Environmental Review Team Report

Kodama Property

Stonington, Connecticut

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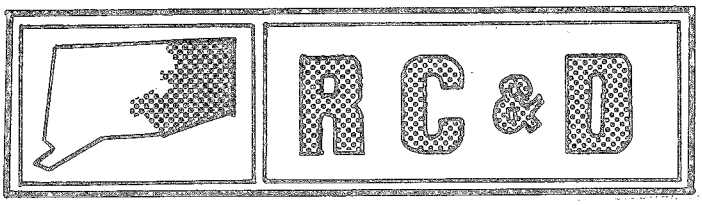
EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on Kodama Property Stonington, Connecticut

May, 1982

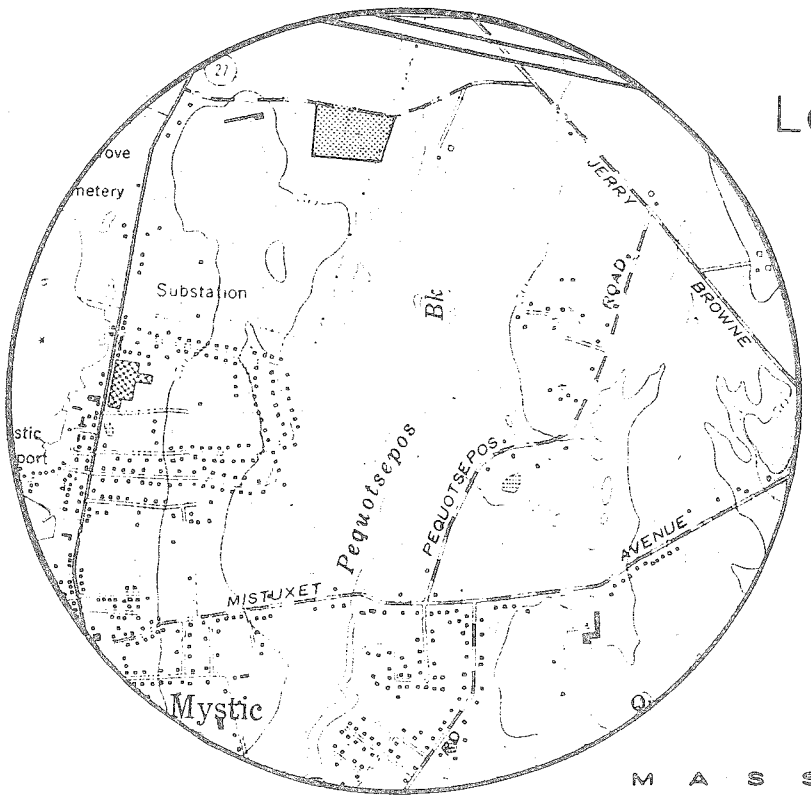


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

KODAMA PROPERTY
STONINGTON, CONNECTICUT



ENVIRONMENTAL REVIEW TEAM REPORT
ON
KODAMA PROPERTY
STONINGTON, CONNECTICUT

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

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

The ERT that field checked the site consisted of the following personnel: Gary Domian, District Conservationist, Soil Conservation Service (SCS); Mike Zizka, Geologist, Department of Environmental Protection (DEP); Pete Merrill, Forester, (DEP); Gerhard Amt, Regional Planner, Southeastern Connecticut Regional Planning Agency; Ed Smith, Plant Ecologist, (intern); and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

The Team met and field checked the site on Thursday, March 4, 1982. Reports from each Team member were sent to the ERT Coordinator for review and summarization for the final report.

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

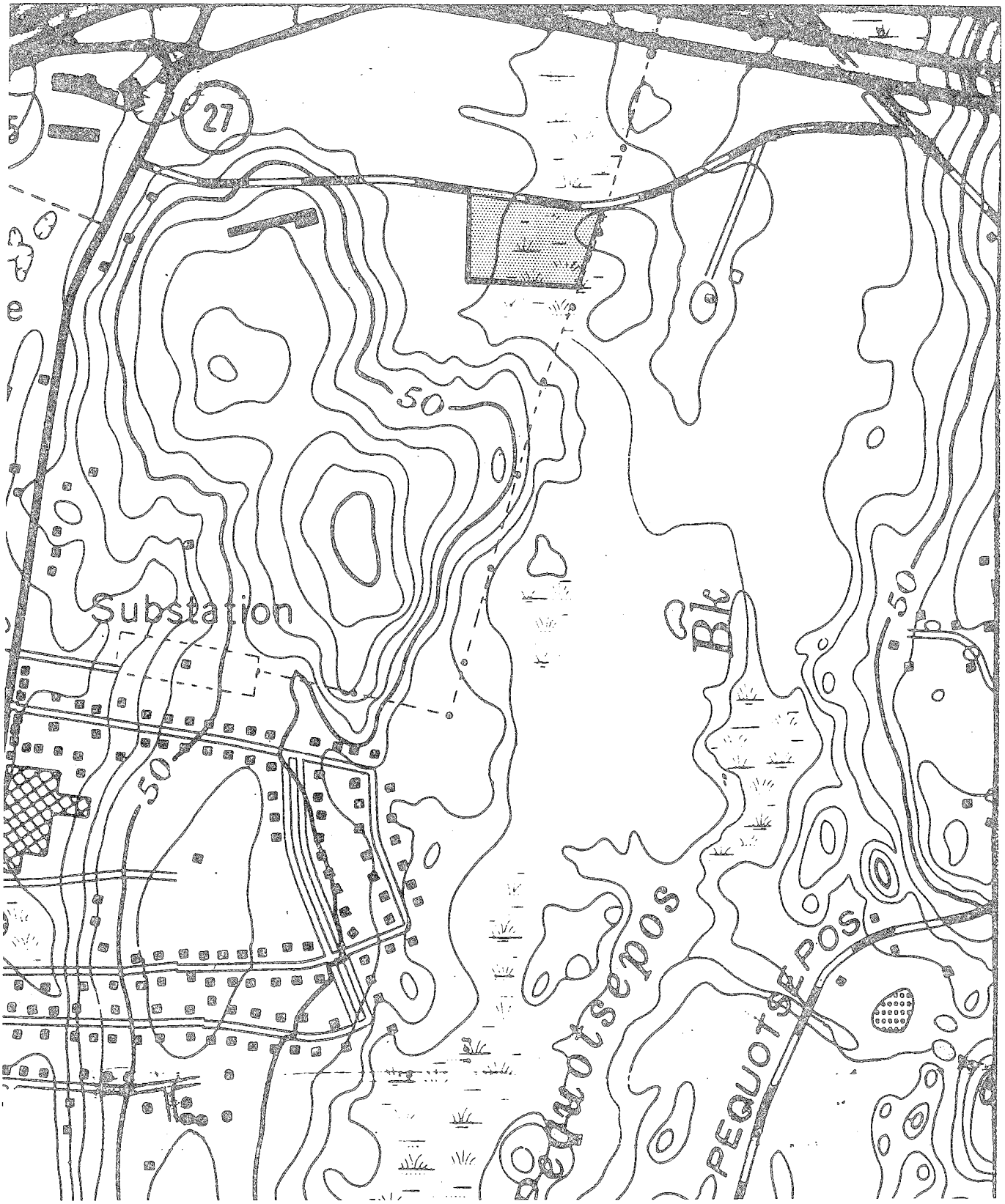
The Eastern Connecticut RC&D Project Committee hopes you will find this report of value and assistance in making your decisions on this particular site.

If you require any additional information, please contact: Ms. Jeanne Shelburn, Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360, 889-2324.

Topography

0 660'
scale

N



INTRODUCTION

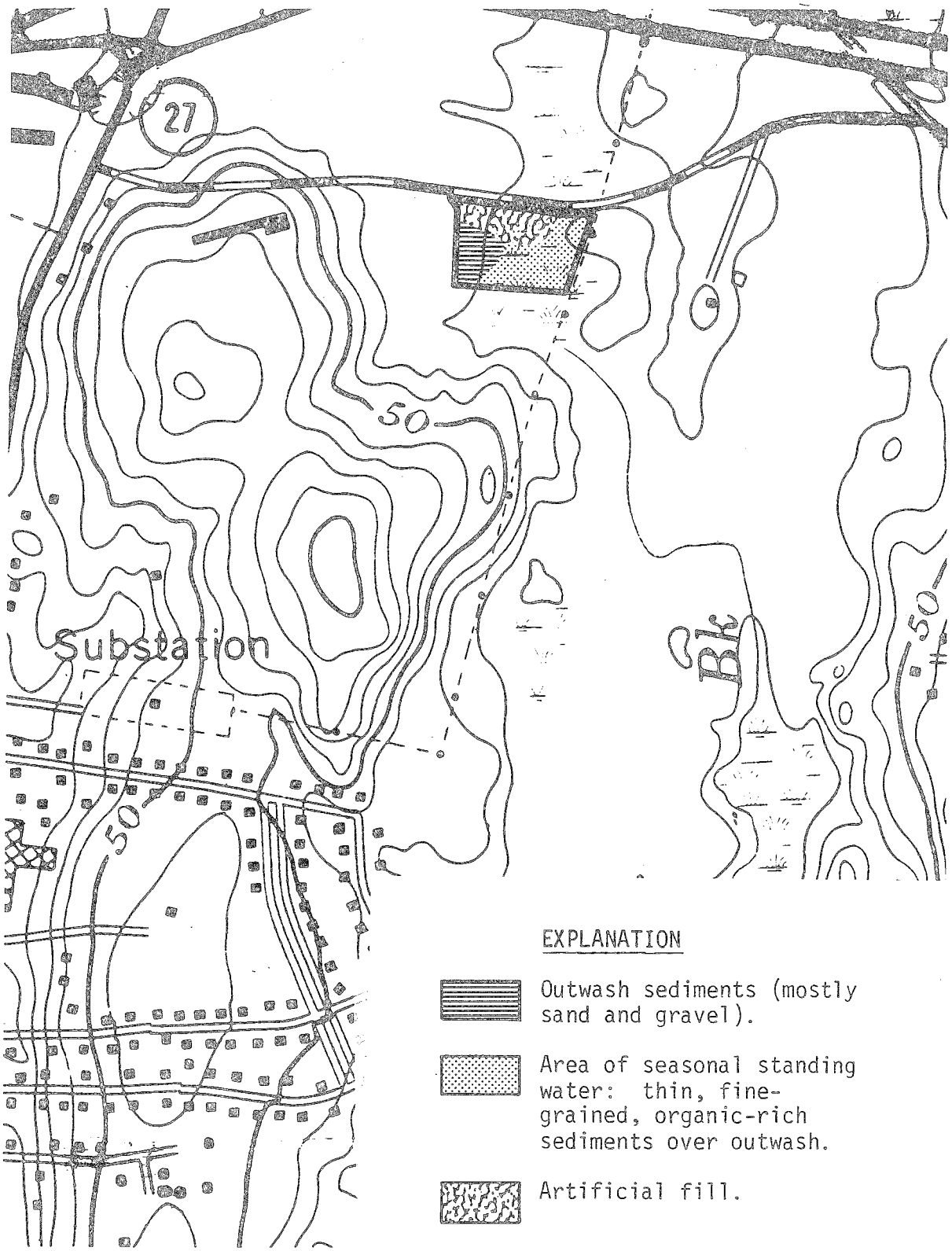
The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed restaurant in the town of Stonington. The 10± acre site is located on the south side of Coogan Boulevard, directly opposite the Mystic Marinelife Aquarium, and west of the Connecticut Light and Power Right-of-way. The property is presently in the private ownership of Jon Kodama. Preliminary engineering plans have been prepared by DiCesare-Bentley engineering.

The developer is planning to construct a 260-seat restaurant and 133 space parking lot on this site. Public water and sewer service is available to the property. Access to the proposed development will be via Coogan Boulevard and and a new street proposed to the west of the site. Approximately one-half of the site will be developed at this time, the remaining section will remain in open space. Future plans for the southern portion of the parcel include relocation of several colonial homes to be used as rental lodging.

Development activities proposed by the landowner that fall under the jurisdiction of the Stonington Wetlands Commissions regulations include removal of 6,000 cubic yards of topsoil and humus from 2.5 acres of wetland, placement of 13,000 cubic yards of rock and earth in the wetland area, installation of underground utilities (storm sewers, sanitary sewers, water line and electric service) and actual construction of the proposed restaurant and parking area.

The Team is concerned with the effect of this proposal on the natural resource base of this site. Although severe limitations to development can be overcome with proper engineering techniques, these measures can become costly, making a project financially unfeasible for a developer. The most severe limitation to development of this site is posed by the wetland soils on the property. Potential problems could include wet basements, cracked foundations, flooding, frost heaving and uneven soil compaction. The project engineers have proposed removal of peat layers and incorporation of additional fill to alleviate these potential problems. Adequate storm water runoff controls have been included in the proposed design. From the Planning perspective the proposal is compatible with the zoning of this area. Traffic generation by the restaurant on Coogan Boulevard may become a concern in the future, if the facility generates 900 or more vehicle trips per day.

Surficial Geology



ENVIRONMENTAL ASSESSMENT

GEOLOGY

The Kodama property is located in an area encompassed by the Mystic topographic quadrangle. A surficial geologic map of the quadrangle, by Joseph E. Upson, has been published by the U.S. Geological Survey (Map GQ-1971). The map indicates that the property lies within a glacial outwash deposit, which consists of materials that were laid down by meltwater streams. Soils mapping, on the other hand, suggests that the site is made up of till, an unconsolidated sediment that was deposited directly from glacier ice. Till is commonly poorly sorted; that is, rock grains of widely divergent sizes, ranging from clay to boulders, are usually thoroughly mixed together. Meltwater deposits, on the other hand, are often well-sorted and layered. The differences between meltwater deposits and till may be gradational, and it is often difficult to distinguish between them. The test hold data submitted by the site engineer describes most of the material below three feet as "sandy gravel." This suggests that the sediment is indeed outwash rather than till, although the material may be less well-sorted than most such deposits.

The relatively low elevation and flat topography of the site has impeded surface and subsurface drainage, with the result that the parcel has standing shallow water during much of the year. The recurring growth and decay of vegetation on the site has led to the formation of a thin, organic-rich surface soil horizon. Test holes did not show this horizon to be more than two feet thick in any area, and it seems unlikely that there are areas on the site where it would be more than four feet thick. A layer of "silt" or "silty clay" ranging up to two feet thick underlies the organic horizon and overlies the sandy gravel, according to test hold data.

A ridge of artificial fill occupies the northern boundary of the site. This ridge stands several feet above the general elevation of the property.

HYDROLOGY

The Kodama property is located within the watershed of Pequotsepos Brook, a stream that flows south into the Mystic Harbor estuary. There is no direct surface channel between the brook, which begins to the south of the property, and the site itself. The wetlands on the property generally retain surface water, slowly allowing it to move into and through the groundwater system. On occasion, water in the wetlands may rise to a high enough level to allow spillage over a low rise along the power line swath just southeast of the site. Additionally, some surface overflows appear to be carried into a storm drainage system along Coogan Boulevard and through Olde Mistick Village. Interstate Route 95 and the Village development disrupted the natural connection between the wetlands on the Kodama property and the wetlands to the north. These developments have effectively isolated the side so that most of the surface runoff that passes into and through the property is generated on the property itself.

The developer intends to direct runoff from the completed restaurant facilities into a storm drainage system that would tie into the Olde Mistick Village system. Detention basins would be provided to prevent peak flow increases for storms of 25-year frequency. Runoff would normally pass through an existing culvert into the Village system, but excess flows would be diverted and stored temporarily in two basins in the northwestern corner of the site.

The provision of the runoff controls mentioned above alleviates most of the Team's hydrological concerns with respect to this development. The availability of public water and sewers also reduces the environmental risks considerably. The town's decision with regard to the proposed wetland filling should therefore be concentrated more on the vegetation and wildlife values that the wetland may or may not exhibit.

SOILS

A detailed soils map of this site and detailed soils descriptions are included in the Appendix to this report, accompanied by a chart which indicates soil limitations for various urban uses. As the soil map is an enlargement from the original 1,320 feet/inch scale to 660 feet/inch, the soil boundary lines should not be viewed as absolute boundaries, but as guidelines to the distribution of soil types on the site. The soil limitation chart indicates the probable limitations of each of the soils for on-site sewage disposal, buildings with basements, streets and parking, and landscaping. However, limitations, even though severe, do not preclude the use of the land for development. If economics permit large expenditures for land development and the intended objective is consistent with the objectives of local and regional development, many soils and sites with difficult problems can be used. The soils map, with the publication, New London County Interim Soil Survey Report, can aid in the identification and interpretation of soils and their uses on this site. "Know Your Land: Natural Soil Groups for Connecticut" can also give insight to the development potentials of the soils and their relationship to the surficial geology of the site.

The gently sloping to sloping well drained soils on uplands are occupied by Canton and Charlton extremely stony fine sandy loams. This soil is designated by soil mapping unit symbol 11MC. The letter "M" denotes an extremely stony surface condition. The letter "C" denotes slopes as 3 to 15 percent. Canton soils formed in a fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

The moderately steep to steep well drained uplands are occupied by Canton and Charlton extremely stony fine sandy loams. This soil is designated by soil mapping unit symbol 11MD. The letter "M" denotes an extremely stony surface condition. The letter "D" denotes slopes as 15 to 35 percent. Canton soils formed in a fine sandy loam mantle underlain by friable gravelly sandy glacial till. Canton soils have moderately rapid or rapid permeability. Surface runoff is medium. Charlton soils formed in friable glacial till. Charlton soils have moderate to moderately rapid permeability. Surface runoff is medium to rapid.

The nearly level and gently sloping moderately well drained areas on stream terraces and outwash plains are occupied by Tisbury silt loam. Tisbury silt loam is designated by soil mapping unit symbol 45A. The letter "A" denotes slopes as being 0 to 5 percent. Tisbury soils formed in silt-mantled glacial outwash. Permeability is moderate in the surface layer and subsoil and rapid or very rapid in the substratum. A seasonal high water table exists at 18 to 24 inches. Surface runoff is slow to medium. Tisbury silt loam, 0-5% slopes qualifies as Prime Farmland in the State of Connecticut.

The nearly level to gently sloping, extremely stony, moderately well drained areas on uplands are occupied by Sutton extremely stony fine sandy loam. This soil is designated by soil mapping unit symbol 41MB. The letter "M" denotes an extremely stony surface condition. The letter "B" denotes slopes as being 0 to 8 percent. Sutton soils formed in friable glacial till. Permeability is moderate to moderately rapid. A seasonal high water table exists at 18 to 24 inches. Surface runoff is slow to medium.

This site was reviewed to determine soil limitations for the proposed construction of a restaurant and parking lot facility. Public water and sewer are available, therefore severe limitations due to soils for septic tank absorption are eliminated. Construction limitations due to seasonal high water tables and wetland soils will be overcome by the use of mineral fill material. A storm water control plan has been prepared by the developer, as well as a sediment and erosion control plan. The sediment control features are to be in place prior to construction if these controls are to be effective. The use of silt fence is recommended where large quantities of sediment can be expected. Haybales can be used in areas of very small watersheds where large amounts of sediment are not anticipated. Trapped sediment is to be removed and spread onsite in areas where it will not wash back into watercourses. Exposed soil areas facing watercourses should be seeded with a grass mix or landscaped in such a way to prevent sediment from re-entering watercourses.

The site was dominately wooded but has been cleared recently. There are areas of exposed fill with lot growing grass and woody vegetation being established, while the exposed wetland areas are exhibiting a regrowth of red maple with a varying density of understory shrubs and vines. The most abundant plants on site were spicebush, red maple and poison ivy. Wildlife habitat is provided by this wetland for small game and non-game wildlife species. The best habitat is south and east of Coogan Boulevard where the overstory has been cut off and low growing plants have established themselves. Species of birds and animals that would be found in the area include song birds, cottontail rabbits and woodcock. The habitat area was not unusual or unique. When developed, the existing habitat will be used less by birds and animals because of human activities, loss of vegetation and wetland filling. The surrounding, undisturbed habitat will be used by song birds and other small animals tolerant to man's activities.

PLANT COMMUNITIES

The 10-acre Kodama parcel is located on the south side of Coogan Boulevard, opposite the Mystic Marinelife Aquarium, and west of the Connecticut Light and Power Right-of-way. The site is approximately fifty percent wetlands and generally flat, except towards the south side which is drier and gently slopes

upwards. The parcel lies within the Eastern coastal ecoregion.

There are four general plant zones, three of which have been created by recent human activity. One zone is the highly manipulated Connecticut Light and Power Right-of-way, where a shrub community is maintained to prevent interference by tree species with the lines. Extensive logging within the last several years has created a second zone, where weed species are now invading, due to direct sunlight reaching the ground. Another zone has developed through the depositing of a band of conglomerate fill (road tar, gravel, and discarded Christmas trees), which adjoins Coogan Boulevard, and where a diverse community of weed species now dominate. The fourth zone encompasses a kettle pond, and retains some mature tree species. The flora is much more stable in this zone than the others mentioned.

Powerline Right-of-Way

Sweet pepperbush forms the bulk of the shrubs found here, especially in damp areas where it is associated with swamp azalea (Rhododendron viscosum). In drier ground, autumn olive (Elaeagnus umbellata) is common, along with blackberry (Rubus spp.) and low bush blueberry (Vaccinium sp.).

Land-fill Zone

A wide assortment of weed species have colonized the undulating piles of fill. Jimsonweed (Datura stramonium), steeplebush (Spiraea tomentosa), barberry (Berberis Thunbergii), dock (Rumex crispus), mullein (Verbascum thapsus), wintercress (Barbarea vulgaris), horse-nettle (Lolanum carolinense), mugwort (Artemesia vulgaris), speedwell (Veronica officinalis), and bluecurls (Trichostema dichotomum) are commonly found. These species will probably be succeeded by the shrub and tree species: autumn olive (Elaeagnus umbellata), gray birch (Betula populifolia), aspen (Populus grandidentata), and blackberries (Rubus spp.); the dominant grasses are panic grass (Panicum sp.) and bristly foxtail (Setaria sp.).

Wetland Zone

This zone which lies in the north-west corner of the parcel features a kettle pond which still retains mature stands of trees, having excaped the logging in the past few years. Pin oak (Quercus palustris) is the dominant tree, associated with black birch (Betula lenta), and sweet gum (Nyssa sylvatica).

The shrub layer is comprised of swamp azalea (Rhododendron viscosum), highbush blueberry (Vaccinium sp.), and sweet pepperbush (Clethra alnifolia), plants that do well in acidic soils.

The herbaceous flora is diverse due to the moist conditions present. Virginia meadow-beauty (Rhexia virginica), marsh St. Johnswort (Hypericum virginicum), mint (Mentha spp.). dodder (Cuscuta sp.), are a few examples. Virginia chain fern (Woodwardia virginica), an uncommon plant for New London county, grows very profusely here.

Logged Woodland Zone

The majority of the land has been clearcut of all useable timber. The woodlands were formally dominated by red maple (Acer rubrum), white oak (Quercus alba), red oak (Quercus rubra), black birch (Betula lenta), associated with pin oak (Quercus palustris), and sweet gum (Nyssa sylvatica); all of which are now represented by stump sprouts or seedling growth.

The understory is represented by gray birch (Betula populifolia), shadbush (Amelanchier canadensis), and especially an abundant sprouting of sweet pepperbush (Clethra alnifolia).

Now that direct sunlight reaches the ground, some shade loving species are dying out. Running pine (Lycopodium complanatum), shining clubmoss (Lycopodium lucidulum), and cinnamon fern (Osmunda cinnamonea), all show burnt foliage.

Weed species have also invaded, such as blackberries (Rubus spp.), the formidable multiflora rose (Rosa multiflora), and black locust (Robinia pseudoacacia); along with many herbaceous species already mentioned in the land-fill zone. There is a good possibility that common reed (Phragmites australis), will colonize the exposed wet areas, as large stands are found within a few hundred yards of the Kodama parcel.

A single specimen of American chestnut (Castanea dentata), bore infertile fruit last year, and appears to be healing around it's wounds from the chestnut blight. The tree is located in the south-east corner of the property near the powerlines, and bears watching.

PLANNING CONCERNS

The proposal concerns the construction of a 260-seat restaurant and related parking on the south side of Coogan Boulevard in Stonington, opposite the Mystic Marinelife Aquarium. The property is about ten acres in acrea and a large part of it contains wetland soils. Properties to the south, east, and west of the site are undeveloped at present. A power line right-of-way extends along the eastern edge of the property.

The proposed restaurant is compatible with the Stonington Zoning Regulations, which allow tourist-commercial uses in this zoning district. The site is served by a public water supply and sewer systems. Generally, the proposed restaurant is an appropriate use for the location.

Access to the site is proposed to be by way of a two-way opening onto Coogan Boulevard and another on a proposed new street along the western border of the site. As development in the area intensifies in the future and Coogan Boulevard traffic increases, consideration should be given to converting the Coogan Boulevard opening to an entrance only, with the opening on the new street continuing to serve as both entrance and exit. This would reduce to one location the left-turn movements from the restaurant parking lot into the westbound lanes of traffic on Coogan Boulevard. This is especially important since the restaurant itself could generate as much as 900 vehicle trips per day.*

* "Trip Generation," Institute of Transportation Engineers, 1979.

Appendix

Soils

0 330'
scale

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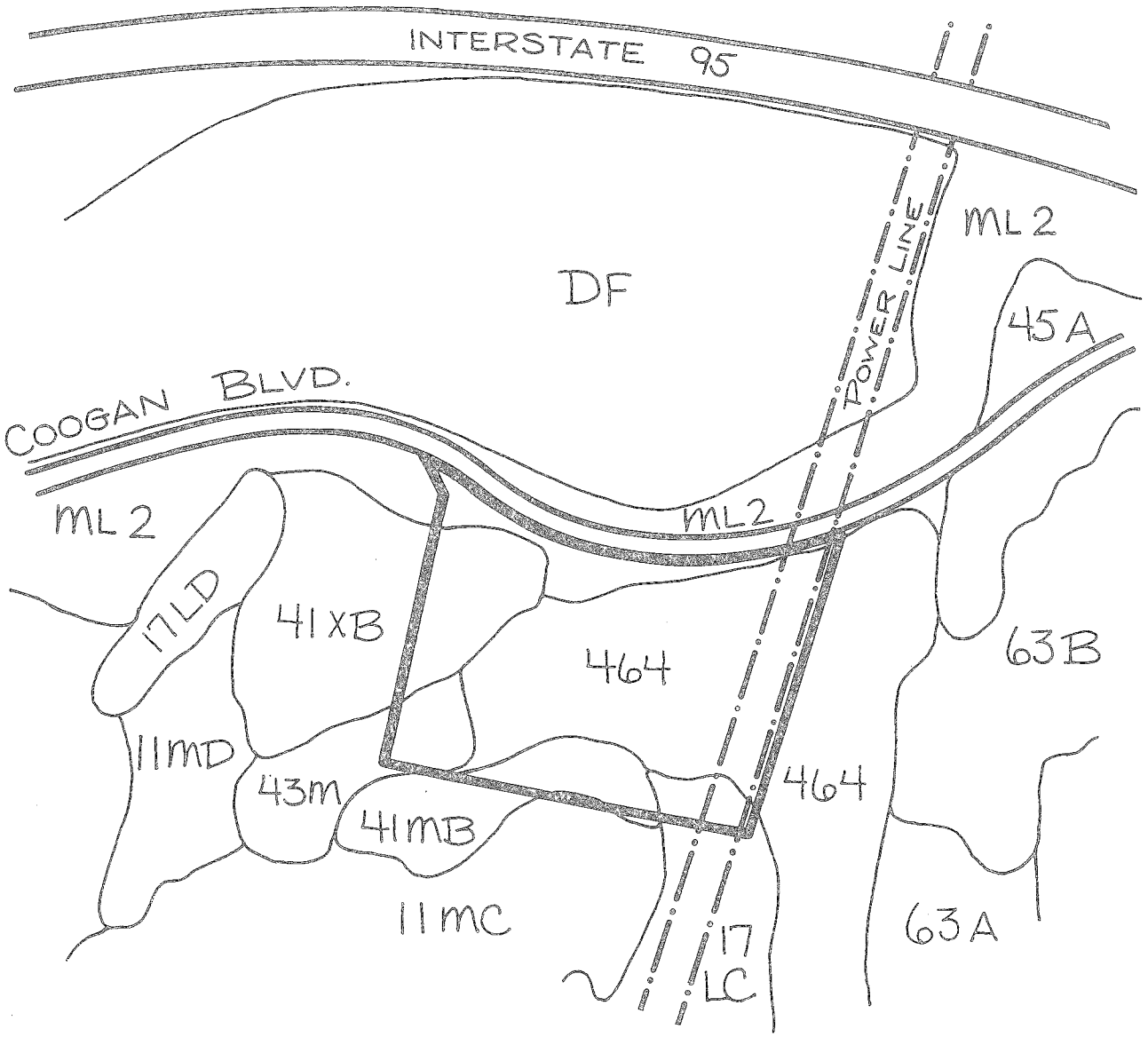

Soil Symbol	Soil Series	Principal Limiting Factors	Urban Use Limitations* Septic Tank Absorption	Building Site Development
M12	Udorthents, smoothed	Determined Onsite	Determined Onsite	Det. Onsite
464	Raypol	Wetness	3	3
41MB	Sutton	Stoniness	3	3
41XB	Sutton	Stoniness	3	2
43M	Ridgebury, Leicester and Whitman	Wetness Stoniness	3	3
11MC	Canton and Charlton	Stoniness	3	3
11MD	Canton and Charlton	Stoniness Slope	3	3
17LC	Charlton-Hollis	Slope Depth to Bedrock	3	2
63A	Haven		1***	2
63B	Haven		1***	2
45A	Tisbury	Wetness	3	3

*Limitations: 1 - Slight, 2 - Moderate, 3 - Severe
**Wetness
*** Excessive permeability may cause ground water pollution

SOIL INTERPRETATIONS FOR URBAN USES

The ratings of the soils for elements of community and recreational development uses consist of three degrees of "limitations:" slight or no limitations; moderate limitations; and severe limitations. In the interpretive scheme various physical properties are weighed before judging their relative severity of limitations.

The user is cautioned that the suitability ratings, degree of limitations and other interpretations are based on the typical soil in each mapping unit. At any given point the actual conditions may differ from the information presented here because of the inclusion of other soils which were impractical to map separately at the scale of mapping used. On-site investigations are suggested where the proposed soil use involves heavy loads, deep excavations, or high cost. Limitations, even though severe, do not always preclude the use of land for development. If economics permit greater expenditures for land development and the intended land use is consistent with the objectives of local or regional development, many soils and sites with difficult problems can be used.

Slight Limitations

Areas rated as slight have relatively few limitations in terms of soil suitability for a particular use. The degree of suitability is such that a minimum of time or cost would be needed to overcome relatively minor soil limitations.

Moderate Limitations

In areas rated moderate, it is relatively more difficult and more costly to correct the natural limitations of the soil for certain uses than for soils rated as having slight limitations.

Severe Limitations

Areas designated as having severe limitations would require more extensive and more costly measures than soils rated with moderate limitations in order to overcome natural soil limitations. The soil may have more than one limiting characteristic causing it to be rated severe.

About the Team

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

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

PURPOSE OF THE TEAM

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

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

REQUESTING A REVIEW

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

For additional information regarding the Environmental Review Team, please contact Jeanne Shelburn (889-2324), Environmental Review Team Coordinator, Eastern Connecticut RC&D Area, 139 Boswell Avenue, Norwich, Connecticut 06360.