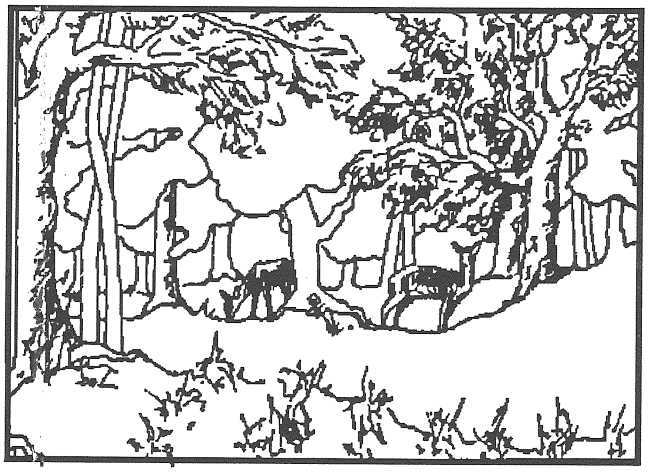
King's Mark Resource Conservation and Development Area, Inc.

King's Mark Environmental Review Team Report



Litchfield Woods Residential Development

Litchfield, Connecticut

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Environmental Review Team Report

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

for the
Conservation/Inland Wetlands Commission
and
Planning and Zoning Commission
Litchfield, Connecticut

December 2000

CT Environmental Review Teams
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Acknowledgments

This report is an outgrowth of a request from the Litchfield Conservation/Inland Wetlands Commission and the Litchfield Planning and Zoning Commission to the Litchfield 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 Tuesday, October 17, 2000.

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I would also like to thank Sue Kennedy, chair, conservation/inland commission, Barbara Brower, commission member, Laura Cleminshaw, chair, planning and zoning commission, Katherine Davis, commission member, Ruth Mulcahy, Litchfield land use administrator, Tom McGowan, town planner, Thomas Gissen, Frank Caico, and Joe Novella, Ginsburg Development Corporation (applicant), Gurdon Buck, Robinson and Cole, Beth Evans, Evans Associates, Jim Rotundo, Consultants and Engineers, and Michael Galante, F.P. Clark Associates, 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 a location map and a copy of the 1988 ERT report completed for a proposed condominium project on the same site. During the field review Team members were given plans and additional information. An environmental site assessment report was available at a later date for Team members. Some Team members made individual or additional visits to the project site. 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 and landowner. This report identifies the existing resource base and evaluates its significance to potential 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 Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in reviewing this proposed residential development.

If you require additional information please contact:

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Introduction

Introduction

The Litchfield Conservation/Inland Wetlands Commission and the Litchfield Planning and Zoning Commission have requested assistance from the King's Mark Environmental Review Team in conducting a review of the proposed Litchfield Woods Residential Development.

The project site is approximately 77 acres in size located on the Litchfield-Torrington town line. The site is bounded by Torrington and Route 202 to the north, Clark Road on the south and east, and the rear yards of homes that front on Hart Drive to the west. Approximately 50 acres are located in Litchfield, with the remainder in Torrington. The site is wooded and contains several perennial watercourses with associated wetlands. A very large wetland system exists in the northern portion of the site mostly in Torrington. The site is zoned RMF-160.

The proposal consists of the construction of 138 townhouse units with a clubhouse, pool and tennis courts. The main access is from Clark Road in the form of a boulevard. A second, smaller access road is provided to the northwest, also on Clark Road. At the review meeting it was stated that this road would be gated and serve as an emergency access/egress only. The bulk of the units are located in the eastern portion of the site with a small cluster of units near the more northeastern Clark Road access/egress point.

An ERT review was conducted in 1988 (*Northwest Development Condominiums*) for a 228 unit condominium project on this same parcel.

Objectives of the ERT Study

The commissions are requesting the ERT to have additional technical assistance in reviewing the proposed project. The report will aid the commissions in their analysis of possible environmental and land use impacts to the town. Of specific concern are: impacts to on-site and off-site wetlands and watercourses, wildlife impacts, stormwater management, site design and density, traffic and access and other impacts to the community. The ERT report will provide natural resource information, a discussion of potential impacts, and guidelines and recommendations for the protection of natural, cultural and community resources.

The ERT Process

Through the efforts of the conservation/inland wetlands commission and the planning and zoning commission this environmental review and report was prepared for the Town of Litchfield.

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

The review process consisted of four phases:

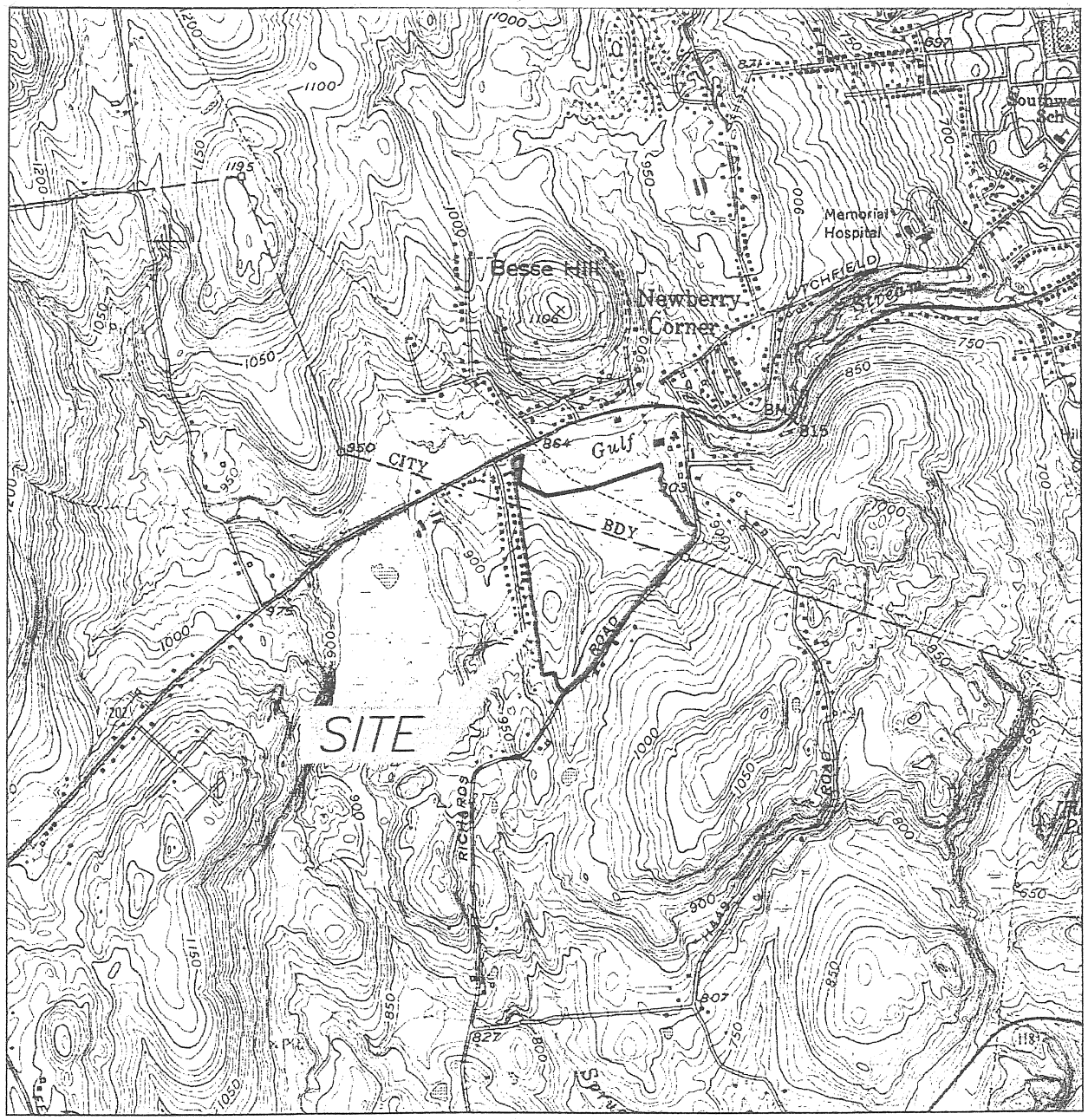
1. Inventory of the site's natural resources;
2. Assessment of these resources;
3. Identification of resource areas and review of plans; and
4. Presentation of education, management and land use guidelines.

The data collection phase involved both literature and field research. The field review was conducted on Tuesday, October 17, 2000. Some Team members made

individual and/or additional site visits. 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.



CONSULTANTS & ENGINEERS, INC.

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TEL: (203) 748-1442 FAX: (203) 798-0864

PROJECT: LITCHFIELD WOODS
LITCHFIELD, CONNECTICUT

TITLE: USGS LOCATION MAP

SCALE: 1" = 1500'±	DATE: 09/00	DRAWING No. D-1
DRAWN: MSR	APPROVED BY: JW	

TAKEN FROM WEST TORRINGTON, CONN. QUADRANGLE

Wetland Resources Review

The proposed plan of development is for a 77 acre site which straddles the municipal boundary between Torrington (to the north) and Litchfield (to the south). All of the habitable construction will be on the Litchfield portion of the parcel. The largest wetland on the site is approximately 37 acres in size and dominates the northeast portion (the Torrington acreage almost entirely and the Litchfield acreage to a lesser extent) of the site. A 1988 ERT reviewed the wetlands as a resource, and the site report of Evans and Associates (revised 10/20/00) again described the resources well. Thus, there is no need to reiterate. This section of the report will be the Team wetland reviewer's observations regarding the current plan, the ERT field visit and his thoughts on the developmental impacts as put forth in the proposal.

The wetlands on the site occur in the form of a small perennial stream which passes from the southwest corner under the existing dirt entrance road. This stream flows northeast across the site into the large wetland described above. Clark Road forms the southeastern side of this roughly triangular parcel and intercepts downhill drainage from the southeast. This drainage passes under the road in various sized concrete pipes. Four such drainages empty onto the property in this manner. The three most southerly piped drainages pass through grassy and scrub/shrub areas discharging into the perennial stream. The forth and most northerly drainage ultimately empties into the large wetland.

GDC has done a commendable job of observing the 100 foot wetland buffer as well as the 150 foot setback from the perennial stream. In nearly all instances these limits have been respected. There are, however, two occurrences on the plan where this is not the case. The first is at the main entrance road which

crosses the perennial stream. The second is at the internal road crossing which connects the main cluster of living units to the smaller outlying cluster.

The proposed crossing at the main entrance will span the existing watercourse. This watercourse is currently degraded because of its culverted passage under the existing dirt entrance road. This new construction will improve the degradation to the stream and streambed by restoring the gradient to the stream and spanning it to allow for a natural bottom to the watercourse. This should be a vast improvement from its existing condition. However, no details were provided for this construction, so comments regarding the actual design, buildout impacts of the construction, resulting wing walls and installation of the neighboring 900 gallon *Stormceptor* can be made at this time.

Road construction at the entrance in excess of 450 linear feet will take place in the wetland buffer zone. This consists of a two lane, boulevard type roadway 34 feet in surface width along with the installation of the 900 gallon *Stormceptor* twenty feet from the watercourse. The impacts of post construction storm runoff including sediments and other pollutants into the wetlands are a concern. In all, this construction disturbs at least 15,000 square feet of wetland buffer.

The second major impact is the wetland crossing on the internal road. The issue here is essentially one of questioning the necessity of this road (and its resulting crossing) since the living units it connects to are proposed to have access from Clark Road. If this "as proposed" alternative is accepted by the town the resulting issue is the treatment of the crossing as it is described in the plans.

First, under the consideration of prudent and feasible alternatives the development could certainly prosper without the connecting road to the main development. The smaller entrance road from Clark Road, now proposed as a gated emergency egress, could suffice as entry. But, CDG has expressed the desire to maintain a "community aspect" to the development, that is, to maintain

connectivity between the two sections. The road does maintain the connectivity and its curving nature offers a decreased line-of-sight which provides a feeling of isolation from the other units.

Those attributes notwithstanding, they dictate a situation that impacts the watercourse and its riparian wetlands. Because of the angle of approach the road will cross the stream in a skewed manner, varying from perpendicular enough to preclude the use of a span or arch. The result is the proposed crossing which features four in-line box culverts through which the stream will pass. A redirecting of the road would allow a 90 degree crossing of the stream and allow for a span similar in design to that at the entrance road. The end result would be a crossing which would leave the stream and stream bottom intact and a riparian area beneficial to small wildlife (depending on the final design and size of the arched crossing).

Since the potential for erosion on this site is great and sediment deposition in the wetland could have tremendous negative impact on both wetlands and the watercourse, an explanation of the sizing of the *Stormceptors* would be valuable to all reviewers. Of the six *Stormceptors* depicted on the plan only five were given sizes. Confusion arises in the comparisons of sizing. For example, *Stormceptor* numbers 2, 4, 5, and 6 are 900 gallons in size and have an average of 5.25 storm drains emptying into them. *Stormceptor* number three is about two and a half times larger in volume (2400 gallons) but shows five and a half times more storm drains (29) emptying into it.

Alternatives to catch basins and *Stormceptors* should be strongly considered. This would take the burden off the *Stormceptors* for perfect sediment retention and decrease the likelihood of sediment loading into wetlands at any given point of discharge.

Curbing acts to channel stormwater to catch basins and ultimately to a discharge point at or near a wetland. To help alleviate the need for the curbing the use of a slightly higher crowned road with sheet flow runoff into vegetative buffers, and/or the use of broken curbing which directs sheet flow into grassy swales/infiltration trenches should be considered. This could serve to reduce construction costs (less materials used) and minimize the long term maintenance of sediment trapping devices. These concepts come closer to mimicking existing drainage than does channeling or focusing all stormwater to single, concentrated, maintenance intensive outlet points (in this case these are the *Stormceptors*).

Other points of consideration:

- Due to the tremendous amount of earth moving on this project, in places up to 12 and 16 feet on some road cuts, combined with steep slopes and the proximity to wetland systems the placement of stockpiles should be labeled on the plan. Stockpiles are typically shown on proposed plans of development to ensure that they have been considered and are out of buffers, erodable areas, and that plans are in place for their erosion and sediment control.

- Detailed plans on stormwater management facilities (*Stormceptors*, catch basins, etc.) regarding their placement and physical size on the landscape should be shown.

- One specific concern is the maintenance schedule and obligation for the sediment cleanout of the catch basins and the six *Stormceptors* once the construction is complete.

- There needs to be detailed plans for both wetland crossings: the entrance span and the paralleled box culverts on the internal road.

- Because of the intensity of this development wildlife habitat associated with the upland and wetland could be compromised. Maintaining adequate buffers around wetlands will help preserve some of the habitat value associated with these areas.

- If this project will impact between 5000 square feet and one (1) acre of wetlands, project review is required by both the U.S. Army Corps of Engineers (A.C.O.E.) and Inland Water Resources Division of the CT DEP.

Stormwater Management

Stormwater Permitting

Since the site construction involves the disturbance of over five acres, Connecticut's General Permit for the Discharge of Stormwater and Dewatering Wastewaters ("the Permit") will cover the project. The Permit requires that the site register with the Department of Environmental Protection (CTDEP) at least 30 days before the start of construction. The registrant must also prepare, submit and keep on site during the construction project a Stormwater Pollution Control Plan ("the Plan"). Due to the size and potential impacts on natural resources of this project, the Department has recommended to the developer that the Plan be submitted 180 days prior to the start of construction. If the Department finds that the Plan is inadequate, Connecticut General Statutes Section 22a-430b and Permit Section 7(c) allow the Commissioner to require an individual permit, a process that could delay approval of the project for several months. In order to prevent this and to ensure adequate review time, the Department has requested early submittal of the Plan.

Please note that while this review is based primarily on the Permit, many of the erosion and sedimentation issues are included in the Connecticut Guidelines for Soil Erosion and Sediment Control ("the guidelines"), and are issues that must be dealt with on a local level before being included in the Plan. It should also be noted that the permit requires compliance with the guidelines. The developer must register for the Permit, and the contractor and any subcontractors involved in grading must sign the contractor certification statement in the Permit. Any registration submitted by anyone other than the developer will be rejected.

The Plan must include a site map as described in Section 6(b)(6)(A) of the Permit and a copy of the erosion and sedimentation (E & S) control plan for the site. The E & S plan that has been approved by the Town in conjunction with the CTDEP Inland Water Resources Division (IWRD) and the local Soil and Water Conservation District may be included in the Plan. This plan and site map must include specifics on controls that will be used during each phase of construction. Specific site maps and controls must be described in the Plan, as well as construction details for each control used. The Permit requires that the plan shall ensure and demonstrate compliance with the guidelines.

Due to the amount of soil disturbance, one of the best ways to minimize erosion potential is to phase construction in order to minimize unstable areas. However, due to the balance of cuts and fills, phasing in some areas will be extremely difficult. The Plan must be flexible to account for adjustment of controls as necessary in order to meet field conditions. At a minimum, the Plan must include interior controls appropriate to different phases of construction. The plan should identify areas where stock piling of soil will occur and detail the type of erosion controls that will be used during the cut and fill portion of the project.

This project has extreme slopes and numerous wetland areas to be protected, which will make ongoing inspections and adjustments of controls a critical aspect of this project. The Permit (Section 6(b)(6)(D)) requires inspections of all areas at least once every seven calendar days and after every storm of 0.1 inches or greater.

The Plan must also give the inspector the authority to require additional control measures if the inspection finds them necessary, and should note the qualifications of personnel doing the inspections. In addition, the Plan must include monthly inspections of stabilized areas for at least three months *following* stabilization.

In particular, since phasing will be difficult and a large amount of disturbance will occur at once, there must be someone available to design and adjust E&S controls for changing site conditions, who has the authority and resources to ensure that such necessary changes are implemented. Due to the size of the project and the variability and complexity of controls potentially needed, a full time erosion and sediment control inspector, approved by the Department, will be required by the Department during construction.

Section 6(b)(6)(C)(ii) of the Permit requires the Plan to address dewatering wastewaters, which this site may generate. Specific details for construction control during installation of all wetland crossings must be provided.

Particular attention must be paid to the construction in the area of the site which has very steep slopes. Soil type and the location of water table must be considered when cutting and filling of slopes during the construction process. Also, when the cutting and filling portion of the project is conducted please ensure that the tops of the slopes are stabilized with berms or other means that comply with the guidelines. It may be necessary to evaluate the use of foundation drains in this area. The Department recommends erosion control matting for slopes greater than 3 to 1.

Post-Construction Stormwater Treatment

The Site Engineering Report did not include calculations for the sizing of the swirl concentrator treatment unit. Specifically, one of the treatment units appears to be collecting water from 29 catch basins without justification for the sizing. The Plan must include sizing calculations for the swirl concentrators. The installation of a swirl concentrator would require a long-term maintenance commitment from the town or a homeowners association. A maintenance plan with a responsible party should be part of the Plan.

Please keep in mind while developing the Plan, Section 6(b)(C)(iii) of the Permit requires a demonstration that post construction stormwater treatment will be designed to treat for 80% removal of total suspended solids.

Erosion and Sediment Control Notes

The Permit stabilization requirements include the following: where construction activities have permanently ceased or have temporarily been suspended for more than seven days or where final grades are reached in any portion of the site, stabilization practices shall be implemented within three days.

Section 6(C)(i) of the Permit requires when construction activities have permanently ceased or been temporarily suspended for more than seven days or when final grades are reached at any portion of the site, stabilization must occur within three days.

Minimization of disturbed areas and prompt stabilization will be key aspects to avoidance of pollution from this project.

Other Issues

Please include in the Plan a detail for the wetlands crossings that will be installed at the site. The curve in the road should be smoothed out to provide for an easier crossing which would provide a smaller impact on the wetlands in the area.

The DEP Stormwater Section does not support having the entrance road from Route 202 into the housing complex. Entering from this location would have a significant impact on the wetlands in area including Gulf Stream.

This report touches on some of the major issues concerning the project and does not constitute a complete review of the project for permitting purposes.

Soil and Water Conservation District Review

Sediment and Erosion Control Plan Recommendations

Vegetative Cover Schedule and Application Rates

The Erosion and Sediment Control Plan (ESCP) mentions mulching and seeding, which is to be performed throughout construction. The following should also be included in the plan:

a) Each seed mixture to be used on site (i.e. the species of vegetation with it's respective fractional make up)
b) The application rates (i.e. lbs./acre or lbs./ sq. ft.)
c) Which mixture will be used on slopes, lawn areas, detention basins (slopes and submerged areas), vegetated swales, filter strips, sanitary sewer out-fall areas.
d) Fabric or material type to be used in place of vegetation to stabilize soil during non growing season construction activities.

Erosion Control on Slopes

All the proposed slopes in the development have a slope ratio of less than 2 to 1. Even though slopes are all shallower than 2 to 1, terracing should be considered given the following: The soils underlying the development, are extremely susceptible to erosion, have impervious layers in the subsoil, are located at a low level in the regional watershed, are in close proximity to open water. Given the erosion potential of the soil the developer should consider inbedding reverse slope benches where slopes exceed 15 vertical feet (CT DEP, 1988). This will arrest any soil movement in the form of surface erosion and potential slope failures (or slumping) caused by saturated conditions.

Temporary Detention Basin Placement

The ESCP states that catch basins will be installed to catch soil dislodged during construction. These basins should be sized to hold the runoff of most storm events. Sizing and placement should be clearly shown with all relevant hydraulic calculations on the Site Plan.

Stockpile Placement

The ESCP states that stockpiled materials will be fortified with the appropriate erosion control measures. However, the stockpiles and their associated erosion and control measures should be clearly shown on the Site Plan. Stockpiles should be placed in areas that have been or will be disturbed by construction activities (i.e. proposed roads and residential units). In conversation with Consulting Engineers LLC, stockpile placement will be decided once the phased construction plan is worked out.

Woodland Corridors

Plans for the proposed development include the preservation of some woodland corridors that create natural buffers between roads, unit lots, wetlands and adjacent communities. These corridors should be delineated on the development plan with all construction limits clearly defined. This will protect the environmental value and integrity of existing vegetation throughout the construction phase. These areas will also act as buffers and help stabilize soil disturbances caused by adjacent construction activities.

Sediment and Erosion Control Structure Inspection

The ESCP states that erosion and sediment control structure will be inspected at regular intervals and after large storm events. The ESCP should also include the name of the party responsible for the erosion and sediment control structure inspection and maintenance. To avoid major breeches in storm water and sediment retention structures a site inspection should be accomplished when a large storm event is forecast. A rigorous inspection schedule will assure the continued integrity and function of all sediment and erosion control structures.

Storm Water Retention and Infiltration Recommendations

The Litchfield Woods Development is within the Gulf Stream Watershed, which drains to the Naugatuck River. Impacts to the water resources adjacent to and down gradient of the development should be minimized for the following reasons:

- The stream banks in the lower reaches of the Gulf Stream have been severely eroded in the past. Many emergency repairs have taken place to stabilize the banks and protect houses in imminent danger. Development in the Gulf Stream Watershed is increasing the area of impervious surfaces. Increased impervious surfaces will only increase the potential for stream bank erosion and further emergency actions.

- There is a Trout and Salmon Management Area on the Naugatuck River located at the mouth of the Gulf Stream. On-going projects are increasing the quality of fish habitat along this stretch of the river. Maintaining the water quality entering this region of the river, by reducing sediment deposition and

minimizing pollutants from impervious surface runoff, will protect the value of fish habitat.

To reduce the potential for impacts to Gulf Stream, Naugatuck River and the lands immediately adjacent, The Litchfield County Soil and Water Conservation District is making the following recommendations. Given the close proximity to above mentioned water features it is important that the storm water management systems capture and infiltrate most runoff associated with storm events. This will be difficult given the extent of proposed impervious surfaces. However, by constructing stormwater management and containment structures that can infiltrate storm events, many negative impacts associated with the creation of impervious surfaces can be minimized. The Site Plan for the development should clearly show the size and location of all sediment catchment structures. The benefits of holding and infiltrating storm water runoff include the following:

Sedimentation

Construction site activities are the largest direct source of human-made sediment loads (NRDC, 1999), and pollutants are readily bound to sediments traveling in storm water. If storm water is accelerated off site ahead of the peak flow, all the pollutants and sediment in the storm water will enter the Gulf Stream. Properly sized and engineered storm water retention basins will facilitate the capture of sediments. By keeping the sediments in place the pollutants have no opportunity to enter surface water features adjacent to the site.

Infiltration

The coarse textured soils underlying the proposed development are very efficient at conducting water. By constructing properly engineered storm water retention basins, runoff would be given the opportunity to infiltrate. In addition, most

storm water runoff associated with residential structures can be introduced to the ground water through the construction of "dry wells". Given the close proximity to open water wetlands and the increase in impervious surfaces, it is necessary to provide alternative pathways for the water to infiltrate. Infiltration of runoff will protect the quality and quantity of the regional surface water. Also, the potential for negative impacts to the Naugatuck River will be minimized through runoff reduction.

Erosion Control

The out-falls of all the sanitary sewers on site are located on soil types that have a severe erosion hazard (i.e. GaD, PbC, CaC, (USDA, 1970)). Of special concern is out-fall FE #1. This particular storm water exit services approximately 0.3 miles of road, 80 residential units and driveways. The size of the service area combined with soils susceptible to erosion at the exit, increase the potential for erosion at FE #1. Holding storm water in retention structures will deter runoff events from eroding areas down-gradient of out-falls.

The potential for erosion will only increase as more impervious surfaces are created and vegetation cover is removed for construction activities. Properly sized water retention structures will trap the large amounts of sediments created during the first stages of construction. After construction is complete these structure will continue to trap sediments and pollutants commonly associated with a residential development (pollutants and sediments from impervious surfaces and lawn maintenance activities). All relevant hydrologic calculations should be included (i.e. equations and their sources, assumption, variables and graphics) so it can be determined if sediment and erosion control measures are adequate. Catchment structures should be used in combination with vegetated swales and spreaders that reduce flow velocities and allow storm waters to infiltrate.

If the stormwater management plan includes the strategies listed above and achieves infiltration rates close to that of pre-constructions rates, the developer will have gone a long way towards protecting the quality of regional surface water. The storm water management system will catch sediment, infiltrate storm water and prevent the addition of non-point source pollution to adjacent aquatic ecosystems. Water quality will be maintained to support on going efforts to re establish trout and salmon populations. Soil erosion would be minimized on site and the potential for stream bank erosion will be reduced.

References

Connecticut Department of Environmental Protection, 1997. Protecting Connecticut Ground Water A Guide For Local Officials. DEP Bulletin No. 26

Natural Resource Defense Council, 1999. Storm Water Strategies. Community Response To Runoff Pollution. Natural Resource Defense Council Inc.

United States Department of Agriculture, 1970. Soil Survey of Litchfield County, Soil Conservation Service. USDA. Washington D.C.

The Natural Diversity Data Base

The Natural Diversity Data Base maps and files regarding the project area have been reviewed. According to our information there are no know extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question. It should be noted that we do have records for *Platanthera flava,* Pale green orchid, from a nearby area. This plant is listed as State Special concern (R.C.S.A. Sec. 26-306). This species grows in boggy or swampy ground and flood plains. If the site in question has suitable habitat, these areas should be evaluated for the potential presence of this species.

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 Environmental & Geographic Information 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.

Wildlife Review

Introduction

This report will focus on potential wildlife habitat impacts for the proposed development and recommendations for reducing wildlife resource impacts for the Litchfield Woods project.

Current Conditions

The 77 acres of forested and wetland areas are currently providing a variety of wildlife with their habitat requirements.

Wildlife Observations / Site Inspection

The following wildlife were observed during the site visit either directly* or indirectly by identifying calls, tracks, scat or other sign: white-tailed deer *(Odocoileus virginianus)*, *gray squirrel *(Sciurus caroliniana)*, *eastern chipmunk *(Tamias striatus)*, *American crow *(Corvus brachyrynchos)*, *blue jay *(Cyanocitta cristata)*, *American robin *(Turdus americana)*, *black-capped chickadee *(Parus atricapillus)*, *tufted titmouse *(Parus bicolor)*, *hairy woodpecker *(Picoides villosus)*, *northern spring peeper *(Pseudacris c. crucifer)* and *four-toed salamander *(Hemidactylium scutatum)*. A more detailed review of the property during the four seasons of the year would, undoubtedly, reveal additional wildlife use of the property. The wildlife survey conducted by Evans Associates and Michael Klemens (see Evans, 2000) reported a variety of wildlife using the property or found suitable existing habitat .

Inspection of Forest Habitat Condition

The vegetation of the site was adequately described in the report by Evans Associates (see Evans, 2000). The Team wildlife biologist found an increase in incidence of invasive non-native plants especially Norway maple *(Acer platanoides)* along the borders of the property with existing housing developments. Invading plants such as Norway maple have the potential to alter plant community structure and diversity (Wyckoff and Webb, 1996). This development has the potential to increase the spread of invasive plants depending on what types of plants are used in landscaping plan. Although there is a landscape plan for property, a plant list was not included with the landscape plan received by the Team wildlife biologist. A list of non-native invasives and potentially invasive plants developed by the George Safford Torrey Herbarium at the University of Connecticut is included in this section. Plants found on the list should not be planted in this development to reduce the spread of invasives. A cultivar (Emerald Surprise Euonymus) of the invasive winged euonymus *(Euonymus alatas)* is listed in the landscape design of Unit C Landscape Type in the building plans.

A cluster development which reduces forest fragmentation and maintains bigger forest blocks helps reduce the spread of invasives, however existing sources of invasives should be reduced or eliminated whenever practical. Invasives should be flagged and removed advantageously during the construction stages of the development. They can be controlled through various means including mechanical removal and limiting herbiciding (more information is available upon request).

Cluster Developments Positive Wildlife Attributes and Potential Wildlife Impacts

Cluster developments tend to be less detrimental to some wildlife communities because planners inherently attempt to cluster the housing areas and maintain larger forested blocks. Land that is conserved and undeveloped in a cluster development serves as habitat for some wildlife species that need larger forest sizes for their breeding habitats. The following list are potential impacts to wildlife and means of lessening those impacts.

- **Potential impact # 1 - Wetland Filling and Stream Crossing.**

Stream crossings and wetland filling are detrimental to the existing habitat conditions for streamside and instream wildlife. The dusky salamander *(Desmognathus fuscus)* was found on the property by the Evans Associates survey. Although this salamander is not a state-listed species, it is has declined or become extirpated in many urbanized areas of Fairfield County (CT) according to Michael Klemens (Klemens, 1993).

- **Recommendation to lessen impact #1 - Avoid crossing this stream.**

Create a foot bridge rather than the proposed larger bridge to connect the cluster of units at the western end of the site to the main project area. Use the gated Clark Road as the access to these units. At the ERT review meeting, developers mentioned the fact that there was going to be limited access through this area. A smaller foot bridge will lesson impacts to the stream and adjoining wetland area.

- **Potential Impact # 2 - Cutting and filling steep slopes requires major alteration of the landscape to accomplish development.**

Filling and cutting areas increases potential for soil erosion and changes in underground water flow.

- **Recommendation to lessen impact #2 - Reducing the number of areas which need to be cut and fill helps limit the impact associated with this.**

This may require reducing the number of housing units or pulling buildings out of steeper grades.

Summary and Conclusion

Although cluster developments are generally more friendly to the overall environmental conditions of an area versus typical cookie-cutter subdivisions, care should be exercised on properties with wetlands and streams. This report has brought attention to the possible wildlife impacts of the stream crossing, developing steep grade areas, and planting of invasive non-natives plants. Recommendations were made to lessen those impacts. These include placing a smaller bridge that allows limited foot traffic rather than a larger vehicular traffic bridge; avoiding cutting and filling steeper grade areas; and landscaping with only non-invasive plants.

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Klemens, Michael W; 1993. Amphibians and Reptiles of Connecticut and Adjacent Regions. Bulletin No.112. State Geological and Natural History Survey of Connecticut. American Museum of Natural History, NY. NY.

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KEY

LIFEFORMS

T = tree
S = shrub
V = vine
H = herbaceous plant
G = grass
A = aquatic

HABITATS

U = uplands (all upland habitats including closed-canopy forests, second-growth woods, fields, grasslands, ridge tops, sand barrens, pitch pine scrublands etc.)
O = open areas (fields, grasslands, sand barrens, dry meadows etc.)
W = wetlands (swamps, marshes, wet meadows, fens, bogs, flood plains, flood plain forests, pond and stream shores)
L = lakes (ponds, in impounded water)
R = rivers (streams, in running water)
C = coast (sand dunes, rocky headlands, upper edges of salt water tidal marshes)

This List and the Criteria for listing were developed by the George Safford Torrey Herbarium, University of Connecticut, in conjunction with the State Geological and Natural History Survey of Connecticut and the Connecticut Invasive Plant Working Group. For a copy of the Criteria, please visit the Invasive Plant Working Group web page at **http://www.eeb.uconn.edu/invasives**

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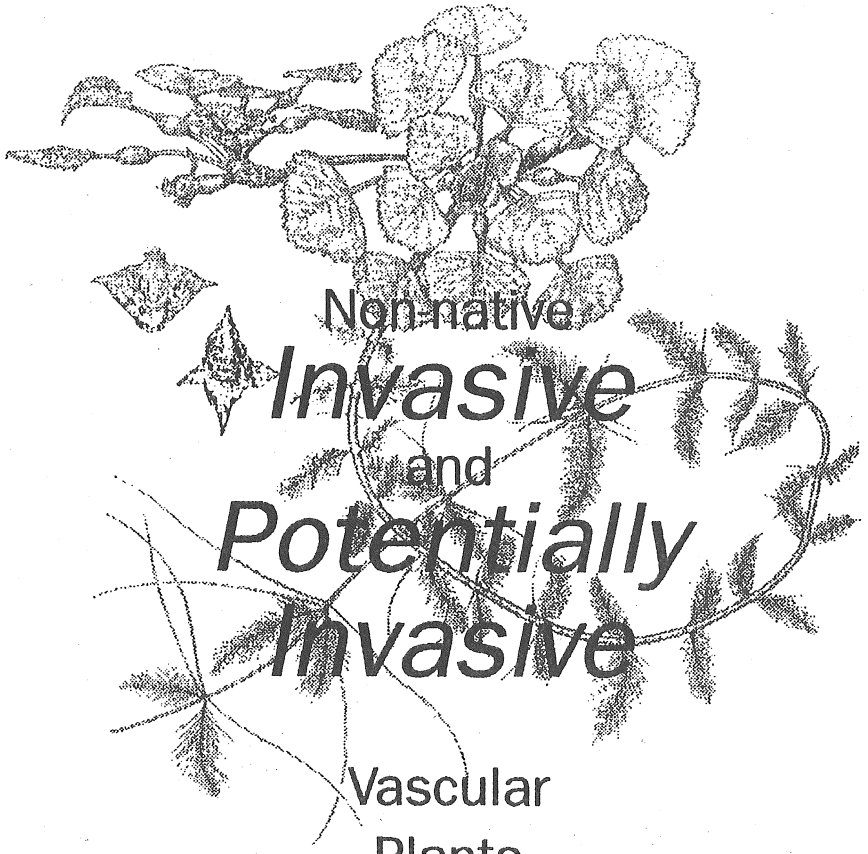

Non-native *Invasive* and *Potentially Invasive* Vascular Plants in Connecticut

JANUARY 2000

WIDESPREAD AND INVASIVE

SCIENTIFIC NAME	COMMON NAME	LIFEFORM	HABITAT
Ailanthus altissima (Mill.) Swingle	Tree-of-heaven	T	U
Alliaria petiolata (Bieb.) Cavara & Grande	Garlic Mustard	H	U
Berberis thunbergii DC.	Japanese Barberry	S	U
Celastrus orbiculatus Thunb.	Asiatic Bittersweet	V	U
Centaurea maculosa Lam.	Spotted Knapweed	H	O
Elaeagnus umbellata Thunb.	Autumn Olive	S	O
Euonymus alatus (Thunb.) Sieb.	Winged Euonymus	S	U
Euphorbia cyparissias L.	Cypress Spurge	H	O
Frangula alnus Mill.	European Buckthorn	S	U
Hesperis matronalis L.	Dame's Rocket	H	U
Lonicera X bella Zabel	Bella Honeysuckle	S	U, W
Lonicera japonica Thunb.	Japanese Honeysuckle	V	U, W
Lonicera morrowii A. Gray	Morrow's Honeysuckle	S	U, W
Lythrum salicaria L.	Purple Loosestrife	H	W
Nasturtium officinale R. Br.	Watercress	H	W
Phragmites australis (Cav.) Trin.	Common Reed	G	U, W
Polygonum cuspidatum Sieb. & Zucc.	Japanese Knotweed	H	U, W
Potamogeton crispus L.	Crispy-leaved Pondweed	A	R, L
Rhamnus cathartica L.	Buckthorn	S	U
Robinia pseudoacacia L.	Black Locust	T	U
Rosa multiflora Thunb.	Multiflora Rose	S	U
Vincetoxicum nigrum (L.) Moench	Black Swallow-wort	H,V	U
Vincetoxicum rossicum (Kleo.) Barb.	Swallow-wort	H,V	U

RESTRICTED AND INVASIVE

SCIENTIFIC NAME	COMMON NAME	LIFEFORM	HABITAT
Ampelopsis brevipedunculata (Maxim.)	Porcelain berry	V	U
Cabomba caroliniana A. Gray	Fanwort	A	L, R
Cardamine impatiens L.		H	U
Egeria densa Planchon	Brazilian Water-weed	A	L, R
Froelichia gracilis (Hook.) Moq.	Cottonweed	H	O
Humulus japonicus Sieb. & Zucc.	Japanese Hops	H,V	W, U
Hydrilla verticillata (L. f.) Royle	Hydrilla	A	L, R
Iris pseudacorus L.	Yellow Iris	H	W
Lepidium latifolium L.	Tall Pepperwort	H	C, O
Lysimachia vulgaris L.	Garden Loosestrife	H	W
Microstegium vimineum (Trin.) A. Camus	Japanese Stilt Grass	G	U
Myriophyllum heterophyllum Michx.	Variable Water-milfoil	A	L, R
Myriophyllum spicatum L.	European Water-milfoil	A	L, R
Rubus phoenicolasias Maxim.	Wineberry	S	U
Trapa natans L.	Water Chestnut	A	L, R
Tussalago farfara L.	Coltsfoot	H	U, W

This list has been developed using criteria created for this purpose. Species on the list are either potentially invasive or invasive. Invasive species are either widespread or have a restricted range in Connecticut. These two terms are geographic descriptors and do not imply degree of invasiveness. The list is intended to be an educational tool. This list is not static and will be reevaluated in December 2000. A species as listed here includes all subspecies, varieties, forms and cultivars. Life forms

POTENTIALLY INVASIVE

SCIENTIFIC NAME	COMMON NAME	LIFEFORM	HABITAT
Acer ginnala L.	Amur Maple	T	U
Acer platanoides L.	Norway Maple	T	U
Acer pseudoplatanus L.	Sycamore Maple	T	U
Aegopodium podagraria L.	Goutweed	H	W
Aira caryophyllea L.	Silver Hairgrass	G	O
Allium vineale L.	Wild Garlic	H	U
Amorpha fruticosa L.	False Indigo	S	W
Arthraxon hispidus (Thunb.) Makino		G	O, W
Berberis vulgaris L.	Barberry	S	U
Bromus tectorum L.	Drooping Brome-grass	G	O
Butomus umbellatus L.	Flowering-rush	H	W
Callitriche stagnalis Scop.		A	R, W
Cirsium arvense (L.) Scop.	Canada Thistle	H	O
Datura stramonium L.	Jimson-weed	H	C
Elaeagnus angustifolia L.	Russian Olive	S	U
Elsholtzia ciliata (Thunb.) Hylander	Elsholtzia	H	U
Euphorbia esula L.	Leafy Spurge	H	O
Geranium nepalense Sweet	Nepalese Crane's-bill	H	U
Glechoma hederacea L.	Gill-over-the-ground	H	W
Kochia scoparia (L.) Schrader	Summer Cypress	H	C
Ligustrum obtusifolium Sieb. & Zucc.	Border Privet	S	U
Ligustrum ovalifolium Hassk.	California Privet	S	U
Ligustrum vulgare L.	European Privet	S	U
Lonicera maackii (Rupr.) Maxim.	Amur Honeysuckle	S	U
Lonicera tatarica L.	Tatarian Honeysuckle	S	U
Lonicera xylosteum L.	European Fly-honeysuckle	S	U
Lychnis flos-cuculi L.	Ragged Robin	H	O
Lysimachia nummularia L.	Moneywort	H	W
Marsilea quadrifolia L.	Water Shamrock	H	L
Miscanthus sinensis Anderss.	Eulalia	G	O
Myosotis scorpioides L.	Forget-me-not	H	W
Myriophyllum aquaticum (Vell.) Verdc.	Parrotfeather	A	L
Nelumbo lutea (Willd.) Pers.	American Water Lotus	A	L
Najas minor Allioni	Eutrophic Water-nymph	A	L
Ornithogalum umbellatum L.	Star of Bethlehem	H	U
Paulownia tomentosa (Thunb.) Steudel	Empress-tree	T	U, C
Phalaris arundinacea L.	Reed Canary-grass	G	W
Poa compressa L.	Canada Blue-grass	G	U
Polygonum cespitosum Blume		H	U
Polygonum perfoliatum L.	Mile-a-minute Vine	V, H	U
Populus alba L.	White Poplar	T	U
Pueraria lobata (Willd.) Owhi	Kudzu-vine	V	U
Ranunculus ficaria L.	Lesser Celandine	H	U, W
Rosa rugosa Thunb.	Japanese Rose	S	C
Rumex acetosella L.	Sheep Sorrel	H	U
Silphium perfoliatum L.	Cup-plant	H	U
Solanum dulcamara L.	Climbing Nightshade	H, V	U, W
Valeriana officinalis L.	Garden-heliotrope	H	U
Veronica beccabunga L.	Brooklime	H	W

Aquatic Resources

Site Description

The 77 acre site of the proposed Litchfield Woods Residential Development contains two unnamed perennial streams and several unnamed drainages which are anticipated to be intermittent in flow. The streams converge on the residential development site and form a tributary to Gulf Stream. The two unnamed perennial streams are contained in channels approximately 8 feet in top of bank width and normal flow depths averaging 0.8 feet. The low to moderate gradient channels create surface flow predominated by shallow riffle interspersed by moving pool. Stream substrate is composed of small boulder, cobble, gravel, coarse sand, and sand-silt fines.

Dense growths of hardwoods and woody shrubs predominate as riparian vegetation and provide the streams with a nearly complete canopy. Physical in-stream habitat is provided by the water depth in pools, undercut banks, and fallen or overhanging riparian vegetation.

Although residential development has occurred, the drainage basin of the streams remains primarily forested. The limited development to date provides a means of maintaining stream water quality. The Department of Environmental Protection classifies the unnamed perennial watercourses as *Class AA* surface waters. Designated uses for surface water of this classification are existing or potential public drinking water supply, fish and wildlife habitat, recreational use, agricultural and industrial supply, and other purposes. Recreational uses may be restricted.

Aquatic Resources

Based upon channel grade, morphology, and substrate composition, the two unnamed perennial streams on the site can be classified as coldwater resources. Although these streams were never subject to formal Fisheries Division survey, the streams are anticipated to contain brook trout (*Salvelinus fontinalis*) and blacknose dace (*Rhinichtys atratulus*). These fish species are commonly associated with coldwater streams in Connecticut.

In addition to alone providing conditions suitable for maintaining cold water resources, the streams of the Litchfield Woods Residential Development site unite to provide a significant tributary flow to Gulf Stream. The quality of that flow is well reflected in the Gulf Stream fish population as shown by results of Division survey. That survey, conducted in 1992, focused on a 150 foot stream reach in the vicinity of Town Farm Road and Route 202, Litchfield. Survey results revealed a fish population composed of largely brook trout (*Salvelinus fontinalis*), blacknose dace (*Rhinichtys atratulus*) and creek chub (*Semotilus atromaculatus*). The substantial numbers of yearly aged trout found is indicative of exceptional physical habitat and water quality conditions available for natural reproduction.

Impacts

As previously mentioned, limited development has maintained water quality and physical habitat conditions at levels supportive of intolerant fish species such as brook trout on the development parcel and brook trout elsewhere in the drainage basin. However, the limited residential development which has previously occurred in the drainage has had an apparent affect on storm flow frequencies as noted by bank erosion, channel braiding, and sediment deposition within the streams on the Litchfield Woods parcel. Continued land use change

within the remaining forested areas of the drainage, such as that currently proposed through development of Litchfield Woods, has the potential to adversely impact aquatic habitats and resources should mitigative measures not be implemented. Anticipated impacts include:

- Soil erosion and subsequent sediment transport through increased runoff from unvegetated areas. Excessive erosion, sediment transport, and sediment deposition can degrade both water quality and physical habitat, in turn affecting the resident finfish population. Specifically, excessive siltation has the potential to:
    - ◊ cause a depletion of oxygen within the water column;
    - ◊ disrupt fish respiration and gill function;
    - ◊ reduce water depth resulting in a reduction of habitats used by finfish for feeding, cover, and spawning;
    - ◊ reduce finfish egg survival;
    - ◊ reduce aquatic insect production;
    - ◊ promote aquatic plant growth.

- Development adjacent to streams often results in the alteration or removal of riparian vegetation. Changes to riparian vegetation can result in the following:
    - ◊ remove the natural "filtering" effect of vegetation which has the ability to prevent sediments, nutrients, fertilizers, and other non-point source pollutants from upland sources from entry into streams; such non-point source pollutants can degrade habitat and water quality;
    - ◊ increase stream water temperature during the summer months (thermal loading) while decreasing winter water temperatures to levels causing a complete ice cover;

- ◊ decrease stream bank stability thereby increasing surface water siltation and habitat degradation;
- ◊ eliminate or drastically reduce the supply of large woody debris provided to streams; such material provides critical physical habitat features for numerous species of aquatic organisms;
- ◊ reduce a substantial proportion of food for aquatic insects which in turn constitutes a reduction in a significant proportion of food available for resident fish;
- ◊ stimulate excessive aquatic plant growth;
- ◊ decrease the riparian corridor's ability to serve as a "reservoir" storing surplus runoff for gradual release back into the streams during summer and early fall low flow periods.

- An influx of stormwater drainage may cause aquatic habitat degradation due to the release of pollutants from developed areas. Such pollutants include gasoline, oil, heavy metals, road salt, fine silts, and coarse sediments.

- Nutrient enrichment from fertilizer runoff from manicured lawns will stimulate aquatic plant growth. Herbicide runoff from manicured areas may result in fish kills and water quality degradation.

- Culverts are proposed to provide a roadway crossing of an unnamed perennial stream. The roadway is intended to connect the major portion of the residential complex to a smaller complex fronted by Clark Road. Instream and riparian habitat will be eliminated within the "footprint" of culverts and embankment fill slopes. The culverts and any materials place within the stream channel for scour protection will eliminate the diversity of physical instream habitat provided in the existing stream channel. This will limit the stream's support of the current fish and aquatic insect community.

Additionally, the culverts and materials to abate scour (e.g. riprap) may become a barrier to upstream fish migration. This is anticipated to occur during low stream flow periods. Flow through the culverts will likely be as shallow sheet flow while flows passing over materials placed for scour protection will percolate through materials rather than being maintained as a surface flow. Either condition will prohibit the upstream passage of stream fish.

Recommendations

Reportedly, the Litchfield Woods Residential Development parcel contains ±37 acres of wetland associated with the unnamed intermittent and perennial streams. The currently proposed 138 unit residential development will directly impact 0.11 acres of wetland and stream habitat. The impacts are associated with two watercourse/wetland roadway crossings. In an effort to mitigate the potential impacts to the site's streams and associated wetlands, the following measures are recommended for incorporation into the design of the proposed project:

- Maintain, at a minimum, a 100 foot buffer zone of undisturbed habitat adjacent to the site's perennial streams and a 50 foot buffer zone of undisturbed habitat adjacent to intermittent drainages. The buffer zone boundaries should be measured from either, (1) the edge of riparian inland wetland as determined by Connecticut inland wetland soil delineation methods or (2) in the absence of riparian wetlands, the edge of the stream bank based upon bank-full flow conditions. Research has indicated that a buffer zone of these widths prevents damage to aquatic ecosystems that are supportive of diverse assemblages. Buffers absorb surface runoff, and the pollutants they may carry, before they enter wetlands or surface waters. Please

refer to the attached documentation presenting Fisheries Division policy and position regarding riparian buffers for additional information.

- Eliminate the roadway connection between the main complex of the development and the smaller complex along Clark Road. This would prove to be most effective in assuring preservation of instream and riparian habitat.

- Institute a phased development of the site with an approved and completely functional stormwater system installed initially. Division staff admittedly lack the ability to determine the site specific efficacy of the current design for the proposed stormwater system and defer such evaluation to the ERT member(s) with such expertise. However, the Division does recommend that stormwater not be allowed to directly enter the streams on-site. Stormwater should pass through structures or facilities designed for nutrient and sediment removal. The stormwater system should also be designed to minimize off-site storm flow discharge and maximize groundwater recharge.

- Establish comprehensive erosion and sediment control plans with mitigative measures (haybales, silt fence, etc.) to be installed prior to and maintained through all development phases. Land clearing and other disturbances should be kept to a minimum with all disturbed areas being protected from storm events and restabilized in a timely manner.

- Limit liming, fertilizing, and the introduction of chemicals to developed land susceptible to runoff into streams or wetlands.

- Limit regulated activities adjacent to riparian buffer zones to historic low precipitation periods of the year. Reduced precipitation periods of summer to

early fall provide the least hazardous conditions when working near sensitive aquatic environments.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
INLAND FISHERIES DIVISION

POLICY STATEMENT
RIPARIAN CORRIDOR PROTECTION

I. INTRODUCTION, GOALS, AND OBJECTIVE

Alteration and exploitation of riparian corridors in Connecticut is a common event that significantly degrades stream water quality and quantity. Inasmuch as riparian ecosystems play a critical role in maintaining aquatic resource productivity and diversity, the Inland Fisheries Division (Division) recognizes that rigorous efforts are required to preserve, protect, and restore these valuable resources. Consequently, a riparian corridor protection policy has been developed to achieve the following goals and objective:

Goals

Maintain Biologically Diverse Stream and Riparian Ecosystems, and

Maintain and Improve Stream Water Quality and Water Quantity.

Objective

Establish Uniform Riparian Corridor Buffer Zone Guidelines.

II. DEFINITIONS

For the purpose of implementing a statewide riparian corridor protection policy, the following definitions are established:

Riparian Corridor: A land area contiguous with and parallel to an intermittent or perennial stream.

Buffer Zone: An undisturbed, naturally vegetated area adjacent to or contained within a riparian corridor that serves to attenuate the effects of development.

Perennial Stream: A stream that maintains a constant perceptible flow of water within its channel throughout the year.

Intermittent Stream: A stream that flows only in direct response to precipitation or which is seasonally dry.

III. RIPARIAN FUNCTION

Naturally vegetated riparian ecosystems perform a variety of unique functions essential to a healthy instream aquatic environment. The delineation and importance of riparian functions are herein described. Vegetated riparian ecosystems:

* Naturally filter sediments, nutrients, fertilizers, and other nonpoint source pollutants from overland runoff.

* Maintain stream water temperatures suitable for spawning, egg and fry incubation, and rearing of resident finfish.

* Stabilize stream banks and stream channels thereby reducing instream erosion and aquatic habitat degradation.

* Supply large woody debris to streams providing critical instream habitat features for aquatic organisms.

* Provide a substantial food source for aquatic insects which represent a significant proportion of food for resident finfish.

* Serve as a reservoir, storing surplus runoff for gradual release into streams during summer and early fall base flow periods.

IV. RIPARIAN CORRIDOR BUFFER ZONE GUIDELINES

Recognizing the critical roles of riparian corridors, the Division provides buffer zone guidelines that are designed to bring uniformity and consistency to environmental review. The guidelines are simple, effective, and easy to administer. The following standard setting procedure should be used to calculate buffer zone widths.

Perennial Stream: A buffer zone 100 feet in width should be maintained along each side.

Intermittent Stream: A buffer zone 50 feet in width should be maintained along each side.

Buffer zone boundaries should be measured from either, (1) edge of riparian inland wetland as determined by Connecticut inland wetland soil delineation methods or (2) in the absence of a riparian wetland, the edge of the stream bank based on bank-full flow conditions.

The riparian corridor buffer zone should be retained in a naturally vegetated and undisturbed condition. All activities that pose a significant pollution threat to the stream ecosystem should be prohibited.

Where the Division policy is not in consonance with local regulations and policies regarding riparian corridor buffer zone widths and allowable development uses within these areas, local authorities should be encouraged to adopt the more restrictive regulations and policies.

12/13/91
Date

James C. Moulton
Acting Director

POSITION STATEMENT
UTILIZATION OF 100 FOOT BUFFER ZONES TO PROTECT RIPARIAN AREAS IN CONNECTICUT

BY
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TECHNICAL ASSISTANCE BIOLOGIST
INLAND FISHERIES DIVISION

I. INTRODUCTION

One tenet of the Inland Fisheries Division Policy on Riparian Corridor Protection is the utilization of a 100 foot buffer zone as a minimum setback along perennial streams. The adoption of such a policy is sure to be controversial. Laymen, developers and natural resource professionals alike will ask questions such as: Why was a standard setting method adopted? What's magical about 100 feet? Will 100 feet be sufficiently protective, or will it be overly protective? In response, this paper outlines the ramifications of adopting a riparian corridor policy including the use of a 100 foot buffer zone.

II. STANDARD SETTING VERSUS SITE SPECIFIC BUFFER ZONES

There are two approaches for determining buffer zone width; standard setting and site specific. Standard setting methods define an area extending from the streambank edge or highwater mark to some landward fixed point boundary. Site specific methods utilize formulas that incorporate and consider special site specific land characteristics, hence, the calculation of a variable width buffer zone. In both case, buffers are employed to define an area in which development is prohibited or limited.

A major advantage of standard setting methods is that they are easy to delineate and administer, thereby improving the consistency and quality of environmental assessments. Furthermore, valuable staff time would not be required to determine site specific buffer zones along each and every watercourse of concern.

The exact width of a buffer zone required for riparian corridor protection is widely disputed (Bottom et al. 1985 and Brinson et al. 1981). Buffer width recommendations found in the literature vary from as little as 25 feet to as great as 300 feet (Palfrey et al. 1982). The 100 foot buffer is widely accepted in Connecticut having been adopted by numerous inland wetland and conservation commissions as an appropriate minimum setback regulation for streambelts. In addition, Division staff have been recommending the utilization of the 100 foot buffer zone to protect streambelts since the early 1980's. Scientific research has not been generated to dispute the adequacy of utilizing 100 foot buffer zones to protect Connecticut's riparian corridors. In fact, to ensure that riparian functions are not significantly altered, recent scientific information points towards maintaining buffer zones that would be at a minimum, 100 feet in width (see section III).

Site specific methods define buffer widths according to the character and sensitivity of adjacent streamside lands. These buffer widths, also referred to as "floating buffers," consider physical site characteristics such as slope, soil type, and vegetative cover. The advantage of site specific methods is that buffer widths are designed using site characteristics and not an arbitrary predetermined width. Unfortunately, there is no "one" universally accepted formula or model and none have been developed for use in Connecticut. Most formulas are based on the degree to which sediment can be removed or filtered by natural vegetation, thus, the primary useage is sediment control. Other weaknesses of site specific techniques are (1) all areas must be evaluated on a case-by case basis and, (2) the subjectivity of different techniques (i.e. if the evaluation technique is inadequate, the buffer width will also be inadequate).

Additionally, these formulas only concentrate on one specific riparian function at a time and do not take into account multiple riparian functions, especially those of inland fisheries values as discussed in Section III. Consequently, site specific formulas approach riparian function on a single dimension rather than taking a more realistic, holistic approach.

In the absence of a scientific model to determine buffer widths suitable to protect Connecticut's riparian corridors, the utilization of a standard setting method is environmentally and politically prudent.

III. RIPARIAN FUNCTION

To assess the efficacy of a 100 foot buffer zone, the literature was searched to identify studies which have applied a quantitative approach to buffer width determination. Literature was searched for studies which both support and dispute the 100 foot zone. The following is a summary "by riparian function" of quantitative studies which assess buffer widths.

Sediment Control

Width, slope and vegetation have been cited as important factors in determining effectiveness of buffer zones as sediment filters (Karr and Schlosser 1977). Wong and McCuen (1981), who developed and applied a mathematical model to a 47 acre watershed, found that a 150 foot zone along a 3% slope reduced sediment transport to streams by 90%. Mannering and Johnson (1974) passed sediment laden water through a 49.2 foot strip of bluegrass and found that 54% of sediment was removed from the water. Trimble and Sartz (1957) developed recommendations as to width of buffer areas between logging roads and streams to reduce sediment load. They determined a minimum strip of 50 feet was required on level land with the width increasing 4 feet for each 1% slope increase. Buffer widths as determined by Trimble and Sartz (1957) have been characterized as evaluated guesses rather than empirically defined widths (Karr and Schlosser 1977). Rodgers et al. (1976) state that slopes greater than 10% are too steep to allow any significant detention of runoff and sediment regardless of buffer width. After a critical review of the literature, Karr and Schlosser (1977) determined that the size and type of vegetative buffer strip needed to remove a given fraction of the overland sediment load cannot be universally quantified. Existing literature does suggest that 100 foot riparian buffers will assist with sediment entrapment, although efficacy will vary according to site conditions.

Temperature Control

Brown and Brazier (1973) evaluated the efficacy of buffer widths required to ameliorate stream water temperature change. They concluded that angular canopy density (ACD), a measure of the ability of vegetation to provide shading, is the only buffer area parameter correlated with temperature control. Results show that maximum angular canopy density or maximum shading ability is reached within a width of 80 feet. Study sites were 9 small mountain streams in Oregon that contained a conifer riparian vegetative complex. Whether or not maximum angular canopy density is reached within 80 feet in a typical Connecticut deciduous forest riparian zone is doubtful. Tree height in Connecticut riparian zones is smaller than in Oregon (Scarpino, personal communication), therefore buffers greater than 80 feet in width would be required for temperature maintenance in Connecticut.

Nutrient Removal

Nutrient enrichment is caused by phosphorous and nitrogen transport from, among other things, fertilized lands and underground septic systems. Most research on nutrient enrichment has focused on overland surface flow. Karr and Schlosser (1977) report that 88% of all nitrogen and 96% of all phosphorous reaching watercourses in "agricultural watersheds" were found to be attached to sediment particles; thus, successful nutrient removal can be accomplished through successful sediment removal. There are conflicting reports on the ability of buffer widths to remove nutrients with most research being tested on grass plots. Butler et al. (1974) as cited by Karr and Schlosser (1977) found that a 150 foot buffer width of reed canary grass with a 6% slope caused reductions in phosphate and nitrate concentrations of between 0–20%. Wilson and Lehman (1966) as cited by Karr and Schlosser (1977) in a

study of effluent applied to 300 m grass plots found that nitrogen and phosphorous concentrations were reduced 4 and 6%, respectively. Studies on subsurface runoff as cited in Clark (1977) found high concentrations of nitrates at 100 feet from septic systems with unacceptable levels at 150 feet. Clark (1977) recommended that a 300 foot setback be used whenever possible, with a 150 setback considered adequate to avoid nitrate pollution. Environmental Perspective Newsletter (1991) states that experts who commonly work with the 100 foot buffer zone set by the Massachusetts Wetlands Protection Act are increasingly finding that it is insufficient since many pollutants routinely travel distances far greater than 100 feet with nitrate-nitrogen derived from septic systems moving distances of greater than 1000 feet. Research indicates that the adoption of 100 foot buffer widths for Connecticut riparian zones will assist with the nutrient assimilation; albeit, complete removal of all nutrients may not be achieved.

Large Woody Debris

The input of large woody debris (LWD) to streams from riparian zones, defined as fallen trees greater than 3 m in length and 10 cm in diameter has been recently heralded as extremely critical to stream habitat diversity as well as stream channel maintenance. Research on large woody debris input has mainly been accomplished in the Pacific Northwest in relation to timber harvests. Murphy and Koski (1989) in a study of seven Alaskan watersheds determined that almost all (99%) identified sources of LWD were within 100 feet of the streambank. Bottom et al. 1983 as cited by Budd et al. (1987) confirm that in Oregon most woody structure in streams is derived from within 100 feet of the bank. Based on research done within old-growth forests, the Alaska region of the National Marine Fisheries Service, recognizing the importance of LWD to salmonid habitat, issued a policy statement in 1988 advocating the protection of riparian habitat through the retention of buffer strips not less than 100 feet in width (Murphy and Koski 1989). All research findings support the use of a 100 foot buffer zone in Connecticut for large woody debris input.

Food Supply

Erman et al. (1977) conducted an evaluation of logging impacts and subsequent sediment input to 62 streams in California. Benthic invertebrate populations (the primary food source of stream fishes) in streams with no riparian buffer strips were compared to populations in streams with buffer widths of up to 100 feet. Results showed that buffer strips less than 100 feet in width were ineffective as protective measures for invertebrate populations since sediment input reduced overall diversity of benthic invertebrates. Buffer strips greater than 100 feet in width afforded protection equivalent to conditions observed in unlogged streams. The ultimate significance of these findings is that fish growth and survival may be directly impacted along streams with inadequate sized riparian buffer zones. All research supports the feasibility of implementing a 100 foot buffer zone in Connecticut to maintain aquatic food supplies.

Streamflow Maintenance

The importance of riparian ecosystems in terms of streamflow maintenance has been widely recognized (Bottom et al. 1985). In Connecticut, riparian zones comprised of wetlands are of major importance in the hydrologic regime. Riparian wetlands store surplus flood waters thus dampening stream discharge fluctuations. Peak flood flows are then gradually released reducing the severity of downstream flooding. Some riparian wetlands also act as important groundwater discharge or recharge areas. Groundwater discharge to streams during drier seasonal conditions is termed low flow augmentation. The survival of fish communities, especially coldwater salmonid populations is highly dependent upon low flow augmentation (Bottom et al. 1985). Research, although documenting the importance of riparian zones as areas critical to streamflow maintenance, has not investigated specific riparian buffer widths required to provide the most effective storage and release of stream flows.

IV. OTHER POLICY CONSIDERATIONS

Measurement Determination

The proposed policy states that buffer zone boundaries should be measured from either the edge of the riparian inland wetland as determined by Connecticut inland wetland soil delineation methods or in the absence of a riparian wetland, the edge of the streambank based on bank–full flow conditions. This boundary demarcation is absolutely necessary to ensure that all riparian wetlands are protected. For example, if all measurements were to start from the perennial stream edge and extend landward for a distance of 100 feet, many riparian zones that contain expansive wetlands greater than 100 feet in width would be left unprotected.

Also, since boundary demarcation includes wetland delineation, the ultimate width of the buffer will vary according to site specific features. Consequently, buffer width determination as stated by Division policy is a "hybridization" of both standard setting and site specific methods. This hybridization of methods is advantageous since it acknowledges the sensitivity of streamside wetlands.

Home Rule

Where the Division policy is not in consonance with local regulations and policies regarding riparian corridor buffer zone widths, local authorities would be encouraged to adopt the more restrictive regulations and policies. This feature incorporates flexibility to acknowledge the importance of local "home rule" regulations or policies already in accepted practice. Conversely, towns and cities without accepted policies and regulations could choose to enact the Division policy.

Allowable Uses in Buffer Zones

The Division policy states that "the riparian corridor buffer zone should be retained in a naturally vegetated and undisturbed condition and that all activities that pose a significant pollution threat to the stream ecosystem should be prohibited." In essence, the buffer zone becomes an area where no development should be allowed. For this policy to be effective, there should be no exceptions, a blanket restriction of all uses would be recommended. Further clarification and more precise definitions of allowable uses will, however, be required in the future if the policy evolves into a departmental regulation.

Recently, the Connecticut Supreme Court has ruled that local agencies can prohibit specific development within buffer zones. The *Lizotte v. Conservation Commission of the Town of Somers, 216 Conn.320 (1990)* decision ruled that the construction or maintenance of any septic system, tank, leach field, dry well, chemical waste disposal system, manure storage area or other pollution source within 150 feet of the nearest edge of a watercourse or inland wetland's seasonal high water level can be prohibited (Wetlands Watch 1990). If this decision is a precursor of the future, Connecticut courts will continue to the support the use of buffers, especially those which restrict or prohibit detrimental activities.

V. CONCLUSIONS

The following actions are required to preserve, protect, and restore Connecticut's riparian corridors:

1. The Inland Fisheries Division needs to adopt and implement the proposed policy so that staff can use it as a guideline to assist cities, towns, developers and private landowners with making sound land use decisions. This policy will act to solidify a collective position concerning riparian corridor protection.

2. While the proposed policy in its "current form," represents a recommendation from the CTDEP Inland Fisheries Division, the ultimate goal of the Division should be to progressively implement this policy as either a CTDEP regulation or State of Connecticut statute.

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Archaeological Review

A review of the state of Connecticut archaeological site files and maps shows two known archaeological sites in the project area. These sites consist of one prehistoric Native American camp site as well as an early historic farming homestead. In addition to the sites in the project area, there are three other known sites in close proximity.

The sites within the property date back to around 3,000 years ago. Artifacts recovered from the property include steatite vessels, quartz and quartzite flakes, as well as quarry picks. The camp appears to be part of a quarry operation where steatite or soapstone was mined for the making of stone bowls as well as other stone implements. The historic site represents a farmstead dating to the 18th and 19th centuries. Artifacts recovered include historic ceramics, pearlware, glass, metal and a metal belt buckle.

It appears that these sites have a fairly good integrity that is, they can still yield important information concerning the past. The Office of State Archaeology strongly recommends an archaeological survey for the property. It should be noted that in an earlier review by Dr. Russell Handsman in 1988, he too, strongly recommended archaeological work on the property prior to any development activities. The Office of State archaeology would be more than happy to provide technical assistance, to the property owner and to the Town of Litchfield. The archaeological survey should be undertaken in accordance with the Connecticut State Historical Commission's *Environmental Review Primer for Connecticut's Archaeological Resources*, and the focus of the survey should be to relocate these archaeological components, as well as to test areas proposed for development that are immediately adjacent to the large wetlands. This will ensure not only

that the known sites will be mitigated, but that undiscovered sites are also considered in the process.

The Office of State Archaeology looks forward to working with the applicant and with the Town of Litchfield in the conservation and preservation of its archaeological heritage.

Planning Considerations

Consistency of Project with State and Regional Plans

The Connecticut Conservation and Development Policies Plan, 1998-2003 classifies the subject site as a "Growth Area". The State Plan encourages comparatively intensive development in "Growth Areas", provided adequate water and sewer services are available or planned.

The Growth Policy Map of the Litchfield Hills Council of Elected Officials classifies the subject site as a "Primary Growth Area". This designation anticipates that adequate sewer and water services will be available to support a comparatively dense level of development. According to the LHCEO's Map, primary growth areas developed for residential purposes should usually provide for three or more dwelling units per acre in order to make energy efficient use of these near central locations. Providing for more intensive growth in these "primary growth areas" serves to balance the less intensive land use policies appropriate in the more rural areas of the region according to the LHCEO's Growth Policy Map.

The proposed project is generally consistent with the density of development envisioned in these advisory regional and state policy plans. Both the regional and state plans reflect the local preference for multi-family development at this site as expressed by Litchfield's zoning map and regulations.

Water and Sewer Facilities

Public water service to the project is to be provided by the Torrington Water Company. According to Richard Calhoun, President of the Torrington Water Company, there is sufficient service available from the Water Company for consumptive and fire fighting use at the project site (pers. comm. 10/00). The Torrington Water Company has a safe yield of 5.3 million gallons per day, and a current demand of 3.1 mgd. The Water Company has found that 200 gallons per day per living unit is a reliable standard for estimating residential needs. Thus, for design purposes, the proposed project of 138 units can be expected to require 27,600 gallons of water per day. This is less than 2% of the available capacity of the Torrington Water Company.

Due to the density of the proposed project, connection to the Torrington sewer system will be necessary. The City of Torrington has an intermunicipal agreement with the Town of Litchfield to accept up to 150,000 gallons per day of sanitary sewage from Litchfield for treatment at the Torrington sewage treatment plant. Currently the Town is providing approximately 30,000 gpd to the Torrington facility, so there is sufficient capacity under the existing contract to service the proposed project.

However, according to Torrington's Public Works Director, approximately 1,000 feet of existing 8" sanitary sewer will need to be upgraded along New Litchfield Street (Rte 202) to service the proposed project. The estimated cost of this upgrade to 14-inch ductile iron sewer is $150,000.

Of greater concern with regard to the proposed project, however, is the DEP's proposed nitrogen waste load allocation (WLA) for Torrington's sewage treatment plant. The DEP's WLA plan is part of a statewide strategy to reduce nitrogen levels in order to protect water quality. The DEP's proposal calls for

reducing the nitrogen load at the Torrington Sewage Treatment Plant by over 60% (i.e. from the baseline load of 683 lbs per day to 249.3 lbs/day). To accommodate DEP's WLA plan, additional construction at the Torrington sewage treatment plant will likely be required in the coming years and new development may require the purchase of nitrogen credits.

According to Torrington's Public Works Director, "Litchfield will be billed for its proportional share of the treatment costs to meet the WLA for the Litchfield base line flow and load. Any discharge to the Torrington sanitary sewer system from the Town of Litchfield shall not exceed the baseline total nitrogen load of 3.2 lbs/day. Litchfield will be responsible for the purchase of nitrogen credits and any other costs associated with the total nitrogen WLA in the event any discharge exceeds the base line total nitrogen load of 3.2 lbs/day. In the event credits are not available or the Torrington sewage treatment plant is unable to meet its WLA, Litchfield will be required to not exceed the baseline total nitrogen flow."

By increasing flows from Litchfield to the Torrington sewage treatment plant, the proposed project will increase nitrogen loads to the facility. This may ultimately have significant implications for the Town of Litchfield by requiring the purchase of nitrogen credits or additional treatment that may or may not be available in the future.

Design Considerations

The interior road network for the project appears to be well designed for internal circulation and access. The proposed roundabouts offer an attractive element of the roadway network and will provide a desirable traffic calming function. The proposed esplanade at the entrance to the project is also an attractive design feature. The proposed dimensions of the roundabouts, and hammerhead cul-de-sac at the north end of the project, should be reviewed with local firefighting

personnel to ensure that they do not pose a problem with regard to firefighting response.

Consideration should be given to relocating the proposed tennis court adjacent to the proposed club house and pool as these are complementary uses. Slope and wetland buffer areas are limiting factors for construction in this general area, but it merits additional consideration. Perhaps one of the housing structures could be moved to the proposed tennis court location in exchange for placing the tennis court adjacent to the club house.

It was mentioned during the ERT field review that a break-away gate was planned at the northern access to the project which would enable access only during an emergency. Consideration should be given to providing a limited access gate at this northern access point to provide residents in the immediate area with more direct access to Clark Road. Otherwise residents of this area will need to drive over half a mile through the rest of the project to reach Clark Road.

Many of the proposed housing units have a direct southern exposure along the roof line which is particularly attractive for solar design. Consideration should be given to incorporating passive solar design principals into the project where feasible.

The presence of the project will be most noticeable for the twenty households located on the east side of Hart Drive in Litchfield. Particular care will be needed in this area to ensure that the 60 foot setback regulations are strictly followed and the associated landscaping is properly designed, planted and maintained. Consideration should be given to augmenting the evergreen planting (in both the understory and overstory) that is shown on page L-7 of the proposed planting plan. Supplemental landscaping in this area is important to provide as much screening as possible so that the new 35' tall houses on the hill don't tower over the existing one-story houses on Hart Drive.

In order to minimize the impact of the project on Clark Road, the feasibility of providing direct access to the project from Route 202 near the northern border of the subject site should be explored. The wetland crossing required for this access may result in unacceptable impacts, but the option should nonetheless be fully explored. It appears that the wetlands in the general vicinity of the potential wetland crossing have already been disturbed.

Should a new access to the site from Rte 202 prove feasible, then consideration should be given to eliminating the proposed crossing of the large wetland between the eastern (more isolated) housing units and the remainder of the housing units proposed under the current plan. A cul-de-sac off Clark Road could provide adequate access to the eastern housing units.

Traffic and Access Review

The Team traffic reviewer offers the following comments:

- It is understood that since the proposed development is projected to have more than 200 parking spaces and a portion of the development abuts a state road, a State Traffic Commission (STC) certificate is required. STC informational handouts are included in this section.

- While on the Team's site inspection, it was observed that the proposed access point to the development on Clark Road appears to have some vertical sight line problems. Although Clark Road is at an acceptable level of service at the present time, additional traffic generated by the new development may require minor roadway widening and vertical profile adjustment in the area of the access driveway.

statutes, the developer is responsible for 100% of the costs associated with the certificate requirements.

The exception to this is if the developer is a town or municipal agency.

Q. For how long is a certificate valid?

A. Certificates are issued for a ~~one~~ two-year period. Renewals may be requested in writing and are reviewed by the Division of Traffic Engineering prior to being acted on at one of the STC's monthly meetings.

Q. Is a developer allowed to do any preliminary site work prior to obtaining a certificate?

A. Yes. Preliminary clearing of a site, including earth work, is acceptable. No foundation work may occur prior to issuance of a certificate. The statutes prohibit the issuance of a building or foundation permit by the town until a certificate is issued.

Q. What if I own separate parcels of land in the same area which individually do not require a certificate?

A. Section 14-311(c) of the statutes requires that such parcels which may be separated by a state or local roadway, but which are utilized together for a single development purpose, will require certification.

Industrial or office parks, where the parcels may be individually sold off, likewise would come under the purview of Section 14-311(c) of the statutes.

Q. Is a DOT permit the same as an STC Certificate of Operation?

A. No. A DOT encroachment permit is needed for all work within DOT right-of-way, including that required by a Certificate of Operation. These permits are issued by the Department's four District Offices located in Rocky Hill (tel. (860) 258-4544, Norwich (tel. (860) 823-3230), New Haven (tel. (203) 389-3008, and Thomaston (tel. (860) 585-2793, This process would occur after issuance of a certificate and requires more detailed plans, although developers may procure a DOT permit to do some work within State right-of-way prior to obtaining a Certificate.

Copies of the DOT encroachment permit regulations may be obtained by contacting the Office of Maintenance at (860) 594-2608.

Revised August 15, 1996

CONNECTICUT
DEPARTMENT OF TRANSPORTATION

STATE TRAFFIC COMMISSION

CERTIFICATES OF SAFE TRAFFIC OPERATION

Developers are frequently overwhelmed by the different permitting requirements of state and local jurisdictions. The purpose of this pamphlet is to inform and clarify when permission must be sought from the State Traffic Commission (STC) for constructing or expanding developments which will generate large volumes of traffic.

The empowering statute is Section 14-311, which is entitled, "Open air theaters, shopping centers and certain other developments affecting state highway traffic."

Subsection (a) of Section 14-311 states, "No person, firm, corporation, state agency, or municipal agency or combination thereof shall build, expand, establish or operate any open air theater, shopping center or other development generating large volumes of traffic, having an exit or entrance on, or abutting or adjoining, any state highway or substantially affecting state highway traffic within this state until such person or agency has procured from the state traffic commission a certificate that the operation thereof will not imperil the safety of the public."

Listed below are a series of questions and answers which are most often fielded by the office of the State Traffic Commission regarding developments in Connecticut.

Q. What is the State Traffic Commission ?

A. Section 14-298 of the statutes establishes within the Department of Transportation (DOT) a State Traffic Commission. The STC consists of the commissioners of the Connecticut Departments of Transportation, Public Safety, and Motor Vehicles. The STC promulgates regulations establishing a uniform system of traffic control signals, devices, signs and markings for public highways. The STC also adopts regulations in cooperation and agreement with local traffic authorities governing the use of state highways and roads.

Q. Where is the STC located ?

A. The office of the State Traffic Commission, which is staffed by the Executive Director of the STC and clerical and engineering personnel, is located within the Department of Transportation. It is located at 2800 Berlin Turnpike, Newington, CT 06131-7546, Tel No. (860) 594-3020, FAX No. (860) 594-2377.

Q. Section 14-311 does not mention what size developments require certification by the STC. How do I know if my development qualifies?

A. The STC has adopted regulations which define a development needing a certificate of operation as any which provides 200 or more parking spaces or has a gross floor area of 100,000 square feet or more.

Q. Suppose I am expanding a development which existed prior to enactment of the statute. Do I need a certificate?

A. It depends. If the warranting threshold and location criteria are met, as soon as either 200 parking spaces or 100,000 square feet are provided by expansion, either a certificate or a certificate determination (see next question) will be necessary.

Q. Suppose I do not have a driveway on a state highway. Do I still need a certificate from the STC?

A. The statute requires that a development of the regulated size which has a driveway on a state highway or which abuts or adjoins a state highway or which substantially affects state highway traffic obtain a certificate of operation.

For those developments which do not have a driveway on, or abut or adjoin a state highway, a determination of impact (certificate determination) must be made. In these cases, the developer is asked to submit enough information so that an evaluation of the impact on the nearest state highway intersection(s) may be made.

Q. If I already have a certificate and I am expanding, what should I do?

A. A new certificate is needed for any development which already has been certified and is increasing its parking facilities by 50 or more parking spaces. Any increase in square footage requires a new certificate.

Also, any significant change in use from that previously approved (i.e., office-to-retail) will require a new certificate.

Q. If a development needs a certificate, how much information should be submitted?

A. The STC has an application package which consists of an application form and a check list of needed information. For large developments proposed on vacant land, normally all the information contained on the check list is required. For other developments, a preliminary scoping meeting may be held or information may be exchanged via telephone to determine the extent of data needed for review.

Representatives of the DOT are available for preliminary reviews of proposed developments to discuss intermodal transportation issues prior to formal submittal to the STC.

Q. Is there an application fee ?

A. No.

Q. How long does it take to obtain a certificate?

A. Section 14-311 of the statutes allows 120 days of review time. The time periods during which additional information is required of the developer are not counted as part of the 120 days.

The actual review time may be less than the 120 days. In many instances, certificates for smaller developments are issued within a month or two of submittal. The actual time is dependent upon many variables, including the completeness of a submittal and the complexities of the area and surrounding roadway network.

The STC normally meets the third Tuesday of each month. Reports are prepared by the Department of Transportation's Division of Traffic Engineering containing recommendations required to be met in order for the certificate to remain in effect, which are acted on at the STC's monthly meetings.

Q. Does the town in which the development lies have any say in the issuance of a certificate?

A. The legal traffic authority (LTA) of each town is contacted during the course of the technical review conducted by the Division of Traffic Engineering. The LTA's concurrence or nonconcurrence is noted at the STC meeting. The scope of improvements is discussed at the meeting, and any town representatives or residents are welcome to attend these meetings to express their viewpoints.

Q. Who pays for the cost of improvements?

A. In accordance with Section 14-311 of the

DOT - Division of Traffic Engineering
2800 Berlin Turnpike, Newington

Districts 1 & 2 (Greater Hartford & Norwich Areas)
Tel. (860) 594-2740
Districts 3 & 4 (New Haven & Thomaston Areas)
Tel. (860) 594-2715

* Crosswalk requests *Minor signal revisions. *Traffic safety studies; accident problems; capacity studies. *Guide, destination, and logo sign requests. *Illumination studies.

District Offices

District 1 -	Rocky Hill	Tel. (860) 258-4503
District 2 -	Norwich	Tel. (860) 823-3210
District 3 -	New Haven	Tel. (203) 389-3010
District 4-	Thomaston	Tel. (860) 585-2785

*Warning signs. *Drainage problems on state roads; potholes, etc. *Sight line problems (trees, etc). *Encroachment permits. *Signs knocked down. *Other maintenance-type problems.

Traffic Signal Malfunctions: Burned Out Bulbs
District 1 (Rocky Hill) Elect. Unit: (860) 566-3156; (860) 566-3157
District 2 (Norwich) Elect. Unit: (860) 848-0008; (860) 848-7608
District 3 (New Haven) Elect. Unit: (203) 878-9028; (203) 878-1869
District 4 (Thomaston) Elect. Unit: (203) 879-9850; (203) 879-6077

Revised August 15, 1996

STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION TRAFFIC PROBLEMS?

WHO TO CALL

An explanatory brochure on the responsibilities of the STC and ConnDOT with respect to various traffic/maintenance issues

State and local officials, as well as members of the general public, are often unsure whom to contact regarding various traffic related issues. Common questions received by the State Traffic Commission (STC) and the Department of Transportation (DOT) include: "How do I get a traffic light installed?" "Who is responsible for slowing vehicle speeds on my street?" "How can I get that pothole fixed on the road that I take to work?"

Listed below are a series of questions and answers to help explain the relationship of the STC and the DOT, and how to deal with various traffic concerns.

Q. What is the State Traffic Commission?

A. Section 14-298 of the statutes establishes within the Department of Transportation a State Traffic Commission. The STC consists of the commissioners of the Connecticut Departments of Transportation, Public Safety, and Motor Vehicles. The STC promulgates regulations establishing a uniform system of traffic control signals, devices, signs and markings for public highways. The STC also adopts regulations in cooperation and agreement with local traffic authorities governing the use of state highways and roads.

Q. Where is the STC located?

A. The office of the State Traffic Commission, which is staffed by the Executive Director of the STC and clerical and engineering personnel, is located within the Department of Transportation. It is located at 2800 Berlin Turnpike, Newington, CT 06131-7546, Tel. No. (860) 594-3020, Fax No. (860) 594-2377.

Q. When does the STC meet?

A. The STC normally convenes on the third Tuesday of each month at the DOT complex in Newington. At this monthly meeting, reports prepared by the Division of Traffic Engineering of the Department of Transportation are presented for action. These reports relate to various regulatory measures including speed limits, traffic signals, and parking restrictions. Also considered are the issuance of certificates of operation which, in accordance with Section 14-311 of the Connecticut General Statutes, are required for developments generating large volumes of traffic on state highways.

The STC has prepared a separate brochure regarding such developments. Copies are available by contacting the STC at (860) 594-3020.

Q. How do I go about getting a speed limit changed or traffic signal installed?

A. The first step to take is to contact the legal traffic authority (LTA) of the town involved. Each of Connecticut's towns has a designee who handles traffic related matters in that town. In larger towns, it may be a professional traffic engineer, and in some towns it may be the Chief of Police or the First Selectman. Contact your town hall to find out who it is in your town. You should discuss your request with the LTA first, since he is the one who is most familiar with the area in question and he may be aware of previous studies or any other similar complaints from residents. Also,by statute, the STC must work hand in hand with the LTA in reviewing regulatory matters.

The Division of Traffic Engineering is currently preparing an informational brochure on speed limits which may be of interest to the reader.

Q. What happens after I talk to the LTA regarding my problem?

A. If the LTA feels that the request is a legitimate one, he can forward it to the STC or, depending on the nature of the request, to the appropriate office in the DOT for review. An investigation will be conducted and, if STC action is needed, a report will be prepared by the Division of Traffic Engineering recommending approval or denial of the request, and the matter will be placed on the agenda of one of the STC's monthly meetings. If no STC action is required, a reply to the LTA will be forwarded by the investigating unit in the DOT.

There are many items which are handled by other offices within DOT which do not require any action by the STC.

Q. Suppose I don't agree with the report prepared by Traffic Engineering?

A. LTA's and members of the public are welcome to attend the STC meeting at which the report will be presented and express their viewpoints to the members of the STC. The Commission may vote to have the matter reviewed further or they may override the recommendation submitted by Traffic Engineering.

Q. How can I get a "No Thru Trucks" sign erected on my street?

A. The STC may, in cooperation and agreement with the legal traffic authority of a town, prohibit through truck traffic on any street or highway. The Attorney General's Office has defined a through truck as one which travels from a point outside the limits of a city, town or borough through such city, town, or borough without any scheduled stop in the locality in question. Thus, a "No Thru Trucks" sign may not affect the majority of trucks using a particular road in a town, if they have a local destination.

Towns may preclude trucks from town roads by ordinance as long as they do not become defacto no through truck routes; that is, when the road in question passes over a town line to an adjoining town.

Care should be taken in the implementation of such prohibitions in that truck traffic will be diverted to other routes which may be less satisfactory.

Q. I have read the STC brochure on Certificates of Safe Traffic Operation, which refers to large developments. Does the STC ever deny an application for such a certificate because the residents or town object to a development?

A. No. The STC and the Division of Traffic Engineering of the DOT work closely with the legal traffic authority of a town in determining the requirements for roadway improvements in conjunction with the issuance of certificates of operation. By statute, the STC can only consider traffic safety in its review. While issues such as the impact on the environment or the quality of life in a town which may be impacted by a large development may be valid, they do not come under the STC's jurisdiction. These are decisions that must be made on a local level. If a developer's engineer can demonstrate, through accepted traffic engineering techniques, that the improvements proposed by the developer to mitigate the impact of the generated traffic are adequate, the STC will normally issue a certificate of operation.

Q. Whom do I contact regarding potholes, drainage problems, or other maintenance issues?

A. The Department of Transportation has four district offices, located in Rocky Hill, Norwich, New Haven and Thomaston. These offices handle various maintenance and construction functions.

The appropriate district maintenance office should be contacted regarding problems related to maintenance functions on state roads (see following list).

Q. Can a resident contact the STC directly with a traffic problem?

A. This practice is discouraged. We ask that all requests for traffic control devices begin with the designated LTA of a town. He is usually the most knowledgeable of local conditions. This procedure ensures that the LTA is aware of all local concerns, that he endorses such concerns, and it facilitates STC/DOT work efforts by enabling us to deal with a single town representative.

Q. As legal traffic authority, I am not always sure whom to contact regarding a particular problem.

A. Below is a list of various offices and those areas which come under their purview. If you are unsure, contact the office which most closely relates to the question you have.

Whom To Contact

State Traffic Commission: Tel. (860) 594-3020
Fax (860) 594-2377

> Requests for:

- New traffic signals or major revisions to traffic signals on state and town roads.
- Speed limit changes on state and town roads.
- "No Turn On Red" signs.
- "No Thru Trucks" routes.
- Lane-use control; "No Parking" zones; parades (or other special events); multi-way stop control; flashing beacons; bus stops; and other miscellaneous regulatory items.

> Major Traffic Generators.

>Traffic controls in parking areas of 20 or more spaces adjacent to state highways.

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.