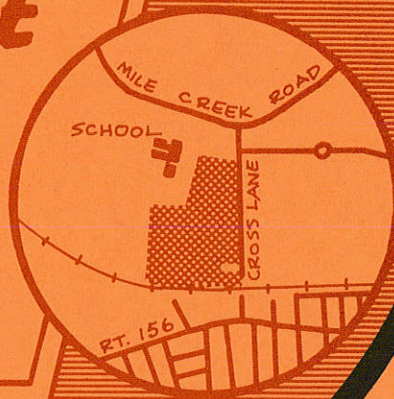


environmental review team report

**RECREATION
AND
FIREHOUSE
SITE**

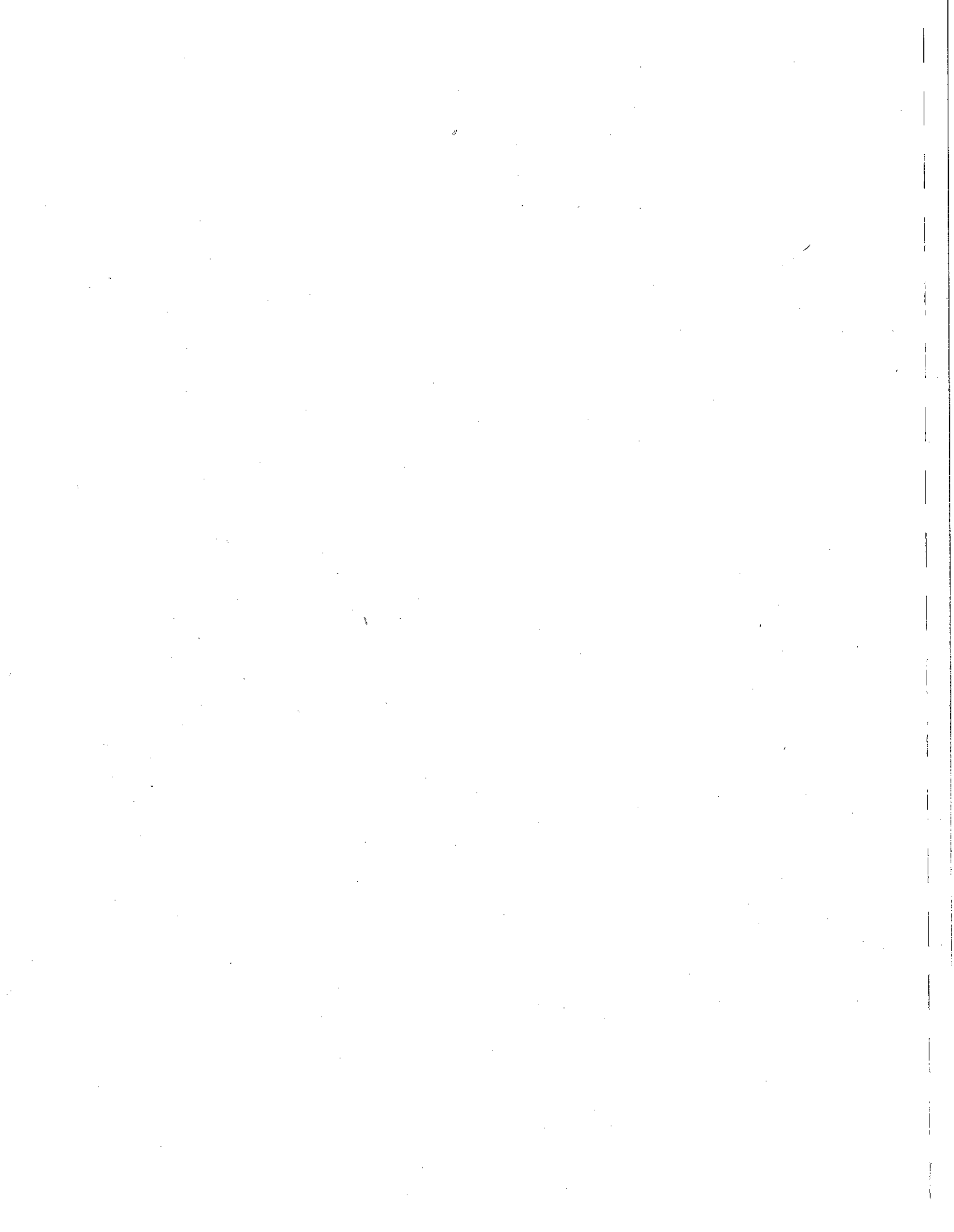
**Old Lyme,
Connecticut**



RC & D

**EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT**

**ASSISTED BY: U.S. DEPARTMENT OF AGRICULTURE,
SOIL CONSERVATION SERVICE AND COOPERATING AGENCIES**



INTRODUCTION

The Town of Old Lyme is considering the purchase of a 22 acre tract on Cross Lane, just north of the railroad tracks, for the location of a new firehouse and additional recreational facilities. The northwest corner of the property abuts the rear of the Mile Creek School site. The site is situated in the southeast corner of the town, which presently has the second largest concentration of population and the fastest rate of growth.

Expansion of the Mile Creek School site has been advocated by the Old Lyme Planning Commission for school and open space expansion. The property is ideally situated as a central neighborhood location for recreational uses. Some of the uses proposed include ball field(s), tennis courts, a pond for skating and/or fishing, and a nature center. With easy access to both Mile Creek Road and the Boston Post Road, it is also well located for purposes of fire protection for both seasonal and year-round housing concentrations.

This report will first describe the natural resources on the property in question and then discuss the suitability and potential for development of both the firehouse and recreational uses. Comments or recommendations are offered for consideration by the town in the preparation and review of development plans, but should not be construed as mandatory or regulatory in nature.

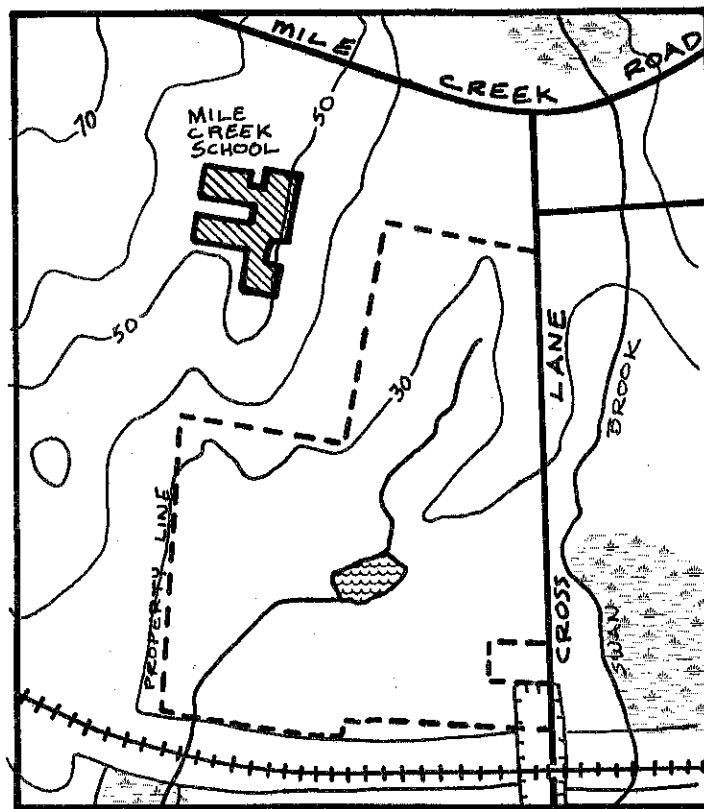
EVALUATION

EXISTING RESOURCES

Topography. The site is located about 0.7 miles from Long Island Sound and is at an elevation between 20 to 40 feet above mean sea level with most of the area between 20 and 30 feet (see topography map below). The lowest area on this site is about 5 to 10 feet above the high-water line of the 100 year tidal flood. Slopes on the site are relatively gentle.

A small unnamed stream with a small pond flows through the center of the property and discharges into Mile Creek. At the time of the field review, the stream was not flowing. The stream has a low gradient and ill-defined channel and banks. It appears that the stream flows only during late winter, spring, and after heavy rains, when the water table rises to the surface of the channel. Thus, most of the time this stream-pond-wetland system probably acts as a recharge area for the underlying surficial materials. Once recharge raises the water table to the surface, however, it acts as a discharge area.

TOPOGRAPHY



1 INCH = 500 FEET



Soils. A detailed soils map of this property is given in the Appendix to this report along with a soils limitations chart. Due to the original scale at which the soils are mapped (1"=1,320'), the lines shown on the soils map should not be viewed as precise boundaries, but rather as guidelines to the distribution of soil types on the property. The soils limitations chart indicates the probable limitations for each of the soils for on-site sewage, basements, landscaping, streets and parking, and athletic fields. However, limitations, even though very severe, do not always preclude the use of the land for development. If economics permit greater 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 shown on the soil map as 825 and 43M are wet soils that are classified as inland wetlands under P.A. 155. They comprise about 13.5 acres or 61.4% of the property. Permission to construct any facilities in these soils would be required from the local inland wetlands agency.

Soil type 63A, located in the southeastern corner of the site, is physically best suited for construction of a firehouse or other structural facilities. This is generally a well-drained soil overlying sands and gravels.

Soil 56XB is adjacent to the school property. As this land is sloping, fill would probably be needed to level the land, if used for active recreation. A seasonally high water table might also necessitate drainage measures, depending on the ultimate use.

Geology. The surficial geology of the southernmost third of the site (south of the pond) is classified as outwash sediments, which are primarily sands and gravels deposited by glacial melt-water streams. The remainder of the site is underlain by till, a heterogeneous mixture of clay, sand, silt, gravel, and boulders. The soil map reflects these conditions with 63A and 825 being underlain by outwash deposits.

The bedrock in this area is a gray biotitic quartz-feldspar gneiss commonly called gray granite or ledge. Depth to bedrock in this area ranges from 10 to 50 feet. Generally, the depth to bedrock will be about 10 feet in the till and may be up to 50 feet in the outwash.

Vegetation and Wildlife. This parcel of land provides habitat for woodland game, songbirds, and possibly some waterfowl in the pond area. The area is wooded with a combination of trees, shrubs, vines, wild grasses, and wetland plants. Wildlife edge habitat is provided through an old field in the latter stages of succession located on the southern edge of the property.

The present quality of the habitat is good. The understory growth is dense and includes young birch, poplar, blueberries, wild

grape, tatarian honeysuckle, greenbriar, dogwoods, deer tongue, spice bush, sweet pepper bush, sassafras, and wild azalea, most of which are valuable wildlife food and cover plants. However, continued growth and succession, unless managed, will begin to shade out desirable food and cover plants, and wildlife benefits will decrease accordingly. In some areas, understory vegetation is already near or above head height.

From a forestry viewpoint, the whole site is presently a non-commercial stand of trees. Though the site has good potential capability, dense brush and vines prohibit any reinforcement plantings at present, except for a few open areas near the railroad.

Present recreational opportunities are limited by the dense growth of shrubs and vines, which in combination with the wet soils, makes walking or hiking very difficult. Visual impact is low as the unmanaged growth gives a jungle-like appearance.

Land Use. The Old Lyme Plan of Development shows the site under consideration as a school expansion site and open space area. North of the railroad, in the vicinity of the property, both existing and proposed development is low density residential use (minimum lots 1-2 acres). South of the railroad is a very densely developed seasonal residential area, along with some commercial activities.

Population growth in Old Lyme was 61.7% between 1960 and 1970. The enumeration district in the southeast portion of the town, in which the site is located, had the fastest rate of growth. In general, population determines the quantity and kinds of facilities and services required in a town. The need for both additional recreation facilities and fire protection has been identified in this fast growing section of Old Lyme.

WATER SUPPLY

As there is no public water supply available, water for the proposed project would have to be obtained from the development of a private on-site well(s).

With the type of facilities and the activities being proposed, it does not seem that the water supply would have a constant, heavy demand placed on it. This being the case, the need for a high yield well would be considerably less.

The underlying bedrock has a water yielding ability that is generally 10 gpm (gallons per minute) or less at depths of 150 feet or more. Bedrock wells located a few hundred feet from the property at Tumblebrook Estates provide from 1/2 to 63 gpm at depths from 150 to 250 feet. The outwash area could be expected to yield about 10-20 gpm, on the average, at depths ranging from 15 to 30 feet. Thus, regardless of location of the well, adequate water should be available.

The use of a shallow well in the outwash area should be accompanied by judicious planning so as to preclude contamination from septic tank leaching fields. Bedrock wells usually provide greater protection from possible sources of contamination, though the yield is generally not as high. With the amount of acreage involved on this site, there should be no particular problem in locating well sites.

WASTE DISPOSAL

As there are no municipal facilities available, sewage disposal would be by means of an on-site septic system. The recreational uses could continue to use school facilities, but the firehouse will need a separate system. The area and soil conditions which have the least limitations for disposing of the effluent are in the southeast portion of the site (soil 63A). Due to the rapid drainage of this soil, though, a leaching field should be at least 100 feet, and preferably more, from surrounding wells and streams. A properly designed system installed in this area could function quite well. However, it is understood that for traffic safety reasons, the firehouse could not be located this close to the railroad underpass.

Thus, it appears the firehouse and its septic system would have to be located further north on Cross Road where the land has a high water table. Due to the high water table condition, the land has severe limitations for sewage disposal purposes. The possible use of this area for sewage disposal would depend upon several factors, one of which is to determine whether or not the underlying soil is pervious. The public health code allows the construction of leaching systems in fill where the underlying soil has been tested and shown to be pervious. In this respect it would be necessary to dig some deep observation holes. Assuming the soil was pervious, the land could be raised to a sufficient elevation by filling with a suitable material. The size of the leaching system is to be based on the minimum percolation rate in the underlying soil, rather than the fill material. In general, it is not recommended that a leaching system be constructed in fill over soils that have a minimum percolation rate of more than 20 minutes per inch. No doubt that if this area, being a wetland, could receive approval for this type of use, considerable site improvement work would be needed in order to accommodate and support a subsurface leaching system. In respect to fill material, if the underlying soil(s) proved satisfactory, fill could be obtained in conjunction with the excavation and construction of the pond.

FOUNDATION DEVELOPMENT AND GRADED CONDITIONS

The soil shown as 63A has slight limitations for constructing a firehouse or any other structure. With a possible need for some irrigation, this area would also be well suited for the development of recreation fields. Thus, the options on this portion of the site are great.

Expansion of school facilities would probably be on soil 56XB. As this land is sloping, development of ballfields or other facilities would appear to require extensive filling. Fill material might be required from off-site, thereby raising costs of construction, assuming spoil material from any on-site pond construction would be used as fill for the firehouse. The presence of a high seasonal water table might also require some type of subsurface drainage.

Within the wetlands soils (825, 43M), there is a possibility for enlarging and deepening the existing pond for recreation purposes, while using the spoil material as fill for the firehouse facilities. A possibility would be to construct a 3 acre dugout pond, 6 or more feet deep. This would provide fill for an area 600 feet long and 200 feet wide, about 6 feet deep. Prior to pond construction, it would be desirable to check the quality of fill that would be excavated. The chances are good that the underlying material is gravel. Any organic or fine silty material would make unstable fill for a construction site.

ROADS AND UTILITIES

The location of the site is ideal with respect to the surrounding development. Cross Lane has good access to Mile Creek Road and the Boston Post Road. Mile Creek Road is a major east-west link to Old Lyme's newer subdivision areas. The Boston Post Road provides immediate access to the seasonal areas.

There is a possibility that safety hazards may be created at the intersections of Cross Lane with the Boston Post Road and Mile Creek Road due to the volunteer fire crews and the equipment responding to calls. Some sort of signalization (e.g. flashing lights) might be placed at these intersections to warn the public of approaching fire equipment.

In selecting this site for a firehouse, the possible limitations imposed by the railroad underpass on Cross Lane should be considered. If equipment needs change over the next 15-20 years towards larger vehicles, the underpass may not be adequate for safe passage. The structure may also be somewhat of a hazard when firemen are responding to a call (increased traffic, higher speeds, restricted visibility).

Besides what is needed for the firehouse, additional parking may be required in conjunction with the recreational facilities. It would appear that expanding the existing lot at the school or developing one on the 63A soil would be the best alternatives. Locating a lot in the wetland soils would require additional fill.

POTENTIAL HAZARDS

Natural. Given the type of proposed recreational activity in

the wetlands, pond and nature trails, the flood hazard is minimal. If the firehouse is located on the edge of the wetland area, there should be no particular problems, provided the fill is at a sufficient elevation. However, it should be cautioned that filling portions of the wetlands will reduce the flood storage capacity. Thus, unnecessary filling should be avoided.

Organized recreation, particularly evening activities, may be hampered by mosquitoes and other insects. In developing the property, it may be possible to eliminate some of the mosquito breeding areas and thus reduce the problem.

Man-made. Traffic hazards arising from firemen responding to calls and the railroad underpass on Cross Lane have been discussed previously and should be considered in developing any plans.

Another possible hazard could develop if recreational facilities are developed adjacent to the railroad tracks. A fence of some sort would be recommended to prevent children from walking or playing along the tracks. Also, some sort of plantings along the railroad would help reduce the noise impact of trains and improve the overall appearance.

Damage to the wetlands during or after construction is a possibility. It is felt that the approximately three acres along the road frontage that would be required for a firehouse would not seriously detract from the wetlands function. With respect to the pond which would be constructed both for recreation and to provide fill for the firehouse, it is unlikely that this type of activity would have an adverse effect on the present hydraulic system, either surface or underground. Ponds tend to provide the same hydrologic benefits as do wetlands and the magnitude of the proposed dredging is such that it should not materially upset the subsurface flow system.

Though the ultimate construction of the firehouse and pond should have little adverse impact, the construction process itself, if not properly controlled, could damage the remaining wetlands. Plans for erosion and sediment control should be drawn up and put into place prior to the start of construction. Technical assistance in preparing these plans is available from the New London County Soil and Water Conservation District.

Once constructed, the pond should be protected from runoff from the firehouse that could contain detergents, oil, grease, salt, etc. It should also be protected from possible sewage system contamination.

AESTHETICS, PRESERVATION, AND RECREATION

Vegetation and Wildlife. Development of an outdoor nature center and construction of a larger pond would benefit wildlife in the area. If the pond is dug to a depth of eight feet, it would

provide warm-water fish habitat. Stocking with largemouth bass and bluegill might be considered. If one or more sides of the pond were left shallow, or constructed with a shelf, aquatic plant growth could be encouraged, creating waterfowl habitat.

Outdoor classrooms or nature center development utilizing pathways and grassy clearings would create additional wildlife edge and encourage growth of wildlife shrubs already in the area. Songbird usage would be increased and other wildlife would be brought out where people could observe them. The shrubs can also be used to channel use to the paths. If persons do not use designated pathways, soil compaction may become a problem.

Construction of a firehouse and parking area would decrease the available habitat, though the effect should be minimal.

Open areas not used for other purposes could be planted with tulip poplar, hemlock, larch hemlock, and/or white pine. The site is well suited for forest growth and, in time, these plantings would add to the variety on the site. A spacing of 15 feet by 15 feet (200 trees per acre) would be good.

Recreation and aesthetics. Visual impact would be greatly increased through proper development of the area, if a pond and nature area complex were considered in the plans. The entire area is well-suited to nature area and/or outdoor classroom type development.

Development of a ball field immediately south of Mile Creek School would appear to require extensive filling which would raise costs. A better area for recreation development appears to be in the southern portion of the property on the well-drained soils (63A). Irrigation for grass areas might be necessary.

Construction of a skating pond appears physically feasible. However, the climate is not well suited and it is doubtful that temperatures are cold enough to ensure safe ice during the skating season. It would seem more profitable to concentrate efforts towards a pond deep enough for fishing.

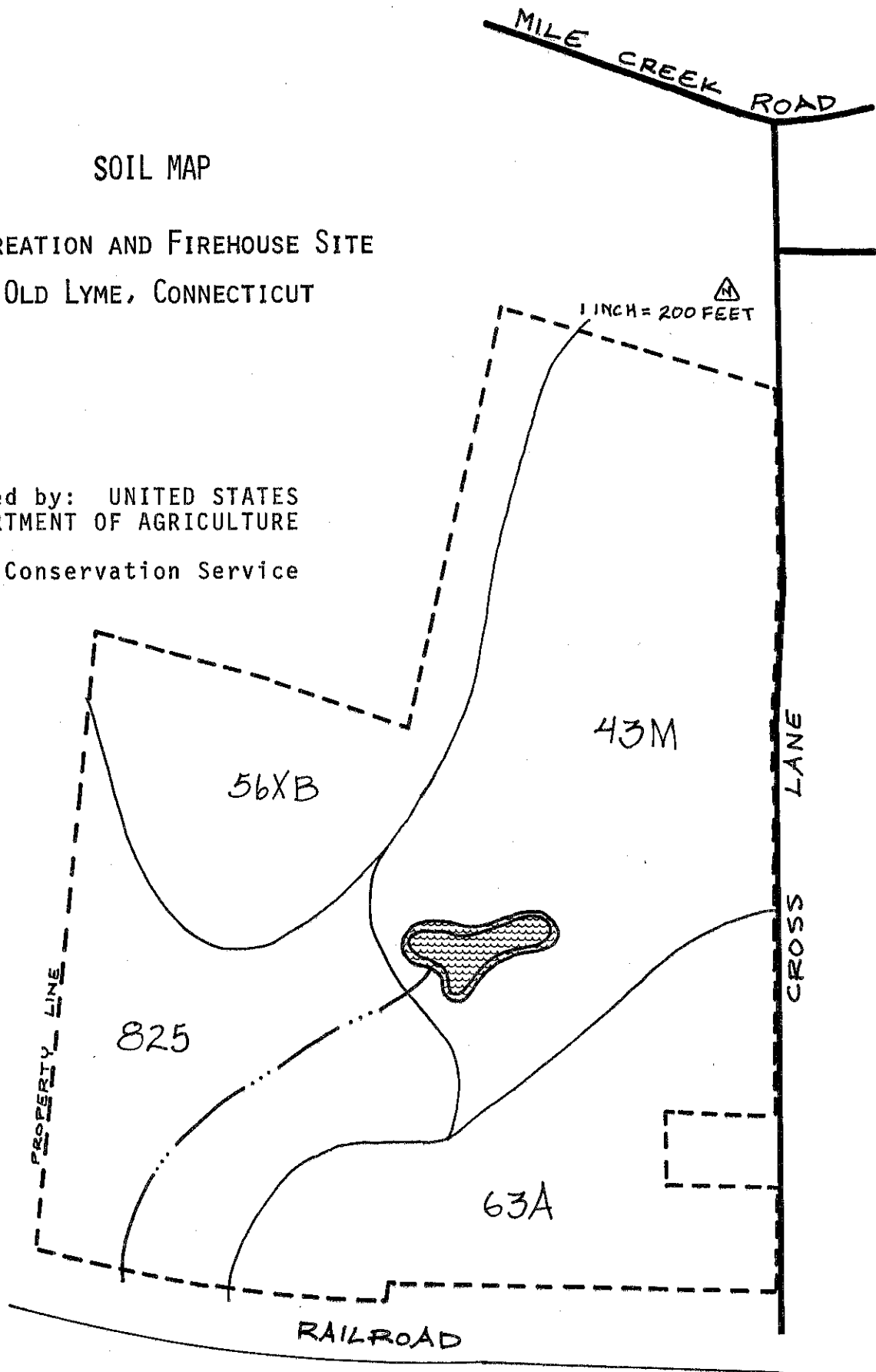
COMPATIBILITY OF SURROUNDING LAND USES AND ALTERNATIVE USES FOR AREA

From a town planning perspective this site has excellent potential to serve as a neighborhood center, not only for school and recreation, but also for fire protection and auxiliary services and events that the fire department may sponsor. Due to the large percentage of wetlands on the site, any extensive residential development would not be desirable. Commercial and industrial uses would not be compatible. Therefore, it appears the highest priority should be given to the public acquisition of the site for open space, recreation, and firehouse use. This is supported by the presence of Mile Creek School and the need for additional public services and facilities in this part of Old Lyme.

APPENDIX

SOIL MAP
RECREATION AND FIREHOUSE SITE
OLD LYME, CONNECTICUT

Prepared by: UNITED STATES
DEPARTMENT OF AGRICULTURE
Soil Conservation Service



ADVANCE COPY, SUBJECT TO CHANGE

JULY, 1974

SOILS LIMITATIONS CHART

Natural Soil Group*	Mapping Symbols	Acres	Percent of Total Acres	Limitations For:**				Principal Limiting Factor(s)
				On-Site Sewage	Base Land-scapes	Streets and Parking	Athletic Fields	
A-1a	63A	4.5	20.4	1	1	1	1	
A-3b	825	4.9	22.3	3	3	3	3	Flood hazard, high water table.
B-3b	43M	8.6	39.1	4	4	4	4	High water table, stoniness.
C-2a	56XB	4.0	18.2	3	3	2	2	Hardpan, seasonal high water table.
		22.0	100.0					

* Refer to Know Your Land, Natural Soil Groups for Connecticut, Soil Conservation Service, USDA Connecticut Cooperative Extension Service, for further explanation of the natural soil groups.

** Limitations: 1-slight; 2-moderate; 3-severe; 4-very severe.

ACREAGE SUMMARY OF SOILS LIMITATIONS

	<u>Slight</u> <u>Acres</u>	<u>%</u>	<u>Moderate</u> <u>Acres</u>	<u>%</u>	<u>Severe</u> <u>Acres</u>	<u>%</u>	<u>Very Severe</u> <u>Acres</u>	<u>%</u>
On-site Sewage	4.5	20.4	-	-	8.9	40.5	8.6	39.1
Basements	4.5	20.4	-	-	8.9	40.5	8.6	39.1
Landscaping	4.5	20.4	4.0	18.2	4.9	22.3	8.6	39.1
Streets and Parking	4.5	20.4	4.0	18.2	4.9	22.3	8.6	39.1
Athletic Fields	4.5	20.4	4.0	18.2	4.9	22.3	8.6	39.1