Fred P. Wolfe Park

Orange, Connecticut

KING'S MARK ENVIRONMENTAL REVIEW TEAM REPORT

King's Mark Resource Conservation and Development Area, Inc.

Fred P. Wolfe Park

Orange

Connecticut

Environmental
Review Team Report

Prepared by the
King's Mark
Environmental Review Team
of the King's Mark Resource Conservation
and Development Area, Inc.

for the
First Selectman
Orange, Connecticut

March 1997

CT Environmental Review Teams
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ACKNOWLEDGMENTS

This report is an outgrowth of a request from the Orange First Selectman to the New Haven County Soil and Water Conservation District (SWCD). The SWCD referred this request to the King's Mark Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the King's Mark Environmental Review Team (ERT).

The King's Mark Environmental Review Team Coordinator, Elaine Sych, would like to thank and gratefully acknowledge the following Team members whose professionalism and expertise were invaluable to the completion of this report.

The field review took place on Wednesday, December 4, 1996.

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I would also like to thank Skip Clark, chairman of the Wolfe Park Committee, John Cifarelli, Roy Smith and Denise Mirto, members of the Wolfe Park Committee, Edmund Tucker of the Orange Land Trust, Paul Ode of the conservation commission, town staff and interested residents for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given additional information. Following the review, reports from each Team member were submitted to the ERT coordinator for compilation and editing into this final report.

This report represents the Team's findings. It is not meant to compete with private consultants by providing site plans or detailed solutions to development problems. The Team does not recommend what final action should be taken on a

proposed project - all final decisions rest with the Town. 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 Town. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The King's Mark RC&D Executive Council hopes you will find this report of value and assistance in developing your plans for Wolfe Park.

If you require additional information please contact:

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BRIEF SUMMARY OF MAJOR POINTS BY SECTION

Geology

- There should be no geologic limitations to development of the site for recreation fields. Unless major foundations are planned the nature of the bedrock geology will have little bearing on the development plans.

Soil Resources

The soils on the site consist of Adrian, Agawam, Charlton, Ninigret, Raypol and Ridgebury soil types. These soils range from inland wetland soils with high water tables to soils that are well suited to urban development. Specific limitations and soil suitabilities are listed in Appendix A.

- Additional drainage may be needed to keep ballfields dry and a seed mix of 150 pounds per acre of tall fescue is recommended.
- Trails should be kept away from wet areas and a riparian buffer zone should be maintained along sensitive areas to protect water quality and animal habitat.
- Water quality issues from parking areas need to be considered. A stormwater management plan should be developed that controls runoff, salts and other contaminants.
- Erosion control should be practiced on the active farmland and a cover crop should be maintained to prevent soil loss and to protect water quality.
- A residential buffer zone is recommended.

Wetland Resources

- Wetland resources on or adjacent to the site include swamp, marsh, ponds, pools and brooks that can be grouped into two primary systems. One is found on the east side of the property and the other is on the west.
- The western system has been previously disturbed as a result of pond construction, channelization and fill placement for the completion of Oakview Drive and Hollow Road. The southernmost portion of this system exhibits some characteristics of a vernal pool. Vernal pools are significant because there is the possibility that rare and endangered wildlife can be found in these pools.
- The northeast corner of the property contains a diverse assemblage of all primary categories of fresh water wetlands.
- Opposite Forest Road a drainage ditch was observed that drains stormwater off the cornfields and directly into an unnamed watercourse

that is resulting in an excessive amount of sediment being deposited into this watercourse. There are two other locations of excessive sediment entry into wetland areas shown on the map of wetland and watercourses.

- The southeast corner of the property contains a small area of forested wetlands and exhibits some characteristics of a vernal pool.
- The wetlands described above possess a high value in the category of stormwater storage and flood prevention. They also possess a higher than normal value as wildlife habitat and have educational value for "outdoor classroom opportunities."
- Depending on the scope of development proposed there could be direct and indirect impacts to wetland resources such as wildlife habitat degradation, excessive erosion and sedimentation, and introduction of excessive nutrients to watercourses.
- To avoid impacts to the valuable southeast wetland area access from this area should be avoided.
- An undisturbed buffer area at least 100 feet wide around all wetlands and watercourses should be maintained.
- A certified erosion and sedimentation control plan should be developed as part of any development plans.
- Stormwater quality Best Management Practices (BMP's) should be included for parking lot design and for any stormwater management necessary for the ballfields.
- Minimal use of pesticides should be encouraged and Integrated Pest Management (IPM) Techniques used.
- Proper erosion and sedimentation techniques should be applied to the cornfields as soon as possible, starting with the elimination of the drainage ditch on the eastern boundary opposite Forest Road.

On-Site Subsurface Sewage Disposal

- It appears that the upland portions of the site are suitable for subsurface sewage disposal purposes and that there should be no major restrictions placed on Town options relative to sewage disposal issues.
- Toilet facilities should be provided unless the site is to be used for open space with minimum pedestrian traffic.
- Toilet facilities should be housed in permanent facilities than can have access restricted by the town.
- In accordance with the Public Health Code water should be supplied to any toilet facility and a municipal water supply shall be provided if located within 200 feet of the subject property.
- Sizing of the leaching fields shall be determined by soil testing and by establishing patron loading for the recreational complex. This process should be a coordinated effort between the design engineer and the Orange Health Department.

The Natural Diversity Data Base

- There are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site.

Vegetation

- This site has excellent potential for active and passive recreation.
- The vegetation on the site can be divided into five categories: abandoned orchard; agricultural fields; mixed hardwoods; old field/open field and hardwood swamp/inland wetland.
- Abandoned Orchard - these trees are in poor condition and a few specimens could be rejuvenated but the majority of them are too far gone. There is a fact sheet in Appendix B on apple tree rejuvenation. Multiflora rose has made access to this portion of the site very difficult.
- Agricultural Fields - these are the areas most easily converted to ballfields.
- Mixed Hardwoods - This vegetation class is generally healthy and contains a large variety of trees and plants. Vine species should be controlled for young hardwoods to develop properly.
- Old field/open field - this contains tree and shrub species and some areas have been kept open by unauthorized recreational vehicle use.
- The access with the least environmental impact is from Peck Lane off of Meetinghouse Lane, the southeast access of Peck Lane would have a major impact on the wetlands in that area.
- The property provides excellent habitat for wildlife and many opportunities for educational use.
- Creating trails through the property will be difficult where the multiflora rose has become quite dense.

Wildlife Resources

- The property can be divided into five areas for a discussion of wildlife habitat - open/cultivated field; abandoned orchard; wetland/vernal pool; hedgerow/stonewall and mixed hardwood forest.
- Open/Cultivated Fields - used by white tailed deer, wild turkey, woodchucks, cottontails; red fox; Eastern coyote, American crow, European starling and the house sparrow. These areas are of limited value due to their lack of vegetative diversity.
- Abandoned Orchard - provides a unique habitat of dense woody vegetation which is very valuable for wildlife since this habitat is regionally in decline in Connecticut.
- Wetland/Vernal Pool - these areas are valuable for primary habitat or seasonal use and the vernal pools provide a unique habitat, especially for some amphibians.

- Hedgerows/Stonewalls - these areas are valuable to wildlife as cover and linkages between agricultural fields, development and other habitat areas. These areas are more valuable if left unmaintained, rather than cleared and park-like.
- Mixed Hardwood Forest - in some parts of the forest the understory plants are experiencing deer browsing which may lead to a plant diversity decline. Plant diversity and structural diversity are important to the health of a forest ecosystem and maintaining wildlife diversity.
- If development of soccer fields occurs it would be best to place them in the cultivated field areas rather than in the forested areas of the parcel. The use of the soccer fields by wildlife will be limited, but not much different from its current use as cultivated fields. There may be an increase in use of the fields by Canada geese for grazing.
- The use of Peck Lane off of Meetinghouse Lane would create less impact to wildlife than constructing a new road through the wetland and forest from the Peck Lane southern access.
- Maintaining maximum forest size is something that the Town should strive for because as forest size decreases the quality of the forest for wildlife habitat decreases.
- Maintaining wider forest widths also helps to attenuate sound and can act as a buffer from adjacent neighbors.
- Technical assistance from the Team wildlife biologist is available when plans become more specific.

Archaeological and Historical Sensitivity

- There are no known prehistoric archaeological sites in the project area.
- The Park is located within the Orange Center Historic District which is listed on the National Register of Historic Places.
- The State Historic Preservation Office strongly encourages the development of the site with uses that are compatible with the historic residential character of the town center.
- An effort should be made to retain stonewalls and mature trees.

State Park Planner Comments

- The active agricultural land presents few if any obstacles to development.
- Town officials and citizens alike seem to favor development of ballfields in the park rather than total dedication for passive recreation making it a community priority.
- The Park is well-suited to become a focal point for the community with its location near the center of town.
- Access should involve one vehicular access point with possible provision of an emergency access. The recommended location for access is Peck Lane

off of Meetinghouse Lane. The road should be widened to the park entry point and gated and locked at night.

- The ballfields should be located in the northern field and later the more southern field as needed.
- A sufficient special buffer should be provided to limit the impact on Hemlock Lane residents which might include an earthen berm topped with evergreen plantings.
- Other areas of the site could provide passive open space for wildlife habitat, and hiking/nature trails. Some vegetation management for the apple orchard should be considered.

Land Use Planning Considerations

- The agricultural fields in the northern section of the property seem the best suited for the ballfield development.
- The most practical access to the property appears to be from Peck Lane off of Meetinghouse Lane.
- A buffer area created with a berm and evergreen plantings could be constructed near the entrance and around the perimeter of the ballfields to buffer Hemlock Drive residents.
- There appears to be ample room to construct parking (natural/gravel) and turn-around areas.
- A future long term improvement municipal project could include providing pedestrian/bike access via sidewalks, multi-use trails or roadway shoulders from the Community Center and Town Hall.
- The Town committees involved with this project may wish to consider conducting a townwide survey to determine the citizens recreational needs and preferences to better gauge public support for the funding necessary for any infrastructure improvements needed. The South Central Council of Governments may be able to assist with a survey of other effective municipal recreation strategies.
- Development of the site should take place in a phased sequential manner based on the immediate needs of the community.
- Professional design and engineering firms would be able to create compatible design plans for various configurations but for a low cost alternative the Committee may want to investigate whether any graduate schools in the area may be willing to take on the conceptual site plan design as a student project.

INTRODUCTION

Introduction

The First Selectman of Orange and the Wolfe Park Committee has requested assistance from the King's Mark Environmental Review Team in conducting a natural resource inventory and environmental review of the town owned Wolfe Park Property.

The 67.68 acre parcel is known as Fred P. Wolfe Park and was purchased by the town for open space and recreation use. It is centrally located in the community between Ridge Road and Orange Center Road (Route 152). The site contains agricultural fields, abandoned apple orchards, woods and some wetlands. Surrounding land use is residential. The agricultural fields are currently being farmed for corn.

The Town is preparing a plan of use for the property and would like to develop plans that would have minimal impact on the immediate and surrounding environment while meeting the needs of the community. At this time there is a vital need for soccer fields to accommodate a growing youth soccer program, and an interest in possible nature trails, walking/jogging trails and other ballfield development.

Also requested was information on appropriate passive and active recreation development, especially with regard to soccer fields.

Objectives of the ERT Study

The ERT review will help to evaluate existing information on the site, provide a natural resource inventory, highlight special features of educational or noteworthy value, and discuss special considerations for layout, design, access and management.

This information will assist in determining the scope, optimal location(s) and overall development potential of the site. Specific concerns addressed include: access and egress; sewage disposal, wildlife habitat and impacts; development limitations; land use and site design; and active and passive recreation potential.

The ERT Process

Through the efforts of the Orange First Selectman and the Wolfe Park Committee this environmental review and report was prepared for the Town of Orange.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the Town. Team members were able to review maps and supporting documentation provided by the applicant.

The review process consisted of four phases:

1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on December 4, 1996. The emphasis of the field review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

Once Team members had assimilated an adequate data base, they were able to analyze and interpret their findings. Individual Team members then prepared and submitted their reports to the ERT coordinator for compilation into this final ERT report.

Figure 1

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Location and Topographic Map

Scale 1" = 2000'

——— Approximate Site

Figure 2

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Property Map

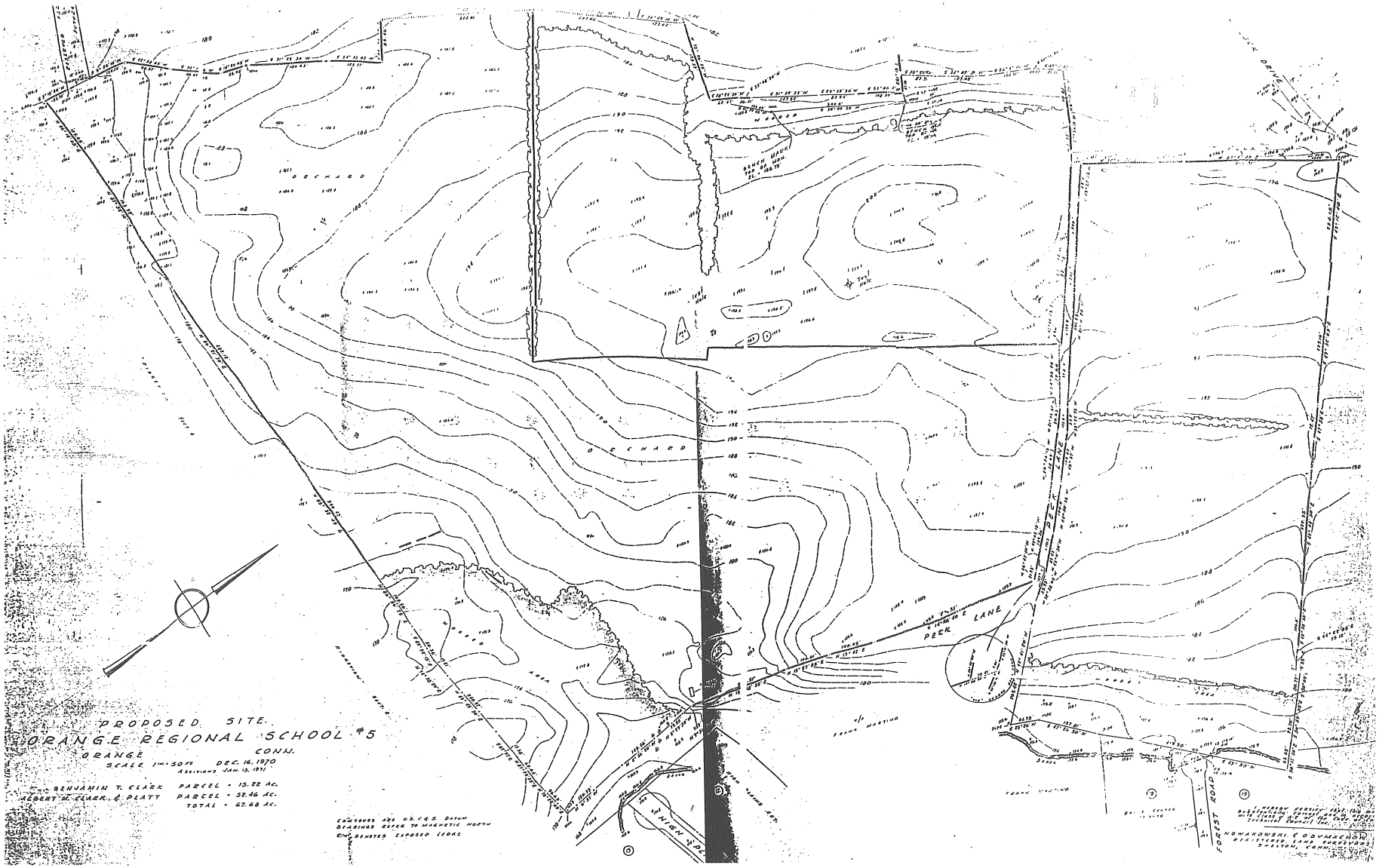
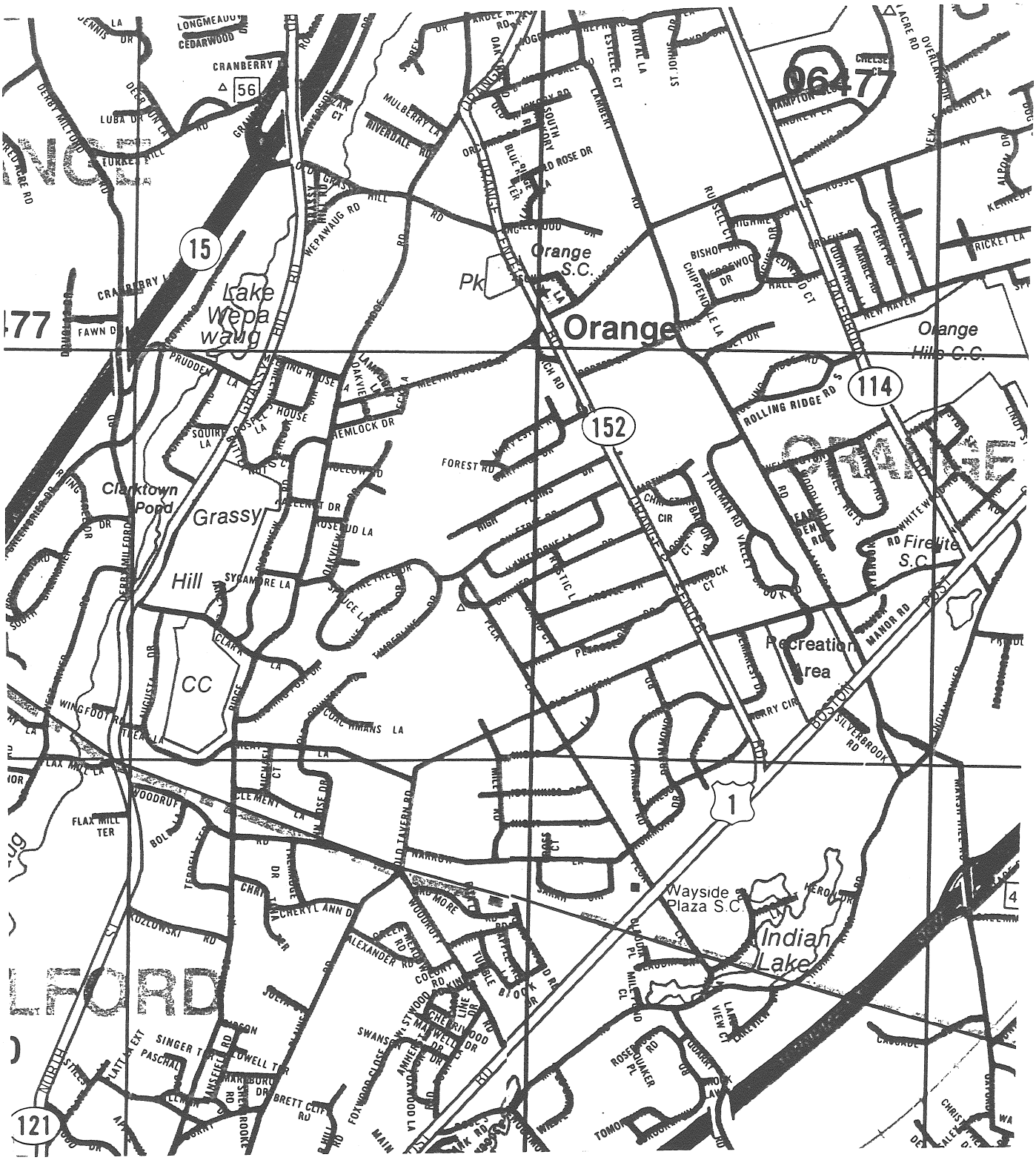


Figure 3

Road Map



GEOLOGY

The Fred P. Wolfe Park straddles a smooth streamlined 4000 x 2000 foot NNE-SSW trending elliptical rise. Slopes are gentle as the crest of the hill is only 30 feet above the surrounding terrain. Bedrock is not exposed on the site which is covered by at least 20 to 30 feet of compact glacial till. The till is fine grained and relatively impermeable as it is made up principally of clay, silt and sand-sized particles. Angular boulders and rock fragments are conspicuously less abundant at this site than in the average Connecticut till. Only a few twelve inch boulders are scattered over the plowed surface and the stone walls seem out of proportion to the fields they bound.

According to the published geologic map of the Ansonia Quadrangle (USGS GQ-426), the bedrock beneath the till blanket is the Devonian age (400 million years old) Wepawaug Schist. Where exposed, 500 feet NE of the site, the schist is a quartz-feldspar-mica-chlorite "phyllite" with a well developed NNE trending, near vertical foliation. As pyrite, the iron sulfide is a minor but ubiquitous mineral. The groundwater in the area might be somewhat acid and iron rich (from the weathering and oxidation of sulfides). The wetland on the western flank of the property is inferred to follow the course of the Mixville fault, an extension of the western border fault bounding the Mesozoic (200 million years old) sediments of the Hartford basin. Although the fault has long been inactive it is a zone of highly fractured rocks which might act as a high yield bedrock aquifer. Another feature of geologic note is the presence of three short Mesozoic diabase (trap rock) dikes a few thousand feet north of the site. A similar dike of massive trap rock might lie concealed beneath the till along the crest of the hill on the Wolfe Park property. Unless major foundation excavations are planned the actual nature of the bedrock on the site would have little bearing on any development plans.

References

Flint, R. F. 1967. **Surficial Geologic Map of the Ansonia Quadrangle. Connecticut Geologic and Natural History Survey**, Quadrangle Report QR-23.

Fritts, C. E. 1965. **Bedrock Geologic Map of the Ansonia Quadrangle.** United States Geologic Survey Geological Quadrangle GQ-426.

Terminology

Till - unconsolidated sediment deposited directly by a glacier without reworking by meltwater, and consisting of a mixture of clay, silt, sand, gravel and boulders ranging widely in size and shape.

Phyllite - a metamorphic rock intermediate in grade between slate and schist. Minute crystals of white mica and chlorite impart a silky sheen to the cleavage surfaces, which are commonly wrinkled.

Foliation - a planar arrangement of textural features in any type of rock.

Fault - a fracture or fracture zone along which there has been displacement of the sides relative to one another parallel to the fracture.

SOIL RESOURCES

The soils within the Fred P. Wolfe Park ERT area include Adrian, Agawam, Charlton, Ninigret, Raypol and Ridgebury.

Soil Descriptions

Adrian and Palms (AA) consist of very deep and very poorly drained soils on 0 to 3 percent slopes. Typically these soils have an organic surface layer 16 to 50 inches thick. The underlying layer is sandy or loamy in texture to a depth of 60 inches or more. These soils have a water table within 12 inches of the soil surface for the majority of the year which may cause problems in site development. These soils are poorly suited for building site development. Buildings, parking areas or other site improvements could be damaged by soil subsidence unless the organic materials are removed prior to construction. The high water table will cause additional problems in site development. The M map unit is an inland wetland site.

Agawam (AfB) consist of very deep and well drained soils on 3 to 8 percent slopes. Typically they have a fine sandy loam surface layer over stratified sands and gravels to a depth of 60 inches or more. These soils are well suited for passive recreational use but some leveling would be required to develop ballfields. These soils have a fast percolation rate, hence there is a danger that septic systems installed in these soils may pollute the ground water as the soils may not adequately filter the septic effluent. The Agawam soils are well suited for roads and buildings.

Charlton (CfB and ChB)) consist of very deep and well drained soils on 3 to 8 percent slopes; up to 3 percent of ChB soils are covered by stones and small boulders. Typically they have fine sandy loam textures to a depth of 60 inches or more. Land leveling would be required to develop ballfields in this area. These soils are well suited for urban development. Roads, buildings and septic systems can be easily built.

Ninigret (Nn) consists of very deep and moderately well drained soils on 0 to 3 percent slopes. Typically Ninigret soils have a fine sandy loam surface over sands and gravels to a depth of 60 inches or more. They have a seasonally high water table between the depths of 1.5 and 3.0 feet. These soils have fair potential for ball fields. The playing surface will tend to remain soggy for extended periods during the spring and fall. These soils have a poor potential for community development. The high water table can result in wet basements and failing septic tank absorption fields unless they are specifically designed.

Raypol (Rb and Rn) consist of poorly and very poorly drained soils that are inland wetlands. These soils are very deep and have a water table at or near the soil surface for much of the year. The Rb unit is composed of Raypol soils on 0 to 3 percent slopes. The Rn unit is composed of Leicester soils on 0 to 3 percent slopes. Both soils have poor potential for active recreation or community development due to their high water tables.

Tables 1 through 5 in Appendix A summarize the soil suitability for recreational development, sanitary facilities, building site development, and soil and water features. The soil limitations which may be associated with the development of this property do not necessarily preclude development. Recommendations to address these limitations can be made in order to provide guidance to minimize disturbances to the soil resources during the planning and implementation process.

Recommendations

- **Ballfields**

It is important to keep ballfields as dry as possible. Additional drainage may be needed when developing this property for active recreation. Areas that have exposed ledge or ledge just under the surface should be avoided for ballfield development. A seed mix of 150 pounds per acre of tall fescue is recommended.

- **Trails**

If a trail system is to be considered, it should be constructed around the wetland areas. A boardwalk that enters part way into a wetland can be used for educational purposes and passive recreation. It is recommended that a riparian zone be maintained along these sensitive areas to protect water quality and provide a wildlife buffer.

- **Apple Orchard**

The orchard area has great potential to serve as a source of food for wildlife, and a scenic barrier. It may also have historical value that would be of interest to citizen groups and individuals.

- **Water Quality**

Water quality issues from parking lots should be considered. Hydrocarbons, salts and other contaminants could be controlled using some form of sediment or catch basin system. These systems should have a maintenance plan that includes periodic cleanings.

- **Active Farmland**

It is recommended that erosion control be practiced on the active farmland. A cover crop should be maintained to prevent soil loss and protect water quality.

- **Buffer Zones**

A residential buffer zone is also recommended. A double row of trees can be very effective. One row of white pines and one row of white spruces planted 8 feet apart, staggered, is recommended.

Figure 4

Soils Map

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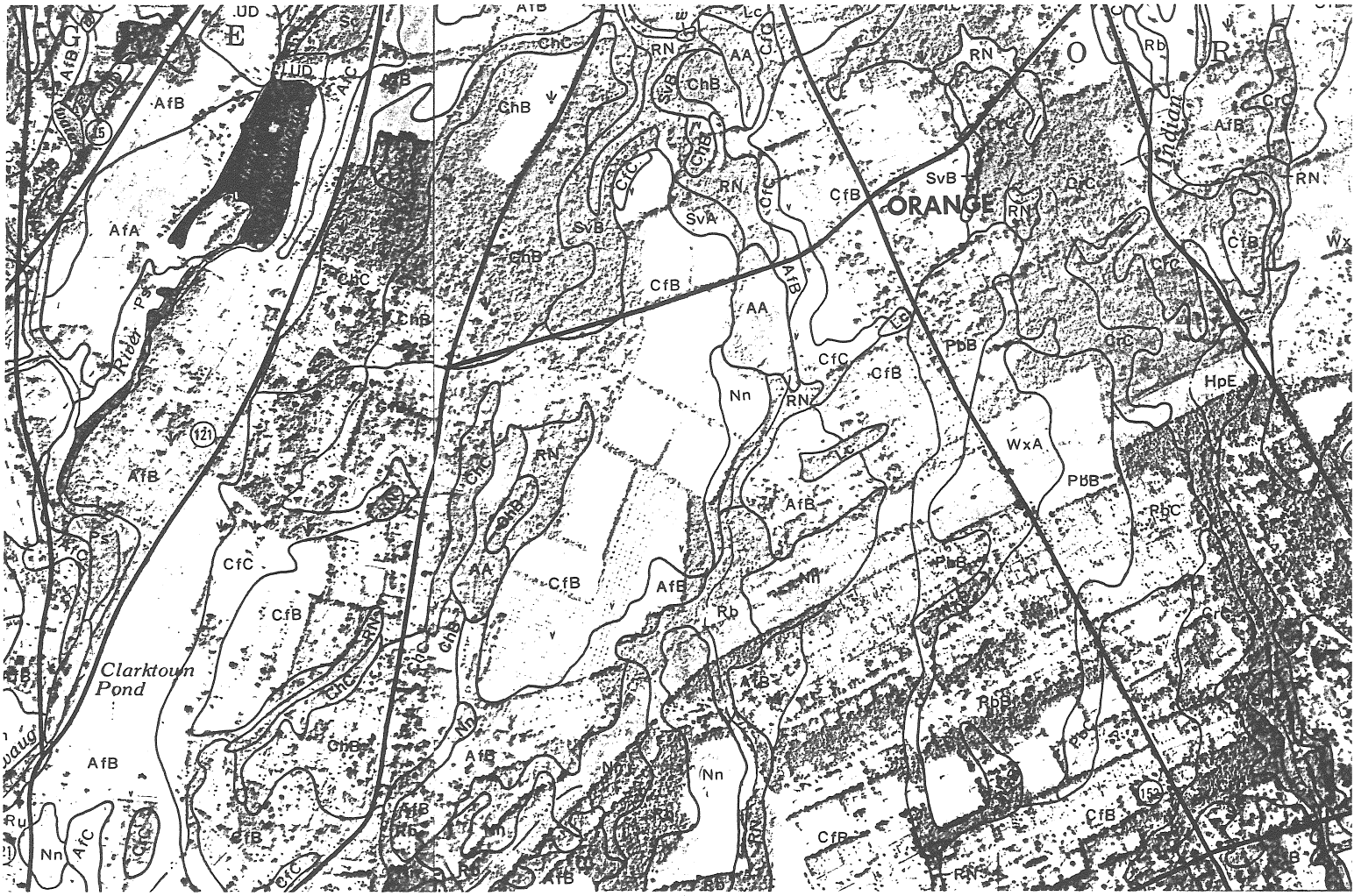
Scale = 1" = 1320'



SOIL MAP LEGEND
Wolfe Park

Map symbol	Soil name
Aa	Adrian and Palms muck
AfB	Agawam fine sandy loam, 3 to 8 percent slopes
CfB	Charlton fine sandy loam, 3 to 8 percent slopes
ChB	Charlton very stony fine sandy loam, 3 to 8 percent slopes
Nn	Ninigret fine sandy loam
Rb	Raypol silt loam
Rn	Ridgebury, Leicester and Whitman extremely stony fine sandy loams

WETLAND RESOURCES

Included in this section are observations of the wetland resources, the impacts that the proposed activities may have on those resources and recommendations for future development of this parcel given these possible impacts.

Existing Conditions

Wetland resources on or adjacent to this property are comprised of a diverse assemblage of swamp, marsh, ponds, pools and brooks that can be grouped into two primary systems, those found on the east side of the parcel and those found on its west side. Both of these systems drain to the south and are part of the Indian River watershed which flows directly to Long Island Sound. The western system forms the headwater or upper reaches of the Stubby Plain Brook which joins the Indian River in Milford. Likewise, the eastern system forms the headwater for an unnamed watercourse which flows south to join the Indian River in Milford.

According to estimated property boundaries a majority of the western system appears to lie just outside of the subject parcel. It has been previously disturbed as a result of pond construction, channelization and fill placement intended for the completion of Oakview Drive and construction of Hollow Road. As indicated on the accompanying diagram (Figure 5), two small portions of this system lie within the boundaries of this parcel. They are both characterized as deciduous-forested wetlands. The hydrology of the northernmost portion may have been affected as a result of ditching, however, the southernmost portion seems to have been unaffected and exhibits some characteristics of a vernal pool. Vernal pools are small, shallow, circular depressions in the landscape which fill with water during periods of high Spring meltwater and storm-water runoff, becoming drier during the warm summer months. True vernal pools support abundant and diverse wildlife populations. Much of this wildlife is dependent on these areas for one or more periods of their life cycle. Because of the absence of permanent

water, fish do not live in these ephemeral pools, making these areas very attractive to invertebrate and amphibian populations. The possibility that rare and endangered wildlife can be found in these pools is significant. Additionally, being an area of such high biological productivity, vernal pools provide an abundant source of food for upland wildlife species.

The entire western wetland system drains south through shallow, diffuse drainage ways and becomes culverted at the intersection of Rosebud Lane and Oakview Drive emerging once again near Pinetree Drive.

The northeast corner of this property is dominated by a very interesting, diverse assemblage of all primary categories of fresh water wetlands including wet meadow, scrub/shrub, forested and open water. Although this wetland area flows south to an unnamed watercourse, this wetland area continues on the north side of Meetinghouse Lane where at some point it begins to flow north into the Wepawaug River watershed. The unnamed watercourse flows south apparently outside of the property boundaries. Opposite Forest Road a drainage ditch was observed which served to drain stormwater off of the cornfields and directly into this watercourse resulting in a significant amount of excess sediment being deposited into the watercourse (refer to Figure 5 for the location of this and other active excess sediment sources on this property).

The southeast corner of the property contains an area of forested wetlands adjacent to the unnamed watercourse. This small area of wetland receives surface water from a short, intermittent watercourse entering from the west. While this area exhibits some characteristics of a vernal pool as discussed above, its proximity to the unnamed watercourse and its floodplain may limit its vernal pool function.

Wetland Functional Values

Being at the top of their respective watersheds, the above described wetlands posses a high value in the category of stormwater storage and flood prevention.

Wetlands associated with watercourses, as these are, tend to "buffer" or attenuate the flooding potential of significant storm events by temporarily storing storm waters and slowing surface water velocities. In similar fashion, this type of wetland reduces the impact that excessive nutrients and sediments may have on downstream watercourses and water bodies. The diverse hydrologic and vegetative characteristics of these wetlands also would give then a higher than normal value as wildlife habitat (a flock of at least thirty turkeys was observed using the southeast wetland area for food and cover). In addition, the wetlands on this parcel have high educational value due to the close proximity of several schools. Wetland areas like these can serve as fascinating "outdoor class rooms" and can give children first hand knowledge in the field of natural history, biology, hydrology, etc.

Proposed Activities

The town is interested in using this parcel for recreational purposes such as nature trails, walking and jogging trails, baseball and soccer fields.

Impact of Proposed Activities on Watercourses and Wetlands

Depending on the proposed scope of the intended use of this parcel, direct impact to the wetland area may occur in the form of filling to provide areas for playing fields, access roads, parking lots and recreational trails. This would significantly effect all functional values listed above. Such development near wetlands without providing a significant upland buffer area would effect its value as wildlife habitat. Increases in stormwater runoff volumes reaching wetland areas resulting from the construction of impervious surfaces may result in excessive erosion of intermittent and perennial watercourses receiving the runoff. Improperly designed stormwater management systems may lead to the introduction of excessive nutrients and sediments into adjacent watercourses. Improper erosion and sedimentation control during any construction period may also result in excessive sedimentation of adjacent watercourses. The need for proper erosion

controls is demonstrated by the presence of three existing points of excessive sediment entry into wetland areas from the cornfields (refer to Figure 5). The eastern location has been aggravated by the construction of a drainage ditch which transports sediments directly into the unnamed watercourse.

Recommendations

Although plans for the development of this site at the time of this review are in the conceptual stage, the small amount of on-site wetland areas would make direct wetland impacts as a result of filling a remote possibility. However, the wetland area in the southeast corner of the site lies in the general vicinity of a possible access road location. Access from this portion of the parcel would require construction of a longer road to reach the more desirable lands in the north sections of this parcel. To avoid impacts to this valuable wetland area it is recommended that other access points be considered such as the north extension of Peck Lane, Hemlock Drive or Hollow Road (currently a paper street off Ridge Road).

Further, the town should strive to maintain an undisturbed buffer at least 100 feet wide around all wetlands and watercourses.

A certified erosion and sedimentation control plan incorporating Connecticut's ***Guidelines for Soil Erosion and Sedimentation Control*** should be created as a part of any development plans.

As stated in the Soils section of this report, storm water quality BMP's should be included with any parking lot designs as well as with any stormwater management system that may be necessary for proposed playing fields.

Minimal use of fertilizers and pesticides on the playing fields should be encouraged. Integrated Pest Management (IPM) techniques should be applied. For further

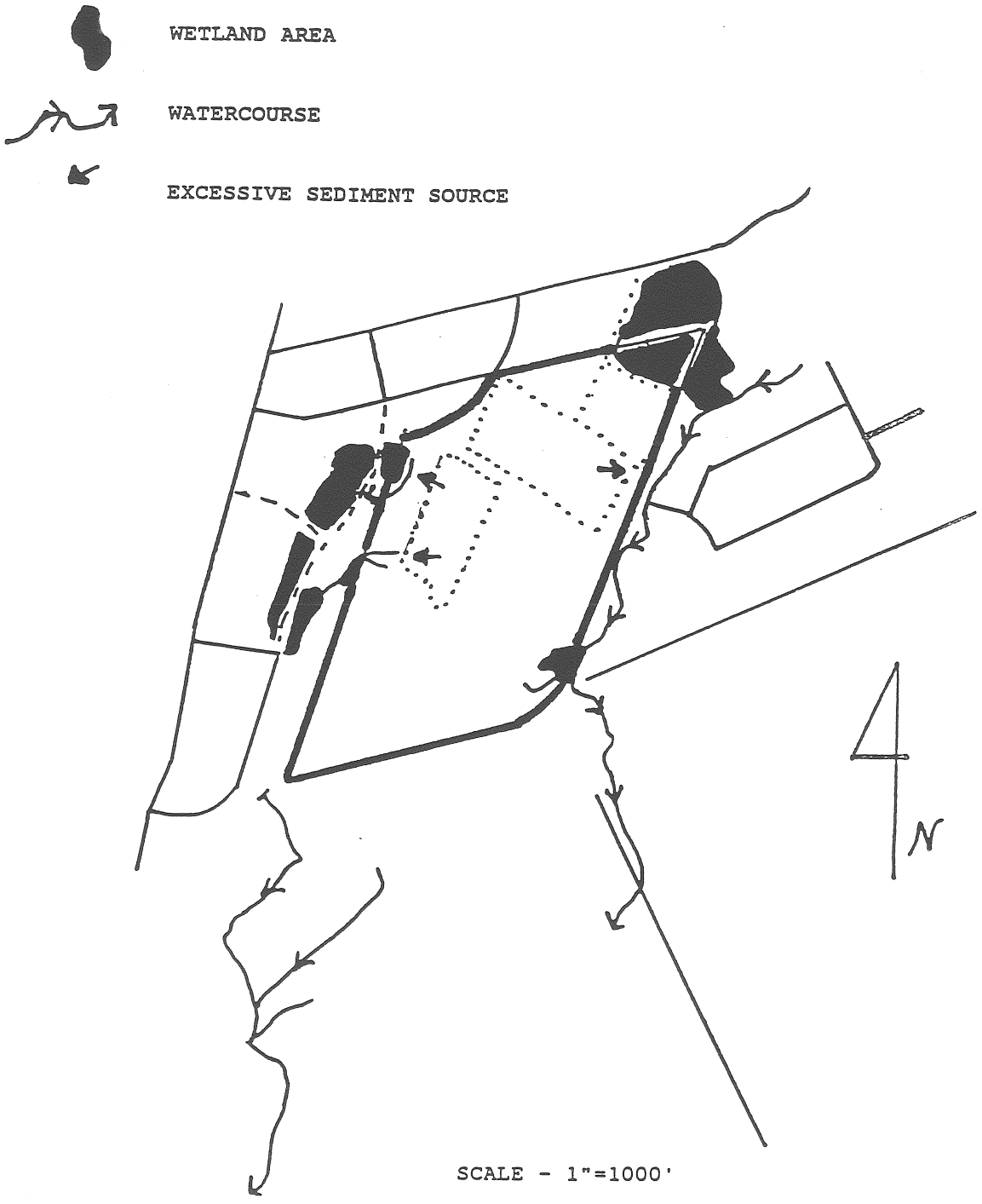
information on this topic, contact the New Haven County Cooperative Extension Service at (203) 789-7865.

Proper erosion and sedimentation control should be applied to the cornfields as soon as possible to reduce the amount of excessive sediments currently reaching the wetlands and watercourses. This should start with the elimination of the drainage ditch on the eastern boundary opposite Forest Road.

Figure 5

Wetlands and Watercourses

Approximate Locations



ON-SITE SUBSURFACE SEWAGE DISPOSAL

General Overview

Fred P. Wolfe Park is located in a residential area of Orange. In the past the parcel has been used for agricultural purposes. The higher elevations of the property consist of Agawam and Charlton soils, whereas, the lower elevations consist of Ninigret type soils. Agawam soils are well drained and have a B horizon of dark brown and dark yellowish brown fine sandy loam over a C horizon of yellowish brown gravelly sand. Charlton soils are well drained, nonstony to extremely stony and have a yellowish brown and light olive brown fine sandy loam B horizon over a grayish brown gravelly fine sandy loam C horizon. Ninigret soils are moderately well drained and have a B horizon of dark yellowish brown and yellowish brown mottled fine sandy loam and gravelly fine sandy loam over a C horizon of brown stratified sand and gravel.

Site Suitability

In order for a subsurface sewage disposal system to function properly a number of site and operating conditions must be met. The soils in the leaching area must be permeable (percolation rates faster than 60 minutes/inch) and the placement of the system must provide enough vertical separation from maximum groundwater levels and ledge rock conditions. Once the sewage effluent leaves the leaching units the surrounding naturally occurring soils must be able to adequately absorb and disperse the expected volume of sewage effluent without overflow, breakout or detrimental effect on ground or surface water.

It appears from the above soil descriptions that the upland portions of the subject site are suitable for subsurface sewage disposal purposes. On-site sewage disposal systems generally function satisfactorily with normal design and installation. Depending on the

actual location of the leaching fields a determination would have to be made as to whether the surrounding soils would be able to adequately disperse the expected sewage discharge. Positioning leaching system(s) near the high points of this property would be advisable. Moving the system(s) to lower positions would increase the risk of hydraulic failure due to the diminishing depths to maximum groundwater reflective in the downgrade Ninigret type soils. Site development activities, such as, bulldozing and regrading to prepare athletic fields, should not be allowed within or downgrade of proposed leaching areas.

Site Usage

In preparing a site use plan for this property the Town should consider the following:

- Unless the site is to be left as open space, with only minimum pedestrian traffic on nature trails, etc., it is the CT Department of Public Health's opinion that toilet facilities should be provided.

- Toilet facilities should be housed in a permanent structure. Access can be restricted to only those events which are Town sponsored or approved.

- Water shall be supplied to said toilet facility. In accordance with Section 19-13 B51m of the State Public Health Code a municipal water supply shall be provided if located within two hundred feet of the subject property.

- Sizing of the leaching fields shall be determined by performing soil testing within the proposed sewage disposal area and by establishing patron loading for the recreational complex. For initial design purposes, one (I) gallon per patron per day would be recommended when only recreational fields (such as soccer, baseball, football, etc.) and exercise trails are provided. If a picnic area is included within the park than an extra five (5) gallons per person (30 gallons per picnic table) would be

added to the daily design rate. In any case a chambered leaching product, such as concrete galleries should be utilized in order to be able to handle peak flow periods such as weekends and holidays.

- Due to the nature of the designated soils on this property it does not appear that a major restriction will be placed on Town options relative to subsurface sewage disposal issues. A limit on discharge rates can not be established until site testing is performed and the extent of development is determined.

Conclusions

Prior to the final decision on the uses for this proposed recreational area, the Town (through an outside engineering firm) shall demonstrate by way of soil testing that a leaching area is available which will meet all requirements set forth in Section 19-13-B103 of the Public Health Code and Technical Standards. The process should be a coordinated effort between the design engineer and the Orange Health Department. The ultimate use of this property shall be determined by this process.

THE NATURAL DIVERSITY DATA BASE

The Natural Diversity Data Base maps and files regarding the project site have been reviewed and according to our information, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question.

Natural Diversity Data Base information includes all information regarding critical biologic resources available to us at the time of the request. This information is a compilation of data collected over the years by the Natural Resources Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substituted for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

VEGETATION

The Wolfe Park property purchased by the town for open space and town recreation has excellent potential for passive and active recreation. The vegetation present on this tract of land falls into five broad categories. These include Abandoned Orchard, Agricultural Fields, Mixed Hardwoods, Old Field/Open Field and Hardwood Swamp/Inland Wetland. The location and acreage of these areas were obtained from 1986 and 1995 aerial photographs and are only approximate. They are depicted on the Forest Vegetation Map (Figure 6).

A. Abandoned Orchard: Approximately 25 acres of apple orchard that was abandoned many years ago is present on this tract. The neglected apple trees are in very poor condition. Most have been taken over by bittersweet, grape and poison ivy. A few specimens could be rejuvenated, but the majority are too far gone to make rejuvenation practical. Flowering dogwood, red maple, smooth sumac, highbush blueberry, black cherry and pin cherry have become established in between the declining apple trees. Multiflora rose has become extremely dense throughout much of this area making access very difficult. Grasses, goldenrod, meadowsweet and raspberry are present where multiflora rose has not become established.

B. Agricultural Fields: At present approximately 18 acres of this property are being utilized to grow corn. These fields could be easily converted to soccer or baseball fields.

C. Mixed Hardwoods: The mixed hardwood type totals approximately 12 acres. Overall this vegetation type is made up of reasonably healthy small sawtimber size trees (1 1. 1 " in diameter at breast height (d.b.h.) and larger) and pole size trees (6.1" to 11" d.b.h.) which range from 30 to about 80 years of age. The majority of this forest type is dominated by red maple, red oak, black oak, American beech, black cherry, black birch, sugar maple, sassafras, mockernut hickory, pignut hickory and shagbark hickory.

Red maple, American elm, tulip tree, white ash and yellow birch are more conspicuous components of this forest type in close proximity to wetland soils. Understory vegetation includes hardwood tree seedlings, maple leaved viburnum, arrowwood, eastern hophornbeam, American hornbeam, multiflora rose, spice bush, azalea, beaked hazelnut, witch-hazel, highbush blueberry and barberry. Ground cover vegetation includes poison ivy, Virginia creeper, green briar, raspberry, dewberry, partridge berry, wood aster, rattlesnake plantain, spotted wintergreen, pipsissewa, club moss, evergreen wood fern, hayscented fern, cinnamon fern, Christmas fern, sensitive fern and many other species of grasses, sedges and wild flowers.

D. Mixed Hardwoods: This young mixed hardwood stand totals approximately 4 acres and is made up of seedling and sapling size trees which have become established on abandoned agricultural land. The species which are present include apple, black cherry, red maple, sugar maple, white ash, gray birch, flowering dogwood, tulip tree and occasional eastern red cedar, American beech, black gum, black oak, red oak and black birch. Shrub species include smooth sumac, staghorn sumac, multiflora rose, autumn olive, red-osier dogwood, winged euonymous and choke cherry. The herbaceous vegetation and vines which are present include grasses, goldenrod, aster, club moss, greenbriar, poison ivy, grape and bittersweet. For the trees in this stand to develop properly, the vine species should be controlled.

E. Old Field/Open Field: About 4 acres of old field/open field are present on this tract. Many shrub and tree species such as autumn olive, multiflora rose, raspberry, poison ivy, highbush blueberry, arrowwood, assorted viburnums, eastern red cedar, flowering dogwood, cherry, red maple and other hardwoods have become established. Areas that have been kept open by unauthorized recreational use are vegetated with grasses, goldenrod, ragweed, Japanese honeysuckle and assorted wildflower and weed species.

F. Hardwood Swamp/Inland Wetland: There are approximately 3 acres of hardwood swamp/inland wetland present within this property. These wetland areas are somewhat variable with all size classes and age classes of trees represented. Each wetland is dominated by red maple with occasional black gum, American elm, white ash and yellow birch. A few of the larger trees in these wetland areas have cavities which make excellent den sites for many species of wildlife. Understory vegetation includes spice bush, highbush blueberry, swamp azalea, arrowwood, winterberry and swamp rose. Herbaceous vegetation which is present includes skunk cabbage, club moss, horsetail, sphagnum moss, poison ivy, green briar, cinnamon fern, Christmas fern and sensitive fern.

Recreational Development

From a vegetative standpoint this property is well suited for the purposes for which it was purchased. The agricultural fields could easily be developed into soccer and baseball fields. The access which would have the least environmental impact is from Peck Lane or Hemlock Drive. Access from Peck Lane/High Plains Drive would have a major impact on the wetlands which would have to be crossed. Nature, walking or jogging trails could be developed just about anywhere on the property. The past agricultural use of the property has created successional stages of vegetation which are interesting, educational and provide wildlife with excellent habitat. Creating trails through the property especially where multiflora rose has become dense will be difficult but possible.

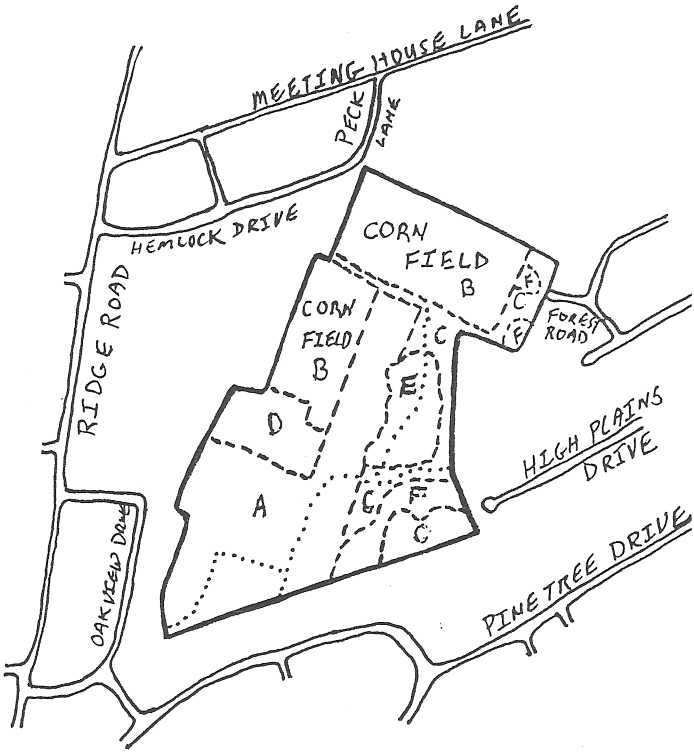
Figure 6

Vegetation Map

NORTH

▲

SCALE 1"=1000'



VEGETATION TYPES

A. Abandoned Orchard.....25+- ACRES

B. Agricultural Fields.....18+- ACRES

C. Mixed Hardwoods.....12+- ACRES

D. Mixed Hardwoods.....4+- ACRES

E. Old Field/Open Field.....4+- ACRES

F. Hardwood Swamp/Inland Wetland.....3+- ACRES

LEGEND

PROPERTY BOUNDARY

STAND BOUNDARY

PAVED ROAD

WOODS ROAD/TRAIL

Figure 6

Vegetation Map

NORTH

▲

SCALE 1"=1000'

VEGETATION TYPES

A. Abandoned Orchard.....25+- ACRES

B. Agricultural Fields.....18+- ACRES

C. Mixed Hardwoods.....12+- ACRES

D. Mixed Hardwoods.....4+- ACRES

E. Old Field/Open Field.....4+- ACRES

F. Hardwood Swamp/Inland Wetland.....3+- ACRES

LEGEND

PROPERTY BOUNDARY

STAND BOUNDARY

PAVED ROAD

WOODS ROAD/TRAIL

WILDLIFE RESOURCES

This section of the report will address the following wildlife issues:

- Current conditions for wildlife;
- Wildlife-related impacts regarding hypothetical development of soccer fields;
- Other considerations and conclusions.

Current Conditions

The property includes a variety of habitats from mature forest to cultivated farm fields. The property shows signs of past farming activities as well as current field crop farming. The various vegetation stages that are inherent to the property provide habitat to an assortment of wildlife communities.

Open/Cultivated Field Areas: These are seasonally utilized and of most benefit to white tailed deer, wild turkey, woodchucks, cottontails, red fox, Eastern coyote, American crow, European starling, and the house sparrow. These areas are of limited value because of the lack of vegetative diversity. If they are abandoned, they will go through stages of forest succession and provide early successional habitat for a greater diversity of wildlife.

Abandoned Orchard Area: This area provides a unique habitat of dense young woody vegetation which is resurging amongst the abandoned orchard trees. The orchard trees are losing value because of competition from other plants and lack of pruning. The value of the dense cover, however, makes this a valuable habitat for a variety of wildlife. Dense, early successional habitat is regionally in decline in Connecticut because of our maturing forests and changed land-use patterns.

Wetland/Vernal Pool Areas: These areas are valuable for most wildlife either as a primary habitat or seasonal use. Wetlands located in the forest support a high diversity

of wildlife due to the complexity of the vegetative structure, high productivity and abundant food supply. Also, with the interspersion of upland forests and other habitat types, the wetlands on the property are of high value to area wildlife. The vernal pools, scattered throughout the property, are seasonal bodies of fresh water providing a unique habitat for wildlife, especially for some amphibians which are totally reliant on them for breeding purposes.

Hedgerows/Stone Wall Areas: The hedgerows and stone walls scattered about the property are valuable to wildlife as cover and linkages between agricultural fields, development and habitat areas. These overgrown areas are more valuable as habitat if left unmaintained, rather than cleared and park-like. Stone walls provide habitat for small mammals, reptiles and amphibians.

Mixed Hardwood Forest Areas: The forested areas are comprised of mature trees which produce mast, and are valuable for wildlife. In some parts of the forest, the understory plants are experiencing moderate deer browsing which may lead to a plant diversity decline. Plant diversity and structural diversity are important to the health of the forest ecosystem and is important in maintaining wildlife diversity.

Wildlife-Related Impacts Regarding Hypothetical Development of Soccer Fields

The impacts to wildlife regarding development and use of soccer fields on the property is difficult to assess because of the lack of detailed plans. This section will address the subject utilizing the limited information that is available. The development of soccer fields requires landscaping a parcel of land to make it suitable for playing the sport and sometimes requires filling, shaping, and adding underground irrigation. Currently, the field crop areas are basically being maintained with seasonal vegetation. The types of vegetation on the cultivated fields are usually monotypic and have two size-classes: field corn - up to 6 feet tall and winter rye - up to 6 inches tall. The farming of the fields

adds limited value for wildlife on the property. It benefits some of the generalist species such as deer, wild turkey and others mentioned earlier. If development of soccer fields or other mowed grass fields is to occur, it would be best to place them in the cultivated field areas rather than in the forested areas. The use of soccer fields by wildlife will be limited, however not much different from its current use as cultivated fields. The major differences will be the lower cover values for the mowed grass versus the taller vegetation of field crops, alteration of slope and soils and there may be an increase in the use of the fields by Canada geese for grazing.

Entrance Road Options

The use of the existing road (Peck Lane) off of Meetinghouse Lane would create less impact to wildlife and habitat than cutting a new road through the forest from Peck Lane (south side of the property). The Peck Lane access (south side of the property) requires cutting through a greater amount of forested area and will have some wetland impact (a vernal pool currently exists at the proposed entrance) than the Peck Lane entrance off of Meetinghouse Lane. Maintaining maximum forest sizes should be strived for if the town is interested in maintaining forest wildlife. As forest size decreases the quality of the forest as wildlife habitat decreases. Buffers which include wider forest widths also help attenuate sound which was a concern expressed by some of the adjacent neighbors.

Management Recommendations

- Minimizing the removal of woody vegetation will reduce wildlife impacts. Building ballfields only on the cultivated field areas will minimize forest habitat loss.

- Maintain soft edges along field and forest borders (this means a gradual gradation of vegetation, rather than an abrupt change from field to forest). Maintaining a meadow-like buffer strip (unmowed field) initially can help accomplish this.

- Minimize the road size and keep the entrance road out of the forest.

- The abandoned orchard has potential to be improved for wildlife through releasing the apple trees by cutting away competing vegetation and selectively pruning branches (see Appendix B for technical assistance sheet and WHIP fact sheet).

- Bird nesting boxes can be placed on field edges. Technical assistance is available upon request from the Team wildlife biologist.

- Native trees and shrubs with wildlife value should be used for any plantings on the site. Invasive non-native planting material should be avoided. Invasive non-native vegetation has a tendency to escape into the surrounding forest and fields. Lists of recommended plants are available upon request.

More specific information can be supplied once a proposed plan of development is available. The comments in this report are based upon available information which was limited by the lack of specific development plans. Further technical assistance is available upon request pertaining to wildlife habitat enhancement and wildlife impact minimization.

ARCHAEOLOGICAL AND HISTORICAL SENSITIVITY

A review of the State of Connecticut Archaeological Site Files and Maps show no known prehistoric archaeological site in the project area. However, Fred P. Wolfe Park is located within the Orange Center Historic District, which is listed on the National Register of Historic Places. The inventory-nomination form for this historic area may be found in Appendix C. The State Historic Preservation Office strongly encourages the development of site uses that are compatible with the historic residential character of this important town center. Preservation of mature tree species should also be encouraged as a natural visual buffer. In addition, any stonewalls or other historic remnant of past use of the property should be considered in any future recreational plans. While it is recognized that it may not be feasible to preserve all stone remnants, a conscious effort should be extended to maintain the historic appearance of the property.

STATE PARK PLANNER COMMENTS

The uses to which a parcel of land can be put depend on three basic factors: (1) the physical character of the property, (2) the desires and/or needs of the owner, and (3) the relative availability of access and of services. Thus application of these factors will help point out appropriate use options for the Town of Orange's Fred P. Wolfe Park.

First of all the property encompassed within the park consists of gently rolling upland, basically underlain with well drained Charlton soils. As such it was largely utilized historically as improved farmland, with woodland limited to poorly-drained wetlands along its eastern and western edges or hedgerows. Although some reversion has occurred, especially in the former apple orchard, actively-utilized cornfields occupy much of the northern and central portions of the park and pose few if any obstacles to development.

Secondly, in response to questions posed by ERT members, town officials and citizens alike seem to favor substantial development of ballfields within the park rather than total dedication as passive open space. Indeed a need for five soccer fields in particular was expressed, both because of the inadequate number and quality of existing facilities and a large increase in youth soccer program participants. Therefore park development seems a community priority.

Lastly, availability of access and municipal services must be addressed. Location-wise, Fred P. Wolfe Park is strategically-sited near the center of the town and therefore well-suited to be a developed, focal point park for the town. On the other hand, although a number of potential access points exist, many tend to be on quiet residential streets which are not appropriate choices as access routes for sizable volumes of park-oriented traffic. In addition, a likely access point off major through roads, (Peck Lane and Pine Tree Road) on the southeast corner of the property would require crossing a wetland. No utilities or municipal services are available on site, although municipal water

reportedly is available on Meetinghouse Lane, Forest Road and Peck Lane-Pine Tree Road, offering opportunity for provision of this service to the park.

Other factors to consider involve the need to utilize public moneys judiciously and to maximize operational efficiency. Therefore a plan should be developed which meets the project needs while minimizing project cost. Similarity the plan should allow for ease of management and for control of access to avoid misuse, vandalism, etc. To accomplish these ends, plan criteria should include:

(1) Minimal length of road development to avoid unnecessary development and maintenance costs.
(2) Limitation of vehicular access points and gating of access points at night both from cost and management control standpoints.
(3) Concentration of active use areas (ballfields) to minimize need for provision of roads, parking areas, and possibly water and future toilet building development.
(4) Location of ballfields in areas readily adaptable to such use without expensive site preparation cost.

With these thoughts in mind, a suggested development plan for Fred P. Wolfe Park involves one public vehicular access point although provision of emergency access could be considered at several other locations also. The recommended location is Peck Lane, off Meetinghouse Lane, with Peck Lane widened to the park entry point and provided with a gate to be locked by town police at night.

The ballfields and ancillary facilities should be located in the initial stage of development in the northern cornfield and later in the southern cornfield if and as needed. Sufficient special buffer should be provided to limit impact on Hemlock Lane residents including consideration of earthen berm topped with planting of evergreen species to provide a year-round visual screen.

The wooded and/or reverting portions of the property could be left basically as is, as passive open space providing wildlife habitat, opportunity for nature/hiking trails, and buffering for surrounding neighborhoods. Consideration of some vegetation management to encourage the survival of apple trees in the former orchard as a source of wildlife food also may be warranted (see Appendix B).

LAND USE PLANNING CONSIDERATIONS

Site Location

Fred P. Wolfe Park is a town owned parcel of land that is centrally located in the community between Ridge Road and Orange Center Road. The parcel is surrounded by low to moderate (1 acre/unit) level density - detached single family residential housing. The site is within close proximity (under 1 mile) to the Tracey School, the Town Community Center, and Town Hall.

Site Characteristics

The site is a mixture of two open fields, an aging overgrown apple orchard, and wooded uplands. Inland wetland soils are located adjacent to the western, eastern and southeastern boundary. No water courses run through the property. The site holds potential for sport field development in the cleared farm fields in the northwest section of the property. The overgrown orchard land appears to be best suited for natural passive recreation pursuits. The ERT field visit did appear to indicate good drainage for the corn fields as evidenced by a lack of standing water and saturated soil after heavy rain events. Public water appears to be accessible from most of the potential access points and could be provided to the site. Sewage treatment would need to be provided by either an on site septic system or portable toilets.

Traffic Circulation/Site Access/Off-site Impacts

The site has the potential to be accessed from up to six entry points. After field visits and review, it would appear that the most practical access to the property and proposed fields would be to use Peck Lane from Meetinghouse Lane. Peck Lane could provide

direct access off of Meetinghouse Lane, however improvements would need to be made. The road width is narrow (15-18 feet) and intersection sight line clearance does present safety problems. A Meetinghouse Lane entrance would be centrally located, in close proximity to other community recreation areas, and located on an important secondary collector road. Meetinghouse Lane provides efficient east-west mobility between Ridge Road and Orange Center Road. Future long term municipal improvement projects might investigate the potential opportunities to provide pedestrian/bike access via sidewalks, multi-use trails or roadway shoulders from the Community Center and Town Hall. The site entrance should be properly gated and secured to prevent vandalism and disruption of the fields, structures (permanent & portable) and the neighborhood. Direct access from the southern terminus of Peck Lane (High Plains Road area) would require wetlands crossing and a substantial amount of roadway development. A buffer zone using earthen berms and evergreens could be constructed near the entrance and perimeter and would help to lessen the minor visual and noise impacts associated with active playing field usage for Hemlock Drive residents. Access and parking areas do not appear to be severely limited on the northern portion of the property. There would appear to be ample room to configure low cost parking areas (natural or gravel) and turnaround points.

General Demographics

The Town of Orange is projected by the Connecticut Office of Policy and Management to experience an overall loss of population over the next ten years. However, a slow growth rate and an aging population would not appear to impact the current trend of increased participation in organized sports programs, notably school age soccer participation. The Town of Orange will continue to be a desirable place for families due to the reputation of the school system, and the overall quality of life factors. The existing housing stock should continue to provide turnover and opportunities to families with school age children.

Recreational Opportunities - Open Space Priorities

The **1993-1998 State Comprehensive Outdoor Recreation Plan (SCORP)** includes a detailed inventory of population, public and private land holdings, municipal government recreational facilities and a telephone survey of recreational interest of 1,200 Connecticut residents conducted by the Institute of Social Inquiry, University of Connecticut to accurately inventory various open space categories in the communities throughout the state. The Plan seeks to provide a document which promotes the wise use of outdoor resources for current and future generations. The current Plan states that the South Central region, which includes Orange, has the third highest population density (2.2 persons per acre) of the state's 15 planning regions.

The Town of Orange is well known for their active community involvement and "can-do" spirit. The Wolfe Park Committee should work with sports clubs, youth organizations, and business organizations to enlist their active support to create a recreational plan for the property that meets the immediate and future needs of the citizens. Organized sports programs are increasing in popularity throughout the region. Municipal soccer programs are especially popular for both school age boys and girls due to increased exposure and active participation.

The Wolfe Park Committee in cooperation with the Park and Recreation Commission may wish to take part in a townwide survey to determine the citizens recreational needs and preferences to better gauge public support for the funding necessary for any infrastructure improvements needed in terms of access roads and parking, sanitation facilities, and trail networks on the property. A targeted survey of other municipal recreation department plans and budgets may also prove beneficial to the town. The South Central Council of Governments may be able to assist with a survey of other effective municipal recreation strategies.

Land Use Plan

The 1985 Plan of Development for the Town of Orange is currently being reviewed and revised. The Fred P. Wolfe Park Committee and Town Park and Recreation Commission should take an active role in the recreation and open space planning process. At the field visit, representatives from the Conservation Commission and Land Trust indicated that the property did appear to provide a better opportunity for recreational pursuits rather than being part of the town farmland preservation program. The representatives indicated that their current efforts are targeted more towards assisting the existing active farm operations, maintaining the farm/open space inventory, and the maintenance and purchase of property and development rights for key parcels.

Summary

The volunteers who are participating in the Fred P. Wolfe Study Committee should be commended for their diligence in seeking to come up with recommendations for an overall Master Plan for the use of the town owned property. The site is well suited for providing recreational opportunities both passive and active. The most pragmatic access to the site would appear to utilize Peck Lane from Meetinghouse Lane. The development of the site should take place in a phased sequential manner based on the immediate need of the community. Professional engineering and design firms would be able to create compatible design plans for the different recreational field configurations, parking, and trail networks. As a low cost alternative, the Committee may want to investigate whether any graduate schools in the area may be willing to take on the conceptual site plan design as a student project.

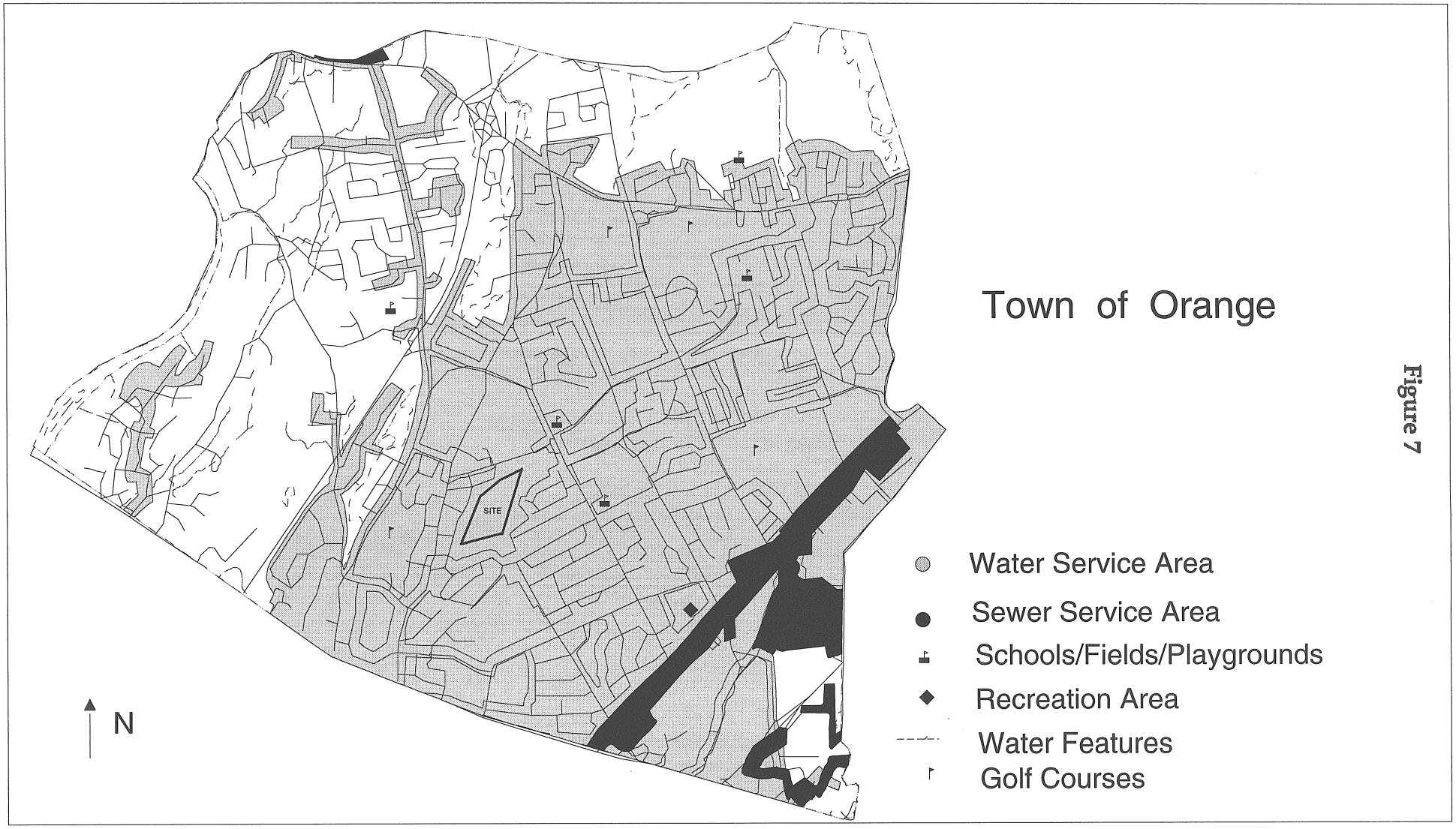

Town of Orange
SITE
N
Water Service Area
Sewer Service Area
Schools/Fields/Playgrounds
Recreation Area
Water Features
Golf Courses

Figure 7

APPENDIX A

Soils Information

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

TABLE 1

RECREATIONAL DEVELOPMENT
Wolfe Park

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Aa:					
Adrian	Severe: ponding, excess humus	Severe: ponding, excess humus	Severe: excess humus, ponding	Severe: ponding, excess humus	Severe: ponding, excess humus
Palms	Severe: ponding, excess humus	Severe: ponding, excess humus	Severe: ponding, excess humus	Severe: ponding, excess humus	Severe: ponding, excess humus
AfB:					
Agawam	Slight	Slight	Moderate: slope	Slight	Slight
CfB:					
Charlton	Slight	Slight	Moderate: slope, small stones	Slight	Slight
ChB:					
Charlton	Moderate: large stones	Moderate: large stones	Severe: large stones	Slight	Moderate: large stones
Nn:					
Ninigret	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness	Moderate: wetness
Rb:					
Raypol	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness
Rn:					
Ridgebury	Severe: large stones, wetness, percs slowly	Severe: large stones, wetness, percs slowly	Severe: wetness, large stones, small stones	Severe: wetness	Severe: wetness
Leicester	Severe: large stones, wetness	Severe: wetness, large stones	Severe: large stones, wetness	Severe: wetness	Severe: wetness

RECREATIONAL DEVELOPMENT--Continued
Wolfe Park

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Rn (con.): Whitman	Severe: large stones, ponding	Severe: large stones, ponding	Severe: ponding, large stones	Severe: ponding	Severe: large stones, ponding

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

RECREATIONAL DEVELOPMENT

Endnote -- RECREATIONAL DEVELOPMENT

The soils of the survey area are rated in this report according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In this report the degree of soil limitation is expressed as "Slight," "Moderate," or "Severe." "Slight" means that soil properties are generally favorable and that limitations are minor and easily overcome. "Moderate" means that limitations can be overcome or alleviated by planning, design, or special maintenance. "Severe" means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in this report can be supplemented by information available in other reports, for example, interpretations for septic tank absorption fields in the Sanitary Facilities report and interpretations for dwellings without basements and for local roads and streets in the Building Site Development report.

CAMP AREAS require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

PICNIC AREAS are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

PLAYGROUNDS require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or hardpan should be considered.

PATHS AND TRAILS for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, and not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

GOLF FAIRWAYS are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

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TABLE 2

SANITARY FACILITIES
Wolfe Park

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Aa:					
Adrian	Severe: subsides, ponding, percs slowly	Severe: seepage, excess humus, ponding	Severe: seepage, ponding, too sandy	Severe: seepage, ponding	Poor: seepage, too sandy, ponding
Palms	Severe: subsides, ponding, percs slowly	Severe: seepage, excess humus, ponding	Severe: ponding	Severe: ponding, seepage	Poor: ponding
AfB:					
Agawam	Severe: poor filter	Severe: seepage	Severe: seepage, too sandy	Severe: seepage	Poor: seepage, too sandy, small stones
CfB:					
Charlton	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: small stones
ChB:					
Charlton	Slight	Severe: seepage	Severe: seepage	Severe: seepage	Fair: small stones
Nn:					
Ninigret	Severe: wetness, poor filter	Severe: seepage, wetness	Severe: seepage, wetness, too sandy	Severe: seepage, wetness	Poor: seepage, too sandy, small stones
Rb:					
Raypol	Severe: wetness, poor filter	Severe: seepage, wetness	Severe: seepage, wetness, too sandy	Severe: seepage, wetness	Poor: seepage, too sandy, small stones

SANITARY FACILITIES--Continued
Wolfe Park

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Rn:					
Ridgebury	Severe: percs slowly, wetness	Slight	Severe: wetness	Severe: wetness	Poor: wetness
Leicester	Severe: wetness	Severe: seepage, wetness	Severe: seepage, wetness	Severe: seepage, wetness	Poor: wetness
Whitman	Severe: percs slowly, ponding	Slight	Severe: ponding	Severe: ponding	Poor: ponding

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SANITARY FACILITIES

Endnote -- SANITARY FACILITIES

This report shows the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered "Slight" if soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome; "Moderate" if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and "Severe" if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. This report also shows the suitability of the soils for use as daily cover for landfills. A rating of "Good" indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; "Fair" indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated "Good"; and "Poor" indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

SEPTIC TANK ABSORPTION FIELDS are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 to 72 inches is evaluated. The ratings are base on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Groundwater can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

SEWAGE LAGOONS are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. This report gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter. Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

SANITARY LANDFILLS are areas where solid waste is disposed of by burying it in soil. There are two types of landfill, trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil form a source away from the site. Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of groundwater pollution. Ease of excavation and revegetation need to be considered. The ratings in this report are based

SANITARY FACILITIES

Endnote -- SANITARY FACILITIES--Continued

on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rate "Slight" or "Moderate" may not be valid. Onsite investigation is needed.

DAILY COVER FOR LANDFILL is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils may be sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing. After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter than the rest of the profile, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

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TABLE 3

BUILDING SITE DEVELOPMENT
Wolfe Park

(The information in this report indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Aa:						
Adrian	Severe: cutbanks cave, excess humus, ponding	Severe: subsides, ponding, low strength	Severe: subsides, ponding	Severe: subsides, ponding, low strength	Severe: subsides, ponding, frost action	Severe: ponding, excess humus
Palms	Severe: excess humus, ponding	Severe: subsides, ponding, low strength	Severe: subsides, ponding	Severe: subsides, ponding, low strength	Severe: ponding, frost action, subsides	Severe: ponding, excess humus
AfB:						
Agawam	Severe: cutbanks cave	Slight	Slight	Moderate: slope	Slight	Slight
CfB:						
Charlton	Slight	Slight	Slight	Moderate: slope	Slight	Slight
ChB:						
Charlton	Slight	Slight	Slight	Moderate: slope	Slight	Moderate: large stones
Nn:						
Ninigret	Severe: cutbanks cave, wetness	Moderate: wetness	Severe: wetness	Moderate: wetness	Severe: frost action	Moderate: wetness
Rb:						
Raypol	Severe: cutbanks cave, wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness, frost action	Severe: wetness
Rn:						
Ridgebury	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness, frost action	Severe: wetness

BUILDING SITE DEVELOPMENT--Continued
Wolfe Park

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Rn (con.):						
Leicester	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness	Severe: wetness, frost action	Severe: wetness
Whitman	Severe: ponding	Severe: ponding	Severe: ponding	Severe: ponding	Severe: frost action, ponding	Severe: large stones, ponding

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NATURAL RESOURCES CONSERVATION SERVICE

BUILDING SITE DEVELOPMENT

Endnote -- BUILDING SITE DEVELOPMENT

This report shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are "Slight", "Moderate", or "Severe". The limitations are considered "Slight" if soil properties and site features are generally favorable for the indicated use and limitaions are minor and easily overcome; "Moderate" if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and "Severe" if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

SHALLOW EXCAVATIONS are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or bands to sloughing or caving is affected by soil texture and the depth to the water table.

DWELLINGS AND SMALL COMMERCIAL BUILDINGS are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, depth to bedrock or to a cemented pan, large stones, slope, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

LOCAL ROADS AND STREETS have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

LAWNS AND LANDSCAPING require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

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NATURAL RESOURCES CONSERVATION SERVICE

TABLE 4

SOIL FEATURES
Wolfe Park

Map symbol and soil name	Bedrock		Cemented pan		Subsidence		Potential frost action	Risk of corrosion	
	Depth	Hardness	Depth	Kind	Initial	Total		Uncoated steel	Concrete
	In		In		In	In			
Aa:									
Adrian----------	>60	---	---	---	---	29-33	High	High	Moderate
Palms----------	>60	---	---	---	2-4	25-32	High	High	Moderate
AfB:									
Agawam----------	>60	---	---	---	---	---	Low	Low	High
CfB:									
Charlton--------	>60	---	---	---	---	---	Low	Low	High
ChB:									
Charlton--------	>60	---	---	---	---	---	Low	Low	High
Nn:									
Ninigret--------	>60	---	---	---	---	---	High	Moderate	High
Rb:									
Raypol----------	>60	---	---	---	---	---	High	Moderate	Moderate
Rn:									
Ridgebury-------	>60	---	---	---	---	---	High	High	High
Leicester-------	>60	---	---	---	---	---	High	Low	High
Whitman---------	>60	---	---	---	---	---	High	High	High

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

SOIL FEATURES

Endnote -- SOIL FEATURES

This report gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is either "Soft" or "Hard". If the rock is "Soft" or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is "Hard" or massive, blasting or special equipment generally is needed for excavation.

Cemented pans are cemented or indurated subsurface layers within a depth of 5 feet. Such pans cause difficulty in excavation. Pans are classified as "Thin" or "Thick". A "Thin" pan is less than 3 inches thick if continuously indurated or less than 18 inches thick if discontinuous or fractured. Excavations can be made by trenching machines, backhoes, or small rippers. A "Thick" pan is more than 3 inches thick if continuously indurated or more than 18 inches thick if discontinuous or fractured. Such a pan is so thick or massive that blasting or special equipment is needed in excavation.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. This report shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which usually is a result of oxidation. Not shown in the report is subsidence caused by an imposed surface load or by the withdrawal of ground water throughout an extensive area as a result of lowering the water table.

Potential frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer. For uncoated steel, the risk of corrosion, expressed as "Low", "Moderate", or "High", is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as "Low", "Moderate", or "High". It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

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NATURAL RESOURCES CONSERVATION SERVICE

TABLE 5

WATER FEATURES
Wolfe Park

Map symbol and soil name	Hydrologic group	Flooding			High water table and ponding				
		Frequency	Duration	Months	Water table depth	Kind of water table	Months	Ponding duration	Maximum ponding depth
					Ft				Ft
Aa:									
Adrian----------	A/D	None	---	---	-1.0-1.0	Apparent	Nov-May	---	1.0
Palms-----------	A/D	None	---	---	-1.0-1.0	Apparent	Nov-May	---	1.0
AfB:									
Agawam----------	B	None	---	---	>6.0	---	---	---	---
CfB:									
Charlton--------	B	None	---	---	>6.0	---	---	---	---
ChB:									
Charlton--------	B	None	---	---	>6.0	---	---	---	---
Nn:									
Ninigret--------	B	None	---	---	1.5-2.5	Apparent	Nov-Apr	---	---
Rb:									
Raypol----------	C	None	---	---	0.0-1.0	Apparent	Nov-May	---	---
Rn:									
Ridgebury-------	C	None	---	---	0.0-1.5	Perched	Nov-May	---	---
Leicester-------	C	None	---	---	0.0-1.5	Apparent	Nov-May	---	---
Whitman---------	D	None	---	---	---	Perched	Sep-Jun	Long	1.0

WATER FEATURES

Endnote -- WATER FEATURES--Continued

Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in this report are the depth to the seasonal high water table; the kind of water table, that is, "Apparent", "Artesian", or "Perched"; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in this report.

An "Apparent" water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil.

An "Artesian" water table exists under a hydrostatic beneath an impermeable layer. When the impermeable layer has been penetrated by a cased borehole, the water rises. The final level of the water in the cased borehole is characterized as an artesian water table.

A "Perched" water table is water standing above an unsaturated zone. In places an upper, or "Perched", water table is separated from a lower one by a dry zone. Only saturated zones within a depth of about 6 feet are indicated.

Ponding is standing water in a closed depression. The water is removed only by deep percolation, transpiration, evaporation, or a combination of these processes.

This report gives the depth and duration of ponding and the time of year when ponding is most likely. Depth, duration, and probable dates of occurrence are estimated.

Depth is expressed as the depth of ponded water in feet above the soil surface. Duration is expressed as "Very brief" if less than 2 days, "Brief" if 2 to 7 days, "Long" if 7 to 30 days, and "Very long" if more than 30 days. The information is based on the relation of each soil on the landscape to historic ponding and on local information about the extent and levels of ponding.

U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

WATER FEATURES

Endnote -- WATER FEATURES

This report gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms. The four hydrologic soil groups are:

Group " A". Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group "B". Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group "C". Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group "D". Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in this report, the first letter is for drained areas and the second is for undrained areas. Flooding, the temporary inundation of an area, is caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes. This report gives the frequency and duration of flooding and the time of year when flooding is most likely. Frequency, duration, and probable dates of occurrence are estimated.

Frequency is expressed as "None", "Rare", "Occasional", and "Frequent". "None" means that flooding is not probable; "Rare" that it is unlikely but possible under unusual weather conditions; "Occasional" that it occurs, on the average, once or less in 2 years; and "Frequent" that it occurs, on the average, more than once in 2 years.

Duration is expressed as "Very brief" if less than 2 days, "Brief" if 2 to 7 days, "Long" if 7 to 30 days, and "Very long" if more than 30 days. The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding. Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods.

APPENDIX B

Apple Tree Rejuvination
WHIP Fact Sheet

WILDLIFE IN CONNECTICUT

WILDLIFE HABITAT SERIES

No. 1

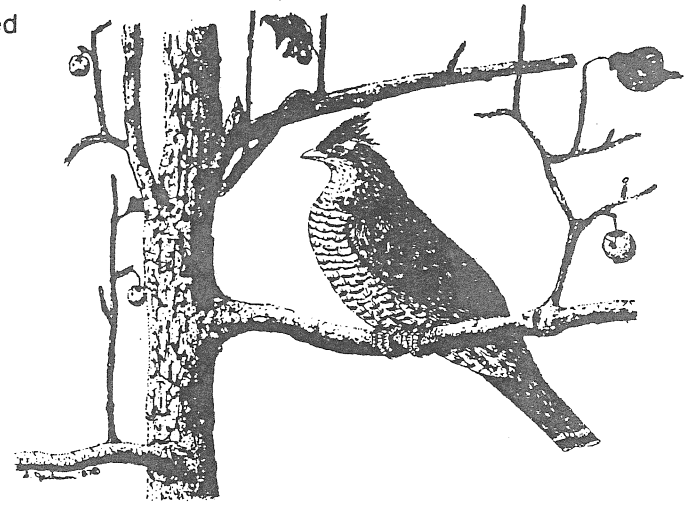
Rejuvenating Old Apple Trees

Why Care About Old Apple Trees?

Wild apple trees are one of the most important wildlife food plants in New England. They are used by many wildlife species, including white-tailed deer, ruffed grouse, snowshoe hare, cottontail rabbit and gray squirrel. Apples or apple seeds have been found in the stomachs of fox, fisher, porcupine, bobcat and red squirrel. Apple trees also provide good habitat for woodcock and many songbirds, including bluebirds, flycatchers, robins and orioles. New England is fortunate to have apple trees growing naturally in the wild.

Where Are Old Apple Trees Found?

Wild apple trees normally become established in clearings or on the edges of fields. Eventually, forests will grow and surround established apple trees, often crowding the trees and shading them from sunlight. Prolonged periods of crowding and shading will cause a decline in vigor and eventually death to the trees, decreasing their value to wildlife.



Pruning an Old Apple Tree

The health, location and value of an apple tree should be determined before pruning is done. If the trunk is rotten and appears to be split or if there are only one or two healthy branches, the tree may not be worth saving. Trees that are successful in producing fruit are exposed to the sun all day long. Disease and insects are more likely to affect trees located in a shady, damp area.

First efforts should be aimed at clearing around the tree, so that the leaves and fruit get plenty of exposure to sunlight. In a situation where the tree has grown in a competitive forest, the apple tree should be pruned before competing trees are cleared from the area. Trees growing under these circumstances usually have shallow root systems and are easily wind blown.

Pruning should be done in late winter or early spring before the leaves begin to appear. When there are no leaves on the branches, it is easier to see the structure of the tree and what cuts are necessary. By late winter, the tree is fully dormant and less susceptible to injury. Also, it has a chance to form a protective barrier behind the pruning cuts before insect and disease organisms become active.

Up to one-third of the live wood on an apple tree can be removed each year. If a tree has been abandoned for a long time, cut only diseased and damaged branches before removing one-third of the live wood. In a situation where the whole top needs to be cut off, the tree will be highly stressed and may not produce apples for a few years.

Pruning Guidelines

The following pruning rules will help improve the vigor and productivity of an old apple tree.

- *Remove all dead wood and diseased branches. All diseased and insect-infested wood should be burned to prevent reinfestation. Coat cutting tools with bleach between cuttings to help prevent reinfestations.*
- *Prune more heavily in the upper part of the tree than in the lower. Sunlight will spread more evenly throughout the tree, helping to maintain the productivity of the lower limbs.*
- *Take out branches that grow toward the center of the tree. This also allows sunlight to reach the fruit.*
- *Cut out branches with narrow crotches. Narrow crotches are weak, causing branches heavy with fruit to split.*
- *Remove all vertical growth. Upright branches do not produce fruit. Cut out water sprouts; these are fast-growing, unbranching upright shoots.*
- *Encourage horizontal branches since they tend to bear more fruit. Branches at a 45 or 90 degree angle are the most desirable.*
- *Eliminate branches that hang below or across one another. A branch shaded by an upper one is not likely to be productive.*
- *Cut back drooping branches. Cutting a branch will strengthen it by encouraging growth further back along the branch.*

References and Further Reading

Brickell, C. 1979. Pruning. Simon and Schuster, Inc., New York. 96 pp.

Hill, L. 1979. Pruning simplified. Rodale Press. 208 pp.

Shaw, S. 1975. Managing woodlands for wildlife. U.S. Dept. of Agriculture, Forest Service. 14 pp.

Grouse in apple tree by Steve Jackson.

The Technical Assistance Informational Series is 75 percent funded by Federal Aid to Wildlife Restoration—the Pittman-Robertson (P-R) Program. The P-R Program provides funding through an excise tax on the sale of sporting firearms, ammunition and archery equipment. The remaining 25 percent of the funding is matched by the Connecticut Wildlife Division.

USDA United States Department of Agriculture
Natural Resources Conservation Service
16 Professional Park Road, Storrs, Connecticut 06268-1299

Fact Sheet

What is WHIP?

The Federal Agriculture Improvement and Reform Act of 1996 (Farm Bill) authorized the establishment of the Wildlife Habitat Incentives Program (WHIP).

What is the Purpose of WHIP?

The purpose of WHIP is to help landowners develop, restore, and protect upland wildlife habitat, wetland wildlife habitat, aquatic habitat, and threatened and endangered species habitats on private lands.

How Does WHIP Work?

In order to develop and implement a WHIP Program in Connecticut, a statewide WHIP Plan will be developed. The state plan objectives will be to improve wildlife habitats in the state using an ecosystem management approach through:

1. Restoration of significantly important natural habitats, and
2. Proper management of human influenced habitats, such as agricultural land.

Who Will Develop the WHIP Program in Connecticut?

A partnership of local, state, and federal agencies and groups will provide the framework to achieve the WHIP goals and objectives.

How Can I Participate in the WHIP Program?

To participate, a person must either own the land on which WHIP will be implemented, or have control and possession of the land for the duration of the WHIP contract. The land cannot be owned by a federal agency or have on-site or off-site conditions that would undermine the successful reestablishment of habitat development practices.

How Will WHIP Requests Be Handled?

To evaluate and prioritize each WHIP request, a ranking system will be used. The ranking criteria evaluates the request and establishes points for ecological, economic, and social factors of each plan.

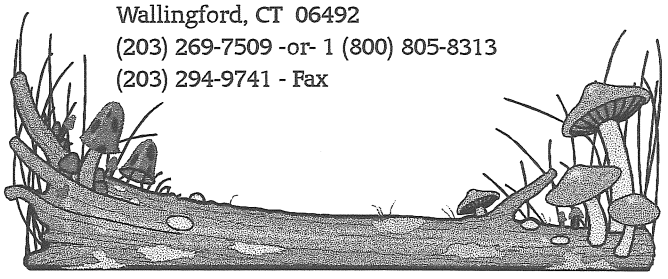
How Does Cost-Sharing Work?

The Natural Resources Conservation Service (NRCS), in consultation with the State Technical Committee, will develop from the NRCS Field Office Technical Guide (FOTG) a list of practices eligible for WHIP cost-share assistance. Any practice in the FOTG that provides positive benefits to wildlife habitat may be eligible for cost-share funds. Cost-share assistance will be used to implement the practices contained in a WHIP Plan. NRCS will cost-share up to 75% of the cost of installing or implementing a practice. If a practice fails for reasons beyond a participant's control (such as drought or flood), cost-share assistance may be available for the reestablishment of the necessary practices.

How Can I Learn More About WHIP?

Questions about the WHIP Program may be addressed to:

D. Alan Page, WHIP Coordinator
USDA, Natural Resources Conservation Service
North Farms Executive Park
900 Northrop Road
Wallingford, CT 06492
(203) 269-7509 -or- 1 (800) 805-8313
(203) 294-9741 - Fax



APPENDIX C

National Register of Historic Places Nomination Information

NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name: Orange Center Historic District
other names/site number: NA

2. Location

street & number: See continuation sheet ☐ not for publication
city, town: Orange ☐ vicinity
state: CT code: CT county: New Haven code: 009 zip code: 06477

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
[X] private	[ ] building(s)	40	16 buildings
[X] public-local	[xx] district	2	sites
[ ] public-State	[ ] site		structures
[ ] public-Federal	[ ] structure		objects
	[ ] object	42	16 Total

Name of related multiple property listing: NA

Number of contributing resources previously listed in the National Register: NA

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this [X] nomination [ ] request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property [X] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of certifying official: John W. Shannahan, State Historic Preservation Officer — Date: July 7, 1989

State or Federal agency and bureau

In my opinion, the property [ ] meets [ ] does not meet the National Register criteria. [ ] See continuation sheet.

Signature of commenting or other official — Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

[ ] entered in the National Register. [ ] See continuation sheet.
[ ] determined eligible for the National Register. [ ] See continuation sheet.
[ ] determined not eligible for the National Register.
[ ] removed from the National Register.
[ ] other, (explain:) _____

Signature of the Keeper — Date of Action

List of Properties in the Orange Center Historic District

Street numbers are given below, where they exist, for district properties. Otherwise, parcels are listed by their lot number on town assessor's maps.

Meetinghouse Lane

205, 209, 218, and 226

Orange Center Road

555, 559, 561, 562, 567, 570, 575, 580, 584, 585, 586, 589, 590, 593, 602, 603, Orange Town Green (Map 41, block 3, lots 17 and 18), 605, 607, 609 and the small parcel behind it (Map 52, block 4, lot 5B), 615, the large town-owned parcel comprising a square block between Tyler City Road and Schoolhouse Lane (Map 52, block 2; the parcel contains the Town Hall, #617, the Orange Volunteer Fire House, #625, and the Mary L. Tracy School, #637), 630, 636, 643, 647, and the Orange Cemetery (Map 51, block 3)

Schoolhouse Lane

647

Tyler City Road

Map 52, block 4, lot 3A

6. Function or Use

Historic Functions (enter categories from instructions)

Domestic: Single dwelling
Religion: Religious structure
Education: School
Agricultural: Agricultural Outbuildings

Current Functions (enter categories from instructions)

Domestic: Single dwelling
Religion: Religious Structure
Education
Agricultural: AGricultural Outbuildings

7. Description

Architectural Classification (enter categories from instructions)

Early Republic: Federal
Mid-19th Century: Greek Revival
Late Victorian: Stick style, Queen Anne
20th-century Revival: Colonial Revival

Materials (enter categories from instructions)

foundation: Brick
walls: Wood: weatherboard
Wood: shingle
roof: Asphalt
other: Wood
Concrete

Describe present and historic physical appearance.

The Orange Center Historic District lies near the geographical center of Orange, Connecticut, approximately one mile south of Route 34, the historic turnpike connecting New Haven and Derby (see attached topographical and district boundary maps). The historic and architectural resources, dating from the late 18th to the early 20th centuries, are clustered in a village around the town green (1791, photograph #1) at the top of a small hill in an area of gently rolling land. The district extends several hundred feet north and south of the green on Orange Center Road, a main thoroughfare. To the east and the west, it includes large farms whose pastures and cultivated fields, demarcated in part by stone walls and rows of trees, recall the predominant historic use of the land in Orange. Much of the town has been subdivided for residential use in this century. Most district buildings are residential, although Orange Center's historic role in town commerce (Stone-Otis House, photograph #6), education (Academy, photograph #8, and Mary L. Tracy School, photograph #11) and religious life (Orange Congregational Church, photograph #5) is also well represented.

58 major structures, buildings and sites are in the district, of which 42 (72%) contribute to its significance. These include two sites, the town green and Orange Cemetery (1804, photograph #16), and three barns. The contributing buildings and structures range widely in age from c.1800 to 1937. Many of the resources are stylistically ambiguous, although there are examples of several formal architectural styles, including the Federal, Greek Revival, Queen Anne and Colonial Revival. Among the otherwise plain and functional outbuildings is a mid-19th century barn embellished with Stick-style gable braces and shed window hoods (Photograph #9). Alterations and additions are common, investing some buildings with features of more than one style and masking original construction dates of others. In one instance, 590 Orange Center Road (photograph #2), built in 1876, later changes transformed an Italianate house into an example of the

☐ See continuation sheet

Colonial Revival. The non-contributing principal buildings are less than 50 years old and, with one exception, are modern interpretations of the Colonial Revival style (photographs 12, 13, and 14).

Most of the contributing buildings are wood-framed, and the prevalent exterior wall cladding is clapboards. Wood shingles and modern applications of synthetic sidings are present to a lesser degree. Among the institutional buildings, those dating from this century are brick. Two stories is the prevalent building height throughout the district. Uniform building setbacks and wide well-tended lawns with mature trees are also the rule (Photograph #3).

The houses at 586 and 603 Orange Center Road, which both appear to date from c.1800, may well be the oldest buildings in the district (note 1). Their 5-bay facades with central entrances and gable roofs with two chimneys are similar, and each in different ways illustrates the influence of the Federal style. The roofline frieze at 586 is embellished with a delicate swag and triglyph motif, while the highlight of 603 (photograph #4) is its front entrance, an elaborate composition of a leaded fanlight and pilasters supporting a shallow gabled hood. Like most buildings in the district, these have received additions, which include a late 19th-century, two-story side bay at 586 and an elaborate Italianate side porch at 603.

David Hoadley, the builder of the Congregational Church (1810, photograph #5), is often credited with its design. Rising from the center of the gable-front facade is a tall square tower surmounted by an arcaded octagonal belfry. Typical Federal-style embellishments of the time include the Palladian window over the entrance and the Ionic pilasters in the belfry. The church is a prominent landmark at the north end of the green, and its 20th-century additions to the rear and west are sympathetic in design and materials.

The c.1830 Stone-Otis House (photograph #6), the headquarters of the Orange Historical Society, reflects the transition from the Federal to the Greek Revival style. The Federal-style raking cornice with small block modillions in the gable-front facade and the tripartite

window, similarly detailed, in the gable peak are juxtaposed with an entrance porch displaying Greek Revival-style columns, pilasters, and pediment. A large front display window was added c.1840 for a store.

Of the several houses built in the Greek Revival style, only 562 Orange Center Road (c.1825, photograph #7) remains largely unaltered. Its Greek Revival features include the pedimented front gable and front entrance surround characteristically articulated with pilasters and a wide molded entablature. While basically similar to 562, 607 (1838) and 630 (c.1840) Orange Center Road, in contrast, each has acquired wood shingle siding and later, stylistically different front porches (Colonial Revival at 607, late 19th-century Victorian at 630).

Most of the 19th-century buildings from after 1850 are stylistically ambiguous, the notable exception being 584 Orange Center Road (1900). Its cross-gabled plan, multiple sheathing materials and irregular massing are Queen Anne in style. Complex detailing characterizes several buildings from the period. Heavy sawn brackets and elaborate pierced gable screens are Stick-Style elements of the Academy (1879, photograph #8), but its wood-shingled gables suggest the influence of the oncoming Queen Anne style. The front gable of 643 Orange Center Road (c.1875, photograph #10) has board-and-batten sheathing above a sawtooth band and a pierced gable screen.

Among the largest buildings in the district are four in the Colonial Revival or Neo-Colonial style, all built after 1900, on the east side of Orange Center Road: the Mary L. Tracy School (1910, photograph #11), the Orange Volunteer Fire House (1935), the Orange Town Hall (1967, photograph #12), and the Orange Public Library (1961, photograph #13). The school, fire house and town hall occupy a block together just off the town green. The Tracy School has heavy, classically-inspired embellishments while the adjoining fire house is more restrained. The most elaborate of the three is the Neo-Colonial town hall, with its 2-story portico, front entrance under a swan's neck pediment, and cupola. The library and two residences of 1940 and 1953 (602 Orange Center Road, photograph #14), all Neo-Colonial, are the only non-contributing buildings facing the green.

Two small early 20th-century cottages (photograph #15), flanking a house of similar age that was extensively altered in 1983, mark the southern boundary of the district. Relatively plain with the suggestion of a Bungalow influence in their plans and exposed roof rafters, the houses terminate the continous row of district buildings.

The Orange Cemetery (photograph #16), at the district's northern border, was founded in 1804 and is still in use. Lining its roadways, oriented east to west forming long rectangular blocks, are grave markers in a variety of shapes and materials. Most are in good repair. Segmental-headed marble slabs from the early 19th century are common, as are tall, multistage granite monuments with the incised foliated detailing typical of the late 19th century. Three of the most ornate from this period are manufactured monuments made of stamped zinc plates.

Notes.

1. The size and shape of the 1-1/2-story house at 218 Meetinghouse Lane suggest that it may be even older, but changes in its fenestration, among other alterations, leave the matter unresolved. Prior to 1850, Meetinghouse Lane ran past the building's south elevation, which helps to justify its deep setback from the present course of the street, now located to its north.

Inventory of Historic District Resources

The inventory includes all resources of any consequence on each parcel of real property within the historic district. Contributing ("C") and non-contributing ("NC") resources are indicated in the inventory by the use of C or NC, as appropriate, before the description of each. For those properties without clear street addresses, town assessor's map/block/lot information is supplied. Construction dates are derived from visual analysis or the town assessor's records. Dates of major alterations are listed if known. Photograph references appear at the ends of entries.

Meetinghouse Lane		Style, Use, Date and Architect (if known)
205	C	Orange Congregational Church, Federal, 1810, David Hoadley (builder); with additions in 1905 (rear), 1927 (parish hall), and 1957 (brick parish house). Photographs #1 and 5.
209	NC	Colonial Revival-inspired house, 1940, with 1952 addition
218	C	House, c.1800, with non-original wood shingle siding and windows
	NC	Garage, 20th century
226	C	House, vernacular, 19th century, with aluminum siding and non-original porch and rear addition
Orange Center Road		
555	C	House, vernacular, c.1920
	NC	Garage, 20th century. Photograph #15

559	NC	House, early 20th century, with second story and aluminum siding, 1983. Photograph #15
561	C	House, vernacular, c.1920. Photograph #15
	C	Garage, early 20th century
562	C	Greek Revival house, c.1820, with non-original wood shingle siding and exterior chimney, 20th-century attached garage. Photograph #7
567	C	House, early 19th century, with non-original aluminum siding and additions
	C	Garage, early 20th century
570	NC	House, mid-20th century
575	C	House, c.1800, with non-original wood shingle siding
580	C	House, 19th century. Originally a barn that was moved to this site in 1930 and converted to a residence, with alterations, 1969, 1973
584	C	Queen Anne house, 1900
	C	Garage with attached shed, 1900
585	C	House, 19th century, with 1983 front porch
	NC	Garage, 20th century
	NC	Garage, 1983
586	C	Federal house, c.1800, with non-original windows and side bay window
	NC	Garage, 1949

589	C	Colonial Revival house, 1908; rear additions, 1980s
	C	Garage, 1920
		Orange Center Historic District
590	C	Italianate house, 1876, altered to Colonial Revival style, 1926, with 1974 additions Photograph #2
	C	Garage, early 20th century
	C	Barn, late 19th century
	C	Farm outbuilding, early 20th century
593	NC	House, 1958
	NC	Garage, c.1958
602	NC	House, 1953 (Congregational Church Parsonage), Henry Kelly. Photograph #14
603	C	Federal house, c.1800, with non-original windows and late 19th-century side porch
	C	Barn, late 19th century. Photograph #9
	C	Barn, late 19th century. Photograph #9
605	NC	Orange Public Library, Neo-Colonial, 1961; rear addition, 1973. Photograph #13
609	C	Academy, Stick style, 1879, with non-original synthetic siding; now houses Orange Board of Education. Photograph #8
Orange Town Green (site)	C	Town green, 1791, 1830, with two 20th-century memorial boulders. Photograph #1
607	C	Greek Revival house, 1838, with non-original wood shingle siding and c.1900 wrap-around porch

615	C	Stone-Otis House, Federal/Greek Revival, c.1830, with non-original wood shingle siding. Photograph #6
	C	Large shed, 19th century
617	NC	Orange Town Hall, Neo-Colonial, 1967. Photograph #12
625	C	Orange Volunteer Fire House, Colonial Revival, 1935, with addition (1963)
630	C	Greek Revival house, c.1840, with front entrance porch (c.1875), non-original wood shingle siding and modern glass porch (1979)
	NC	Barn/outbuilding, mid-20th century
	C	Garage, late 19th century
636	C	Southern New England Telephone Company Building, Colonial Revival, 1937, with 1952 and 1962 additions
637	C	Mary L. Tracy School, Colonial Revival, 1910. Photograph #11
	C	Colonial Revival classroom building, 1925
	NC	Neo-Colonial classroom building, 1950
643	C	House, c.1875. Photograph #10
647	C	House, c.1880, with synthetic siding
Orange Cemetery	C	Town cemetery, 1804. Photograph #16

School House Lane

647	C	Victorian house, c.1880. Originally located on south side of Schoolhouse Lane and moved to this site in 1934, with non-original front entrance.

Tyler City Road

Map 52, block 4, lot 3A	C	Garage, early 20th century
	C	Garage, early 20th century
	C	Garage, early 20th century
	NC	Large shed, mid-20th century

Photographs

All photographs of buildings in the Orange Center Historic District were taken by Gregory E. Andrews in January and February, 1989. Negatives for all photographs are on file with the Connecticut Historical Commission, Hartford, CT

Number	Description & View
1.	Orange Green, north view
2.	590 Orange Center Road, west view
3.	Orange Center Road, southeast view
4.	603 Orange Center Road, north view
5.	Orange Congregational Church, northwest view
6.	Stone-Otis House, east view
7.	562 Orange Center Road, southwest view
8.	Academy building, east view
9.	Barns at 603 Orange Center Road, east view
10.	643 Orange Center Road, northeast view
11.	Mary L. Tracy School, northeast view
12.	Orange Town Hall, northeast view
13.	Orange Public Library, northeast view
14.	602 Orange Center Road, southwest view
15.	561, 559 & 555 Orange Center Road, southeast view
16.	Orange Center Cemetery, south view

9. Major Bibliographical References

See continuation sheet

☒ See continuation sheet

Previous documentation on file (NPS):

- ☐ preliminary determination of individual listing (36 CFR 67) has been requested
- ☐ previously listed in the National Register
- ☐ previously determined eligible by the National Register
- ☐ designated a National Historic Landmark
- ☐ recorded by Historic American Buildings Survey # _____
- ☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

- ☒ State historic preservation office
- ☐ Other State agency
- ☐ Federal agency
- ☐ Local government
- ☐ University
- ☒ Other

Specify repository:

Orange Historical Society
Orange Public Library

10. Geographical Data

Acreage of property Approximately 195

UTM References

	Zone	Easting	Northing
A			
B			
C			
D			

☒ See continuation sheet

Verbal Boundary Description

The district boundaries are delineated on the accompanying map, which is based on the Orange Town Assessor's and Engineer's maps (1" = 400 ft.). Boundaries follow property lines and the middle of roads.

☒ See continuation sheet

Boundary Justification

☒ See continuation sheet

11. Form Prepared By

name/title Gregory E. Andrews and David F. Ransom, Reviewed by John Herzan, National
organization _____ date JUNE 1, 1984 Register Coordinator
street & number 1643 Boulevard telephone (203) 561-3841
city or town West Hartford state CT zip code 06107

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☒ statewide ☐ locally

Applicable National Register Criteria ☐ A ☐ B ☒ C ☐ D

Criteria Considerations (Exceptions) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Architecture	1791-1937	1810

Cultural Affiliation: NA

Significant Person:

Architect/Builder: Hoadley, David

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The Orange Center Historic District is architecturally significant because it is a cohesive village of well-preserved buildings and their surroundings that convey a strong sense of the area's historic appearance and role in town life. Present are fine examples of the Federal, Greek Revival, Queen Anne, and Colonial Revival architectural styles, together with vernacular buildings typical of small New England villages. The Orange Congregational Church is notable as an early example of the work of David Hoadley, an influential builder of 19th-century Connecticut meetinghouses.

Historical Background

European settlement of Orange began after 1687, when the area was laid out for farm land by the town of Milford. Orange Center was part of the tract granted to Richard Bryan and known as Bryans' Farms. The rolling land was well-suited for cultivation. By 1791, the small community of widely scattered farmhouses had set aside a green for public use and grazing (part of the present Orange Green) and on it had constructed a meetinghouse for "winter preaching." In 1804, the state legislature granted the area separate religious privileges as the North Milford Ecclesiastical Society. The construction of the present Orange Congregational Church occurred soon thereafter.

During the 19th century, Orange Center became a focus for community life, although it grew slowly. A schoolhouse was built around 1821 near the site of the present Academy building. When the town of Orange was incorporated in 1822, the first town meeting was held here. Small shops and businesses operated out of homes near the

☐ See continuation sheet

Stone-Otis House. Improved turnpikes from New Haven westward ran north and south of the village, however, keeping heavy commmercial traffic at a distance. The village of West Haven near Long Island Sound, a part of the town of Orange until 1921, was larger and more commercially active. Agriculture, including raising livestock and dairy farming, remained the chief activity around Orange Center.

Orange Center has changed relatively little in this century despite the town's substantial residential and commercial growth. The green and surroundings assumed much of their present appearance before World War II. Larger buildings for town facilities have risen on Orange Center Road, but their placement has kept the 19th-century ambience of the green intact. While post-war residential subdivisions have claimed much of the town's farm land, the district includes a large open parcel west of the green that is still agricultural. A local historic district, created in 1978 with boundaries similar to those of the National Register district, has helped to maintain the area's appearance.

Architectural Significance

The Orange Center historic district's strong sense of time and place is a product of many factors, both built and natural. Most of the architectural resources date from the village's long period of significance. Their diversity in age and style is evidence of the community's gradual development. Non-contributing principal buildings fit well into this historic fabric because they are few in number (6) and tend to imitate the older styles (e.g., the Congregational Church Parsonage, 1953, photograph #14). The district is also physically cohesive. Its street pattern, established by the mid-19th century, is little changed (note 1). The age and concentration of the buildings and the district's organization around a central green set the area apart from the more recent residential neighborhoods outside the district.

The cultivated fields and pastures along the the district's western border and the well-preserved farm-related buildings on at least two

properties (590 and 603 Orange Center Road) maintain a significant link to the agricultural pursuits that were historically central to Orange Center's economic life. The rows of trees and old stone walls lining Meetinghouse Lane and delineating the fields typify the historic appearance of rural New England farms.

Architecturally, the Orange Center Historic District displays the stylistic diversity and range in quality that characterizes small, largely rural Connecticut communities of its age. The houses at 603, 562 and 584 Orange Center Road are fine examples of the Federal, Greek Revival, and Queen Anne styles, respectively, each illustrating the defining features of its style. Other buildings incorporate certain high-style elements into overall vernacular designs. The Stick-style gable bracing and gable screens of the Academy are an example, as are the front gable sheathing and ornamentation at 643 Orange Center Road. Many buildings, not surprisingly, were altered over time and acquired features of later styles, such as the Italianate side porch on the Federal-style house at 603 Orange Center Road. These changes have acquired value in their own right, and inappropriate alterations have not compromised the integrity of the district.

Key aspects of Orange Center's historic civic and cultural role in town life are embodied in the district buildings. The evolution of the community from theocracy to democracy is represented by the Orange Congregational Church (1810). The Academy building (1879) and the Mary L. Tracy School (1909) are evidence of the district's important place in town education. Orange Center's continuing role as town center is demonstrated by the Academy building (1879), where town meetings were held during the 19th century and which served as town hall during part of the 20th, and by the construction here of the Volunteer Fire House (1935), the town library (1961) and the present town hall (1967).

The Congregational Church (1810) is of high architectural importance because it is a well-executed Federal-style example of an early 19th-century New England meetinghouse. Its position as one of the first religious buildings associated with David Hoadley (1774-c.1840), a

master builder of Connecticut churches, adds to its interest. Hoadley was involved in the construction of some of Connecticut's finest churches during the first quarter of the 19th century (note 1). His most important commission as builder was the United Church (1813-1815) on the Green in New Haven. The Orange church is less imposing and sophisticated than the later works associated with him (note 2), but its fine construction, proportions and detailing help trace the development of Hoadley's career.

Notes.

1. Atlas of New Haven County, Connecticut (1869).

2. No specific evidence exists to assign Hoadley the role of architect in any churches of the period, although he is mentioned in records as the joiner or contractor for several. Some commentators, however, suggest his central artistic contribution in these designs and others, in part because of the many similarities among them. See, e.g., Sinnott, Meetinghouse and Church in Early New England, pp.102-106.

2. The Congregational Church in Avon, Connecticut (1818), for example, built by Hoadley, has a shallow projecting entrance pavilion supporting a multi-stage tower that rises to a slender spire.

Atlas of New Haven, County, Connecticut. New York: F.W. Beers, A.D. Ellis & G.G. Soule, 1869.

Kelly, John Frederick. Early Connecticut Meetinghouses-Being An Account of the Church Edifices Built before 1830 Based Chiefly upon Town and Parish Records. New York: Columbia University, 1948.

Orange Historic District Study Committee. Final Report of the Historic District Study Committee of the Town of Orange. Orange, CT: September 1976 (unpublished).

Orange Sesquicentennial Commission Book Committee. Orange 150 - Sesquicentennial 1822-1972. (Undated)

Orange, Town of. Records of Assessor and Town Clerk.

Placzek, Adolf K., ed. Macmillan Encyclopedia of Architects, vol. 2 ("David Hoadley," p.396, by Elizabeth Mills Brown). New York: The Free Press, 1982.

Rockey, J.L., ed. History of New Haven County. New York: W.W. Preston & Company, 1892.

Sinnott, Edmund W. Meetinghouse and Church in Early New England. New York: McGraw-Hill Book Company, Inc., 1963.

Boundary Justification:

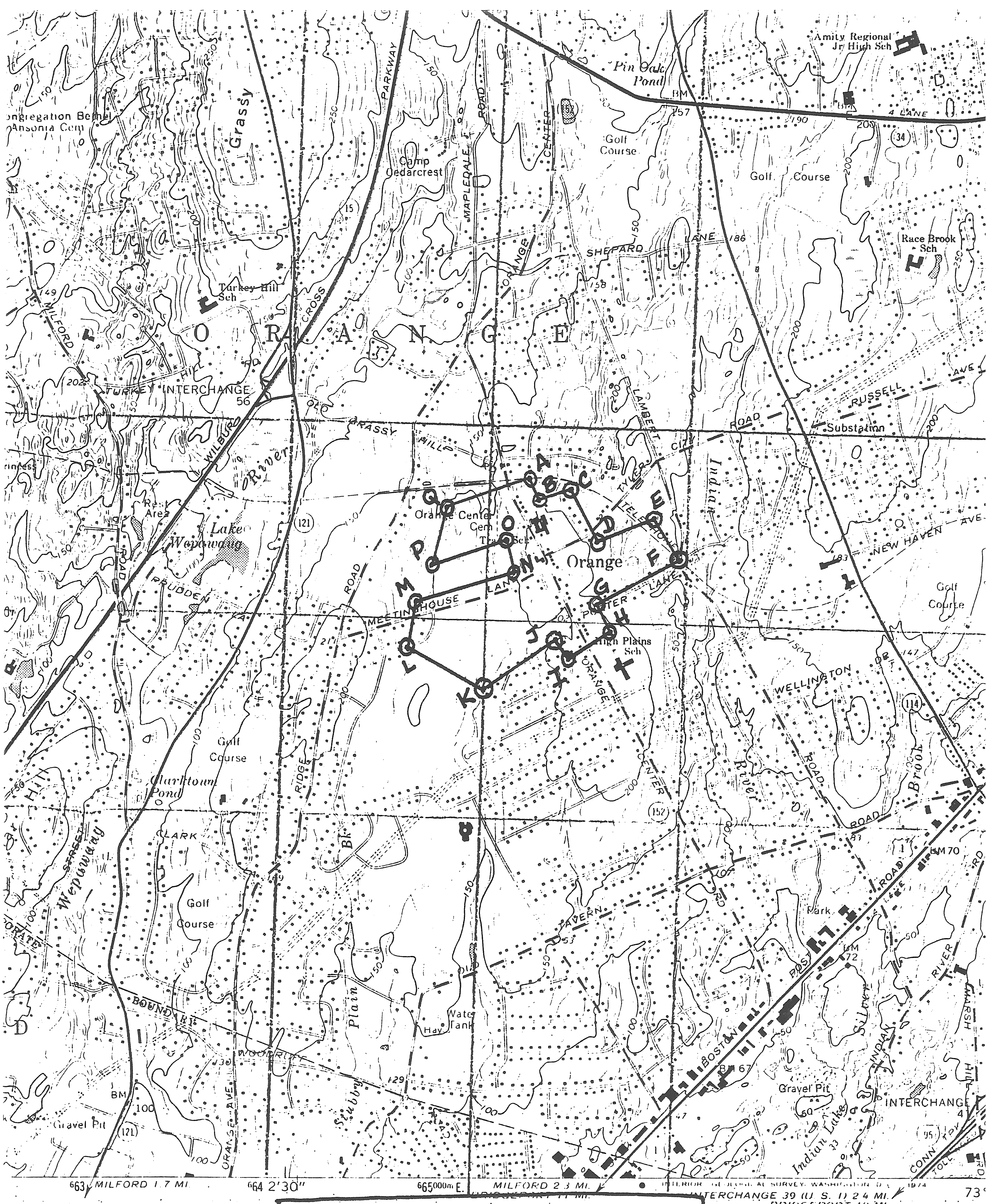
Property lines of district resources, as set forth in the current town assessor's maps, form the exact delineation of the district's borders.

The boundaries of the historic district mark the visual extent of the buildings, structures, and sites most closely associated with the district's theme of importance: the historic development of the village of Orange Center.

Residential subdivisions from the mid-20th-century or later surround the district at its borders. A group of new commercial buildings also helps define the northern border on Orange Center Road. At the southern end on Orange Center Road, the open land around the High Plains Community Center, a 20th-century school building, terminates a nearly continuous row of contributing district buildings. Delineating the eastern border is a mixture of modern homes and a few 19th-century residences that have been extensively altered.

UTM Coordinates

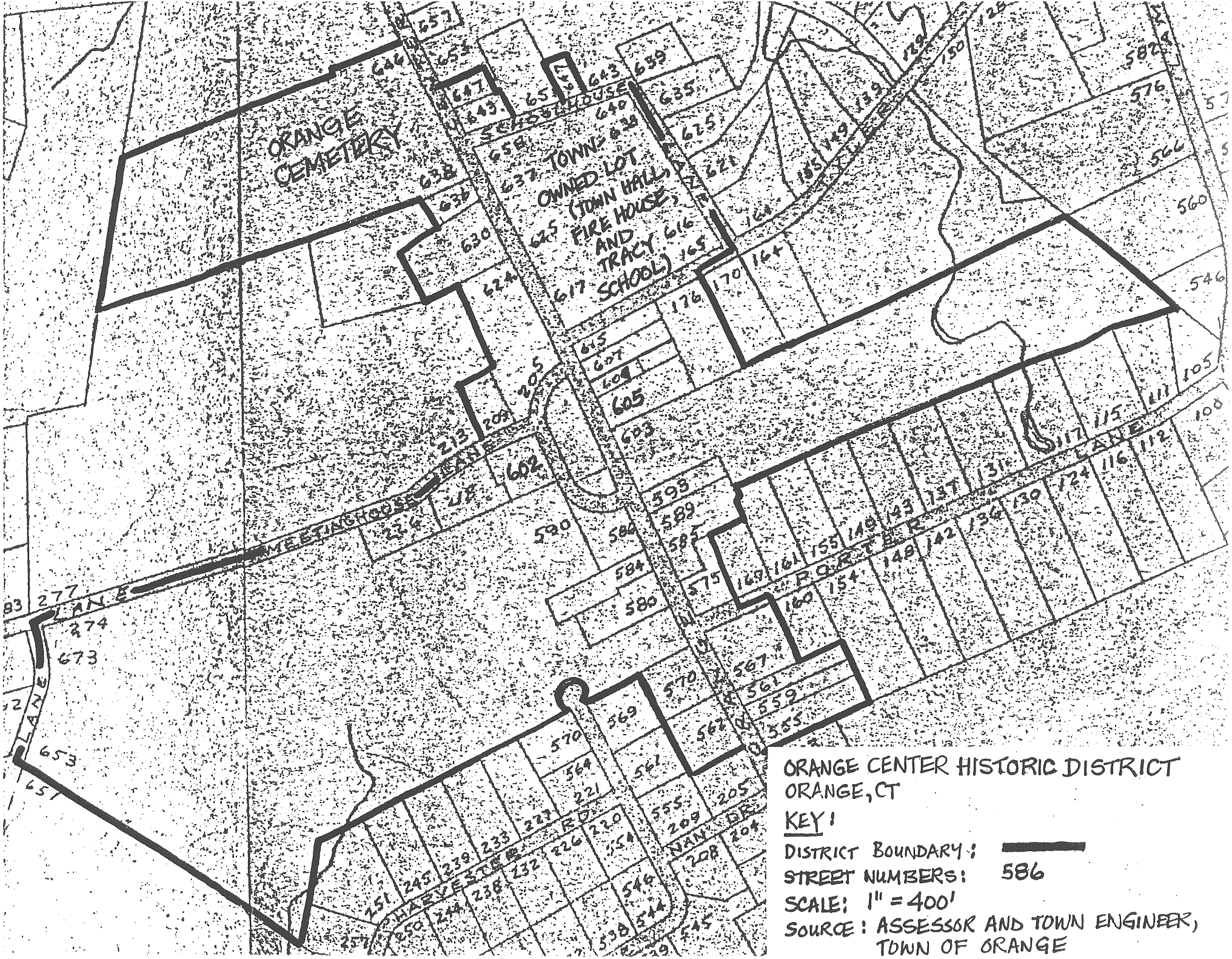
A: 18/665190/4571720
B: 18/665250/4571610
C: 18/665400/4571670
D: 18/665530/4571410
E: 18/665820/4571530
F: 18/665960/4571320
G: 18/665550/4571090
H: 18/665620/4570960
I: 18/665410/4570820
J: 18/665350/4570910
K: 18/665000/4570650
L: 18/664620/4570860
M: 18/664650/4571080
N: 18/665130/4571250
O: 18/665090/4571410
P: 18/664730/4571270
Q: 18/664790/4571570



ORANGE CENTER HISTORIC DISTRICT
ORANGE, CT

ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium duty	Unimproved dirt



ORANGE CENTER HISTORIC DISTRICT
ORANGE, CT

KEY:

DISTRICT BOUNDARY: ▬▬

STREET NUMBERS: 586

SCALE: 1" = 400'

SOURCE: ASSESSOR AND TOWN ENGINEER, TOWN OF ORANGE

(2)

6

(7)


643


CAUTION


ENTER
ONLY
ONE WAY


ORANGE
HISTORIC
DISTRICT
Established 1978

ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, soil scientists, foresters, climatologists and landscape architects, recreational specialists, engineers and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - an 83 town area serving western Connecticut.

As a public service activity, the Team is available to serve towns within the King's Mark RC&D Area - **free of charge**.

Purpose of the Environmental Review Team

The Environmental Review Team is available to assist towns in the review of sites proposed for major land use activities or natural resource inventories for critical areas. For example, the ERT has been involved in the review of a wide range of significant land use activities including subdivisions, sanitary landfills, commercial and industrial developments and recreation/open space projects.

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 site and highlighting opportunities and limitations for the proposed land use.

Requesting an Environmental Review

Environmental reviews may be requested by the chief elected official of a municipality or the chairman of an administrative agency such as planning and zoning, conservation or inland wetlands. Environmental Review Request Forms are available at your local Soil and Water Conservation District and through the King's Mark ERT Coordinator. This request form must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer allowing the Team to enter the property for the purposes of a review and a statement identifying the specific areas of concern the Team members should investigate. When this request is reviewed by the local Soil and Water Conservation District and approved by the King's Mark RC&D Executive Council, the Team will undertake the review. At present, the ERT can undertake approximately two reviews per month depending on scheduling and Team member availability.

For additional information regarding the Environmental Review Team, please contact the King's Mark ERT Coordinator, Connecticut Environmental Review Team, P.O. Box 70, Haddam, CT 06438. The telephone number is 860-345-3977.