AGENDA

Inland Wetland Agency
Regular Meeting
Monday, June 6, 2011
Council Chambers, Audrey Beck Building

Call to Order: 7:00 PM

Review of Minutes of Previous Meetings and Action Thereon:
5.02.2011 - Regular Meeting
5.17.2011 - Field Trip

Communications:
Conservation Commission: Re: W1477 - Walker - Riverview Rd
GM monthly business memorandum

7:15 p.m. Public Hearing Continuation
W1474 - Plimpton - Wormwood Hill/Gurleyville Rds - 4 lot subdivision
(Public Hearing must be closed or an extension received)

Old Business:
W1477 - Walker - Riverview Rd - Solar Energy Installation within 75' of river

New Business:
Referral:
Algonquin Gas Line - Route 89 - installation of ground cable along pipeline
(Not an application - this is a FERC project)

New Applications:
W1479 - Bemont - Stafford Rd - garage building & small connector between existing buildings
W1480 - St.Martin - Storrs Rd - new house, portions in 150' regulated area

Reports of Officers and Committees:

Other Communications and Bills:
Spring 2011 Habitat
May/June 2011 Connecticut Wildlife
Town of Ashford IWA Referral: Proposed activity 500' from Town of Mansfield

Adjournment:

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DRAFT MINUTES
MANSFIELD INLAND WETLANDS AGENCY
Regular Meeting
Monday, May 2, 2011
Council Chambers, Audrey P. Beck Municipal Building

Members present:	R. Favretti (Chairman), M. Beal, J. Goodwin, R. Hall, K. Holt, G. Lewis, P. Plante, B. Pociask, B. Ryan
Alternates present:	K. Rawn
Alternates absent:	F. Loxsom, V. Ward
Staff present:	G. Meitzler (Wetlands Agent)

Chairman Favretti called the meeting to order at 7:00 p.m. He noted that alternate Rawn was to act only if a member was disqualified or unable to act.

Minutes:
4-4-11 – Hall MOVED, Goodwin seconded, to approve the 4-4-11 minutes as written. MOTION PASSED with all in favor except Ryan who disqualified herself. Beal noted that he had listened to the recording of the meeting.

Communications:
The 4-25-11 Wetlands Agent's Monthly Business report and the 4-16-11 Conservation Commission Draft minutes were noted.

New Business:
W1475 - Town of Mansfield - Eagleville Preserve, footbridge over seasonal brook
Holt MOVED, Ryan seconded, to make a declaratory ruling that an exemption from licensing requirements is granted pursuant to Sections 4.2 A and 4.2 B of the Wetlands and Watercourses Regulations of the Town of Mansfield to The Town of Mansfield (file no. W1475), for replacement of an existing footbridge within regulated areas, as a non-regulated use, located near the south end of the Eagleville Preserve, as outlined in application submissions including a map dated April 19, 2011.

In addition to the footbridge replacement, this includes replacement of existing benches, and minor clean up of downed wood and tree growth encroaching on the existing trail.

This action is based on a finding of essential conformance with the requirements of Sections 4.2 A and 4.2 B of the wetlands regulations.

This approval is valid for a period of five years (until May 2, 2016), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment. MOTION PASSED UNANIMOUSLY.

W1476 - Town of Mansfield - Dorwart Preserve, footbridge over seasonal brook
Ryan MOVED, Holt seconded, to make a declaratory ruling that an exemption from licensing requirements is granted pursuant to Sections 4.2 A and 4.2 B of the Wetlands and Watercourses Regulations of the Town of Mansfield to The Town of Mansfield (file no. W1476), for installation of a footbridge within regulated areas, as a non-regulated use, located near the south end of the Dorwart Preserve, as outlined in application submissions including a map dated April 27, 2011.

In addition to the footbridge installation, this includes removal of invasive barberry bushes and minor clean up of downed wood and tree growth in the area of the bridge.

This action is based on a finding of essential conformance with the requirements of Sections 4.2 A and 4.2 B of the wetlands regulations.

This approval is valid for a period of five years (until May 2, 2016), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment. MOTION PASSED UNANIMOUSLY.

W1478 - Town of Mansfield - Sawmill Brook Preserve, viewing platform
Ryan MOVED, Holt seconded, to make a declaratory ruling that an exemption from licensing requirements is granted pursuant to Sections 4.2 A and 4.2 B of the Wetlands and Watercourses Regulations of the Town of Mansfield to The Town of Mansfield (file no. W1478), for installation of a viewing platform within regulated areas, as a non-regulated use, located near the north end of the Sawmill Brook Preserve, as outlined in application submissions including a map dated April 27, 2011.

In addition to the platform construction, this includes minor clean up of downed wood and tree growth in the area of the platform.

The applicant is referred to the Mansfield Building Department to insure that any applicable building code requirements are met.

This action is based on a finding of essential conformance with the requirements of Sections 4.2 A and 4.2 B of the wetlands regulations.

This approval is valid for a period of five years (until May 2, 2016), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment. MOTION PASSED UNANIMOUSLY.

W1477 - Walker - Riverview Rd - Solar Energy Installation within 75' of river
Goodwin MOVED, Holt seconded, to receive the application submitted by H. Walker (IWA file# 1477) under the Wetlands and Watercourses Regulations of the Town of Mansfield for a proposed photovoltaic system, located at 65 Riverview Road, on property owned by the applicant, as shown on a map dated 4/22/11 and as described in other application submissions and to refer the application to the staff and Conservation Commission for review and comment. MOTION PASSED UNANIMOUSLY.

Reports of Officers and Committees:
A field trip was scheduled for Tuesday, May 17, 2011 at 1:30 p.m.

Other Communications and Bills:
Noted.

Public Hearing:
W1474 - Plimpton - Wormwood Hill/Gurleyville Rds - 4 lot subdivision
Chairman Favretti opened the Public Hearing at 7:15 p.m. Members present were Favretti, Beal, Goodwin, Hall, Holt, Lewis, Plante, Pociask, Ryan and alternate Rawn. Meitzler read the legal notice as it appeared in the Chronicle on April 19 and April 27, 2011, and noted the following communications received and distributed to the Commission: a 4/28/11 and 3/29/11 report from the Assistant Town Engineer; a 4/28/11 report from K. Bradley, Project Ecologist; and a 4/25/11 email from L. Cano, 587 Wormwood Hill Rd.

Douglas Bonoff, Land Surveyor; Paul Biscutti, Engineer; and Kim Bradley, Ecologist, were present representing the applicant.

P. Biscutti reviewed the property and the proposed 4-lot subdivision, noting that they can meet all recommendations noted in staff reports and will revise the plans to reflect the changes.

K. Bradley described the characteristics of the vernal pool on the property, noting there is no fish population there, but she found wood frog and spotted salamanders. She recommended mitigation measures which included: retaining a gravel driveway with a vegetative buffer, directing drainage away from the vernal pool; restricting use of chemicals; and no tree removal around the pool.

P. Biscutti discussed the drainage plan, noting that it is designed to flow away from the vernal pool and he stated that the driveway turnaround can be incorporated on the west side of the drive without impacts to the vernal pool.

Cliff Gottman, 580 Gurleyville Road, commented on: the driveway turnoff area and noted contradictions about the impact on drainage; the recommendation of the Ecologist to retain trees, but noted many trees have already been removed; concerns over plowing snow, which most likely will change the drainage flow patterns; and concern over chemicals used for snow/ice removal.

Hans Franzen, 584 Gurleyville Road, expressed concern about the drainage.

Richard Roberts, 596 Gurleyville Road, expressed concern about the drainage.

Cliff Gottman, 580 Gurleyville Road, repeated his concern regarding drainage and the impact it will have on his leech field.

Biscutti assured the neighbors that the applicant would agree with the revisions discussed to mitigate their concerns, and Bonoff related that Mr. Plimpton would be willing to give an extension to the public hearing time if needed.. It was noted that revised plans should be submitted 10 days prior to the continued public hearing on June 6, 2011.

Holt MOVED, Hall seconded, to continue the public hearing to June 6, 2011. MOTION PASSED UNANIMOUSLY.

Adjournment:
Favretti declared the meeting adjourned at 8:20 p.m.

Respectfully submitted,

Katherine Holt, Secretary

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DRAFT MINUTES

MANSFIELD INLAND WETLAND AGENCY/PLANNING AND ZONING COMMISSION
FIELD TRIP
Special Meeting
Wednesday, May 17, 2011

Members present: R. Favretti, K. Rawn, K. Holt, B. Ryan
Staff present: G. Meitzler (Wetlands Agent, Assistant Town Engineer)

The field trip began at 1:30 p.m.

1. WALKER PROPERTY, Solar Energy Installation, 65 Riverview Rd IWA File # W1477. Members were met on site by owner C. Walker. Members observed the site noting the existing conditions and areas of proposed house development. No decisions were made.

The field trip ended at approximately 2:00 p.m.

Respectfully submitted,

K. Holt, Secretary

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Town of Mansfield
CONSERVATION COMMISSION
Meeting of 18 May 2011
Conference B, Audrey P. Beck Building
(draft) MINUTES

Members present: Joan Buck (Alt.), Robert Dahn, Peter Drzewiecki, Neil Facchinetti (Alt.), Quentin Kessel, Scott Lehmann. *Members absent*: John Silander, Frank Trainor. *Others present:* Grant Meitzler (Wetlands Agent).

1. The meeting was **called to order** at 7:33p by Chair Quentin Kessel.

2. The draft **minutes of the 20 April 2011 meeting** were approved as written.

3. IWA referral W1477 (Walker, Riverview Rd.). The applicants propose a free-standing photovoltaic system mounted on a frame supported by ten concrete piers. The proposed location – the only place on the property clear of shading trees – is about 50 ft from the Natchaug River. According to Meitzler, there is little danger of flooding along this stretch of the river, as it is below the Mansfield Hollow Dam. The Commission agreed unanimously (**motion:** Dahn, Buck) that no significant impact on the river is likely, provided construction is as specified in the application.

4. The Commission's comments on **UConn's Draft Water Supply Plan** (March 2011), composed by Kessel as authorized at the Commission's 20 April meeting, were included in the Town's 26 April letter to UConn. Kessel also attended the Willimantic River Alliance's 11 May forum on the draft, where he heard a presentation by a representative from Milone & MacBroom, UConn's consultants.

5. Kessel met **Linda Painter, Mansfield's new Town Planner**, at a reception on 16 May. He will invite her to the Commission's September meeting. Retiring Town Planner Greg Padick will be honored at a dinner on 08 June, but well-wishers will have to cough up $25 to attend.

6. A bill to extend provisions of the **Recreational Land Use Statute** (CGS Sec. 52-557f to 557i) to municipalities has passed the General Assembly. This statute encourages land-owners to open land for recreational use by limiting their liability, but currently applies only to private lands.

7. Agronomy Farm. Storrs Heights residents concerned about the impact of turf research at the Agronomy Farm on water quality and quantity met with the Dean of the College of Agriculture & Natural Resources on 21 April. Facchinetti reported that the Dean has agreed to two of their recent requests – engaging a hydrologist to evaluate Robbins' 2008 study of the impact of farm pumping on neighborhood wells, and supplying a map of the locations and concentrations of pesticide applications – but that this is as far as he is willing to go. (For details, see Facchinetti's report, attached.) The Neighborhood Association is now considering recommending that residents take individual action to monitor and treat well water.

8. Adjourned at 8:27p.

Scott Lehmann, Secretary, 23 May 2011

Report to the Conservation Commission on the UConn Agronomy Farm Expansion

Neighbors to the farm met with the Dean of Agriculture on 21 April 2011, at which time he gave us his "final word" in response to our latest set of concerns:

1. He will not formally agree to a pumping limit. Last summer and fall during a dry period, pumping amounted to 21,600 gallons per day, but he said they are able to pump up to 50,000 gallons per day before encountering a DEP requirement for a permit.

2. He will not authorize the monitoring of private well levels; he said this would expose UConn to an unacceptable level of liability.

3. He did agree to hire a hydrogeologist to evaluate the 2008 study by Dr. Robbins, which was undertaken to evaluate the impact of farm pumping on private wells nearby. On 10May11, I met with Jason Coite, Steve Olsen and this new hydrogeologist, who holds a masters degree in environmental engineering from the University of New Haven and did graduate studies with Dr. Robbins. We had a frank discussion on the ethics of the situation, and I described, again, how the Robbins study was deficient in several respects: too brief, not enough water pumped, new production wells not in place, and conducted in an extremely wet period. The Dean has been informed about our objection to using a former graduate student of Dr. Robbins to review the Robbins study.

4. The Dean, Jason Coite, and the farm manager will not concede that their monitoring wells are inadequate for protecting our water levels and that the parameters are arbitrary for reducing and stopping pumping from the productions wells, which are 15 and 25 feet respectively. These thresholds of 15 and 25 feet were not advocated in the Robbins report.

5. The Dean refuses to test for all pesticides used at the farm, even though nitrogen was detected in one shallow test well (3.4mg./L) which could indicate pesticide migration. After reviewing the Material Safety Data Sheets (MSDS) for the farm pesticides, we found that probable carcinogens are being used at the farm.

6. The Dean refuses to test for pesticides before and after the growing season. He will only test in the fall despite the possibility that the spring thaw could promote pesticide migration toward our private wells.

7. After repeated requests, the the Dean has agreed to provide us with a map detailing the locations and concentrations of pesticide applications, similar to a report the farm manager produced in 2007. We anticipate this report in the summer.

8. Recently we received an abbreviated list of current research projects at the farm.

9. We have not been able to obtain assurances from the Dean that recent budget cuts would not affect the implementation of safeguards at the farm. Necessary upgrades of monitoring for water levels and pesticide contamination cannot be guaranteed.

10. A tour of the pesticide storage facility at the farm revealed that upgrades are needed to improve fireproofing and spill containment.

Neil Facchinetti, 18 May 2011

Memorandum: May 17, 2011
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: Monthly Business

W1419 - Chernushek - hearing on Order

3.10.09: The hearing on the Order remains open and should continue until the permit application under consideration is acted upon.
(The Order was dropped on approval of the application required in the Order.)

4.30.09: Former rye grass seeding is beginning to show green. I spoke with Mr. Chernushek this afternoon who indicated health problems that delayed his starting but indicated he will be working this weekend. I will update on this Monday evening.

5.26.09: A light cover of grass growth has come in. Mr. Chernushek indicates health problems and two related deaths have delayed his start of work since the permit approval was granted. It appears that some light work has started. He has further indicated that he will start a vacation on June 22, 2009 to finish the work.

6.13.09: Work is underway.

6.21.09: Bulldozer work has been completed - finish work remains. The additional silt fencing has been placed along the northerly wetlands crossing, and the additional pipe under the southerly crossing has been installed. Remaining work includes finish grading along edges, spreading stockpiled topsoil, and establishing grass growth.

7.01.09: I spoke with Mr. Chernushek who indicated he expects work to be completed by September 1, 2009. (Site photo attached).

9.03.09: Mr. Chernushek has been working on levelling and grading. The formerly seeded areas have become fairly thick growth surrounding the central wet areas. He has further indicated that with the combination of weather and the slower moving of earth with the payloader compared to the earlier rented bulldozer has led him to contact contractors for earth moving estimates which have not yet been received. The site is not yet finished but has remained quite stable.

9.12.09: I met with Mr. Chernushek today and discussed again what his plans are for stabilizing this work site.

10.01.09: Mr. Chernushek indicated he has not heard back from the contractor he had spoken with about removing material, and is in progress of contacting others. In discussion is removal of material from the site either within the 100 cubic yard limit or obtaining a permit for such removal.

10.28.09: Mr. Chernushek has indicated he has made arrangements with DeSiato Sand & Gravel to remove 750 cubic yards of material. Staff is in the process of clarifying permit requirements.

W1445 - Chernushek - application for gravel removal from site

11.30.09: Packet of information representing submissions by Mr. Chernushek, Mr. DeSiato and myself is in this agenda packet as Mr. Chernusheks's request for modification.

12.29.09: Preparation of required information for PZC special permit application is in progress. Tabling any action until the February 1, 2010 meeting is recommended.

1.12.10: 65 day extension of time received.

2.18.10: No new information has been received.
2.25.10: This application has been **withdrawn.**
6.30.10: As viewed from the adjacent property, the upstream and downstream areas have grown to a decent protected surface. I did not see indication of sediment movement.
10.26.10: A sale of the East portion of the Chernushek property has been in negotiation.
12.27.10: The property exchange has been completed. The owner is now the neighboring property owner Bernie Brodin. He has indicated his intention to stabilize the area as weather permits.
4.25.11: Mr. Brodin indicates he is starting with grading and spreading hay and seed to stabilize disturbed areas.

Mansfield Auto Parts - Route 32
2.18.10: Same - they are in the process of rebuilding the engine on the payloader.
3.30.10: Same - Mr. Bednarczyk indicates a contuing problem finding engine parts.
4.13.10: Owner indicates the payloader is operating again.
4.15.10: Owner indicates he will have the cars moved this week.
4.23.10: No vehicles are within 25' of wetlands.
5.17.10: Inspection - no vehicles are within 25' of wetlands.
6.02.10: Inspection - no vehicles are within 25' of wetlands.
6.23.10: Inspection - no vehicles are within 25' of wetlands.
7.15.10: Inspection - no vehicles are within 25' of wetlands.
9.01.10: Inspection - no vehicles are within 25' of wetlands. Mr. Bednarczyk has started removing tires from the westerly part of his site using roll-off containers. With this arrangement a moderately steady rate of removal of the tires should be possible to maintain until the tires are completely removed.
9.28.10: Inspection - no vehicles are within 25' of wetlands. Tire removal is continuing with 1 to 2 roll-off containers being removed per month.
10.07.10: Inspection - no vehicles are within 25' of wetlands. Tire removal has been continuing.
11.29.10: Inspection - no vehicles are within 25' of wetlands. Owner has been trucking cars for crushing with 6 tires per vehicle. He indicates 3 cars per day or 18 tires per day. The actual number is probably lower than 18.
12.23.10: Inspection - no vehicles are within 25' of wetlands.
1.07.11: Inspection - no vehicles are within 25' of wetlands.
1.20.11: Vehicle storage areas are snowed in and inaccessible.
1.26.11: Snows remain, although some clearing has been done I could not count on being able to get out.
2.24.11: Inspection - no vehicles are within 25' of wetlands.
3.09.11: Inspection - no vehicles are within 25' of wetlands.
3.22.11: Inspection - no vehicles are within 25' of wetlands.
4.25.11: Inspection - no vehicles are within 25' of wetlands.
5.17.11: Inspection - no vehicles are within 25' of wetlands. Mr. Bednarczyk's estimate is that approximately 100 tires per month are being removed from the site.

Memorandum: June 1, 2011
To: Inland Wetlands Agency
Planning & Zoning Commission
From: Grant Meitzler, Inland Wetland Agent
Re: W1474 - Plimpton - Gurleyville & Wormwood Hill Rds
4 lot subdivision

plan reference: bearing latest revision date May 24, 2011, 21 sheets
Vernal Pool Report: undated letter received April 28, 2011, K.Bradley

This memorandum reflects my interpretation of how the Kimberly Bradley report comments have been incorporated, together with recommendations from my previous review of the plans. Kimberly Bradley's comments are indicated by *italics* below.

Summary Recommendations from my previous review:

I. I recommend professional comment be sought from an appropriate expert to comment on the potential for significant impact on this pool.

The applicant has provided comment on the vernal pool from Kimberly Bradley of GEI Consultants. That review comments on both the nature of this pool and offers a list of suggestions for controlling potential impacts on this wetland. The recommendations:

A. *Use of erosion and sediment control best management practices to reduce erosion, such as staggered silt fencing, use of combinations of silt fence and hay bales to reduce barrier effects, immediate re-seeding and permanent re-vegetation of native species with 85% cover, and prompt removal of silt fencing on completion.*

1. *staggered silt fencing,*

This treatment is intended for maintaining control on longer down slope areas which, I think, are not present here.

2. *use of combinations of silt fence and hay bales to reduce barrier effects,*

I did not see that this has been done. However, it may be better depending on the time of year when construction actually occurs to maintain a barrier for a short time than to maintain open access to the active construction areas near the vernal pool (Lot 2) which would be a threat to small fauna.

3. *immediate re-seeding and permanent re-vegetation of native species with 85% cover,*

There is a note under the plan narrative indicating immediate stabilization of fill slopes but I do not find any commentary on work in proximity to the vernal pool area (near the 100 ft distance).

4. *prompt removal of silt fencing upon completion.*

Removal is noted on completion of construction. I do not find any

comment on quick completion and removal of silt fence in the Lot 2 areas nearest the vernal pool. I feel it appropriate that the plan reflect the Bradley comments and suggestions insofar as it is feasible.

B. *Minimize disturbed areas to protect down gradient buffers, including a well established vegetated buffer to the vernal pools.*

The house location on lot 2 has been revised to place it approximately 110' away from the edge of the vernal pool. A portion of the driveway remains within the 100' zone and the plan appears to show the edge of the yard only 70' away from the pool. There is a row of silt fence through the 100' critical area around the vernal pool which is placed as close as 50' to the vernal pool. I did not find any notes on the plan indicating the need for and importance of natural vegetation within this 100' zone around the vernal pool.

C. *reduce the amount of roadway and impervious surfaces required for placement of residential properties, through the use of a shared driveway and permeable material such as gravel.*

The plans do show a shared drive for Lots 2 and 3, with a gravel surface.

D. *Do not clear regions and maintain a natural vegetative buffer within 100 ft. of the vernal pool depression (envelope) and limit development to less than 25% of the critical terrestrial habitat located within 750 ft. of the vernal pool.*

A 100 ft buffer has been established on Lot 2 around the vernal pool but as noted above it appears to include portions of yard and drive together with a section of silt fence at only 50' from the pool. There is no comment on the 750' zone meeting the 25% development criteria.

E. *Stormwater best management practices must be applied, including detention and biofiltration ponds placed appropriate distances from vernal pool habitat, treat stormwater using grassy swales less than 1:4 sloping edges, use of hydrodynamic barriers, avoidance of increase or decreases in wetland water levels, and limitation of impervious surfaces.*

There are no concentrations of flow directed toward this vernal pool. Flows from the shared driveway are directed away from the pool.

F. *Selection of a portion of the property as a conservation easement would establish a connection with adjacent open space parcels and provide a corridor for migration of wildlife species.*

A conservation easement has been added on Lot 2. As previously noted the area appears to include portions of lawn area, driveway and has silt fence placed 50' within this easement area. The comments recommended natural vegetation that is not noted on the plans.

This easement area has a long curved edge running through what is shown as active yard. Clarification is needed as to how this can be effectively marked.

The following are my previous comments updated according to this May 24, 2011 plan revision.

II. I recommend placing a stone filled excavation on the west side of the drive near the edge of Gurleyville Rd and at stations 11+00 and 12+00 to limit outflow for the long term.

This has been done and is consistent with the Bradley commentary.

III. On Wormwood Hill Rd for the Lot 4 driveway, upgrading of the roadside drainage from the present 6" underdrains to 15" pipe is shown. Additional piping is needed to maintain the roadside flow coming from the uphill section of roadside swale.

This has been done.

IV. Adding new water to the system carrying water across the Potz property and Lot 1 on the Plimpton property requires the acquisition of drainage rights in favor of lot 4 from each of these properties.

A 20' wide easement is needed for the new drainage from Lot 4, following the route of the present drain across the Potz property.
a 20' wide easement with a "right to drain" onto Lot 1 is also needed.

This has not been shown on the plans yet.

V. Silt fencing on Lots 2 and 3 should be extended to protect wetland areas located downhill to the rear of each lot.

Silt fence needs to be added southerly of the house on lot 2 downhill of construction areas.

6. The potential of significant impact triggers consideration of the holding of a public hearing - May 2, 2011 is an option. The statutory limit for extension of time is 65 more days.

With the items noted as still needing to be addressed, I believe an extension of time is needed. Beyond June 6, 2011 we will need an extension of time to extend the public hearing any further.

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May 2, 2011

Town of Mansfield
4 South Eagleville Rd.
Mansfield, CT 06268-2599

Attention: Planning and Zoning Commission

Dear Commission Members,

I am writing to you today in regard to our concerns about the proposed Plimpton Subdivision on Wormwood Hill and Gurleyville Roads.

My husband Peter and I are very concerned about the plan for a driveway to be constructed next to our property, at 597 Wormwood Hill Road. The reason is the drainage problem.
We would like to make sure that there will be full and careful consideration given to this situation. In fact, there already is a drainage problem on Wormwood Hill Rd in front of our house (#597), and down the street toward Mt. Hope Road.

This problem has 2 issues. 1- Where the driveway is projected to be constructed, is where the water comes down the hill. 2- After the water comes down to the street, the existing drain is not doing the job of getting the water out of the street where it freezes and becomes a hazard.

Where is the water going to go if there is a driveway there?
Unless there is a dedicated plan for drainage, there is a good chance that my property will be in danger of capturing this substantial run-off from the hill OR that Wormwood Hill will become an even more dangerous hazard in the fall and winter when this runoff has no way of draining into the one existing drain in front of my home, as it usually fills up with leaves and sticks with heavy downpours. This becomes worse after a snowfall, as there is no place the water can go but in the street where it freezes and becomes a driving hazard.

I am sure the town knows about this problem as occasionally the workers come around to clean out the drains. But it is futile as it only takes a short time before this fills with leaves and sticks and is clogged again. We try to unclog it when we can; however, after it freezes or snows, there is nothing we can do!
With the building of a new driveway, it is highly likely that this would compound the already existing drainage problem, and become a worse situation for our property and the safety on the street.

Thank you for your time.
Yours,

Kim Bova Kaminsky
Peter Kaminsky
597 Wormwood Hill Road
Mansfield, CT 06250
860-429-8290

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Memorandum: May 31, 2011
To: Inland Wetlands Agency
From: Grant Meitzler, Inland Wetland Agent
Re: W1477 - Walker - 65 Riverview Rd - Solar Panel installation in buffer
4 lot subdivision

plan reference: April 22, 2011

This application is for construction of a solar panel array for the house at 65 Riverview Rd. The location chosen is approximately 50' from the edge of the river.

The river itself is the only wetland/watercourse within 150' of the proposed work site. The river here is a man-made channel constructed when Rte 6 was built in the early 1970's.

The location is chosen based on obtaining maximum sun exposure. I looked at moving the array farther back from the river but this placed the array in the midday full shadow of the house and would require removal of several very large trees. Moving even farther from the river would require extensive cutting of very large trees to create a space large enough to catch a meaningful portion of the day's sunlight.

The applicant's detailed explanation of the project is accurate and presents the work in some detail.

The amount of excavation which will be the only source of impact is reported as a net volume of 26 cubic feet. This excavation is for support for two 34' long beams each supported on five posts on concrete base supports. To this will be added an electric cable that will connect to the grid. The excavation material for the cable will be replaced entirely back into the trench for backfill.

The application notes the location to be in the 100 year to 500 year flood zone (but not within the 100 year flood elevation). I note two further items on this mapping:

1. there is now a river channel that does not show on the FEMA mapping. This is a manmade channel that was built in the early 1970's when Route 6 was constructed. Its effect will be to reduce flooding levels somewhat.
2. the Mansfield Hollow flood control dam is about one mile upstream of this location further protecting the site.

I do not see flooding as an issue at this location.

I see a minimum potential for impact from this project, and a considerable environmental benefit to the electrical grid.

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Memorandum: May 31, 2011
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: New Business for June 6, 2011 meeting

FERC Referral:

Algonquin Gas Line - Route 89 - installation of ground cable along pipeline
(Not an application - this is a FERC project)

	yes	no
fee paid	n.a.	
certified receipts	n.a.	
map dated	April 5, 2011	

This comes to us via FERC (Federal Energy Regulatory Commission) who has jurisdiction over any national energy project. It is presented here so that any input we may have can be considered. I note the following:

1. this will install a cathodic protection system along approximately 685 feet of the Algonquin Gas Transmission line. Work will take place just outside the wetlands along Mount Hope River and run west approx. 325 ft to Route 89. There is then a section running west of Route 89 approx. 360 ft.

2. The work is near two wetland areas but not directly in any wetlands:

   A. wetlands adjacent to the Mt. Hope River

      Work will reach a point about 15 feet away from the mapped wetland boundary at this location. Silt fencing has been indicated around the trench end.

   B. west of Route 89

      Approx. 300 feet west of Route 89 a five foot wide bend has been made in the work area for the trench to avoid disturbed material getting into a mapped wetland area. Silt fencing has been indicated along the side of the trenching past the wetland.

3. The work will consist of trench excavation about 5 feet deep and two feet wide placed between the two older gas transmission lines at this location. There are three gas lines at this location. The older lines date from the 1960's and the newest about the year 2000.

4. The work is planned to progress quickly and be backfilled and

completed continuously as work progresses. It is expected to take about a week total.

5. A company inspector is to be on the job continuously.

My experience with Algonquin's work in previous instances has been excellent with them doing excellent work and sparing no effort. I expect this to be the same and see no need to comment further.

New Applications:

W1479 - Bemont - Stafford Rd - garage building & small connector betw. existing buildings

	yes	no
fee paid	x	
certified receipts	x (signed letters)	
map dated	May 2, 2011	

This application is for work within 150' of a watercourse to build a new garage. It is being built to replace an existing garage to be converted to living space. The present house and present garage are to be connected with a 154 sq.ft. addition between the two

Receipt and referral to the Conservation Commission is appropriate.

W1480 - St.Martin - Storrs Rd - new house, portions in 150' regulated area

	yes	no
fee paid	x	
certified receipts	x	
map dated	May 11, 2011	

This application is for a single family house on an existing lot on Storrs Rd. No work is proposed in wetlands but much of the work is within the 150' regulated area next to wetlands. The wetlands are those associated with the Schoolhouse Brook.

Receipt and referral to the Conservation Commission is appropriate.

Draft for Algonquin.

The **Minutes from May 14, 2008** show action on a similar Algonquin Gas activity with the following action having taken place:

W1398 - Algonquin Gas Transmission LLC - Gas line repairs

Meitzler updated the Agency on the report, and noted that no action is necessary. By consensus the Agency recommended that the Chairman with staff assistance should submit a letter to Algonquin Gas stating there is no objection, and that the Wetlands Agent should be informed as work begins.

Draft letter to Algonquin:

Kelly J. Kippenberger
Project Manager/Wetland Scientist
TRC Environmental
Wannalancit Mills
650 Suffolk Street
Lowell, MA 01854

Dear Kelly,

This letter is to inform you of favorable action on your pending Cathodic Protection work on Route 89 in Mansfield. The Wetlands Agency discussed your application at its June 6, 2011 meeting and indicated no objection to the work. Please inform the Wetlands Agent as work begins (Grant Meitzler, Agent: 1-860-429-3334).

Very truly yours,

Rudy J. Favretti
Chairman

PAGE
BREAK

Note: This is an Application for Administrative/Agent Approval as it is a maintenance project on an existing natural gas pipeline right-of-way with no direct work in any wetlands or watercourses

APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY

File #
W
Fee Paid 625-
Official Date of Receipt 6-1-11

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Part A - Applicant

Name Spectra Energy Transmission, LLC c/o Algonquin Gas Transmission, LLC - Contact: Terrance Doyle

Mailing Address 890 Winter Street, Waltham, MA 02451

Zip

Telephone-Home Telephone-Business 617-560-1417

Title and Brief Description of Project

Installation of Cathodic Protection Ground Bed on existing Main Line natural gas pipeline system

Location of Project Existing Algonquin pipeline easement off Route 89

Intended Start Date Summer 2011

Part B - Property Owner (if applicant is the owner, just write "same")

Name Algonquin Gas Transmission, LLC has right-of-way easement

Mailing Address

Zip

Telephone-Home Telephone-Business

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature date

Applicant's interest in the land: (if other than owner) Maintenance of existing pipeline on existing easement

Part C - Project Description (attach extra pages, if necessary)

1) Describe in detail the proposed activity here or on an attached page. (**See guidelines at end of application – page 6.**)
   Please include a description of all activity or construction or disturbance:

a) ***in*** the wetland/watercourse

b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

Proposed project includes installation of a cathodic protection ground bed in existing pipeline right-of-easement. Approximately 6,023 square feet of workspace is within the upland review area to wetlands. No work will occur within wetland and/or watercourse, however a small portion of the work will occur within the 100-year floodplain associated with Mount Hope River. The Project is not located in a Natural Diversity area. See attached Cover Letter and Project Plan for additional information.

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):

a) ***in*** the wetland/watercourse

b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

The installation of the cathodic protection ground bed within existing pipeline right-of-easement will require a 2-foot wide by 5-foot deep trench for approximately 690 linear feet (350 linear feet on west side of Route 89, 340 linear feet on east side of Route 89). The workspace needed is approximately 15-feet wide and once the ground bed is installed, all areas will be restored. Approximately 6,023 square feet of workspace is in the upland review area. No workspace is in a wetland or watercourse. See attached Cover Letter and Project Plan for additional information.

3) Describe the type of materials you are using for the project:

To be installed: Matcor™ Linear Anode Bed and cable, and small rectifier box.

Equipment to be used: small excavator, and small drill rig for installation under Route 89.

a) include ***type*** of material used as fill or to be excavated Existing soil to be excavated and used to backfill. No new fill to be used. Excavation is temporary disturbance

b) include ***volume*** of material to be filled or excavated

Approximately 6,900 cubic feet of soil to be excavated and backfilled. (2 ft x 5 ft wide trench for 690 linear feet).

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

Excavation is temporary and pre-installation contours will be re-established. Erosion controls (staked hay bales) will be installed as necessary. Temporary disturbed soils will be stabilized with mulch and/or seed.

Part D - Site Description

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

The existing pipeline right-of-way exists as a maintained (mowed) lawn, open field area. Soils are well drained and the land is somewhat flat with gentle slopes. There is a moderate incline on the west side of Route 89, and the east side of Route 89 gently slopes down to the Mount Hope River which is located over 400 linear feet from Route 89. See Attached Cover Letter and Photographs

Part E - Alternatives

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

No alternatives exist for the project, as cathodic protection of the pipeline is required in accordance with federal DOT requirements (49 CFR Part 192) and is necessary to maintain the pipeline integrity. Additionally, Algonquin has specifically avoided workspace in the wetland where possible.

Part F - Map/Site Plan (all applications)

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision 4/5/11

3) Zone Classification Residential

4) Is your property in a flood zone? X Yes _____ No _____ Don't Know

Small section of ground bed in 100-year floodplain associated with Mount Hope River

Part G - Major Applications Requiring Full Review and a Public Hearing

See Section 6 of the Mansfield Regulations for additional requirements.

Part H - Notice to Abutting Property Owners

1) List the names and addresses of abutting property owners

Name Address

See Attachment for a list of abutters and property owners that Algonquin has easement rights on.

2) **Written Notice to Abutters** . You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

Abutter Notification N/A - Administrative Approval

Part I - Additional Notices, if necessary

1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield--sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed. Notification to Windham Waterworks sent. See attached form.

2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to

the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested. N/A

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes_X_No___Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes _X_No ____ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes _X_No ____Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___$1,000. ___ $750. ___$500. ___$250. ___$125. ____$100. ___$50. _X_$25.

___ $30 State DEP Fee

Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.

Thomas W Clarke — 5/25/2011

Applicant's Signature — Date

Wannalancit Mills
650 Suffolk Street, Suite 200
Lowell, MA 01854

978.970.5600 voice
978.458.1339 fax

www.TRCsolutions.com

May 26, 2011

Mr. Grant Meitzler, Inland Wetlands Agent
Mansfield Inland Wetlands Agency
Town of Mansfield
4 South Eagleville Road
Storrs, CT 06268

RE: Request for Administrative/Agent Approval
Algonquin Gas Transmission, LLC - Cathodic Protection System Installation
24-inch Mainline/ 30-inch Loop Pipeline System(s) at Route 89
Mansfield, Connecticut

Dear Mr. Meitzler:

Algonquin Gas Transmission, LLC ("Algonquin") is responsible for maintaining the safety and reliability of its natural gas pipeline system. This includes the responsibility to provide adequate cathodic protection for Algonquin's natural gas pipeline system through the installation of anode ground beds. A ground bed is a corrosion prevention system created by applying a small, electrical voltage on the pipeline through a series of cables and a buried anode bed. If unprotected, ions flow away from the surface of the pipe due to the natural electrolytic condition in the soil, causing corrosion. Cathodic Protection ("CP") prevents this by forcing electrical current to flow toward the pipe, which opposes or cancels out any natural flow away from the structure. Each ground bed installation requires electricity, a rectifier (which converts alternating current to direct current), a series of buried cables, and continuous linear anodes buried along with the cable.

Recent required testing of the cathodic protection levels on Algonquin's existing natural gas mainline pipeline system has indicated that additional cathodic protection is required along a portion of Algonquin's 24-inch mainline and 30-inch Loop pipelines off Route 89 (near Mount Hope Road) in Mansfield, CT. Additional cathodic protection at this site is required to meet U.S. Department of Transportation ("USDOT") regulations (Chapter 49 of the Code of Federal Regulations Section 192 Department of Transportation Regulations for "Transportation of Natural and other Gas by Pipeline," Subpart I "Requirements for Corrosion Control"). The new ground bed is necessary and designed to maintain adequate belowground corrosion protection on Algonquin's existing natural gas transmission system and to ensure compliance with USDOT regulations.

Since portions of the work will take place within regulated upland review area, Algonquin is presenting these activities for your review in accordance with Sections 22a-36 to 22a-45 inclusive, of the Connecticut General Statutes, as amended, and the Mansfield Inland Wetland and Watercourses Regulations (effective May 1, 2011) ("Mansfield Regulations").

Based on pre-application telephone consultation with you, since the proposed work is required maintenance on an existing utility and installation of the ground bed will be temporary

disturbance, the project may be considered for "administrative review," in accordance with Section 12.0 of the Mansfield Regulations since there are no direct impacts to regulated wetlands.

The following information is included with this letter to assist you with your review of the Project (2 copies each, additional copies of the Project Plan):

- Mansfield Inland Wetlands Agency Application Form;
- CT DEP Statewide Inland Wetlands and Watercourses Activity Reporting Form;
- Figure 1 – Site Locus and Figure 2 – Resources Map;
- Project Plan;
- List of Property Owners and Abutters;
- Algonquin's BMP Plan
- Site Photographs; and
- Windham Water Works Form and certified mail receipt.

Pre-Emption Statement

Notwithstanding anything to the contrary set forth in this application, nothing stated herein shall be construed to indicate that any state, regional, or local agency referred to has the power to impose any requirement inconsistent with Federal law or to refuse to issue or to unreasonably delay the issuance or processing of any state, regional, or local permit, license, certificate, approval, review, or other requirement: nor shall this document be construed to limit Algonquin's legal rights under the Natural Gas Act (15 U.S.C. § 717, *et seq.*), Pipeline Safety Act (49 U.S.C. § 60,101, *et seq.*), or the United States Constitution, including, but not limited to, the Supremacy Clause and Commerce Clause.

Site Description

The Project site is located within Algonquin's existing 24-inch Mainline/30-inch Loop natural gas pipeline right-of-way ("ROW") located within and adjacent to Route 89 south of Mount Hope Road in Mansfield, Connecticut within a residential area. The pipeline ROW is oriented approximately east to west at this site. The proposed CP system is located within maintained lawn and maintained ROW, located on the east and west side of Route 89 (see attached Figure 1 and 2). East of Route 89, the ROW consists of a large, open field that is mowed by nearby private land owners. Approximately 400 linear feet from Route 89 to the east is Mount Hope River. Wetland 1 is associated with Mount Hope River. The CP ground bed is located within the field, in the upland review area of Wetland 1. 100-year floodplain is also associated with Mount Hope River, however no Natural Diversity mapped areas are present in the vicinity of the pipeline ROW at this location.

West of Route 89, there is a moderate slope off the shoulder of the road that flattens out. The ROW west of Route 89 also consists of open, maintained field. Wetland 2 is located adjacent to the flatter portion of the ROW along with private vegetable gardens maintained by the land owner.

Approximately 6,023 square feet of workspace is within the 150-foot upland review area of Wetland 1 and Wetland 2. The new CP system will consists of approximately 690 linear feet (340-feet east of Route 89, 350-feet west of Route 89) of buried continuous Matcor™ linear anode bed (see site plan drawing C-345A) within Algonquin's 90-foot wide ROW.

Proposed Work and Construction Methods

The new CP System will consist of the direct burial Matcor™ linear anode bed, an anode supply loop cable, a junction box, a rectifier pole and a grounding grid. All components will be installed within the existing ROW as shown on the project plans. Algonquin is proposing a 15-foot wide temporary workspace area within the existing ROW to install the project components. Algonquin plans to conduct the work during the summer of 2011 after regulatory approval has been obtained, and anticipates that construction and installation of each CP system will be completed in 5-8 days.

Installation of the anode bed and anode loop supply cable involves excavating a single trench approximately 18-24 inches wide and up to 5 feet deep. The anode bed will be installed as shown on project plans using conventional excavation and backfilling construction methods. The anode bed components will be installed within the trench in approximately 250 to 500 foot long sections and backfilled with the excavated soil at the end of each working day, so that no stockpiles will remain overnight. Installation underneath Route 89 will be completed using horizontal directional drill ("HDD") technology. At the road crossing, the existing pipelines will be excavated so that the system can be connected to the pipelines as shown in the project plans. The system will be powered by a new rectifier cable and junction box located within Algonquin's easement as shown on project plans. Installation of the supply cable typically involves excavating a narrow trench approximately 18-24 inches wide by 18-24 inches deep. Access to the work areas will be directly from public roads. All contours and grades within the construction area will be returned to preconstruction condition, seeded and stabilized with straw mulch daily as necessary once backfilling is complete. Erosion control measures will be implemented as needed to protect regulated wetlands during and after construction, until the site has been stabilized.

Horizontal Directional Drill

HDD technology will be used at the Route 89 crossing in order to minimize construction period disruptions to local residents and minimize damage to the public road. The HDD method is a trenchless installation process by which the anode bed and looping cable will be installed beneath Route 89. The HDD method employs equipment and techniques derived from oil well drilling technology. Using this method minimizes any potential disruption to traffic flow along the roadway. The HDD is not located in the 150-foot upland review area to wetlands. Soil stockpiling and any workspace that may be required for the HDD will be located within the temporary workspace shown in the project plans

Construction Sequence

Construction of the project is expected to last approximately five to eight days. The following is a general construction sequence:

1. Stake out temporary construction workspace and existing pipeline(s) as shown on project plans.
2. Mobilize construction equipment, ground bed components and supplies to the site, including erosion and sedimentation controls.
3. Mobilize small tracked excavator to the end of the temporary workspace.

4. Commence installation of ground bed components (Matcor™ anode bed and looping cable) by excavating a section of trench, placing components in trench by hand and backfilling trench.
5. Continue ground bed installation process to the edge of the road easement, restoring pre-existing contours as the crew moves along with the installation.
6. Mobilize small drill rig on site to perform HDD process for installation of CP Ground Bed under Route 89. HDD process includes drilling under Route 89 and when drill reaches exit point, attach Matcor™ anode bed and looping cable to the drill head and commence pull back of drill. At completion of pull back, the anode bed will be installed underneath Route 89. (duration, 1-2 days)
7. Implement temporary stabilization measures on disturbed soils (e.g., seeding and/or straw mulch).
8. Continue installation process until crew reaches opposite end of proposed anode bed.
9. Splice ground bed components to the rectifier cable and attach to the existing pipelines and to the proposed rectifier box.
10. Remove all equipment from the site and implement final restoration measures.

Project Impacts and Mitigation Measures

Since the purpose of the proposed project is to maintain adequate cathodic protection on Algonquin's existing pipeline systems within discrete areas near Route 89, some impacts within regulated areas were unavoidable. The project will require 6,023 square feet of workspace within the 150-foot upland review area, and no workspace is in the wetland resource. The proposed project represents the least environmental damaging, practicable alternative and has been designed to avoid direct impacts to regulated wetlands and watercourses. In addition, Algonquin will follow best management practices ("BMPs") in order to minimize impacts to sensitive environmental receptors. Algonquin and its contractors will follow Algonquin's Pipeline Maintenance Erosion and Sedimentation Control Best Management Practices Work Plan ("BMP Plan"), which is available upon request.

Best Management Practices Work Plan

Algonquin's BMP Plan has been prepared for use by Algonquin and its contractors as a guidance manual for minimizing erosion of disturbed soils and transportation of sediments off the ROW and into sensitive resources (wetlands, streams, and residential areas) during natural gas pipeline construction. The procedures developed in the BMP Plan, which represent Algonquin's BMPs are designed to accommodate varying field conditions while maintaining rigid minimum standards for the protection of environmentally sensitive areas.

The goal of the BMP Plan is to preserve the integrity of environmentally sensitive areas and to maintain existing water quality by implementing the following objectives:

- Minimize the extent and duration of disturbance;
- Protect sensitive resources from erosion of exposed soil by diverting runoff to stabilized areas;
- Install temporary and/or permanent erosion control measures; and
- Establish an effective inspection and maintenance program.

Environmental Training

Environmental training will be provided to both company and contractor personnel whose activities will impact the environment during construction. The level of training will be commensurate with the type of duties of the personnel. The training will be given prior to the start of construction and throughout the construction process, as needed. The training program will cover the BMP Plan, job-specific permit conditions, company policies, cultural resource and threatened and endangered species restrictions, if any, and Algonquin's Spill Prevention Control and Countermeasure Plan ("SPCC Plan"), which is part of the BMP Plan.

Clean Up and Restoration

The construction work area will be stabilized, and areas of temporary disturbance will be restored to pre-construction conditions throughout the course of the Project. Restoration activities will include daily backfilling of the excavated trench line as described above, and seeding and straw mulching wetland and upland areas as necessary. Finally, all construction related debris would be removed from the site.

Spill Prevention and Preparedness

Algonquin will ensure that the contractor will take all necessary precautions to manage hazardous materials (e.g., fuel, lubricants), prevent a spill from occurring, and to be prepared in the event that a spill occurs as outlined in the Company SPCC Plan. Any service vehicle used to transport lubricants and fuel will be equipped with an emergency response kit. In addition, the following activities will be confined to upland areas: refueling equipment, storing fuels or lubricating oils, and parking vehicles and storing motorized equipment during non-work hours.

Company Inspector

Algonquin will have a qualified company inspector meet with the contractor prior to construction to discuss all on-site activities relative to environmental issues and permit conditions. At a minimum the company inspector will review with the contractor the location of all wetland resource areas, upland areas appropriate for refueling and equipment storage, project plans, the BMP Plan and the installation of any additional measures deemed necessary based on field or weather conditions. The company inspector will be present for oversight and consultation during the construction and installation of each project.

Compliance with Mansfield Inland Wetlands and Watercourses Regulations

Under the Mansfield Regulation definitions (Section 2.1), a significant impact means any activities, but not limited to, the following activities:

- "Any activity involving deposition or removal of material which will or may have a substantial effect of the wetland or watercourse in which the activity takes place or on wetland or watercourses outside the area for which the activity is proposed.
- Any activity which substantially changes the natural channel or may inhibit the natural dynamics of a watercourse system
- Any activity which substantially diminishes the natural capacity of an inland wetland or watercourse to support aquatic, plant or animal like and habitats, prevent flooding, supply water, assimilate waste, facility drainage, provide recreation or open space, or perform other functions.

- Any activity which is likely to cause or has the potential to cause substantial turbidity, siltation or sedimentation in a wetland or watercourse.
- Any activity which causes substantial diminution of flow of a natural watercourse or groundwater levels of a wetland or watercourse.
- Any activity which is likely to cause or have the potential to cause pollution of a wetland or watercourse
- Any activity which damages or destroys unique wetland or watercourse areas or such areas having demonstrable scientific or educational value."

The proposed maintenance project is not considered a significant impact, nor should it have any potential impacts on the surrounding wetlands or upland review area. The proposed maintenance project should be approved administratively for the following reasons:

- The project includes maintenance activities for existing, lawfully located natural gas pipelines and represents reasonable use of the existing pipeline easement. The CP system is necessary to maintain the public health and safety as mandated by federal USDOT regulations governing pipeline safety.
- The proposed project represents the least environmentally damaging practicable alternative to address the maintenance of the 24-inch Mainline and 30-inch Loop pipeline systems in the vicinity of Route 89.
- There are no direct permanent or temporary disturbances to regulated wetlands associated with the project. There will be no permanent impacts to the regulated upland review area affected by the project. The 100-year floodplain will not be impacted, as pre-existing contours will be restored and no new above ground structures are proposed in the floodplain. The Project area ROW is not located in Natural Diversity mapped habitat.
- The temporary disturbance associated with the project is localized, and will not have any far-reaching impacts to any drainage areas located in proximity to the Site. Work will be completed within 1-2 weeks so there is a short duration of temporary disturbance.
- BMPs will be implemented according to Algonquin's BMP Plan to effectively address any potential impacts.

If you have any questions regarding the proposed project please contact me at 978-888-8455 or via email at kkippenberger@trcsolutions.com.

Best Regards,
TRC Environmental

Kelly J. Kippenberger
Senior Wetland Scientist

Enclosures

cc: Terrance Doyle, Spectra
Charles Thomas, Spectra
Sabrina Hepburn, TRC

Applicable section of Best Mgmt Practices.

2.3 Installation of Cathodic Protection Facilities, Anode Beds and Deep Wells

Cathodic protection facilities are installed as needed to maintain a direct current flow on the pipeline in order to combat below ground corrosion of pipeline facilities or to mitigate the effects of induced AC voltage and fault currents. The addition of cathodic protection facilities will require excavation within the easement to install ground beds, sacrificial anodes, rectifiers, etc. Excavations for standard anode beds and cables are performed with backhoe and/or trenching machines. These facilities may vary in size from 10 feet to several hundred feet in length, 2 feet to 10 feet in width and are typically at pipeline depth (4' to 6'). Excavations for a deep well will require drilling equipment and will typically involve drilling an 8- to 12-inch diameter hole approximately 100 to 400 feet deep. The hole is then loaded with coke breeze and anodes, environmentally sealed, and connected to a rectifier. This work may take a few days to a month or more including soil stabilization and restoration, depending on the length or depth of the ground bed being installed.

Projects such as this should be entered into the Environmental Permits Database where permit requirements will be evaluated by both Environmental Construction Permitting and Environmental Health & Safety.

2.4 Repair of Exposed Pipe, Shallow Cover and Erosion Areas

Remediation of exposed or shallow pipeline facilities is typically required at waterbody crossings and is caused by changes to existing high banks as a result of erosion. Remedial measures taken will involve restoration of the high banks and the installation of an erosion control structure to minimize future erosion or scouring over the pipeline. Restoration of bank contours and/or replacement of cover over the pipeline are typically accomplished by the placement of stone riprap or the hand placing of bagged material. In some cases an erosion control structure consisting of a prefabricated grout mat or articulated concrete mat may be installed. The mat would be installed over the pipeline in the area between the high banks of the stream or river and extended slightly below the high water mark. The mat is usually extended just beyond the high banks where it can be "toed-in" to prevent undermining of the mat. When erosion control structures such as a grout mat are used, stream bank contours are typically prepared to accommodate the structure without a "narrowing effect" of the stream channel that would result in increased stream flow velocity, and subsequent erosion immediately downstream of the structure.

An additional method of remediation for shallow cover is pipeline lowering. This process can be completed without cutting the pipeline, and many times, can be performed while in-service. This method basically involves the excavation of a deeper ditch adjacent to the pipeline to which the pipeline is lowered in a very controlled manner.

Projects such as this should be entered into the Environmental Permits Database where permit requirements will be evaluated by both Environmental Construction Permitting and Environmental Health & Safety.

PAGE
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APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY

File # W 1479
Fee Paid $185-
Official Date of Receipt 5-24-11

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Part A - Applicant

Name STEPHEN H. BEMONT

Mailing Address 787 STAFFORD RD

MANSFIELD, CT Zip 06268

Telephone-Home 860-336-9911 Telephone-~~Business~~ Cell 860-682-2317

Title and Brief Description of Project

CONNECTOR BETWEEN HOUSE AND EXISTING GARAGE.
GARAGE WILL BE LIVING SPACE

Location of Project 787 STAFFORD RD. MANSFIELD

Intended Start Date 6-1-11

Part B - Property Owner (if applicant is the owner, just write "same")

Name SAME

Mailing Address

Zip

Telephone-Home Telephone-Business

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature Stephen H. Bemont date 5-20-11

Applicant's interest in the land: (if other than owner)

Part C - Project Description (attach extra pages, if necessary)

1) Describe in detail the proposed activity here or on an attached page. (**See guidelines at end of application – page 6.**)
Please include a description of all activity or construction or disturbance:

a) ***in*** the wetland/watercourse

b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

CREATE A CONNECTOR BETWEEN EXISTING HOUSE AND GARAGE WHICH WILL HAVE EITHER PIERS FOR A FOUNDATION, OR FROST WALLS AND POURED FLOOR FOR THE 11'X 14' STRUCTURE
STRUCTURE WILL CONTAIN A NEW FULL BATH TO REPLACE EXISTING FULL BATH IN HOUSE.
EXISTING GARAGE WILL BE CONVERTED TO LIVING AREA.
A NEW GARAGE WILL BE CONSTRUCTED SOUTH EAST OF THE EXISTING GARAGE. AN AREA TO SUPPORT THE 16'X 24' STRUCTURE WILL BE CLEARED OF BRUSH, LEVELED AND 3/4" CRUSHED STONE WILL BE SPREAD FOR THIS WOODEN FLOORED BUILDING.

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):

a) ***in*** the wetland/watercourse

b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

b.) CONNECTOR IS 11'X 14' OR 154 sq' WILL MOST LIKELY BE PLACED ON PIERS SO MINIMAL FILL WILL BE REMOVED.
NEW GARAGE WILL BE ON CRUSHED STONE ON LEVELED LAND = NO GROUND REMOVAL.

3) Describe the type of materials you are using for the project: CONCRETE / WOOD

a) include ***type*** of material used as fill or to be excavated TOP SOIL / GRAVEL

b) include ***volume*** of material to be filled or excavated CONCRETE

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

ALL CONSTRUCTION IS DOWN HILL AND AWAY FROM EXISTING BROOK AS PER GRANT MEITZLER NO SILT FENCE OR HAY BALES REQUIRED

Part D - Site Description

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

FLAT – VERY WELL DRAINED – SLOPED AWAY FROM BROOK
ALL GRAVEL + SAND – See Recent REPORT HEALTH DEPT REPORT 5-12-11 BY G. HAVENS

Part E - Alternatives

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

NONE

Part F - Map/Site Plan (all applications)

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision 5-2-11

3) Zone Classification RESIDENTIAL

4) Is your property in a flood zone? _____ Yes __X__ No _____ Don't Know

Part G - Major Applications Requiring Full Review and a Public Hearing

See Section 6 of the Mansfield Regulations for additional requirements.

Part H - Notice to Abutting Property Owners

1) List the names and addresses of abutting property owners

Name	Address
WILLIAM GLODE	777 STAFFORD RD STORRS / MANSFIELD
CURT HIRSCH	795 STAFFORD RD STORRS / MANSFIELD

2) **Written Notice to Abutters** . You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

Part I - Additional Notices, if necessary

1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield--sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed.

2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to

the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes_X_No___Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes _X_ No ____ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes _X_ No ____Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___$1,000. ___ $750. ___$500. ___$250. _✓_ $125. ____$100. ___$50. ___$25.

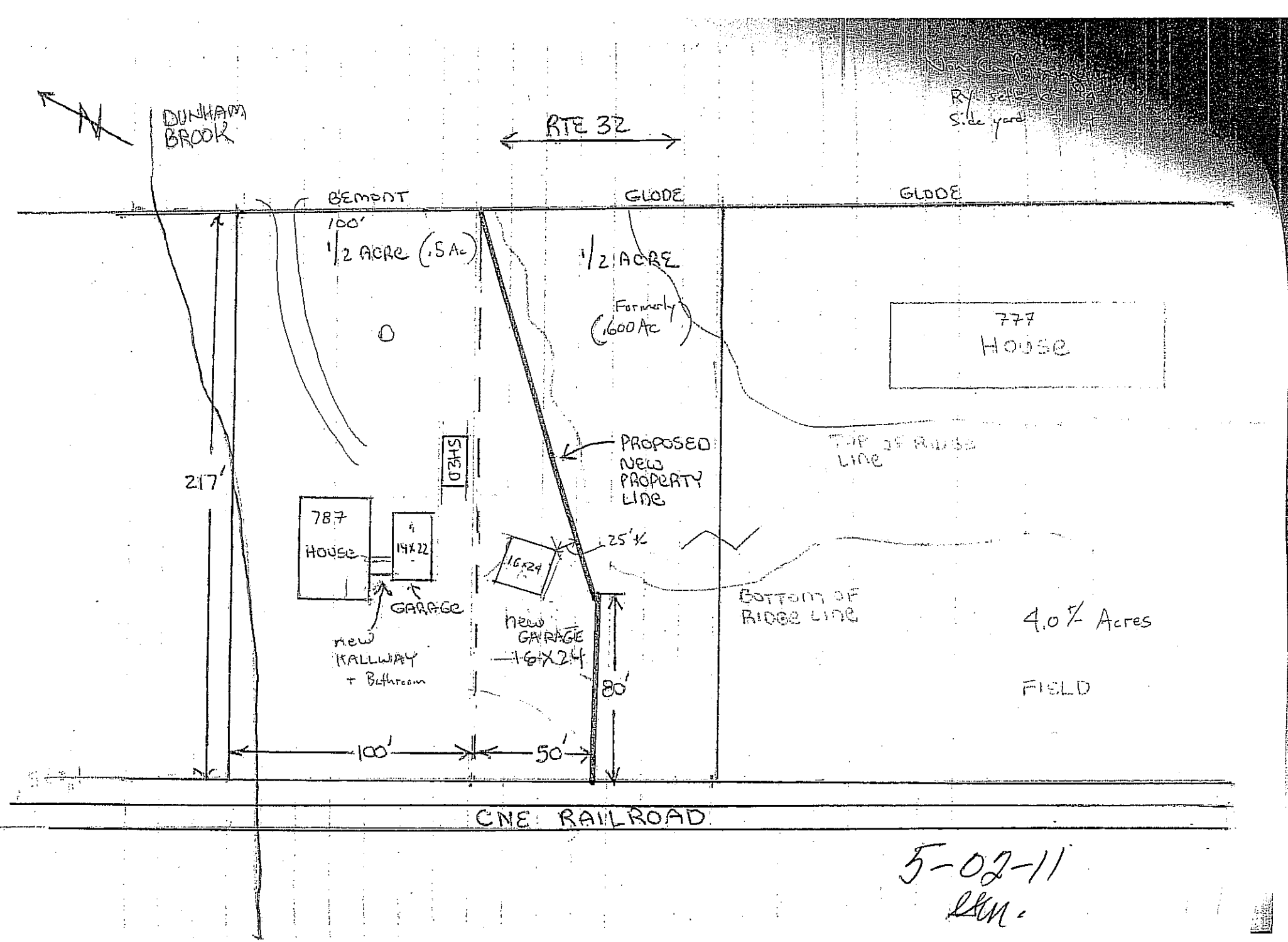
_✓_ $60 State DEP Fee

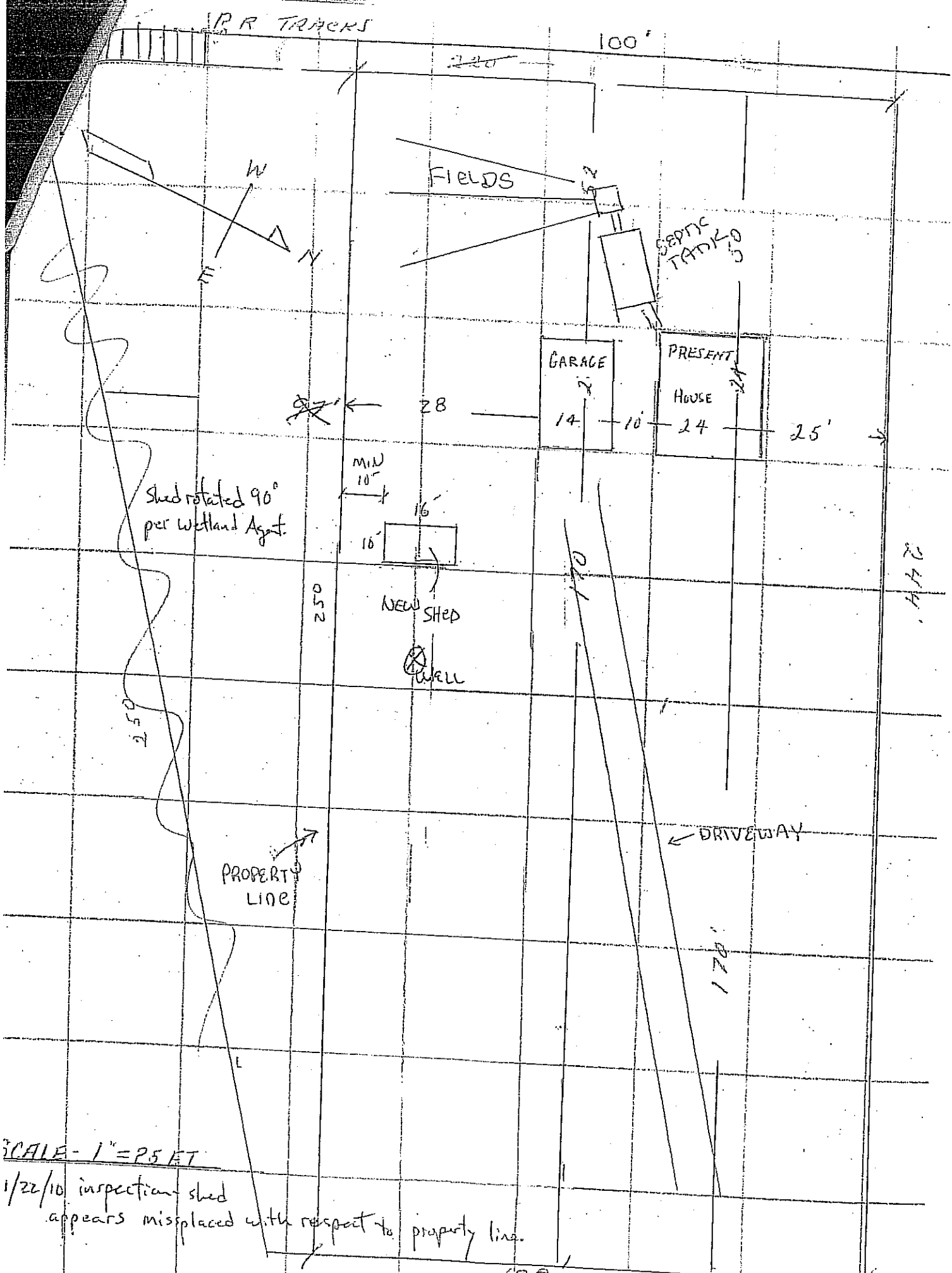
Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.

Scott H. Belmont — 5.20.11

Applicant's Signature — Date


DUNHAM BROOK
RTE 32
BEMONT
GLODE
GLODE
100'
1/2 ACRE (.5Ac)
1/2 ACRE
Formerly (.600Ac)
777 HOUSE
PROPOSED NEW PROPERTY LINE
SHED
217'
787 HOUSE
14X22
GARAGE
new HALLWAY + Bathroom
16X24
new GARAGE 16X24
25'±
80'
BOTTOM OF RIDGE LINE
4.0± Acres
FIELD
100'
50'
CNE RAILROAD
5-02-11
ekm.



SCALE - 1" = 25 FT

1/22/10 inspection shed appears misplaced with respect to property line.

APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY
File # 1480
W 1480
Fee Paid 185.
Official Date of Receipt 6.02.11

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Part A - Applicant

Name William St. Martin

Mailing Address 124 Meadowbrook Ln

Mansfield, CT Zip 06250

Telephone-Home 860 634-3521 Telephone-Business 860 377-9739

Title and Brief Description of Project
Proposed House Site: Single family dwelling with on site septic & well

Location of Project Rt 195 Mansfield, CT 06250

Intended Start Date August 1, 2011

Part B - Property Owner (if applicant is the owner, just write "same")

Name Barry Burnham & Dru Burnham

Mailing Address 78 Atwoodville Rd

Mansfield, CT Zip 06250

Telephone-Home 860 429-2432 Telephone-Business

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature Barry A. Burnham Dru Burnham date 5-25-11

Applicant's interest in the land: (if other than owner)

Part C - Project Description (attach extra pages, if necessary)

1) Describe in detail the proposed activity here or on an attached page. **(See guidelines at end of application – page 6.)**
Please include a description of all activity or construction or disturbance:

a) ***in*** the wetland/watercourse

b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is ***off*** your property

Single family Construction, with onsite Septic, well

A proposed 2 bedroom house to be built into the hill (berm style). Disturbance will be kept to a Minimum to preserve the quality of the existing conditions.

Equipment to be used:
Excavator
Bob Cat
Bull dozer

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):

a) ***in*** the wetland/watercourse

b) ***in*** the area ***adjacent*** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

Adjacent to wetlands Approx. 1400 Cyds of onsite material Cut to a fill

3) Describe the type of materials you are using for the project: existing gravel, Process, & 1" Stone

a) include ***type*** of material used as fill or to be excavated existing gravel

b) include ***volume*** of material to be filled or excavated Approx. 1400 Cyds

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

Silt fence to be installed as per Plan

Part D - Site Description

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

All of the Above

Part E - Alternatives

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

After much consideration we feel our proposed plan has the least impact on the property

Part F - Map/Site Plan (all applications)

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision 5/11/11

3) Zone Classification RAR-90

4) Is your property in a flood zone? _____Yes __X__No _____ Don't Know

Part G - Major Applications Requiring Full Review and a Public Hearing

See Section 6 of the Mansfield Regulations for additional requirements.

Part H - Notice to Abutting Property Owners

1) List the names and addresses of abutting property owners

Name	Address
Katherine Holt	563 Storrs Rd, P.O. Box 163 Mansfield, CT 06250
Vaughn A & Sharon Winkler	619 Storrs Rd Mansfield, CT 06250

2) **Written Notice to Abutters** . You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. ***Postal receipts of your notice to abutters must accompany your application.*** (This is not needed for exemptions).

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2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to

the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site?___Yes___No___Don't Know

2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality?____ Yes ____No ____ Don't Know

3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality?____ Yes ____No ____Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)*

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___$1,000. ___ $750. ___$500. ___$250. ___$125. ____$100. ___$50. ___$25.

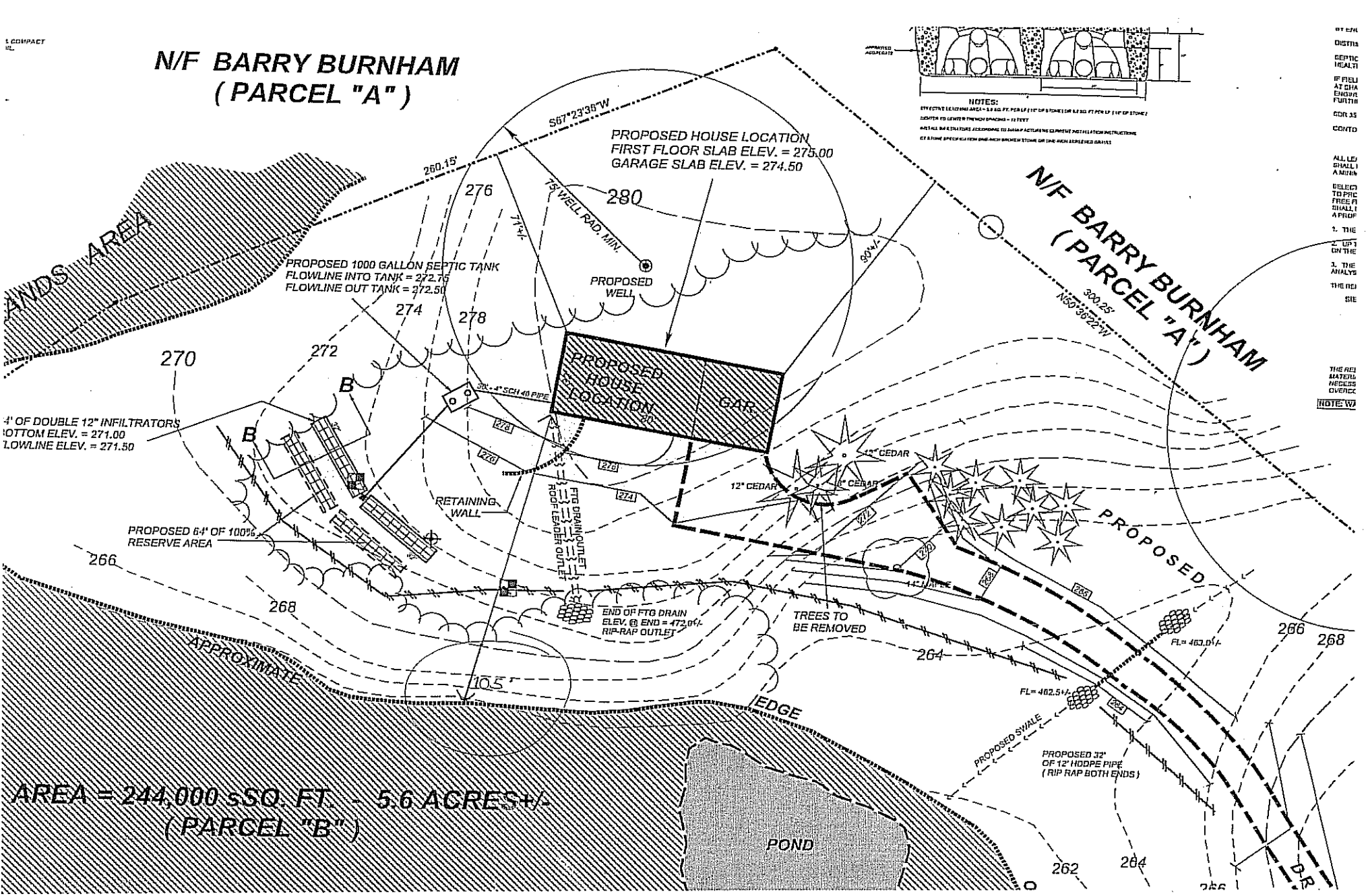
___ $60 State DEP Fee

Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.

_____ _____

Applicant's Signature Date

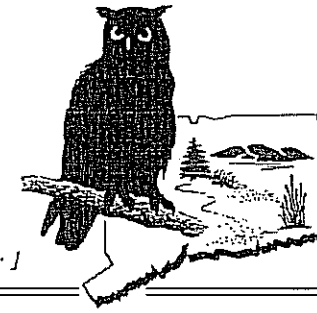

N/F BARRY BURNHAM
(PARCEL "A")
S67°23'38"W
260.15'
PROPOSED HOUSE LOCATION
FIRST FLOOR SLAB ELEV. = 275.00
GARAGE SLAB ELEV. = 274.50
75' WELL RAD. MIN.
71'+/-
80'+/-
PROPOSED WELL
PROPOSED 1000 GALLON SEPTIC TANK
FLOWLINE INTO TANK = 272.75
FLOWLINE OUT TANK = 272.50
276
280
274
278
270
272
B
PROPOSED HOUSE LOCATION
GAR.
20'-4" SCH 40 PIPE
4' OF DOUBLE 12" INFILTRATORS
BOTTOM ELEV. = 271.00
FLOWLINE ELEV. = 271.50
RETAINING WALL
FTG DRAIN OUTLET
ROOF LEADER OUTLET
12" CEDAR
PROPOSED 6'-4' OF 100% RESERVE AREA
266
268
END OF FTG DRAIN
ELEV. @ END = 472.0+/-
RIP-RAP OUTLET
TREES TO BE REMOVED
PROPOSED
264
FL= 463.0+/-
FL= 462.5+/-
APPROXIMATE
EDGE
POND
PROPOSED SWALE
PROPOSED 32'
OF 12" HDPE PIPE
(RIP RAP BOTH ENDS)
262
D/R
AREA = 244,000 ±SQ. FT. - 5.6 ACRES+/-
(PARCEL "B")
N/F BARRY BURNHAM
(PARCEL "A")
300.25'
N50°36'22"W
NOTES:

PAGE
BREAK

THE HABITAT

A newsletter of the Connecticut Association of Conservation and Inland Wetlands Commissions, Inc.

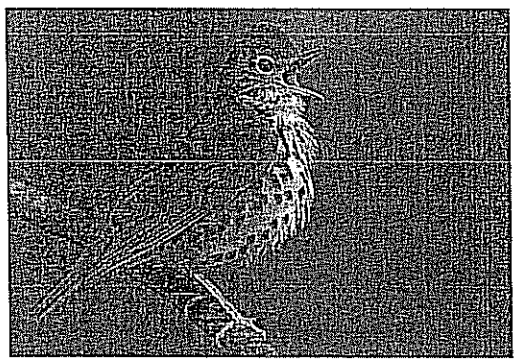
SPRING 2011 *volume 23 number 1*



Habitat Conservation Begins at the Municipal Level

by Milan G. Bull

Spring is in full bloom, Trillium and Blood Root add color to the forest floor, and the beautiful, flute-like song of the Wood Thrush rings through the woods like a hymn of praise.



Brown Trasher
Photo Credit: Paul Fusco, CT DEP Photographer and Editor, Connecticut Wildlife

It all looks so perfect, but is it? With nearly 50% of our birds in decline, it pays for us to take a closer look at exactly how efficient our protected lands are at conserving birds and their habitats.

We now know, for example, that some forest birds, like the Wood Thrush, require hundreds of acres of unfragmented forest in order to reproduce productively. In other words, the thrush that nests in your town park cannot fledge enough young each year to offset the natural mortality of the species due to elevated numbers of raccoons, housecats and other predators that like to associate with people and their neighborhoods. Therefore, as we continue to sprawl our developments through the forest, many of our birds decline. Case in point – have you seen many Ruffed Grouse around lately?

The key to habitat protection begins at home, at the municipal level. All present and future protected land, whether large acreages or small, are in someone's municipality and that is exactly where our planning and acquisition effort need to be focused.

Currently, much of land acquisition, at both the state and municipal level is a reactive process. More often than not, only when a property is offered up for sale is it considered by the town or the state for acquisition. This shortsighted approach attempts to squeeze habitat protection into land that just happens to be available for sale. Not every open space acquisition provides suitable habitat protection for many of our declining native bird species. More often, wildlife habitat is just one item on a long list of criteria favoring acquisition that includes horseback riding, camping, dog walking, ball fields, and other forms of public recreation. These are sometimes, but not always, compatible with habitat protection. There is some concern that biodiversity declines as public recreation increases on protected open spaces. The Trout Brook Valley (TBV) acquisition in Easton and Weston may serve as an example. This 700 plus acre preserve was purchased by the State of Connecticut, The Nature

conservation, continued, page 13

"Conservation Commissions and Town Planners would best serve the conservation community and the public by working first to identify and prioritize important habitat areas for protection, then for compatible uses."

Inside

CACIWC
Board of Directors

The Habitat is the newsletter of the Connecticut Association of Conservation and Inland Wetlands Commissions (CACIWC). Materials from *The Habitat* may be reprinted with credit given. The content of *The Habitat* is solely the responsibility of CACIWC and is not influenced by sponsors or advertisers.

Editor: Tom ODell
Associate Editor: Ann Letendre

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www.caciwc.org

CACWIC News Briefings

With this issue of *The Habitat*, the CACIWC Board of Directors is introducing a new column, entitled *CACIWC NEWS BRIEFINGS*, designed to provide conservation and wetlands commissioners, agents, directors and other readers with highlights of recent decisions and other news from our board and committee meetings. We hope that you will find this column informative. Please do not hesitate to contact us via email at board@caciwc.org if you have any questions or comments on these items.
Thank you - Alan J. Siniscalchi, President

1. The CACIWC Board of Directors is very pleased to invite you to our **34th Annual Meeting and Environmental Conference** now scheduled for Saturday, November 12, 2011 at MountainRidge in Wallingford, CT. The Annual Meeting Committee is already working to recruit another series of informative speakers and workshop leaders. Watch for additional news in the next issue of *The Habitat* and on our website: www.caciwc.org.

2. To ensure that we are providing topics of interest to our members, the Board is encouraging readers to submit **ideas for workshop topics, speakers, and displays** to us at: AnnualMtg@caciwc.org. Please let us know of your suggestions!

3. The Annual Meeting Committee is currently evaluating **registration fees** for our 2011 Meeting. The Committee plans to offer reduced registration fee to members from town commissions who are current with their membership dues. (Please see the list of current member commissions in this issue.) It's not too late to pay your 2010-2011 dues!

4. **Membership dues** are an essential part of our operating budget. They support various CACIWC programs including our Annual Meeting, educational materials, and *The Habitat*. You will be receiving a reminder and renewal form next month for the 2011-2012 membership year, which begins on July 1, 2011. Additional information can be found on our website: www.caciwc.org.

5. Would you like to serve on the CACIWC Board of Directors? A full board strengthens our ability to represent the needs and concerns of our member towns and commissions. The CACIWC board is comprised of four officers, and both a regular and alternate county representative. **Board vacancies** have occurred or are anticipated in all eight counties. Our bylaws specify that any past or present member of Connecticut conservation or inland wetlands commissions or their agent are eligible serve. Please submit your name to be considered for nomination at: board@caciwc.org Let us know if you currently do not have time to serve on the board, but wish to volunteer in support of our many administrative, education, and outreach activities.

Thank you for your interest in CACIWC!

2010-2011 Membership Is Your Commission Here?

Andover	CC		Groton	CC		Ridgefield	Z+IW	
Ashford	IW		Groton	IW		Ridgefield	CC	
Ashford	CC		Haddam	CC		Roxbury	IW	
Avon	CC		Haddam	IW		Roxbury	CC	
Avon	IW		Hamden	CC		Salem	CC+IW	(SUS)
Beacon Falls	CC		Hamden	IW		Shelton	CC	
Beacon Falls	IW		Hampton	CC		Shelton	IW	
Bethany	CC	(SUS)	Hampton	IW	(SUS)	Sherman	CC	
Bethany	IW	(SUS)	Harwinton	IW		Sherman	IW	
Bethel	IW		Hebron	CC		Simsbury	CC+IW	
Bolton	IW		Kent	CC		South Windsor	CC+IW	
Bolton	CC		Kent	IW		Southbury	IW	
Branford	CC		Killingworth	CC		Southington	CC+IW	(SUS)
Bristol	CC+IW		Lebanon	CC		Sprague	CC+IW	(SUS)
Brookfield	CC		Lebanon	IW		Sterling	IW	
Brookfield	IW		Ledyard	IW		Stonington	IW	
Burlington	IW		Lisbon	CC		Stonington	CC	(SUS)
Canterbury	IW		Litchfield	IW		Stratford	CC	
Canton	IW		Lyme	CC+IW		Stratford	IW	
Chaplin	IW		Madison	IW		Suffield	CC	
Chaplin	CC		Manchester	CC		Thomaston	IW	
Cheshire	CC		Manchester	Z+IW		Thompson	IW	
Cheshire	IW		Mansfield	Z+IW		Thompson	CC	
Chester	IW		Marlborough	CC		Tolland	IW	
Clinton	CC+IW		Meriden	CC		Tolland	CC	
Coventry	CC		Meriden	IW		Trumbull	IW	
Coventry	IW		Middlebury	CC		Trumbull	CC	
Cromwell	IW		Middlefield	IW		Vernon	CC	
Cromwell	CC		Milford	IW		Vernon	IW	
Darien	CC+IW	(SUS)	Milford	CC		Wallingford	CC	
Deep River	CC+IW		Montville	IW		Wallingford	IW	
Durham	CC	(SUS)	New Canaan	Z+IW		Warren	CC+IW	(SUS)
Durham	IW		New Canaan	CC		Washington	IW	
East Haddam	IW		New Hartford	CC		Waterford	CC	(SUS)
East Haddam	CC		New Hartford	IW		Watertown	CC+IW	
East Hampton	IW		New London	CC+IW		Westbrook	CC	(SUS)
East Hampton	CC		New Milford	CC		Westbrook	IW	
East Lyme	CC		New Milford	IW		Weston	CC	
East Lyme	IW		Norfolk	CC		Westport	CC+IW	
East Windsor	CC+IW		North Haven	IW		Wethersfield	IW	
Eastford	CC		North Stonington	CC		Willington	CC	
Eastford	IW		North Stonington	IW		Willington	IW	
Easton	CC+IW		Norwalk	IW	(SUS)	Wilton	IW	
Ellington	IW		Old Lyme	IW		Wilton	CC	
Ellington	CC		Old Saybrook	CC	(SUS)	Winchester	CC	
Enfield	CC		Old Saybrook	IW	(SUS)	Winchester	IW	
Enfield	IW		Oxford	CC+IW	(SUS)	Windsor	CC	
Farmington	CC		Plainfield	IW		Windsor	IW	
Farmington	Z+IW		Plainfield	CC		Windsor Locks	IW	
Glastonbury	CC+IW	(SUS)	Plainville	IW		Windsor Locks	CC	
Goshen	CC		Plainville	CC		Woodbridge	IW	
Goshen	IW		Pomfret	CC		Woodbridge	CC	
Granby	CC		Pomfret	IW		Woodbury	CC	(SUS)
Granby	IW		Prospect	CC	(SUS)	Woodbury	IW	(SUS)
Greenwich	IW	(SUS)	Prospect	IW	(SUS)			
Greenwich	CC	(SUS)	Redding	CC+IW	(SUS)			

WE APPRECIATE YOUR SUPPORT! THANK YOU!

As of our March 15, 2011 records, the Town commissions above have supported CACIWC through membership dues for the 2010-2011 fiscal year (July 1, 2010 – June 30, 20110). If your Commission is not on the list please encourage your commission to join. For a membership form go to caciwc.org, About CACIWC, scroll to membership and down load form; or email todell@snet.net. If we are in error we apologize and would appreciate knowing. Member Commissions receive a copy of *The Habitat* for each commissioner if dues have been paid. Please consider joining as a sustaining member.

CC = Conservation Comm. CC+IW = Combined Comm. IW = Inland Wetlands Comm. Z+ IW = Zoning/ Inland Wetlands

Journey to the Legal Horizon *by Janet P. Brooks*

Forestry and the Wetlands Act

Forestry is another one of the activities that is, at least in part, covered by the exemption provisions of the wetlands act. I've written a number of articles on the farming exemption in this column. Forestry is a form of agriculture, as far the legislature is concerned. The statutory definition of "agriculture" and "farming," found in CT General Statutes § 1-1(q), "shall include . . . forestry . . ." *If your agency has adopted the 2006 DEP Model Regulations, you will find § 1-1(q) as an appendix to your regulations.* If a regulatory scheme hasn't established a definition of "agriculture," then the general definition will apply. The wetlands act hasn't, so § 1-1(q) is the place to look. End of discussion. Your agency cannot exclude forestry from the definition of agriculture.

Again, as with farming proposals, the wetlands agency determines whether the activity is exempt. Maybe your agency calls it a "jurisdictional ruling" or a "determination of exemption." Hopefully, the agency is not requiring the use of a permit application. That will confuse the agency members into thinking that they consider alternatives and revise the proposal. This is an up-or-down decision: it falls within the exemption or it does not. The challenging part, as with all agricultural activities, is determining whether *all* of the activities associated with the forestry operation are exempt, or if some are not included within the exemption provision, and thus still require a permit.

Section 22a-40 (a) in the wetlands act sets forth the exemption provision, also known as the activities permitted as of right. That means, if the activity falls within the activities listed, no wetlands permit is necessary. That is because wetlands agencies have authority over "regulated activities" which specifically exclude the activities listed in § 22a-40 (a). Either an activity is "regulated," and thus requires a permit, or it is exempt, and does not.

If the "activity" consists of many individual activities, you evaluate each activity separately. For example, let's say that the proposal includes (1) planting of blueberry bushes and fruit trees, (2) construction of a barn, (3) road construction directly related to getting the fruit to and from the barn, and (4)construction of a small dwelling for the farm family to live in. You are not free to determine that the entire proposal requires a permit because the construction of the house does not fall within the agricultural exemption.

DEP has created a resource that is very helpful to agencies and foresters conducting timber harvests: *Best Management Practices, 2007 Connecticut Field Guide.* This can be found on the DEP website at: www.ct.gov/dep/lib/dep/forestry/best_management_practices/best_practicesmanual.pdf. The resource offers guidance, not regulations. Its stated objective is "to have an economically viable timber harvest that protects water quality and site productivity." The BMPs publication does not establish one uniform approach to conducting a timber harvest. Foresters who rely on that document to "authorize" their activities are mistaken. The wetlands agency has the right to determine whether activities fall within the exemption. On the other hand, agencies cannot use the BMPs manual to create a list of conditions that a forester must comply with, if the operations fall within the exemption.

Applying the exemption provision to a forestry operation, just like a traditional farming operation, involves a 2-step process. Step (1): Does the activity fall within the first sentence of § 22a-40(a)(1): "Grazing, farming, nurseries, gardening and harvesting of crops and farm ponds of three acres or less . . ." The answer is yes, because as stated above, agriculture is defined to include forestry. Step (2): Does the second sentence of § 22a-40(a)(1) cause the activity to be removed from the exemption provision and brought back into the sphere of regulated activity? The second sentence reads: *"The provisions of this subdivision shall not be construed to include* ***road construction*** *or the erection of buildings* ***not directly related to the farming operation,*** *relocation of watercourses with continual flow,*

forestry, continued next page

forestry, continued from page 4

***filling** or reclamation of wetlands or watercourses with continual flow, clear cutting of timber except for the expansion of agricultural crop land, the mining of top soil, peat, sand, gravel or similar material from wetlands or watercourses for the purposes of sale."*

(I'll explain in this article why I put certain words in boldface print.)

One activity commonly part of a timber harvest operation that is not common to a farming proposal is the use of temporary portable bridges, skid roads, "corduroy," etc. I hesitate to use the word "construction." The temporary access way is kept in place just as long as needed for the timber harvest. The felling of the trees is surely included in the meaning of "forestry." What about the ability to remove the felled trees from the property and sell the product? Isn't that integral to the forestry operation? DEP has gathered information anecdotally at two wetlands training conferences almost a decade apart, yielding the same results: *half the wetlands agencies determine the temporary road measures require a permit and half do not.*

For the agencies that determine the temporary road access activities do require a permit, possibly they rely on the word "fill" in the statute (see the boldfaced word "fill" in the statute above) to support their decision. They conclude that the placing of temporary portable bridges, "corduroy" and the like, despite being temporary and being totally removable, are "fill." Other agencies may look to the phrase "road construction . . .not directly related to the farming operation" (see the boldfaced word "fill" in the statute above). Here the reasoning gets murky. Some agencies would allow road construction if no materials were used in the road construction, because the materials = fill, which is referred to later in that same sentence (see above). I have heard Steve Tessitore, municipal liaison at DEP, espouse this position on a number of occasions. His position: if someone can use floodplain soils to drive a vehicle across, that road construction is allowed. However, to me, use of floodplain soils is not the construction of a road. The use of the word "construction" implies the use of materials. Steve and I agree to disagree on this point. With Steve's final thought -- that's what the courts are for. On that point, we agree.

This spring the state Supreme Court is scheduled to hear oral argument in a farming exemption case. The issue is whether, as a matter of law, the construction of a farm road that will use fill in making the road, is an exempt activity. It may not answer the question that arises in a timber harvest context, but it will likely shed some light on future exemption issues.

DEP defers to municipal agencies to determine whether these temporary roads are within the farming exemption. With 169 municipalities and the 50-50 split that DEP has found to exist regarding municipal determinations on temporary roads for timber harvests, there is too much variation. I've concluded in a previous article on the farming exemption with the notion that the wetlands act should be amended with clear language establishing the procedure and the activities that are exempt. An exemption provision that allows such seemingly contradictory results from town to town is irrational and not in the public interest. I continue to believe that an amended statute would benefit the agencies, the farming and timber producers and the public.

Janet P. Brooks practices law in East Berlin. You can read her blog at: www.ctwetlandslaw.com.

2011 Is the Year of the Turtle

DEP to Increase Awareness of Turtle Conservation in Connecticut

Turtles are in trouble. Because of the issues surrounding turtles and the need to raise awareness, Partners in Amphibian and Reptile Conservation (PARC), of which the Connecticut Department of Environmental Protection (DEP) has been a member since 1999, has proclaimed 2011 as the Year of the Turtle. Through outreach efforts to researchers, educators, natural resource managers, and the public, the "Year of the Turtle" campaign aims to increase U.S. involvement in local-to-national turtle issues. State and federal wildlife agencies, along with several conservation and turtle organizations, are partnering with PARC to help spread the word about the plight of turtles.

"The DEP Wildlife Division also has made a commitment to inform Connecticut residents about the state's native turtles through monthly press releases, articles and species profiles in issues of our bimonthly magazine, Connecticut Wildlife, a children's art contest, and related events," said Rick Jacobson, Director of the DEP Wildlife Division.

Currently, 328 species of turtles are known worldwide -- 57 (20% of the world's turtle species) are found in the United States and Canada. The United States has more native turtle species than any other country; it is a turtle biodiversity hotspot. Twelve turtle species (including four sea turtles) occur in Connecticut. Seven of these turtles are currently on the state's List of Endangered, Threatened and Special Concern Species.

Connecticut's Native Turtle Species

Bog Turtle (*endangered*)
Common Musk Turtle
Eastern Box Turtle (*special concern*)
Common Snapping Turtle
Wood Turtle (*special concern*)
Painted Turtle
Atlantic Green Sea Turtle (*threatened*)
Spotted Turtle
Atlantic Ridley Sea Turtle (*endangered*)
Northern Diamondback Terrapin
Leatherback Sea Turtle (*endangered*)
Loggerhead Sea Turtle (*threatened*)

Turtles (which include tortoises) occur in fresh water, salt water, and on land. Their shells make them some of the most distinctive animals on Earth. Turtles are typically slow creatures. This isn't limited to their speed; they also grow slowly. It may take 10-15 years before individuals of some species can reproduce. A thriving turtle population relies on turtles surviving many years, if not decades. But if a population loses adults and begins to decline, a slow recovery can be expected. Because of these "slow" characteristics, the primary threats to turtles are intensified.

Threats to U.S. Turtles

Humans cause the largest harm to turtle populations, but we have the power to make positive changes toward turtle survival. The largest threats to turtle populations include:

- Habitat loss and degradation;
- Overharvest of wild turtles for food, traditional medicines, and pets;
- Mortality from roads, agricultural machinery, fishing by catch, and predators;
- Exotic invasive species and diseases;
- Loss of unique genetic makeup due to hybridization; and
- Climate change.

Conservation Action Can Help

Careful stewardship and conservation action can successfully slow or reduce the declining trend of turtles. Because turtles can respond well to population management and conservation, it is not too late to preserve our turtle heritage. Three basic approaches for species conservation include:

- Protecting rare species and their habitats;
- Managing common turtle species and their habitats so that they remain common; and
- Managing crisis situations, such as species in peril from acute hazards, such as oil spills.

Important progress is already being made in the United States. The freshwater turtle science and conservation community, in conjunction with state and federal wildlife agencies, recently developed

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turtle, continued from page 6

recommendations for managing freshwater and land turtle populations. These recommendations include better monitoring and tracking of turtle harvests, as well as the need for more long-term population studies on wild turtles.

Look for more information to come about turtles and turtle conservation in Connecticut. One of the best ways to learn more about turtles during the "Year of the Turtle" is to subscribe to the DEP's Connecticut Wildlife magazine (www.ct.gov/dep/wildlifemagazine). You also can visit PARC's Web site at www.yearoftheturtle.org, as well as the Year of the Turtle page on the DEP's Web site (www.ct.gov/dep/yearofturtle).

What Is PARC?

Partners in Amphibian and Reptile Conservation (PARC) is an inclusive partnership dedicated to the conservation of the herpetofauna--reptiles and amphibians--and their habitats. Membership comes from all walks of life and includes individuals from state and federal agencies, conservation organizations, museums, pet trade industry, nature centers, zoos, energy industry, universities, herpetological organizations, research laboratories, forest industries, and environmental consultants. The diversity of its membership makes PARC the most comprehensive conservation effort ever undertaken for amphibians and reptiles. PARC is habitat-focused, and centers on endangered and threatened species and keeping common native species common.

Editor's Note: Part I of this article appeared in the 2010 Winter issue. It summarized the legal basis for a conservation commission's role in a POCD. Part II describes the elements essential to an open space plan and critical for town approval.

Ensuring That Your Open Space Plan is an Important Part of the Plan of Conservation and Development: Part II

by Tom ODell and Ann Letendre

INTRODUCTION

If your updated Open Space Plan has been reviewed and approved, then the pathway to inclusion in the Plan of Conservation and Development (POCD) has been smoothed. A key message here to Conservation Commissions who will be involved in this process in the near future is to start early and plan ahead. Give yourself at least a year to prepare an approved, updated Open Space Plan before your POCD process begins.

Part II - IS YOUR OPEN SPACE PLAN READY FOR THE POCD?

An Open Space Plan generally provides recommendations for land to be used for conservation purposes. It also designates areas for preservation as open space. A POCD may include these recommendations provided such designations are approved by a majority vote of the legislative body of the municipality. If you are creating an Open Space Plan for the first time (or revising the plan), you will need to obtain or update the following elements that are essential to the plan, and critical for town approval.

"Is your Plan consistent with resident priorities for open space protection? Have priorities changed since the last POCD? If you do not know, find out..."

Natural Resource Inventory (NRI)

Conducting and maintaining an NRI is a critical step in ensuring that your Open Space Plan is relevant and meaningful to the community. The NRI is essential to making recommendations on the utilization of land areas. There are excellent web sites containing interactive GIS maps of your town that can help. (See "Resources" below). A good place to start is the UCONN Cooperative Extension's NEMO Program (Tools and Resources). The NEMO Community Resources Inventory (CRI) is made up of three different resource inventories (natural, cultural and economic), and will enable you to develop a CRI for your town. More recent GIS-based NRI on-line mapping, also available for your town, includes information on forest fragmentation, riparian buffers and grass lands. In addition, Connecticut Environmental Conditions On-Line provides maps and geospatial planning for management, planning, education and research.

Identify and Map Critical Natural Resources and Habitats

Review current information on statewide wildlife and endangered species habitats to see if your Open Space Plan should be updated to include key wildlife and endangered species habitats. A good start is Connecticut DEP's recent Comprehensive Wildlife Strategy, and Endangered and Threatened Species web site. Milan Bull's article on Page 1, "Habitat Conservation Begins at the Municipal Level," provides excellent advice; "...identify and prioritize important habitat areas, first for protection, then for compatible uses..." (See "Resources" below).

Identify Unprotected Open Space

Make sure your "index" of unprotected open space is updated to the time period of each POCD revision. Review municipal planning and assessor's maps and conduct on-site review to identify parcels that have not been developed. You may also need to determine if an open parcel is protected by conservation restrictions or some other legal document that requires a land area to remain in its natural state. Assessor's records of Public Act 490 lands (forestry, agriculture and open space) should also be reviewed to see if there has been any recent change.

Current Community Open Space Priorities

Is your Plan consistent with resident priorities for open space protection? Have priorities changed since the last POCD? If you do not know, find out

POCD, continued next page

POCD, continued from page 8
by conducting workshops or surveys to determine current community priorities for protecting and preserving open space. If available, utilize updated GIS maps with town roads and land parcels to show development, protected open space and unprotected open space. Engage natural resource professionals to assist with workshops. State DEP, UConn Cooperative Extension (Forestry, NEMO and CLEAR), and Regional Planning Agencies are excellent resources.

Current Protection Mechanisms
Options that are available in your town to permanently protect open space should be identified in your Open Space Plan. There are a variety of protection mechanisms, some requiring funds for direct purchase such as municipal bonding and cost share with the *State's Open Space and Watershed Land Acquisition Grant Program*. Others require actions by the town planning and zoning agencies such as subdivision permanent open space set-asides and Purchase of Development Rights Programs that pay landowners for conservation easements/restrictions. Protection mechanisms should be described in your open space plan and, when appropriate, protection mechanisms recommended for specific open space parcels identified in the plan for acquisition.

Town Approval Process for Open Space Plan
Identify who needs to review and approve a new or revised Open Space Plan to make it an official town document. This process, if defined, can vary from town to town. Usually, the approval process starts with the Planning Commission, since Connecticut State Statutes, Section 8-24, require the Planning Commission to confirm that all proposed land acquisitions comply with the POCD.

Tom ODell is Chairman of the Westbrook Conservation Commission, and is currently on the Westbrook POCD Steering Committee; he is editor of The Habitat.

Ann Letendre served on the Vernon Conservation Commission and participated in the Vernon POCD process.

Resources for Open Space Plans and the POCD Process

Articles/Publications:
Jim Gibbons; "Putting Conservation into the Municipal Planning Process": *The Habitat*, Autumn 1995, Vol. IX No. 3:

Karl Wagener; "Greenway Law Puts New Tools into the Hands of Commissions": *The Habitat*, Autumn 1995, Vol. IX No. 3:

Michael A. Zizka: "What's Legally Required? A Guide to the Rules for making local land-use decisions in the State of Connecticut"; DEP Bulletin 39, 2004

Marjorie Shansky, Attorney; "The Conservation Commission: Your Town's Key to Natural Resource Protection": *The Habitat*, Spring 2005, Vol. XVII No. 2: http://caciwc.org/library/habitat/index.html

John Mullaney and Michael O'Leary; "Hebron's Coordinated Approach to Riparian Area Protection": *The Habitat*, Winter 2008, Vol. XX No. 1: http://caciwc.org/library/habitat/index.html

NEMO Program websites:
Tools and Resources: http://nemo.uconn.edu/tools.htm.

Community Resource Inventory: http://clear.uconn.edu/projects/cri/index.htm,

Forest, grasslands, buffers: http://clear.uconn.edu/projects/landscape/forestfrag/ and http://nemo.uconn.edu/tools/fotc/index.htm.

Ct Environmental Conditions: www.cteco.uconn.edu/

DEP sites:
Wildlife Strategy: www.ct.gov/dep/cwp/view.asp?a=2723&q=329520&depNav_GID=1719

Endangered Species: www.ct.gov/dep/nddbrequest.

Municipal Inland Wetlands Commissioners Training Program

State of Connecticut, Department of Environmental Protection

The State of Connecticut Inland Wetlands and Watercourses Act requires at least one member of a municipal inland wetlands agency, or staff of the agency, to complete this training program. In addition, this training program meets the agent training requirements pursuant to CT General Statute Section 22a-42a(c)(2). The Statute requires duly authorized wetland agents to complete the DEP's comprehensive training program before the above authority can be delegated to them by their inland wetlands agency. Agents who have completed all segments of a DEP Municipal Inland Wetland Commissioners Training Program offered annually since 1995 meet this requirement. Other agents must complete all segments of this or a future training program to meet this requirement.

Segment 1: A Primer for New Inland Wetlands Agency Members and Staff (March/April)
Segment 1 is designed for new agency members and staff. Participants will learn the fundamentals of the Connecticut Inland Wetlands and Watercourses Act. The segment will also include a presentation on map reading, and a brief summary of the functions and values of wetlands and watercourses with a focus on fisheries habitat and stream crossings. The Segment 1 face to face sessions were held in March and early April. However a new Segment 1 - Online Training Option will be available later this year that will allow you to receive the same curriculum and credit for this Segment. If you would like to complete Segment 1 online, go to http://vista-survey.com/survey/v2/survey2.dsb?ID=7097619499 and provide your contact information. You will be contacted when the online course is available. You may then choose to complete your registration for the same program fee, $65 per workshop session or free with DEP voucher.

Segment 2: A Legal, Administrative, and Resource Management Update (May/June)
Segment 2 is recommended for all agency members and staff. DEP representatives will provide a synopsis of the 2011 legislative session, including any amendments to the Inland Wetlands and Watercourses Act. The program will continue with representatives from the Office of the Attorney General presenting an examination of recent court cases. A number of issues associated with these cases will be discussed including, but not limited to, enforcement of the Inland Wetlands and Watercourses Act, agricultural issues, and the Upland Review Area. This portion of the program will conclude with an open question and answer session.

The second half of Segment 2 will focus on the subject of storm water management. Storm water results from rain or snowmelt that runs off surfaces such as rooftops, paved roads, or parking lots; or infiltrates into the ground. Along the way, the water may pick up and transport contaminants including motor oils, gasoline, antifreeze, brake dust, fertilizers, pesticides, and soil sediments. Storm water may result in significant pollution to surface water affecting aquatic life and recreational activities. Joseph Bushey, Assistant Professor at the University of Connecticut,

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Department of Civil & Environmental Engineering, will provide an overview of the storm water topic including a review of different contaminants.

Additionally, municipal land-use decisions, and the design and management of municipal facilities, especially storm water management systems, impact the quality and quantity of surface and ground waters. The U.S. Environmental Protection Agency (EPA) has mandated a number of permit programs to deal with storm water pollution, which are administered in Connecticut by the CT DEP. The DEP Storm Water Permitting and Enforcement Section will discuss these state permit programs, including the Small Municipal Separate Storm Sewer Systems (MS4) General Permit and the specific requirements.

Register for workshops:
http://continuingstudies.uconn.edu/professional/dep/wetlands.html#seg2

Segment 2: Locations
Saturday, May 21: 9am-4pm, Storrs, UConn
Thursday, May 26: 9am-4pm, Torrington, UConn
Saturday, June 4: 9am-4pm, Old Lyme, DEP Offices
Friday, June 10: 9am-4pm, Bridgeport, Housatonic Community College
Tuesday/Thursday, June 14 and 16; 6:30-9:30PM - Hartford, UConn Business School

Segment 3: Field Workshop (October-November)
Segment 3 is designed for municipal inland wetlands staff and experienced commission members. This all-day program will provide participants with an introduction to a selected topic, combining classroom instruction and practical experience, often in the field. Information on the special topic and registration for this segment will be available in September.

If you have program content questions, please contact Darcy Winther, Inland Water Resources Division, Bureau of Water Management, DEP, at 860.424.3063 or Darcy.Winther@ct.gov.

conservation, continued from page 1

Conservancy, the Town of Weston and the Aspetuck Land Trust. A large block of undeveloped forest and wetland, TBV was owned by a water utility company who strictly enforced a no-trespassing regulation. With little or no human activity for many decades, the forest became a Mecca for many species requiring low human impact, including forest dependant birds. After acquisition, and in response to constituents, Trout Brook Valley is now a maze of hiking, biking and horseback trails and is widely known and heavily used as a dog park. Unquestionably, there is still a wide variety of bird species as well as other wildlife that utilize TBV, but just as certainly, biodiversity and abundance has declined here. Increasing are those species that are well-adapted to suburbia, and although no comprehensive diversity and abundance surveys have been done on the site, observers have noted an understandable decline in other species that nest on or near the ground or are intolerant of proximate human activity. Although some protection is better than no protection, this has left many conservationists who signed petitions in favor of the acquisition scratching their heads.

Clearly, there is need, and indeed room to accommodate all stakeholders in the process of land protection, and this is best accomplished with foresight and planning. Conservation Commissions and Town Planners would best serve the conservation community and the public by working first to identify and prioritize important habitat areas for protection, then for compatible uses. With important habitats identified, trails and other recreational activities can be designed or avoided to reduce negative impacts on sensitive wildlife resources. Also important is the need for cooperative planning among town agencies, as critical habitats are often borderless and green infrastructure, the interconnected network of woodlands, wetlands, farmland and other natural areas often flow from one community to another.

Town planners and Conservation Commissions should assure that there is an up-to-date inventory of all land within their municipality, both public and private, that is suitable for conservation purposes and establishes a process for keeping that inventory current.

Bird and wildlife habitat, as well as size and proximity to similar adjacent properties, are important considerations in evaluating potential conservation acquisitions. Towns should establish a target for open space protection that is primarily for conservation and limits incompatible uses. Meetings between Conservation Commissions/Town Planners and local State Legislators are often helpful when planning conservation needs and objectives.

"Many land trusts and conservation agencies are skilled at land acquisition and conservation easements but need assistance with managing protected land in a way that benefits wildlife and ensures that the land continues to provide quality habitat."

Maintenance and management of protected habitats are often the next challenge faced by municipal as well as private land agencies. The Brown Thrasher and Blue-winged Warbler habitat you just worked so hard to protect will soon transform to mature forest if not managed. Many land trusts and conservation agencies are skilled at land acquisition and conservation easements, but need assistance with managing protected land in a way that benefits wildlife and ensures that the land continues to provide quality habitat. Fortunately, there are a number of resources available to assist the landowner with land and habitat management. These are available through private, state and Federal agencies.

The CT DEP offers a Landowner Incentive Program which offers technical advice and cost assistance to private landowners for habitat management practices: http://www.ct.gov/dep/cwp/view.asp?A=2723&Q=325734, and the U.S. Natural Resource Conservation Service provides help to conservation-minded landowners who want to develop and improve wildlife habitat on agricultural land, nonindustrial private forest land, and Tribal land: http://www.nrcs.usda.gov/programs/whip/. Management plans are useful to the government agencies providing assistance to the landowner and ensure that land management practices continue to benefit wildlife habitat.

The Connecticut Audubon Society offers science-based habitat restoration and management plans

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conservation, continued from page 13
through its conservation offices: http://0323048.netsolhost.com/WordPress/wp-content/uploads/2010/11/CAS-Conservation-Services-brochure-2011.pdf

Collaboration among public and private agencies, land trusts and conservation organizations has made great strides for land conservation over the last few decades, and regional initiatives in the Northeast, such as Wildlands and Woodlands (www.wildlandsandwoodlands.org), provide a vision for a future that supports both biodiversity and economic health for our forests.

A cohesive plan for land acquisition and protection at the local level that is proactive rather than reactive and considers the habitat needs of our declining bird populations is an essential asset for the community, enhances our natural resources and quality of life and will ensure that the song of the Wood Thrush will continue to reverberate throughout our forests.

Milan Bull is Senior Director of Science and Conservation, Connecticut Audubon Society and Vice-Chairman, Fairfield Conservation Commission.

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"Furthermore," Wagner said, "Data show that residents continue to buy air conditioners and refrigerators that are not ENERGY STAR efficient; this contributes to greater demand for electricity from seldom-used, highly-polluting power plants on the hottest summer days when air quality already is at its worst. So in 2010, we ended up with less air pollution on average but with more days when the air violated health standards – a paradox that can be explained partly by warming temperatures and partly by our continuing use of inefficient air conditioners and refrigerators."

The core of the report is a standardized set of 33 environmental indicators with which the Council tracks progress in air, water, land and wildlife. A few of those indicators measure human activities that are expected to affect the air, land and water of the future. "Most of those indicators are not encouraging," Wagner said. "Recycling appears to have stagnated, compliance with environmental regulations took a negative turn in 2010, bus ridership declined, and people's use of electricity at home went up for the first time in several years."

Wagner concluded by saying that "the state's future does not have to be bound by recent trends. The data from our report suggest ways to make the indicators jump toward the target, to get us to our goals in our lifetimes." Wagner mentioned four, which are described in a section of the report called "Routes to Progress:"

- Continuous public and private investment in the control of water pollution.
- A plan for conserving farmland, parks, forests, and greenways, which involves determining how much land has already been preserved.
- Incentives for growth and development in the right places, which should help create demand for commercial development of brownfields.
- More widespread use of more efficient refrigerators and air conditioners.

Environmental Quality in Connecticut can be viewed in its entirety on the Council's web site at www.ct.gov/ceq/AnnualReport.

Editor's Note: *The annual report, Environmental Quality in Connecticut, is a paperless web publication. This report marks the 40th anniversary of the CEQ's establishment. The CEQ is required by law to submit this comprehensive summary of the state's progress in protecting and improving the state's air, water, land and wildlife. The summary above is from CEQ's April 21, 2011 News Release.*

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"2010 Showed Us What Still Needs To Be Done"

Connecticut's environment changed very little in 2010, and that will be the story for years to come unless steps are taken to advance the state toward its goals for clean air, sewage-free rivers, and conservation of land. This is the central conclusion of the Council on Environmental Quality's annual report on the condition of the state's environment, which was recently submitted to Governor Dannel P. Malloy.

In its cover letter to Governor Malloy, the CEQ said that "For drinking water and wildlife, the lack of change is a good thing; in some other areas the constancy is not encouraging." The Council's report gives several examples of where environmental progress has been slow:

- Connecticut residents and businesses have made sizable investments in successful water pollution control projects over the past 40 years, but many miles of rivers and coast still receive raw or poorly-treated sewage and other pollutants.
- The deep waters of Long Island Sound that have low oxygen levels during the summer showed improvement in 2010, but this was preceded by five years of decline.
- Coastal beaches were closed slightly more often, and the cure – control of sewage overflows and polluted runoff – is not in the immediate future.
- Residents breathed unhealthful air on 29 days in 2010, the most since 2005, even as pollution levels improved on most other days to their best levels in decades.

Council Chair Barbara C. Wagner used the air quality data to illustrate the vexing challenges that Connecticut residents face even as they enjoy the benefits of past successes. "Connecticut residents generate less air pollution nearly every year, but the state constantly is battling the weather patterns and warmer temperatures that create unhealthful concentrations of pollution," Wagner said.

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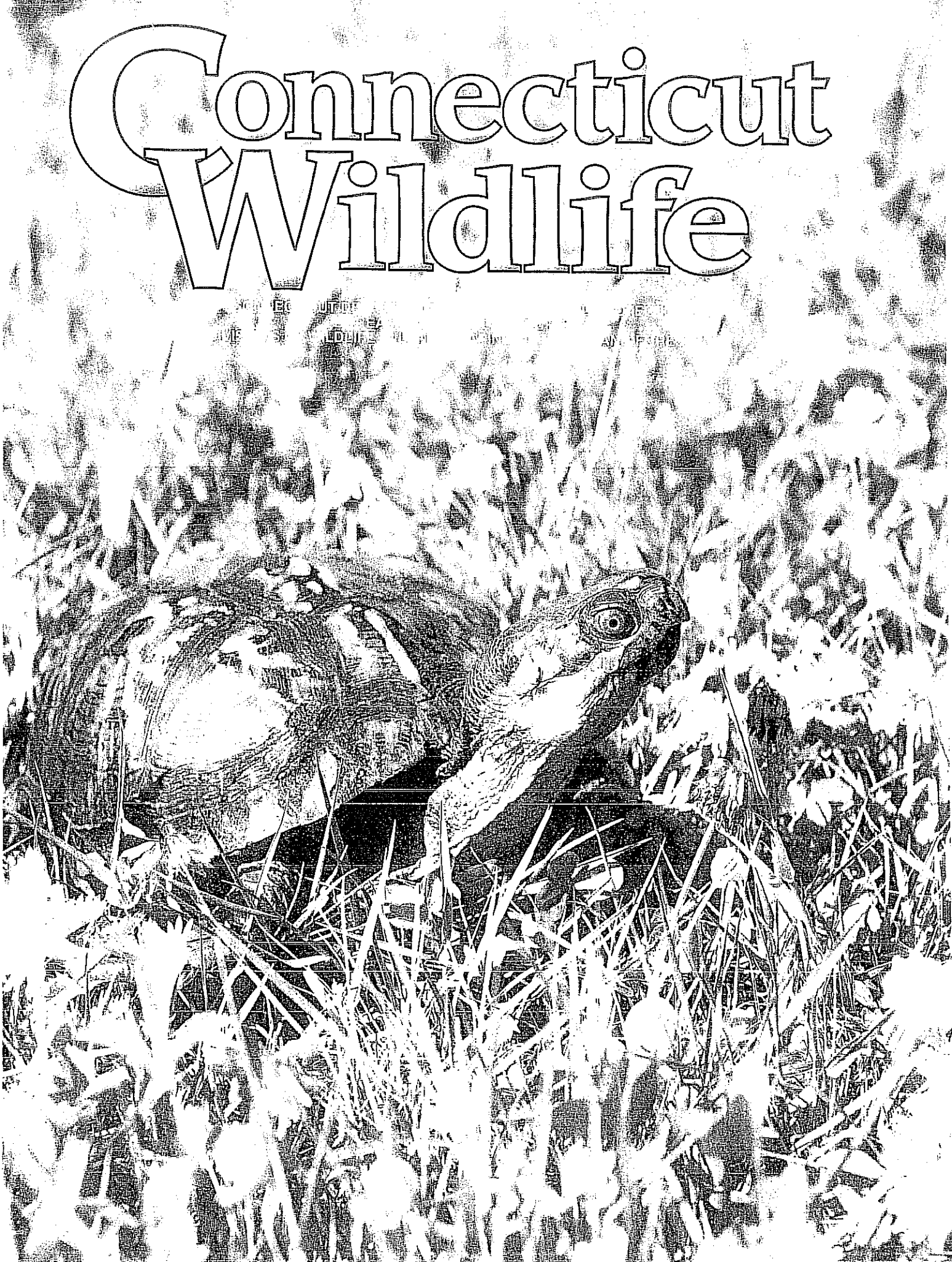
Connecticut Wildlife



From the Director's Desk

What does it mean to celebrate diversity? TheFreeDictionary.com defines celebrate as "to praise publicly," and diversity as "the state or quality of being different or varied." These definitions comport with the interpretation of an African-American friend of mine whose car carried the slogan as a bumper sticker. To him, it meant that we should revel in our racial and ethnic differences. For others, the focus shifts to rejoicing a world rich in the diverse array of natural resources our wonderful state has to offer. To me, it means all of those and more.

We are a community bound by an affection for wild things. Yet, those passionate about our shared natural resources bring remarkably diverse and often disparate perceptions to the role of humans in our natural world. For some, watching wildlife is a fulfilling experience and the notion of taking a wild animal, whether for food, fur, or wildlife management action, is untenable. For others, harvesting wild animals is the highest and most sensible use of a publicly held renewable natural resource. Paradoxically, these perspectives come from a deep, heart-felt connection with our natural world.

There is remarkable strength in that connection and, if we choose to use that strength, we can accomplish great things, including conserving wild places, and fostering restoration of natural habitats and a resurgence of our native flora and fauna. If we choose to squander it, we will fail, regardless of the parochial battles won. It is with that in mind, as we debate the various actions we take, each of us is encouraged to celebrate our diversity, as in it lies our strength.

Rick Jacobson

"What we have to do... is to find a way to celebrate our diversity and debate our differences without fracturing our communities."

Hillary Clinton

Cover:

The Eastern box turtle is of conservation concern in all of the states at its northeastern range limit, including Connecticut. See page 19 to learn more about the box turtle.

Photo courtesy of Paul J. Fusco

"Connecticut Wildlife" Can Now Be Ordered Online

Thinking about ordering a subscription to Connecticut Wildlife for a friend or family member? The magazine can now be ordered online with a credit card through the DEP Store (www.ctdepstore.com). While you are visiting the DEP Store Web page, take some time to explore the great selection of books and other environmental items that are available through the store.

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Wildlife Diversity, Birds, Furbearers, Outreach and Education, Habitat Management, Conservation Education/Firearms Safety, *Connecticut Wildlife* magazine

Franklin Wildlife Management Area
391 Route 32, N. Franklin, CT 06254 *(860-642-7239)*
Migratory Birds, Deer/Moose, Wild Turkey, Small Game, Wetlands Habitat and Mosquito Management, Conservation Education/Firearms Safety, Wildlife Diversity

Eastern District Area Headquarters
209 Hebron Road, Marlborough, CT 06447 *(860-295-9523)*
State Land and Private Land Habitat Management

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Web site: www.ct.gov/dep/wildlife
E-mail: dep.ctwildlife@ct.gov
Phone: 860-675-8130

The Federal Aid in Wildlife Restoration Program was initiated by sportsmen and conservationists to provide states with funding for wildlife management and research programs, habitat acquisition, wildlife management area development, and hunter education programs. Connecticut Wildlife contains articles reporting on Wildlife Division projects funded entirely or in part with federal aid monies.

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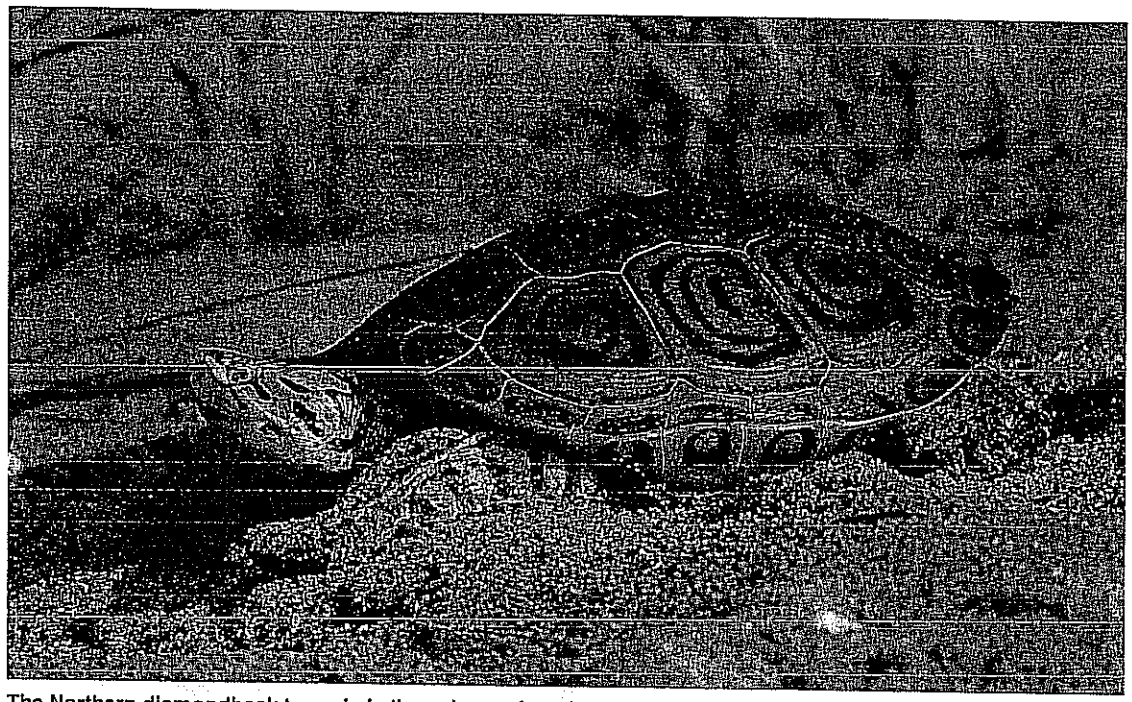
Children's Art Contest and More Planned for the Year of the Turtle



P. J. FUSCO

The Northern diamondback terrapin is the only species of turtle in North America, including Connecticut, that spends its life in brackish water (water that is less salty than sea water). Diamondback terrapins are most abundant in tidal estuaries west of the Connecticut River.

The DEP Wildlife Division and the Friends of Sessions Woods, as part of the Year of the Turtle awareness campaign with Partners in Amphibian and Reptile Conservation (PARC), are sponsoring a turtle art contest for children in kindergarten through fifth grade. Children entering the contest should draw, paint, or sketch a turtle species native to Connecticut. Entries will be judged in three age groups: K-1st grade, 2nd-3rd grade, and 4th-5th grade. First, second, third, and honorable mention prizes will be awarded in each age group. The Connecticut Science Center, in Hartford, has graciously donated a Family Pass package for each first place winner. The Friends of Sessions Woods Paul Petersen Memorial Fund has donated various turtle-related prizes, such as ribbons and books, for the winning pieces of artwork (first through honorable mention). First place winners also will have their artwork published in *Connecticut Wildlife* magazine.

All of the artwork will be on display at the Wildlife Division's Sessions Woods Conservation Education Center, in Burlington, at a special "**Year of the Turtle Day**," scheduled for Sunday, June 26, from 1:00-4:00 PM. Award winners also will be announced to the public during Turtle Day. Educational programs on turtles, live turtles, and kid's crafts are all planned for Turtle Day. More information about the event will be on the DEP's Year of the Turtle Web page at www.ct.gov/dep/yearofturtle as it becomes available.

An entry form, art contest guidelines, and the list of native turtles that can be illustrated are available on the DEP's Year of the Turtle Web page at www.ct.gov/dep/yearofturtle. This information also can be obtained by contacting the DEP Wildlife Division's Sessions Woods office at P.O. Box 1550, Burlington, CT 06013; 860-675-8130 (Mon-Fri, 8:30 AM-4:30 PM). All entries must be postmarked by June 8, 2011. The native turtles that can be illustrated for this contest include the bog turtle, Eastern box turtle, common musk turtle, common snapping turtle, painted turtle, spotted turtle, wood turtle, Northern diamondback terrapin, Atlantic ridley sea turtle, Atlantic green sea turtle, loggerhead sea turtle, and leatherback sea turtle.

*Attend **Year of the Turtle Day** at Sessions Woods WMA on June 26, from 1:00-4:00 PM. Visit www.ct.gov/dep/yearofturtle or call 860-675-8130 to learn more!*

What You Can Do to Help Turtles

- **Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.**
- **Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.**
- **Do not disturb turtles nesting in yards or gardens.**
- **As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females and they should be helped on their way and not collected. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side they are headed. Never relocate a turtle to another area that is far from where you found it.**
- **Do not litter. Turtles and other wildlife may accidentally ingest or become entangled in garbage (especially plastic garbage) and die.**
- **Learn more about turtles and their conservation concerns. Spread the word to others on how they can help Connecticut's box turtle population.**

The Conservation of Tidal Marsh Birds:

Guiding action at the intersection of our changing land and seascapes

Written by Min T. Huang, DEP Wildlife Division, and Chris Elphick, Associate Professor, University of Connecticut

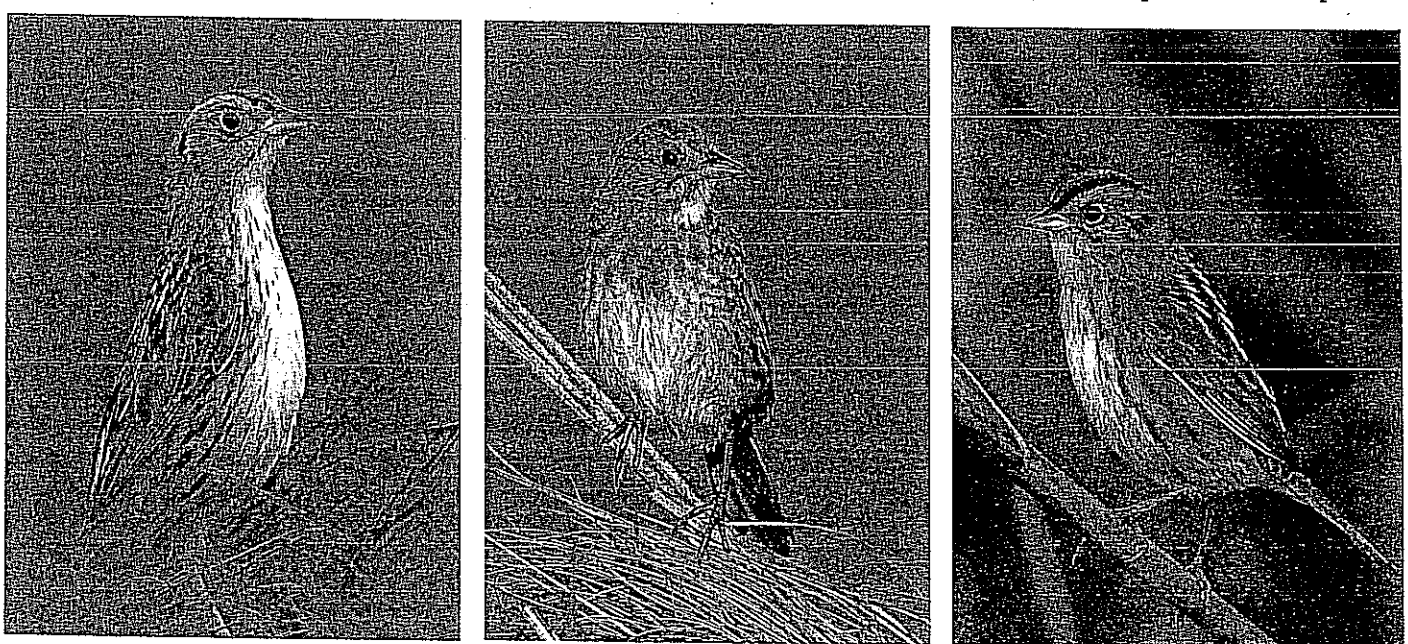
Connecticut, along with several other state partners from Maine to Virginia, is about to embark on a multi-year study to better identify critical areas for tidal marsh bird conservation and identify which tidal marshes and species in the Northeast/Mid-Atlantic are the most sensitive to land and seascape change. This is a wide-ranging and ambitious project, bringing together a diversity of partners, all with a common goal. The partners in this project include state and federal agencies, five major research universities, and many non-governmental conservation groups.

The clapper rail is a secretive marsh bird that nests exclusively in salt marshes. Its close relative, the king rail, is a freshwater marsh nester.

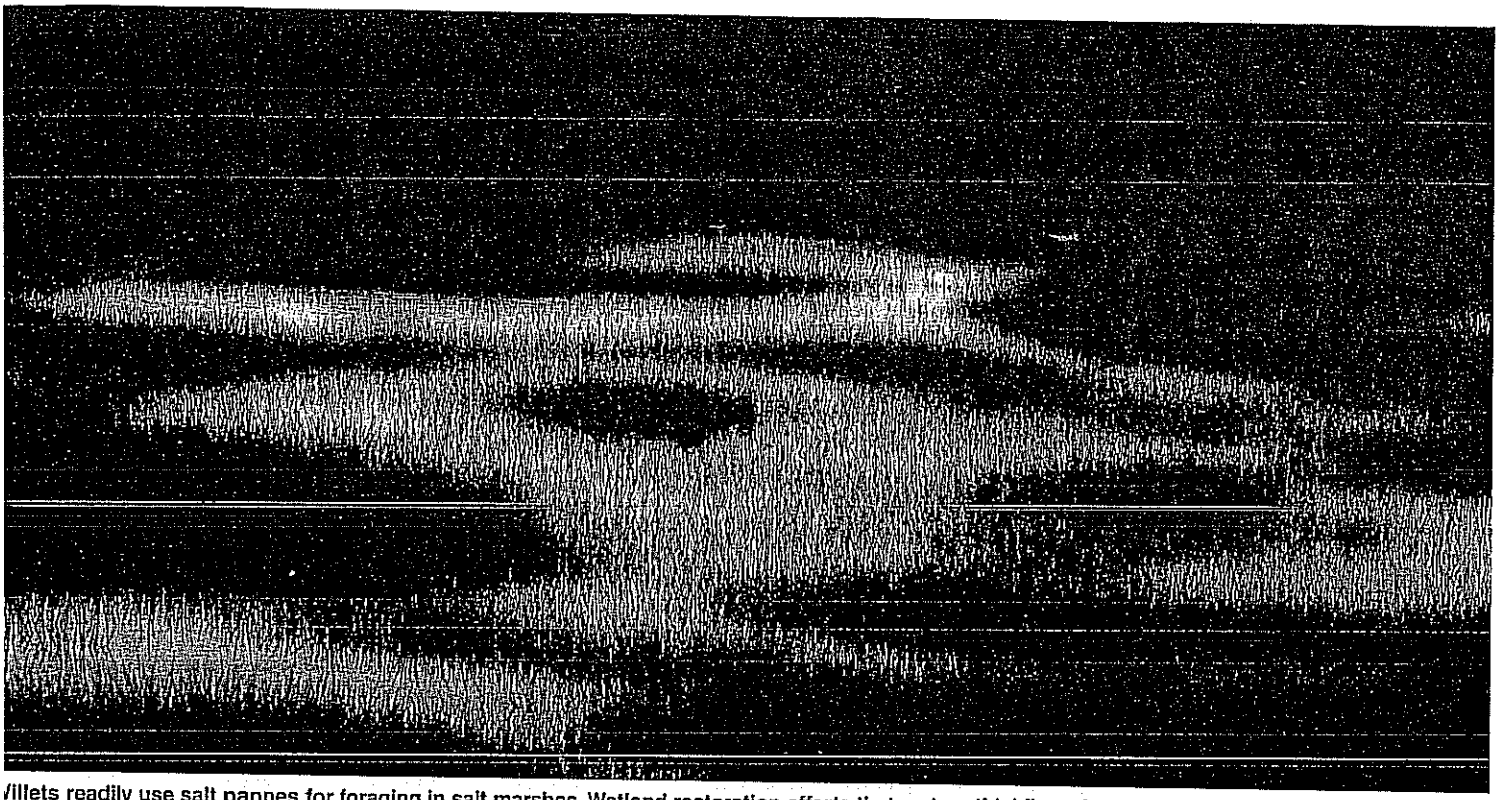
Importance of Tidal Marshes

Tidal marshes are critically important ecosystems that form the dominant transition zone between terrestrial and marine communities throughout eastern North America. In fact, the eastern North American shoreline possesses the highest level of vertebrate biodiversity of any tidal marsh region in the world. Eastern tidal marshes are home to 83 breeding vertebrate species, 22% of which occur only in tidal marshes, or possess subspecies found only in tidal marshes. However, our tidal marshes also are under some of the greatest environmental stress of any ecosystem in the world.

There are a myriad of factors that negatively impact these sensitive areas, including continued development infringement; nitrification; contamination by heavy metals; spread of invasive plant



From left to right are the saltmarsh sparrow, seaside sparrow, and Nelson's sparrow. Connecticut may harbor 15-20% of the world's breeding population of saltmarsh sparrows.



P. J. FUSCO

Willets readily use salt pannes for foraging in salt marshes. Wetland restoration efforts that restore tidal flow also create/improve salt panne habitat.

and animal species; increases in avian nest predators; widespread ditching and other hydrologic alterations for insect management; and increases in salinity due to the retention of river flows for human use. The single greatest threat to our tidal marshes, however, is likely climate change and associated sea level rise. Apart from altering the vegetative structure and composition of salt marshes, climate change also may impact the unique bird assemblage of the tidal marsh by increasing the frequency and intensity of flooding. Periodicity of flooding and the resulting water levels in the marsh are strong determinants of avian nesting success and productivity, and thus, long-term population viability.

It is estimated that over 50% of Connecticut's original tidal marshes have been lost. Remaining marshes are in various states of degradation due to past alteration (grid ditching), development, and other factors. The situation is similar throughout the northeastern United States. It is unlikely that we could ever substantially increase the amount of functional tidal marsh to benefit the many obligate marsh species that are at high risk. Therefore, it is critical that the relative importance of tidal marshes throughout the region be assessed so that the limited resources that are available to conservation can be best put to use.

Study Will Provide Answers

The new, multi-year study aims to assess avian species and tidal marsh sensitivity to various stressors, and determine the regional importance of each area. To accomplish these goals, the project will estimate the distribution and relative geographic abundance of bird species breeding in tidal high marshes from Maine to Virginia using a combination of passive and broadcast surveys designed by the North American Secretive Marsh Bird Monitoring Program. The majority of effort will be concentrated on five high marsh obligate species (saltmarsh sparrow, Nelson's sparrow, seaside sparrow, willet, and clapper rail). Efforts also will be made to assess abundance of the American black duck and black rail. Additionally, surveys will be conducted for a third suite of species that includes wading birds, Virginia rails, and some of the high marsh fringe songbirds, such as yellow warblers.

Understanding distribution and abundance, however, is only a small part of actually being able to determine vulnerability to climatic change. Management histories of each marsh, where available, will be used to examine current species distribution and abundance relative to past and current management actions. We will then assess nesting density, nesting success, and adult survival of the marsh sparrows. These data will help in the development of population models that will be used in conjunction with regional habitat loss scenarios (e.g., sea level rise) to conduct population viability analyses across the study area. The resulting products will inform managers across the study area about the importance, from a regional and local perspective, of tidal marshes in their states and their regional contribution to the overall persistence of the species being studied. A standardized survey protocol also will be established to provide a platform for long-term monitoring and assessment.

Ultimately, this study will enhance our understanding of the current extinction risk faced by tidal marsh bird species and identify potential ways to minimize risk at local, state, and regional scales. The resulting information will allow immediate actions to be taken where they are most likely to guarantee success, and will quantitatively show both what success should look like and how best to manage local tradeoffs with economic, development, and conservation concerns. More information about the study can be found at www.tidalmarshbirds.org.

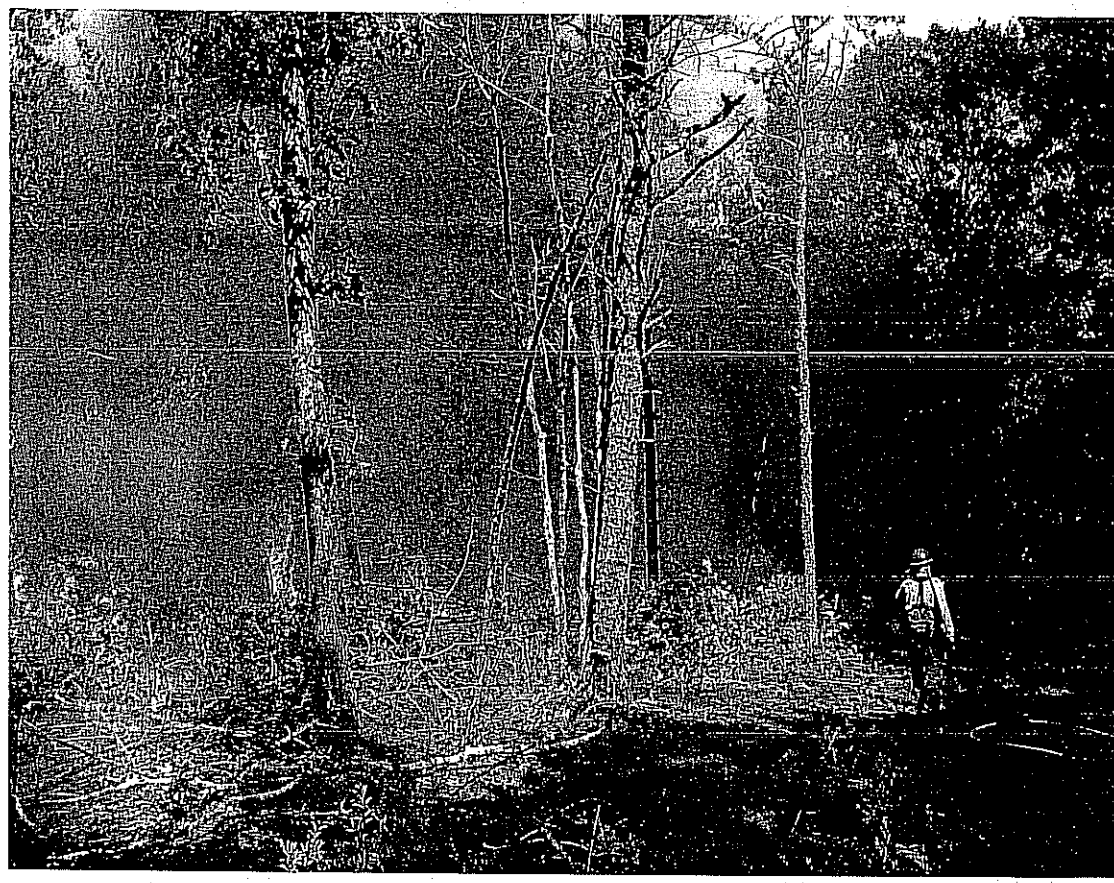
This project is funded, in part, through the competitive State Wildlife Grants Program.

State Wildlife Grants

Prescribed Burning on State Lands in Connecticut

Written by Emery Gluck, DEP Division of Forestry

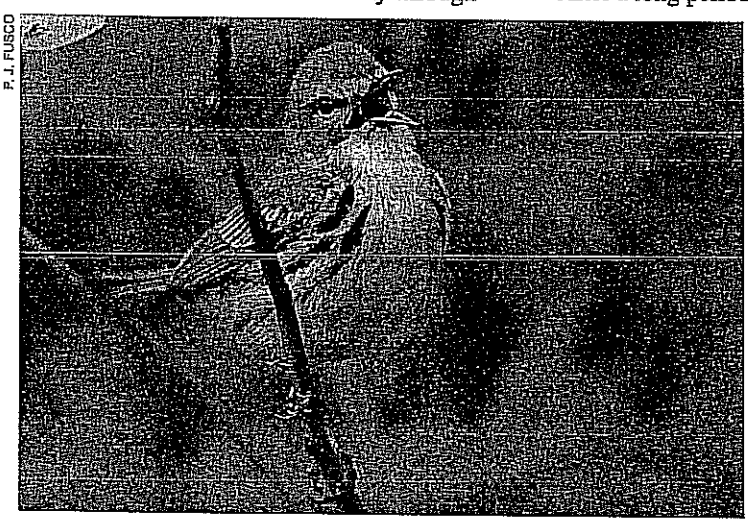
Historically, fire has had a profound impact on Connecticut's landscape. Periodic fires were once integral to sustaining eastern grasslands, oak savannas, much of the oak forest, and pitch pine/scrub oak forests. The elimination of fire in recent times has led to instability in these ecosystems. Without fire or mowing, woody vegetation quickly reclaims grasslands. Grassland habitat has diminished so much in New England that some butterflies (e.g., fritillaries) and grassland birds (e.g., eastern meadowlark) have experienced sharp population declines.



Prescribed fire, in combination with a harvest of white pine, is used to help restore a pitch pine/scrub oak forest in Hopeville Pond State Park Natural Area, in Griswold.

Grasslands were once created in a variety of ways. Native Americans purposely created extensive grasslands in southern New England by setting frequent fires. The natives also used fire in abandoned agricultural fields to provide habitat for game animals. Numerous smaller inland meadows were created naturally through the work of beavers. These "beaver meadows" appeared after beavers abandoned their dams and the water behind the dams was able to drain out.

After a long period of fire suppression on state land, the DEP Division of Forestry has reintroduced prescribed fires to Connecticut state forests, wildlife management areas, and state parks as an ecological management measure. Repeated prescribed burns are currently being done to maintain little bluestem and other native warm season grasses along the Connecticut coast and Connecticut River, where eastern grasslands historically occurred.



P. J. FUSCO

Prescribed burns create early successional habitat, which benefits many species, including the prairie warbler.

Creating an Oak Savanna

In addition to coastal grasslands, other fields are burned repeatedly to offset the loss of early successional habitat to development and forest succession. Prescribed burns are currently being applied at a site in Nehantic State Forest, in Lyme, to simulate an oak savanna. Oak savannas (open, grassy woodlands) were probably common around Native American villages in southern New England, as the natives frequently burned forests. The forest was burned to improve habitat for game animals, increase berry production, facilitate gathering of firewood and acorns, ease travel, drive game, and eliminate cover that potentially concealed their enemies. Oak savannas have disappeared in Connecticut primarily because of fire exclusion.

After several burns at the Nehantic

After a long period of fire suppression on state land, the DEP Division of Forestry has reintroduced prescribed fires to Connecticut state forests, wildlife management areas, and state parks as an ecological management measure.

E. GLUCK, DEP FORESTRY DIVISION

According to historical accounts, oak forests near Native American populations had open grassy understories. This grassy understory (above) developed after a regeneration harvest and prescribed burn at Nehantic State Forest.

State Forest site, the thin-barked trees (e.g., maples and birches) have succumbed or been weakened by fire injury, while the thick-barked oaks are surviving. The affects from the fire are stimulating the growth of herbaceous vegetation while eliminating or suppressing the woody understory vegetation.

Perpetuating Oak Forests

Prescribed fire also is being applied to help perpetuate oak forests. Except on the driest sites, oak forests are not currently sustaining themselves. Old growth forests on mesic (well-balanced supply of moisture) sites depend on frequent fires and other disturbances to allow new generations of oak to develop and grow into overstory trees. Fire and/or other disturbances are needed to allow adequate sunlight to reach oak seedlings and reduce the competitiveness of shade-tolerant tree and shrub species in the understory. Connecticut's existing oak forests have formed after widespread clearcutting, fires, the abandonment of farmland, and the chestnut blight that occurred near the beginning of the twentieth century. Noticeably under-represented in the present forest are the vigorous, young understory oaks and substantial patches of young oak forest. This can be traced to a precipitous decline in the amount of forest fires, clearcuts, and abandoned farmland in recent years.

An adequate amount of disturbance is needed to sustain oak forests because dense shrubs (e.g., mountain laurel, pepperbush, or hophornbeam) and shade-tolerant understory trees (e.g., American beech) likely prevent oak seedlings from graduating to the overstory. Prescribed fire often top-kills the understory vegetation, only providing a short window for oaks to develop vigorously in the understory. Disturbance in the upper canopy that creates a gap in the overstory is necessary for understory oaks to succeed to the overstory. Historically, canopy disturbances in southern New England have been caused by windthrow from severe storms or mortality from insect and/or disease infestations.

A supervised commercial harvest can mimic the disturbance needed in the overstory. Prescribed burns have been performed in conjunction with commercial harvests to promote the development of even-aged, two-aged, and multiple-aged patches in oak forests. These treatments should help sustain the oak community as part of the forested landscape.

Restoring Pitch Pine/Scrub Oak Ecosystems

The pitch pine/scrub oak sand plain forest is one of 13 imperiled ecosystems in Connecticut. Pitch pine is also known as "candlewood" or "torch pine" because the early settlers and Native Americans used pitch pine staves and pine knots as torches and candles. Candlewood Hill, Candlewood Mountain, and the several Candlewood Roads around the state are so named because of the tree that populates these locales. Prior to the American Revolution, the pines were tapped for turpentine and burned in dirt covered kilns to produce tar and pitch. The numerous Tarkiln Roads and two Tarkiln villages in southern New England are witness to local pineries from the past. Historically, pitch pine ecosystems were more prevalent in the pre-settlement forest because they were sustained by the relatively frequent fires. An estimated 95% of the pitch pine/scrub oak forest has been developed for gravel pits and commercial or residential housing. The remaining pitch pine forests are losing out to succession. Pitch pines are often shaded over by more common and taller trees, such as white pine. Summer fires historically consumed the thick pine litter layer, creating a good seed bed for pitch pine seeds and providing adequate sunlight by killing a substantial number of trees.

DEP is currently using a combination of harvests and prescribed burns to sustain the pitch pine/scrub oak ecosystem. Commercial harvests remove the overtopping white pine and other trees. The harvest increases the chance that the ecosystem can be restored with fire because the logging slash provides an adequate amount of fuel and the openings allow the fuel to dry out.

The land use history of the past 300 plus years and elimination of fire have altered the historic disturbance regime that maintained Connecticut's forest ecosystems. With a combination of well-planned land use practices, such as mowing, the judicious harvest of trees, and the application and management of prescribed fire, there will be a greater likelihood of success in sustaining a diverse landscape on Connecticut's public lands.

Meet the Waterwolf

Written by Ed Machowski, DEP Inland Fisheries Division

The northern pike (*Esox lucius*) (a.k.a. waterwolf, snake, northern, "the luce") is the largest predatory freshwater fish in Connecticut. It also is one of the most popular gamefish across North America and elsewhere around the globe. The pike's sleek body, fin placement, low-slung jaw, and razor-sharp teeth make it a fast, efficient predator. It is this voracity, plus its fighting ability, that endear this fish to so many anglers worldwide.

It may be the fish's behavior, or possibly its appearance, that seem to create a shroud of mystery surrounding the pike. Present day stories from anglers, as well as tall tales in folklore and mythology, abound. The "Mannheim Pike," for example, supposedly lurked in the moat surrounding a medieval German castle and was purported to have lived for 267 years while growing to a shocking 550 pounds (don't go for a swim in that moat!). But, the pike's place in mythology is only half the story. There also are accounts of alchemists using pike hearts and galls to cure pleurisy, pike ashes to treat burns, and pike bones as talismans against witchcraft.

Mythological accounts and folklore aside, pike are capable of growing to incredible sizes for a freshwater fish species (World Record–55 lbs; North American Record–46 lbs; CT State Record–29 lbs). While pike are considered a "cool water" species, they are adaptable to a wide range of environmental and water quality conditions. This adaptability allows northern pike to be the most circumpolar species of the five-member Esocidae family (the other members are redfin pickerel, chain pickerel, muskellunge, and amur pike). The only two environments where pike seldom grow well or survive are lakes that are extremely cold and oligotrophic (poor in nutrients and plant life, but rich in oxygen) and shallow waters that mostly remain very warm. Anything in between these two extremes is suitable for pike survival.

In Connecticut, historic records indicate that pike were introduced into the Connecticut River in the mid-1800s. However, the first waterbody actively managed for pike was Bantam Lake, in Litchfield and Morris, beginning in 1970. Adult pike were procured from Minnesota and stocked into Bantam Lake to help control an out-of-balance (stunted) perch population. This management strategy worked and, at the same time, created an exciting pike fishery. As the pike's popularity soared, the DEP Inland Fisheries Division expanded the program to meet demand. Five more lakes, plus the Connecticut River, were destined to become pike fisheries. Lakes were selected based on a need for a top predator, habitat suitability, geographic location, and forage fish abundance. Today, northern pike provide anglers with more than 20,000 hours of fishing fun in Connecticut, with much of this occurring during ice-fishing season.

DEP INLAND FISHERIES DIVISION

Inland Fisheries Division biologist Ed Machowski releases an adult female pike into a managed spawning marsh.

Although pike can spawn naturally in Connecticut, two elements severely limit natural reproduction: 1) many marshes where pike could spawn have been "cut off" by road crossings and development; and 2) water levels in most marshes drop precipitously following spring freshets, causing unhatched eggs to desiccate and die. Without help from Inland Fisheries Division biologists, there would be very few pike around. Rather than purchasing juvenile pike "fingerlings" from out-of-state sources, biologists use Connecticut marshes to help pike boost their own populations. As a result, nearly 55 acres of managed marshes in Litchfield, Kent, Haddam, and Mansfield allow adult pike to produce an average of 15,000 homegrown progeny annually.

How It Works

Pike spawning coincides with ice-out conditions, snow melt, and spring rains. Marshes and backwater locations in rivers become warm sooner than surrounding deep-water habitats. This temperature difference helps guide pike to their spawning grounds. Emergent grasses, hummock

grass, and submerged brushy vegetation found in shallower marsh areas are necessary for successful spawning. Pike do not create a nest like trout or bass. Instead, females broadcast small eggs into the water over submerged vegetation where males fertilize them. The eggs "stick" to the vegetation, keeping them in oxygen-rich water and out of the mucky, marsh sediment.

Each spring, biologists collect adult pike in nets and traps to stock them directly into the managed marshes. The total number of spawning pike needed is based on the size of females captured and the size of each marsh. Biologists generally stock 10–20 pounds of female pike per acre in each location, while also adding two males for each female. They also monitor conditions and return the adults to the lake/river where captured once the spawning activity ceases.

The speed at which the eggs hatch is dependent on water temperature. The warmer the water, the quicker they hatch. Generally, this process takes about two to three weeks. Newly-hatched pike are fascinating in that they are born with a sucker disc-like mouth. This is another adaptation which keeps the non-swimming young pike attached to vegetation and out of the bottom mud. They begin to swim and actively feed on zooplankton only after the yolk sac is absorbed. The fingerling pike grow to approximately four to five inches long by late June. At this time, the water in each marsh is slowly released through a trap at the marsh's outlet. Biologists capture, count, and measure the fingerlings, stocking them in vegetated areas outside the marsh. Stocking densities are predetermined for each lake and range from two to 15 fingerlings per acre.

While the managed marshes have proven successful in producing fingerling pike, there is a tremendous amount of year-to-year variability in annual production. Many environmental and biological factors (e.g., fertilization success, pH changes, temperature changes, and flooding) ultimately control fingerling production on a yearly basis. The Inland Fisheries Division is currently investigating more efficient ways of managing our marshes and developing methods to reduce annual variations in production. In addition, the Division will be monitoring natural pike reproduction in Mansfield Hollow Reservoir (and possibly Winchester Lake) to determine if natural reproduction alone can support recreational fisheries at those locations.

Trophy Fish Award Program

Written by Bill Gerrish, DEP Inland Fisheries Division

The DEP Inland Fisheries Division has maintained the Trophy Fish Award Program for more than 46 years. Three years ago the Annual Trophy Fish Award Ceremony was established to honor these exceptional anglers. The Award Ceremony recognizes anglers for catching the largest fish in several categories. Those categories include marine and inland species of fish.

The catches have become more impressive each year. Several individuals stood out from the crowd during the Annual Fish Award Ceremony, held on January 19, 2011.

- Daniel E. S. Kornegay III, of East Hampton was recognized as the Angler of the Year. Mr. Kornegay III also received an award for catching and releasing the largest walleye (30.0 inches) and the largest rock bass (11.75 inches).
- Harry C. Barber, of Middlefield, was presented with an award for receiving the most Trophy Fish Awards in one year. Mr. Barber earned nine awards for his skill in harvesting channel catfish in 2010. He also was given the first Lifetime Achievement Award ever issued by the DEP for being the recipient of 74 Trophy Fish Awards. Since 1983, Mr. Barber has earned awards for winter flounder (1), white catfish (1), largemouth bass (3), northern pike (5), brown trout (11), and channel catfish (53).
- Nathan Dean, of Wallingford, was presented with an award for harvesting the largest tiger trout (5 pounds, 0 ounces; 24.0 inches) of any youth in 2010. A tiger trout is a brown trout/brook trout hybrid.

The rules and application form for entering the Trophy Fish Award Program can be found in the 2011 Angler's Guide and at www.ct.gov/dep/fishing.

Inland Fisheries Division Director Peter Aarrestad (left) poses with Daniel E. S. Kornegay III, of East Hampton.

Bill Gerrish (left) of the Inland Fisheries Division poses with Harry C. Barber, of Middlefield.

PHOTOS PROVIDED BY DEP INLAND FISHERIES DIVISION

Inland Fisheries Division Director Peter Aarrestad (left) poses with Nathan Dean, of Wallingford.

Open House at Rainbow Dam Fishway in Windsor

Visit the Rainbow Dam Fishway, in Windsor, on June 4, 2011, from 10:00 AM-3:30 PM. Visitors will be allowed into the counting house to watch migrating fish through the viewing window. Take I-91 to exit 40; go west on Rt. 20 to the Hamilton Road South exit; turn left, then right onto Rainbow Road; the area is 1/4-mile on the left (look for signs).

What's the Buzz About Native Solitary Bees?

Written by Laura Saucier and photography by Nelson DeBarros, DEP Wildlife Division

Scientists have estimated that approximately 4,000 bee species are found in North America. Many people are surprised by this fact as the image of a European honey bee or a bumble bee is what typically comes to mind. In actuality, bees vary in size, coloration, and habits, much like birds do. There are sweat bees that can be bright green in color and measure less than a quarter of an inch long to bumble bees that are yellow and black and well over an inch long. There are bees that only specialize on particular types of flowers, and those that do not create nests at all but lay their eggs in other bee nests. The differences are amazing, but the common thread is that they all drink nectar for sustenance and females use a nest and provision it with pollen and nectar (for the offspring to eat) that they gather from flowers.

Native bees are thought to be responsible for more than 90% of the pollination of North American wildflowers. These plants, in turn, provide food and cover for a multitude of wildlife species. Having such an important role in nature is why bees are considered to be keystone species — that is, a species that helps to support an ecosystem of which they are a part.

What makes a bee a bee? Although related to wasps and ants, bees differ from their close insect relatives in that they have branched hairs all over their bodies, giving them a fuzzy appearance (sometimes only seen under a microscope). These branched hairs are responsible for making bees such great pollinators. Bees fly from bloom to bloom, collecting pollen for their nests and drinking nectar for energy, all the while carrying excess pollen on their furry bodies. This excess pollen is what pollinates the next few flowers the bee visits. It is an ingenious system of plants providing a reward, in the form of nectar, to lure bees to visit them. The bees, subsequently, transport pollen to other plants, ensuring gene exchange among individual plants.

Bee Life History

There are social bees and solitary bees. Most bee species in North America are solitary creatures, meaning that they do not live socially like the European honey bee does. European honey bees (*Apis mellifera*) are domestic bees that live in a hive within a highly-ordered social system that benefits the hive as a whole. Female solitary bees – by themselves – will make a nest, provision that nest with food for their larvae after hatching, and sometimes guard nests from predators and parasites like cuckoo bees. In good nesting habitat, solitary bees may nest in close proximity to one another, giving the appearance of social behavior. However, this aggregation is not social behavior but merely taking advantage of prime real estate.

Approximately 70% of solitary bee species nest in the ground. The other 30% nest in wood, hollow plant stems, or the abandoned nests of other animals, such as small mammals and beetles. Often, the nest is merely a hollowed out chamber in which the female constructs a gallery of compartments. An egg is laid in each compartment, typically on top of a ball of pollen, sometimes call "bee bread," that she has collected. Once an egg hatches, the larva eats the bee bread as it develops into an adult bee.

Based on recent research, scientists believe that approximately 324 species of bees are found in Connecticut. Following are descriptions of a few groups of solitary bees that can be found in your backyard, some noticeable and some less so!

Large Carpenter Bees (Genus Xylocopa)

Only one species represents this group in Connecticut, *Xylocopa virginica*. This carpenter bee is large, with a shiny black abdomen. It sometimes is considered a nuisance to homeowners when it chooses to excavate a nest in a structure. Females excavate nest tunnels in soft or rotten wood and typically will not reuse old nest tunnels. The female will create multiple egg chambers (cells) in a row within the tunnel. Males are protective of the nest that their mate has created and will aggressively defend it, often frightening people by buzzing by them. This behavior is purely for show because male carpenter bees cannot sting (only female bees can sting and carpenter bees rarely sting). Carpenter bees have a habit of "robbing" nectar from flowers that they cannot fit their body into. Because the bee does not enter the bloom but instead cuts a hole at the base of it to gain access to nectar, the flower does not get pollinated.

Squash Bees (Genus Peponapsis)

Squash bees are the best pollinators for our native cucumbers, melons, pumpkins, and squashes. These medium-sized, golden yellow bees are ground nesters that emerge in late summer when squash blossoms begin to appear. Unlike other bees that prefer the warmth of late morning, females forage for pollen and nectar in the early mornings. Males can often be found sleeping in squash flowers in the afternoon.

Mason Bees (Genus Osmia)

Mason bees are small to medium-sized, typically metallic or iridescent, and green to blue in color. They nest in cavities in plant stems or wood. These bees have readily adapted to nesting in blocks of wood with man-made holes drilled in them (called bee blocks). Mason bees construct their nests inside these holes with various materials, such as pieces of leaves and mud. Mason bees are efficient pollinators, especially of orchard crops, such as apples.

Mining Bees (Genus Andrena)

Andrena bees are called mining bees because they are ground nesters. These medium-sized bees are typically green or black. Andrenids are interesting in that they are partial to certain types of plants, unlike most bees that are generalist pollinators. Some species will only collect pollen from a limited range of plants, some only one species of plant.

Green Sweat Bees (Genus Agapostemon)

Green sweat bees are small (around one-third inch in length) and can be entirely bright green or green on the upper body with a yellow and black abdomen. They are ground-nesters that are known to pollinate many different flowers, including strawberry plants. Sweat bees are often attracted to human perspiration, and will land on our skin to collect the salts that are excreted when we sweat.

Leaf-cutter Bees (Genus Megachile)

Leaf-cutter bees are medium-sized and typically have dark

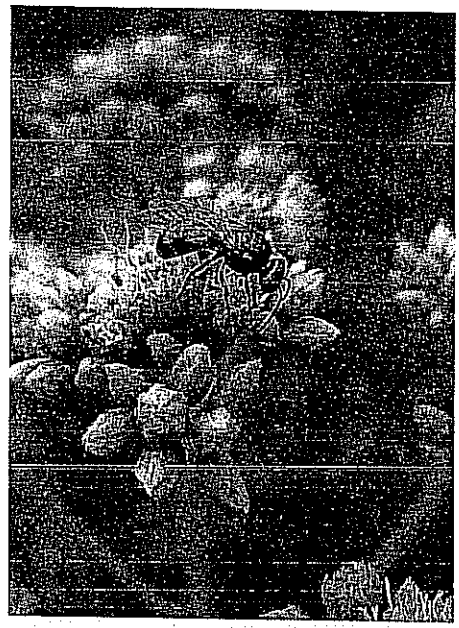
abdomens with light-colored bands. These bees may nest in hollow stems or in the ground, but what unifies this group is that the female will chew off pieces of leaves to use in the construction of a nest. Males are often territorial and will guard a particular patch of flowers, muscling other males away from "their" flowers. Leaf-cutter bees also can be found nesting in man-made bee blocks.

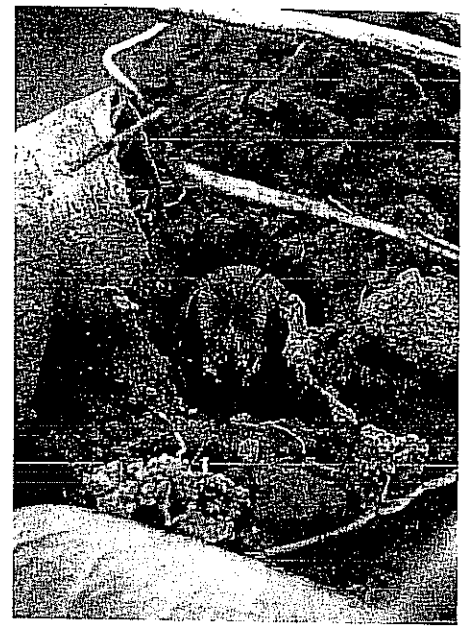
Cuckoo Bees (multiple genuses)

Cuckoo bees are a fascinating group in that they are cleptoparasites. Cleptoparasites lay their eggs in nests of other bee species (like cuckoo birds do to other birds) so that their offspring will hatch and consume provisions left by the host bee. This earns them the name "clepto" as they are stealing the resources of the host larva. Cuckoo bees in the genus *Nomada* specialize in parasitizing the nests of *Adrena* species. Female Nomadids can be seen flying low to the ground searching for *Andrena* nests to parasitize. Cuckoo bees lack the typical fuzzy bee appearance and can vary widely in coloration, from a reddish brown to yellow and black-striped.

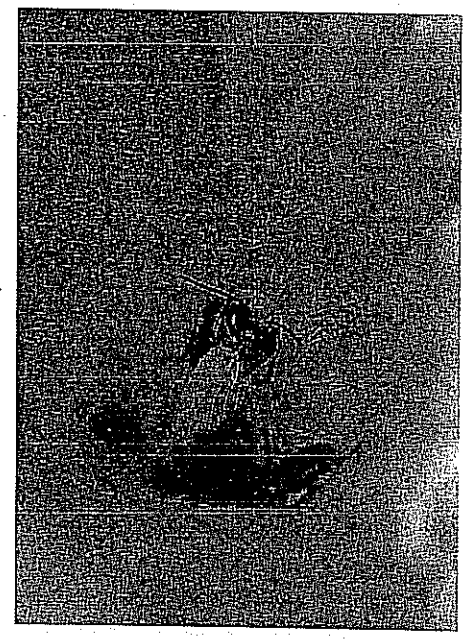
Bee Conservation

Since the 1990s, scientists have detected a decline in bee species that were once quite common. The spread of foreign diseases to our native bumble bees has been implicated in some declines. The reason for the decline in other bee species is still unclear. Native bees, like most wildlife species, are susceptible to habitat fragmentation and degradation by pollution, pesticides, and other environmental stressors. These stressors all take their toll on a species' ability to adapt to its changing environment.





(Left) Bees, like this metallic green sweat bee come in many colors and patterns – not just yellow and black-striped. (Right) Seventy percent of bee species nest in the ground. Leaving sunny areas of your yard free of mulch will benefit bees like this mining bee.



(Left) Green sweat bees are often attracted to human sweat and will land on us to drink it for the salt content. (Right) Squash bees are specialists on the flowers of the squash family (Cucurbitaceae). Mating actually occurs inside the cucurbit flowers.

You Can Help Native Bees

- Avoid pesticides around your home and garden. Pesticides kill more than just pests – they kill many other beneficial insects. Learn about organic lawn care and gardening, and put those techniques into practice.
- If pesticides are necessary, apply them when the plants are not in flower to reduce bee exposure. If the plant is in flower, apply pesticides in the evening when bees are not actively foraging. Use the minimum amount of chemical needed for effectiveness.
- Provide food for bees by planting a variety of native wildflowers that will bloom throughout the growing season.
- Provide nesting habitat in your yard by leaving bare patches of soil (free of mulch) that receive sun. This will provide nesting opportunities for the 70% of bees that nest in the ground. Also, leaving "wild" (unmanicured) areas in your yard will provide dead, woody stems that many other bees use for nesting.

Will attracting bees to your yard mean more opportunities for getting stung? Bees get a bad reputation for causing painful stings, yet wasps, yellow jackets, and hornets are the more likely culprit. For the most part, solitary bees are not aggressive because they do not defend a hive like wasps or social bees do. Also, only female solitary bees sting; males do not have the same ability.

To learn more about native pollinators, visit the Xerces Society Web site at www.xerces.org.

State Wildlife Grants

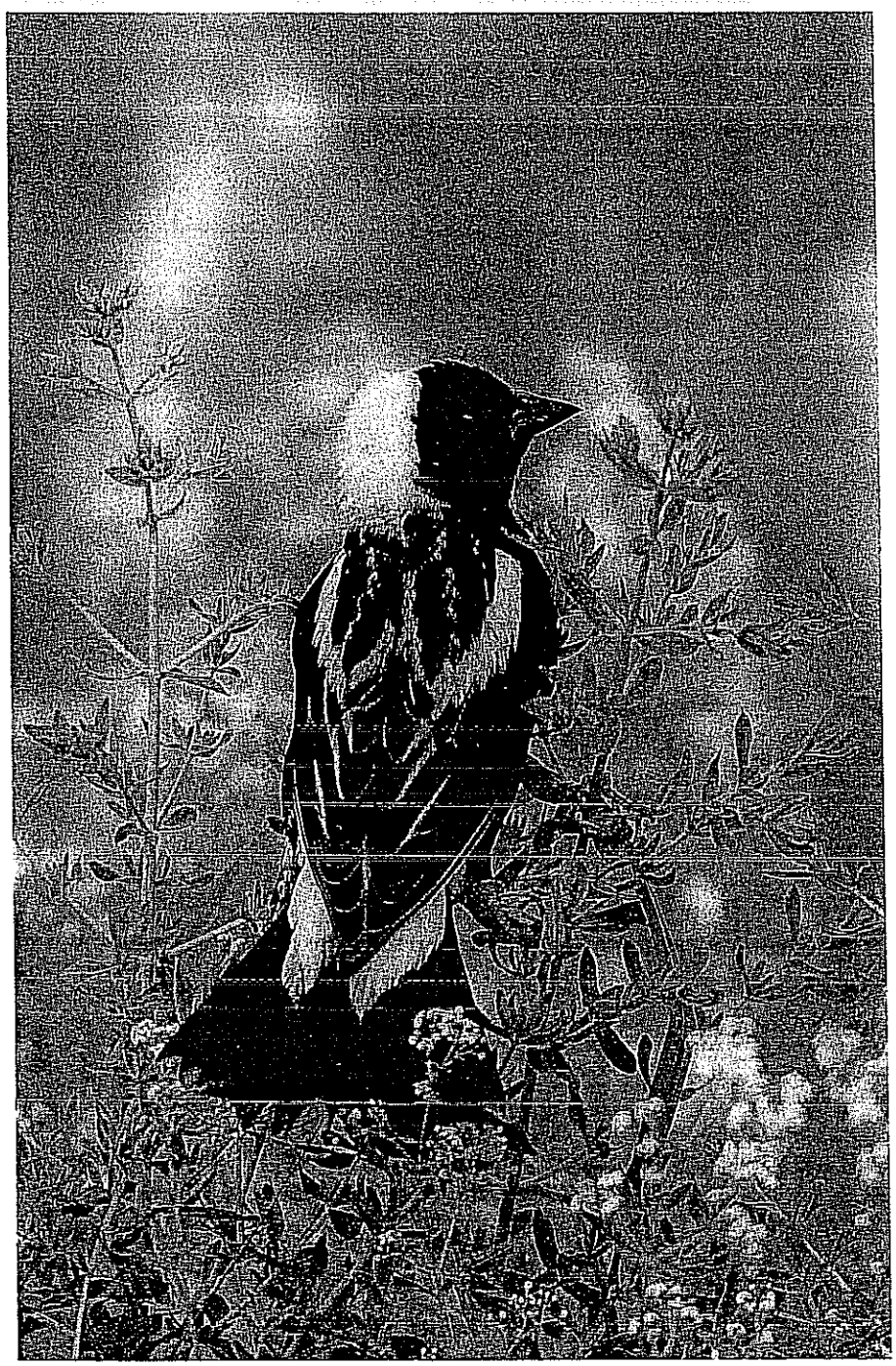
The Bird with the Bubbly Song - The Bobolink

Article and photography by Paul Fusco, DEP Wildlife Division

The bubbly, plinking song of the male bobolink brightens a spring meadow as the bird perches, singing from the taller weeds that rise above the grass. The bobolink song is a long series of bubbling notes rising in pitch. When one male begins his song, others answer with their own version. At times they will take to the air, hovering in flight like a helicopter, as they sing from an elevated height above the thick grasses of their territories.

Description

Bobolinks are small members of the blackbird family. They are slightly larger than a house sparrow. Their short tail has stiff, pointed feathers, and they have pointed wings. Bobolinks are sometimes also known as reed birds or rice birds.



During the breeding season, male bobolinks are unique in that they are the only songbirds that are light on top and dark on the underside.

Male bobolinks have an elegant and unique look during the breeding season. Their plumage is black below and mostly white above, and they have a buffy nape. They are the only North American songbird whose plumage is dark below and light above. Females are quite different and suggestive of a large, buff-colored sparrow with dark streaking on the back and flanks and crown stripes. Females have a large, pinkish bill, while males have a black bill. Males have a similar appearance to females after the breeding season. Immature birds are similar to adult females, but are more yellow with less streaking on the flanks.

In mid- to late summer, bobolinks gather into flocks that may gradually become very large as the birds get ready for the fall migration. At this time, they can be heard giving their typical flight call, a metallic "*pink*."

Behavior

During the breeding season, bobolinks are found in extensive open grassland habitat, usually wet meadows and hayfields with thick vegetation. They will use agricultural fields and weedy fields with grasses during fall migration. Their fall migration takes them as far south as Argentina, where they spend the winter. Amazingly, their round trip journey is 11,000 miles, the longest of any North American songbird.

Bobolinks are insectivorous during spring and summer, switching to grass seeds, weed seeds, and grain in fall. In fact, large migratory flocks of bobolinks have a history of being destructive to unharvested grain, including rice. Although they have a reputation for causing damage to grain crops, bobolinks provide an incalculable benefit by consuming large amounts of harmful insects and noxious weed seeds.

Breeding

Males arrive at their grassland breeding areas in early May, about a week or two before females. Nesting begins shortly after the females arrive. Simple, open-topped nests are constructed of grass and built on the ground next to

Female bobolinks are slightly larger than a sparrow. They have dark crown stripes, streaking on the back and flanks, and a pinkish bill.

clumps of thick grass or other vegetation. The nests are well concealed.

Bobolinks are polyandrous, meaning that nests may contain eggs that were sired by different males. The normal clutch size is four to seven eggs. Incubation takes about 12 days. Young are fed by both adults and they leave the nest after about 10 days. Young tend to wander around in the grass for a few more days before learning to fly. At this stage, the young birds are extremely vulnerable.

Conservation

Unfortunately, the bubbly song of the bobolink has been disappearing from Connecticut's landscape as the bird has experienced a widespread decline in the Northeast. The bobolink is listed as a Connecticut Species of Special Concern.

In the early twentieth century, before migratory bird protection laws were enacted, bobolinks were shot in large numbers in the southern states during fall migration. Farmers would kill the birds by the thousands when they stopped to feed on grain and rice crops before the crops could be harvested. It was common practice for farmers to wait until the birds had the chance to fatten up before killing them so that they would fetch a higher price at market.

Although those days are long gone, bobolinks have never recovered their former numbers in our region. They now are facing new threats from early haying practices that impede their breeding success and habitat loss due to succession and development. Bobolink populations also are affected by pesticide use and heavy hunting on their South American wintering grounds, where they are still considered agricultural pests.

When hayfields are mowed can make the difference between sustaining a bobolink colony or losing it. Bobolinks have high site fidelity, meaning that birds from successful breeding colonies return to the same site year after year. Sites with birds that are unsuccessful in breeding and raising young will die out. Farmers who have bird conservation in mind know that the proper time to mow a bobolink field is two weeks after young have fledged the nest, which in Connecticut is in early to mid-July. This time frame gives the young birds time to build their flight muscles and gain strength. Of course, the insects that bobolinks depend on for food are also affected by mowing.

The Wildlife Division has been, and is currently, monitoring grassland bird populations. The DEP began a statewide Grassland Habitat Initiative in 2006 with funding from the federal State Wildlife Grants Program. By partnering with other state agencies, agricultural groups, and non-governmental organizations, a working committee was tasked with establishing grassland conservation goals. Ongoing field surveys, mapping, data collection, and land use assessments have allowed staff to assign conservation priorities.

Maintaining and managing healthy grassland habitat is a top priority that will benefit all of Connecticut's grassland species. The bobolink's future in our state depends on the stewardship of declining grassland habitat and ensuring that field mowing schedules are enabling the birds to raise their young successfully.

Zebra Mussels in Western Connecticut

A well-known aquatic invader expands its range in New England

Article and Photography by Barb St. John White, Research Biologist, Biodrawversity LLC

Zebra mussels (*Dreissena polymorpha*) are small bivalve mollusks native to drainages of the Black and Caspian Seas in Russia and Eastern Europe. They were first introduced to the United States during the late 1980s in the ballast of ships passing through the St. Lawrence Seaway, and are now one of the most ecologically significant invasive species in North America.

This zebra mussel was one of several discovered in the Housatonic River impoundments of Lake Zoar and Lake Lillinonah in southwest Connecticut during fall 2010.

The Invasion

The first records of zebra mussels outside their native range are from the late eighteenth and early nineteenth centuries, when they spread through canal systems across Western Europe. Zebra mussels were first found in North America in Lake St. Clair, between Lake Erie and Lake Huron, in 1988. By the mid-1990s, they were documented throughout the Great Lakes region and in 20 states in the United States, having moved as far east as the Hudson River in New York, Lake Champlain in Vermont, and East Twin Lake in northwestern Connecticut.

In the Northeast, zebra mussels remained primarily within the Hudson and Lake Champlain watersheds until 2009, when they were discovered in Laurel Lake in the Housatonic River in Massachusetts. Most recently, during fall 2010, limited numbers of mostly young animals (less than 20 millimeters in length) were found at several locations in the impoundments of Lake Lillinonah and Lake Zoar in the lower Housatonic River in southwest Connecticut. It is likely these animals were only just introduced, and while they may have come from an upstream source or been transported by recreational boaters, their exact origin is unknown.

Adult zebra mussels rarely reach more than 50 millimeters in length. Their black-and-white striped shells consist of two valves joined by a hinge, the same as other bivalve clams and mussels. The ventral side, or bottom, is flat, and the mussels attach to rocks or other hard substrates by fibers called byssal threads. Zebra mussels can inhabit both lakes and rivers, although they prefer lake habitats or areas of slow-moving water. They may occur sparsely or in high densities, completely covering the surfaces they colonize. They feed by filtering algae, small zooplankton, bacteria, and other particulate matter from the water. A single adult can filter approximately one liter of water per day.

As veligers, or larvae, zebra mussels are no more than 200 thousandths of a millimeter in size, invisible without a microscope. In one season, a single female mussel releases several hundred thousand veligers directly into the water. The microscopic larvae float freely and are dispersed by currents, easily moving more than 50 miles downstream in a river before settling in new locations. Adult zebra mussels have few natural predators of significance in North America, although some fish and aquatic birds are known to consume them in moderate quantities.

While zebra mussels seem to spread easily, research tells us they are not likely to become established in waterbodies with a pH below 7.4 and calcium levels less than 12.0 mg/liter. Streams and lakes with calcareous underlying geology, including those in the Western New England Marble Valleys of the upper Housatonic River in Massachusetts and northwest Connecticut, are highly susceptible to colonization. Lake Zoar and Lake Lillinonah, further downstream, are less alkaline and at lower risk. In both impoundments, pH is near 7.5, just over the minimum zebra mussels require. Calcium concentrations in Lake Zoar are approximately 17.0 mg/L, and 23.0 mg/L in Lake Lillinonah, making them moderately susceptible. Continued monitoring of the populations in the impoundments and vigilance on the part of local residents and visitors will be important in preventing further colonization.

Ecological Impacts

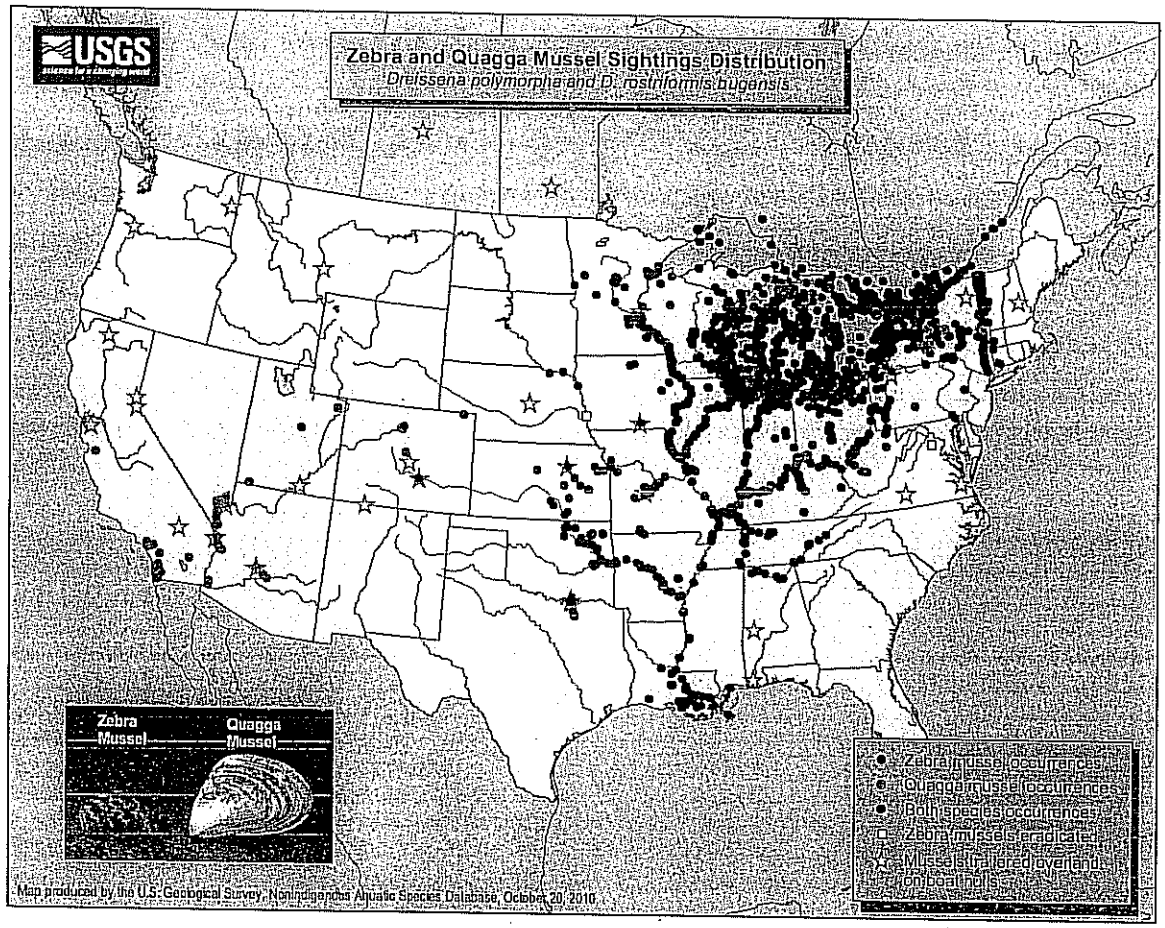
Zebra mussels can have significant ecological impacts. They will attach to any hard underwater surfaces, including rocky substrates, boats, dock installations, water intake pipes, and even native freshwater mussels. They may occur at densities as high as several thousand adult mussels per square meter, and can severely alter availability and quality of habitat of the benthos (bottom) of streams and lakes.

Aside from physical changes that are easily seen, zebra mussels also transform ecosystems in drastic ways that may not be noticed by the casual observer. Because zebra mussels filter vast quantities of suspended material from the water and digest and deposit this material on the bottom as pseudofaeces, food sources for bacteria and invertebrates and ultimately other organisms are depleted

and transferred to lake or stream bottoms. This shift in resources effectively alters basic properties of food webs and destabilizes important established processes of many aquatic ecosystems.

Closely tied to the ecological impacts of zebra mussels are their direct economic costs, which are estimated to be in the billions of dollars in the United States alone. These costs are associated with a variety of damages, including loss of function in industrial facilities whose operations are impeded by biofouling, damage to ships and ports, and the loss of native sport fisheries.

In the United States, approximately 50,000 alien and invasive species like the zebra mussel continue to disrupt long-established steady states of ecosystems they inhabit, generating unprecedented ecological damages and economic costs. People and their activities are intricately linked to ongoing introductions and the spread of these species. Through our own preventive actions we have the ability to slow or put a stop to further introductions.



How to Help

In the case of zebra mussels, vigilance and precautionary measures on the part of local residents, anglers, boaters, and anyone else in close contact with streams and lakes is critical. Bilge water, live wells, and engine cooling water of boats should be discarded before leaving a boat launch, and boats and equipment should be rinsed with a bleach solution, if possible. Bait buckets should never be emptied into a lake or stream. It also is important that fish, crayfish, or plants never be transported among waterbodies.

The DEP is monitoring for the presence of zebra mussels at Lake Zoar, Lake Lillinonah, and other locations throughout the state. Possible sightings of zebra mussels should be reported to the DEP's Inland Fisheries Division at 860-424-3474.

Learn More About Zebra Mussels

More information on zebra mussels and other aquatic nuisance species can be found on the DEP website (www.ct.gov/dep).

Other sources of information include:

- **Rhode Island Sea Grant Fact Sheet: Zebra Mussel: An Unwelcome Visitor (http://seagrant.gso.uri.edu/factsheets/zebra_mussel.html)**
- **USGS Zebra and Quagga Mussel Information Resource Page (http://nas.er.usgs.gov/taxgroup/mollusks/zebramussel/)**
- **Information Crossfile -- Lessons from the mollusk that made headlines, ParkScience (www.nature.nps.gov/ParkScience/index.cfm?ArticleID=389).**

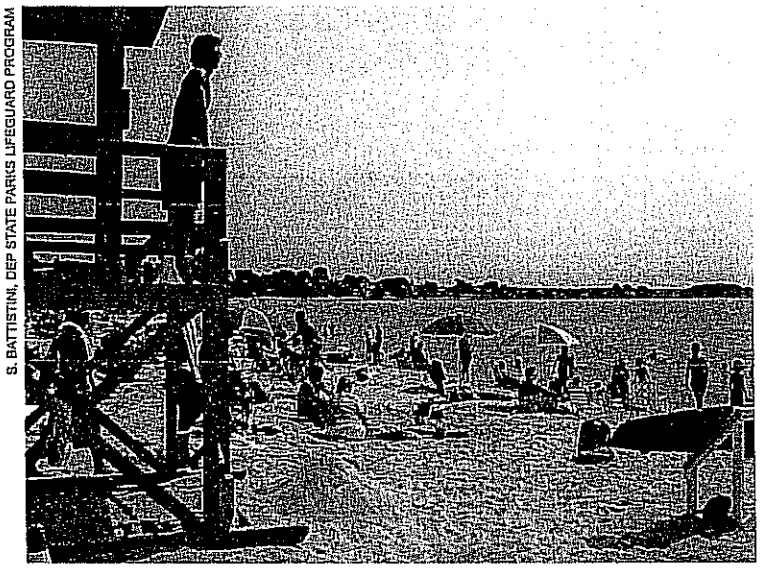
Tips for Preventing the Spread of Aquatic Nuisance Species

- **Avoid boating through dense beds of aquatic plants.**
- **Inspect your boat and trailer, removing all visible aquatic organisms (zebra mussels and any aquatic plants) from boat, propeller, anchor, lines, and trailer before leaving any body of water. Discard vegetation in trash away from water and the shore.**
- **Drain your boat motor, wet well, and bilge on land before leaving the waterbody to remove larval stages.**
- **Flush engine cooling system, bilge areas, and live wells with tap water.**
- **Dry out your boat for at least two days (five is best) or wash down hull with tap water on land before launching again.**
- **Do not throw purchased bait or vegetative packing material from bait into the water when you are done fishing. Small organisms can live on the plant material used to keep the bait moist.**

Connecticut State Parks – Adventure is Waiting for You

Written by Diane Joy, DEP Division of State Parks & Public Outreach

With an area of just a little over 5,000 square miles, Connecticut has 107 state parks and 32 state forests, quite remarkable for the third smallest state in the nation and the fourth most densely populated. Within 10 minutes of most people's homes is the opportunity to visit one of these fabulous locations. Wildlife viewing is just one of the many activities you can do in Connecticut State Parks and Forests. Whether you are looking for a marsh wren or a little blue heron – Sherwood Island State Park in Westport is the place to go. Stop by the Sherwood Island Nature Center to see the exhibits and also take some time to appreciate the beautiful bird photographs on display by A.J. Hand.



S. BATTISTINI, DEP STATE PARKS LIFEGUARD PROGRAM

A beautiful summer day at Rocky Neck State Park in East Lyme.

You can enjoy the sun and surf at Rocky Neck State Park in East Lyme; catch a trout at Southford Falls in Southbury; paddle a canoe or kayak in Mashapaug Pond at Bigelow Hollow in Union; or enjoy a picnic lunch and hike to the tower at Sleeping Giant in Hamden. Perhaps you prefer bicycling or horseback riding on the Air Line Trail, which travels along an old railroad route for over 50 miles in eastern Connecticut, from Salmon River State Park in East Hampton all the way to the Massachusetts border just past Quaddick State Park in Thompson.

Are you a history buff? Take a step back in time as you visit Putnam Memorial State Park in Redding, the site of the 1779 Continental Army's winter encampment. Love dinosaurs? Then travel back 200 million years to the Jurassic Period when dinosaurs roamed the earth and left their tracks at Dinosaur State Park in Rocky Hill.

Whether you prefer waking up to the smell of salt air at Hammonasset Beach State Park (Madison), located on Long Island Sound, or hearing the roar of the Farmington River as you camp at the Austin F. Hawes Memorial Campground (Barkhamsted), the opportunities are endless. There are campgrounds at 11 state parks and two state forests. Reservations can be made at www.ReserveAmerica.com or by calling toll free at 1-877-668-CAMP (2267). Find out more information about camping at www.ct.gov/dep/camping.

C. FURBUSH, DEP COMMUNICATIONS & PUBLICATIONS

Trying out fishing during the No Child Left Inside®: The Great Park Pursuit, at Squantz Pond State Park, in New Fairfield.

The DEP's No Child Left Inside® (NCLI®) program has teamed up with the Connecticut Library Consortium to provide **State Park Day Passes** for each of the 169 town main libraries. Similar to checking out a book, you can check out a State Park Day Pass. Show your Day Pass at the ticket booth and it will allow you to park for free at the sites where there is a parking fee or obtain access for a limited number of people to Dinosaur, Fort Trumbull, or Gillette Castle State Parks.

No Child Left Inside® has been actively engaging families in the pursuit of outdoor adventures for the past five years. This year there is a slightly new twist to the NCLI® Great Park Pursuit — it is the Great Park Pursuit Outdoor Recreation Challenge. A booklet has been created that will serve as your family's passport to the challenge. Within the booklet is a list of 10 or more state park and forest locations that have been determined by DEP staff to be "the best" for fishing, swimming, hiking, biking, camping, letterboxing, boating, birding, picnicking, winter activities, and historic sites. A box containing a stamp will be at each of the locations so you can keep track of all your visits. To download a copy of the "Great Park Pursuit: Outdoor Recreation Challenge" passport or for additional information on Family Days associated with the challenge, go to www.NoChildLeftInside.org. Whether you want a challenge or a walk in the park – Connecticut state parks and forests are wonderful places waiting to be discovered.

Purchase a Season Pass for State Parks

Many of the state parks and forests do not charge a parking fee and others charge only on weekends and holidays. The frequent park visitor can purchase a "Season Pass" for only $67 (CT residents), which allows unlimited vehicle access. Purchase the pass online at the DEP Store (www.ctdepstore.com) and affix it to the window of your vehicle. Connecticut residents 65 years of age or older can get a free Charter Oak Pass, which allows unlimited access to state Parks and forests.

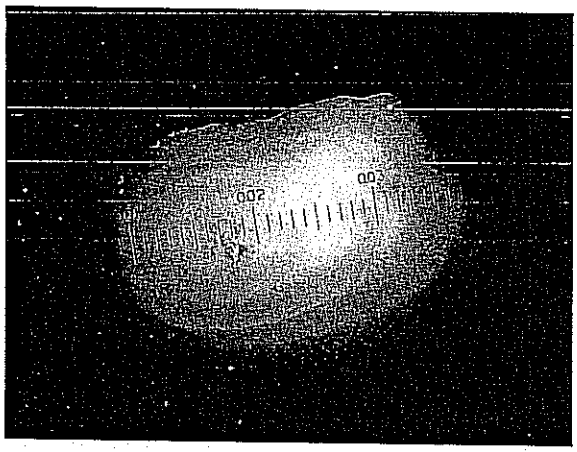
How Old Is this Fish?

Written by Penny Howell,
DEP Marine Fisheries Division: Photos provided bt DEP Marine Fisheries Division

DEP marine biologists use several techniques to age different species of fish so their rate of growth and reproduction can be tracked. Fish grow faster when the water is warm, but grow slower, or not at all, when it is cold. Various growth periods show up differently on the fish's scales, bones, or other 'hard parts.' During fast growth periods, the scale or bone is laid down thinly with little color, while a slow growth period leaves a thicker, dark ring.

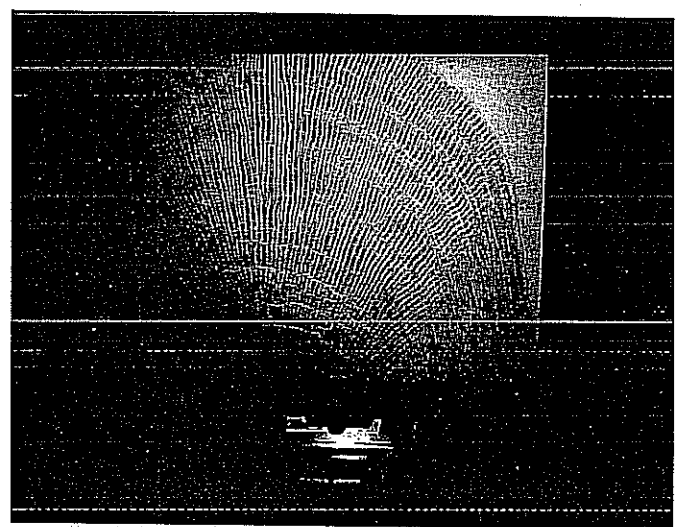
Often, these rings can be seen by holding a cleaned fish scale in front of a bright light. A more accurate count requires magnification and, if the fish is old, sometimes the thicker bones may need to be cross-sectioned with a specially designed diamond-blade cutter.

To make accurate measurements of a fish's growth, scales or bones are magnified with a specialized projector so the annual growth rings are easier to see, measure, and count.



The growth rings on a six-year-old winter flounder otolith (ear bone) are fairly clear (right) when magnified whole under a microscope. But, the otolith from a 10-year-old required cross-sectioning (left) to reveal clearer thick and thin rings. The image is more highly magnified in a microfiche reader with a built-in measurement scale.

Bones, like these operculars (gill covers) from a tautog, show large growth rings at the base when the fish was young. Smaller rings can be seen on the edge when the fish was older and its growth slowed. A large bone is needed to age tautog because they can live to be 20 to 30 years old.



This magnified image of a summer flounder scale shows very clear annual growth rings. The image is a negative of the actual scale so the light lines mark every fall when growth stops, and the darker areas represent fast summer growth.

Injured Golden Eagle Rehabilitated and Released in CT

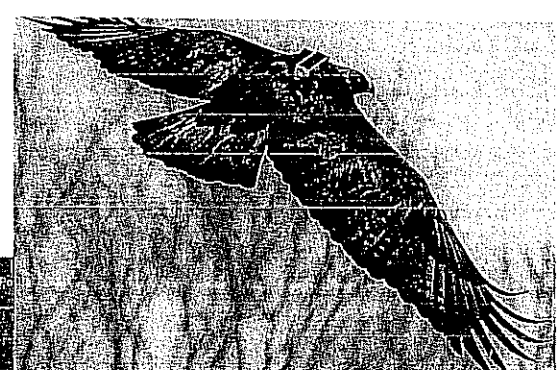
P. J. FUSCO (2)

Dr. Todd Katzner and Emily Christianson from Tufts Wildlife Clinic prepare to release the eagle at Mohawk State Forest.

In late March 2011, Audubon Sharon, the DEP Wildlife Division, and rehabilitators from Tufts University released a golden eagle at Mohawk State Forest in Cornwall. The eagle had been found by snowmobilers in early February in Amenia, New York, near the New York/ Connecticut border. The bird had sustained multiple puncture wounds on its leg (possibly from an animal it was trying to capture). It was transported over the border by the people who found it and taken to the Sharon Audubon Center in Sharon, Connecticut. The nature center staff took it to Kensington Animal Hospital for examination and then to rehabilitator Mary Beth Kaeser in Ashford, who then transferred it to the Tufts Wildlife Clinic and Center for Conservation Medicine in North Grafton, Massachusetts. The bird was cared for by the medical staff at Tufts for over a month, eventually making a complete recovery and regaining full mobility of its injured leg and foot. The eagle was fitted with a leg band and GPS-GSM telemetry by Dr. Todd Katzner, a professor at West Virginia University. Dr. Katzner has fitted about 25 golden eagles with telemetry gear since 2006 for the purpose of studying the eastern population of North America's golden eagles. This population is small, geographically separate, and potentially genetically distinct from western populations. Eagles from the eastern population breed in northeastern Canada and winter in the southern Appalachians, so it is only possible to find this species in Connecticut during migration or in the winter.

This successful release was a team effort that included volunteers at Sharon Audubon Center who cared for the bird, Connecticut veterinarians who donated their time and efforts, the rehabilitator who transported the bird to Tufts University, the veterinarians at Tufts, Dr. Katzner, and the DEP.

Solar Powered Satellite Transmitter Used in Eagle Release

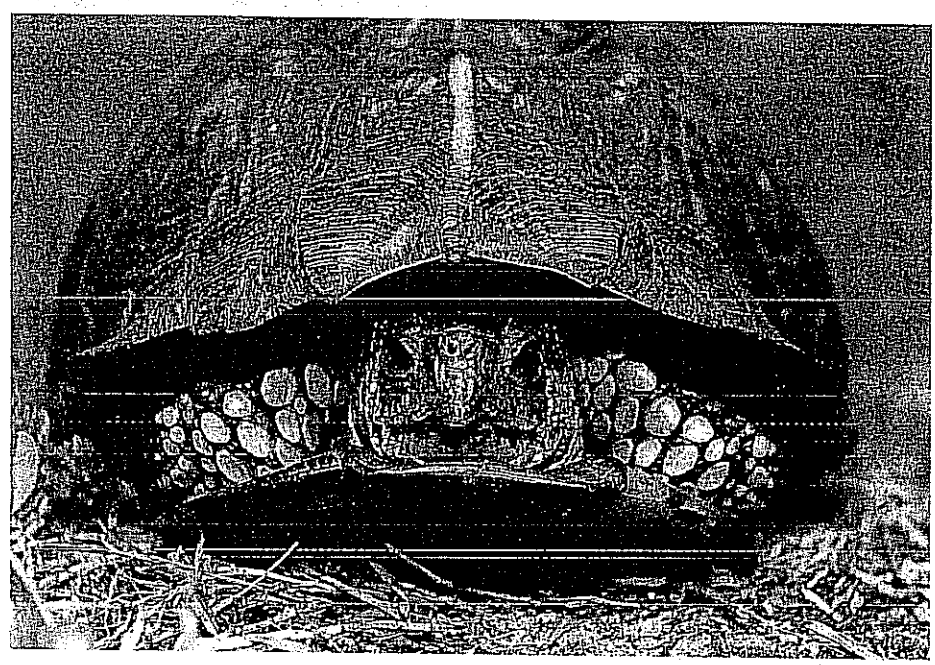


The solar powered transmitter was attached to the bird's back with a harness (seen in photo at right). It records GPS location points from satellites and transmits those data points through cell phone technology. The map shows the eagle's movements over the three weeks following its release. After remaining in the area for a while, the bird traveled north, up the Hudson River Valley, over the Adirondack Mountains in upstate New York, and on into southern Quebec.

Eastern Box Turtle

State Species of Special Concern

Terrapene carolina carolina


R. J. FUSCO

Description

The eastern box turtle is probably the most familiar turtle found in Connecticut. It has a high-domed carapace (top shell) with irregular yellow or orange blotches on a brown to black background that mimic sunlight dappling on the forest floor. The plastron (bottom shell) may be brown or black and have an irregular pattern of cream or yellow. The length of the carapace usually ranges from 4.5 to 6.5 inches, but can measure up to eight inches long. The shell is made up of a combination of scales and bones, and it includes the ribs and much of the backbone.

Each individual turtle has distinctive head markings. Males usually have red eyes and a concave plastron, while females have brown eyes and a flat plastron. Box turtles also have a horny beak, stout limbs, and feet that are webbed at the base. This turtle gets its name from its ability to completely withdraw into its shell, closing itself in with a hinged plastron.

Habitat and Diet

This terrestrial turtle lives in a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. It is typically found in well-drained forest bottomlands and open deciduous forests. Wetland areas also are used. During the hottest part of a summer day, box turtles will find springs and seepages where they can burrow into the moist soil. Activity is restricted to mornings and evenings during summer, with little to no nighttime activity, except for egg-laying females. Box turtles have a limited home range where they spend their entire life, ranging from 0.5 to 10 acres (usually less than 2 acres).

Box turtles are omnivorous and will feed on a variety of food items, including earthworms, slugs, snails, insects, frogs, toads, small snakes, carrion, leaves, grass, berries, fruits, and fungi.

Life History

From October to April, box turtles hibernate by burrowing into loose soil, decaying vegetation, and mud. They tend to hibernate in woodlands, on the edge of woodlands, and sometimes near closed canopy wetlands in the forest. Box turtles may return to the same place to hibernate year after year. As soon as they come out of hibernation, the turtles begin feeding and searching for mates.

The breeding season begins in April and may continue through fall. Box turtles usually do not breed until they are about 10 years old. They have a long lifespan, which can range up to 50 to even over 100 years of age. Females do not have to mate every year to lay eggs as they can store sperm for up to four years. In mid-May to late June, females will travel from a few feet to more than a mile within their home range to find a location to dig a nest and lay their eggs. The three to eight eggs are covered with soil and left to be warmed by the sun. During this vulnerable time, skunks, foxes, snakes, crows, and raccoons often raid nests, sometimes destroying the entire nest.

Eggs hatch in late summer to early fall (about 2 months after being laid). If they hatch in fall, the young turtles may spend the winter in the nest and come out the following spring. As soon as the young turtles hatch, they are on their own and receive no care from the adults. This is a dangerous time for young box turtles because they do not develop the hinge for closing into their shell until they are about four to five years old. Until then, they cannot entirely retreat into their shells. Raccoons, skunks, foxes, dogs, and some birds will prey on young turtles.

Conservation Concerns

The box turtle was once common throughout the state, mostly in the central Connecticut lowlands. However, its distribution is now spotty, although where found, turtles may be locally abundant. Because of the population decline, the box turtle was added to Connecticut's List of Endangered and Threatened Species as a species of special concern when the list was revised in 1998. The box turtle also is protected from international trade by the 1994 Convention on International Trade in Endangered Species (CITES) treaty. It is of conservation concern in all the states at its northeastern range limit, which includes southern New England and southeastern New York.

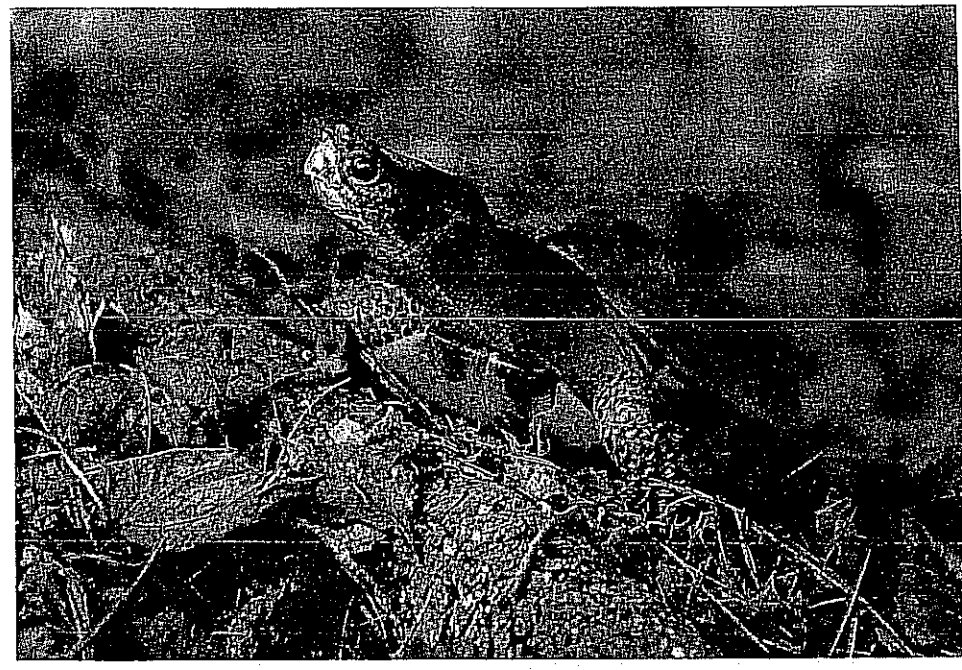
Many states, including Connecticut, have laws that protect box turtles and prohibit their collection from the wild. State regulations provide some protection, but not enough to combat the even bigger threats these animals face, such as loss and fragmentation of habitat due to deforestation and suburban development; vehicle strikes on the busy roads that bisect the landscape; and indiscriminate and illegal collection of individuals for pets. Loss of habitat for shelter, feeding, hibernation, and nesting is probably the greatest threat of all to turtles. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated.

Adult box turtles are relatively free from predators due to their unique, hard shells. However, the shell is not hard enough to protect turtles that are run over by vehicles. Most vehicle fatalities are pregnant females searching for nest sites.

Wood Turtle

State Species of Special Concern

Glyptemys insculpta



P. J. FUSCO

Background and Range

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of five to nine inches.

Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from four to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets. Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

Results for the 2010 Fall Wild Turkey Hunting Seasons

Written by Michael Gregonis, DEP Wildlife Division

Hunters have many choices regarding which game species they would prefer to hunt during the fall period. Based on permit issuance and overall harvest, fall wild turkey hunting often takes a back seat to deer and small game hunting. However, for those individuals looking for a challenge, Connecticut's fall archery and firearms seasons offer that.

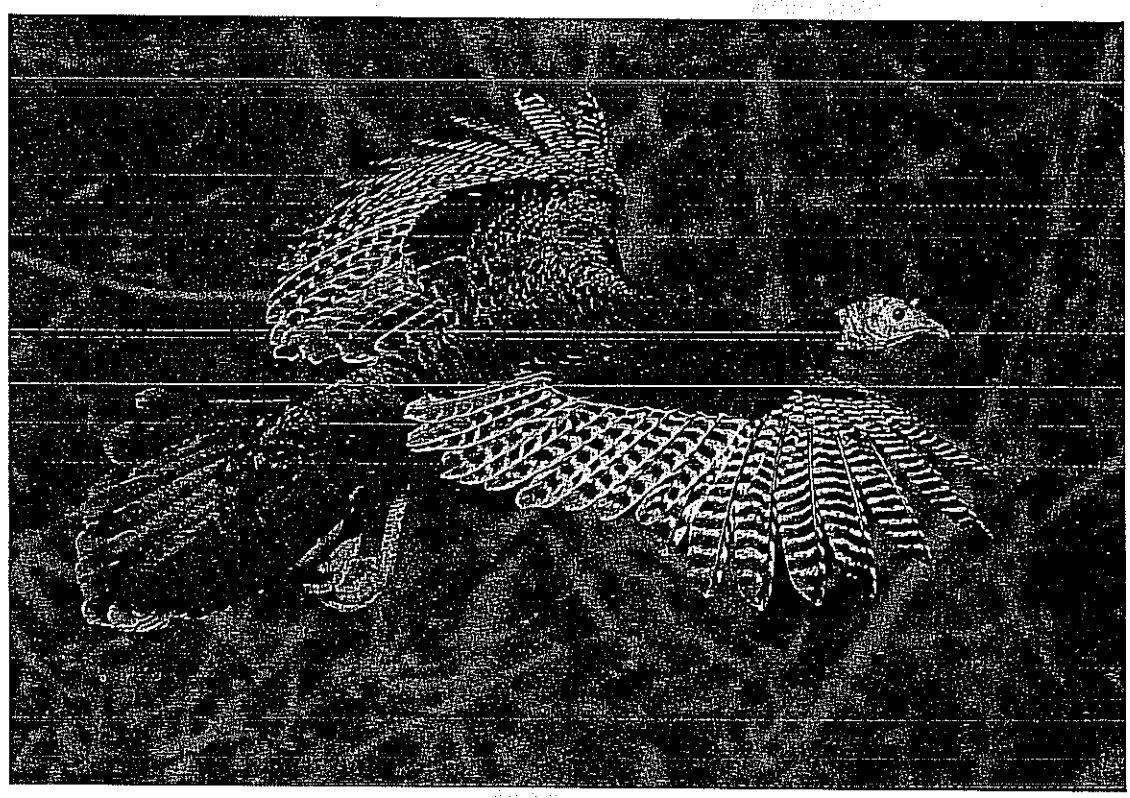
Fall Archery Season

Many bowhunters purchase a fall archery turkey permit hoping for a chance encounter with a turkey while deer hunting. The archery turkey and deer seasons run concurrently, extending to the end of January in some areas of the state. A total of 1,862 permits were issued during 2010 and 50 birds were harvested. Forty-seven hunters harvested at least one turkey for a 2.5% statewide success rate. The fall archery harvest consisted of 40% adult females, 28% adult males, 23% juvenile females, and nine percent juvenile males. Harvest increased by 22% from 2009 and permit issuance dropped by 26%. Only three archers were successful in harvesting two birds. At least one bird was harvested from 38 of Connecticut's 169 towns. Newtown (5 birds) and Thompson (3 birds) recorded the highest harvest. On a regional basis, wild turkey management zones 11 (16 birds), 5 (8 birds), and 1 (5 birds) recorded the highest harvest.

Fall Firearms Season

The fall firearms turkey season continues to be the more popular of the fall turkey seasons. A total of 2,444 permits were issued in 2010 and 64 turkeys were harvested, resulting in a statewide success rate of two percent. Private land hunters harvested seven times more birds than state land hunters (56 birds versus 8 birds). Harvest did not change from 2009; however, permit issuance declined by 26%. The harvest included 36% adult females, 22% juvenile females, 22% juvenile males, and 20% adult males. Turkeys were harvested from 35 towns with Stafford and Willington (both 4 birds) reporting the highest harvest. Turkey management zones 4A (11 birds), 2 (8 birds), and 5 (8 birds) recorded the highest harvest.

Connecticut continues to have liberal fall turkey hunting seasons and bag limits. A fall hunter could potentially harvest two birds with archery equipment, and one bird on state land and two birds on private land with a shotgun. The fall archery season length in some areas of Connecticut can run for over 120 days and the firearms season runs from the first Saturday in October to the end of the month. Besides the challenge of fall turkey hunting, the rewards of enjoying the fall foliage and fine table fare are also outstanding.



P. J. FUSCO

Report Turkey Brood Sightings

The Wildlife Division conducts the annual Wild Turkey Brood Survey to estimate the average number of turkey poults (young-of-the-year) per hen statewide and to assess annual fluctuations in the turkey population. This index allows the Division to gauge reproductive success each year and to evaluate recruitment of new birds into the fall population. Weather, predation, and habitat conditions during the breeding and brood-rearing seasons can all significantly impact nest success, hen survival, and poult survival.

What's involved? From June 1 to August 31, volunteers and Department staff record all of the hens and poults observed during normal travel. Each observation is categorized by total number of hens observed, total poults, and total number of hens with poults. Observations of male (tom) turkeys are not requested for this survey. If you would like to participate, download a DEP Wild Turkey Observation Form to record your observations (www.ct.gov/dep/wildlife; click on "Volunteer Opportunities" under the Featured Links box on the right). Instructions are on the data sheet. This is a great way to partner with the Wildlife Division to help monitor the state's wild turkey population.

Call for Help

Do you have a bat house/colony on your property, or enjoy watching bats emerge in the early evening to forage? If so, please consider being a bat citizen scientist for the Wildlife Division! Assistance is needed with summer maternity roost counts and the Division is asking for your help. Please contact Jen Pacelli at the Sessions Woods office (860-675-8130) to express your interest in volunteering or to report your bat colony.

In addition, if you find a dead bat, please let us know as we may want to collect the specimen for additional research. We also are interested in collecting other specimens, such as small mammals, weasels, and owl pellets.

The Wildlife Division appreciates any help citizen scientists can provide as we continue to gather knowledge about Connecticut's bats and other small mammals.

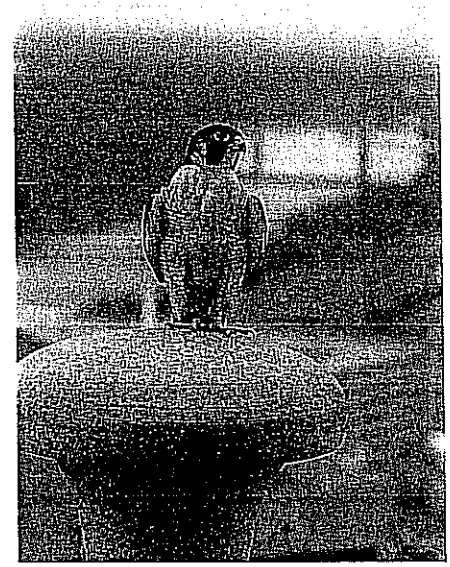
Jen Pacelli, DEP Wildlife Division

Wildlife Division Welcomes Nelson DeBarros

The Wildlife Division is pleased to welcome a new plant ecologist to the Natural Diversity Data Base program. Nelson DeBarros joined the Division in mid-January. A graduate of Providence College and Pennsylvania State University, Nelson brings a diverse knowledge of plant ecology and conservation. He has worked with the New England Wildflower Society on rare and state and federally listed plant conservation, and the Association to Preserve Cape Cod to identify and monitor the flora and fauna of tidal-restricted coastal saltmarshes. Nelson also has taught plant identification at both the undergraduate and graduate levels.

An expert in the flora resource provisioning of wild bees, he has published technical papers and general outreach materials on bee conservation, habitat enhancements for pollinator conservation, and landscaping for beneficial insects. Among his many activities, Nelson has helped design and establish a community garden and does technical illustrations of plants. Despite his short time on the job, Nelson has already provided assistance in completing environmental reviews for state-listed plants and rare ecological communities and has started to make headway on the numerous plant conservation projects that were put on hold when Ken Metzler retired from the Division in 2009. Other wildlife staff are looking forward to the 2011 field season and the ability to have a plant ecologist aid in the management and conservation of wildlife habitats.

Jenny Dickson, DEP Wildlife Division



P. J. FUSCO

Peregrine Watch at the Travelers Tower

Birders, students, and any others interested in the peregrine falcon have an opportunity to once again monitor the progress of a nesting pair of falcons on the Travelers Tower in Hartford. The *Peregrine Watch at the Travelers Tower* web cam is up and running, providing constant views of the nesting platform. As of March 29, the female was tending to four eggs in the nest. The web cam can be accessed at www.falconcam.travelers.com. You also can visit the DEP Web site to learn more about peregrine falcons (www.ct.gov/dep/wildlife; click on "Learn About CT's Wildlife") The peregrine web cam is possible through a partnership among The Children's Museum, Travelers Insurance, and the DEP.

Junior Naturalist Series at the Belding Wildlife Management Area

The Junior Naturalist programs at Belding WMA in Vernon are for children of all ages. There is no fee to participate and children can sign up for one or more programs. Registration is required; please call 860-306-5418. Programs start at 9:00 AM and end by 12:00 noon. Parking for Belding WMA is on Bread and Milk Road in Vernon.

June 30 – Birds. What makes a bird a bird? Where do birds live? What kinds of homes do they make? See and hear a variety of birds, look at bird homes, and play a bird game or two.

July 7 – Butterflies, Dragonflies, Ladybugs, Beetles! How many different kinds of butterflies are there? What do dragonflies eat? Can you make a hoverfly land on your finger? Walk the wildflower meadow looking for all kinds of fascinating insects.

July 14 – Plants. Take a walk around the fields, forest, and wetlands to see where different plants grow and learn how to identify them. Learn about native plants vs. ALIENS! After the walk, use certain plants to make plant artwork.

July 21 – Stream Life. The streams at Belding WMA are full of creatures — you just have to know how to find them. Get your hands wet looking for stream-dwelling animals.

July 28 – Signs of Wildlife. Animals are all around, but many avoid being seen by humans. Look for evidence of wildlife and learn to identify the signs that different animals leave when they pass through. Go on a wildlife scavenger hunt.

August 4 – Nature Photography. Photography is a great way to learn about nature. Learn some basics of nature photography and then head out into the wildflower meadow for some great shots. Return after lunch for a viewing of everyone's photos.

Calendar of Events

May-August..... Respect fenced and posted shorebird nesting areas when visiting Connecticut beaches, and also when viewing fireworks displays near these areas. Keep dogs and cats off shoreline beaches to avoid disturbing nesting birds. Herons and egrets are nesting on offshore islands in Long Island Sound. Refrain from visiting these areas during the nesting season.

..... Dispose of fishing line in covered trash containers or specifically marked recycling receptacles. Improperly discarded fishing line is a hazard for wildlife. A list of recycling receptacle locations is available at www.ct.gov/dep/whatdoidowith.

June 4..... **National Trails Day**, sponsored by the Connecticut Forest and Park Association (CFPA). Hikes and other events will be held throughout the state. To learn more, visit the CFPA Web site (www.ctwoodlands.org) or call 860-346-2372.

June 4..... **Rainbow Dam Fishway Open House** in Windsor, from 10:00 AM-3:30 PM (see page 9 for more information).

June 25..... **Pollinator Walk**, at the Wildlife Division's Belding WMA, in Vernon, starting at 9:00 AM. Take a walk to find various pollinators during Pollinator Week. Parking is on Bread and Milk Road in Vernon. Call 860-306-5418 for more information.

June 26-July 2 ..... **National Mosquito Awareness Week** – go to www.mosquito.org for more information. Visit Connecticut's mosquito Web page at www.ct.gov/mosquito to learn more about mosquitoes and West Nile Virus.

Programs at the Sessions Woods Conservation Education Center

Programs are a cooperative venture between the Wildlife Division and the Friends of Sessions Woods. Please pre-register by calling 860-675-8130 (Mon.-Fri., 8:30 AM-4:30 PM). Programs are free unless noted. An adult must accompany children under 12 years old. No pets allowed! Sessions Woods is located at 341 Milford St. (Route 69) in Burlington.

May 14..... **Charcoal to Iron: An Interpretive Hike**, starting at 1:30 PM. Join Master Wildlife Conservationist Shirley Sutton for a hiking talk, featuring Sessions Woods and the importance of the charcoal industry. Shirley is an avid educator about the history of Connecticut's past land use. She has presented programs on the "Leatherman" and "Native Americans in Northwest Connecticut." This program will include a slide presentation indoors and an outdoors hike to view signs of past land use.

May 25..... **Plants and their Wildlife Value**, from 10:00 AM-12:00 PM. Join Jack Hamill on an interpretive walk to identify plants and shrubs and their use to wildlife as food or shelter. A mile or so in length, this program will traverse mild terrain. Please wear appropriate outdoor gear and meet in the exhibit room.

June 4..... **Trails Day Educational Walk at Sessions Woods**, starting at 1:30 PM. Sessions Woods will be participating in National Trails Day with an educational walk to learn about wildlife and wildlife habitat on a one-mile hike to the beaver marsh. Participants can return the same way or continue on their own to complete a three-mile loop of the property. Meet leader Laura Rogers-Castro at the flagpole in front of the Conservation Education Center.

June 26..... **Year of the Turtle Day**, from 1:00-4:00 PM. View artwork submitted for the Turtle Art Contest for Kids. Also planned for the event are educational programs on turtles, a display of live turtles, and crafts for kids. More information about the event will be on the DEP's Year of the Turtle Web page at www.ct.gov/dep/yearofturtle.

July 9..... **Butterflies of Sessions Woods**, starting at 10:00 AM. Visit the flowers and fields at Sessions Woods to identify the local butterfly fauna with Wildlife Division Natural Resources Educator Laura Rogers-Castro. Participants will learn the basics to butterfly identification, including tips on distinguishing the various butterfly families.

Sept. 24 ..... **Connecticut Hunting & Fishing Day**. Save the date! Stay tuned to the Web page at www.ct.gov/huntfishday to find out more details about this fun, free, family event.

Hunting and Fishing Season Dates

April 27-May 28 ..... **Spring Turkey Hunting Season.** Consult the 2011 Connecticut Hunting and Trapping Guide for specific season dates and details. Printed guides are available at more than 350 locations statewide -- including town halls, bait and tackle shops, DEP facilities, and commercial marinas and campgrounds. The guide also is available on the DEP Web site (www.ct.gov/dep/hunting). Go to www.ct.gov/dep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses. The system accepts payment by VISA or MasterCard.

Connecticut Wildlife

PERIODICALS
POSTAGE PAID AT
BURLINGTON, CT,
AND ADDITIONAL
OFFICES

Connecticut Department of Environmental Protection
Bureau of Natural Resources / Wildlife Division
Sessions Woods Wildlife Management Area
P.O. Box 1550
Burlington, CT 06013-1550

EXPIRES COMP.
MANSFIELD CONSV/INLD WETLANDS
TOWN HALL
4 S EAGLEVILLE RD
STORRS CT 06268-2574

A female gray fox usually gives birth to a litter of four to five pups in spring. Gray fox dens are typically located in dense brush, cavities in stumps and trees, rock crevices, or under out-buildings, such as barns and sheds. The pups stay in the den until they are about four to five weeks of age, after which they emerge and begin to play outside the den entrance. At about 12 weeks of age, the pups are weaned and join the adults on hunting forays, learning to catch food for themselves.

Ashford Inland Wetlands and Watercourses Commission
5 Town Hall Road, Ashford Connecticut 06278

Application for Permit

(Land Use Office File #_____)

Property Owner/Applicant: Matthew & Melissa Shippee
Address: 264 Mt. Hope Road, Apt. 28, Mansfield Center, CT 06250
Telephone #860 -303 -6092 Fax #____-____-_____
Melissa
Applicant other than Property Owner: none
Company Name: (If Applicable)_____
Address: _____
Telephone #____-____-_____ Fax #____-____-_____

Name of Soil Scientist (If Applicable): Richard Zulick
Address: 400 Nott Highway, Ashford, CT 06278
Telephone #860 - 429 -1918

Prior Permit issued for this property ___ Date __/__/____ and/or Permit #_____

Description of Property and Location of Wetlands:

A. Parcel Identification: Tax Map #48, Block A, Lot # 6.1
B. Street Address of Property: (If Available) 128 Howard Road
C. Number of Acres: 4.3
D. Dimensions of Delineated (Flagged/Marked) Wetlands and Watercourses
X (See Site Plan/Map Attached)

Description of Planned Activity: (Including):

A Purpose of this activity Construct single family dwelling with on-site septic system, drilled well and driveway.
B Area of wetland disturbance (Square Feet) 0
C Amount of wetland soils removed (Cubic Yards) 0
D Amount of material deposited in wetlands (Cubic Yards) 0
E Size of upland drainage area, if wetland crossing (Acres) N/A
F Describe the schedule for planned activity Start September 2011 and complete by December 2011.
G State impact to Wetland on this property, areas adjacent to and downstream from this property. Provide impact mitigation plan for this project.
(__See attached or __Reference in Site Plan Specifications)
No impact to wetlands expected as long as sediment and erosion control measures are maintained until stabilization of disturbed areas.

Applicant's Agreement

The Applicant recognizes that the Ashford Inland Wetlands and Watercourses Commission represents citizen volunteers, dedicated to maintaining the quality of Ashford's environment by assisting property owners to comply with the Inland Wetlands Act (Conn. Gen. Stat 22a-36 through 22a-45) and Ashford Wetland Regulations as revised. That this Commission is acting as the State Regulatory Agency for the Town of Ashford. The Applicant agrees that this application will be considered complete when all required information and documents are submitted.

The Applicant further agrees that failure to provide complete information as requested in this application, and such additional information the Commission may require, or to provide accurate and truthful information will result in denial of this request for permit and revocation of any issued permit wrongfully obtained.

Signature of Applicant(s)

_____ Dated 5/13/11

Signature of Owner(s), if different from Applicant(s)

_____ Dated 5/13/11

Permission to Access Property

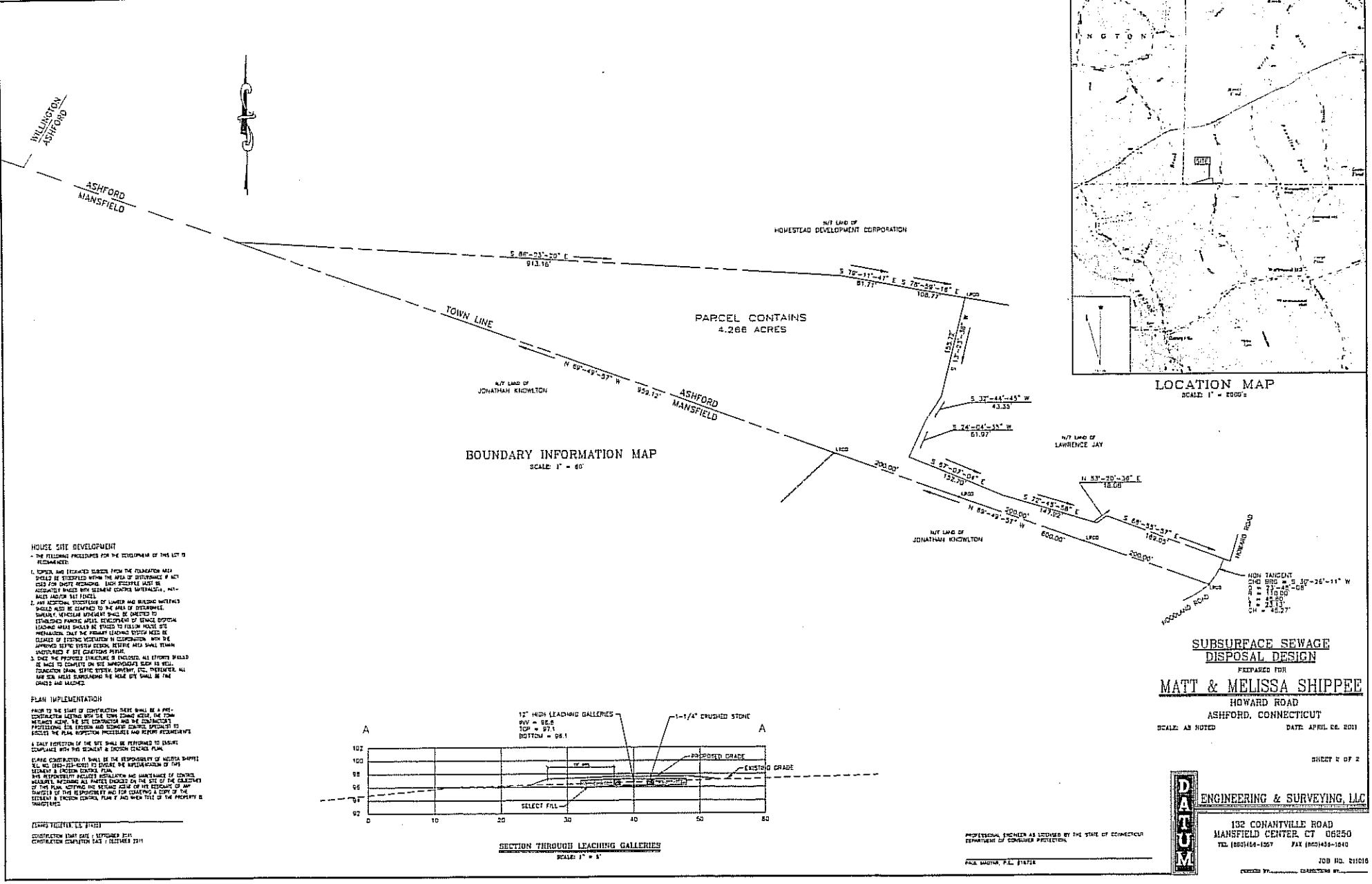
The Applicant and the Property Owner both grant permission to the Ashford Inland Wetlands and Watercourses Commission and their appointed Wetlands Officer to enter upon the subject property, during reasonable hours, for a period of time from the submission date of this application to the completion date of the permitted activity. The purpose of such access to the property is to ascertain the effect and/or impact of the wetlands activity and to inspect the property during the activity to assure compliance with the specifications of the issued permit.

Signature of Applicant(s)

_____ 5/13/11

Signature of Owner(s)

_____ 5/13/11



BOUNDARY INFORMATION MAP
SCALE: 1" = 60'

LOCATION MAP
SCALE: 1" = 2000'±

HOUSE SITE DEVELOPMENT

- THE FOLLOWING PROCEDURES FOR THE DEVELOPMENT OF THIS LOT IS RECOMMENDED:

1. TOPSOIL AND STRIPPED SUBSOIL FROM THE FOUNDATION AREA SHOULD BE STOCKPILED WITHIN THE AREA OF DISTURBANCE IF NOT USED FOR GRADE RESTORING. EACH STOCKPILE MUST BE ADEQUATELY PROTECTED WITH SEDIMENT CONTROL MATERIALS (i.e., HAY BALES AND/OR SILT FENCE).
2. ANY ADDITIONAL STOCKPILING OF TOPSOIL AND BORROW MATERIALS SHOULD ALSO BE CONFINED TO THE AREA OF DISTURBANCE. SIMILARLY, VEHICULAR MOVEMENT SHALL BE DIRECTED TO ESTABLISHED PAVED AREAS. DEVELOPMENT OF SEWAGE DISPOSAL LEACHING AREAS SHOULD BE STAKED TO FOLLOW HOUSE SITE PREPARATION. ONLY THE PRIMARY LEACHING SYSTEM NEED BE CLEARED OF EXISTING VEGETATION IN CONFORMATION WITH THE APPROVED SEPTIC SYSTEM DESIGN. RESERVE AREA SHALL REMAIN UNDISTURBED IF SITE CONDITIONS PERMIT.
3. ONCE THE PROPOSED STRUCTURE IS ENCLOSED, ALL EFFORTS SHOULD BE MADE TO COMPLETE ON SITE IMPROVEMENTS SUCH AS WELL, FOUNDATION DRAIN, SEPTIC SYSTEM, DRIVEWAY, ETC., THEREAFTER, ALL BARE SOIL AREAS SURROUNDING THE HOUSE SITE SHALL BE FINE GRADED AND MULCHED.

PLAN IMPLEMENTATION

PRIOR TO THE START OF CONSTRUCTION THERE SHALL BE A PRE-CONSTRUCTION MEETING WITH THE TOWN STAFF AGENT, THE TOWN WETLANDS AGENT, THE SITE CONTRACTOR AND THE CONTRACTOR'S PROFESSIONAL SOIL EROSION AND SEDIMENT CONTROL SPECIALIST TO DISCUSS THE FINAL INSPECTION PROCEDURES AND REVIEW ASSIGNMENTS.

A DAILY INSPECTION OF THE SITE SHALL BE PERFORMED TO ENSURE COMPLIANCE WITH THIS SEDIMENT & EROSION CONTROL PLAN.

DURING CONSTRUCTION IT SHALL BE THE RESPONSIBILITY OF MELISSA SHIPPEE (TEL NO. (860-753-6092) TO ENSURE THE IMPLEMENTATION OF THIS SEDIMENT & EROSION CONTROL PLAN.

THIS RESPONSIBILITY INCLUDES INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE SITE OF THE OBJECTIVES OF THIS PLAN, NOTIFYING THE WETLANDS AGENT OF ANY SIGNIFICANT DEVIATIONS FROM THE APPROVED PLAN AND FOR COMPLETING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF AND WHEN TITLE OF THE PROPERTY IS TRANSFERRED.

(SIGNED TOGETHER, U.S. (DATE))

CONSTRUCTION START DATE (SEPTEMBER 2011
CONSTRUCTION COMPLETION DATE (DECEMBER 2011

SECTION THROUGH LEACHING GALLERIES
SCALE: 1" = 5'

PROFESSIONAL ENGINEER AS LICENSED BY THE STATE OF CONNECTICUT DEPARTMENT OF CONSUMER PROTECTION.

PAUL MARTINI, P.E. (#18728)

SUBSURFACE SEWAGE DISPOSAL DESIGN

PREPARED FOR

MATT & MELISSA SHIPPEE

HOWARD ROAD
ASHFORD, CONNECTICUT

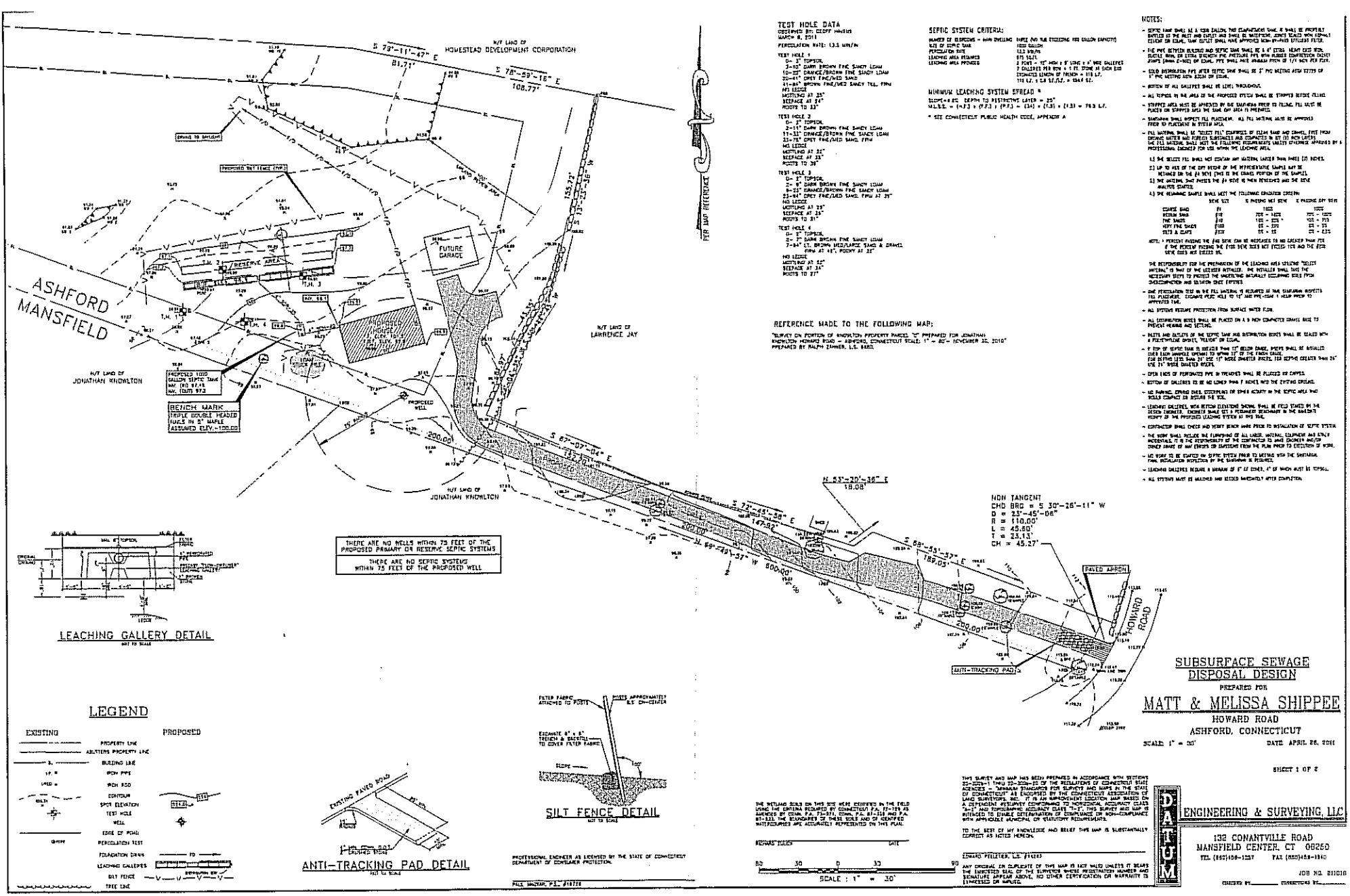
SCALE: AS NOTED DATE: APRIL 06, 2011

SHEET 2 OF 2

DATUM ENGINEERING & SURVEYING, LLC
132 CONANTVILLE ROAD
MANSFIELD CENTER, CT 06250
TEL (860)456-1057 FAX (860)456-1040

JOB NO. 211016

CHECKED BY:_____ DRAWN BY:_____



TEST HOLE DATA

OBSERVED BY: GEOFF HAINES
MARCH 8, 2011

PERCOLATION RATE: 13.5 MIN/IN

TEST HOLE 1
0- 3" TOPSOIL
3-10" DARK BROWN FINE SANDY LOAM
10-22" ORANGE/BROWN FINE SANDY LOAM
22-41" GREY FINE/MED SAND
41-84" BROWN FINE/MED SANDY TILL, FIRM
NO LEDGE
MOTTLING AT 25"
SEEPAGE AT 24"
ROOTS TO 33"

TEST HOLE 2
0- 3" TOPSOIL
3-11" DARK BROWN FINE SANDY LOAM
11-32" ORANGE/BROWN FINE SANDY LOAM
32-75" GREY FINE/MED SAND FIRM
NO LEDGE
MOTTLING AT 32"
SEEPAGE AT 33"
ROOTS TO 38"

TEST HOLE 3
0- 3" TOPSOIL
3- 8" DARK BROWN FINE SANDY LOAM
8-22" ORANGE/BROWN FINE SANDY LOAM
22-84" GREY FINE/MED SAND FIRM AT 35"
NO LEDGE
MOTTLING AT 28"
SEEPAGE AT 25"
ROOTS TO 31"

TEST HOLE 4
0- 3" TOPSOIL
3- 7" DARK BROWN FINE SANDY LOAM
7-84" LT. BROWN MED/LARGE SAND & GRAVEL FIRM AT 48", POORLY AT 22"
NO LEDGE
MOTTLING AT 22"
SEEPAGE AT 24"
ROOTS TO 27"

SEPTIC SYSTEM CRITERIA:

NUMBER OF BEDROOMS = MAIN DWELLING (ADD 1ea FOR EXISTING 750 GALLON CAPACITY) 4ea
SIZE OF SEPTIC TANK 1000 GALLON
PERCOLATION RATE 13.5 MIN/IN
LEACHING AREA REQUIRED 975 S.F.
LEACHING AREA PROVIDED 2 FOOT + 12" INCH x 8' LONG x 6' WIDE GALLEYS
7 GALLEYS PER INCH x 5 FT. STONE AT EACH END
ESTIMATED LENGTH OF TRENCH = 119 L.F.
119 L.F. x 8.0 S.F./L.F. = 1044 S.F.

MINIMUM LEACHING SYSTEM SPREAD *

SLOPE=4.8% DEPTH TO RESTRICTIVE LAYER = 25"
W.L.S.S. = (1+7.2 x (7.2 - (7.2 - (24) + (1.5)) + (1.5)) = 78.5 L.F.

* SEE CONNECTICUT PUBLIC HEALTH CODE, APPENDIX A

REFERENCE MADE TO THE FOLLOWING MAP:

"SURVEY ON PORTION OF KNOWLTON PROPERTY PARCEL "C" PREPARED FOR JONATHAN KNOWLTON HOWARD ROAD – ASHFORD, CONNECTICUT SCALE: 1" = 80' – NOVEMBER 22, 2010" PREPARED BY: RALPH ZIMMER, L.S. 8885

NOTES:

- SEPTIC TANK SHALL BE A 1000 GALLON TWO COMPARTMENT TANK. IF SHALL BE PROPERLY BAFFLED AT THE INLET AND OUTLET AND SHALL BE WATERTIGHT. JOINTS SEALED WITH BITUMINOUS SEALER OR EQUAL. TANK OUTLET SHALL HAVE APPROVED NON-CLOGGING EFFLUENT FILTER.
- THE PIPE BETWEEN BUILDING AND SEPTIC TANK SHALL BE A 4" SCH40 PVC SEWER CLASS WORK, SLOPED MINIMUM OF 1/4 INCH PER FOOT. ALL JOINTS SHALL BE WATERTIGHT.
- SOLID DISTRIBUTION PIPE AFTER SEPTIC TANK SHALL BE 4" PVC MEETING ASTM D3034 OF 3" PVC MEETING ASTM D2241 OF EQUAL.
- BOTTOM OF ALL GALLEYES SHALL BE LEVEL THROUGHOUT.
- ALL PIPING IN THE AREA OF THE PROPOSED SYSTEM SHALL BE STAKED BEFORE FILLING.
- STAKED AREA MUST BE APPROVED BY THE SANITARIAN PRIOR TO FILLING. FILL MUST BE PLACED ON STAKED AREA THE SAME DAY THAT IT IS PREPARED.
- SANITARIAN SHALL INSPECT FILL PLACEMENT. ALL FILL MATERIAL MUST BE APPROVED PRIOR TO PLACEMENT IN SYSTEM AREA.
- FILL MATERIAL SHALL BE "SELECT FILL" CONSISTING OF CLEAN SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES AND COMPACTED IN SIX (6) INCH LAYERS. THE FILL MATERIAL MUST MEET THE FOLLOWING ENGINEERING UNLESS OTHERWISE APPROVED BY A PROFESSIONAL ENGINEER FOR USE WITHIN THE LEACHING AREA.
  1) THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THREE (3) INCHES.
  2) UP TO AND OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED ON THE #4 SIEVE (THIS IS THE COARSE PORTION OF THE SAMPLE).
  3) THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REVIEWED AND THE SIEVE ANALYSIS STARTED.
  4) THE REMAINING SAMPLE SHALL MEET THE FOLLOWING GRADATION CRITERIA:

	SIEVE SIZE	% PASSING WET SIEVE	% PASSING DRY SIEVE
COARSE SAND	#4	100%	100%
MEDIUM SAND	#10	70% - 100%	70% - 100%
FINE SANDS	#40	10% - 80% *	10% - 75%
VERY FINE SANDS	#100	0% - 20%	0% - 5%
SILTS & CLAYS	#200	0% - 5%	0% - 2.5%

NOTE: * PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO AND DECREASED FROM 70% OF THE PERCENT PASSING THE #10 SIEVE DOES NOT EXCEED 100 AND THE #200 SIEVE DOES NOT EXCEED 5%.

- THE RESPONSIBILITY FOR THE PREPARATION OF THE LEACHING AREA UTILIZING "SELECT MATERIAL" IS THAT OF THE LICENSED INSTALLER. THE INSTALLER SHALL TAKE THE NECESSARY STEPS TO PROTECT THE UNDERLYING NATURALLY OCCURRING SOILS FROM OVER-COMPACTION AND SMEARING ONCE EXPOSED.
- ONE PERCOLATION TEST IN THE FILL MATERIAL IS REQUIRED AT TIME STAKEOUT INSPECTS FOR PLACEMENT. EXCAVATE PERC HOLE TO 12" AND PRE-SOAK 1 HOUR PRIOR TO APPROVED TIME.
- ALL SYSTEMS REQUIRE PROTECTION FROM SURFACE WATER FLOW.
- ALL DISTRIBUTION BOXES SHALL BE PLACED ON A 6 INCH COMPACTED GRAVEL BASE TO PREVENT HEAVING AND SETTLING.
- PASTE AND OUTLETS OF THE SEPTIC TANK AND DISTRIBUTION BOXES SHALL BE SEALED WITH A POLYETHYLENE SHEET, YELLOW OR EQUAL.
- IF TOP OF SEPTIC TANK IS GREATER THAN 12" BELOW GRADE, RISERS SHALL BE INSTALLED OVER EACH MANHOLE OPENING TO WITHIN 12" OF THE FINISH GRADE. FOR SEPTICS LESS THAN 24" USE 12" NOMINAL DIAMETER RISERS. FOR SEPTICS GREATER THAN 24" USE 24" NOMINAL DIAMETER RISERS.
- OPEN ENDS OF PERFORATED PIPE OR PERFORATED SHALL BE PLACED ON GRADES.
- BOTTOM OF GALLEYES TO BE NO LOWER THAN 2 INCHES INTO THE EXISTING GRAVEL.
- NO PARKING, DRIVING OVER, STOCKPILING OF STONES ACTIVITY IN THE SEPTIC AREA THAT WOULD COMPACT OR DISTURB THE SOIL.
- LEACHING GALLEYES, WITH BOTTOM ELEVATIONS SHOWN, SHALL BE FIELD STAKED BY THE DESIGN ENGINEER. ENGINEER SHALL SET A PERMANENT BENCHMARK IN THE IMMEDIATE VICINITY OF THE PROPOSED LEACHING SYSTEM AT THIS TIME.
- CONTRACTOR SHALL CHECK AND VERIFY BENCH MARK PRIOR TO INSTALLATION OF SEPTIC SYSTEM.
- THE WORK SHALL INCLUDE THE FURNISHING OF ALL LABOR, MATERIAL, EQUIPMENT AND ANY INCIDENTALS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ENQUIRY AND/OR DIRECT ABOUT OF ANY ERRORS OR QUESTIONS FROM THE PLAN PRIOR TO EXECUTION OF WORK.
- NO WORK TO BE STARTED ON SEPTIC SYSTEM PRIOR TO MEETING WITH THE SANITARIAN. FINAL INSTALLATION INSPECTION BY THE SANITARIAN IS REQUIRED.
- LEACHING GALLEYES REQUIRE A MINIMUM OF 6" OF SOVER, 4" OF WHICH MUST BE TOPSOIL.
- ALL SYSTEMS MUST BE MARKED AND RECORDED ACCURATELY AFTER COMPLETION.

LEACHING GALLERY DETAIL

NOT TO SCALE

LEGEND

EXISTING / PROPOSED

- PROPERTY LINE
- ABUTTERS PROPERTY LINE
- BUILDING LINE
- IRON PIPE
- IRON ROD
- CONTOUR
- SPOT ELEVATION
- TEST HOLE
- WELL
- EDGE OF ROAD
- PERCOLATION TEST
- FOUNDATION DRAIN
- LEACHING GALLEYES
- SILT FENCE
- TREE LINE

ANTI-TRACKING PAD DETAIL

NOT TO SCALE

SILT FENCE DETAIL

NOT TO SCALE

THE WETLAND SOILS ON THIS SITE WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CONNECTICUT P.A. 87-329 AS AMENDED BY CGS. P.A. 11-311, CGNS. P.A. 87-515 AND P.A. 87-333. THE BOUNDARIES OF THESE SOILS AND OF HEREFIED WATERCOURSES ARE ACCURATELY REPRESENTED ON THIS PLAN.

RICHARD TOLLES — DATE

SCALE : 1" = 30'

PROFESSIONAL ENGINEER AS LICENSED BY THE STATE OF CONNECTICUT DEPARTMENT OF CONSUMER PROTECTION.

PAUL MACNAB, P.E.# 018778

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. IT IS AN IMPROVEMENT LOCATION MAP BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "A-2" AND TOPOGRAPHIC ACCURACY CLASS "T-2". THIS SURVEY AND MAP IS INTENDED TO ENABLE DETERMINATION OF COMPLIANCE OR NON-COMPLIANCE WITH APPLICABLE MUNICIPAL OR STATUTORY REQUIREMENTS.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

EDWARD PFELETIER, L.S. #16283

ANY ORIGINAL OR DUPLICATE OF THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE. NO OTHER CERTIFICATION OR WARRANTY IS EXPRESSED OR IMPLIED.

SUBSURFACE SEWAGE DISPOSAL DESIGN

PREPARED FOR

MATT & MELISSA SHIPPEE

HOWARD ROAD
ASHFORD, CONNECTICUT

SCALE: 1" = 30' DATE: APRIL 26, 2011

SHEET 1 OF 2

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JOB NO. 211016

CHECKED BY: _____ CONVERTED BY: _____