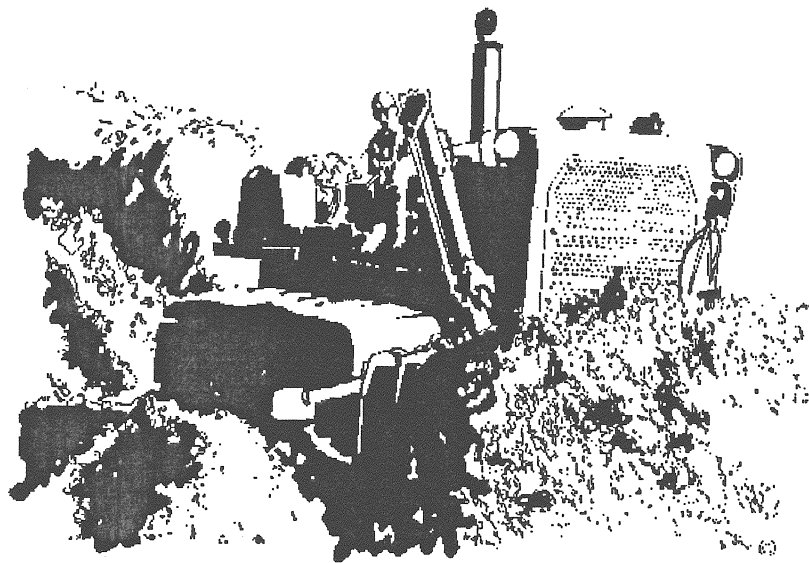


LAWSON EARTH MATERIALS EXCAVATION

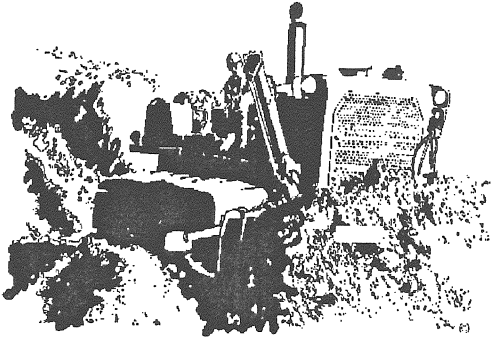
EAST HAMPTON, CONNECTICUT



**Eastern Connecticut
Environmental Review Team
Report**

**Eastern Connecticut
Resource Conservation and Development Area, Inc.**

LAWSON EARTH MATERIALS EXCAVATION EAST HAMPTON, CONNECTICUT



Environmental Review Team Report

**Prepared by the
Eastern Connecticut Environmental Review Team
of the Eastern Connecticut
Resource Conservation and Development Area, Inc.**

**for the
Planning and Zoning Commission
East Hampton, Connecticut**

August 2000

**CT Environmental Review Teams
1066 Saybrook Road, P.O. Box 70
Haddam, CT 06442
(860) 345-3977**

ACKNOWLEDGMENTS

This report is an outgrowth of a request from the East Hampton Planning and Zoning Commission to the Middlesex County Soil and Water Conservation District (SWCD). The SWCD referred this request to the Eastern Connecticut Resource Conservation and Development Area (RC&D) Executive Council for their consideration and approval. The request was approved and the measure reviewed by the Eastern Connecticut Environmental Review Team (ERT).

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

The field review took place on Wednesday, May 31, 2000.

Nicholas Bellantoni	State Archaeologist CT Museum of Natural History - UCONN (860) 486-5248
Robert Haramut	Regional Planner Midstate Regional Planning Agency (860) 347-7214
Jennifer Hockla	Forest Manager Salmon River State Forest (860) 295-9523
Douglas Hoskins	Wetland Specialist DEP - Inland Water Resources (860) 424-3903
Dawn McKay	Biologist/Environmental Analyst DEP - Natural Resources Center (860) 424-3592

Brian Murphy	Fisheries Biologist DEP - Eastern District (860) 295-9523
Nisha Patel	Sanitary Engineer III DEP - Stormwater Management (860) 424-840
Stephanie Shakofsky	Executive Director and Hydrogeologist Middlesex County Soil & Water Conservation District (860) 346-3282
Julie Victoria	Wildlife Biologist DEP - Franklin Wildlife Management Area (860) 642-7239

I would also like to thank Diane Blackman, town planner, and Roger Lawson, the applicant, Wade Thomas, the project engineer, and Rob Rocks, DEP forester for their cooperation and assistance during this environmental review.

Prior to the review day, each Team member received a summary of the proposed project with location and soils maps. During the field review Team members were given additional plans and information. Some Team members made separate or follow-up site visits. 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 the proposed development, and also suggests considerations that should be of concern to the town. The results of this Team action are oriented toward the development of better environmental quality and the long term economics of land use.

The Eastern Connecticut RC&D Executive Council hopes you will find this report of value and assistance in reviewing this proposed earth material excavation.

If you require additional information please contact:

Elaine Sych, ERT Coordinator
CT ERT Program
P. O. Box 70
Haddam, CT 06438
(860) 345-3977

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INTRODUCTION

Introduction

The East Hampton Planning and Zoning Commission has requested assistance from the Eastern Connecticut Environmental Review Team in conducting a review of a proposed earth materials excavation. The application is in the preliminary stage and has not been submitted for any formal regulatory review.

The 118.9 acre site is located on Water Hole Road and Gulf Road. There is an existing home and outbuildings with access to Water Hole Road. A previous landowner had conducted a small mining operation on-site. The present owner is proposing to create an access road to Gulf Road and to excavate approximately 300,000 cubic yards of material over a six to eight year period. Gulf Road is an unimproved dirt town road with direct access to Route 16. The proposed access road involves one wetland crossing and there are several sediment/detention basins planned. There is also the possibility of further excavation activities which were not shown on the plans reviewed by the ERT. Proposed future use of the site may include the planting of a peach orchard in the more eastern portions and a campground in the western portions.

Objectives of the ERT Study

The Commission has asked for assistance and guidance in determining the impacts and effects of the earth excavation on the project site and adjacent areas such as Gulf Road, Water Hole Road and the Salmon River. Their major concerns include: erosion and sediment control, stormwater management, wetland impacts and mitigation, potential impacts to the Salmon River and protection of the fisheries resource, traffic and access and archaeological significance and protection.

The ERT Process

Through the efforts of the planning and zoning commission this environmental review and report was prepared for the Town of East Hampton.

This report provides an information base and a series of recommendations and guidelines which cover the topics requested by the commission. 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 Wednesday, May 31, 2000. Some Team members made 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.

Approximate Location and Topographic Map

Scale 1" = 2000'

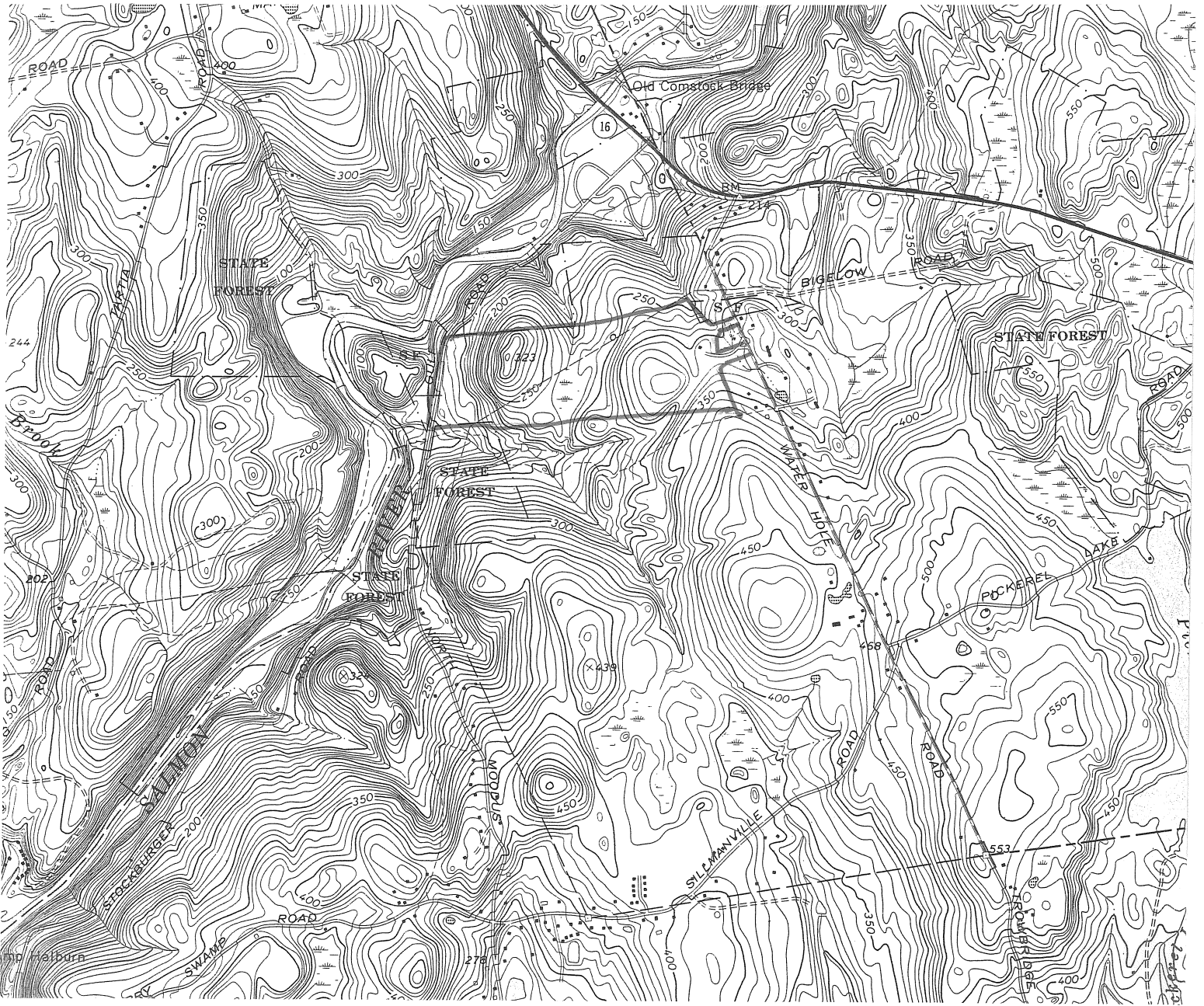




Figure 3.
Site Plan
 Not to Scale



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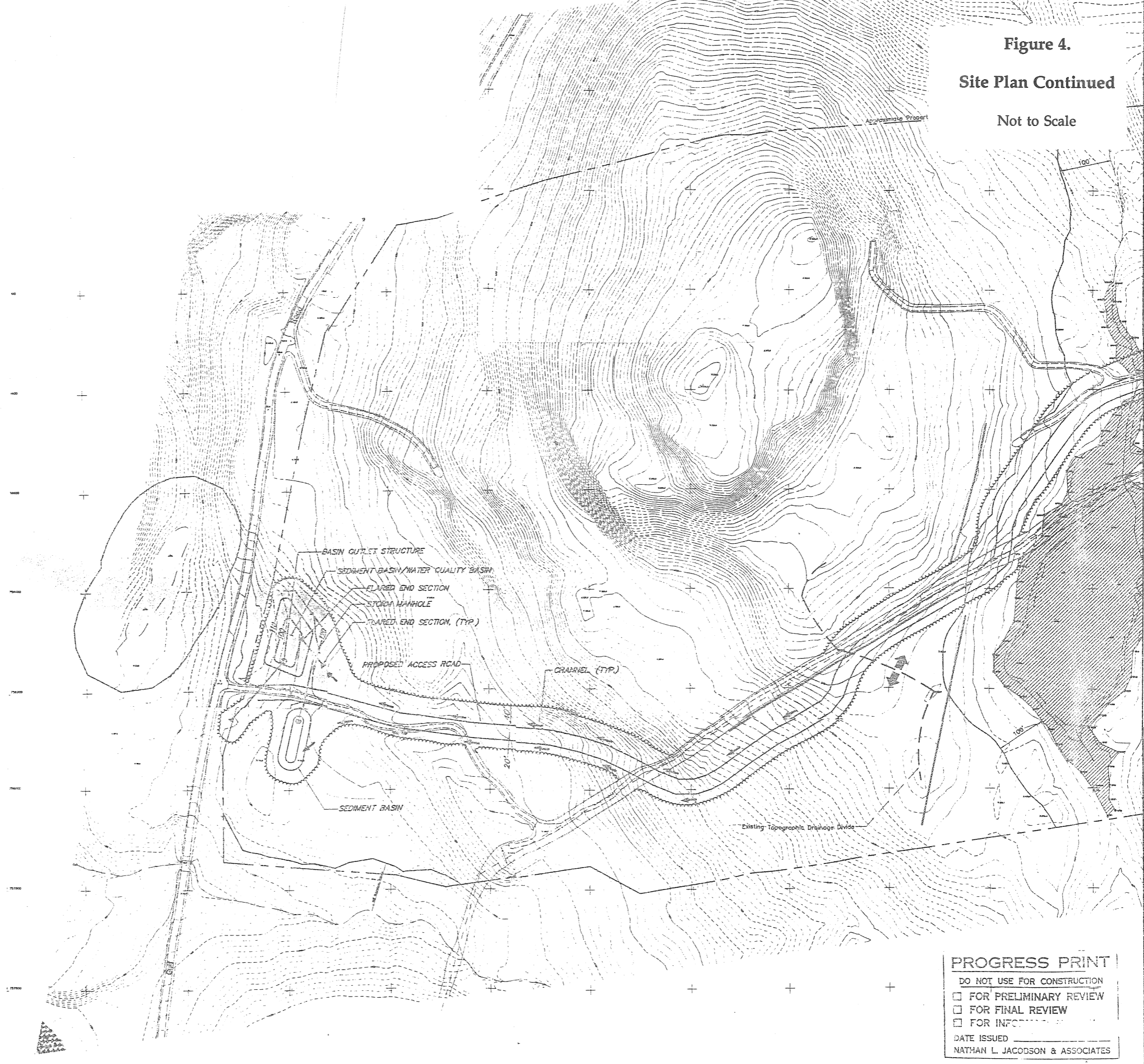
NO.	REVISIONS	BY	DATE

DATE: AUG. 1989
 PROJECT NO.: 82-87-001
 DESIGNED BY: WMT
 DRAUGHT BY: AJG
 CHECKED BY: [Signature]

ROGER LAWSON
 EAST HAMPTON, CONNECTICUT
S EXCAVATION AND REMOVAL
ITE PLAN

Nathan L. Jacobson & A
 88 Main Street P.O. Box 38
 Chester, Connecticut 06411

Figure 4.
Site Plan Continued
Not to Scale



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Chester,

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100' 75' 50' HORIZONTAL SCALE: 1"=100'
 10' 7.5' 5' 2.5' VERTICAL SCALE: 1"=10'
 NOTE:
 Lower Case Text Identifies Existing Features/Conditions
 UPPER CASE TEXT IDENTIFIES PROPOSED
 FEATURES/CONDITIONS

DATE	REVISIONS	BY	DATE
AUG., 1998			
Project No. 88-07-001			
Designed By: WMT			
Drawn By: A/J			

ROGER LAWSON EAST HAMPTON, CONNECTICUT
 418 WATERHOLE ROAD
EARTH MATERIALS EXCAVATION AND REMOVAL
SITE PLAN

WETLAND REVIEW

There are two areas of direct wetland impact (excavation/filling) to wetlands proposed as a result of the planned gravel excavation:

- 1) where a stormwater outlet is proposed within the riparian wetlands associated with unnamed watercourse that cuts across the northeastern portion of the parcel, and
- 2) on the eastern edge of the gravel extraction area where grading is indicated for a portion of a relatively small pocket of wetlands located to the south of the riparian wetlands referred to above (see attached maps for locations, Figures 5& 6).

It appears that the direct impact caused by the stormwater outlet is unavoidable since removing it from the wetland area into its buffer would potentially create an erosion problem as stormwater flows from the outlet, down the grade, into the wetland area to the brook. Care should be taken to ensure that storm water exiting the outlet does so at acceptable velocities (generally 2 cubic feet per second or less).

However, the second direct impact does seem to be avoidable. This small, isolated wetland consists of a thin cover of young trees, primarily willow and poplar, with scrub/shrub growth on the surface. The wetland probably rarely contains standing water and seems to have been created as a result of the historic gravel removal close to groundwater levels. As small as the wetland is, it does have some value as a refuge for wildlife, particularly birds and small mammals, in the midst of the severely altered landscape of the historic gravel pit. As the Team wetland specialist was inspecting this area, he observed a woodcock burst from the grasses as it fled from his approach. Since this proposed impact is

located on the edge of the working area, it would not be that difficult to remove this area, as well as an adequate, undisturbed buffer, from the proposed operation.

Proposed indirect impacts to wetlands include:

- 1) grading within the wetland/watercourse buffer in proximity to the riparian wetlands associated with unnamed watercourse that cuts across the northeastern portion of the parcel as a result of the construction of a detention basin, and
- 2) potential sedimentation of an unnamed, off-site watercourse as it crosses Gulf Road as a result of erosion along the haul road in the western portion of the parcel (refer to Figures 5 & 6).

The first indirect impact will occur as a result of the construction of a stormwater detention basin designed to store water collected from the proposed gravel extraction area. It is not clear why this structure is being proposed unless, as some towns do, it is required of all development proposals that predict any increase of peak-flow discharges off the site. Even with that requirement in place, the increase, if any, would most likely be negligible, given that there will be no impervious surfaces created as part of this project. It is recommended that the need for this structure be re-evaluated and avoided if possible in order to preserve this valuable wetland buffer area.

The ERT discussed several options that would decrease the chances for the second indirect impact to occur. The concentrated out-fall of stormwater proposed next to the unimproved Gulf Road raises concerns for subsequent erosion of this road and the potential for sedimentation of the unnamed watercourse located approximately 300 feet down-slope. Any efforts to break up the contributing watershed (primarily consisting of approximately 1400 linear feet of unpaved access road) leading into this outfall would decrease this

potentiality. Leak-offs along the access road at appropriate locations with stable outlets are recommended. In addition, a roadside gutter or piped stormwater line with drop manholes (along Gulf Road) should be investigated if substantial stormwater volumes are predicted from the proposed outfall.

Other concerns include:

- Future phases to the west of that being currently proposed were discussed in the field. Conceptual plans for this activity should be presented to reviewing agencies for their consideration.
- The reverse-bench slopes proposed within the gravel extraction area should drain to a stable outlet with acceptable slope percentages. See section 7-17 of Connecticut's Guidelines for Soil Erosion and Sediment Control for design criteria.
- It is assumed that the detailed drawing of the rip-rap channel on Sheet 4 is to be utilized along the sides of the haul road. This should be indicated on the plan.
- The infiltration trench to be utilized at the "southerly detention basin" should incorporate a monitoring device to determine if and when maintenance (in the form of sediment removal) of the structure would be required.

The Team wetland specialist is aware that this is essentially a preliminary, conceptual plan without the detail of a plan that would be submitted with an actual land-use application. However, when and if such a plan is developed it is recommended that the following items be added to the plans:

- Schedule of major construction activities (including erosion and sedimentation control measures), preferably in the form of a "Gant" type bar chart listing each activity in proper sequence and assigning to them start and stop dates
- Erosion and sedimentation control narrative including the basic principles to be followed and discussion of any potentially serious erosion and sedimentation problems
- Locus map of project at a scale of 1"=2000' including project limits, north arrow, street names, major drainage ways and watershed limits
- Abutting land owners
- Limit and acreage of disturbed area
- Signatures and seals of the consulting engineer/land surveyor certifying the accuracy of the information contained on the plans
- References for horizontal and vertical control, property lines, floodplain boundaries, inland wetland boundaries, SCEL lines etc.
- Non-wetland soil types as designated on USDA-NRCS Soil Survey or by soil scientist including boundaries and map unit symbols
- Gravel removal volumes
- Location of subsoil and topsoil stockpiles

- Temporary erosion protection when time of year or weather prohibit establishment of permanent vegetative cover
- Planned permanent vegetation (after project completion) including landscaping plan, seed mixtures, mulch types, fertilizer requirements and proposed planting dates
- Planned temporary vegetation if disturbed areas are to remain for thirty (30) days or more
- Existing and planned drainage area map including off-site areas that drain through project
- Size of drainage areas and sub-drainage areas behind individual erosion and sedimentation control structures
- Location, description and size of existing and proposed storm sewer outlets and culverts with design calculations and details which demonstrate their ability to control erosion
- Location, description and volumes of proposed sediment/detention basins, sediment traps and check dams including design calculations and details
- Pre- and post-construction peak flows, design-storm runoff calculations for a 2, 10 and 100 year frequency, 24 hour storm event
- Off-site effects of pre- and post-construction peak flow changes

- Erosion control measures with design calculations and construction details downstream of proposed groundwater seeps
- Plan map showing location of sediment barriers (silt fence, hay bales, stone berms, etc.) with details
- Maintenance requirements of temporary measures during construction period including the name and phone number of person responsible for this maintenance
- Maintenance requirements for permanent measures after the construction period including the name and phone number of the person responsible for this maintenance

State Regulatory Programs

Certain proposed dam locations and designs, including temporary and permanent sediment/detention basins should be registered with the Dam Safety Unit of this division. Contact Wes Marsh at (860) 424-3706 to pursue this matter.

If this project will impact between 5,000 square feet and one (1) acre wetlands, project review is required by both the U.S. Army Corps of Engineers (A.C.O.E.) and this division of the CT DEP. If this project will impact more than 1 acre of inland wetlands, an individual 404 application to the A.C.O.E. will be required. However, these are basic guidelines. A.C.O.E. or CT-DEP action may be required for other specific activities proposed for wetland areas. For questions regarding these regulatory programs contact the A.C.O.E. at 617-647-8338 / 800-343-4789 or Melissa Toni of the CT-DEP at (860) 424-3019.

If construction activities covering five acres or more are approved (including all potential phases), the applicant is required to apply to the CT-DEP for a general permit for the discharge of stormwater under the National Pollutant Discharge Elimination System (NPDES) program. According to the above referenced site plan, there are (amount?) acres proposed to be disturbed as a result of land clearing and grading activities. For further information on this permit program contact Christopher Stone of the DEP Permitting Enforcement and Remediation Division at (860) 424-3850.

B- END SECTION, (PYP.)

DETENTION BASIN LEVEL SPREADER
DETENTION BASIN OUTLET STRUCTURE

Cobble
Bed rock
to 10ft
Approximate Property Line

Indirect Wetland Impact #1

Direct Wetland Impact #1

DETENTION BASIN WATER QUAL
FILTER BERM
SEDIMENT FOREBAY
VELOCITY DISSIPATION STRUCT

GRADED
RUSHED

Direct Wetland Impact #2

woodcock
willow
poplar

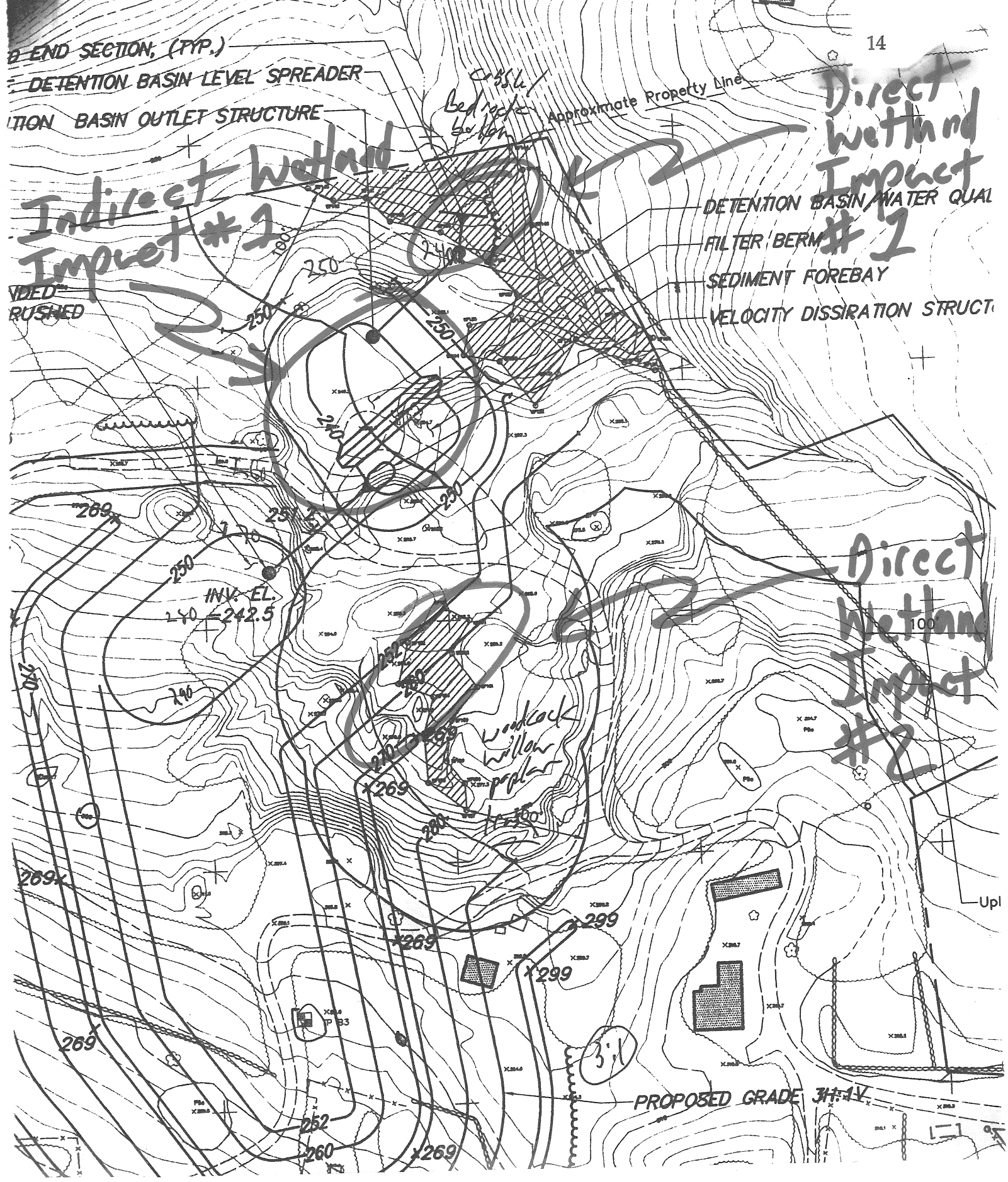


Figure 5.

Direct and Indirect Wetland Impacts

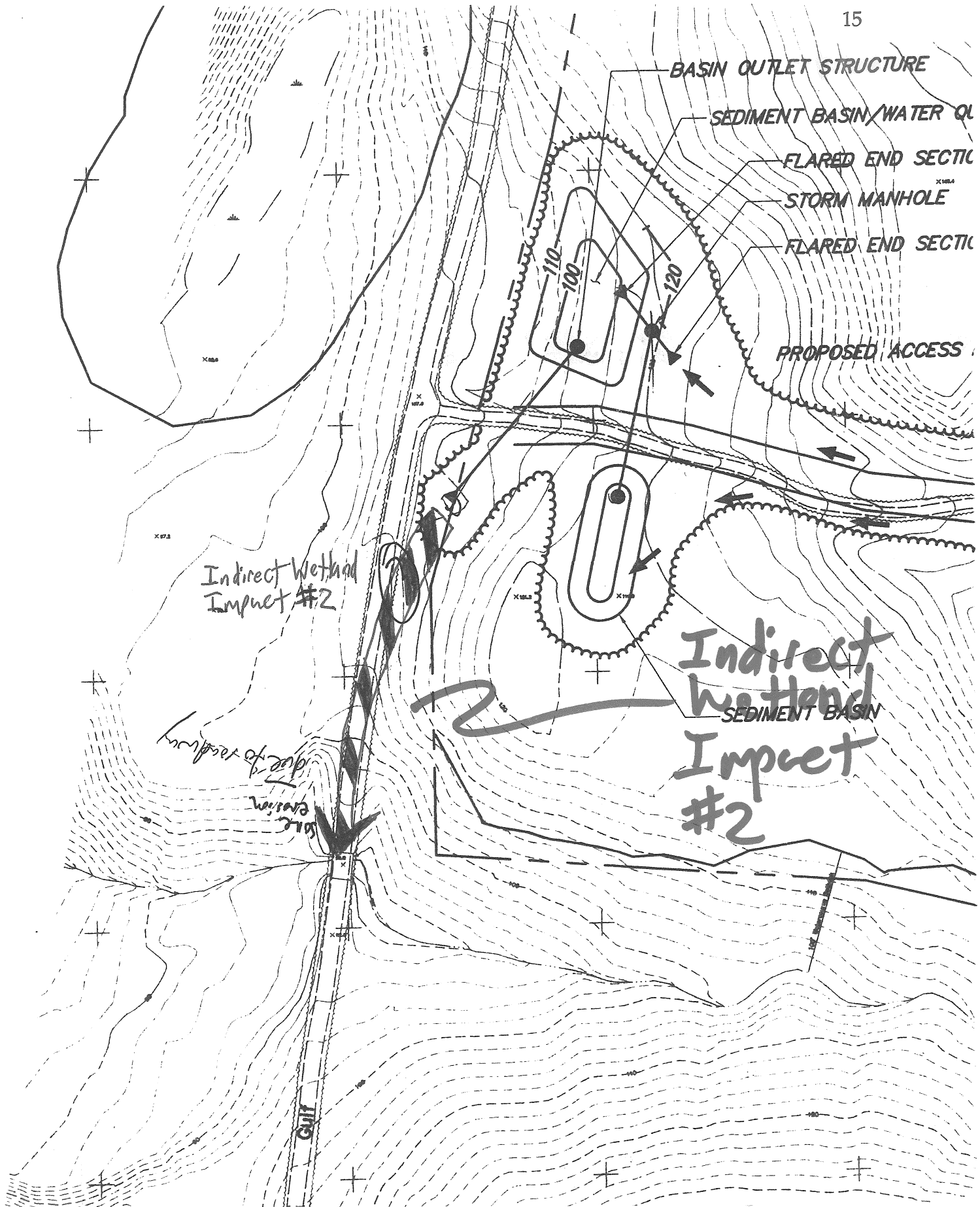


Figure 6.

Direct and Indirect Wetland Impacts

SOIL AND WATER CONSERVATION DISTRICT REVIEW

Wetland and Watercourse Disturbance - Central Area

Disturbance to the central wetland by the proposed road crossing should be minimized. This intermittent stream is approximately 1600 feet upstream of the main stem of the Salmon River and is probably a significant wildlife corridor. The stream crossing proposed should be designed to encourage passage of fish and other aquatic wildlife both upstream and downstream. There are six common conditions at culverts that create migration barriers:

1. excess vertical drop at culvert;
2. high velocity within the culvert barrel;
3. inadequate depth within culvert barrel;
4. turbulence within the culvert;
5. debris accumulation at the culvert inlet.

Recommendation: An oversized and bottomless culvert should be utilized to minimize impacts to streamflow and wildlife migratory pathways.

Wetland and Watercourse Disturbance - Eastern Area

Outfall from the detention basin to the wetland could have a significant impact on the wetland and watercourse. This intermittent stream is approximately 2500 feet upstream from the main stem of the Salmon river and is probably a significant wildlife corridor. Discharging to wetlands should be discouraged as

recent studies show that over time the wetland and intermittent stream can become clogged with sediment. It is presumed that the detention basin is temporary, will be maintained after every 1/2 inch rainfall event, and outflow to the wetland will be minimal. Additionally, the smaller wetland to the south of the detention basin is hydrologically-connected to the larger wetland and should be preserved if possible.

Recommendation: Sediment should not be allowed to flow to the wetland. Final plans should clarify the amounts and types of sediment that will possibly flow to the wetland. The smaller wetland should be preserved.

Soil and Erosion and Sediment Control

Soils on the site are mostly composed of Canton and Charlton series. These are moderate to steep sloping glacial soils with a severe erosion hazard. Project proponents suggest planting a peach orchard at some later date. Generally, these soils are poorly suited for crops due to their stoniness. Soil test pit descriptions were provided and suggest a sandy loam soil which may be suitable for orchards, but the test pit numbers were not located on the site plan.

Recommendation: Final plans should include a detailed erosion and sediment control plan that adequately addresses the erosion hazard and management of soil erosion and sedimentation at the site.

STORMWATER MANAGEMENT

This project will be covered by the General Permit for the Discharge of Stormwater Associated with Industrial Activity ("the permit") as mining operations are defined as an industrial activity pursuant to section 2.(3) of the general permit. The permit requires that the site register with the Department of Environmental Protection (CTDEP) at least 30 days before the initiation of industrial activity. In addition to filing a registration, the registrant must also prepare, submit and keep on site a Stormwater Pollution Prevention Plan (the "Plan").

The Plan must include, but is not limited to, a site map as described in Section 5(b)(6)(B)(i)(1) of the permit, a description of stormwater measures and controls as described in Section 5(b)(6)(C)(iv) of the permit, a description of spill prevention and response procedures as described in Section 5(b)(6)(C)(vi) of the permit, a non-stormwater certification as described in Section 5(b)(6)(C)(viii) of the permit, and a schedule for inspections with designated personnel as described in Section 5(b)(C)(x) of the permit. In addition to preparing and following the plan, the registrant must also sample stormwater runoff from the site, pursuant to Section 5(c) of the permit, no later than 365 days after the date of authorization under Section 3(d) of the permit, and annually thereafter between October 1 and September 30 except as provided in Sections 5(c)(1)(I) and (E) of the permit.

Particular detail will need to be given to erosion and sediment (E & S) control measures at this site and an E & S plan must be incorporated into the Pollution Prevention Plan. Please note that while this review is based primarily on the state 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. 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.

Section 5(b)(6)(H) of the permit also requires that any future construction activity on site that disturbs greater than five acres must be registered and conducted in accordance with the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities.

The following are specific comments on the plans provided during the meeting on May 31, 2000

- Construction sequencing should be such that structural controls (sediment basins, etc.) are installed prior to the commencement of mining operations.
- A level spreader should be installed at the outlet of the sediment basins to the east of Gulf Road to control erosion due to this outfall. Additionally, the use of cross culverts, if feasible, along the access road that drains to the sediment basins is recommended to reduce the volume of water directed to the basins.
- The westerly sediment basins on Sheet 2 have no outlet shown. The plan should be revised to include the outlet structure and a detail must be included of the structure. If the banks of the basins are to serve as level spreaders, this should be shown on the plans. Consideration to protection of nearby wetland areas should be given in design of the outlet structure.
- The reverse slope benches should be sloped at 1-2% to convey diverted water to a stable outlet.
- A detail must be provided for the filter berm in the easterly sediment basin on Sheet 2.
- The location of all controls shown on the site details sheet (infiltration trench, riprap channel, grass channel, check dams, etc.) should be identified on the site plan.
- Any wastewater discharge to the waters of the State generated from processing of materials mined must be permitted appropriately. If such wastewater is to be handled on site and infiltrated into the ground, this practice should be discussed in the plan.

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 State Special Concern *Terrapene carolina* (Eastern Box Turtle), *Thamnophis sauritus* (Eastern Ribbon Snake), *Heterodon platirhinos* (Eastern Hognose Snake) and *Caprimulgus vociferus* (Whip-poor-will) in the vicinity of this project.

Eastern box turtles require old field and deciduous forest habitats, which can include power lines and logged woodlands. They are often found near small streams and ponds, the adults are completely terrestrial but the young may be semiaquatic, and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. This species is dormant from November 1 to April 1. It has been negatively impacted by the loss of suitable habitat.

Eastern ribbon snakes inhabit areas with shallow water, grassy or shrubby areas bordering streams and wooded swamps. They also prefer sunny areas with low dense vegetation near shallow water areas. Their diet consists of insects, fish, frogs, salamanders and toads. Eastern hognose snakes favor dry sandy areas with well drained gravelly soils.

Whip-poor-wills are ground nesting birds that favor mixed hardwood forests. It is considered a neotropical migrant, nesting in Connecticut from late May through July and wintering in South America. Impacts to this species from a proposed excavation are difficult to predict without detailed project plans. Cutting and/or clearing of open woodlands can reduce habitat for this species. If development is done outside the breeding season, the potential for destruction of nests, eggs, or young is reduced. Jenny Dickson (860) 675-8130 can further assist

you in the planning details for this excavation and its impact on the whip-poor-wills.

These Team members have not seen any plans of what is to take place at this site, especially time of year that the work would be done nor have they made a field inspection. Consultation with the Wildlife Division should not be substituted for site-specific surveys that may be required for environmental assessments.

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. If you have further questions about the Data Base please contact Dawn Murray at (860) 424-3592.

FISH RESOURCES

Stream Resources

A. Unnamed Tributary to Bigelow Brook.

This headwater stream originating on the eastern edge of the property next to Waterhole Road flows north into Bigelow Brook entering the Salmon River below the picnic area. The lower stretch of this watercourse was found to support a coldwater fish community comprised of native brook trout and blacknose dace. Although intermittent, the headwaters of this stream can be utilized seasonally by native brook trout when stream flows are higher in the fall. Brook trout usually spawn in the month of October in Connecticut. Eggs incubate within the gravel substrate throughout the winter and hatch sometime in March. When hatched, brook trout larvae or sac fry remain in the gravel until the yolk is absorbed. Fry emergence occurs when fish reach about 1.5 inches in length.

B. Unnamed Tributary to the Salmon River.

Located just south of the property, the proposed stormwater system to be constructed as part of the gravel excavation will outlet adjacent to Gulf Road and subsequently flow down gradient into this stream which flows directly into the Salmon River. This high gradient, perennial stream cuts through a steep valley with its riparian zone being mainly comprised of Eastern hemlock stands that grow along steep slopes. This headwater stream supports a high quality coldwater fish community comprised of native brook trout.

The aforementioned streams are generally thought by the public as too small to support fish; however, fisheries biologists and stream ecologists recognize these watercourses and their habitats as very sensitive and critical to the production and survival of headwater brook trout populations as well as their function to

protect and maintain the water quality recipient streams downstream in the watershed.

C. Unnamed Tributary to the Salmon River.

The headwaters of this stream originate from the wetland complex located on the central portion of the property. The stream flows north and enters the Salmon River. Albeit this watercourse does not support a fish community, it still remains a very high quality headwater stream. One of the more important functions of this stream is to provide cold, clean and unpolluted waters to downstream areas of a watershed, which support an increased diversity of aquatic organisms.

D. Salmon River.

The Salmon River has long been regarded as a valuable recreational and ecological resource in Connecticut. Current state land holdings in the lower watershed are indicative of the strong public commitment to the preservation of this important area. The river is one of the most diverse and utilized fishery resources in Connecticut containing some 18 species of freshwater anadromous and catadromous fishes. The Salmon River is considered a major trout stream in Connecticut and the New England Area. It is annually stocked with more than 20,000 adult brook, brown and rainbow trout, the largest amount of stocked trout than any other resource in the state. The river contains a special designated "Trout Management Area" where angling is limited to catch and release regulations on a seasonal basis and which has a section limited to fly-fishing methods only.

Based on angler surveys, the Salmon River is second only to the Farmington River in regards to number of angler hours spent (6,809 hours/km) on the river. This high degree of usage translates into a very high degree of economic return to the region as monies are spent for food, bait, tackle, lodging and travel to and from the Salmon River. Net economic impact in the spring per kilometer of

stocked stream was determined to be \$82,920 /km, the second highest economic return in state. As a comparison, the average spring economic return for stocked streams in Connecticut was \$4,592/km.

The Salmon River Watershed has long been the major focus of the Connecticut River Atlantic salmon restoration project. Atlantic salmon are the only large anadromous salmonid native to Connecticut. The Salmon River watershed provides critical nursery habitat for juvenile and adult Atlantic salmon. Atlantic salmon restoration will provide a high-quality fishery for eight to twelve pound sea-run salmon that will generate an estimated 30,000 hours of recreational fishing on both the Farmington and Salmon Rivers and enhance local economies.

Impacts

-

Erosion and Sedimentation.

- The development proposal involves the excavation and removal of sands and gravels off the property for a 6 to 8 year period at a rate of almost 50,000 cubic yards per year. The development area is characterized by steep, hilly topography, which presents a major challenge to properly control soil runoff, especially from an area which will be actively mined. Despite the design and installation of sediment and detention basins (these structures do not capture all materials), suspended fines will ultimately runoff the property and enter the three aforementioned tributaries and the Salmon River. These tributaries will act as a "direct conduit" for harmful sediment to enter the Salmon River. Site soil erosion and sedimentation of these watercourses and the Salmon River are a major concern. If sediment runoff does occur, the following damage to stream ecosystems could be expected:

- (1) Sediment reduces the survival of resident fish eggs and hinders the emergence of newly hatched fry. Adequate water flow, free of excess sediment particles is required for fish egg respiration and successful hatching,
- (2) Sediment reduces the survival of aquatic macroinvertebrates. Since aquatic insects are important food items in fish diets, reduced insect populations levels in turn will adversely affect fish growth and survival. Fish require an excessive output of energy to locate preferred prey when aquatic insect levels decrease,
- (3) Sediment reduces the amount of usable habitat required for spawning purposes. Excessive fines can clog and even cement gravels and other desirable substrates together. Fish may be forced to disperse to other areas not impacted by siltation,
- (4) Sediment reduces stream pool depth. Pools are invaluable stream components since they provide necessary cover, shelter, and resting areas for fish. Reductions of usable fish habitat can effectively limit fish population levels,
- (5) Turbid waters impair gill functions of fish and normal feeding activities of fish. High concentrations of sediment can cause mortality in adult fish by clogging the opercular cavity and gill filaments,
- (6) Sediment encourages the growth of filamentous algae and nuisance proportions of aquatic macrophytes. Eroded soils contain plant nutrients such as phosphorous and nitrogen. Once introduced into aquatic habitats, these nutrients function as fertilizers resulting in accelerated plant growth and nutrient enrichment of waters,
- (7) Sediment contributes to the depletion of dissolved oxygen. Organic matter associated with soil particles is readily decomposed by microorganisms thereby effectively reducing oxygen levels.

Gulf Road.

Gulf Road is an unimproved town owned gravel road, which parallels the Salmon River. Surface runoff from this road directly enters the Salmon River through either watercourses or off the road onto the very steep side slopes adjacent to the Salmon River. There's no doubt that the road itself is a very significant source of fine silts and sands which runoff the road during storm events. Onsite field inspections of these watercourses documented excessive sedimentation emanating from Gulf Road. The condition of this road is unsuitable for heavy vehicle use associated with the transportation of earthen materials. Gulf Road would have to be upgraded to handle this traffic. Upgrading of the road to a paved impervious surface has its own problems. The creation of paved roads and impervious surfaces moves water to the natural drainage system sooner than would normally occur. Generally this process lowers the average water table, increases peak flows in rivers, increases the energy or velocity of these flows leading to "downcutting" or lateral expansion of the stream channel and decreases low flows in rivers. Given the steep topography of the valley side slope and the presence of heavy stands of Eastern hemlock, many which have been diseased due the infestation of the wooly adelgid, roadway runoff onto river side slopes could instigate side slope erosion and mass wasting which has occurred at other hillside locations in the lower section of the Salmon River.

Recommendations

The Town of East Hampton, as well as other towns in the Salmon River watershed, should give every consideration to protecting the Salmon River and its tributaries from the potential impacts of development. The State of Connecticut and federal government has spent significant amounts of public funds to repair hillside erosion and streambank erosion in the watershed. The proposed modification of the Salmon River landscape and the resultant damage

from this sand and gravel operation may directly impact the Salmon River and its tributaries. Additional sediment loading to the Salmon River should be avoided at all costs especially in light of concerns by downstream residents relative to existing sedimentation problems in the lower river. As outlined previously in this section, the Salmon River and its fisheries resources are extremely valuable resources and should be afforded maximum protection. Minimal, if any development should occur on this parcel. Ideally it should be protected and remain as open space. The landowner should consider selling the parcel to the State of Connecticut or the town to ensure future protection of the Salmon River and its tributaries.

SALMON RIVER STATE FOREST CONCERNS

The Forest Manager of Salmon River State Forest has the following issues/concerns:

1) Proposed use of Gulf Road as the main access:

Gulf Road is a gravel town road in fair condition. Many portions of the road are subject to ongoing erosion which in some instances has impacted the forest and tributaries of Salmon River, as well as the river itself. Increased usage of the road without taking proper measures to address the existing erosion problems will only serve to compound the problems. An increase in road usage and/or improperly placed improvements would increase road run-off causing further erosion given the factors of steep slopes along the river, Hemlock Woolly Adelgid infestation of a predominantly hemlock forest lacking an herbaceous cover bordering the road and river and sandy, gravel soils. Examples of this potential can be seen nearby on Stockburger Road in East Haddam, where development over the past 10 years has led to increased road run-off onto State lands resulting in extensive wash-outs on the steep slopes along Salmon River.

2) Proposed excavation of earth materials:

The potential impact of the excavation to create erosion problems on State Forest lands is greatly increased due to its' location uphill from State lands. While the property immediately to the north of the proposed excavation site is private and does abut State lands on two sides, it would not act as a buffer to prevent erosion of State lands. Of particular concern would be the siltation of two tributary streams that flow into the Salmon River. Again, this private piece is predominantly a hemlock forest infested with Woolly Adelgid with a bare forest

floor and gravel soils on steep slopes. With the death of the hemlock and the absence of forest floor vegetation to slow overland waterflow, a real potential exists for erosion of the adjacent lands.

3) Proposed future use of area as a campground:

Development of the remaining area as a campground would have an impact on the surrounding State Forest overall by the increased risk of forest fires, unauthorized cutting of trees for firewood, unauthorized development of trail systems and illegal camping. With the passing of the hemlocks there will be an increase in the amount of fuel for forest fires. The area is already subject to the above stated problems due to its location along the river. Increased illegal activity would have a detrimental effect on the resources overall.

The development of the area as a campground would also lead to erosion problems for the same reasons and of the same nature as stated in #1 and #2 above.

ARCHAEOLOGICAL REVIEW

A review of the State of Connecticut archaeological site files and maps shows no known archaeological sites on the project area, however, there are at least 11 archaeological sites located in very close proximity. The Office of State Archaeology (OSA) and the State Historic Preservation Office (SHPO) believe that the proposed project possesses a moderate to high sensitivity for the discovery of prehistoric archaeological resources. The OSA and the SHPO strongly recommend that the town of East Hampton mandate that the project proponents implement a professional reconnaissance survey as a meaningful component of any future local decision making with respect to this parcel.

The reconnaissance survey should be coordinated with the Office of State Archaeology in order to effectively locate, evaluate and manage all archaeological resources that may be located within the proposed project boundaries. Also all archaeological studies should be undertaken in accordance with the *Environmental Review Primer for Connecticut's Archaeological Resources*.

It is further recommended that the applicant and/or the town of East Hampton consult with the Army Corps of Engineers concerning whether the proposed wetland impacts may be subject to Federal regulatory requirements and, if so, an archaeological reconnaissance survey to locate archaeological resources will be an important component of the Federal cultural resource review process.

In review, the Office of State Archaeology and the State Historic Preservation Office both strongly recommend archaeological surveys for the project area. The Office of State Archaeology would be more than pleased to work with the applicant to conduct such a survey. Please contact Nicholas Bellantoni at (860) 486-5248 should you have any questions.

PLANNING REVIEW

The Lawson Earth Materials Excavation site is located in East Hampton between Water Hole Road and Gulf Road. A total of approximately 300,000 cubic yards of material is proposed for excavation. It is expected the materials are most suitable as processed aggregate rather than sand or gravel. The developer estimates approximately 50,000 cubic yards of materials to be excavated per year, based on market forces. As a result, the excavation site is proposed to be operational for six to eight years. The site will produce an estimate of sixteen to eighteen trucks per day, Monday through Friday and eight or nine Saturday if in operation for a half day.

The proposed excavation site is on the east side of the property closer to Water Hole Road. An access road from the excavation site to Gulf Road is proposed. It is to be made of processed aggregate type materials rather than paved. This access road would follow the existing woods road and cleared communications line in the eastern section of the site where applicable. It then bypasses the wetlands in the central section of the site on the woods road, over a culvert installed by the previous property owner, and meets back with the communication line. The access road then separates with the communication line for about 900 feet and meets back with the woods road for approximately 500 feet to Gulf Road. A one-hundred foot buffer zone is noted around the central wetlands. The access road is within the buffer zone, varying between twenty-five and fifty feet of the wetlands in most areas.

Pros and cons exist to providing access to the excavation site by both Gulf Road as proposed, and Water Hole Road. Gulf Road is an unimproved gravel road, maintained by the town. Approximately 2,000 feet of Gulf Road is in a southern fragment of the Salmon River State Forest on the south side of Route 16. There is a state forest parking lot on the west side of Gulf Road near

Route 16 that is heavily used during the weekends. The additional heavy truck traffic on Gulf Road could cause excessive wear on this small gravel road and disrupt park visitors by generating noise and dust. The sight line between Gulf Road and Route 16 is very good.

Water Hole Road is a paved residential road with approximately fifteen houses between the excavation site and Route 16. Most of these houses are across the municipal border in Colchester. Added truck traffic on this narrow residential road would affect persons living on the street. There is a poor sight line from Water Hole Road to Route 16 in both directions due to the slope and curvature of Route 16 and also intersection geometry. The property frontage of the proposed site on Water Hole Road is minimal with about one-hundred feet abutting the road, leaving few options for roadway placement other than the existing driveway. Moving the access road to Water Hole Road would eliminate impacts to the state park and wetlands.

The 1998 average daily traffic on Route 16 at the East Hampton/Colchester town line was 6,700 vehicles per day. Having a suitable sight line at the intersection of Route 16 is important for safety reasons, especially considering that loaded trucks will be moving from a stop, slowly onto the highway where traffic is traveling at a fast pace. Neither the intersection of Gulf Road nor Water Hole Road at Route 16 is signalized.

Proposed future use of the site includes a peach orchard in the excavated area and campground off the access road when the excavation is complete. These land uses are consistent with the surrounding area and would provide an economic benefit to the community. The site would be an appropriate area for a campground since it is close to recreational facilities and tourist attractions in the Connecticut River Valley.

ABOUT THE TEAM

The Eastern Connecticut Environmental Review Team (ERT) is a group of professionals in environmental fields drawn together from a variety of federal, state and regional agencies. Specialists on the Team include geologists, biologists, foresters, soil specialists, engineers and planners. The ERT operates with state funding under the supervision of the Eastern Connecticut Resource Conservation and Development (RC&D) Area — an 86 town region.

**The services of the Team are available as a public service
at no cost to Connecticut towns.**

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in reviewing a wide range of projects including subdivisions, landfills, commercial and industrial developments, sand and gravel excavations, elderly housing, recreation/open space projects, watershed studies and resource inventories.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental reviews may be requested by the chief elected official of a municipality or the chairman of town commissions such as planning and zoning, conservation, inland wetlands, parks and recreation or economic development. Requests should be directed to the chairman of your local Soil and Water Conservation District and the ERT Coordinator. A request form should be completely filled out and should include the required materials. When this request is approved by the local Soil and Water Conservation District and the Eastern Connecticut RC&D Executive Council, the Team will undertake the review on a priority basis.

For additional information and request forms regarding the Environmental Review Team please contact the ERT Coordinator: 860-345-3977, Eastern Connecticut RC&D Area, P.O. Box 70, Haddam, Connecticut 06438.