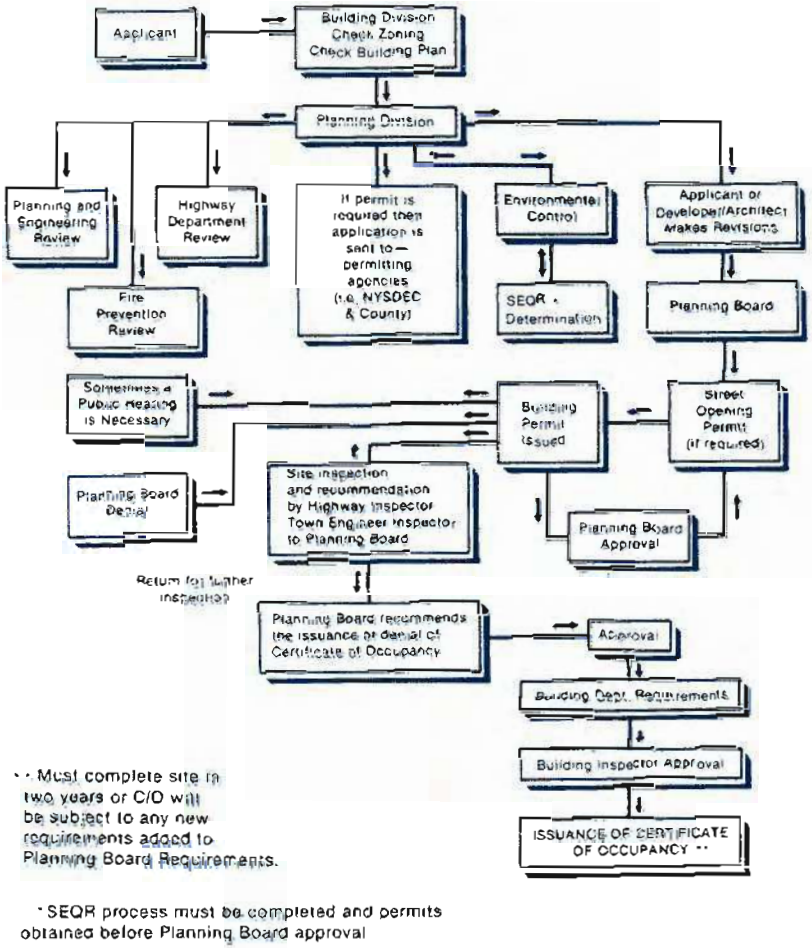
*Adapted from Local Government Technical Series, *Site Development Plan Review. Procedure and Guidelines*. New York State and Department of State, February 1984

FIGURE 7 *Basic Single Phase Procedure*



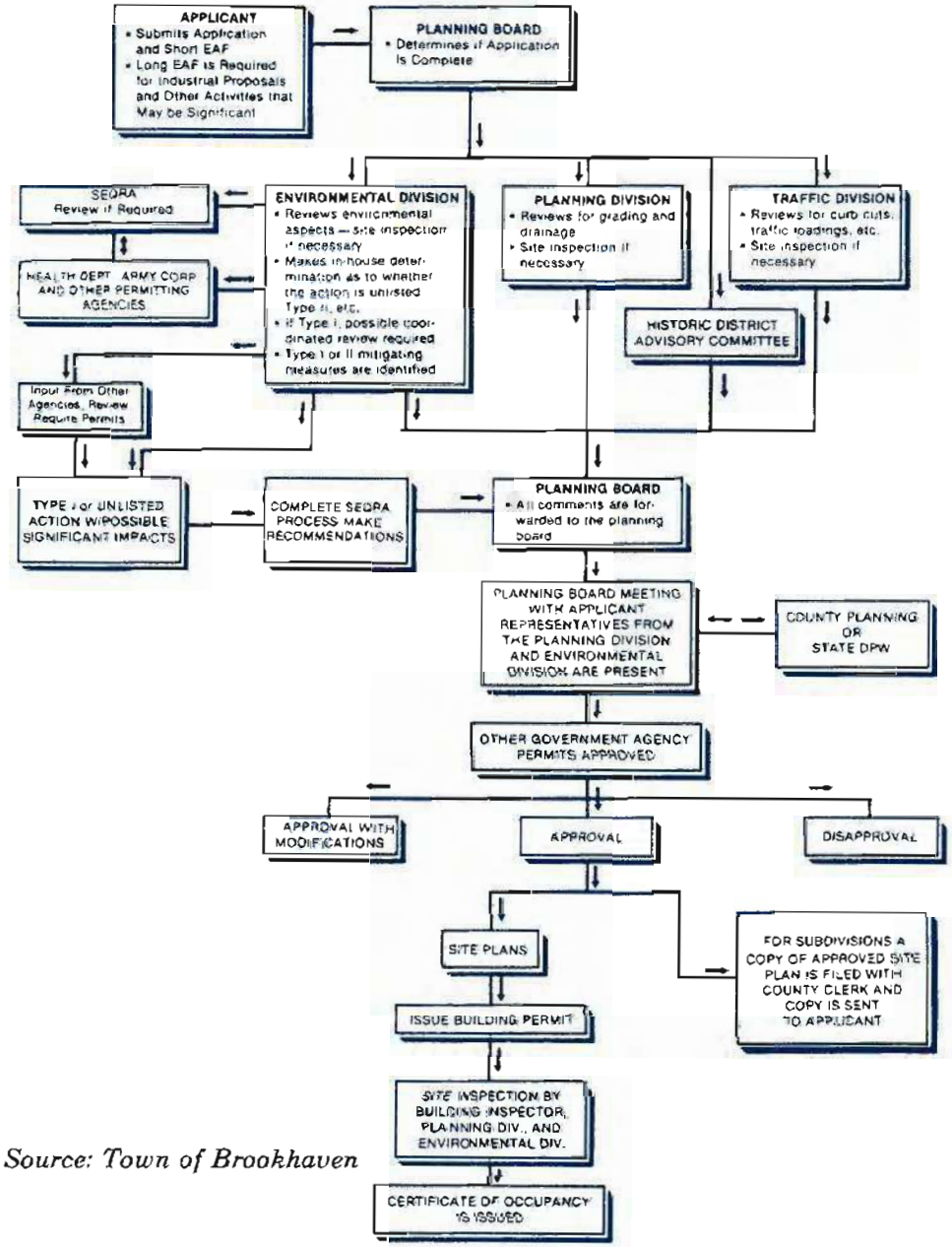
Source: Town of Oyster Bay

FIGURE 8 *Generalized Site Review Process*



Source: Town of Babylon

FIGURE 9 *Generalized Site Review Process*



Source: Town of Brookhaven

FIGURE 10 *Site Review Process Incorporating SEQRA Action*

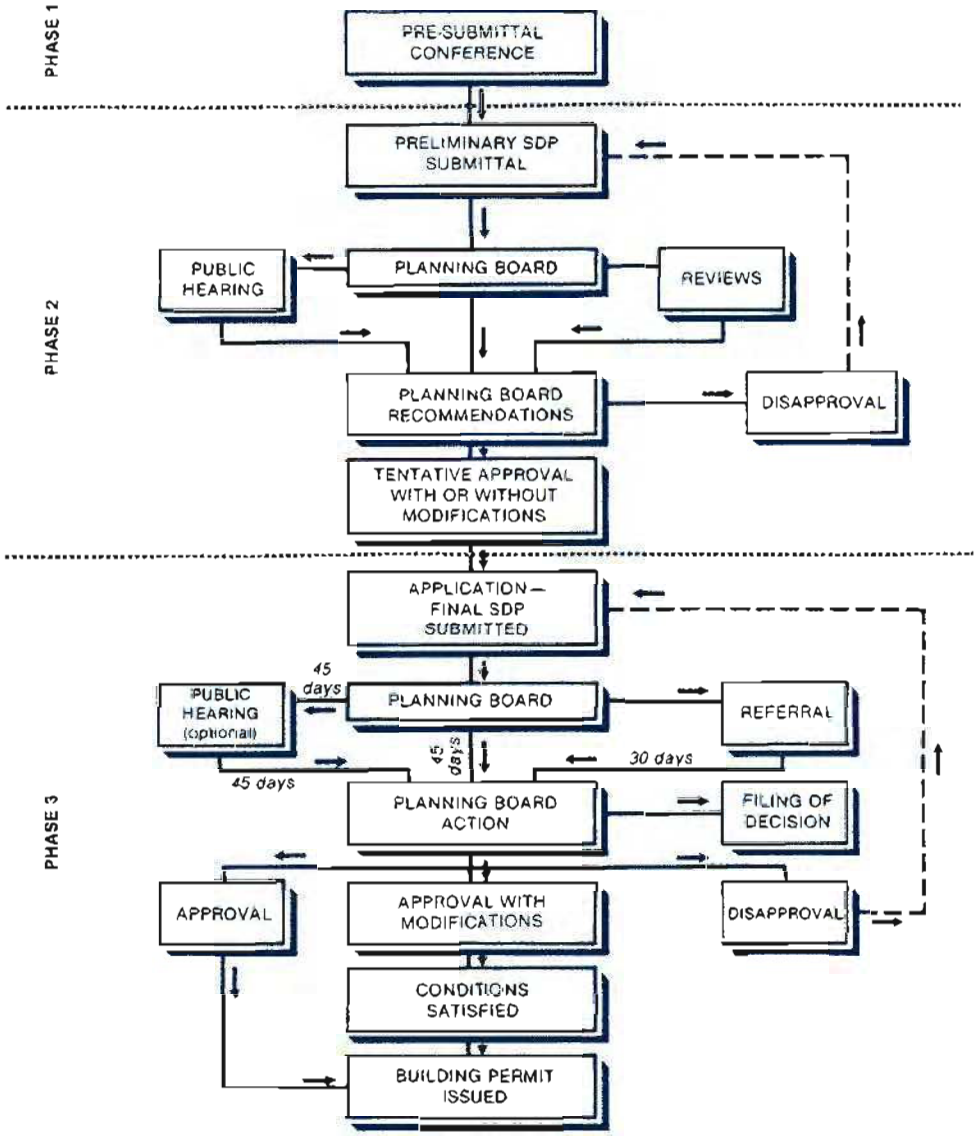


FIGURE 11 *Multi-Phase Site Development Plan (SDP) Review Procedure*

**Adapted from Local Government Technical Series,* Site Development Plan Review. Procedures and Guidelines. *New York State and Department of State, February 1984.*

TABLE 7

Multiphase Site Plan Procedural Sequence

- Initial contact with enforcement officer
- Presubmission conference
- Preliminary application
  Public hearing notice
- Public hearing
  Tentative action:
    Approval
    Approval with modifications
    Disapproval
    Resubmission required
  Lapse date for final approval
- Final application
  Referral
  Comments returned
  Final Action:
    Approval
    Approval with modifications
    Conditions satisfied
    Disapproval
    Resubmission required
- Site clearance and building permit granted
- Performance bond required
    Amount
    Period
    Improvements covered
- All conditions on plans have been implemented
- Performance bond satisfied
- Certificate of occupancy

The municipality may give *tentative approval* or *tentative approval with modifications* or *disapproval*. If approval or approval with modifications is given, then the applicant may prepare for the final submission. If tentative approval is denied, the applicant must make necessary revisions and resubmit the application for preliminary approval. The most substantive and detailed review occurs (or should occur) during the preliminary phase.

During this phase, the owner-developer usually submits applications directly to the state or counties if NYSDEC or county permits are required. See Figure 12 for the Uniform Procedures Permit process used by the NYSDEC and Figure 13 for the basic SPDES permit process.

FINAL SITE PLAN DEVELOPMENT PHASE

The following steps normally occur in this phase:

- *Application*
  The final development plan is submitted for approval. The plan includes the following information:
  - Date of submission
  - Potential impact of the proposed development on the environs
  - Natural site features
  - Existing development and infrastructure
  - Site development proposal (plan and specifications)
  - Record of the approval status of all state (possibly federal), and county permits

- *Evaluation*
  The final plan is reviewed to determine if it meets the requirements of the zoning regulations. Appropriate municipal departments or agencies, including engineering, highway, public works and environmental departments review and comment on the plan. The plan is also evaluated for conformance with the comprehensive land use plan and, hopefully, with a municipal land capability analysis that provides data on development limitations, critical environmental areas, and unique features, and prescribes techniques to minimize impacts.
- *Referral*
  Where required pursuant to Sections 239-1 and 239-m of the General Municipal Law or County Charter, the plan is referred to the appropriate county planning commission prior to final action by the municipality. (See Nassau and Suffolk Counties).

NASSAU COUNTY REVIEW AFFECTING SITE PLANS AND SUBDIVISIONS

The Nassau County Planning Department's responsibility in respect to land development at various sites is limited to the authorities contained in section 334a of the New York State Real Property Law, and in the Nassau County Charter, section 1610, relating to the subdivision of land.

Subdivision Plat Approval – §1610, as amended, of the Nassau County Charter, gives the Planning Commission conclusive authority to

- approve subdivision plats
- establish standards for public improvements such as roads, utilities and storm drainage
- supervise the installation of required improvements in the unincorporated areas of the county

It also authorizes the Planning Commission to review subdivisions that are located in an incorporated area either within a distance of three hundred feet of either city and village boundaries or of county roads.

The Nassau County Department of Health requires the completion of a project permit questionnaire as a part of the process. See Appendix Figure 9

Drainage and wastewater plans for a particular subdivision are usually prepared by a consultant, acting on behalf of the applicant, and are presented to the Planning Commission. The plans indicating the drainage and wastewater management provisions are then forwarded to the Departments of Health and Public Works for evaluation, comment, and approval. The proposed drainage facilities must be approved by the Commissioner of Public Works, Nassau County Health Department and the local municipal authority.

The subdivision map must be filed with the county clerk. A notice stating the map has been filed, date of filing and the amount of the bond is sent to the towns.

Single lot residential development applications are filed with towns and reviewed by the building inspector.

See Table 8 for a description of the NCDH permit review procedure for on-site sewage disposal systems for realty subdivisions and for individual on-site private sewage disposal systems.

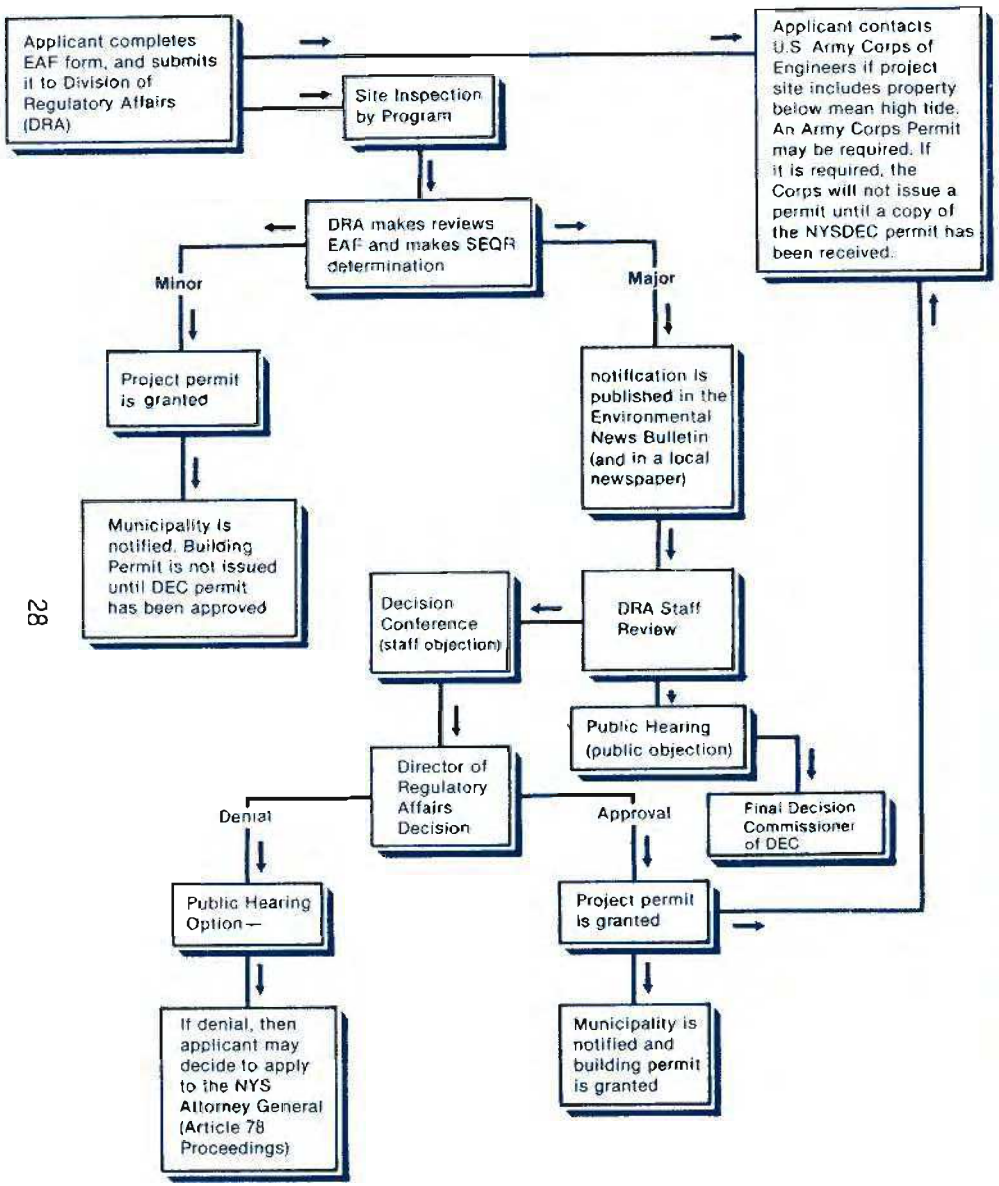


FIGURE 12 *Uniform Procedures Process*

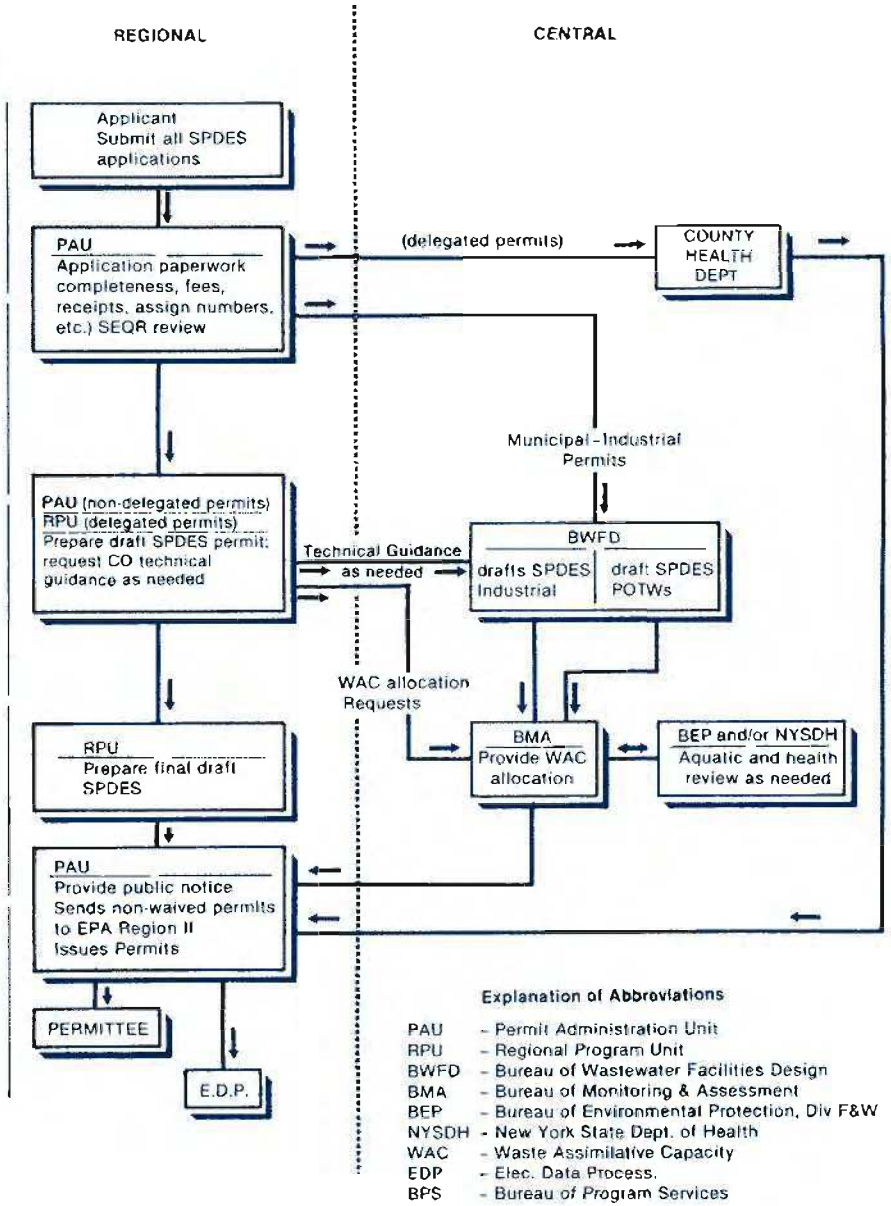


FIGURE 13 *Basic S.P.D.E.S. Permit Issuance Process*

TABLE 8

Steps for Obtaining NCDH Approval of Realty Subdivision, Individual On-Site Private Sewage Disposal Systems, and Lateral Sewer Extensions

- Submit Plans to Health Department
  Plans must be prepared by individuals whose qualifications meet state requirements.

- Preliminary Conference

- Lead agency initiates and completes SEQRA review process
  Applicant must submit a Short Environmental Assessment Form as early as possible unless SEQRA coordination is the responsibility of another agency (Nassau County Planning Department)

- Prepare Test Hole Excavations for On-Site Disposal System

- Test Hole Inspection

- Put Test Hole and Soil Data on Plans

- Finalize Plans

- Submit Application Package (permit questionnaire)
  Submit Project Permit Requirement Questionnaire to NCDH in order to determine if NYSDEC permits are required, plus plans, fees and etc.

- Obtain Preliminary Approval

- Submit Final Plans and Documents

- Plan approval

- Permit Issuance
  a. Certification of Approval of Realty Subdivision Plans (subdivisions with on-site sewage disposal are subject to approval of a SPDES permit)
  b. Individual On-Site Private Sewage Disposal (SPDES permit)

- Certification
  Supervision, submission and certification of as-built by the project consultant to the NCDH.

Source: Nassau County Department of Health, *Sewage Disposal and Other Environmental Factors.* John J. Dowling, M.D., M.D.H., Commissioner. November 1979, Revised February 1981.

Construction of any storm-water drainage or storage basin required by the Planning Commission as a condition of subdivision plat approval may not begin without prior notification to the Commission. The developer must obtain written permission from the Director of the Commission before he or his agents may begin such work.

SUFFOLK COUNTY REVIEW AFFECTING SITE PLANS AND SUBDIVISIONS

Article XIII of the Suffolk County Charter provides for the Suffolk County Planning Commission review of

- zoning changes
- special permits
- zoning variances and subdivision plats affecting lands within one mile of a nuclear power plant or airport; or within 500 feet of the boundaries of village, town, County, State or Federal parks; rights-of-way for County or State roads; rights-of-way of County-owned streams or drainage channels; boundaries of other County, State or Federal land; or the Atlantic Ocean, Long Island Sound, or any bay or estuary of those waters in the County.

Planning Commission response may be

- no recommendation (a matter for local determination)
- approval
- conditional approval
- disapproval for stated reasons.

If no action is taken within 45 days, the proposed action is deemed automatically approved. The municipality may override by vote of a majority-plus-one, with a statement of reasons therefore.

The Commission has established subdivision plat review criteria relating to water quality management. For example, subdividers are required to provide a stormwater collection system so designed that no precipitation falling or running across the tract shall reach a county road or roads. Further, stormwater cannot be directly disposed of into any creek, stream, brook, bay, harbor or any other body of water. In the case of waterfront lots in shoreline areas, no buildings can be placed at the top of a slope or at the edge of a bluff. Additional setbacks are required to compensate for the effects of erosion on the shoreline. No stormwater drainage or concentrated runoff may be permitted to flow down the face of a bluff or shoreline slope.

The Suffolk County Department of Public Works reviews proposed town highways and subdivisions located adjacent to County roads. The NYS Department of Transportation reviews subdivisions adjacent to State roads.

The Suffolk County Department of Health Services requires applications for a number of permits, including

- permits for private water supplies
- toxic and hazardous material storage permits
- permits for on-site disposal systems, modified subsurface sewage disposal systems, and community sewerage disposal systems for non-sewered areas, including the construction of treatment works and sewer connections to existing systems in sewered areas

The SCDHS reviews subdivision and realty development maps for conformance with standards. See Table 9 for sub-surface sewage disposal system requirements for residential or commercial subdivisions and Table 10 for sub-surface sewage disposal systems for nonresidential single lot development. For an equivalent wastewater design flow greater than 15,000 gallons an approved sewer collection and treatment works is required. See Table 11 for the SCDHS permit process for various types of sewage disposal systems. Table 12 lists the standards used to determine sanitary sewerage design flow for various residential and commercial uses.

Once a county planning commission has rendered a decision on the subdivision plat and/or Nassau County has rendered a decision on a site plan, the NYSDEC permits have been obtained and the county health department has given final approval, then the municipal board will review the plan and render a final decision.

- *Public Hearings*

  Public hearings are required for certain zoning changes or certain types of development applications as defined in the municipal regulations or zoning code. A hearing provides a public forum to air views and provide additional information regarding the development. If a public hearing is required, it must occur within forty-five days of the submission.
- *Decision*

  A decision by the local reviewing authority (approval or disapproval) is required within forty-five days following the hearing unless the project requires an EIS, in which case the timing for the SEQRA Process prevails. (Sixty days are allowed for villages.) The decision may include the recommendations of various expert reviewers and may reflect the views of affected residents.
- *Building Permit and Certificate of Occupancy*

  Once the site plan is approved, a copy of the approved plan is filed with the municipal clerk. In order to insure compliance with the site plan, municipalities may require the deposit of cash, a certified check or a performance bond. At least one town requires the owner to sign the site plan.

  Once the applicant has obtained all other required permits (State, County) the municipality may issue a *building permit*. In most cases building permits must

TABLE 9

SUFFOLK COUNTY - Sub-Surface Sewage Disposal System Requirements For Residential or Commercial Subdivisions[1]

Wastewater or Design Flow[2]

Wastewater flow of less than or equal to 300 gallons per day per acre in 208 Zones III and VI.	Wastewater flow of less than or equal to 600 gallons per day per acre in the remaining 208 Zones, provided public water is available.	Equivalent wastewater flow of greater than 300 gallons per day per acre in 208 Zones III and VI and greater than 600 gallons per day, per acre in other 208 Zones.

System Requirement

A standard septic system is permitted.	Community Sewerage disposal system with treatment works meeting applicable design and effluent standards is required.

[1]The installation of a sub-surface sewage disposal system(s) is prohibited when the site to be developed is located in an area with an approved sewer system and treatment plant.

[2]The volume of sewage to be used for the purpose of designing the hydraulic size of the sewage disposal system.

TABLE 10

SUFFOLK COUNTY - Sub-Surface Sewage Disposal Systems for Other Than Single Family Dwellings on Single Lots[1]

Wastewater or Design Flow[2]

Wastewater flow of less than or equal to 300 gallons per day per acre in 208 Zones III and VI or in any Zone with no public water.	Wastewater flow of less than or equal to 600 gallons per day per acre in the remaining 208 Zones, provided public water is available.	Equivalent wastewater flow of greater than 300 gallons per day per acre in 208 Zones III and VI and greater than 600 gallons per day, per acre in other 208 Zones and less than 15,000 gallons per day.[3]

System Requirement

A standard septic system is permitted.	Community Subsurface Sewerage disposal system capable of meeting applicable design and effluent standards is required.

[1]The installation of a sub-surface sewage disposal system is prohibited when the site to be developed is located in an area with an approved sewer system and treatment plant.

[2]The volume of sewage to be used for the purpose of designing the hydraulic size of the sewage disposal system.

[3]A sewage treatment plant is required for a flow of greater than 15,000 gallons per day.

TABLE 11

SUFFOLK COUNTY - Permit Process For Various Types Of Sewage Disposal Facilities By Area and Type of System

	Type of Review				
	For Non-Sewered Area				For Sewered Area
	Site Plan			Subdivision	Site Plan or Subdivision
TYPE OF SYSTEM	Septic System	Modified Subsurface Sewage Disposal System	Community Sewerage Disposal System with Treatment Works	On-Site Septic System Community Sewage Disposal System	Sewer Connection to Existing Sewer District
	Submit plan and fee to SCDHS	Submit plan and fee for preliminary review to SCDHS.	Submit plan and fee for preliminary review to SCDHS.	Submit plan and fee for preliminary review to SCDHS.	Submit plan and fee to SCDHS
REVIEW PROCESS	Approval (notify municipality) All other permits must be approved before health permit is granted.	All other permits must be approved before health permit is granted.	All other permits must be approved before health permit is granted.	SHDHS witholds approval until pending municipal subdivision permits are approved.	SCDHS reviews plan and prepares recommendations and coordinate with DPW Plans are submitted to the sewer agency for approval.
	Municipality issues building permit.	SCDHS grants approval for installation.	SCDHS grants approval for installation.	SCDHS approval for construction.	Sewer agency grants approval.
	Applicant installs system; inspection is made; then area is *backfilled.*	Applicant installs system; inspection is made.	Applicant installs sewer system and treatment system; inspection is made.	Applicant installs system. Inspection is made and approval (or disapproval) is given by the SCDHS	System is installed, inspected.
	Applicant submits *as-builts.*	Applicant submits *as-builts.*	Applicant submits *as-builts.*	Applicant submits *as-builts.*	Applicant submits *as-builts.*
	Health Department gives final approval.	Health Department gives final approval.	Health Department gives final approval.	Health Department gives final approval.	Sewer agency gives final approval.
	Final approval is required before municipality issues a c.o.	Final approval is required before municipality issues a c.o.	Final approval is required before municipality issues a c.o.	Final approval is required before municipality issues a c.o for each unit.	Final approval is required before municipality issues a c.o.

TABLE 11 (Continued)

DEFINITIONS

Septic System - A septic tank used in combination with one or more leaching pools.

Septic Tank - A watertight chamber that promotes the settling, stabilizing and anaerobic decomposition of sewage.

Leaching Pool - A sub-surface structure designed to allow for maximum exfiltration of sewage into the surrounding soil.

Modified Sub-surface Sewage Disposal System - A sub-surface sewage disposal system that is designed for the purposes of providing additional treatment to conform with applicable effluent standards.

Community Sewerage Disposal System - A system utilized for the collection and disposal of sewage and other waste of a liquid nature, including various devices for the treatment of such wastes and sewering more than one parcel whether owned by a municipality or corporation, private utility, or otherwise.

Sewer System (also referred to as sewerage system, public sanitary sewer, municipal sewage disposal system, and communal sewage disposal system) - Pipe lines, conduits, pumping stations, and force mains, and all other constructions, devices, and appliances appurtenant thereto, used for conducting sewage, to a point of ultimate disposal.

Backfill - 1) The operation of refilling an excavation, usually after some structure has been placed therein. 2) The material placed in an excavation in the process of backfilling.

TABLE 12

Standards for Calculating Minimum Design Flow

All sub-surface sewage disposal systems are to be designed according to the occupancy rating and/or the following criteria:

Building Use	Design Flow
Single Family Equivalent	300 gallons/day
Efficiency Apartments/Hotel/Motel	100 gallons/day/unit plus food service
Units over 400 sq. ft. in area	150 gallons/day plus food service
1 Bedroom Apartment/Condominium	150 gallons/day
2 Bedroom Apartment/Condominium	225 gallons/day
3 Bedroom Apartment/Condominium	300 gallons/day
Planned Retirement Apartment/ Condominiums One Bedroom	100 gallons/day
Seasonal Cottages	100 gallons/day/bedroom
Tourist Camp	60 gallons/day/site
Trailer Park	150 gallons/day/trailer
Theaters	1.5 gallons/day/occupant
Drive-In Theaters	5 gallons/day/parking space
Bowling Alley, Racquetball or Tennis Courts	100 gallons/day/court or alley
Day School	5 gallons/day/occupant + food service
Boarding School/Home	75 gallons/day/occupant
Office Space	12 gallons/day/occupant
Industrial Storage/Warehouse	0.04 gpd/sq. foot of building floor area
Spas, Beach, Country Clubs	15 gallons/day/occupant + food service
Medical Arts	225 gallons/day/suite
Hospitals	300 gallons/day/bed
Nursing Homes	150 gallons/day/bed
Proprietary Homes	110 gallons/day/bed
Public Gathering Places	15 gallons/day/occupant
Eating Places	30 gallons/day/occupant
Bars	15 gallons/day/occupant + food service
Catering Halls	7.5 gallons/day/occupant
Markets and Wet Stores	0.05 gpd/sq. foot of building floor area
Delicatessen & Food Processing	0.15 gallons/day/sq. ft. of floor area
Dry Stores	0.03 gpd/sq. foot of building floor area
Take Out Eating	0.75 gpd/sq. foot of building floor area
Churches	1.5 gallons/day/occupant
Bath House	5 gallons/day/occupant
Laundry Facilities	400 gallons/day/washing machine

Source: Suffolk County Department of Health Services

be obtained and work begun within one year of site plan approval. Extensions may be granted for completion of the project; however, a three year completion period is usually the maximum. Approved site plans must be kept on the site during construction and must be available for inspection by the building inspectors and the public. If work is not in compliance with the plan, a stop work order may be issued. When the construction has been completed, the site is inspected by the building inspector. If the site has *not* been developed in compliance with the plan, the building inspector may inform the Town Attorney and have the building permit revoked. If the site and structure are in compliance with the plan, the *Certificate of Occupancy* (C.O.) is issued. If at any time the site is not being utilized in accordance with the plan, the C.O. may then be revoked.

- *Change of Use*

  In some municipalities, a change of use, lease or sale of industrial buildings may entail a review process similar to site plan review. The applicant may be required to complete a form similar to the form required by the Town of Brookhaven, (Figure 14) so that the municipality may determine whether a site plan will be required. If a building permit has previously been issued to the applicant, the review agency will notify the building department.

TOWN OF BROOKHAVEN
DEPARTMENT OF PLANNING, ENVIRONMENT & DEVELOPMENT
Patchogue, N.Y.

PLANNING DIVISION

NOTICE OF CHANGE OF USE, LEASE OR SALE

Applicant to submit 2 copies of this form and 2 copies of current survey

APPLICANT _____ PHONE # _____

ADDRESS _____

LANDOWNER _____ PHONE # _____

ADDRESS _____

LOCATION OF SITE: No. _____ NSEW side _____

Entrance _____ NSEW of _____

Village or Hamlet _____

Suffolk Co. Tax Map No. _____

PRESENT USE (Specific): _____

PROPOSED USE (Specific): _____

Has Applicant secured a Special Permit and/or Variance from the Zoning Board of Appeals? _____ If so, state date and case number _____

Do you have Health Dept. approval for Industrial or Sanitary Waste? _____

1) Will you presently, or at any time in the future, use, manufacture or dispose of any hazardous or toxic materials? _____

2) Will surface or groundwater resources be utilized in any way other than for normal potable consumption? _____

3) Will any air or noise emissions occur from this operation? _____

I HEREBY CERTIFY AND STATE THAT ALL THE ABOVE STATEMENTS AND INFORMATION ARE TRUE.

Sworn to before me this

day of _____, 19___

_____
Signature of Legally Responsible Person
(Owner or Authorized Agent)

_____
NOTARY PUBLIC

FIGURE 14
Sample Change of Use, Lease or Sale Form

Source: Town of Brookhaven

KEY PROBLEMS

Existing Problems With The Site Plan Review Process

Site plan review has become an important and effective tool for the reconciliation of the environmental protection and development goals of numerous municipalities.

There has been a general increase in awareness of water resource problems. Local agencies (town and village board, planning board and zoning board of appeals) are developing methods to minimize impacts and to coordinate environmental review.

As with any complex process, some problems remain. These problems are present in a few jurisdictions, and occur with sufficient frequency to suggest the need for remedial action. The following discussion is limited to those aspects of the process that lend themselves to further improvement.

Municipal Ordinances — Zoning and Environmental Laws

- *Failure to Consider Impacts on Groundwater and Surface Waters as a part of the Site Plan Review Process*
  - Many groundwater controls have been delegated to the State and counties. When the development is not subject to SEQRA there is often little or no consideration of groundwater protection, due to the lack of specific mandate in the municipal code.
  - Some of the towns have revised their comprehensive plans to reflect the 208 Waste Treatment Management Plan. However, they have not always undertaken a similar revision of the zoning and other municipal ordinances used as a basis for site plan review. The situation is further complicated by the fact that some zoning maps are not always updated to reflect the revisions. Site plan review agencies may thus rely on outdated information.
  - Few municipalities have addressed the minimization of the collective impacts of a number of individual projects, each contributing to the total nonpoint source pollutant loadings to groundwater and surface waters within a small geographic area (See Zoning.) Generally no estimation or evaluation of the collective impacts of numerous individual projects upon groundwater and surface waters is made, because site plan or subdivision proposals affecting the same or adjacent areas are submitted over a number of years. The problem is compounded by a lack of ability to predict with certainty that an individual project will result in a significant impact.

- *Inconsistent Application of Controls*
  - Undeveloped portions of deep aquifer recharge areas are subject to different controls affecting the density of land use for new residential and commercial development in hydrogeologically comparable locations. Where the higher densities are allowed, the use of on-site disposal systems and the heavy application of fertilizers applied to extensive lawn areas can result in groundwater nitrate concentrations that exceed the nitrate standard.
- *Limited Scope and Adequacy of Existing Ordinances*
  Some of the problems with the site plan review process can be attributed to the relatively limited delegation of powers to the reviewing agency, pursuant to local ordinances.
  - Traditional zoning of undeveloped deep recharge areas fails to address the critical issue of pollutant loadings to groundwater. The Zoning Enabling Acts implicitly rather than explicitly authorize this use of the police power to protect the health, safety and welfare of the community.
  - In recent years some municipalities have revised their zoning ordinances for the purpose of protecting future water supplies. Others have only limited areas or no areas identified in their zoning ordinances for the recharge of high quality groundwater.
  - Zoning does not necessarily preclude the establishment of activities that can cause groundwater pollution. For instance, residential development is generally strictly controlled through zoning. Although the municipalities prohibit incompatible uses in residential areas, facilities, such as religious institutions, schools, hospitals, day camps, libraries, and parks and recreation areas are permitted. These nonresidential uses can have a major impact upon the underlying groundwater.
  - Some environmental ordinances are incomplete or fail to provide for enforcement. Often the fines for violations are so low that developers would rather pay the fine than comply with the ordinance. Offenders are not subject to increased fines or other penalties for repeated violations. Although both the site owner and the developer may have violated the law; in some cases, only one of the two is cited for the violation.
  - Only a few municipalities have ordinances that prohibit or regulate the clearing of land before the site plan has been approved. In a number of instances clearance of road rights-of-way or of the entire site occurs prior to the approval of the site plan or site clearance plan. Wetlands and other sensitive areas are filled or otherwise destroyed at night or on weekends. Court imposed fines are so low that they do not function as a deterrent. The ordinances do not usually require revegetation or restoration of the site to its previous state.
  - There is a lack of site clearance standards, which minimize the percentage of the site that can be cleared and are used to protect natural areas.
- *The Lack of Flexibility Sometimes Precludes Environmentally Sensitive Site Planning*
  - The prescribed uniformity of zoning setbacks constrains design flexibility, affording the site plan review agency little or no authority to vary setback requirements where appropriate to minimize impacts. In many cases, this results in the maximum lot disturbance since the structure must be placed within a certain distance of the lot boundary line regardless of the site characteristics.
  - In some municipalities, zoning coverage requirements do not take into account site constraints, such as steep slopes.

Zoning Variances

- *Deficiencies in Zoning Variance Procedures*
  There are several reasons why the Zoning Board of Appeals (ZBA) sometimes grants zoning variances that are in conflict with groundwater or surface water protection needs.
  - Water resource protection criteria for zoning variances are not in general use. The

legally established criteria for the granting of a variance often fail to account for potential impacts upon water resources.

- In some instances, there is a lack of coordination between the ZBA, the planning board and other municipal officials. The ZBA may not submit zoning variance proposals for review by the municipal planning boards. Some of the proposed variances or exemptions may be in conflict with municipal policy.
- The board members may lack sufficient information to determine whether a proposed commercial or industrial development is compatible with State, Nassau or Suffolk County regulations [such as Article 10, (Air Pollution) and Article 12 of the Suffolk Sanitary Code, the New York Compilation of Rules and Regulations (NYCRR) Part 360 and SPDES regulations.]

Subdivision Review Process

- *Problems Relating to Subdivision Regulations*
  - In some municipalities, commercial and industrial subdivisions are merely filed and not reviewed.
  - Currently some towns and villages waive the requirement that an applicant must file a plan for a subdivision of less than five lots, although this practice may constitute a violation of the State Real Property Law.
  - Although Section 281, Town Law, gives the town planning boards the authority to mandate clustering, several municipalities with subdividable land have not amended their own subdivision regulations accordingly. The municipalities that have cluster ordinances do not always use them effectively, even when the site of a proposed subdivision is environmentally sensitive.
  - Some municipalities may have outdated subdivision design standards that do not afford adequate environmental protection. Many subdivisions are designed merely to maximize the lot yield for a property. The standards may not require a developer to maintain existing topography, vegetation or natural drainage patterns even in sensitive environmental areas. Nor do they address the need to retain the natural vegetation, and limit the size of lawn areas.
  - Ordinances are still in effect that require the clearance of 60 foot rights-of-way in all subdivision developments, regardless of site topography, anticipated traffic volume, etc.
  - Municipalities do not always notify the County Clerk when a subdivision plat is referred to the County Planning Commission. As a result, an applicant may succeed in filing a plat with the County Clerk prior to the completion of a legally mandated review and final municipal action.
- *Planning Board Review - Town Board Review*
  - Although town boards, planning boards and zoning board of appeals are generally familiar with most federal, state and county laws that may affect the development of a given site, some projects that do not meet the requirements of these laws have been approved. For example, municipal planning boards have approved commercial subdivisions and industrial development proposals without consideration of Article 12. (See Ordinance Chapter for Article 12.) Development based upon plans approved by the municipality have occasionally resulted in *needless* significant environmental impacts and the violation of environmental laws.
- *Timing Problems Related to Site Plan Review Procedures*
  - In a few cases, planning board review for relatively simple projects that do not require an EIS, takes too long. Lack of coordination and the transfer of information at the beginning of the review period prolongs the project review period.
  - Preliminary approval for a subdivision may be granted before all required permits have been obtained and the SEQRA process has been completed.
  - The town board, planning board or the zoning board of appeals may act prior to the receipt of recommendations from local conservation advisory boards or citizens advisory committees.

- *Extent of Review Coverage*
  - In a few municipalities there is no site plan review for single family homes even when they will be located in deep aquifer recharge areas, the 100-Year Floodplain, or adjacent to surface waters. Among the reasons for this are the failure to recognize environmentally sensitive areas and to utilize readily available information regarding of protection of these areas.
  - The complexity of the procedure may result in incomplete subdivision applications or premature approvals.
- *Technically Inadequate Review*
  - Plans that are poorly designed, incomplete, misleading or do not address unforeseen impacts are sometimes approved.
  - In some instances there may be a failure on the part of the reviewer to recognize deficiencies in the developer's plans.
  - Plans that are submitted may be misleading. For instance, plans may show extensive areas of natural vegetation to be preserved when a careful inspection of the grading plan reveals that most of the site must be cleared (see Review Personnel Problems).
  - Specific environmental impacts may be overlooked due to the division of responsibilities within the departments and a lack of coordination between the departments. For instance, one department may review stormwater runoff control measures while another department may review erosion control measures. This may result in undesirable site conditions once the plan is implemented. The separation of responsibilities may also lead to inadequate site inspection.
- *Lack of Trained Personnel*
  - Some of the municipalities' site plan and subdivision review departments are understaffed. There is a lack of environmentally trained analysts with adequate knowledge and skills to inspect sites, review environmental site conditions, analyze potential environmental impacts and develop and implement mitigation measures required to minimize or prevent undesirable impacts.
- *Coordination and Transfer of Information*
  - The coordination of the site plan review activities between various levels of government is sometimes unstructured. In these instances, coordination may depend more on the interest and knowledge of the initial reviewer than on any established procedure for the routine exchange of essential information.
  - In-house technical reviewers function in an advisory capacity. Information provided by these reviewers may not be utilized.
  - Sometimes there is a lack of coordination between the various departments and agencies involved in the review process due, in part, to a shortage of review personnel and inspectors.
  - Developers fail to provide complete information on the Environmental Assessment Form, in the Environmental Impact Statement, or on the subdivision or site plan submission. The lack of information on the forms can result in the need for permitting agencies to request additional information, and their subsequent receipt of this information in bits and pieces, necessitating the expenditure of additional staff time.
- *Incomplete Criteria for Review and Standards*
  - There is a lack of environmentally sound specification and performance standards that can be used to achieve municipal or regional groundwater and surface water protection goals.
  - Sometimes a *specification standard* may be required when a *performance standard* should have been used. Although in some cases, the use of the former is entirely appropriate; in others, it limits flexibility and precludes recourse to creative environmental solutions.
  - Standards, rules and guidelines are sometimes outdated and do not allow for changes to reflect new information, studies, laws and policies.
- *Permits*
  - A building permit is usually issued for sites within a subdivision after the final plat is approved by the

planning board (or the town board) and filed with the county clerk. In some cases the permit may be approved without the implementation of mitigating measures prescribed in the site plan.

- *Enforcement of Conditions Established As a Result of Site Plan Review*
  - The Certificate of Occupancy (C.O.) is not presently being adequately used to insure installation of control or mitigation measures identified in the EIS or other findings relating to groundwater or surface water protection. The C.O. is not always being withheld until all items indicated on the site plan have been installed or completed. Permitting agencies do not always check for compliance with the site plan. In some cases, the site owner is allowed to sign a form stating that *compliance with the site plan will occur* in the future. This is difficult to enforce unless the municipality witholds the C.O. or requires the developer to provide a bond to insure compliance.
- *Easements*
  - Some towns will not release a site plan (give final approval) until a notarized copy of any covenant required by the health department to insure that groundwater protection control measures will be installed, has been obtained from the county. This is not being done consistently in all Long Island municipalities.
  - In some cases, conservation easements affecting lands shown on the site plan are not officially recorded; therefore, a legally enforceable covenant to insure that a specific portion of the site will not be subject to future sale or development may not be in effect. If the land is not protected, portions may be sold, possibly for tax arrears and developed in the future.
- *Poor Site Planning*
  - No review, however thorough, can compensate for the short comings of a poorly conceived and executed site plan. Some of the developers and their consultants lack the necessary familiarity with environmental processes and mitigation measures. They also fail to bring in their plans at the early stage of the design process for comment from the municipalities.

Coordination With SEQRA Review Process

The SEQRA review process has improved greatly since its initiation. Many local officials believe that SEQRA is the most valuable tool for addressing impacts not covered by legislation and regulations; however, a number of problems related to State Environmental Quality Review Act (SEQRA) and to site plan review procedures still exist.

Groundwater and surface water impacts can be minimized when site plan review is coordinated with SEQRA. Nonetheless, there have been instances in which the desired results have not been achieved for one or more of the following reasons.

- The site plan review process is not always coordinated with the SEQRA process, even though that is required in the SEQRA law.
- The extent to which municipalities use the Environmental Impact Statement (EIS) as a tool for site planning varies greatly.
- Some public officials in permitting agencies do not understand what is required by SEQRA.
- In some instances there is limited coordinated review between the permitting agencies for a given project.
- Responses from reviewing agencies are not always returned to the lead agency.
- Site plans indicating potential impacts may not be sent to the regional or town environmental departments when they are sent to the highway, traffic, building and engineering departments.
- Some agencies are not interested in scoping (establishing a list of the most important impacts that would result from a given set of environmental conditions and a given site plan) because they do not have the expertise, staff, and time to identify the major impacts.
- There is a tendency to permit the developer's consultant to identify the major impacts and appropriate content of the EIS, thus affecting the ultimate usefulness of the document. The consultant

may understate the potential impacts that should be considered and fail to describe recommended mitigation measures. Instead he/she may produce lengthy pages dealing with vegetation and soils, minor impacts and unnecessary information. If the necessary information is not provided, the review agencies will need extra time to obtain and evaluate the missing information.

- The mitigating factors described in the EIS are sometimes quite limited and in some cases do not address all important aspects of the problem. However, many agencies do consider the mitigating measures carefully and may request that additions or changes be made.
- Some lead agencies may accept an incomplete, inadequate EIS and not ask for corrections.
- Most of the top priority Areas of Critical Environmental Concern that have been identified in various municipal plans or studies are *not* subject to SEQRA review because they have not been recorded with the NYSDEC in Albany, nor have they been identified in local ordinances. Consequently, there is no legal method to provide the essential additional protection for these areas.
- At the present time, threshold criteria for actions affecting Areas of Critical Environmental Concern are limited or non-existent; therefore, any action, even putting up a fence, may be identified as a Type I action.
- Building Departments do not always review impacts under SEQRA, although they are required to do so.
- Application forms, including Environmental Assessment Forms (EAFs), and site plan review requirements are not used as extensively as they could be to identify and minimize environmental impacts. Very often, the EAF is not complete, contains erroneous information, or important information is witheld. A poorly designed form may allow unlisted actions to appear to have an insignificant impact, therefore improperly eliminating the requirement for an Environmental Impact Statement.
- Many impacts of development and the techniques for minimizing impacts are similar for different sites. A generic EIS[1] produced for the area can set the stage for performance standards and subsequent impact statements. A regional generic EIS is seldom developed or if developed, may not be referenced in an individual EIS.
- Agencies are sometimes beleaguered by non-meritorious law suits.

[1]A statement used to assess programs, or plans having wide application, a sequence of actions or a number of separate actions within a given geographic area, which if considered singly may have minor effects, but if considered together may have significant effects.

RECOMMENDATIONS

Introduction

The primary purpose of the recommendations section is to identify and recommend needed changes in the site plan review process that will make surface water and groundwater protection an integral part of the process and will provide for improved coordination.

The site plan review process recommendations are concerned with the following legislative and administrative activities and the preparation of site plans as they affect groundwater and surface waters.

- zoning and environmental laws that affect the site plan review process
- zoning changes
- zoning variances
- major subdivision and minor subdivision controls
- SEQRA controls and administration
- other permit review processes
- site plan review process
- site plan preparation

The first part of the chapter presents a series of recommendations for consideration by those municipalities that have not yet adopted site plan review procedures that integrate groundwater and surface water protection. Some of the recommendations can be used as a guide for reducing needlessly lengthy Environmental Impact Statements, by providing a means for limiting the scope or the requirements of the EIS while at the same time making it a more effective tool for the prevention of undesirable environmental impacts.

The last part of the chapter presents an outline and brief description of the essential steps in site plan preparation, and is directed to the site designer rather than to the local official or the general public.

Municipal Ordinances - Zoning and Environmental Laws

- *Consider the Expansion of the Existing Legal Authority to Allow for the Consideration of Groundwater Impacts, Including Cumulative Impacts, as a Part of the Site Plan Review Process*
  - The municipalities should mandate the consideration of groundwater protection, in the municipal codes. The protection of groundwater should be identified as a reason for the use of the police power to protect the health, safety and welfare of the community.
  - The municipalities should develop consistent regulations to control nitrate loadings from new development. In establishing permissible densities estimated nitrate loadings should be considered. Estimates of the potential nitrate concentrations in the recharge water should include the contribution from on-site disposal systems and the use of fertilizers applied to lawn and landscaped areas. It is recommended that the future nitrate level not exceed 6 mg/l for relatively developed areas and 2 or 3 mg/l for partially developed or undeveloped aquifer recharge areas, or Special Groundwater Protection Areas.
  - The municipalities, in delegating site plan review responsibility pursuant to local ordinances, should provide specific legal authority for the consideration of groundwater and surface water protection as part of the site plan review process.
  - Municipalities that have not revised their comprehensive plans to reflect the 208 Waste Treatment Management Plan guidelines and the recommendations in this handbook pertaining to land use and zoning should do so. All municipalities should revise their zoning and other municipal ordinances to assure consistency with their comprehensive plans, including land use densities for nonsewered and sewered areas and the desired consideration of cumulative impacts upon groundwater.
  - Those municipalities with undeveloped lands located within the deep recharge zones and/or Special Groundwater Protection Areas identified in the Land Use Chapter (Figures 10-13) or locally designated groundwater protection areas should accord special consideration to those areas overlying the best quality (or least contaminated) groundwater.
    - Zoning categories that are compatible with high quality recharge should be identified, and appropriate performance standards provided.
    - Ordinances should be amended where necessary to prohibit commercial, industrial or other types of development that are generally incompatible with groundwater protection.
  - The municipalities should evaluate the process whereby certain uses are not subject to review regardless of zoning district or location.
  - The municipalities should maintain and make available an up-to-date zoning map that depicts all revisions to zoning ordinances.
  - Municipalities that do not have ordinances prohibiting or regulating the clearing of land prior to site plan approval should adopt them in order to prevent the premature clearance of road rights-of-way or of the entire site. The ordinance should mandate both the revegetation or restoration of the site and the imposition of a fine that is sufficiently costly so that it will serve as a deterrent. See the Ordinance Chapter, Ordinance #22 for a site clearance permit ordinance.

- *Provide Flexibility to Allow for Environmentally Sensitive Site Design*
  - Municipalities should amend their zoning ordinances to allow site plan reviewers to modify existing site planning criteria and standards where necessary to facilitate the use of appropriate mitigation measures and to incorporate new information and techniques that can be used for groundwater and surface water protection. The site plan review agency should have the authority to vary setback requirements, where appropriate to minimize impacts in sensitive environmental areas. Zoning coverage requirements should be revised to allow for adjustments related to site limitations posed by natural features, such as buffer zones and steep slopes. See Topographic Slope Map (Figure 17) and Site Analysis Map (Figure 21).
- *Improve the Effectiveness of Existing Environmental Ordinances*
  - Municipalities should amend incomplete environmental ordinances that fail to provide for effective enforcement. If fines for first time violators and repeat offenders are inadequate, they should be increased. Both the site owner and the developer who have violated the law, should be held responsible for the violation.
- *Develop Additional Ordinances As Needed*
  - Site Development Standards
    The counties and municipalities should develop performance standards (i.e. site clearing, stormwater runoff attributable to a number of individual projects) to minimize collective impacts of the nonpoint source pollutant loadings.
  - The municipalities should include special site development standards for natural areas as part of their zoning or other ordinances. Permissible site clearance should be based upon resource protection requirements, regardless of the zoning category. See Table 13 for recommended guidelines indicating the proportion of the site that may be landscaped and the proportion that should remain in natural vegetation for different zoning districts.
- *Need for Covenants*
  - The municipalities should require applicants for subdivision plat approval or those requesting site plan review for major projects to impose restrictive covenants running with the land in order to assure that needed control measures identified in the site plan will be implemented. The municipalities should take necessary measures to assure that the covenants are enforced. Covenants should be used only where control measures are required to prevent significant impacts that are not otherwise preventable by statute or regulation.

Zoning Changes

- *The municipalities should recognize potential impacts upon water resources, when considering zoning changes.*
- *The municipalities should revise their ordinances to require the submission of a site plan and a completed EAF form as part of any application for a zoning change affecting land within a locally designated groundwater protection area.*
- *The municipalities should require that any applicant for a zoning change affecting property located within a groundwater protection area present evidence that the proposed change will not result in increased groundwater contamination.*

TABLE 13

Site Development Guidelines: Percentages of Site to be Landscaped and to Remain in Natural Vegetation

District (1)	Percentage of Site that Is Landscaped: Current (2) Average	Percentage of Site that Is Landscaped: Recommended (3) Maximum	Percentage of Site to Remain in Natural Vegetation: Recommended Minimum (4)
Residential (see Table 18)	—	—	—
Office Business	25	15	20
Neighborhood Business	20	15	15
Highway Business	15	15	10
Shopping Center Business	10	10	15
General Business	10	10	15
Planned Industrial Park	35	20	20
Industry	20	15	20
Institutional	25	15	30

(1) Typical commercial and industrial districts; tailor to meet local zoning and other needs.
(2) These percentages are based on a study J. Laverty & D.M. Flynn conducted in 1981 for the Smithtown Planning Dept. The study included many typical site plans for various uses and zoning districts.
(3) It is recommended that the use of exotic plants, lawns and other plantings that are associated with heavy fertilization be minimized or avoided.
(4) Recommended for undeveloped or partially developed deep recharge zones, Special Groundwater Protection Areas and other areas of critical concern. It is recommended that natural site vegetation remain in these areas or be enhanced with native shrubs and trees.

Zoning Variances and Special Permits

- *The Municipalities Should Revise Zoning Variance and Special Permit Procedures to Provide for Groundwater or Surface Water Protection*
  - The municipalities should limit the delegation of power to the Zoning Board of Appeals (ZBA) to preclude the granting of zoning variances that are in conflict with groundwater or surface water protection policies. The law should require that the applicant for a variance or a permit account for potential impacts upon water resources.
  - The local planning or environmental departments should advise the board members whether a proposed commercial, industrial, or other development is compatible with groundwater protection needs.
  - The municipalities should institute measures to improve coordination between the ZBA, the planning board and other municipal officials.
  - The ZBA should submit any request for a zoning variance affecting land within a designated groundwater protection area to the municipal planning board for its review and comment.

Subdivision Review Process

- *Major and Minor Subdivision Controls*
  - Municipalities should amend their laws to require the review of commercial and industrial subdivisions.
  - Municipalities that have subdividable land but have not amended their own subdivision regulations should mandate clustering, consistent with Section 281.
  - Municipalities should not waive the requirement that an applicant file a map for a subdivision of less than five lots, since failure to do so may be a violation of the New York State Real Property Law. Maps of all subdivisions must be filed in the County Clerk's Office.
  - Municipalities with outdated subdivision design standards that do not afford adequate environmental protection should revise their standards. The standards should require that a developer maintain existing topography, vegetation and natural drainage patterns in sensitive environmental areas to the maximum extent possible. Prescribed design standards should address the need to retain the natural vegetation, and limit the size of lawn areas.
  - The municipalities should revise ordinances that require the clearance of 60 foot rights-of-way for secondary residential streets in subdivision developments regardless of site topography and anticipated traffic volume, etc.
  - The municipalities should review site development plans for individual lot development and minor subdivision proposals located in Special Groundwater Protection Areas and other undeveloped, sensitive environmental areas.
  - The municipalities should notify the County Clerk of the referral of any subdivision to the County Planning Commission. This is now required by law.
  - The County Clerk should be authorized to reject the filing of a map subject to County Planning Commission review, if the subdivision has not been referred to the County Planning Commission.

Coordination With the SEQRA Review Process

- *SEQRA Controls and Administration*
  - Municipalities that do not require the initiation of the SEQRA process at the beginning of the site plan review period should revise their procedures.
  - Lead agencies should require a scoping meeting with the applicant and involved agencies to identify the major impacts that would result from proposed projects. A DEIS should be rejected if it does not address the significant environmental issues, the potential range of the project's impacts, discussion of all reasonable alternatives and mitigation measures.
  - The municipalities should review their Type I action lists and adjust the thresholds for Type I actions to insure increased groundwater and surface water protection. In nonsewered, relatively undeveloped areas, any downzoning that would result in residential densities greater than those recommended in the 208 WMTP should be declared a Type I action.
  - The municipalities should identify and map the most environmentally exceptional or sensitive areas located within their respective jurisdictions. Following public notice and hearings, these areas should be

designated as Critical Areas of Environmental Concern or Critical Environmental Areas, in accordance with SEQRA. Threshold criteria should be developed for these areas, so that only those actions that will result in an adverse impact will be subject to EIS review.

- Municipalities should consider the use of generic impact statements as a tool for the management of a specific area or resource or for addressing the cumulative impacts upon an area. Since the information required for the completion of the individual impact statements includes the identification of areas where significant impacts from development will occur, and the identification of alternatives and mitigating measures, a generic impact statement can serve as a reference. Reference to the generic impact statement could permit the reduction of the number of required items to be addressed in each EIS.
- The municipalities should identify ways to use performance standards, to improve site designs and to shorten the EIS process and to reduce the length of the EIS.
- Any agency issuing a *negative declaration* pursuant to SEQRA should be required to indicate the basis for that decision. Where necessary, additional criteria should be reviewed in order to develop a defensible decision.
- The municipalities should provide training for permit agency personnel so as to improve the integration of the site plan and SEQRA review process. There is also a clear need to improve the understanding of scoping techniques.

- *Plan Conformance with SEQRA*
  -Municipalities should require a detailed site plan to reflect any mitigating measures stipulated in the EIS process (findings, etc.) and indicate how they are to be implemented.

Suggested Procedure for Coordinated Suffolk County Department of Health Services and Municipal Review of a Development Requiring an Article 12 Permit

- *Coordination of Review Procedures*
  - Suffolk County municipalities should cooperate with the Department of Health Services in the development and adoption of mutually acceptable review procedures for projects requiring the issuance of a County Health Code, Article 12 permit. The establishment of a coordinated review, including the following steps, should save both time and money for the applicant and the reviewing agencies.

- *Suggested Procedure*
  - The municipality gives the applicant a preprinted SCDHS project notice for the applicant to complete (along with the municipal application forms for the site clearance and building permit). This will allow the Health Department to be involved in making recommendations early in the site planning process, before many site decisions are made.
  - The municipality submits the project notice (post card format) to SCDHS.
  - The applicant submits a request to the SCDHS for the Article 12 application forms.

- The applicant submits a preliminary site plan to the municipality and to the SCDHS.
- The applicant receives comments on the site plan from the municipality and the SCDHS.
- The applicant amends the plan to incorporate recommended changes and submits final plans to the municipality and the SCDHS for approval.
- The SCDHS grants plan approval (or denial).
- The local planning board or municipal board grants approval, approval subject to modifications or disapproval.
- The applicant obtains a SCDHS permit. The permit to construct is valid for one year.
- The municipality issues site clearance and building permits.
- The SCDHS schedules site inspections during various phases of the construction process.
- The SCDHS grants final approval upon project completion and final inspection.
- The municipality inspects the site and issues a certificate of occupancy or a permit to operate.

Importance of the Site Plan

- *There is a need for well conceived site plans that facilitate the development of a desired type and intensity of use compatible with the protection of natural resources including natural vegetation, surface waters and groundwater.*
  - A licensed landscape architect should prepare and sign the site plan indicating the type of planting, land forms and passive stormwater drainage systems.
  - Some municipalities may require that the site plan meet a set of performance standards specified in the municipal ordinance. In the case of any variance from a required standard, the plan should contain a statement indicating how the site planner has met the intent of that standard and describing measures designed to mitigate potential adverse effects of the proposed variance.

Site Plan and Subdivision Review Process

- *Development of the Site Plan*

  The development of site plan comprises a series of separate but related activities. (See Site Plan Preparation).

  These can be categorized as

  1) Site selection
  2) Data collection
  3) Site analysis
  4) Design development (conceptual plan, schematic plan, preliminary conference, plan revision, preliminary plan)
  5) Submission of preliminary plan to the municipality and other agencies, as required
  6) Revision and refinement of the preliminary plan
  7) Submission of final plan

  The component of each stage will vary with the magnitude of the project and sensitivity and complexity of the site. Not all of the items discussed in connection with each stage of the process will be relevant in every case.

- *Preliminary Conference*

  The municipality or other reviewing agency should provide the applicant with appropriate information concerning municipal plans, policies and site plan submission requirements during the preliminary conference. In order to minimize escalating development costs, the municipalities should provide detailed guildelines to the developer, at the time of intitial contact. The municipality may wish to provide access to the following site related information, where applicable.
  - Existing land use plan
  - Existing zoning
  - Existing road pattern
  - Future plans for roads within the immediate area
  - Other construction or reconstruction plans
  - Aerial photographs of the site and surrounding area
  - A map showing the location of critical environmental areas, groundwater management districts, aquifer recharge areas, and critical shallow recharge areas
  - Depth to groundwater (See Figure 15)
  - The location of the 100 year flood plain
  - Lists of endangered or protected flora and fauna
  - Zones of archeological sensitivity
  - Historic sites
  - Wetlands
  - Any other possible constraints to site development (provide a checklist of environmental factors)
  - Applicable performance standards
  - Site development guidelines
  - Information required for the preliminary application

- *Prepare an Environmental Assessment Form*

  The applicant should bring a completed environmental assessment form to the preliminary conference:
  - The Environmental Assessment Form shown in Figure 27 or a form with equivalent information should be used for proposed site plans and subdivisions. The municipality may also require an EAF for zoning variances, special permits, and proposed change of zoning. If the EAF is not completed it should be rejected.

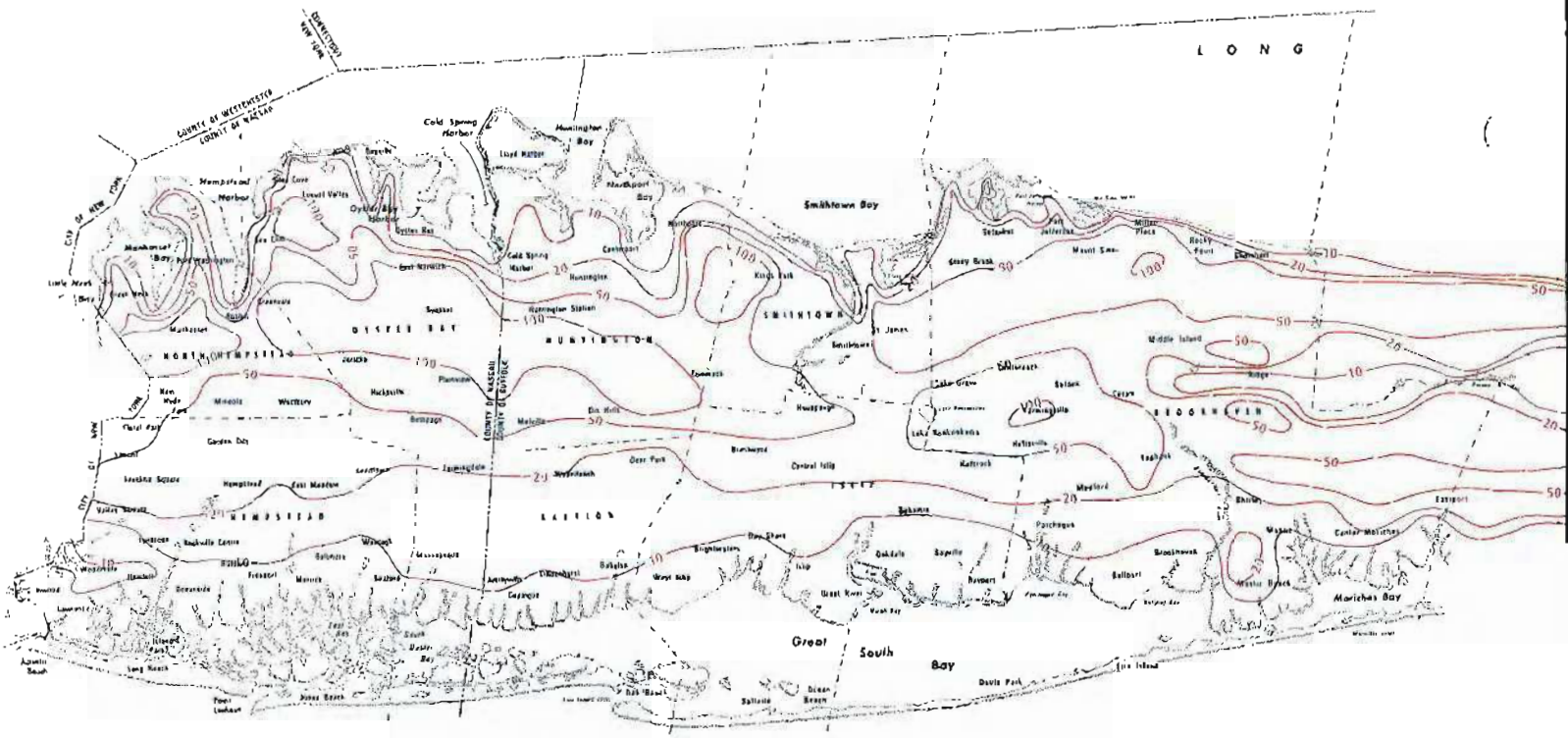
- *Comply with Performance Standards*

  The municipalities should require that, to the greatest extent practical, subdivision and site plans be designed to meet the following performance standards:
  - The natural functioning of the site, including the absorptive, purifying and retentive functions in existence before clearance and construction, shall be maintained to the greatest extent possible.
  - The post-construction volume and rate of runoff leaving the site shall not exceed the calculated volume and rate of runoff of natural or predevelopment conditions for any storm of any intensity up to and including the 25 year frequency, unless the use of control measures will significantly impact the natural topography or vegetation.
  - Artificial watercourses shall be designed so that the velocity of flow will not cause erosion and will provide natural habitats wherever possible.

- Where retention or detention ponds are used to control the increased and accelerated runoff resulting from site development, the release of water from the ponds into streams shall be at a rate and in a manner approximating the natural flow prior to development.
- Any new direct discharge of stormwater into surface waters, freshwaters or tidal wetlands shall be prohibited.
- The volume and rate of stormwater discharged from the site that is in excess of the volume and rate of stormwater leaving the site under natural or predevelopment conditions shall not exceed the capacity of existing in-place stormwater sewer systems for any storm of any intensity up to and including the 100 year frequency.
- Existing natural vegetation (trees and shrubs, and related vegetation) except that within the permitted clearance limits (see Table 13) shall be conserved and otherwise protected. (See Fertilizer Chapter)
- Any construction related clearing of trees and shrubs not in accordance with an approved landscape plan shall be prohibited.
- Tree and other natural vegetation removal for construction, affecting sites in Critical Areas of Environmental Concern, or that would result in the destruction of rare or endangered species, or located on slopes greater than 25%, within 100 feet of the top of a bluff or within 50 feet of the shoreline shall be permitted only if the proposed activity does not cause significant degradation of the resource.
- Vegetation on slopes greater than 35% shall not be disturbed.
- Soils exposed by site preparation shall remain so for the shortest practical period of time during site clearing, construction and restoration and shall be protected during construction and restoration.
- Upon completion of construction, all soils on the property shall be stabilized with trees, shrubs and groundcover that are suitable for the site and purpose of the planting.
- Erosion, sedimentation and stormwater runoff shall be controlled prior to, during, and after site preparation and construction.
- The site erosion and sedimentation control measures shall be appropriate for the existing topography, vegetation, and other natural features of the site. The plan shall indicate how these features will be preserved.

• *Article 12 Guidelines*
- Any applicant requiring an Article 12 permit should consult the SCDHS for detailed information. Appendix Figures 1-7 can serve as preliminary guidance for developing a permit application pursuant to Article 12. Appendix Figures 1,2, and 3 provide guidance for the installation of underground storage tanks; Figure 4 for a recommended installation for a typical drum storage area; Figure 5 for multiple underground storage tanks; Figure 6 for a recommended installation of a small above ground storage tank and Figure 7, for a large above ground storage tank. All proposed storage tanks will be subject to the SCDHS review.

• *Preliminary Site Plan Submission*
- The site designer should submit the following:
  - o Site plan that includes the municipalities' recommendations from preliminary conference
  - o The requirements provided in the municipal, county and state standards and guidelines



(The plan should contain as much information as possible in order to facilitate review. See discussion of plan preparation procedures and plan content).

- o A completed environmental assessment form with the appropriate applicable categories completed (see EAF preparation)
  The proposed mitigation measures.

- *Final Site Plan Submission*
  - The site designer should submit the final site plan in accordance with municipal, county and state requirements. See also Prepare Final Site Plan.

- *Plan Review*
  - Municipal reviewers should evaluate the development plan in relation to the policies and standards expressed in the revised comprehensive land use plans and in zoning ordinances that identify groundwater and surface water protection measures.
  - All reviewers should include consideration of Special Groundwater Protection Areas, lands within the 100-year flood plain, Coastal Erosion Districts, Historic Districts, Special Surface Water Protection Areas or Critical Environmental Areas subject to SEQRA when evaluating the probable impacts or constraints affecting the proposed development.

- *Compliance*
  - The municipalities should require that all development, construction, excavation and landscaping proposals be in accordance with the approved stormwater runoff, planting and erosion-sedimentation control standards and the requirements of any municipal ordinance pertaining to the site.
  - The municipality should require an engineering report on wastewater disposal prior to the issuance of the site clearance permit and/or building permit. A SPDES engineering report may be used if one is prepared.

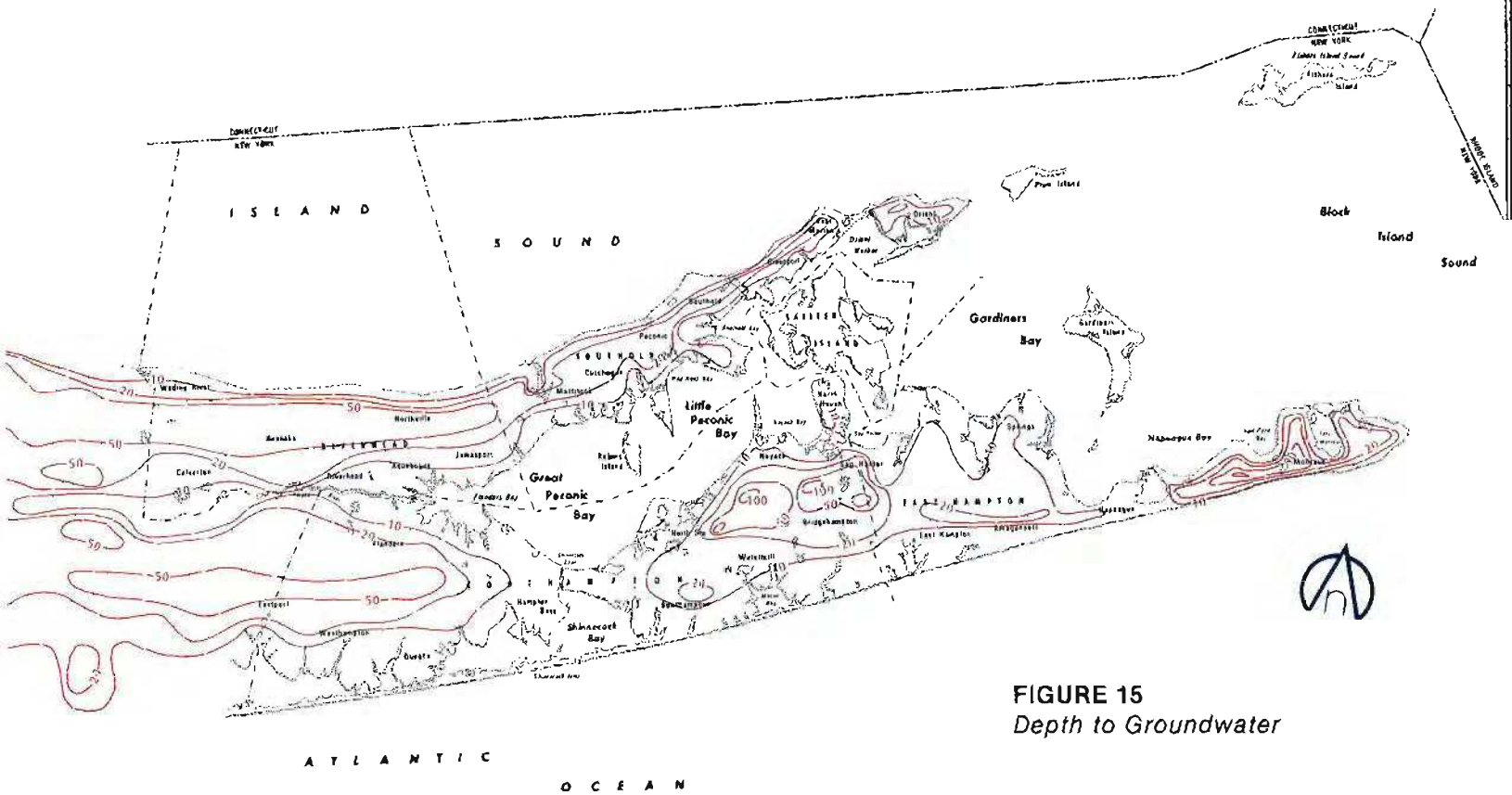


FIGURE 15
Depth to Groundwater

- *Public Hearing*
  - Before a public hearing occurs, the permitting or lead agency should receive comments from all other permitting agencies. All pertinent information on the site should be presented.

- *Permits*
  - The planning board should withold approval of the proposed plan, until the SEQRA process is completed.
  - The building department should require submission of evidence indicating compliance with health and environmental laws before issuing site clearance and construction permits.
  - The municipalities should prohibit any clearing or removal of vegetation, development, construction or excavation prior to the issuance of a building permit.
  - The municipalities should require vegetation removal permits for any site clearance activity (tree cutting or vegetation clearance) regulated by the municipal ordinance.

- *Certificate of Occupancy*
  - The municipality should withold the certificate of occupancy until all items indicated on the site plan have been installed or completed and any required covenants have been duly filed. In lieu of witholding a C.O., the permitting agency may require a bond to insure compliance.
  - The municipality should require stabilization of disturbed areas during and immediately after construction. The certificate of occupancy should not be issued until all land areas on site are permanently stabilized.
  - Where an industrial wastewater discharge will occur, the municipality should use the certificate of occupancy to assure compliance with SPDES. A C.O. should not be issued until the municipality has received a letter from the NYSDEC stating that SPDES requirements have been met.

- The municipalities or the counties should require any industry handling toxic or hazardous materials to post a bond and/or obtain *non sudden* liability insurance prior to the issuance of a certificate of occupancy. This will insure that monies will be available for clean-up if a substantial groundwater impact occurs.

- *Removal of Sedimentation Required*
  - The municipality should require the developer to remove any construction related sediment deposited on public roads within twenty four hours after deposition. If the developer or the owner fails to remove the sediment, he/she should be subject to a fine plus payment to cover the cost to the municipality for the cleaning of roads and storm sewer systems.

Site Plan Preparation

- *Site Selection*
  - See Table 14 for Site Selection Factors

- *Data Collection*
  - The site designer should compile an inventory of on-site factors as a basis for site design. Essential site data may be obtained from NYSDOT topographic maps, natural resource maps, soil surveys, well data, aerial photographs and on-site inspection and engineering surveys. Information should be sufficient to describe both artificial elements and natural resources.

    Artificial elements
    - o Legal and physical boundaries, private holdings, and public easements
    - o Buildings, bridges and other structures, including those of historical and archaeological significance
    - o Roads, walks and other transportation ways
    - o Electric lines, gas mains and other utilities
    - o Land uses: agriculture, industrial, recreation, etc.
    - o Applicable ordinances, such as zoning regulations and health codes, covenants, conservation easements and rights of way
    - o Contiguous land uses, including type and impact
    - o Direction and distance to community services, hospitals, shopping and public transportation route and stops.

    Natural resources
    - o The site designer should prepare a natural resource inventory map or maps, incorporating the natural resource information shown in Figures 16-20, as appropriate.

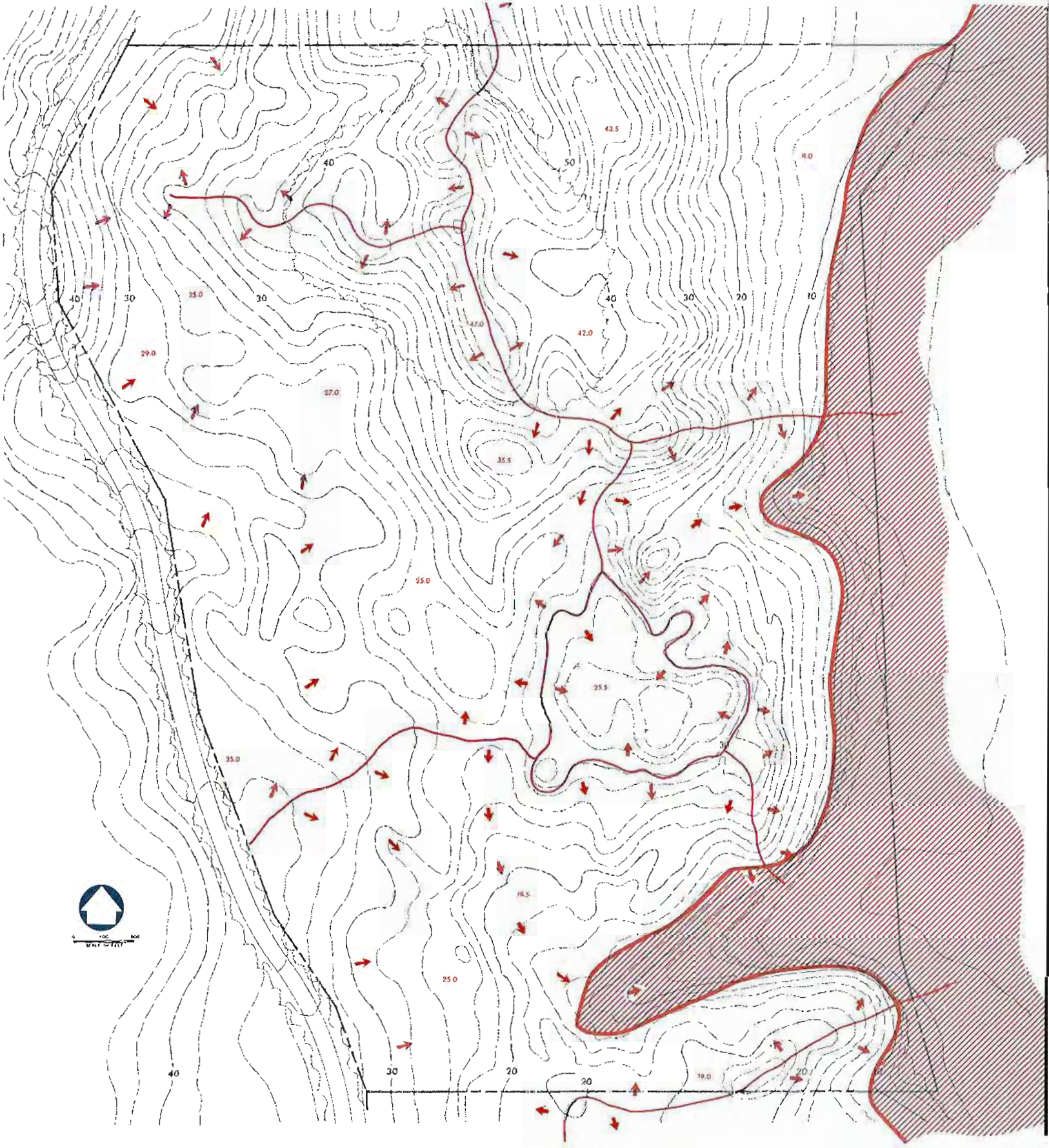
- *Prepare Inventory Maps*
  - The site designer should map or note water bodies, indicating permanence, fluctuations, NYSDEC surface waters classifications, and also flood prone areas.
  - The site designer should compile, but not necessarily map, information concerning

    Subsurface materials
    - o Characteristics of the underlying subsoils
    - o The existence of commercially or functionally valuable material such as sand and gravel, and water

TABLE 14

Site Selection Factors

Use Category	Zoning	Soil Fertility	Soil Constraints	Depth to Ground-Water Problems	Avail-ability of Water	Flood Prone Area	Dune Bluff Beaches	Steep Slopes	Near Wet-lands or Surface Waters	Presence of Utilities	Avail-able Trans-portation	Community Services	Community Facilities
Agricultural	X	X	X	X	X	X	X	X	X				
Open Space Conservation	X					X	X	X	X				
Active Recreation	X	X	X	X	X	X	X	X	X	X	X		X
Rural	X	X	X	X	X	X	X	X	X	X		X	
Low Density Residential	X		X	X	X	X	X	X	X	X		X	X
Medium Density Residential	X		X	X	X	X	X	X	X	X		X	X
High Density Residential	X		X	X	X	X	X	X	X	X	X	X	X
Neighborhood Commercial Retail	X		X	X	X	X	X	X	X	X		X	
Regional Retail	X		X	X	X	X	X	X	X	X	X	X	
Small Office	X		X	X	X	X	X	X	X	X	X	X	
Regional Office	X		X	X	X	X	X	X	X	X	X	X	
Warehouse	X		X	X	X	X	X	X	X	X			
Light Industrial	X		X	X	X	X	X	X	X	X	X	X	
Minor Institutional	X		X	X	X	X	X	X	X	X	X	X	X
Major Institutional	X		X	X	X	X	X	X	X	X	X	X	X



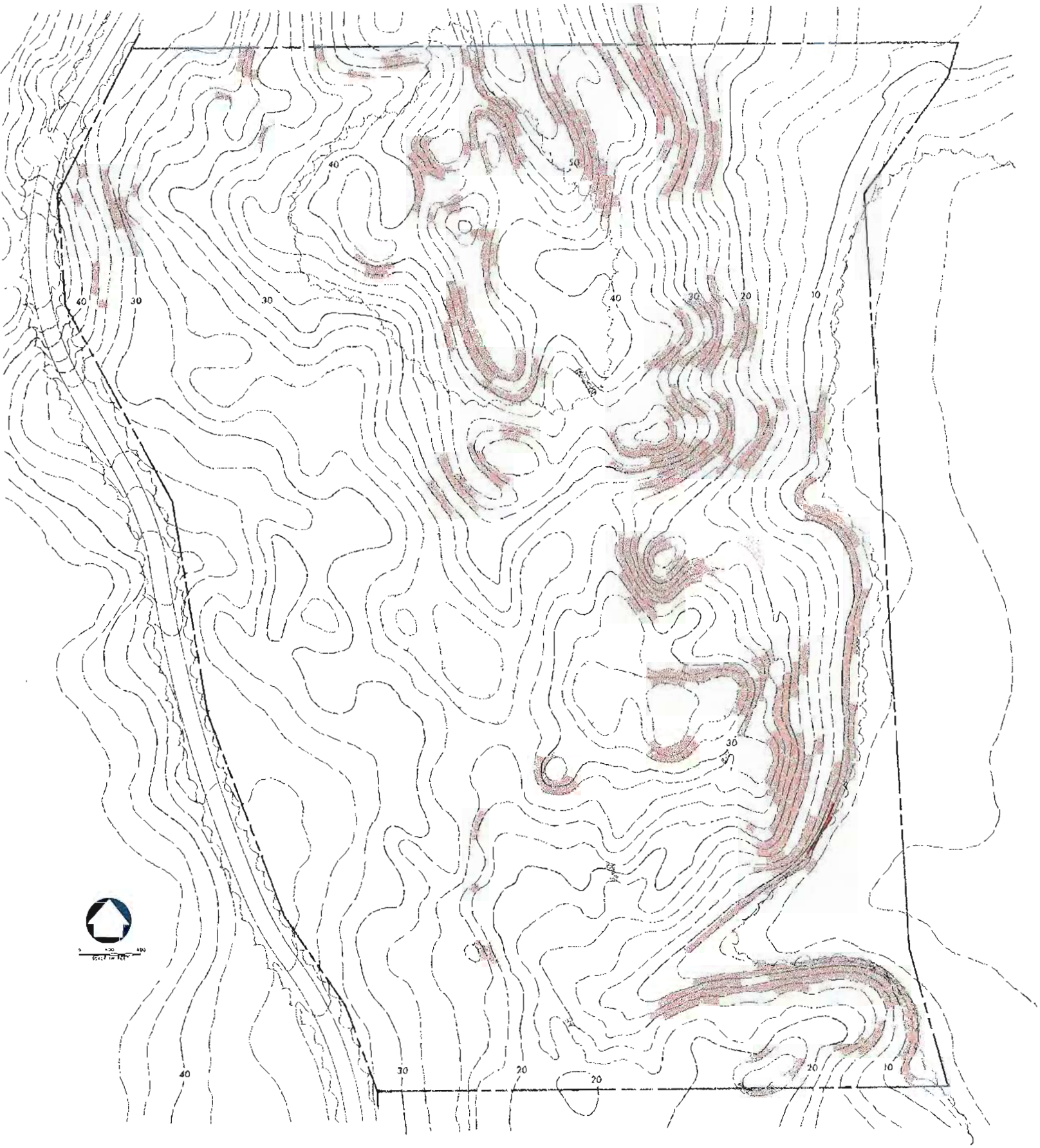
Ridge Lines/Watershed Area Boundaries

19.0 Topographic Spot Elevations

100 Year Floodplain

Direction of Stormwater Flow Under Natural Conditions

FIGURE 16 *Watersheds and Surface Drainage*



Slopes 0 to 10%

Slopes 10 to 25%

Slopes >25%

FIGURE 17 *Topographic and Slope Map*

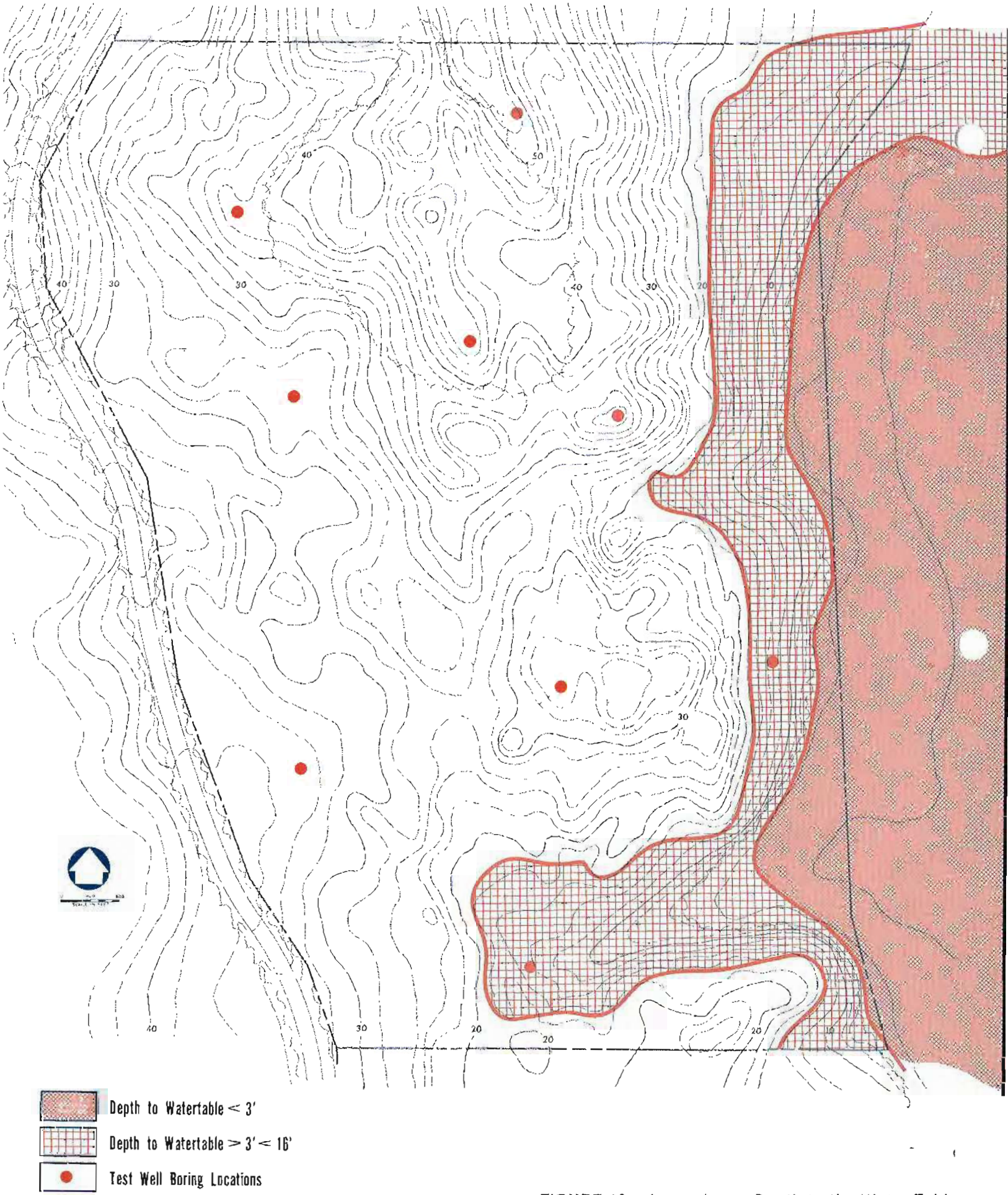


FIGURE 18 *Approximate Depth to the Water Table*

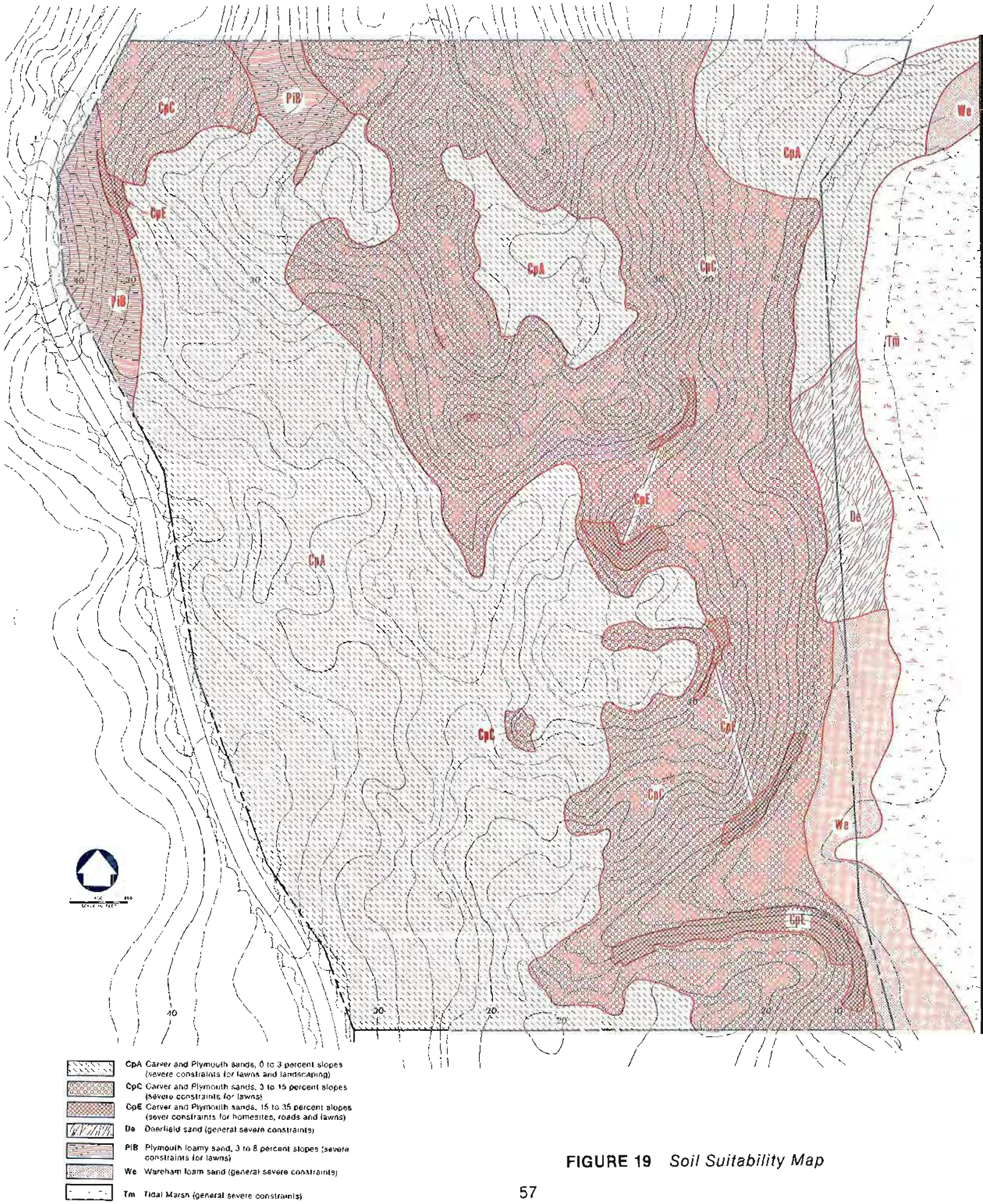


FIGURE 19 *Soil Suitability Map*

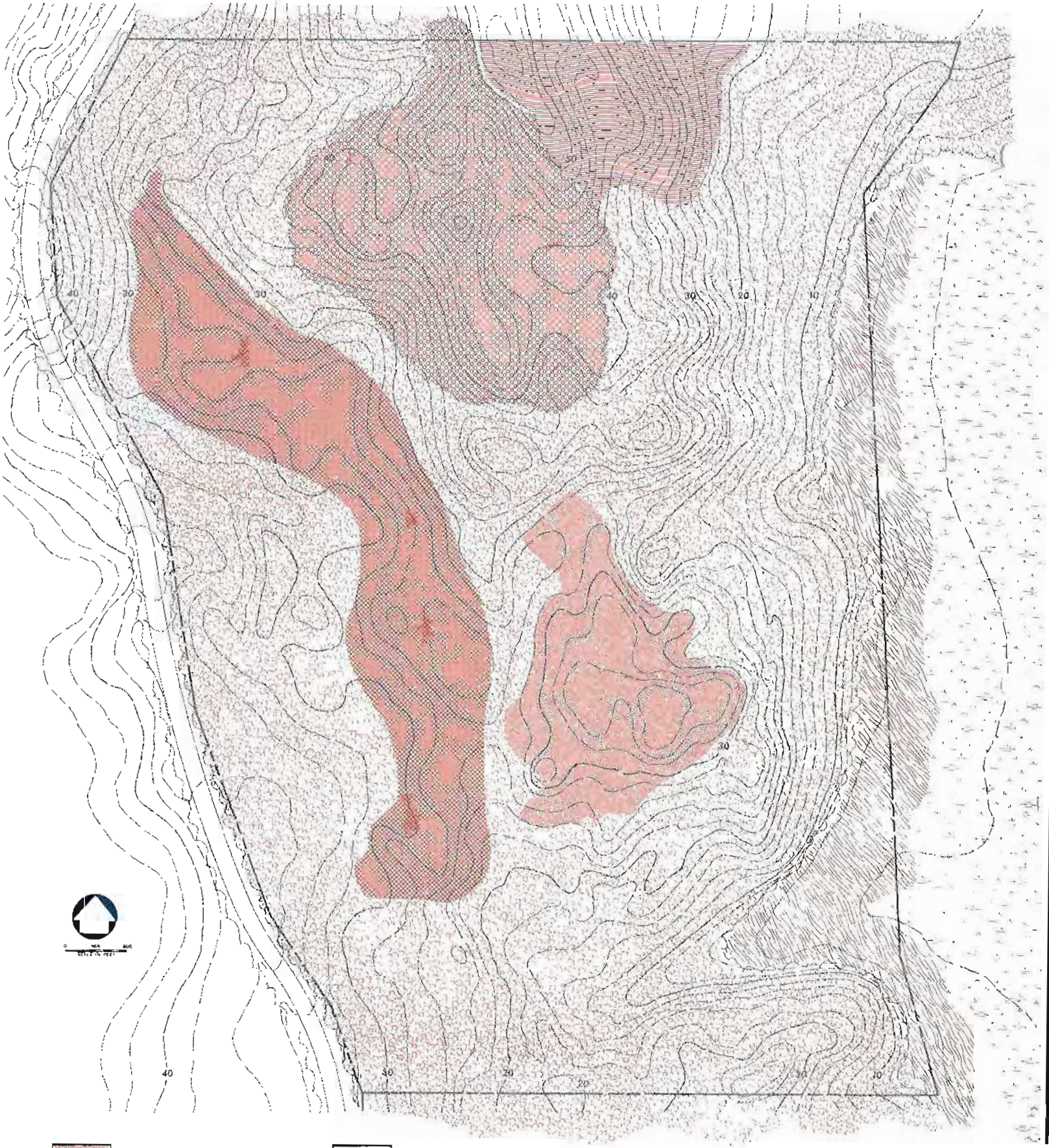


FIGURE 20 *Vegetation*

Groundwater

- o Availability of a potable water supply
- o Groundwater quality and quantity (well data)
- o Direction of groundwater flow (check with the local health departments)

Natural forces *

Macroclimate

- o Temperature (air and water), especially day, night, and seasonal norms, extremes and their durations
- o The angles of the sun at various seasons and times of the day
- o Sun pockets, such as may be found in forest clearings; frost pockets that occur in low places
- o Prevailing wind directions and intensities as they occur daily and seasonally, location of existing wind screens
- o Precipitation: rain, snow, and sleet seasons and accumulations; storm frequencies and intensities

Microclimate characteristics or changes from the norm, (as experienced in some locations)

Perceptual characteristics *

- o Views into and from the site
- o Significant land features
- o Spatial patterns
- o Lines, forms, textures, colors and scales that give the site its unique character
- o Smells and sounds and their sources

- *Inventory Off-Site Factors* *
  - The designer should also compile an inventory of relevant off-site factors, including information about the artificial, natural, and perceptual elements of the properties that surround or otherwise affect the site. These might include both existing and anticipated off-site
    - o Land use patterns
    - o Stream and drainage sources
    - o Sights, smells, and sounds
    - o Aesthetic character of the neighborhood
    - o Public utility locations and capacities
    - o Transportation ways and systems
    - o Known or potential sources of groundwater contamination: landfills, demolition and debris disposal sites, and others

- *Prepare Site Analysis Map*

  The term *analysis* in this case means drawing conclusions from the data gathered during the site investigation. The site analysis should identify the character, structure, and potential of the site.
  - The site designer should use the site data collected in the inventory phase to determine significant site characteristics, opportunities and constraints, and the compatibility of the site with the development requirements.

* Adapted from A.J. Rutledge, Anatomy of a Park, copyright 1971 by McGraw-Hill, Inc., with permission of McGraw-Hill Book Company, New York as cited in DeChiara, J. and L. Koppelman, *Site Planning Standards*, McGraw-Hill Book Company, New York, 1978.

- The site designer should prepare a site analysis map. Important information gathered and mapped during the data collection process should be summarized and indicated on the site analysis map. All information similar to that shown on Figures 16-20 should be transferred to the Site Analysis Map. Specific conclusions regarding the following items should be noted on the map.*
  - o Relationship of the site to surrounding streams, drainageways, or other bodies of water.
  - o Vulnerability of these drainageways and surface waters and all off-site areas to erosion and sediment damage.
  - o Location of areas where soils, topography, and vegetation characteristics combine to create critically erodible areas.
  - o Locations where stormwater runoff crosses the site boundaries.
  - o Options for disposing of stormwater runoff, including locations for sediment control structures.
  - o Options for preventing construction related runoff and erosion.
  - o Location of areas most suitable for development.
  - o Location of areas not suitable for development.

  Figure 21 provides an example of a site analysis map. Use of conclusions noted in the analysis to guide conceptual plan preparation can be expected to result in a plan that responds to site conditions and minimizes undesirable impacts. A plan developed in this way will reflect site conditions as well as considerations of function, economics, engineering feasibility, and aesthetics. The analysis should be done on a topographic map at a scale no larger than 1 inch = 100 feet. The map should cover not only the site but also surrounding areas that may influence site uses and design.

- *Program Development*

  The site planner should also prepare a written program statement for the project. This statement should cover the type, intensity and timing of proposed site based activities and should provide sufficient detail to permit the identification of water supply, water quality, air quality, noise and other impacts. Site development needs or program items may suggest not only what information must be collected, but also what is inconsequential. In a complementary fashion, an analysis of site data may result in the identification of necessary program modifications.

  The site planner should consider the relationship of program and site characteristics in assessing the impacts of development on different site areas. After an assessment has been made, plan changes can be developed so that the disturbance of vulnerable or critical areas can be minimized.

- *Prepare a Conceptual Plan*

  For large scale development, development proposed for sensitive environmental areas or groundwater protection areas, the site designer should prepare both a conceptual plan and a schematic site plan before proceeding to the development of the preliminary site plan. The conceptual plan should indicate the general spaces allocated for building masses and circulation; preliminary grading (general character, mounds and berms, special grading problems); general stormwater plan (direction of

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FIGURE 21 *Site Analysis Map*

stormwater flow and general location of recharge areas); parking; open space; planting (existing vegetation to remain and a general planting concept); utilities (major trunk lines and connecting points to existing utilities) and special facilities. The conceptual plan should indicate those areas that are to be preserved, and techniques to minimize impacts upon terrestrial and water resources. The plan should be prepared on a topographic base map at a scale no larger than 1 inch = 100 feet. See Figure 22.

- *Prepare Schematic Site Plan* *
  - The site designer should develop a schematic site plan after careful study of the conceptual plan. The schematic plan should depict, at a more precise scale, the configuration of structures, and the specific arrangement of the units; the relationship of structure(s) to site characteristics; the limit of site grading; site circulation, including general road alignment, types of paving, setbacks, screening (also type of screening), parking, lighting, natural areas, conservation easements, and recreation areas should be worked out in this phase. This plan should be produced at a scale of 1 inch = 50 feet where practicable. In addition to the required plan, sections, sketches, and study models should be made to convey the intent of the proposal. The schematic site plan should indicate

    Structures
    - o Location, shape, size, arrangements, and groupings

    Circulation
    - o Road width and alignment
    - o Location of pedestrian routes
    - o Road and pedestrian route materials

    Natural areas and conservation easements

    Site grading
    - o General grading character, proposed contours, site sections and edge of disturbance
    - o Berms and mounds

    Utilities
    - o General major utility layout and connections (This can be done as an overlay).

    Recreation Areas
    - o Location
    - o Type of facilities

    Parking
    - o Location, material, number of spaces, and parking ratio

    Planting
    - o General character
    - o Screening concepts, planting relationship to units, open space, and so on (sections or sketches)

    Lighting
    - o Location
    - o Type

  See Figure 23 for a schematic plan for a condominium and Figure 24 for a commercial plan.

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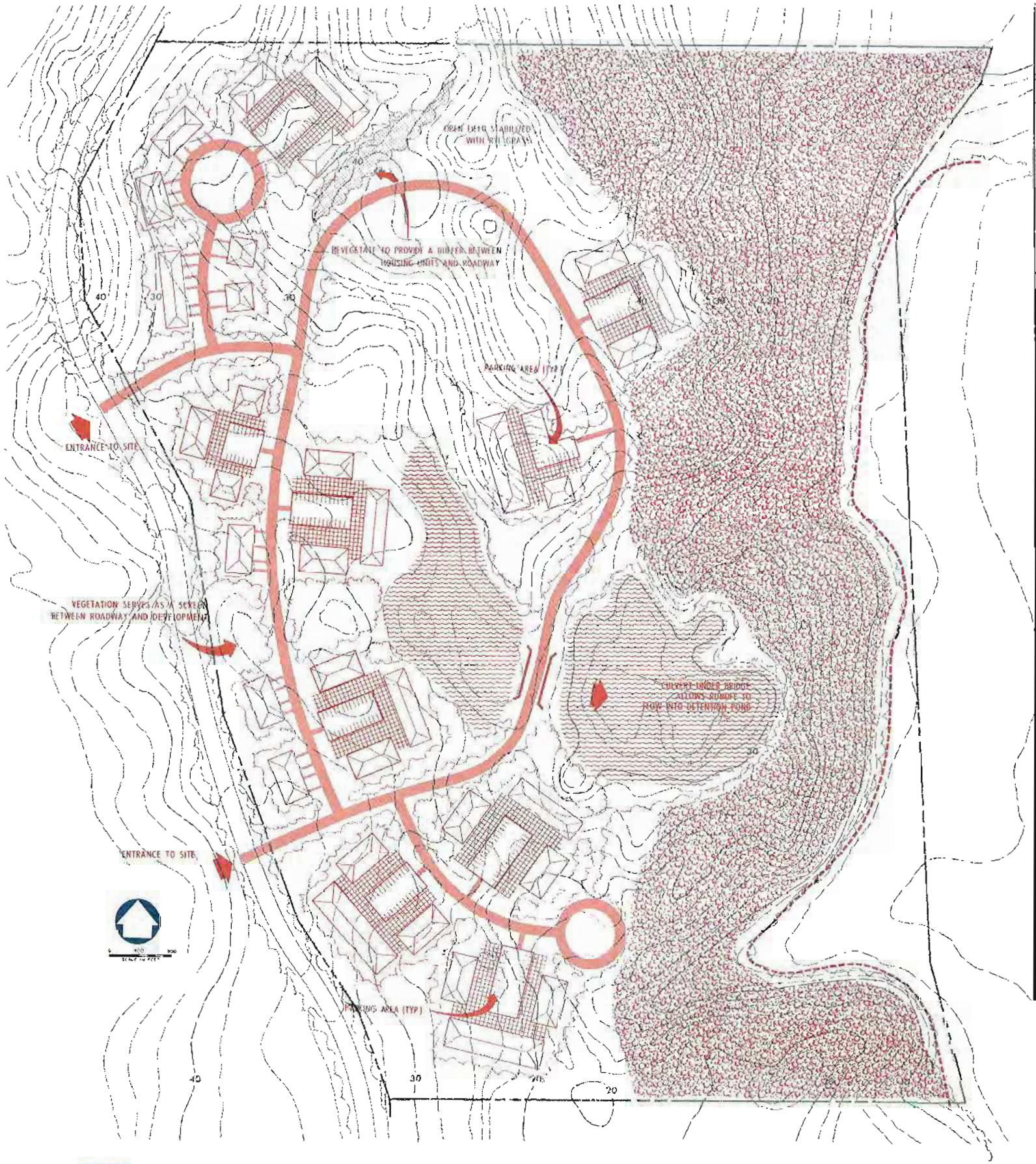


General Open Space / Preservation

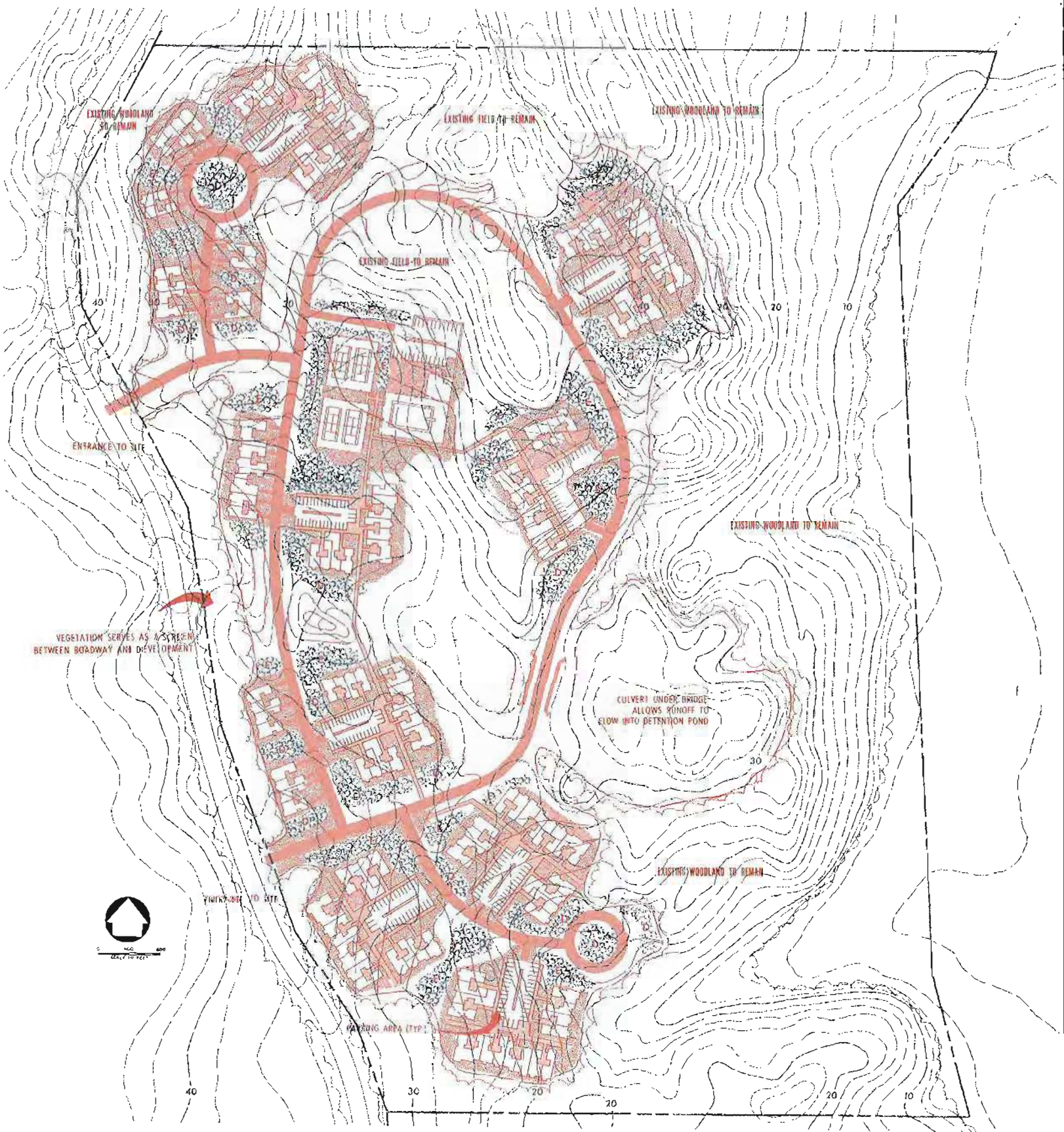
Stormwater Recharge Area

Pedestrian Circulation / Lawn Area

New Buffer Area

Inland Boundary of Freshwater Wetlands

FIGURE 22 *Conceptual Plan*



Proposed Buffer of Deciduous Trees (D)

Proposed Buffer of Coniferous Trees (E)

Landscaped Areas - Including Lawns, Groundcover, and other Plantings

All other Disturbed Areas to be Seeded in Meadow Grass

Limit of Grading

Existing Contours

Proposed Contours

FIGURE 23 *Schematic Plan for Condominiums*

- *Prepare Site Key Map and Preliminary Site Plan*

  The site designer should prepare the site key map and preliminary site plan in accordance with the requirements of the permitting agencies.

  - The municipalities should require a preliminary site development plan for zoning changes, variances or special permits that affect major sites in locally designated groundwater protection areas.
  - Site Key Map

    The key map should indicate the existence of any of the following items located within 1,000 feet of the site boundary:

    o Roads
    o Land Uses
    o Utilities
    o Stormwater drainage patterns
    o Stormwater storage and recharge
    o Surface waters
    o Historic, cultural, archaeologic sites
    o Scenic views
    o Easements, right of ways
    o Public well fields
    o Sources of potential groundwater or surface water contamination, such as junk yards, landfills, industrial storage tanks and drums, salt storage piles, etc. A list of potential sources should be appended to the map.

    See Figure 25 for a sample site key map.
  - Preliminary Site Plan

    The plan should be a detailed version of the schematic plan. It should include all elements of the site, with necessary drawings and details to convey the intent. The preliminary plan should be prepared at a scale of not less than 1 inch = 50 feet and should address the following items. See Figure 26.

The preliminary site plan should include the following information:

General Information

o North arrow and scale
o Proposed name of development
o Post office address of development
o School and fire districts
o Name and address of applicant
o Name, address, license number and seal of the professional engineer, landscape architect, or land surveyor who prepared the drawings

Existing Conditions

o Location and description of property boundaries
o Total land area of site
o Total acreage of entire tract and of each zoning district within each tract
o Existing natural and man-made features on and within five hundred feet of the site boundary including roads, structures, water sources, utilities
o Estimated minimum depth of the groundwater table, test boring information obtained at the lowest portion of the site, and the location of the major point of stormwater discharge

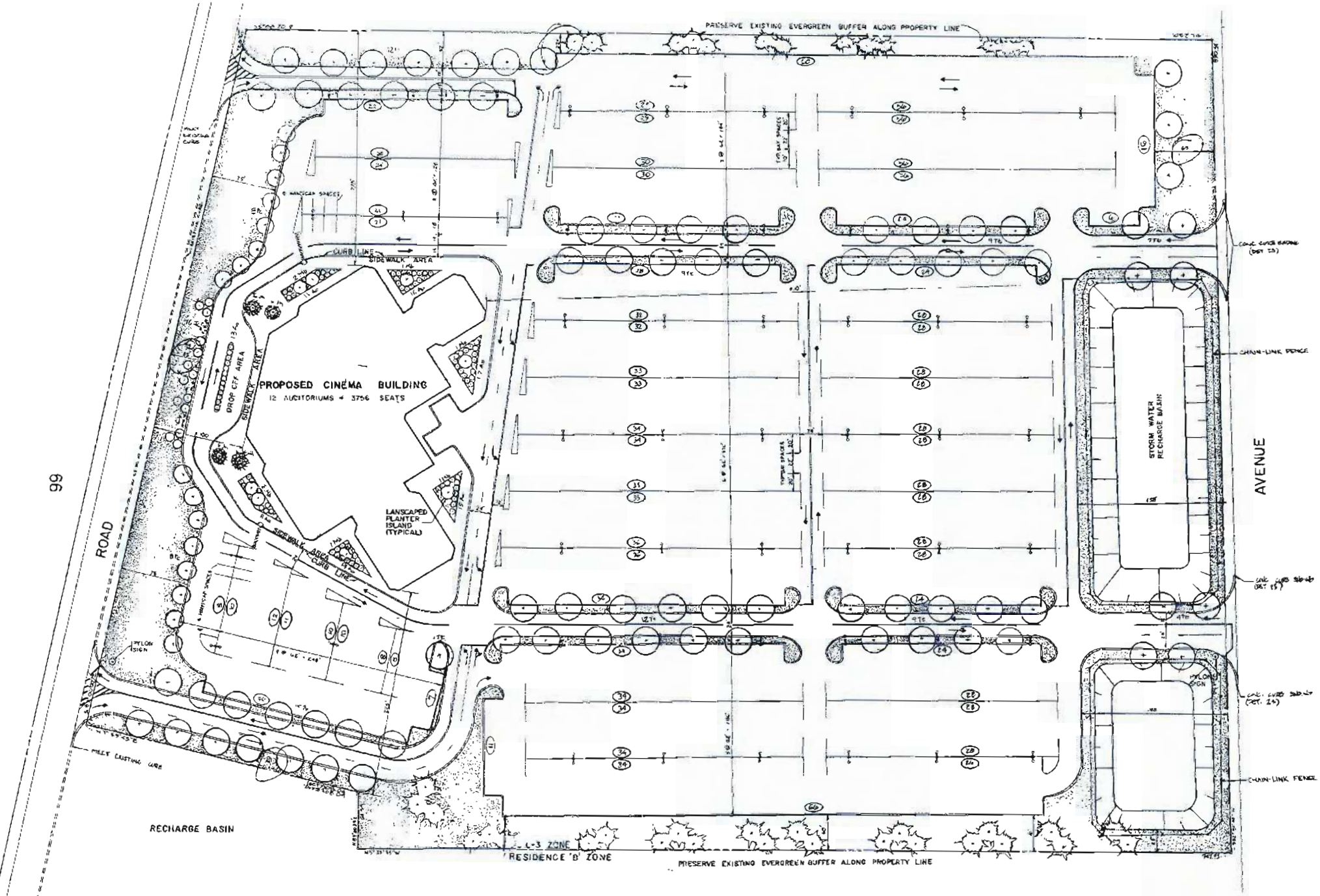
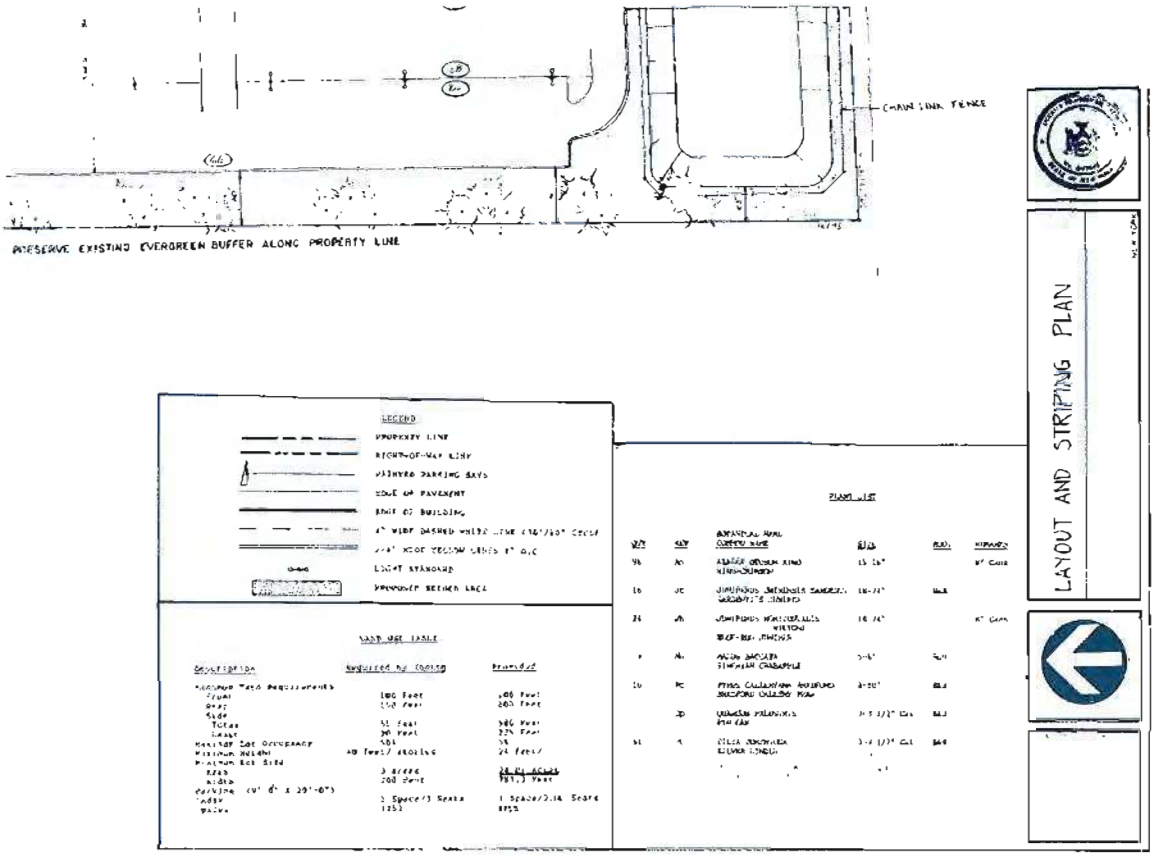


FIGURE 24 *Sample of a Commercial Plan*



Sample Legend for Figure 24

- o Topography including existing contours with intervals of not more than five (5) feet where the slope is ten percent or greater and not more than two (2) feet where the slope is less than ten percent (10%), and spot elevations
- o Description of the natural drainage system. Direction, flow, rate and volume of stormwater runoff under existing conditions
- o Soil characteristics, (utilize Soil Conservation District soil survey where available)
- o Location of wooded areas and other vegetation
- o Location of the 100 year floodplain
- o Location and description of surface waters, freshwater and tidal wetlands

Proposed Conditions

- Area of site to be modified
  - o Approximate edge of grading and clearing disturbance
- Site Construction
  - o Structure, location to exact scale, gross floor area of existing and proposed structures, floor elevations
  - o Area designated for parking, area and layout needed to conform to code
  - o Actual spaces needed for proposed use, type of paving
  - o Roads, proposed alignment, road profile showing tentative dimensions; grades, elevations and datum used, type of paving
- Preliminary grading plan
  - o Slope ratio of artificial slopes, spot grades, proposed berms, mounds, depressions, retaining walls

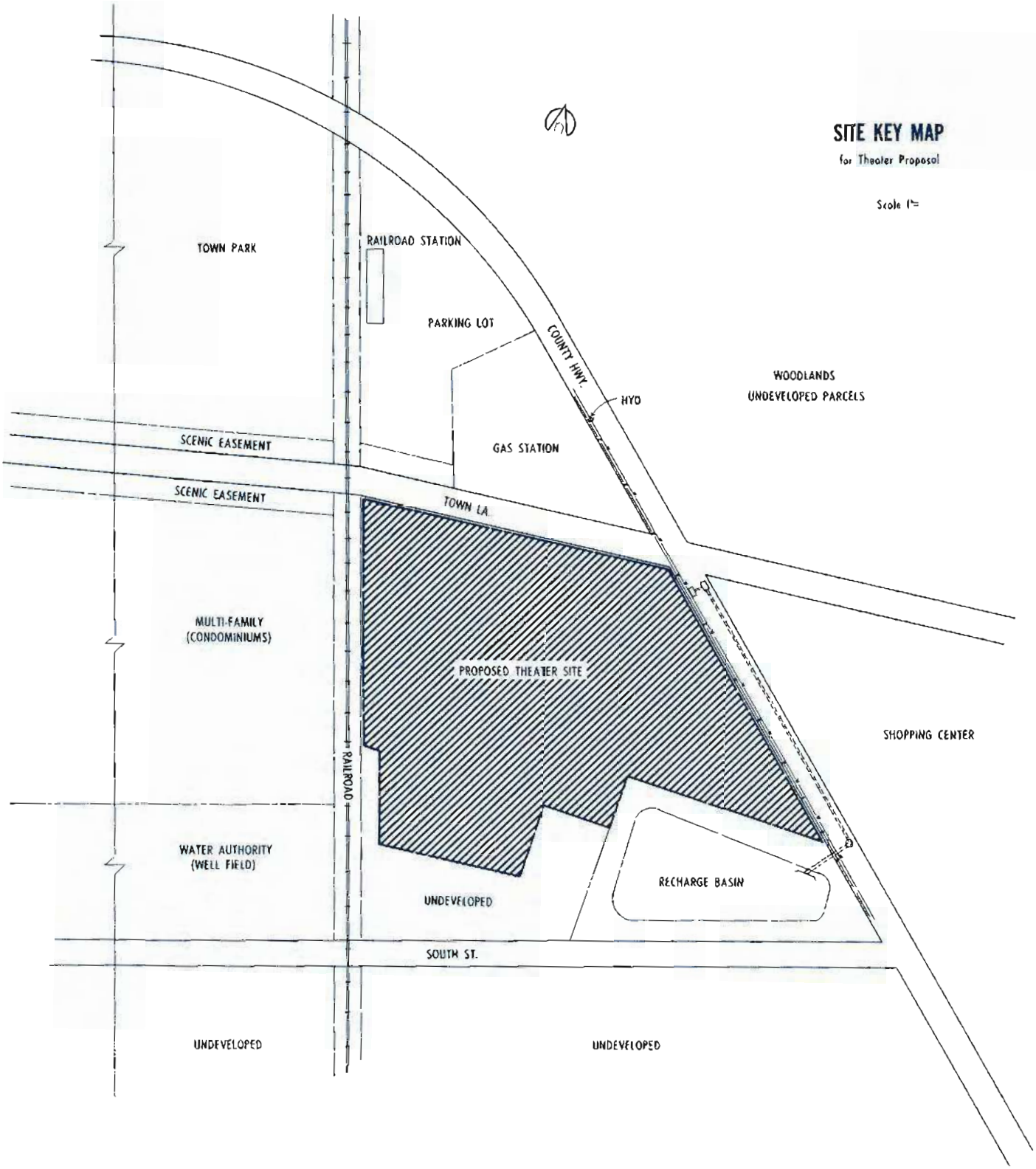
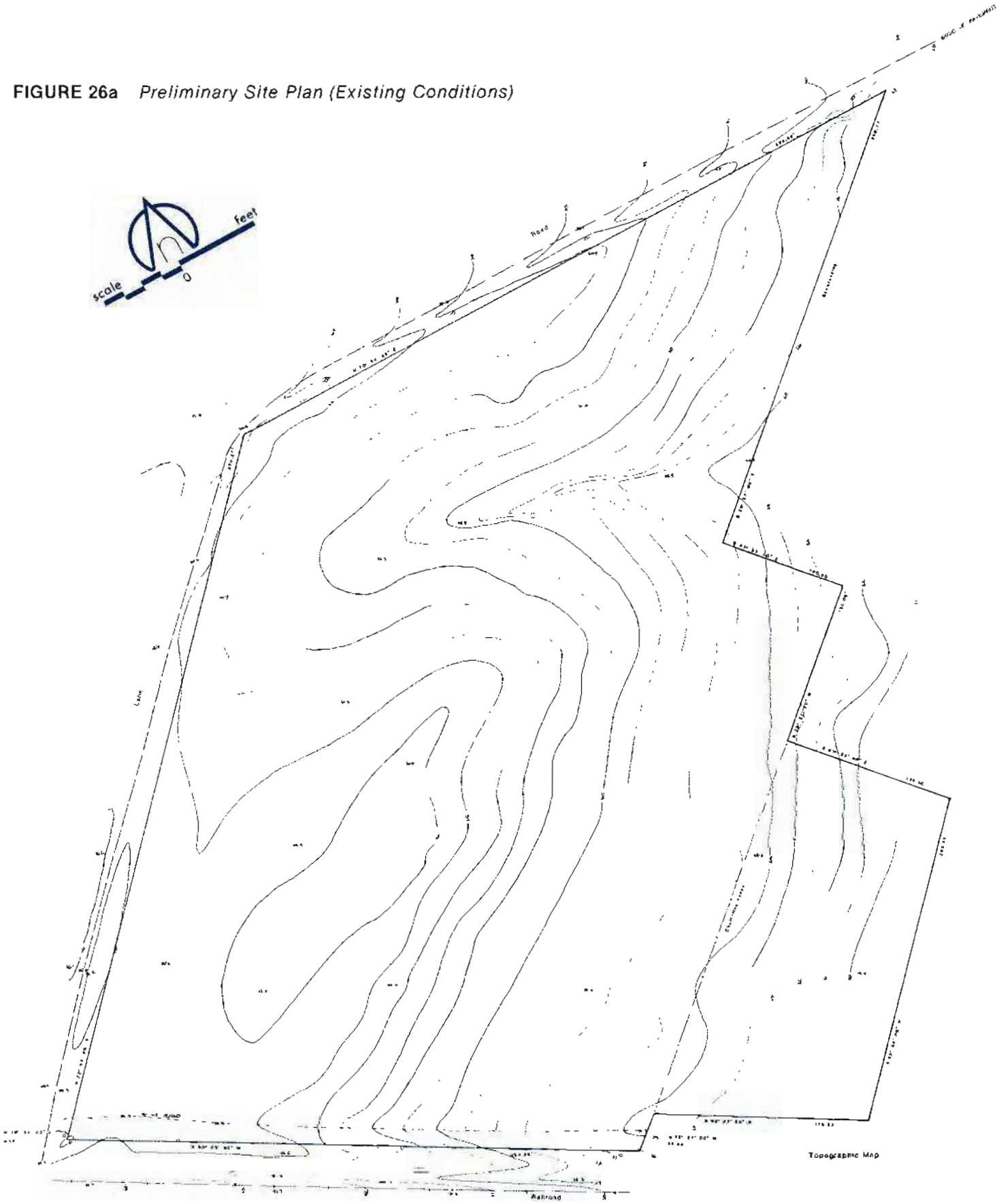


FIGURE 25 *Sample Site Key Map*

FIGURE 26a *Preliminary Site Plan (Existing Conditions)*



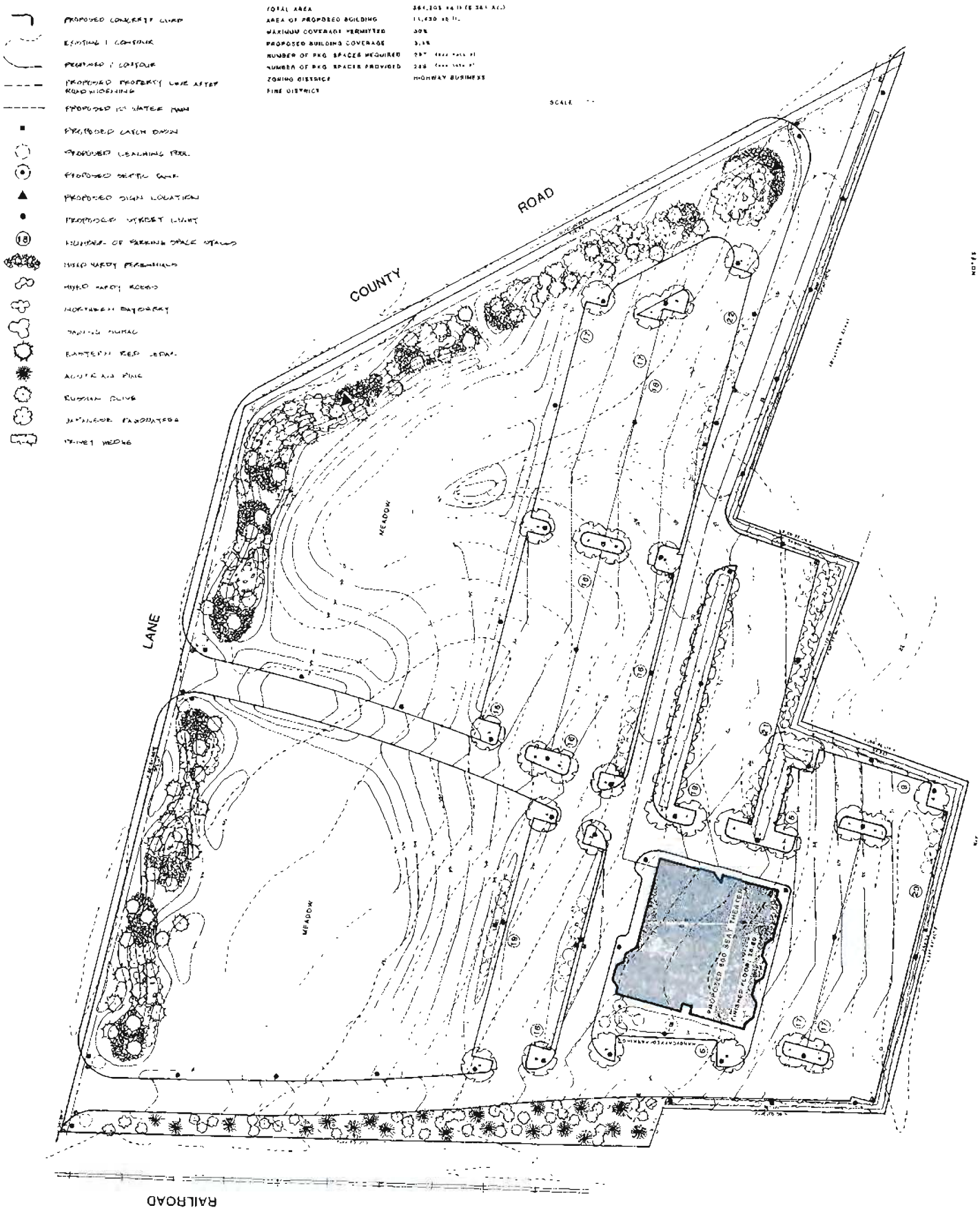


FIGURE 26b *Preliminary Site Plan (Partial)*

- Utilities
  - o Private water supply well and private wells located on adjacent properties
  - o On-site private water supply well if applicable
  - o Method and location of sanitary waste treatment and disposal system
  - o Electrical, gas, water utility lines
- Stormwater control measures
  - o Storm inlets, catch basins, fire hydrants, manholes, size of piping and grade elevations
- Open Space, Conservation Easements and Recreation Areas
  - o Open space areas, conservation easements or special use areas
  - o Play areas and equipment
  - o Other facilities
- Landscaping (separate drawing) (See Fertilizer Chapter)
  - o Type and location of plant material
  - o Natural and landscaped area
  - o Areas to receive seed or sod
  - o Plant list, showing quantity, size, and rootball specification
- Lighting
  - o Parking areas, walkways, stairs, lighting of plant materials, etc.

• *Prepare Final Site Plan*

The plan should meet municipal, county and state performance standards and all other specifications. The applicant should submit a site plan drawn to an engineering scale, between the range (10 feet to 100 feet to the inch), showing the following:

- Site Plan Requirements - Existing Conditions
  - o See Preliminary site plan requirements

- Site Plan Requirements - Proposed Conditions

  In addition to the municipal requirements, the plan should include:
  - o All proposed excavation, filling, and grading identified as to the depth, volume, and nature of the materials involved,
  - o Final contours of the site at intervals of no greater than two (2) feet for areas to be disturbed during construction
  - o All areas requiring clearing, identified as to the nature of vegetation affected and the specific site area to be cleared,
  - o All areas where topsoil is to be removed and stockpiled and where topsoil is to be ultimately placed,
  - o All temporary and permanent vegetation to be placed on the site, identified as to planting type, size, and extent, including extent of lawn areas,
  - o All temporary and permanent erosion and sediment control measures including soil stabilization techniques.
  - o The anticipated pattern of surface drainage during periods of peak runoff, following completion of site preparation and construction activities, identified as to rate and direction of flow at all major points within the drainage system, location of all roads, driveways, sidewalks, structures, utilities, and other improvements
  - o Anticipated resultant changes in the volume and rate of stormwater runoff (based upon a given year storm, preferably a 25 year storm), to be determined by the municipality at various locations on the site

- The description of the proposed stormwater drainage system including
  - The location of stormwater control measures, including ponds, recharge and sediment basins (identified as to the type of facility, the materials from which it is to be constructed and the dimensions), the design volume, rate, flow path, detention and retention of stormwater on site.
  - the amount and rate of stormwater runoff, if any, that will be discharged from the site
  - the location and description of erosion and sedimentation control measures
  - Any convenants, and or other restrictions affecting the property
  - A schedule of the sequence of installation of planned soil erosion and sediment and runoff control measures as related to the progress of the project, including anticipated starting and completion dates.
  - The proposed mitigation measures identified in the EIS and other findings, including sections and smaller scale drawings where necessary
  - Type, location and capacity of sanitary sewage treatment system
  - Type, location and size of on-site water supply
  - Sources, connection and piping for public water supply
  - Source and connection for electrical supply (and gas supply)
  - Lighting system, type of fixtures, cone of illumination.

  See Figure 5 for a sample final site plan.

All applicants must complete Sections 1 through 10. The municipality will instruct applicants to complete additional sections for major nonresidential projects.

ENVIRONMENTAL ASSESSMENT FORM*

1. GENERAL INFORMATION

New Use _____
Change of Use _____
Re-Use _____
Extension of Existing Use ____

Name of Business or Site _____
Location of Site _____
Street, side of Street, distance to intersection, post office
Tax Map Location _____
District, section, block, lot
Name of Applicant _____
Address of Applicant _____
_____ Telephone _____
Applicant's Interest in the Site _____ Owner of Land __ () Under Contract to Purchase __ ()
Owner of Fee Title to Land _____
Address: _____ Telephone: _____
Survey Prepared By _____ License No. _____
Address: _____ Telephone: _____
Person Responsible for Construction _____
Address: _____ Telephone: _____
Site Plans Prepared By _____ License No. _____
Address: _____ Telephone: _____
Preparer of EAF: _____
Address: _____ Telephone: _____
Lead Agency Review Coordinator: _____
Address: _____ Telephone: _____

2. ZONING

Is a Zoning Change Variance and/or Special Exception Required? _____ If yes, provide the information requested below.
Town Board _____ Planning Board _____ Board of Zoning Appeals _____
Case No _____ Name of Applicant _____
Has a Variance and/or Special Exception Previously Been Applied for this Site _____
Town Board _____ Planning Board _____ Board of Zoning Appeals _____
Case No _____ Name of Applicant _____
Decision _____ Date of Decision _____
Does This Action Require a Change of Zone? _____ If Yes Has Application Been Made? __
Name of Applicant _____

3. LAND USE

Adjacent Land Use: North _____ South _____
East _____ West _____

FOR INTERNAL USE ONLY

Department	EAF Sent To	Name of Reviewer	Date
Planning Dept. Review			
CAC Review			
ZBA Review			
Environmental			
Engineering			
Highway			
County			
NYSDEC			

FIGURE 27
*Sample Environmental Assessment Form (EAF)**

*Form Adapted from the Town of Smithtown EAF

4. DESCRIPTION OF PROJECT

Total Land Area of Site _____ Sq. Ft. Zoning District _____

Existing Use of Site _____ Proposed Use of Site _____

Percent of Site Coverage by Building(s) Existing ____ % Proposed ____ %

	Existing Sq. Ft. or Acres	Proposed Sq. Ft. or Acres
°Gross Floor Area of Exsiting Structure(s)		
°Gross Floor Area of Proposed Structure(s)		
°Area of Paved Land		
°Area of Permeabile Paving		
°Area of Site Landscaped		
°Area of Site in Lawn		
°Area of Site in Natural State		
°Area of Site in Natural State		

Number of Residents _____ No. of Employees _____

No. of Customers or Visitors Per Day _____

Area of Outdoor Storage and Display of Materials and/or Products _____

Expected Duration of Proposed Use _____ Weeks/Months/Years _____

Estimated Cost of Construction $ _____

Expected Duration of Construction _____ Weeks/Months _____

5. TOPOGRAPHY AND GEOLOGY

Existing Slopes on Site (See Soil Survey)

____ 0-3% ____ 3-8% ____ 8-15% ____ 15% or more ____ 25% or more

Are any of the Following Geologic Features on or Near the Site?

____ Kettle Hole ____ Esker ____ Escarpment ____ Erratic Boulder

Area to be Regraded? ____ Sq. Ft.

Cubic Yards of Cut ____

Cubic yards of Fill ____

Greatest Depth of Excavation or Cut? ____ Ft.

Greatest Depth of Fill? ____ Ft.

Maximum Artificial Slopes After Construction.

____ 2:1 (Not Recommended) ____ 3:1 ____ 5:1 ____ 10:1

Briefly Describe Method(s) to Reduce Erosion During and After Construction _____

Will Retaining Walls Be Used? _____

6. GEOGRAPHIC LOCATION

Project is within Coastal Zone _____

Is Plan consistent with Coastal Zone Management Plan? If not, state reason _____

_____

7. HYDROLOGY

Hydrogeologic Zone: ___ Zone I ___ Zone II ___ Zone III ___ Zone IV ___
___ Zone V ___ Zone VI ___ Zone VII ___ Zone VIII ___ Uncertain

Are There Wetlands (as Defined by NYSDEC) on the Site? ____ ____ (Defined by Municipality)

Is There Surface Water on the Site? _____

_____ Or Within 200 Ft. of the Site _____ Within 1000 Ft. of the Site

Briefly Describe Methods Used to Prevent Pollution to Nearby Surface Water _____

_____

During or After Construction, Will the Project Alter the Banks of a Water Body? _____

Will the Project Result in Stream Channel Modifications? _____

Percentage of Site Within Flood Hazard Zone: ___ A5 ___ V5 ___ B ___ C (No Flood Hazard)

Volume of Stormwater Runoff for a 25 Year Storm ____ Rainfall Intensity Used ____ Cu. Ft.

Percent of Runoff Maintained On Site

Method of Handling Runoff: ____ Leaching Pools ____ Off-Site Recharge Basin
____ On-Site Recharge Basin ____ Other Describe

Will There Be a Discharge to Surface Water_____ Why?_____
Depth to Groundwater:____Minimum Recorded ___Existing Ft. ___Existing Elevation of Groundwater__USGS Datum
Will Excavations Require Dewatering?_____

If Industry, Briefly Describe Industrial Process and/or Product

Volume of Water Required By Project: _____GPD.

Source of Water Supply (Shown on Plan or Key Map): _____Municipal _____On Site

If On-Site, Indicate Depth of Well(s) _____ _____Ft.

Volume of Sanitary Waste: _____Gallons Per Day

Sanitary Waste Treatment: ____On Site Septic System ____Municipal Treatment Plant*
____Modified subsurface Sewage Disposal System*
____Community Sewerage Disposal System*

Location of Treatment System: Show on development plan
*Level of Treatment: ____Primary ____Secondary _____Other _____Denitrification

Other Point Source Discharges_____

Will SPDES Permits Be Required?_____ If Yes, What For?_____

List Other Type(s) of Waste:_____

List Toxic or Hazardous Materials Used On Site_____

Storage Tanks: Capacity___Gal: Type of Liquid____
Location: _____Above Ground _____Underground

8. SOILS (See Nassau and Suffolk Soil Surveys)

Soil Associations(s)_____

Soil Types(s) Identified in Soil Survey_____

Minimum Depth to Seasonal High Water_____Ft. Source of Information_____

Erosion Hazard: Slight_____ Slight to Moderate_____ Moderate_____
Moderate to Severe_____ Severe_____ Not Rated_____

Soil Limitations on Development for:

Homesites:	Slight_____	Moderate_____	Severe_____
Streets and Parking Lots:	Slight_____	Moderate_____	Severe_____
Lawns and Landscaping:	Slight_____	Moderate_____	Severe_____
Playgrounds:	Slight_____	Moderate_____	Severe_____
Camping areas:	Slight_____	Moderate_____	Severe_____

9. VEGETATION

Existing Cover

Beach, Dune or Escarpment_____
Tidal wetland_____
Freshwater Wetland_____
Oak Forest_____
Pine/Oak Forest Brush_____

Pasture or Cropland_____
Landscaped_____
Old Field_____

Rare or Endangered Species, State, Federal or Municipal Lists_____

If Yes, Show Location on Plan_____
Area of Existing Vegetation to be Removed_____Sq. Ft.
Area of Vegetation to Be Replaced_____Sq. Ft.
Briefly Describe_____

10. WILDLIFE

Do any Rare, Endangered Wildlife Species Use the Site for Nesting, Feeding, Breeding, Etc.?
Show Location _____

Are any Rare, Unique, Protected, Endangered or Significant Species of Wildlife Known to Visit Within 200 Ft. of the Site? _____ If Yes, Briefly Describe _____

_____

11. AIR

What Type of Stationary Emissons are Proposed?

_____ None _____ Residential _____ Industrial

How Will vehicle Emission Sources Be Increased?

_____ None _____ 0-100 Trips/Day _____ 100-1000 Trips/Day _____ 1000+ Trips/Day

Describe Any Odors That May be Produced

Will the Odors Be Perceptible Outside Any Building? _____ Off the Site? _____

Describe the Duration of the Odors That May Be Produced _____

Noise:

Describe the Noise That May be Produced During Construction _____

Will the Noise be Perceptible off the Site after Construction? _____ If Yes, Briefly Describe _____

12. CULTURAL RESOURCES

Is the Site In or Within 500 Ft. of an Historic Area, Site or District? (Federal, State, or Local Lists) _____ If Yes, Briefly Explain _____

Are any Historic Buildings or Structures (Federal, State) on or Within 500 Ft. of the Site? ____ If Yes, Briefly Describe _____

Will the Project Require the Removal or Modification of an Historic Structure or Building? _____

If Yes, Briefly Describe _____

Are any Parks, Parkways, or Public Lands Within 500 Ft. of the Site? If Yes, Briefly Describe _____

_____

Briefly Describe How This Project Will Be Buffered From Nearby Historic Sites, Areas, Districts or Buildings Parks, Parkways or Public Lands, and Surrounding Incompatible Land Uses _____

_____

Are Any Archeological Resources on the Site? _____ If Yes, Briefly Describe _____

_____

13. BOAT YARDS, DOCKS, MARINAS

Capacity of Marina _____ running feet

Capacity of docks and floats _____ site dimensions

Description of "sewage pump out facilities" _____

Description of fueling facilities and fuel storage tanks _____

Description of fuel spill prevention measures and equipment _____

14. HOUSEBOAT MARINA

Description of land based sewage treatment facility _____

Description of land based water and electrical supply _____

15. VISUAL IMPACT

Is the Site Within One Half Mile of or Visible from any of the Following?

_____Marine Waters
_____River System
_____Stream
_____Lake
_____Highway
_____Any State or County or Municipal Parkland

What is the Visibility of the Project?

_____Virtually Unseen to the Public
_____Visible from Nearby Residential area
_____Visible from Minor Roads
_____Visible from Certain High Points
_____Visible from State and/or County Highways, Major Town Roads, LIRR Right-of-Way_____ or any Surface Water.

How Much Will the Color of the Project Contrast With its Setting?

_____Colors Blend in (Dark, or "Earthtones" w/Flat Finish)
_____Colors are Conspicuous or Finish is Glossy
_____Colors Stand Out (E.G., White, Yellow, Orange, Pink, Purple, Etc.)

How Much Will the Project Form (Shape) Contrast With the Setting?

_____Form is Similar to Existing Natural or Historic Features
_____Form is Similar to Other Structures in the Area
_____Form is Unusual or Significantly Different (E.G., Radar Dish)

How Much Will the Scale (Size) of the Project Contrast With its Setting?

_____Smaller Than Most Structures
_____Similar Scale to Most Other Structures
_____Larger Than Most Other Structures or Higher than 30 Ft.

Will the Project Cause Glare Onto Adjacent Highways or Property?_____If Yes, Briefly Describe____
_____

Will Project Have Signs_____If yes, Briefly Describe_____
Will Project Have Lighting_____If yes, Briefly Describe_____
_____

What Measures Will be Taken to Reduce the Visual Impact of the Project?

_____Evergreen Buffer Strip
_____Other Landscaping
_____Berm Around Parking Areas
_____Setback Project from Property Line
_____Attractive Architecture and Materials
_____Other
_____Signs
_____Lightings

16. MUNICIPAL IMPACT

Property Tax Assessment Present_____ Estimated Proposed_____
Number of Children Estimated to Enter School System_____
New Lane-Miles of Street_____
Will Any Capital Projects Be Required to Support the Project? If Yes, Briefly Explain_____
_____

Total Land Area to be Removed from Tax Assessment Rolls_____Sq. Ft.
Number of Business Relocations Required_____Area _____Sq. Ft.
Number of Residence Unit Relocations Required _____
Will the Project Induce or Inhibit Normal Population Growth in the Vicinity_____If Yes, Briefly Explain_____
Does the Project Conflict With Comprehensive Plan of Municipality, County or any Other Plans, Policies, Programs or Projects of the Town, County or State, or Any Incorporated Villages?_____If Yes, Briefly Discuss_____

The municipalities should add the questions listed in the following table to the EAF form to facilitate assessment of the impact of the proposed project upon groundwater.

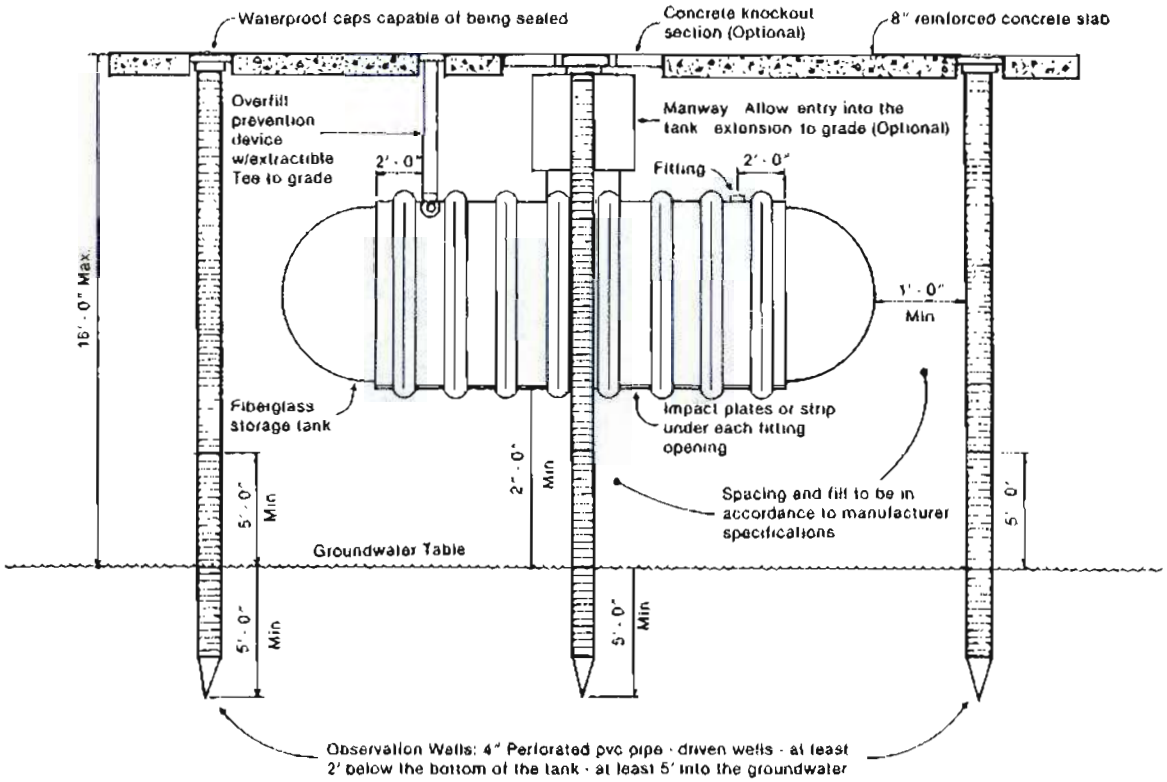
PROJECT EVALUATION	Yes	If Yes, Answer Questions Below	No
Would the project result in			
Increased Water Consumption		Gal. per day _____	
Increased Point Source Loadings to Groundwater		Type and quantity	
Increased Nonpoint Source Loadings to Groundwater or Surface Waters		Type and quantity	
Reduction in Groundwater recharge		Gal. per day and inches per year	
Lawn Area		square footage or number of acres	
Area of Other Landscaping		Type of buffer Square footage Number of acres	
Reduction in Wetland Acreage or Stream Flow Occurs		Acres Cubic ft/sec	

APPENDIX

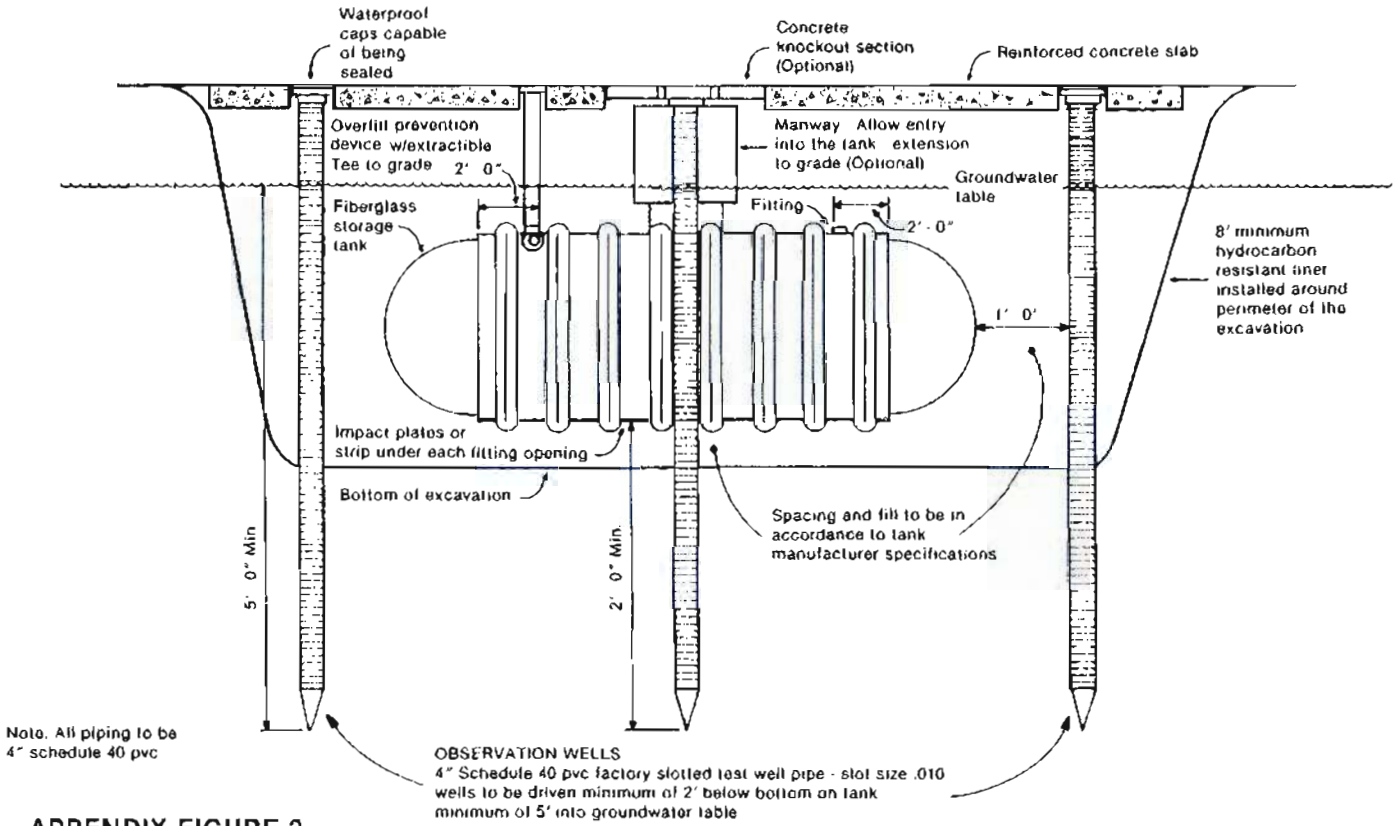
ZBA Review Appeal Procedures

The Zoning Board of Appeal procedures are stipulated by state enabling legislation (Town Law, Section 267.2, also Village and City law) contained in local ordinances, set out in the board's own rules, and contained in the case law handed down by the courts. The state enabling legislation provides that the board of appeals *shall hear and decide all matters referred to it upon which it is required to pass under the terms of the zoning ordinance or local law.* General zoning board of appeals procedures, from the first request to the last appeal are described as follows:

- The appeal may be brought by a person (the property owner, lessee, or option holder) aggrieved by the refusal of the building inspector or designated administrative officer to approve an action, or by a person aggrieved because another person's proposal was approved.
- The request is usually made by the completion and filing of appeal forms as required by local procedures, and should include the specific reason for the appeal.
- The inspector will then forward his files on the matter to the zoning board for its information.
- The board of appeals may simply accept the appeal or decide that a hearing is needed to determine that the person appealing is truly aggrieved. A determination that a person is not aggrieved may only be made after a hearing. The time within which an appeal must be made is decided by each board and should be specified in the rules of the zoning board (usually thirty days). The proposed action upon which the appeal is based may not proceed during the appeal period, unless the building inspector certifies that a stay would imperil life or property.
- Upon acceptance of an appeal, the board must formally fix a reasonable time for a hearing (often 60 days) in order to gather facts to be used as a basis for a decision.
- For cities and towns, a written decision must be announced within sixty days after the final hearing (villages have sixty-two days). The decision should include the findings of the board and the facts upon which they are based. Since the courts have only this record to rely upon, the findings must be carefully documented.

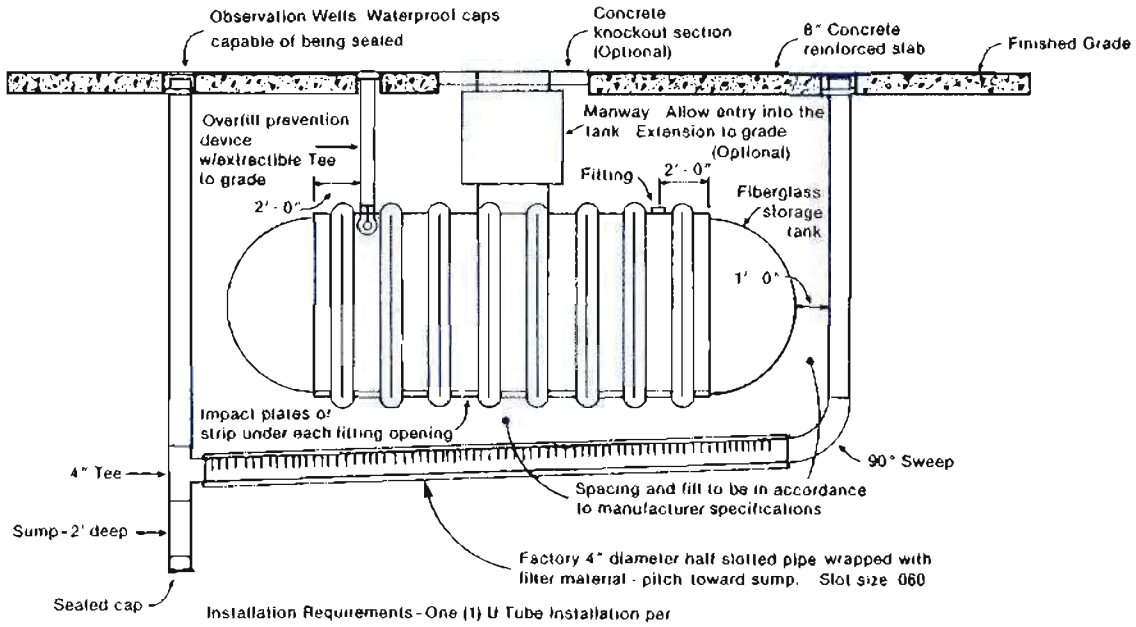


APPENDIX FIGURE 1
Underground Storage Tank (____ Gals.)
With above the water table installation



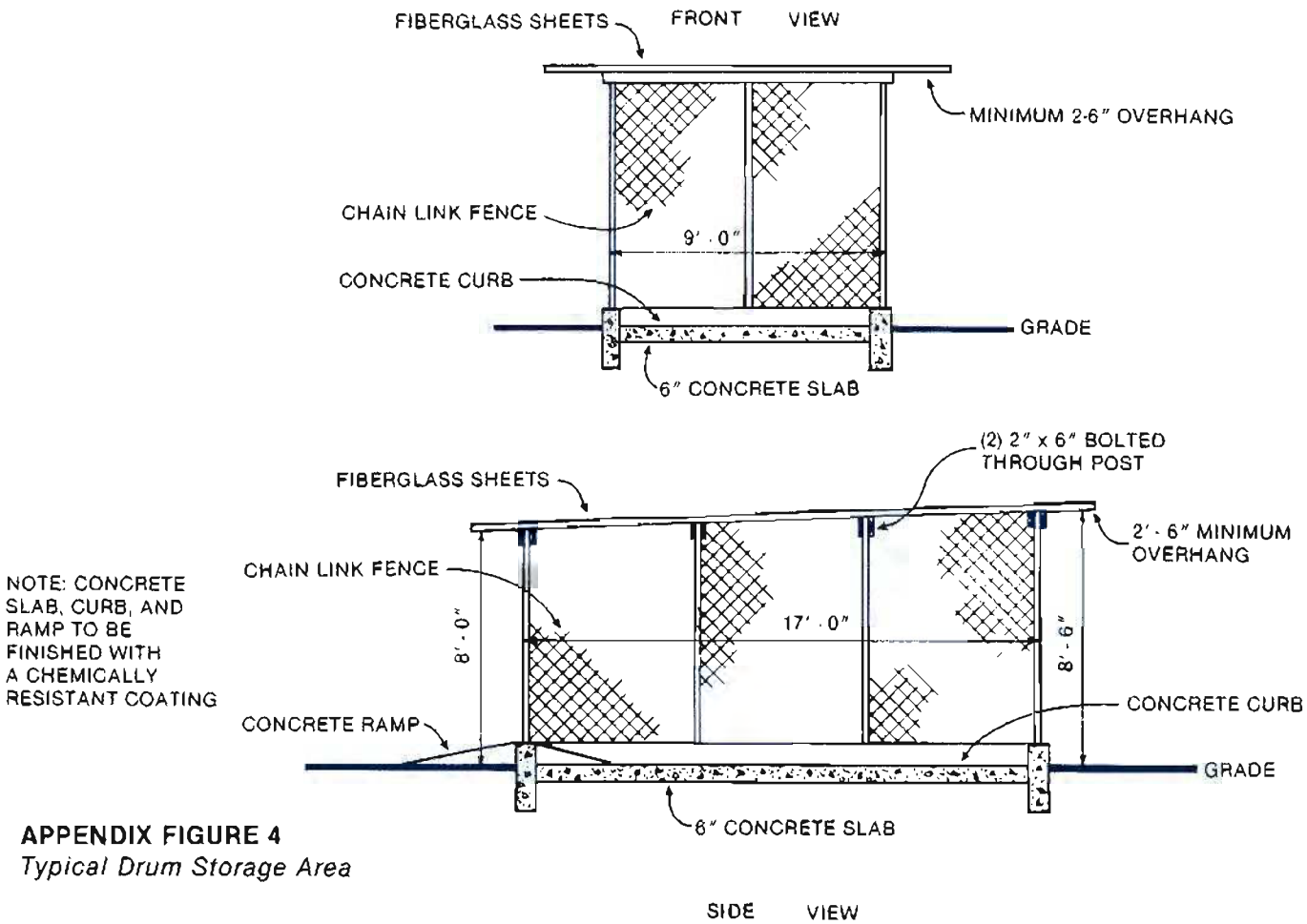
APPENDIX FIGURE 2
Underground Storage Tank (____ Gals.)
With installation below the water table

HIGH GROUNDWATER OR DEWATERING SYSTEMS:
Minimum 4 (four) observation wells with installation of continuous liner around sides of tank hole - minimum of 8' - ends of liner to be overlapped minimum of 2' joined by welding ends with proper welding tool



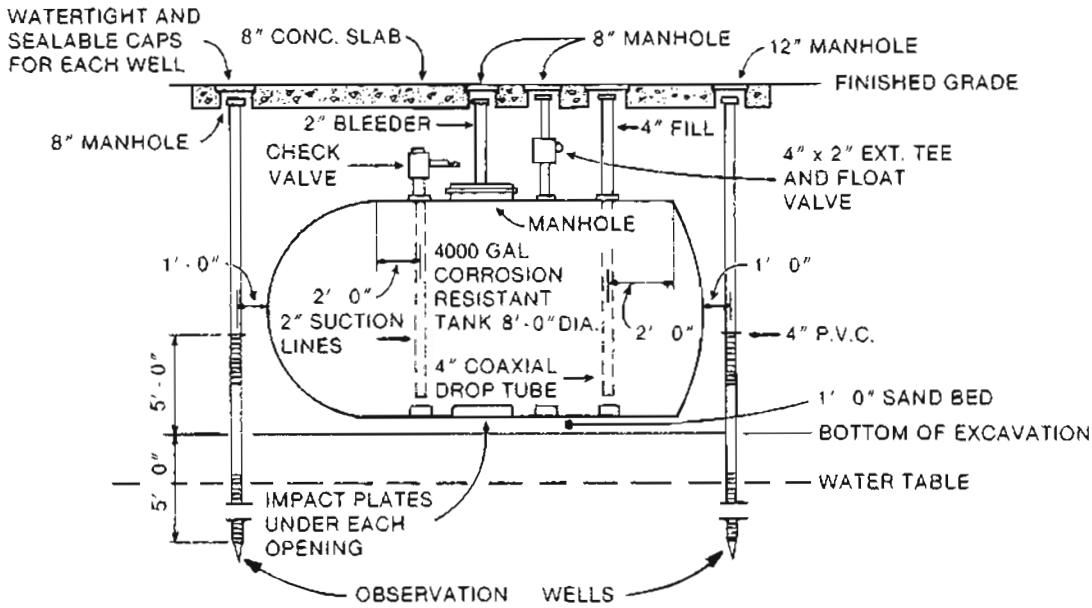
Note All piping to be 4" dia. schedule 40 pvc

APPENDIX FIGURE 3
Underground Storage Tank with Sump

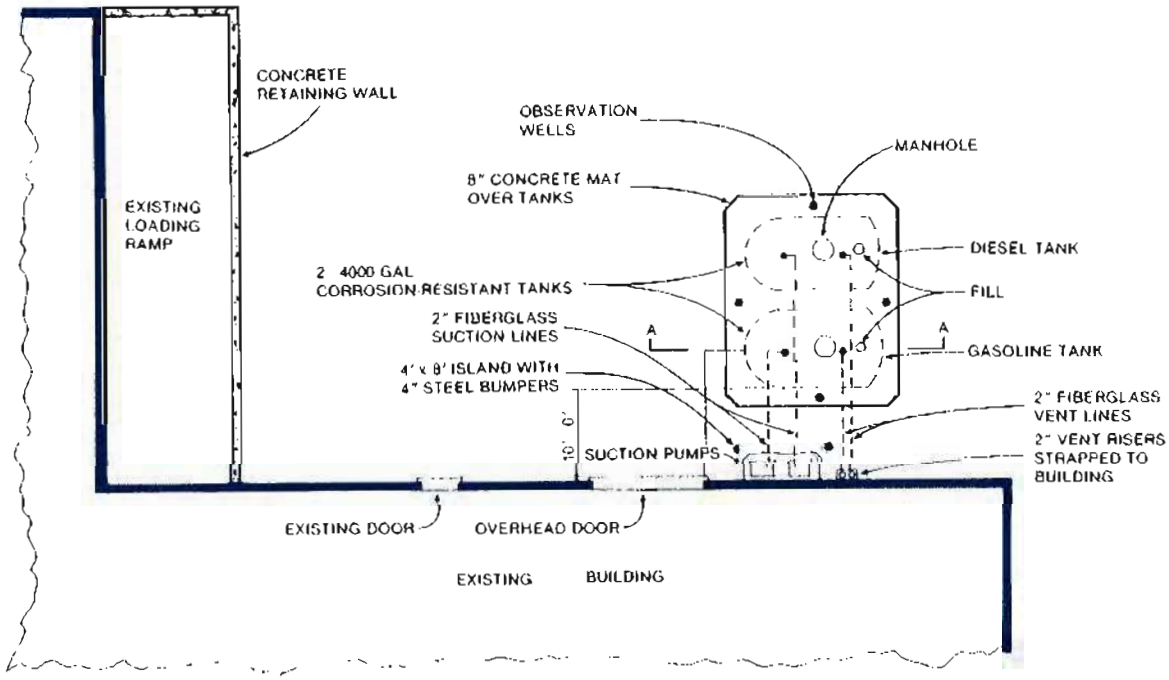


NOTE: CONCRETE SLAB, CURB, AND RAMP TO BE FINISHED WITH A CHEMICALLY RESISTANT COATING

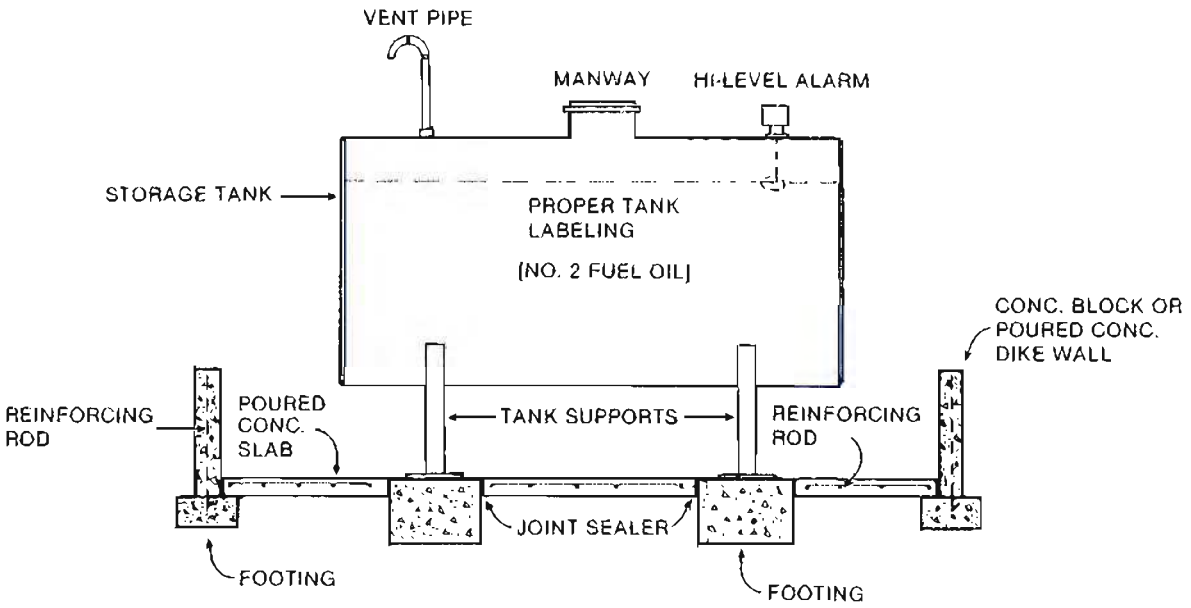
APPENDIX FIGURE 4
Typical Drum Storage Area



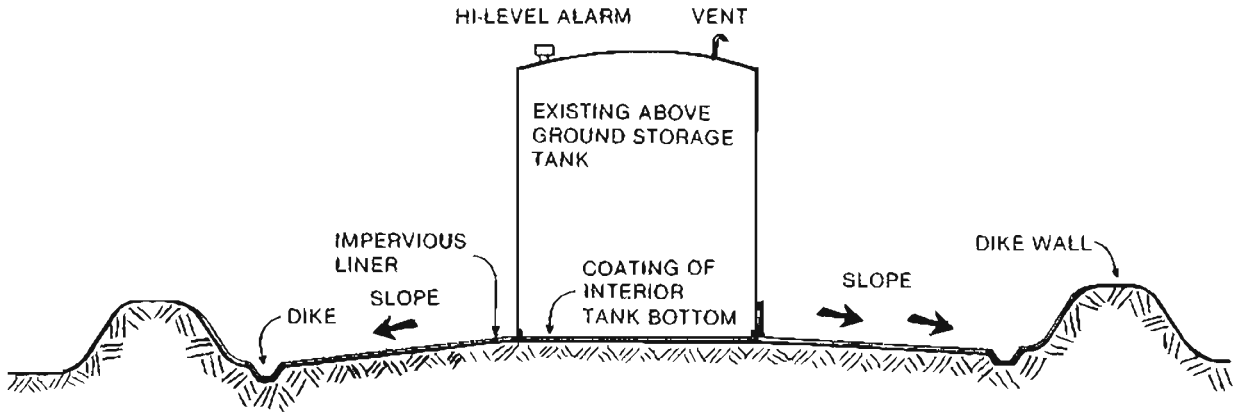
Section - AA



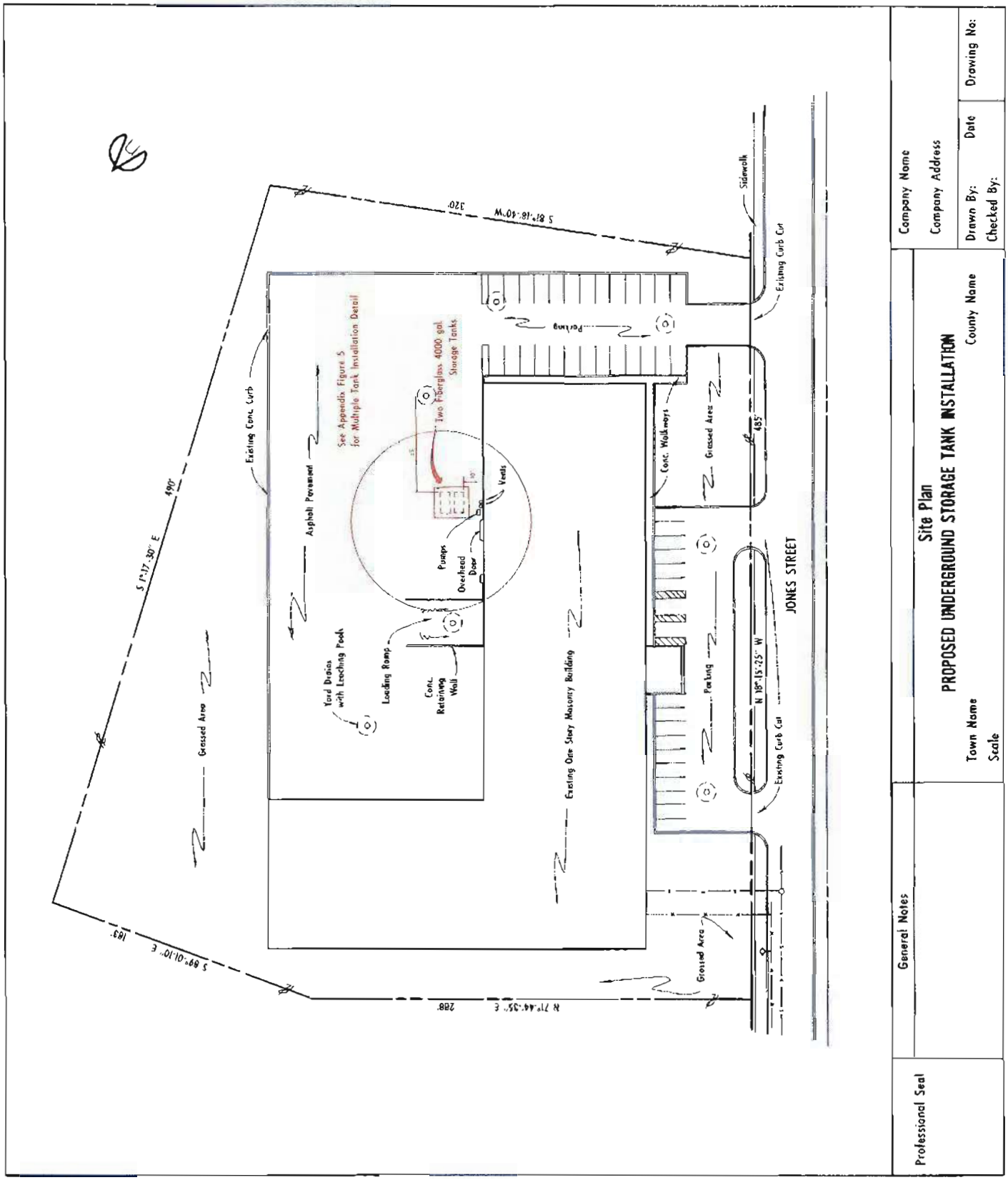
APPENDIX FIGURE 5
Multiple Tank Installation Detail



APPENDIX FIGURE 6
Above Ground Storage Tank Installation



APPENDIX FIGURE 7
Large Above Ground Storage Tanks with Dike and Imprevious Barrier Between Pike Wall and Tank Shell



APPENDIX FIGURE 8
Sample Industrial Underground Storage Facility

PROJECT PERMIT REQUIREMENT QUESTIONNAIRE

Please complete this questionnaire as part of the application process for permit(s) for new or modified project(s).

The purpose of this questionnaire is to assist in determining what, if any, Nassau County Department of Health or State Department of Environmental Conservation permits or approvals may be required before starting work on a proposed project.

If you are not sure if the action proposed is a regulated activity, call the County Bureau of Land Resources Management at 535-3314. If you are not sure if your project is subject to tidal or freshwater wetlands, contact the State Regional Assessment Evaluation Unit at 516-751-7900.

A conference with our staff to obtain guidance in the permit application review process is strongly recommended prior to your submitting your application.

ANSWER ALL QUESTIONS

Name of Applicant/Representative: _____

Address : _____

Telephone No. : _____

Project Description & Location: _____

_____

_____

_____

_____

	Yes	No	Not Known
1. Realty Subdivision and/or SPDES Permit			
Does this project involve:			
a) A proposed realty subdivision of 5 or more units or lots?			
b) A proposed or existing discharge of 1,000 gallons per day of sewage or any discharge of industrial or other wastes to groundwaters?			
c) Any discharge of sewage, industrial, or other wastes to surface water?			
d) Any disposal of stormwater containing sewage, industrial, or other wastes?			
e) Any storage and/or disposal of potentially toxic or hazardous wastes?			
f) Any industrial wastes stored and/or removed from the premises for disposal elsewhere?			
2. Mining Permit			
Does project involve the mining and commercial sale or off-site use of 1,000 or more tons of mineral within 12 calendar months (excepting excavation or grading in connection with on-site construction or farming)?			
6. Long Island Well Permit			
a) Does project involve the construction of a new well or deepening or increasing the capacity of an existing well to withdraw water at a rate greater than 45 gallons per minute?			
b) Will project require the temporary lowering of groundwater levels for construction purposes?			
7. Protection of Waters			
a) Will project change, modify or otherwise disturb the course, channel or bed of any stream classified C(T) or higher? (Consult the Regional Environmental Assessment Unit at 516-751-7900 for classifications)			
b) Does project involve the temporary or permanent artificial obstruction of a natural stream or watercourse?			
c) Does project involve the construction or repair of a permanent dock, pier or wharf having a top surface area more than 200 square feet?			
d) Does project involve any excavation or placing of fill in the navigable waters of the State and adjacent wetlands?			
8. Tidal Wetlands Permit			
a) Will project be located in tidal waters or within 300 feet of either the landward edge of a tidal wetland boundary or a tidal body of water?			
b) Will there be any subdivision of land or physical alterations of land or water?			
Exemptions to the above regulated locations if:			
• Project will be located at a ground elevation of 10 feet or higher above mean sea level (excepting on the face of a bluff or cliff).			
• A substantial, man-made structure (such as a paved street or bulkhead) 100 feet or longer exists between the project site and tidal wetlands or tidal water. (Consult D.E.C. Regional Environmental Assessment Unit at 516-751-7900 if unsure).			
9. Freshwater Wetlands Permit			
a) Will project area be within, or within 100 feet of, a freshwater wetland or freshwater body of 12.4 acres or Larger?			
b) Will project involve draining, dredging, filling, excavating, erecting structures, roads, utilities or other alterations or placing any form of pollution in a wetland? (Consult the Regional Environmental Assessment Unit at 516-751-7900 if unsure).			

3. Contamination Permit

a) New or Modified Sources:

Does project involve construction, modification, or operation of a boiler greater than 500,000 BTU/hr rated heat input; an incinerator; or an industrial process or tank storage (commercial or industrial) of organic solvents, chemicals, or petroleum products? _____

b) Indirect Source:

Does project involve construction or modification of a highway, airport, or a parking facility with 250 or more spaces? _____

4. Solid Waste Management

a) Will the project employ any facility beyond the initial solid waste collection process (i.e. disposal, resource recovery)? _____

b) Will any hazardous waste be generated by the facility? _____

c) Will the project involve the transfer, storage, incineration, and processing facilities for solid wastes generated at locations other than at the project site? _____

5. Water Supply Permit

Does project involve the acquisition of land or construction of facilities for water supply or distribution purposes? _____

10. Section 401 - Water Quality Certification Letter

Does project or activity require a Federal Permit or License? If so, this State certification may be required prior to Federal approval. _____

11. List any additional required permits that have been applied for:

Type of Permit	Application No.	Application Filing Date	Applicant's Name (If different from application now being submitted).

12. List all other permits, licenses or approvals required by other agencies of government:

Type of Permit or Approval	Governmental Agency	Status

I certify that the above information is correct to the best of my knowledge.

_____ (date)

_____ (signature of applicant)

APPENDIX FIGURE 9

Sample Project Permit Requirement Questionnaire

Source: N.C. Dept. of Health

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GLOSSARY

- A -

Aerobic: (1) Having molecular oxygen as part of the environment.
(2) Growing, living or occurring only in the presence of oxygen.
Anaerobic: (1) The absence of molecular oxygen.
(2) Living or occurring in the absence of molecular oxygen (such as anaerobic bacteria).
Aquifer: Groundwater bearing units. On Long Island they consist of unconsolidated sands or gravels. The three major aquifers underlying Long Island are the Upper Glacial aquifer (shallow) and the Magothy and Lloyd aquifers (deep) (see the Land Use Chapter, Figure 1).

- B -

Benthic Organisms: Organisms that inhabit the bottom of a body of water.
Biochemical Oxygen Demand (BOD): The amount of oxygen required by the biological population of a water sample to oxidize the organic matter in that water. It is usually determined over a 5-day period under standardized laboratory conditions and hence may not represent actual field conditions.
Biofiltration Pond: Essentially a man-made impoundment designed to detain runoff and reduce cetain contaminant loadings (see Stormwater chapter, Figure 11).

- C -

Capillarity: The action by which the surface of a liquid, in contact with a solid, is elevated or depressed depending on the relative attraction of the molecules of the liquid to each other and to those of the solid.
Carcinogenic: A substance or agent producing or inciting cancer.
Chemical Oxygen Demand (COD): A measure of the oxygen equivalent of that portion of organic matter that is susceptible to oxidation by a strong chemical oxidizing agent.
Chlorinated Hydrocarbons: Hydrocarbons in which one or more of the hydrogen atoms has been replaced by chlorine.
Clustering: A substitute for the standard design of one residential unit per lot. Although the overall density remains the same, the houses are grouped on a portion of the tract. This approach results in savings to the developer because of lower site preparation costs including reduced overall road length and lower utility installation expenses, and to the municipality because of reduced maintenance costs. The amount of land available for retention as open space is greatly increased compared with that of standard subdivision design, at no cost to the municipality.
Conservative Contaminant: Any contaminant with the capability of resisting physical or chemical breakdown or change.

- D -

Deep Recharge Areas: Areas in which groundwater flow patterns have a significant vertical component. Rainfall or recharge moves to the upper, middle and lower portions of the Magothy aquifer and the Lloyd aquifer. In parts of the Island, saline water extends into the Magothy and Lloyd aquifers and, in a few areas, into the Upper Glacial aquifer as well.
Development Rights: One of a broad range of less-than-fee-simple ownership interests in real property, generally referred to as easements. Thus, an owner can retain title and continue in possession of his land notwithstanding the sale of development rights to another.

- E -

Environmental Assessment Form (EAF): A form used by an agency to assist it in determining the environmental significance or non-significance of an action. A properly completed EAF should contain information to describe the proposed action, the environmental setting, and the potential impacts of the action on the environment.
Short Form Environmental Assessment Form (EAF): A simplified EAF that may be used by an agency to determine the environmental significance or non-significance of an Unlisted action.
Environmental Health Laws: Federal, state and local statutes and administrative rules and or regulations which pertain to such matters as water quality, waste disposal, air quality, and natural resources.
Environmental Impact Statement (EIS): A report containing the description of a proposed action, its environmental setting, potential environmental impacts, ways to minimize the impacts, and reasonable alternatives. It serves as a public disclosure of the record used by an agency in its environmental decision-making. There are two stages in an Environmental Impact Statement:

1. Draft EIS—this is a preliminary statement that is used for public review and comment.
2. Final EIS—this is the completed document consisting of the Draft EIS plus any revisions, public comments and lead agency responses to the substantive comments.

Environmental Notice Bulletin (ENB): A weekly publication of the NYSDEC which includes notices of completion for all Draft and Final EIS's and all SEQRA hearing notices. Determinations of significance may also be published in the ENB. The ENB is available by subscription from the DEC.
Eutrophication: The process by which bodies of water become enriched with mineral nutrients and organic minerals, often causing increased algal growth. Oxygen available to fish decreases, and deposited sediments and organic material remains causing it to become shallow. The process is often accelerated by discharge of sewage or overland runoff containing fertilizers.
Evapotranspiration: The combined loss of water from a given area and during a specified period of time by evaporation from the soil surface and by transpiration from the plants growing thereon.
Excluded Action: An action which is undertaken, funded or approved prior to the effective dates for full implementation of SEQRA. For a complete listing of the applicable dates, refer to Article 8, Section 8-0117 of the Environmental Conservation Law.
Exempt Action: A category of actions which do not require review under SEQRA as deemed by the State Legislature because of their special nature. A complete list of Exempt actions may be found in 617.2(n).

- F -

Filters: A porous article or mass through which a gas or liquid is passed to separate out matter in suspension.

- G - H -

Halogen: Any of the four very active, non-metallic chemical elements, chlorine, iodine, bromine and flourine.
Halogenated Hydrocarbons: One of a group of halogen derivatives of organic hydrogen and carbon-containing compounds; the group includes monohalogen compounds (alkyl or aryl holides) and polyhalogen compounds that contain the same or different halogen atoms.
Hepatitis: Imflammation of the liver.

- I -

Inline System: A linear system of leaching pools and pipes (see Stormwater chapter Figure 15).

Inorganic: Not having the organized structure of living things; designating or of any chemical compound not classified as organic; most inorganic compounds do not contain carbon and are derived from mineral sources.

Ion Exchange: A chemical process involving reversible interchange of ions between a liquid and a solid without radical change in the structure of the solution.

- J - K - L -

Land Trusts: Public or private organizations, incorporated under state law for the purpose of acquiring and holding lands for conservation or preservation. Public land trusts, supported financially by the public, are subject to less restrictions on their activities and are exempt from the two percent tax on investments. The lands may be acquired by purchase, donation, or condemnation (exercise of the power of eminent domain).

Leachate: A liquid, including any suspended components in the liquid, which has been in contact with or passed through solid materials or waste, including hazardous waste.

Lead Agency: The one agency among all involved agencies that has been designated to coordinate the environmental review of a proposed action.

- M -

Major Subdivision: Any subdivision of land not classified as a minor subdivision, including but not limited to subdivision of five (5) or more lots, or any size subdivision requiring any new street or extension of the local municipal facilities, or the creation of any public improvement.

Marine Sanitation Device (MSD): MSD's are on-board sanitary treatment systems which vary according to the size of the vessel, and specific regulations governing the area (see Boat Pollution chapter, Legislation Relating to Marine Sanitation Devices, and Table 1).

Metabolic: Relating to or based upon the chemical changes in living cells by which energy is provided for vital processes and activities and new materials are assimilated.

Minor Subdivision: Any subdivision of land containing not more than four lots fronting on an existing street, not involving any new street or road, or the extension of municipal facilities, or the creation of any public improvements, generally with no potential for resubdivision, and not adversely affecting the remainder of the parcel or adjoining property, and not in conflict with any portion of the Master Plan, Official Map, or Zoning Regulations.

- N -

Nitrate: The product of bacterial oxidation of other forms of nitrogen.

Non-Point Source: A widely dispersed, major source of pollution for surface waters and groundwater. Non-point source pollutants may include anything ranging from relatively innocuous grit to organic compounds in trace concentrations.

- O -

One-Hundred Year Floodplain: The land area subject to the highest level of flooding that, on the average, is likely to occur once every one hundred (100) years (i.e., that has a one-percent chance of occurring each year), as said level is shown on the Housing and Urban Development Flood Insurance Administration Flood Insurance Rate Maps.

Organic Pollutants: Pollutants containing carbon compounds.

- P -

Pathogen: Any disease producing bacterium or microoganism.
Performance Standards: A set of conditions which must be met during operation and use of a property. They specify the results that must be achieved rather than establishing inflexible construction standards.
Photosynthesis: The formation of carbohydrates in living plants from water and carbon dioxide, in the presence of chlorophyll using sunlight as an energy source.
Plat: A drawing, in final form, showing a proposed subdivision and containing all the required information and details specified by local, county and state laws and regulations.
Preliminary Plat: A drawing which shows the salient features of a proposed subdivision which has been prepared for consideration by the planning board prior to the submission of the plat in final form.
Plume: An area of contamination originating from a single source and influenced by such factors as groundwater flow and the density of the pollutant.
Point Sources: Include all discharges from domestic wastewater treatment and industries which operate their own treatment facility. Waste may discharge to lands underlain by groundwater or to surface waters. Pollutants from point sources include oxygen demanding substances, microorganisms, heavy metals, organics, suspended solids and nutrients.
Polychlorinated Biphenyl (PCB) Compounds: A category of chlorinated benzene compounds. A nonflammable, non-biodegradable lubricant or heat transfer material used in fluorescent lighting and industrial transformers.
Population Density Equivalent: An expression of the quantity of domestic sewage in terms of the calculated population per unit area which would normally contribute the same amount of sewage.
Primary Nutrients: Nitrogen, phosphorus, and potassium.

- Q -

Quench Water: Water used to cool hot ashes that come out of an incinerator. The quench water contains metals and other contaminants.

- R - S -

SEQRA Hearing: A hearing held at the discretion of the lead agency in order to aid the decision-making process by providing a forum for comment by agencies and the public.
Shallow Discharge Zones: Areas in which rainfall recharges the shallow aquifers. The groundwater flow patterns are essentially horizontal. Horizontal movement to surface waters predominates (see Land Use chapter, Figure 1). The vertical movement is relatively shallow.
Special Local Ordinances: Local laws pertaining to specific aspects of land use such as erosion and stormwater runoff control, natural vegetation disturbance, land grading and soil mining. These ordinances designate permitted and prohibited actions and usually require issuance of a permit. Special local ordinances may also provide for clustering, transfer of development rights and overlay districts.
Specification Standard: A specific enumeration of the type of development, development standards, and construction requirements. The term is most readily understood when distinguished from performance standard. A specification-oriented industrial district, for example, would list permitted and perhaps prohibited uses; a performance standard approach would include limitations on maximum emission of smoke, vibration, glare, and so forth. Specification standards tend to be more rigid and restraining than performance standards, but they are easier to administer and hence are the conventional and most common control method.

- T -

Threshold Levels: The established numbers on the SEQRA Type I list (617.12) which, if exceeded, indicate that a project is likely to be significant. If an action under review exceeds a Type I threshold level, an EAF and coordinated review are required.

Tile Field: A method of on-site treatment and disposal for treated and untreated effluent.

Toxins: Unstable poisonous compounds produced by some microorganisms and causing certain diseases.

Trophic Levels: Levels of food production and consumption beginning with the primary level, the producers, and continuing up through the consumer levels, the herbivores, omnivores and the carnivores.

Type I Action: An action or category of actions specifically identified in the statewide regulations or local procedures as likely to have a significant effect on the environment, and for which the preparation of an Environmental Impact Statement is likely to be required. Type I actions require fully coordinated review, a lead agency and the preparation of an Environmental Assessment Form.

Type II Action: An action or category of actions specifically identified in the statewide regulations or local SEQRA procedures as never having a significant effect on the environment, and for which an Environmental Impact Statement will never be required.

- U -

Unlisted Action: All actions that are not Excluded, Exempt or specifically listed as Type I or Type II actions.

- V -

Volatilize: To make or become gaseous; vaporize upon exposure to air.

- W -

Watershed: The land area contributing runoff and or underflow to a lake, stream or other body of water.

Watertable: Surface of free flowing groundwater in the saturated zone.

- X - Y - Z -

22-139..8/84