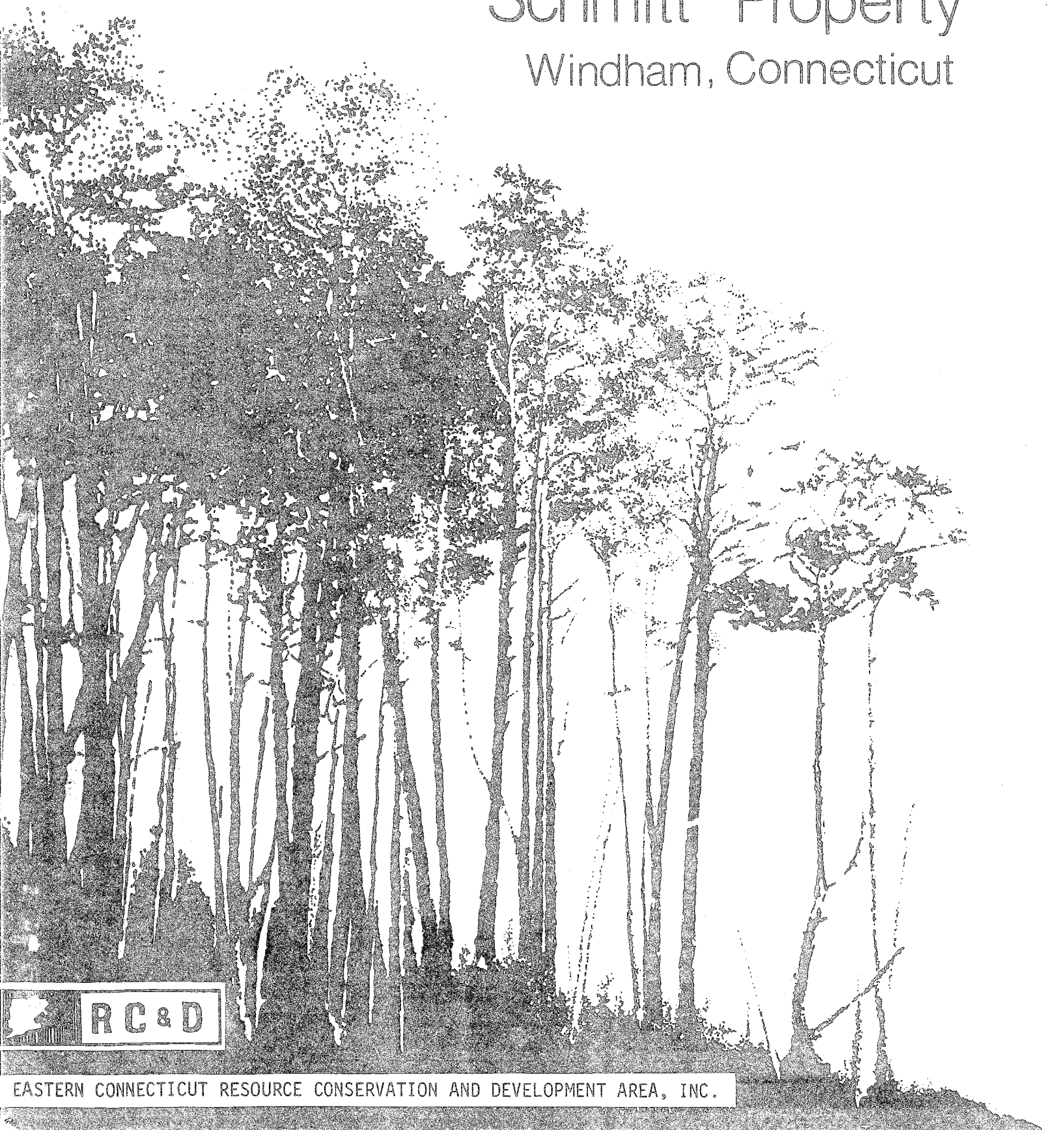
Environmental Review Team Report

Schmitt Property

Windham, Connecticut

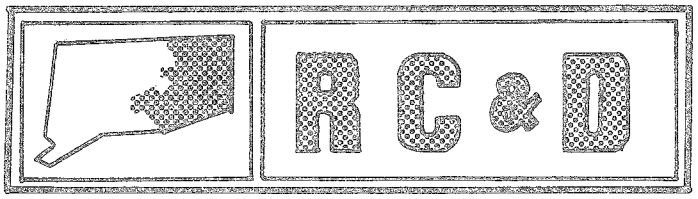


RC&D

EASTERN CONNECTICUT RESOURCE CONSERVATION AND DEVELOPMENT AREA, INC.

Environmental Review Team Report on Schmitt Property Windham, Connecticut

January 1982

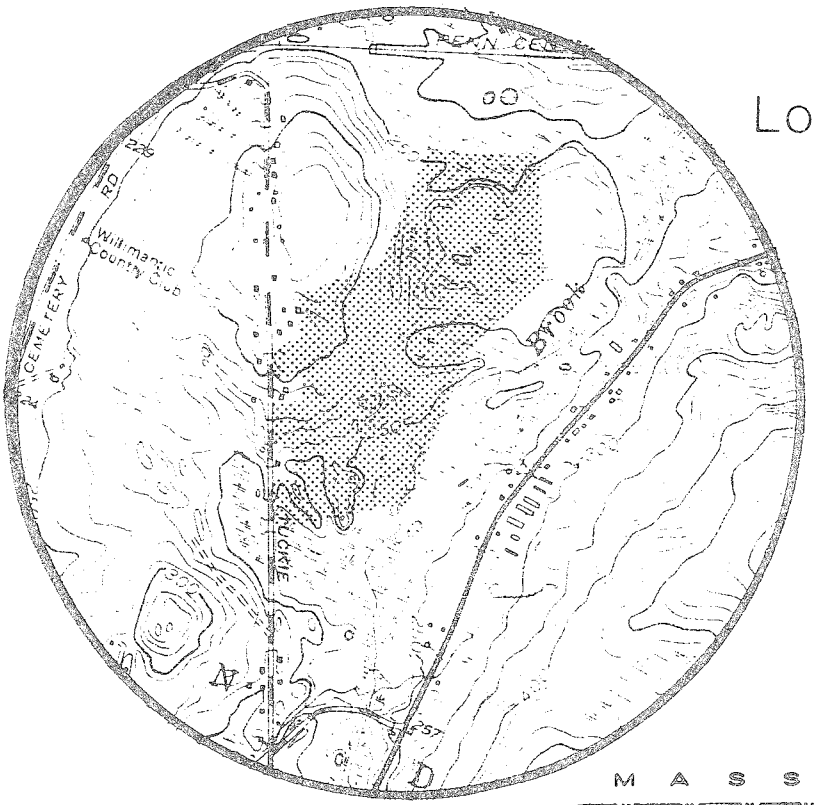


eastern connecticut resource conservation & development area

environmental review team
139 boswell avenue
norwich, connecticut 06360

Location of Study Site

SCHMITT PROPERTY
WINDHAM, CONNECTICUT



EASTERN CONNECTICUT
RESOURCE CONSERVATION AND DEVELOPMENT PROJECT

ENVIRONMENTAL REVIEW TEAM REPORT
ON
SCHMITT PROPERTY
WINDHAM, CONNECTICUT

This report is an outgrowth of a request from the Northeast Connecticut Community Development Corporation to the Windham 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. The request was approved by the RC&D Executive Committee and the measure was reviewed by the Eastern Connecticut Environmental Review Team (ERT).

The soils of the site were mapped by a soil scientist from the United States Department of Agriculture, Soil Conservation Service (SCS). Reproductions of the soil survey map, a table of soils limitations for certain land uses and a topographic map showing property boundaries were distributed to all Team members prior to their review of the site.

The ERT that field-checked the site consisted of the following personnel: Howard Denslow, District Conservationist, Soil Conservation Service (SCS); Michael Zizka, Geologist, Connecticut Department of Environmental Protection (DEP); Rob Rocks, Forester, (DEP); Terry Wakeman, Regional Planner, Windham Regional Planning Agency; Don Capellaro, Sanitarian, State Department of Health; and Jeanne Shelburn, ERT Coordinator, Eastern Connecticut RC&D Area.

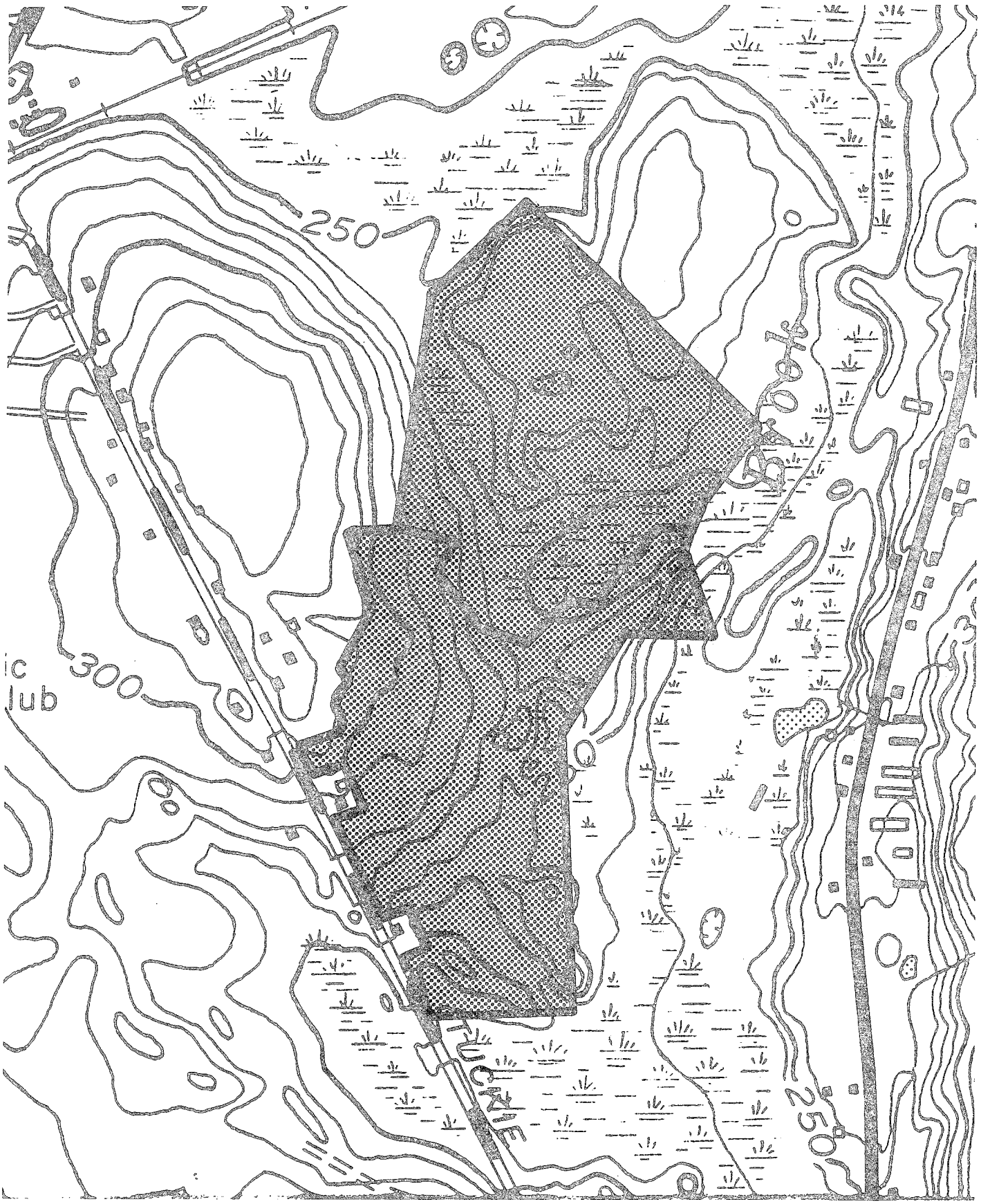
The Team met and field checked the site on Monday, November 23, 1981. Reports from each contributing Team member were sent to the ERT Coordinator for review and summarization for the final report.

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 Windham. 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 Area Committee hopes that this report will be of value and assistance in making any decisions regarding 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	Site Boundary	0 660' scale	N



INTRODUCTION

The Eastern Connecticut Environmental Review Team was asked to prepare an environmental assessment for a proposed low-income housing project in Windham. The 125± acre parcel is located on the eastern side of Tuckie Road and is presently in the private ownership of Ronald Schmitt. Preliminary plans had not been prepared as of the field review date, however, a boundary survey had been completed by Al Fitzback, R.L.S.

The present landowner would like to sell approximately 65 of the 125 acres to the Northeast Connecticut Community Development Corporation for development into single family home lots. Development of the parcel would occur with the cooperation of the Farmer's Home Administration. In order to maintain low development costs, interior loop roads will be constructed only where necessary. Approximately twenty homes are being proposed for development at present. All homes will be served by on-site wells and on-site septic systems.

The property extends north to south approximately 4,000 feet and varies in width from 600 feet at the south end to 1,500 feet in its northern section. It is bounded on its eastern side, in part, by Potash Brook, a tributary to the Shetucket River. The elevation of the property varies from 250 feet above sea level in wetlands adjacent to Potash Brook to 360 feet abutting Tuckie Road. The open fields, once in agricultural use, are gently sloping. Woodland areas to the north and east also slope gently. Other woodland areas slope more steeply, from 8 to 15%. The parcel is primarily in woodland, however, some open field areas exist along Tuckie Road. A bottle/refuse dump is located in this area at the woodland edge. Soils typical of the site include the Canton-Charlton series, the Hinckley series, the Merrimac series, the Ninigret series, the Carlisle series, the Scarboro series and the Saco series.

The Team is concerned with the affect of the proposed development on the natural resource base of this site. Although many severe limitations to development can be overcome with proper engineering techniques, these measures can become costly, making a project financially unfeasible. A major concern on this parcel, although not a development liability, is the existance of prime agricultural soils (as defined by the USDA-Soil Conservation Service) on the site. Concern has been voiced about the involvement of FmHA in a project which would develop housing on prime agricultural soils. Other concerns expressed by Team members include proper functioning of septic systems and effluent renovation, potential for waste water to enter wells and protection of the underlying aquifer for future groundwater supplies. These issues are discussed in detail in the Hydrology, Water Supply and Waste Disposal sections of this report.

available water capacity is low. This soil has rapid permeability in the surface layer and subsoil and very rapid permeability in the substratum. Runoff is slow. This soil is extremely acid to medium acid. This soil is well suited to cultivated crops when irrigated and fairly suited without irrigation. Droughtiness is the main limitation. This soil is easy to maintain in good tilth. It warms up and dries out early in the spring and is easy to till. Minimum tillage and using cover crops are suitable management practices. This soil is poorly suited to commercial woodland production. It has low productivity. Seedling mortality is high because of droughtiness. This soil is poorly suited to woodland and openland wildlife habitat because of droughtiness. It is too dry for wetland wildlife habitat. This soil is well suited to community development, but onsite septic systems pollute the groundwater in places. Steep slopes of excavations are unstable. Lawns and gardens need watering during the summer. Establishing quick plant cover helps control erosion during construction.

##60C Hinckley gravelly sandy loam, 3 to 15 percent slopes. This gently sloping to sloping, excessively drained soil is on terraces of stream valleys and on glacial outwash plains. Areas of this soil are oval or irregular in shape and range from 5 to 200 acres. Slopes are convex and undulating and are mostly less than 200 feet long. Typically, the surface layer is very dark grayish brown gravelly sandy loam two inches thick. The subsoil is dark yellowish brown, yellowish brown, and brownish yellow gravelly sandy loam and gravelly loamy sand sixteen inches thick. The substratum is pale yellow gravelly sand to a depth of sixty inches or more. The water table is the same as 60A except runoff is rapid. This soil is well suited to cultivated crops when irrigated and fairly suited without irrigation. Droughtiness is the major limitation. This soil is easy to maintain in good tilth. It dries out and warms up early in the spring and is easy to till. The erosion hazard is moderate. Minimum tillage and the use of cover crops are suitable management practices to control runoff and erosion. This soil is fairly suited to commercial woodland production. It has low productivity. Seedling mortality is high because of droughtiness. This soil is poorly suited to woodland and openland wildlife habitat because it is droughty. It is too dry for wetland wildlife habitat. This soil is well suited to community development, but onsite septic systems pollute the groundwater in places. Steep slopes of excavations are unstable. Lawns and gardens need watering during summer. Establishing quick plant cover and the use of mulch and siltation basins are suitable management practices to control runoff and erosion during construction.

60D Hinckley gravelly sandy loam, 15 to 40 percent slopes. This moderately steep to very steep, excessively drained soil is on sideslopes and terrace breaks of stream valleys and outwash plains. Areas of this soil are long and narrow or irregularly shaped and range from 5 to 60 acres. Slopes are convex or undulating and are mostly less than 300 feet long. The surface layer and subsoil is the same as 60A or 60C. The water table is the same as 60A except runoff is rapid. This soil is poorly suited to cultivated crops because of the steep slopes. The erosion hazard is severe. Maintaining permanent vegetative cover is a suitable management practice to control runoff and erosion. This soil is fairly suited to commercial woodland production because it is droughty. Seedling mortality is high. Steep slopes hinder the use of some harvesting equipment. This soil is poorly suited to woodland and openland wildlife habitat because it is droughty. It is too dry for wetland wildlife habitat. This soil is poorly suited to community development. The main limitation is the steep slope. Onsite septic

systems pollute the groundwater in places. Steep slopes of excavation are unstable. Establishing quick plant cover and the use of mulch and siltation basins are suitable management practices to control runoff and erosion during construction.

#70A Merrimac sandy loam, 0 to 3 percent slopes.
#70B Merrimac sandy loam, 3 to 8 percent slopes. This nearly level, gently sloping somewhat excessively drained soil is on terraces and outwash plains of stream valleys. Areas are irregular in shape and mostly range from 5 to 70 acres. Slopes are smooth and convex and less than 200 feet long. Typically, the surface layer is dark brown sandy loam eight inches thick. The subsoil is yellowish brown sandy loam and loamy sand sixteen inches thick. The substratum is yellowish brown gravelly sand and stratified sand and gravel to a depth of 60 inches or more. The water table is commonly below a depth of six feet. The available water capacity is moderate. This soil has moderately rapid permeability in the surface layer and upper part of the subsoil, moderately rapid or rapid permeability in the lower part of the subsoil, and rapid permeability in the substratum. Runoff is slow to medium. The soil is extremely acid to medium acid. This soil is well suited to cultivated crops, but it tends to be droughty during extended dry periods. This soil has a moderate erosion hazard. It is easy to maintain in good tilth. The use of cover crops and minimum tillage are suitable management practices to control runoff and erosion. This soil is fairly suited to commercial woodland production. Droughtiness causes a moderate seedling mortality rate. This soil is fairly suited to woodland and openland wildlife habitat and it is limited mainly by droughtiness. This soil is too dry for wetland wildlife habitat. This soil is well suited to community development, but the rapid permeability of the substratum causes pollution of the groundwater in places. Steep slopes of excavations are unstable. Lawns and gardens need watering during the summer. Establishing quick plant cover and the use of mulch and siltation basins are suitable management practices to control runoff and erosion during construction.

#45B Ninigret fine sandy loam. This nearly level to gently sloping, moderately well drained soil is in slight depressions of stream terraces and outwash plains. Slopes range from 0 to 5 percent. Areas of this soil are irregular in shape and mostly range from 5 to 30 acres. Typically, the surface layer is very dark grayish brown fine sandy loam eight inches thick. The subsoil is mostly mottled yellowish brown and light olive brown fine sandy loam and is about seventeen inches thick. The substratum is yellowish brown and light olive brown sand to a depth of sixty inches or more. This soil has a seasonal water table at a depth of about twenty inches from fall to spring. The available water capacity is moderate. This soil has moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Runoff is slow to medium. The soil is very strongly acid to medium acid. This soil is well suited to cultivated crops. Wetness in early spring is the major limitation. This soil dries out and warms up slowly in the spring. The hazard of erosion is slight. Artificial drainage, minimum tillage, and the use of cover crops are suitable management practices. This soil is fairly suited to community development. It is limited mainly by a seasonal high water table. Steep slopes of excavations are unstable. Onsite septic systems need careful design and installation, and in places they pollute the groundwater. If suitable outlets are available, artificial drains can help prevent wet basements. Lawns are generally wet and soggy from late autumn until midspring. Establishing quick plant cover, mulching, and using siltation basins are suitable management practices during construction.

##455A Sudbury sandy loam. This nearly level to gently sloping, moderately well drained soil is in slight depressions of outwash plains and stream terraces. Areas are mostly oval or irregular in shape and range from 4 to 20 acres. Slopes range from 0 to 5 percent. Typically, the surface layer is dark brown sandy loam ten inches thick. The subsoil is mottled, yellowish brown and strong brown sandy loam, gravelly sandy loam and gravelly loamy sand eighteen inches thick. The substratum is light brownish gray and dark gray stratified sand and gravel to a depth of sixty inches or more. This soil has a seasonal water table at a depth of about twenty inches from autumn to spring. It has a moderate available water capacity. This soil has moderately rapid permeability in the surface layer and subsoil and rapid permeability in the substratum. Runoff is slow. This soil is very strongly acid to medium acid. This soil is well suited to cultivated crops. It is limited mainly by wetness and is slow to dry out and warm up in the spring. Artificial drainage helps dry this soil earlier in the spring, but even if drained, it remains wet for several days after heavy rains. Minimum tillage and use of cover crops are suitable management practices. This soil is fairly suited to community development. Wetness is the major limitation. Steep slopes of excavations are unstable. Foundation drains help prevent wet basements. Lawns are wet and soggy in autumn and spring. Onsite septic systems need special design and installation, and sites generally require filling. In places, onsite septic systems pollute the groundwater. Establishing quick plant cover and mulching are suitable management practices to control erosion.

*93 Carlisle muck. This nearly level, very poorly drained soil is in low depressions on outwash terraces and glacial till plains. Areas of this soil are mostly oval and range from 5 to 200 acres. These soils have slopes of 0 to 2 percent, but are mostly less than 1 percent. Typically, this soil is black, very dark brown, and dark reddish brown muck to a depth of 60 inches or more. The water table is at or near the surface during most of the year. The available water capacity is high. Permeability is moderately rapid. Runoff is very slow or the soil is ponded from autumn to spring and after heavy rains. The soil is very strongly acid to slightly acid. This soil is not suited to cultivated crops because it is wet most of the year. Most areas do not have drainage outlets, but drained areas can be used for crops. If the soil is cultivated, use of cover crops and maintaining a proper water table level is needed to help minimize subsidence and control wind erosion. These soils are generally not suited for community development because of wetness and the low strength of the organic material. Onsite septic systems cannot feasibly be used in this soil. If fill is placed on top of the organic layers, the fill will settle over a period of a few years.

*754 Scarboro fine sandy loam. This nearly level, very poorly drained soil is in low depressions of outwash plains and terraces. Areas are mostly irregular in shape and range from 3 to 25 acres. Slopes range from 0 to 2 percent. Typically, the surface layer is black muck four inches thick. The subsurface layer is very dark gray, black, and dark grayish brown fine sandy loam and sandy loam fourteen inches thick. The substratum is grayish brown loamy sand and sand to a depth of sixty inches or more. This soil has a seasonal water table at or near the surface from fall until late spring. It has a low available water capacity. This soil has rapid permeability in the surface layer and very rapid permeability in the subsoil and substratum. Runoff is slow or the soil is ponded. This soil is very strongly acid to medium acid. This soil is not suited

to cultivated crops because of wetness. Most areas do not have suitable drainage outlets. This soil is poorly suited to community development. Wetness is the major limitation. Extensive filling is needed in areas where this soil is used for community development. Steep slopes of excavations are unstable. This soil is poorly suited to recreation.

*823 Saco silt loam. This nearly level, very poorly drained soil is on low areas of floodplains along major streams and their tributaries. Areas are mostly long and narrow or irregular in shape and range from 10 to 150 acres. Slopes are 0 to 2 percent. Typically, the surface layer is black silt loam ten inches thick. The subsurface is mottled, black silt loam four inches thick. The substratum from fourteen to forty-one inches is mottled, dark gray silt loam and from forty-one to sixty inches or more is gray stratified sand and gravel. This soil has a water table at or near the surface during most of the year and is subject to frequent flooding. It has a high available water capacity. This soil has moderate permeability in the surface layer and the loamy part of the substratum, and rapid or very rapid permeability in the sandy substratum. Runoff is slow or ponded. The soil is strongly acid to medium acid above a depth of forty inches and medium acid to slightly acid below forty inches. Most areas are difficult to drain. Frequent flooding damages or destroys some crops. Wetness severely restricts the use of farming equipment. This soil is not suited to community development. It is limited mainly be wetness and flooding. Use of this soil for community development is not feasible unless the soil is extensively filled.

\# Prime Farmland
\## Additional Farmland of Statewide Importance
* Designated Wetland Soil by P.A. 155

Potash Brook and its immediately associated wetlands are underlain by unconsolidated stratified drift aquifers. Such areas are known or inferred to be capable of yielding moderate to very large amounts of water (50-2,000 gallons per minute) to wells. Although it is very unlikely that any residential development on the parcel would impair the groundwater near Potash Brook, awareness of this aquifer is important. Any future housing developed densely near the Brook, and/or elimination of the associate wetlands, by filling for example, could harm the groundwater aquifer.

The Flood Hazard Boundary Map prepared by the former HUD federal agency for the town of Windham shows where flood waters from a 100-year storm event would pond. Water could be expected to encroach on the southern boundary of the property, as well as flood across the property's mid-section over the large wetland. If access is ever planned to the higher flat land to the north, an appropriately sized culvert should be installed to allow for free flow of the small brook entering the wetland from the north.

The frontage on Tuckie Road, and opportunity to construct an interior road with two entrances from Tuckie Road, make residential development highly favorable. The open fields near the road frontage slope gently. Storm runoff could be controlled easily and erosion potential minimized. The open exposure of the fields to the south would be ideal for taking advantage of solar energy collection with some homes constructed. However, the prime soils, Merrimac (70A, 70B) and

Hinckley (60C), are poor soils for filtration of septic effluent (see soil limitations chart). The Hinckley is also droughty for shallow rooted lawn grasses.

The soils in the fields are well suited for agricultural purposes, and were apparently used for such in the past. Vegetables or nursery stock could be grown. If needed, irrigation would be possible by developing a small pond south of the fields. Silage corn could be grown, planting on the contour on the field sloping to the south. The two relatively flat fields above could be made one long field by removing a hedgerow. A grass-legume or straight legume (alfalfa) crop could be planted for pasture or hayland. A small orchard or vineyard could be planted. For any of the above uses, a minimum amount of land preparation work would be necessary. A few large conifers would have to be removed. The southern exposure and woodland protection on the north favor growing conditions for any crops. Since these fields are several miles distant from any dairy farmers in the area, it is not likely they will be in demand for growing silage corn. Their potential use for other agricultural uses as noted above should be considered. The property might be marketed by selling fairly large parcels, one of them inluding all the open field area.

WILDLIFE

The existing vegetation, i.e., scattered growth of conifers and deciduous shrubs provides habitat (food and cover) for wildlife. Raccoons, skunks, pheasants, and other small game undoubtedly use the area, as probably do deer because of seclusion from neighboring residential areas. There was evidence of ruffed grouse. Songbirds certainly use the area, particularly along the edges of the open fields and into wooded wetland portions. An occasional den tree was spotted. These provide wildlife homes. The wetlands, especially the one centrally located, is secluded from man's interference and would provide seasonal waterfowl habitat. Potash Brook provides an open water habitat for waterfowl species and fish. It is unlikely that development of the front portion of the property would seriously eliminate wildlife since most would retreat to other undisturbed open and wooded land nearby. The desirable edge or "ecotone" area (from open to wooded land) would still be retained. Domestic pets could, however, present competition.

It is notable that a stand of mature conifers is present on the central east side of the property. Timber-stand improvement could be performed in this area.

The wetlands are a resource to wildlife. Also a pond could be excavated if needed, or desired, for a multitude of purposes. These might include fire protection, fish habitat, swimming, irrigation, or aesthetic purposes.

VEGETATION

The property proposed for subdivision by the Northeast Connecticut Community Development Corporation may be divided into five vegetation types. These include mixed hardwoods, which total 57$\pm$ acres; hardwood swamp, which totals 22$\pm$ acres; pine stands, which total 12$\pm$ acres; an old field, 11$\pm$ acres and a softwood/hardwood stand which totals 3$\pm$ acres. Descriptions of these vegetation types follows:

Vegetation Descriptions:

Type A. (Mixed Hardwoods) Sapling to pole size white oak, black oak, scarlet oak, red maple and occasional bigtooth aspen and American beech are present in this 25± acre fully to overstocked stand. Many of the trees within this stand are beginning to decline in health, vigor and stability. This is especially apparent on the droughty hilltops where there is already much oak mortality. The understory throughout this stand is made up of witch-hazel, maple-leaved viburnum, American chestnut sprouts, white pine seedlings and green brier. Ground cover vegetation includes huckleberry, lowbush blueberry, sheep laurel, club moss, aster and Pennsylvania sedge.

Type B. (Mixed Hardwoods/Burned Area) Approximately 25 acres of this tract was burned over within the last ten years. At present this area is fully stocked with a dense cover of seedling to sapling size white oak, black oak and scarlet oak. Fire damaged, small sawtimber size white oak and black oak are widely scattered throughout this area. Occasional patches of highbush blueberry, huckleberry, lowbush blueberry and green brier are present. Club moss, Pennsylvania sedge and bracken fern are the dominant forms of ground cover vegetation in this area.

Type C. (Hardwood Swamp) Poor quality sapling to pole size red maple, white pine and scattered yellow birch and white ash are present in this 22± acre overstocked stand. Highbush blueberry and spice bush dominate the understory in this area. Ground cover and herbaceous vegetation include golden thread, swamp dewberry, club moss, cinnamon fern, sensitive fern, tussock sedge and skunk cabbage. Several small open swamp areas are present within this area. Button bush, winterberry, swamp loosestrife, tussock sedge and marsh fern are present in these areas which are located on the vegetation type map.

Type D. (Pine) Pole to sawtimber size eastern white pine dominate this 12± acre fully-stocked stand. White oak, black oak, red maple and occasional pitch pine are also present. Understory species include white pine seedlings, hardwood tree seedlings, maple-leaved viburnum, nanny berry, hazelnut, highbush blueberry, and witch-hazel. Ground cover includes huckleberry, sheep laurel, club moss, striped pipsissewa, aster and cinnamon fern. The trees which are present within this stand are healthy at this time, however, their health could be re-evaluated in approximately ten years.

Type E. (Old Field) This 11± acre old field area is under-stocked with widely scattered sapling to pole size eastern white pine, eastern red cedar, pitch pine, black cherry, gray birch and bigtooth aspen. The shrub species which are present include maleberry, bayberry, sweet fern, smooth sumac, gray-stemmed dogwood and multiflora rose. Grasses, goldenrod, milkweed, Queen Ann's lace, black-eyed-Susan, raspberry, dewberry, common mullein, ragweed, reindeer lichen and haircap moss are common throughout this area.

Type F. (Mixed Hardwoods) Pole to small sawtimber size red maple and eastern white pine dominate this 4± acre fully-stocked stand. Spice bush, sweet pepperbush, white pine seedlings, highbush blueberry, maple-leaved viburnum, arrowwood and swamp azalea are present in the understory. Ground cover is made up of club moss, sheep laurel, Christmas fern, cinnamon fern, evergreen wood fern, and royal fern with skunk cabbage and tussock sedge in the poorly drained depression which are common throughout this stand.

Vegetation

Site Boundary

0 660' scale

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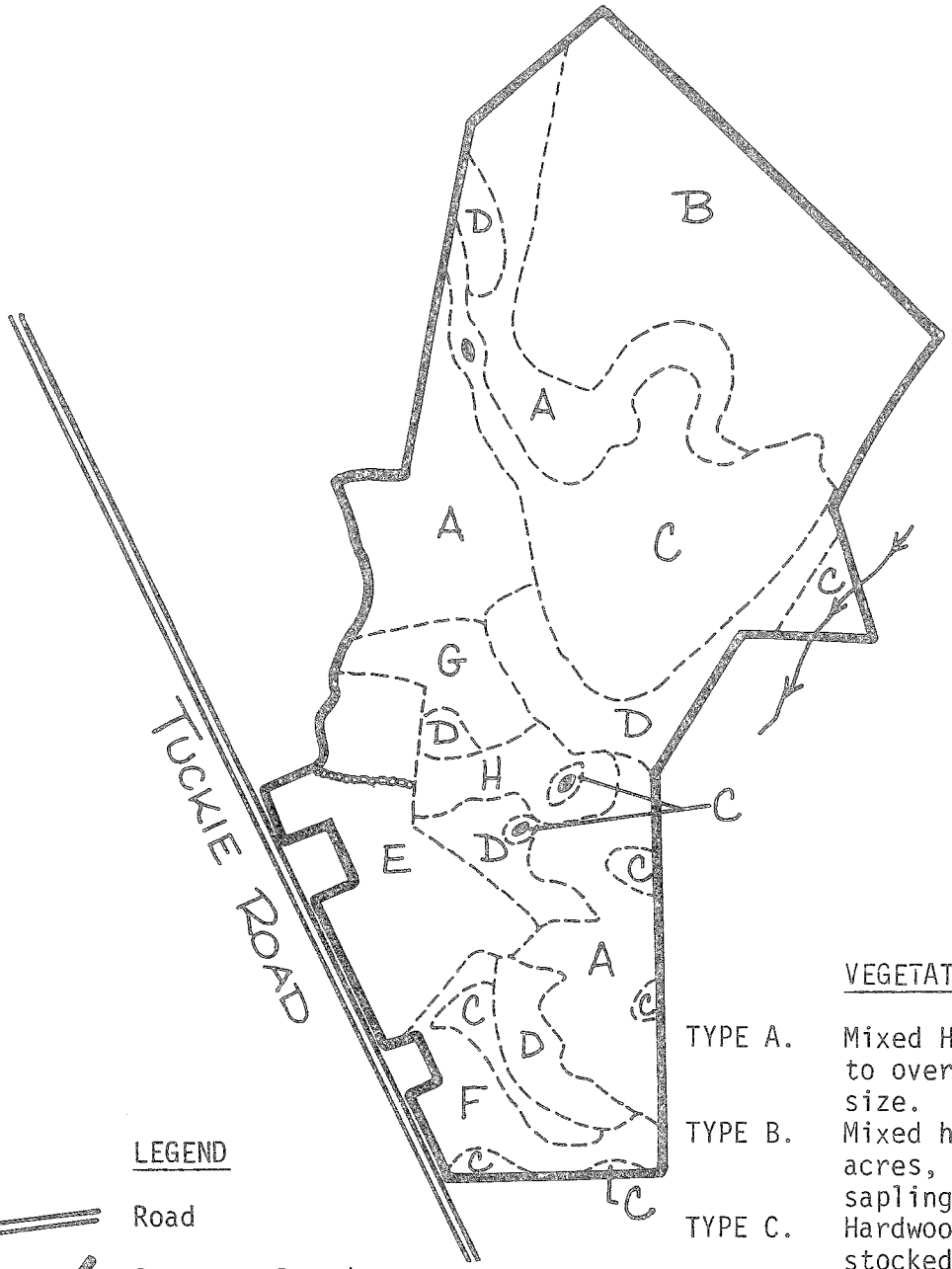


LEGEND

- Road
- Property Boundary
- Vegetation Type Boundary
- Stream
- Stonewall
- Open Wetland Areas

VEGETATION TYPE DESCRIPTIONS*

TYPE A. Mixed Hardwoods, 25±acres, fully to over-stocked, sapling to pole-size.

TYPE B. Mixed hardwoods/burned area, 25± acres, fully-stocked, seedling to sapling-size.

TYPE C. Hardwood swamp, 22±acres, over-stocked, sapling to pole-size.

TYPE D. Pine, 12±acres, fully-stocked, pole to sawtimber-size.

TYPE E. Old Field, 11±acres, under-stocked, sapling to pole-size.

TYPE F. Mixed hardwoods, 4±acres, fully-stocked, pole to sawtimber-size.

TYPE G. Softwoods/hardwoods, 3±acres, fully-stocked, sapling to pole-size.

TYPE H. Mixed hardwoods, 3±acres, over-stocked, pole-size.

* Seedling-size = Trees less than 1 inch in diameter at 4 1/2 feet above the ground (d.b.h.)
Sapling-size = Trees 1 to 5 inches in d.b.h.
Pole-size = Trees 5 to 11 inches in d.b.h.
Sawtimber-size = Trees 11 inches and greater in d.b.h.

Type G. (Softwoods/Hardwoods) This 3± acre fully-stocked stand is made up of sapling to pole size red maple, white oak, and eastern white pine which are beginning to become crowded. Witch-hazel, blue beech, gray birch and white pine seedlings form the understory in this area. Ground cover consists of green brier, poison ivy, club moss, sheep laurel, huckleberry, Pennsylvania sedge, striped pipsissewa and pinesap.

Type H. (Mixed Hardwoods) Extremely poor quality pole size red maple, black cherry and bigtooth aspen are present in this 3± acre over-stocked stand. Staghorn sumac, smooth sumac, apple trees, multiflora rose, barberry and hawthorn are conspicuously present along the small gravel road which passes through this area. Grasses, dewberry, gill-over-the ground, club moss, aster, evergreen woodfern and Christmas fern are common.

Many of the larger healthy trees which are scattered throughout this property have high aesthetic and shade value. This is especially true of the eastern white pine which are present in Vegetation Types D, E, F and G. These large trees should be retained to the greatest extent possible. Recent research has shown that trees on a house lot may enhance the value of that lot by as much as twenty percent.

Trees are very sensitive to the condition of the soil within the entire area under their crowns. Development practices near trees such as excavating, filling and grading for construction of roadways and buildings may disturb the balance between soil aeration, soil moisture level and soil composition. These disturbances may cause a decline in tree health and vigor, potentially resulting in tree mortality within three to five years. Mechanical injury to trees may cause the same results. Dead trees reduce the aesthetic quality of an area and may become hazardous and expensive to remove if near roadways, buildings or utility lines.

Care should be taken during the construction period not to disturb the trees that are to be retained. In general, healthy and high vigor trees should be favorded over unhealthy trees because they are usually more resistant to the environmental stresses brought about by construction.

Where feasible, trees should be saved in small groups or "islands." This practice lowers the possibility of soil disturbance and mechanical injury. Individual trees and "islands" of trees should be temporarily, but clearly, marked so they may be avoided during construction.

The deep soils which are present on the knolls within Vegetation Type A are excessively drained. Their low moisture holding capacity coupled with drought conditions causes the trees which are present to be under considerable stress. This stressed condition leaves trees more susceptible to further degradation by insects and diseases. These conditions have caused the high rate of mortality found on these knolls. Periodic improvement thinnings that reduce competition for water should help to reduce future mortality in these areas.

The very poorly drained soils present within the hardwood swamp area (Vegetation Type C) limit vegetation growth to species that are able to tolerate excessive moisture conditions. The red maple and occasional yellow birch and white ash that are able to survive in the hardwood swamp areas are generally slow growing, shallow rooted and of poor quality. These limitations are more

critical in the small open swamp areas where tree species are unable to become established and survive at present. These areas have little value for timber production, however, under centain conditions, a limited quantity of fuelwood could be harvested.

The loss of trees due to windthrow is a potential hazard in the hardwood swamp (Vegetation Type C) and parts of the mixed hardwood stand (Vegetation Type F). In these areas, the soils are saturated with water for the greater part of the year causing soil aeration to be poor. These conditions result in unstable, shallow root systems which are unable to securely anchor trees. The potential for windthrow and top damage is intensified by the crowded condition of the trees in the hardwood swamp areas. It should be noted that any clearings made in or along side these areas will increase the windthrow hazard by allowing wind to pass through rather than over these areas. If possible, any clearing of vegetation in these areas should be avoided or kept to a minimum.

Management Considerations

Trees which are unhealthy and not growing vigorously due to crowded conditions are more susceptible to further degradation from environmental stresses brought about by development, disease and insect infestation and adverse weather conditions. Improvement thinnings, which remove undesirable trees and reduce competition for space, sunlight, nutrients and water between the higher quality residual trees will over time allow trees to improve in health, vigor and stability. These thinnings when implemented properly can improve the aesthetic value of an area, improve tree health and vigor, improve wildlife conditions and provide wood products.

The trees which are present in Vegetation Types A, C, G and F are declining in health and vigor as a result of their crowded condition. Under these circumstances, the trees are under stress, and major disturbances in their environment, such as changes in soil conditions and mechanical injury caused by construction in these areas, may rapidly lower their health. Fuelwood thinnings in these stands, following the "crop tree selection method" (preferably prior to construction) would help to reduce the crowded condition and improve tree health and vigor over time. Thinnings in areas such as the hardwood swamp where windthrow is a potential hazard shall be kept light and only implemented when the ground is sufficiently frozen or dry so as not to cause permanent soil damage.

Under the "crop tree selection method," 100 of the highest quality trees in each acre should be identified (trees spaced about 20' by 20' will equal 100 trees per acre), and one, two, or three trees that are in direct competition with each of those identified should be removed. The 100 trees per acre that are selected as crop trees should be healthy, large crowned, and show little or no signs of damage. Trees which are not competing with the 100 selected trees should not be removed, unless they are severely damaged or dead. These thinnings, if implemented, will provide between five and six cords of fuelwood per acre from Vegetation Type A and between four and five cords of fuelwood per acre from Vegetation Types C, G, and H.

The large fire damaged trees which are scattered throughout Vegetation Type B could be removed and utilized as fuelwood. Their removal will benefit the residual trees once again by reducing competition.

All suitable trees that are removed for the development of the property should be utilized as fuelwood, regardless of proposed thinning implementation.

A public service forester or private forester should be contacted to help with the implementation of the suggested thinnings. Trees that are to be removed should be marked so that the trees that are to be retained are not removed by mistake.

WATER SUPPLY

Potable water supply for the proposed development would be provided by on site wells as public water is not available in the general area. Where both on site water supplies and sewage disposal systems are to be developed, it has generally been recognized that lot sizes should be a minimum of one acre. In addition to having sufficient acreage, the type and placement of individual wells will also contribute to their overall protection and reliability. In general, wells should be located towards the high side of any lot, in a direction which would be away from the normally expected flow of contaminants such as from a subsurface sewage disposal leaching system. Drilled wells, property constructed, will usually provide a greater degree of protection of the water source and also be more reliable during periods of low rainfall or drought conditions. Protection of the ground water would be particularly important as it is noted that much of the property consists of soils that would have very rapid percolation. These conditions can affect the natural filtration and renovation of leach field effluent as it moves vertically and/or laterally. However, the greatest concern would be in areas where very permeable soils overlay shallow bedrock. Once effluent or other potential sources of pollution gain entrance to any bedrock cracks or seams, little or no additional treatment is received and the material may move for a considerable distance.

In view of the apparent coarse-grained nature of the stratified drift on the site, it seems likely that adequate yields for individual residences could be obtained from relatively shallow wells (less than 50 feet deep). Wells drilled into bedrock would also probably produce adequate yields, but these wells would be more expensive to establish and they would be likely to have smaller yields than the wells placed in the stratified drift. On the other hand, wells tapping the bedrock aquifer would be less exposed to potential contamination from the residential septic systems.

Since one of the objects of the developers is to minimize construction costs in order to allow low-income housing to be provided on the site, the shallower wells (i.e., tapping the stratified-drift aquifer) would be more desirable. Assuming that such wells will afford sufficient yields, efforts should be made to protect the wells from septic-system effluent. Large separating distances would be one method, but the ability to provide such distances will be affected by the ultimate geometry of the subdivision. If large enough yields can be derived from the stratified drift, perhaps a community well supply could be used. Although the required separating distances from potential sources of pollution

would be greater than individual wells and the cost of developing and installing such a system would, no doubt, be more, it would allow more flexibility as to individual lots and the possible placement of houses and sewage disposal systems. The Water Supplies Section of the State Department of Health Services should be contacted regarding such a supply.

WASTE DISPOSAL

As municipal sewers are not available in this area, the development would be served by on site sewage disposal systems. Based on soil mapping data and visual observations, it appears that in general the area would be favorable for subsurface sewage disposal. Exceptions would be wetlands or areas close to wetlands and subject to high seasonal ground water conditions. Also some of the terrain off Larrow Road would seem to have more slope and rock conditions which would impose limitations.

As previously noted, most of the soils are classified as being sand and/or gravel and as such should have good seepage although it may tend to be excessively rapid. Therefore, in terms of filtration and renovation of sewage, it would be important to have sufficient soil depth maintained between the bottom of a leaching system and bedrock. Also, a depth of unsaturated soil immediately beneath the system is also necessary. Public Health Code requirements require minimum separating distances of 4 and 1 1/2 feet respectively for the above.

Considering the quantity of sewage discharged by a single family residence to a one acre lot, there should be no associated water quality problems provided adequate separation distance(s) is provided and the system is properly designed and installed.

On site testing of the 65 acres should be undertaken to more accurately determine seepage rates and observations for ground water and ledge. Preliminary lot layout plans should also be prepared.

PLANNING CONCERNS

Zoning Compliance

The area for which the development is proposed is zoned Residence (R-3) District. Among the permitted uses allowed in the R-3 District are one and two-dwelling residential buildings. The minimum lot size per residential dwelling is 40,000 square feet with 125 feet or more of frontage on a street. Based on the proposal as of November 23, 1981, the proposed project is in full accord with Town of Windham Zoning Regulations.

Development Pressure

Development is occurring in the area of Tuckie Road and will continue in the future. However, development pressures are not in excess of pressures being experienced elsewhere in the Town of Windham or in other towns in the area. A Considerable amount of developable land exists in the area. In no way can it

be said that developing the parcel of land in question is important to meeting the housing needs of the Town of Windham or Region.

Traffic Conditions

The addition of twenty or so dwelling units on Tuckie Road would not significantly alter total traffic loads or their distribution during peak load periods. There are traffic problems on Tuckie Road, largely as a result of people using the road as a shortcut from the area of Windham Center and points east to I-84 and points to the west. The problem is not of a magnitude to raise questions about the desirability of the proposed development.

Allocation of Subsidized Housing Within the Windham Region

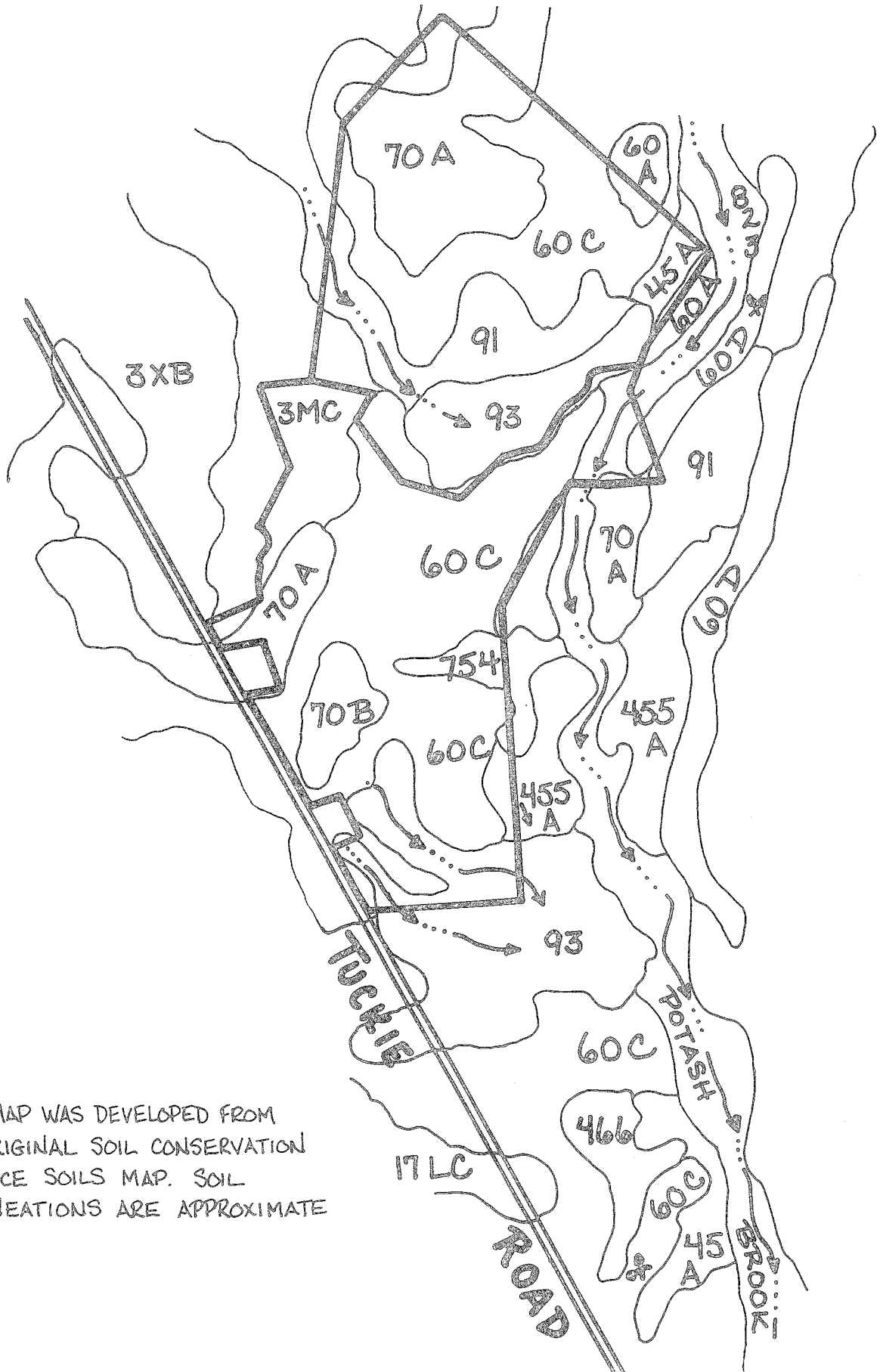
The Windham Regional Planning Agency's Housing Allocation Plan of 1978 assigns a three-year "fair share" of 58 home ownership units to the Town of Windham. It would be necessary to query the Farmers Home Administration and the Connecticut Housing Finance Authority, the only two entities which have been providing subsidized mortgages in recent years, to determine whether Windham has exceeded this figure.

Appendix

Soils

Site Boundary

0 660'
scale



THIS MAP WAS DEVELOPED FROM AN ORIGINAL SOIL CONSERVATION SERVICE SOILS MAP. SOIL DELINEATIONS ARE APPROXIMATE

United States Department of Agriculture
Soil Conservation Service
Agricultural Center
Brooklyn, Connecticut
06234

774-0224

Assisting the Windham County Soil and Water Conservation District

SOILS

3XB Canton & Charlton very stony fine sandy loams, 3 to 8 percent slopes.
3MC Canton & Charlton extremely stony fine sandy loams, 3 to 15 percent slopes.

#60A Hinckley gravelly sandy loam, 0 to 3 percent slopes.
##60C Hinckley gravelly sandy loam, 3 to 15 percent slopes.
60D Hinckley gravelly sandy loam, 15 to 40 percent slopes.

#70A Merrimac sandy loam, 0 to 3 percent slopes.
#70B Merrimac sandy loam, 3 to 8 percent slopes.

#45B Ninigret fine sandy loam.

#455A Sudbury sandy loam.

*91 Adrian and Palms mucks.

*93 Carlisle muck.

*754 Scarboro fine sandy loam.

*823 Saco silt loam.

Prime Farmland
Additional Farmland of Statewide Importance
* Designated wetland soil by P.A. 155

Schmitt Property

Tuckie Road

Windham, Conn.

Principal Limitations and Ratings of Soils For

COMMUNITY DEVELOPMENT

Soil Symbol and Series	Houses with Basements	Local Streets	Septic Tank Absorption Fields	Lawns and Landscaping	Drainage
3XB Canton	Slight	Slight	Slight	Moderate, large stones	Deep to water
Charlton	Slight	Slight	Slight	Moderate, large stones	Deep to water
3MC Canton	Moderate, slope	Moderate, slope	Moderate, slope	Moderate, slope, large stones	Deep to water
Charlton	Moderate, slope	Moderate, slope	Moderate, slope	Moderate, slope, large stones	Deep to water
#60A Hinckley	Moderate, large stones	Moderate, large stones	Severe, poor filter	Severe, small stones	Deep to water
##60C Hinckley	Moderate, slope, large stones	Moderate, slope, large stones	Severe, poor filter	Severe, small stones	Deep to water
60D Hinckley	Severe, slope	Severe, slope	Severe, slope, poor filter	Severe, small stones, slope	Deep to water
#70A Merrimac	Slight	Slight	Severe, poor filter	Slight	Deep to water
#70B Merrimac	Slight	Slight	Severe, poor filter	Slight	Deep to water

Schmitt Property

Tuckie Road

Windham, Conn.

Principal Limitations and Ratings of Soils For

COMMUNITY DEVELOPMENT

Soil Symbol and Series	Houses with Basements	Local Streets	Septic Tank Abosrption Fields	Lawns and Landscaping	Drainage
#45B Ninigret	Severe,wetness	Moderate,frost action,wetness	Severe,wetness, poor filter	Moderate,wetness	Cutbanks cave
#455B Sudbury	Severe,wetness	Moderate,wetness, frost action	Severe,wetness, poor filter	Slight	Cutbanks cave
*91 Adrian	Severe,ponding	Severe,ponding, low strength, frost action	Severe,ponding, poor filter	Severe,excess humus,ponding	Ponding, frost action subsides
Palms	Severe,ponding, low strength, flooding	Severe,ponding, flooding,frost action	Severe,flooding, subsides,ponding	Severe,ponding, flooding, excess humus	Flooding, ponding, subsides
*93 Carlisle	Severe,ponding, low strength, flooding	Severe,low strength,ponding, flooding	Severe,flooding, ponding	Severe,excess humus,ponding, flooding	Subsides, flooding, frost action
*754 Scarboro	Severe,ponding	Severe,ponding, frost action	Severe,ponding, poor filter	Severe,ponding, excess humus	Cutbanks cave,frost action
*823 Saco	Severe,flooding, wetness	Severe,flooding, wetness,frost action	Severe,flooding, wetness,poor filter	Severe,flooding, wetness	Flooding, frost action, cutbanks cave

\# Prime Farmland
Additional Farmland of Statewide Importance
* Designated wetland soil by P.A. 155

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.