

Trade Winds Farm Subdivision

Winchester, Connecticut



King's Mark Environmental Review Team Report

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

Trade Winds Farm Subdivision Winchester, Connecticut



Environmental Review Team Report

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

for the
Inland Wetlands Commission
Winchester, Connecticut

December 2003

Report No. 323

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Acknowledgments

This report is an outgrowth of a request from the Winchester Inland Wetlands Commission to the Northwest Conservation District (NWCD). The NWCD 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, Thursday, October 30, 2003.

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I would also like to thank Scott Eisenlohr, inland wetland agent, Jim Rollins, wetland commissioner, and Steven Trinkaus, applicant and engineer for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given plans, reports and related documents. Some Team members made follow-up visits to the site, while others conducted a plan review only. 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/applicant. This report identifies the existing resource base and evaluates its significance to the proposed use, and also suggests considerations that should be of concern to the town. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The King's Mark RC&D Executive Council hopes you will find this report of value and assistance in the review of the proposed subdivision.

If you require additional information please contact:

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Introduction

Introduction

The Winchester Inland Wetlands Commission has requested Environmental Review Team (ERT) assistance in reviewing an application for a proposed open space subdivision.

The 104.5 acre site is located on the easterly side of Platt Hill Road. The site was previously used for farming until perhaps the mid part of the last century. The parcel is well vegetated with some meadow/brush areas in the western portion of the property and mature woodlands in the eastern portion.

Trade Winds Farm is proposed under the Winchester Open Space Subdivision Regulations. The project consists of 32 single family house lots, with individual on-site sewage disposal systems and water supply wells, a town roadway system and approximately 60 acres of passive and active open space areas. Two wetland road crossings are planned.

Objectives of the ERT Study

The Winchester Inland Wetlands Commission has requested that the ERT Team assist them by examining the impact on natural resources associated with the development of the property. Specific concerns include: soils, topography, wetlands, hydrology, stormwater management, wildlife habitat, sewage disposal, open space, site design, and traffic and access.

The ERT Process

Through the efforts of the Winchester Inland Wetlands Commission this environmental review and report was prepared for the Town of Winchester.

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

The review process consisted of four phases:

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

The data collection phase involved both literature and field research. The field review was conducted on Thursday, October 30, 2003. The emphasis of the field

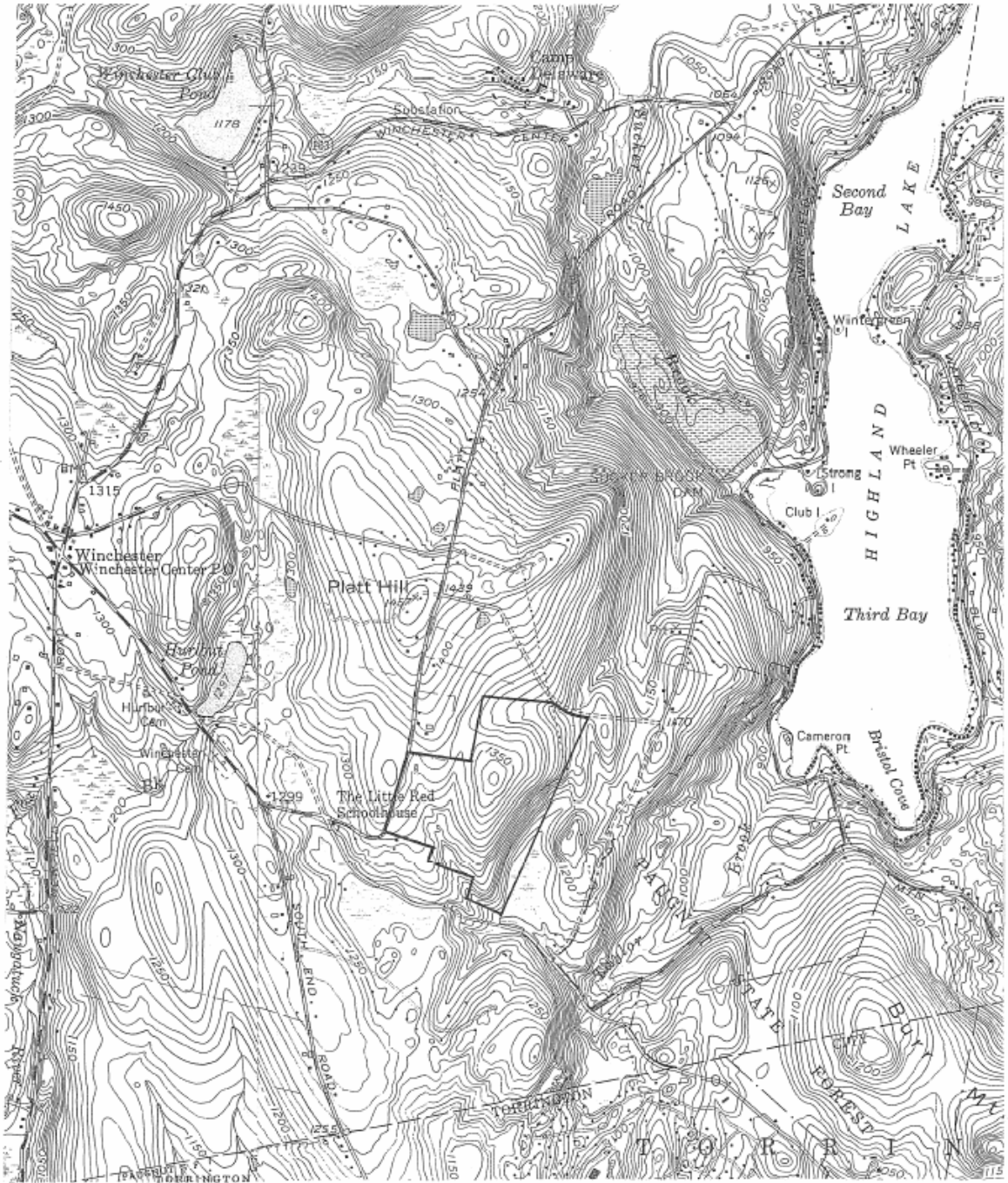
review was on the exchange of ideas, concerns and recommendations. Being on site allowed Team members to verify information and to identify other resources.

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

Location/Topographic Map

Scale 1" = 2000'



Northwest Conservation District Review

The following section contains comments and recommendations on some stormwater management and soil erosion and sediment control issues that should be considered if the Winchester Land Use Commissions were to approve the Trade Winds Farm Application. The District recommendations are based on the following:

- A site walk with the site engineer (Steve Trinkaus of Trinkaus Engineering, LLC) that occurred on October 30, 2003.
- All the materials included in the Site Plan of Development Drawings and Project Reports (24 sheets dated July 30th, 2003).

Stormwater Management and Soil Erosion / Sediment Control

It is understood that a formal Soil Erosion and Sediment Control Plan (E&S Plan) has not yet been drafted. However, the following comments are made to ensure a complete Soil Erosion and Sediment Control Plan once drafted. These comments and recommendation should seriously be considered given the sensitive nature of water resources below this development.

Runoff from the northern portion of the proposed development will enter a steep gradient brook that feeds Highland Lake. Any material entering this stream course will most likely be directly transported to the lake. The turbulent nature of steep gradient brooks are very efficient at transporting suspended sediment loads. It appears that this brook does not enter the Sucker Brook Dam Reservoir, which would settle suspended material before they entered the lake. Therefore, suspended materials would be conveyed directly to the lake.

The Southern portion of the site empties into a headwater wetlands complex that feeds Taylor Brook (which runs directly into Highland Lake). This wetland complex is considered to have very high functional value (FHA, 1983). Managing the stormwater coming off site and into these wetlands will be important to preserving the function of this wetland (see comments and recommendations below).

Infiltration Technology

At the bottom of the shared driveway (across from Lot #14 and #15) there is an infiltration device proposed to maintain the stormwater runoff from the shared driveway. The following issues need to be addressed to ensure this technology functions properly.

- Because the entire shared driveway will be completed before any house lots are cleared, all catch basins will require inlet protection. Inlet protection is especially important for the catch basins feeding the infiltrator. Inlet protection will keep damaging sediments from entering the infiltrator. The catch basin inlets should be protected with hay bales and/or silt fence until the road is paved and the surrounding exposed soil from lot clearing have been completely stabilized with vegetative cover. An illustration of the inlet protection measure to be used should be included in the plan-of-development. The infiltration technology/groundwater recharge devices can be efficient at introducing stormwater runoff into the ground water. However, it is extremely important to keep damaging sediments out of these devices.
- The Commission should require that a specially designed catch basin be installed just before the infiltration chambers (see attached diagram). This catch basin should be designed to fail when sediments reach a certain height. This will eliminate sediments from entering the infiltration chambers, which will quickly reduce storage capacity and eventually cause the system to fail. The developer needs to name a responsible party for the maintenance of the entire stormwater systems. Then the Town should require a performance bond to carry out maintenance activities after construction activities are complete if the designated party fails to maintain the storm water system.
- The infiltration system is being constructed on what appears to be a Paxton-Woodbridge Soil Complex. These soils are very well known for their inability to rapidly infiltrate stormwater because of a dense impervious sub-surface layer of compact glacial till. The designing engineer needs to show calculations that verify that the soil has the capacity (percolation test results at the location of the infiltrator) to infiltrate runoff from the entire storm water catchment area. This infiltration technology can be very efficient at introducing stormwater runoff into the ground water. However, if sub-soils have dense impervious layers these systems can be very inefficient at infiltrating stormwater into ground.
- The emergency overflow exit on the infiltrator exits onto slopes that consist of a Paxton-Woodbridge Soil Complex. These soil series are classified as highly erodible (USDA, 1970). Any concentrated water flow on these soils will cause gully erosion. Especially when Paxtons and Woodbridge soils area on slopes greater than 15 percent (such as the slopes just below the infiltrator exit). It is realized that there is a plunge pool on the outlet. However, if water flows out of this structure, it will quickly

gather and erode the slope. The designing engineer should illustrate how excess storm water will be managed.

Grassed Swales With Field Stone Check Dams

These structures will work well to transport water with little erosion for only their length. Once concentrated flow exits the swales onto highly erodible Paxton and Woodbridge Soils, gullies will certainly form. The designing engineer should illustrate how excess storm water that exits these structures will be managed to minimize erosion.

Needed Stormwater Management Measures

If the shared driveway that serves Lot #22, #23 and #24 is approved, a stormwater management measure is needed. Stormwater runoff will collect on this shared driveway and shoot out onto a steep slope that consists of highly erodible soil (USDA, 1970).

Wetland Crossings

The two-wetland crossings near the entrance of the development have 18-inch pipes proposed to transmit water. Given the high functional value of the wetlands (FHA, 1983) to be crossed the Commission should require a more ecologically and hydrologic transparent crossing. Alternatives include a three-sided box culvert, a partially buried four sided box culvert or a "half moon" culvert.

Soil Erosion and Sediment Control

Because the entire road system will be completed before any house lots are cleared the catch basins will require inlet protect. The catch basin inlets should be protected with hay bales and/or silt fence until the road is paved and the surrounding exposed soil from lot clearing have been completely stabilized with vegetative cover. An illustration of the inlet protection measure to be used should be included in the plan-of-development. Because the proposed development represents 50 +/- acres of disturbance the town should require that the applicant retain the services of a site inspector. This inspector will perform regular inspections of soil erosion and sediment control measures, stormwater management measures, phasing and sequences of construction implementation.

The Northwest Conservation District (NCD) appreciates the opportunity to comment on this proposal for significant land use change. If a final plan-of-development were drafted which should have a detailed soil erosion and sediment control plan, NCD would welcome the opportunity to review the

plan. A soil erosion and sediment control checklist to aid the developer in submitting a complete E&S Plan has been included in this section.

References

Connecticut Department of Environmental Protection, (CT DEP, 1988 - updated 2002). Connecticut Guidelines For Soil Erosion and Sediment Control. DEP Bulletin #34.

Federal Highway Administration, 1983. A Method For Wetland Functional Assessment, Vol. I. United States Department of Transportation.

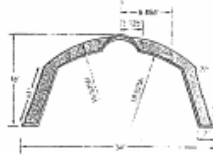
Federal Highway Administration, 1983. A Method For Wetland Functional Assessment, Vol. II. United States Department of Transportation.

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

provide cost-effective and free up valuable land for profitable development.

Environmentally efficient

Shallow cross-section and large bottom area enhance natural soil filtration and pollutant removal. Stormwater runoff recharges into the ground, replenishing the groundwater supply.

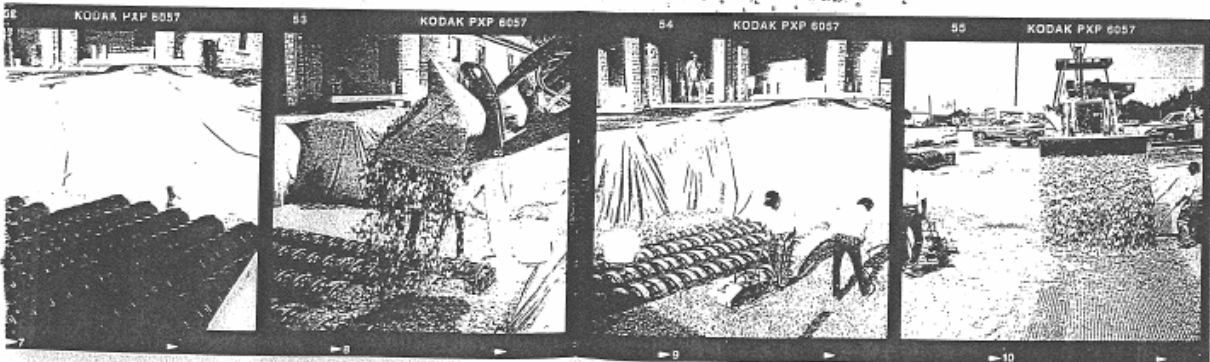
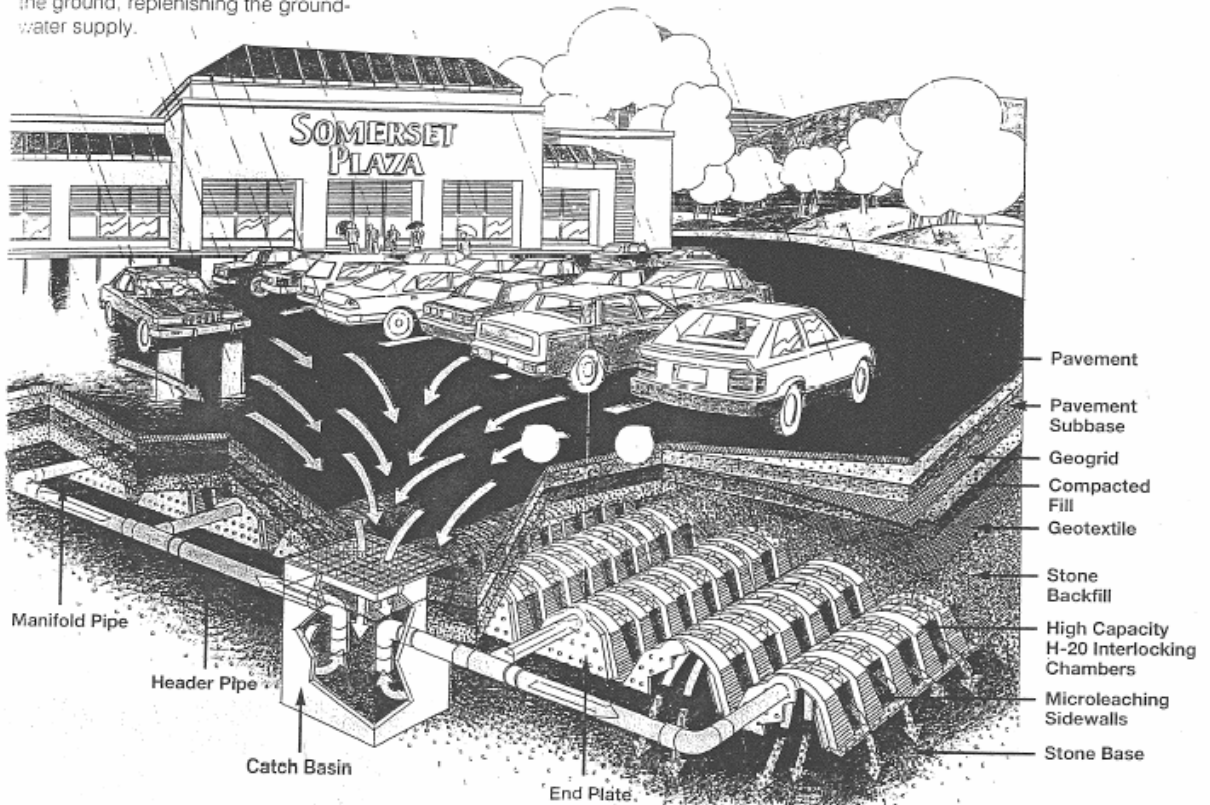


Easily handled and installed

- 31 lb. weight allows easy hand-carrying and positioning in beds or trenches.
- Patented interlocks allow simple connection of units to form desired configurations.

Reduced health and liability risks

- Eliminates mosquito-transmitted disease potential of standing water.
- Avoids liability exposure and maintenance expense associated with open ponds.



...sily installed and interconnected without heavy equipment in a bed or trench configuration that has enormous storage capa

**Erosion & Sediment Control and
Stormwater Management Plan Worksheet**

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Support Documentation (cont'd):

- Design calculations and construction details for measures intended to control erosion .
- Design calculations and construction details for measures intended to control groundwater (i.e. seeps, high water table, etc...).
- Boring logs, test pit logs, soils reports, etc...
- Impervious surface coverage percentage.
 - Roof.
 - Parking.
 - Other.

Site Illustration(s) Checklist:

Features Required on All Maps or Illustrations

- North arrow.
- Scale (including graphical scale).
- Title block including: name of the project, author of the map or illustration, owner of record for the project, date of illustration creation and any revision dates.
- Property lines.
- Legend.
- Signature and seal of professional engineer.
- Name and signature of project soil scientist.

Site Locus map

- Scale (1:24,000 recommended).
- Project location (showing property boundaries and area within 1,000 feet of property boundaries).
- Roads, streets, buildings.
- Major drainage ways (at least named watercourses).
- Public water supply watershed areas, well heads and aquifer boundaries.

Topography, Natural Features, and Regulatory Boundaries

- Existing contours (two [2] foot intervals).
- Proposed grades and elevations.
- Limits of cuts and/or fills.
- Upland soil boundaries.
- Seeps, springs.
- Inland wetlands boundaries.
- FEMA identified floodplains, floodways.
- State established stream channel encroachment lines (DEP permit).
- Streams, lakes, ponds, drainage ways, dams.
- Existing vegetation.
- Tidal wetland boundaries and coastal resource limits (e.g. mean high water, shellfish beds, submerged aquatic vegetation, CAM boundary).

Road and Utility Systems

- Proposed and existing roads and buildings with their locations and elevations.
- Access roads (temporary and permanent).
- Location of existing and/or proposed septic systems.
- Location and size of existing and/or proposed sanitary sewers.
- Location of other existing and/or proposed utilities, i.e. telephone, electric, gas, water, etc...

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Wetlands Review

The revised plan shows thirty-two single family home lots proposed to be situated on approximately 23 acres. There will be approximately 60 acres of open space and the mapped wetlands total 21.66 acres. The ERT Team visited the site on October 30th, 2003.

Previous to the ERT field visit there had been a lot of rain. On the 29th of the month, Hartford recorded 1.57 inches of precipitation. In the three days previous to that (the 26th through the 28th) there was a total of 1.2 inches. At the time of the visit both streams at the point of their proposed crossings were flowing three to five feet in width and pooling eight to ten inches in depth. Both of the two wetland crossing sites are representative of their streams' healthy functioning riverine and riparian systems, with vegetation displayed at the herb, shrub and tree levels. Stream bottoms are bouldery with coarse woody debris sometimes ponding water.

- At the point of the proposed road crossings the streams will be carried under the roads in 18 inch pipes. Because of the nature of this subdivision and the desire to maintain and preserve the ecological integrity of as much of the watercourse as possible, the town may wish to request that the crossings be carried out in box culverts. These culverts would have the bottom below grade to maintain and preserve, as well as possible for the long term, the existing nature of the two streams' bottom material.
- The use of groundwater and its effects on wetlands by the proposed houses came into question. The concern being the effect that the wells would have on drawing down the wetland water levels. In that there is on-site septic, the water used in the home will be recharged into the soil and ultimately fed back into the wetlands with negligible loss. Regarding impermeable surfaces, the proposal has done well to recharge roof runoff into the groundwater via roof drainage. Other runoff will be directed to the forest floor. The shared driveway runoff is proposed to be recharged into the groundwater.
- Thus, in all, for a project this large and with the reintroduction of much of the water removed from the natural system being recharged into the unconsolidated materials that carry the groundwater flow, the effects of wetland draw-down will be negligible.
- There is a series of small vernal pools that are out of the way of development behind lots 22 and 23. Although no animal indicators were sighted on the Team's field walk, these should be further investigated at the appropriate

time of the year (late winter, early spring) to determine with certainty if the pools are being used for amphibian breeding. This is especially true for the pool in back of lot 23. It is important to note however, in the report submitted by John M. Anderson dated 8-1-03 he states on page two the observation of a wood frog. The wood frog is considered an obligate vernal pool species - that is, one that absolutely depends on vernal pools for the breeding phase of its life. Thus, there are breeding populations of amphibians that use vernal areas in the springtime on the site. The question, in Autumn of 2003, is what area is it?

The red-spotted newt the Team found is typical of warmer fall days. It is a salamander however, and as such, needs an intact water environment. Its range, while it is in this stage of its life, is across the forest floor, especially after rain, which was when this field visit took place.

- It is beneficial that the roads are built in phases. This allows for the minimizing of sediment runoff and erosion problems - the smaller the area, the easier to control - from the construction areas.
- The proposal shows a generous giving of open space. The town should be aware however, that the largest contiguous pieces are the most valuable for wildlife and woodlands and overall preservation.
- Soils piles will be employed during construction. The individual soil piles for each lot have been depicted on the plans along with their erosion control silt screen placement. It is imperative that these soil piles and those from the three- to four-foot road cuts and fills be maintained through the course of construction to minimize sedimentation burdens on the down-hill slopes.
- The roads now proposed for the subdivision are 26 feet in width. Frequently, for a subdivision such as this, road widths of twenty-two to twenty-four feet are encouraged. In this subdivision, if the +4,000 feet of road was reduced from the proposed width of 26 feet to 24 feet, the development would have about 8,000 square feet less area of impervious surface (about 1/5 of an acre) and increase the safety of the roadways. The savings for the 22 foot road would be 16,000 square feet. Either of these reductions would decrease the burden of the storm drains and allow, along with the grassy, roadside swales, more natural precipitation infiltration and ground water recharge. The study regarding the safety of various road widths can be found on the Web at: <http://www.fivepts.com/streetutah.htm>.
- Portions of 15 of the 32 proposed lots are within the wetland buffer (Lots: 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 23, 25, 27, 29, and 32). The town will need to evaluate if the cumulative impacts of these intrusions are acceptable to the wetland system.

Stormwater Management Review

The following review comments are based on the requirements of the Department of Environmental Protection's (DEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities ("the construction general permit"). Many of the requirements of the construction general permit overlap with the requirements of local agency(ies) and the 2002 Connecticut Guidelines on Soil Erosion and Sediment Control ("the guidelines").

Since the proposed development involves the disturbance of over five acres, the owner or developer of the site must register with the DEP thirty days prior to the commencement of construction activity. Additionally, a Pollution Control Plan ("the PCP") must be prepared and kept on site during the entire life of the construction project.

The PCP must include a site map as described in Section 6(b)(6)(A) of the construction general permit and a copy of the erosion and sedimentation (E & S) control plan for the site. An E & S plan which has been approved by the Town of Winchester in conjunction with the DEP Inland Water Resources Division (IWRD) and the local Soil and Water Conservation District may be included in the PCP. The PCP and site map must include specifics on controls that will be used during each phase of construction, pursuant to Section 6(b)(6)(B) of the construction general permit. Specific site maps and control, must be described in the PCP, as well as construction details for each control used. The construction general permit requires that "the plan shall ensure and demonstrate compliance with "the guidelines." The Plan must be flexible to account for adjustment of controls as necessary to meet field conditions.

The PCP must demonstrate that the post-construction stormwater treatment system has been designed with a goal of 80% removal of total suspended solids, pursuant to Section 6(b)(6)(C)(iii) 1) of the construction general permit. Such measures may include, but are not limited to, stormwater detention basins, stormwater retention basins, vegetated swales, swirl concentrator technology structures (such as Vortech, Downstream Defender, Stormceptor, Stormtreat, or similar), deep catch basin sumps (4' +) and stormwater infiltration devices. The PCP must also discuss the installation of velocity dissipation devices at all discharge locations as a post construction stormwater management measure. A detail of proposed measures as well as drainage calculations must be provided.

The construction general 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 PCP must also allow for the inspector to require additional control measures if the inspection finds them necessary, and should note

the qualifications of personnel doing the inspections. Since the proposed site has wetland areas requiring protection and areas with steep slopes, ongoing inspections and adjustments of controls will be an important aspect of this project. Additionally, the PCP must include monthly inspections of stabilized areas for at least three months following stabilization.

In addition to the general comments outlined above, the following are specific comments on the proposed project based on review of the site plans provided on October 30, 2003:

- If dewatering is necessary onsite, the PCP must address how dewatering wastewaters will be managed in accordance with Section 6(b)(6)(C)(ii) of the construction general permit.
- If the disturbance of an area (for road and/or house construction) greater than 2 acres, at any one time, will occur, a sediment trap and/or a sediment basin with the ability to store 134 cubic yards of water storage per acre drained must be installed. If an area greater than 5 acres is disturbed at any time, a sediment basin with an outlet engineered to remove sediment must be installed. If the installation of a sediment trap or basin is necessary, the site plans must be modified to include the location of the basin(s) and a detail sheet for the basin(s).
- In order to minimize the area of disturbance, the amount of impervious area, and the volume of post construction stormwater runoff, DEP recommends that the width of the roadway be limited to the maximum extent possible. Reducing the volume of stormwater collected in the drainage system would result in a cost benefit since any treatment system installed would be sized for smaller flows.
- In order to reduce erosion potential, DEP agrees with and strongly encourages the phasing of construction activities to the maximum extent possible so that unstable areas are minimized. The construction general permit also requires that any inactive area left disturbed for over 7 days be temporarily stabilized. Areas left disturbed over 30 days must be temporarily seeded. The PCP must include more detail on the stabilization of disturbed areas outside the seeding season.
- For inlet protection in catch basins along the road, DEP recommends the use of filter sacks (for areas in the immediate vicinity of construction areas) or if filter fabric is to be used, the installation of an apron to cover the curb inlet.
- The construction sequence should be very detailed regarding the installation of erosion controls during each phase of construction with timetables for each

activity. Additionally, the PCP should state that, except for the clearing necessary to install erosion and sediment controls, all such controls must be installed prior to the disturbance of land.

- Since house lots are to be sold off individually, the developer must obtain certifications (pursuant to Section 6(b)(6)(E) of the construction general permit) from any contractor (with a potential to cause erosion) working on individual house lots regarding compliance with the construction general permit, including the Pollution Control Plan. Therefore, DEP strongly recommends that contractor certifications be obtained as a condition of the sale of the lot.
- The plans include details for erosion and sediment controls (such as the semi-pervious straw bale sediment barrier) which are not shown to be installed. The PCP should only provide details for erosion and sediment controls to be installed.
- On Sheet 4 of 24, clarify why the flows from Catch Basins 7-10 are intercepted and discharged at FE #8A instead of at the low point discharge of FE #6A.
- The use of grassed swales is consistent with the construction general permit's requirements as it can achieve adequate total suspended solids removal. However, design information on the sizing of the swale, the stones in the check dams, etc. must be provided in the PCP.
- With regard to the proposed infiltration system, the following issues must be addressed:
 1. Information on the design flows for this system must be provided.
 2. Information on when the infiltration system will be bypassed and how that runoff will be managed must be provided.
 3. Since some infiltration systems are prone to clogging due to winter sand, pre-treatment (with deep (4+ feet) catch basin sumps, for example) should be assessed.
 4. A long-term maintenance plan for the infiltration system must be prepared.

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 known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question. We do have state-listed species just south of this property but our program ecologist Ken Metzler has determined that they will not be impacted by this subdivision.

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

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

Sewage Disposal Review

This section provides technical comments on the proposed Trade Winds Farms subdivision located on Platt Hill Road in Winchester, CT. This reviewer was unable to attend the ERT field review, but he did a cursory review of the Trinkaus Engineering, LLC plans dated July 30, 2003 and the supplemental plan dated September 24, 2003.

The following are the technical comments from the cursory review of the plans:

- All soil test data (deep test pits, percolation tests) should be included on the plan rather than on separate attachments.
- The proposed subsurface sewage disposal system serving lot 12 is within the 75 foot protective well radius for lot 13.
- All foundation drain outlets and overflows from the roof drainage structures must be at least 25 feet from all subsurface sewage disposal systems including proposed reserve areas. The outlets should also be directed away from leaching areas.
- All proposed subsurface sewage disposal systems must be located at least 50 feet up gradient of all soil cuts such as those required to construct driveways or roads.

This CT DPH - Environmental Engineering Section office concurs with the comments previously made by the Torrington Area Health District and agrees that the plan submitted demonstrates feasible locations for the subsurface sewage disposal systems provided that all comments and concerns from both Departments are addressed.

Planning Considerations

The Connecticut Conservation and Development Policies Plan 1998-2003 classifies the subject site as predominantly "Rural Land," with the inland wetland soil areas classified as "Preservation Areas." The State Plan encourages comparatively low density development in "Rural Land" in order to protect scenic character and ensure the indefinite functioning of on-site wells and septic systems. The State Plan supports the use of creative land development techniques in rural areas, such as open space or cluster subdivisions, which seek to preserve open space.

The State Plan advocates the protection of the significant resources within "Preservation Areas" (e.g. wetlands) and discourages structural development in these areas except as directly consistent with the preservation values. When a development project is proposed within or adjacent to a "Preservation Area," the State Plan calls for incorporation of site planning and design controls, such as buffers, to protect and manage the area.

The Growth Policy Map of the Litchfield Hills Council of Elected Officials classifies the subject site as a "Rural Area." Densities even less than the minimums needed to sustain on-site sewage disposal and well systems are reasonable in these areas in order to protect sensitive resource areas and channel growth to less remote locations. Conservation subdivisions, to protect open space and important natural features, are encouraged in "Rural Areas."

The proposed project is generally consistent with the density of development envisioned in these advisory regional and state policy plans.

Design Considerations

Based on a preliminary review, the proposed access to the new lots appears to be well designed. The proposed shared driveway on Platt Hill Road, and the use of the new access road for two other lots fronting on Platt Hill Road, will serve to reduce the number of new curb-cuts on Platt Hill Road, thus helping to maintain roadway capacity and the scenic character of the streetscape. The proposed house locations for the lots fronting on Platt Hill Road also have generous setback distances of 100 feet or more. This will serve to buffer the impact of the houses on the surrounding area and help to maintain the rural character of Platt Hill Road.

The proposed new access road generally follows existing contours, which will serve to minimize the amount of cutting and filling required. The centerline radius of curvature of the road appears appropriate for the project and will serve to calm traffic as it moves through the subdivision.

Since Platt Hill Road provides the only entrance to the site, consideration should be given to constructing an emergency access drive from the proposed road network to Dayton Road on the northern border of the property. Through the use of a break-away gate, vehicular use of this roadway could be limited to emergency use. Should such an emergency access drive be provided, it will be important to improve portions of Dayton Road, which is currently in poor condition in the vicinity of the site. The road is in need of both drainage improvements and reconstruction.

Consideration should also be given to creating a cul-de-sac or hammerhead turnaround at the end of the spur road located in the southern portion of the property the main access road.

Consideration should also be given to reducing the 26-foot width of the proposed new access road to 22 or 24 feet in order to reduce the amount of impervious surfaces created, calm traffic and to protect the rural character of the area. This seems particularly prudent since Platt Hill Road, which provides access to the site, is only 21-22 feet wide in the vicinity of the project. For perspective, in the publication "Performance Zoning," paved widths of just 19 feet are considered adequate on local streets serving up to 160 homes. Nationally known author Randall Arendt states the following in his publication "Rural By Design": "If one must strike a compromise with local engineers or public safety personnel on this issue, one approach would be to concede a 24-foot width for the sand and gravel road base, with the 18 foot paved driving surface lined by shoulders three feet wide on each side. These shoulders could be topped with 3 inches of loam and seeded with a hardy, low-growing ground cover such as white clover. In that way, the effective width ...is increased, while the rural ambiance is maintained (including slower traffic speeds)."

The proposed open space will serve to enhance wetland and water quality protection with project implementation. Consideration should be given to expanding the proposed walking trail network through the reserved open space land on the eastern border of the property. This would enhance opportunities for passive recreational use and enjoyment of the property such as bird watching, nature study, and hiking. This expanded trail could be linked to the suggested emergency access road mentioned above.

Single family dwellings typically generate about 10 vehicular trips on an average week-day according to the Institute of Transportation Engineers. Thus, the 32 lots proposed by the project could be expected to generate an additional 320 trips per day on the local roadway network. Rural two-lane two-way roadways such as Platt Hill Road can typically handle about 1,400 passenger cars per hour before congestion begins to be a problem. Thus, there appears to be substantial reserve capacity on Platt Hill Road to handle the traffic generated by the proposed project.

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

Consideration should also be given to developing easements or other protective covenants to protect the existing stone walls and specimen trees on the property, where feasible. These features help to define the rural character of the parcel and should be preserved wherever possible.

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 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 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.