AGENDA

Mansfield Conservation Commission
Wednesday, August 18, 2010
Audrey P. Beck Building
CONFERENCE ROOM B
7:30 PM

1. **Call to Order**

2. **Roll Call**

3. **Opportunity for Public Comment**

4. **Minutes**
   a. July 21, 2010

5. **New Business**
   a. IWA Referral: W1461 - Elshakhs - 23 Bundy La - above ground pool in buffer
   b. UConn Proposed Reclaimed Water Facility (portions of DEP submittal are attached)
   c. Other

6. **Continuing Business**
   a. Swan Lake Discharge and other UConn Drainage Issues
   b. UConn Agronomy Farm Irrigation Project (7-29-10 Memo from G. Weidemann is attached)
   c. USDA Animal Health Research Facility- UConn Depot Campus (no new information)
   d. Eagleville Brook Impervious Surface TMDL Project (no new information)
   e. PZC Proposed Zoning Regulation Revisions (public hearing closed)
      Pleasant Valley Area Zoning (Decision expected in September)
   f. Natchaug River Basin project (Committee work in progress)
   g. UConn Hazardous Waste Transfer Station (no new information)
   h. Ponde Place Student Housing Project (Request to UConn for emergency water supply is pending)
   i. CL&P "Interstate Reliability Project" (Alternative tower locations with lines over Hawthorne Lane and section of Conservation easement is pending before PZC)
   j. Other

7. **Communications**
   a. Minutes
      - Open Space (7/20/10)
      - PZC (7/19/10 & 8/2/10) • IWA (8/2/10)
   b. Inland Wetland Agent Monthly Activity Report
   c. 6/30/10 DEP Approval of UConn Composting Facility
   d. Information on Pilot test study to remediate petroleum impacted soil and groundwater at 7 Storrs Rd. (Former Mobil Service Station)
   e. July/August 2010 Connecticut Wildlife
   f. Other Correspondence

8. **Other**

9. **Future Agendas**

10. **Adjournment**

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Town of Mansfield
CONSERVATION COMMISSION
Meeting of 21 July 2010
Conference B, Audrey P. Beck Building
(DRAFT) MINUTES

Members present: Joan Buck (Alt.), Robert Dahn (from 7:50p), Neil Faccinetti (Alt.), Quentin Kessel, Scott Lehmann. *Members absent*: Peter Drzewiecki, John Silander, Joan Stevenson, Frank Trainor.. *Others present:* Grant Meitzler (Wetlands Agent); Stephen Baker (homeowner) and Fran Raiola (Fire Marshall's office) regarding W1459.

1. The meeting was **called to order** at 7:32p by Chair Quentin Kessel.

2. The draft **minutes of the 19 May meeting** were approved as written; the draft **minutes of the 16 June meeting** were approved with minor editorial changes.

3. IWA referral: W1459 (Baker, Thornbush Rd.) Mr. Baker's house is in the Willimantic River flood zone and has had a history of insurance claims for water damage. He has received a FEMA 90:10 grant to raise the finished level of the house 3′ above the 100-year flood level. This will be done by jacking up the existing house and pouring a new foundation underneath. Its walls will have openings, allowing flood-water to flow into (and out of) empty basement space to counteract buoyancy.

The IWA referral covers a proposed 60′ × 10′ porch on the front of the house (which is within 150′ of wetlands), supported by 6x6 posts anchored to concrete pilings. The Commission agreed that this project was unlikely to have any significant wetlands impact (motion: Faccinetti, Buck; all but Dahn – who was not yet present – voting affirmatively). Mssrs. Baker and Raiola left the meeting.

4. Committee on Committees meeting. On 19 July, Kessel and Lehmann met with the Committee on Committees regarding the Town Council's "Policy regarding advisory committees' communications with outside agencies." This policy requests that comments from advisory committees on issues of "town-wide importance" be communicated to "the Town Council or Town Manager and not to State or private parties."

The Committee appeared to concede that the stated rationale for the policy – to eliminate "confusion over the Town's position" – would be served by a less onerous requirement that communications with outside agencies state that the views expressed were those of the advisory committee and not necessarily the Town. However, the Commission was unable to secure any relief from the policy. Kessel argued that it hampers the Commission's ability to respond in a timely way to issues of concern, but the Committee didn't see why a letter to the DEP (say) couldn't be quickly cleared with the Town Manager or Town Planner before being sent. Kessel agreed to do give this a try.

5. CL&P Interstate Reliability Project. The PZC has been asked by residents of Hawthorne Lane to relocate CL&P's right-of-way (ROW) closer to Bassetts Bridge Road so that trees on their properties would not be cleared to make way for CL&P's proposed new 345 kV line. The new ROW would include the Hawthorne Lane cul-de-sac and 0.35 acres of conservation easement. After some discussion, the Commission

unanimously agreed (motion: Kessel, Lehmann) to offer the following comments:

- The Commission does not understand why the Town should give up a 0.35 acre conservation easement to provide approximately 2.5 acres of easement-free land to the Hawthorne Lane homeowners. Accordingly, the Commission suggests that a conservation easement be granted to the Town on land removed from the present ROW as a condition of approving its relocation.
- The Commission observes that this proposal to relocate the ROW comes from those with the most to gain from it, and hopes that the PZC will solicit opinion from other nearby landowners before making a decision.
- The Commission is disappointed that CL&P continues to prefer this route through northeast Connecticut to less environmentally costly alternatives and to prefer a second line of poles to a single pylon installation requiring no additional tree-clearing.
- It is unclear to the Commission why the ROW through Mansfield Hollow State Park need extend beyond the currently cleared area shown on the map.

6. Swan Lake discharge. DPH has granted a discharge permit for erosion-control enhancements at the Swan Lake outfall above Valentine Meadow. These improvements could enable the outfall to handle increased storm flows from UConn's proposed diversion of runoff from 44 acres in the Eagleville Brook watershed to the Fenton River watershed. However, this diversion would require a DPH permit, and it's hard to see how one could legally be granted, since it would approve discharging polluted water into a public water supply watershed.

7. Agronomy Farm. Residents of Storrs Heights participated in a productive Q&A session on turf research at the UConn Agronomy Farm during the 8 June Town-Gown Committee meeting. They are preparing follow-up questions for the Committee's 10 August meeting.

8. Adjourned at 8:55p. Next meeting: 7:30p, Wednesday, 18 August 2010

Scott Lehmann, Secretary, 26 July 2010

Memorandum: July 26, 2010
To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: New Business for the August 2, 2010 meeting

New Application:

W1461 - Elshakhs - 23 Bundy Lane - above ground pool in buffer

	yes	no
fee paid	X	
certified receipts	X	
map dated	7.12.2010	

This application requests approval for an above ground pool in the rear yard of the house at 23 Bundy Lane. This is the second house in coming from Gurleyville Rd.

The brook coming from Valentine Meadows and Mirror Lake flows across the rear of the lot and there is a wide wetland adjacent to the brook.

Receipt and referral to the Conservation Commission is appropriate.

PAGE
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APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3331
FAX: 860-429-6863

FOR OFFICE USE ONLY
File # W 1461
Fee Paid yes
Official Date of Receipt 8-02

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 Hisham Elshakhs

Mailing Address 23 Bundy Lane

Storrs, CT Zip 06268

Telephone-Home 860-429-2401 Telephone-Business

Title and Brief Description of Project

Install 21' Aboveground pool

Location of Project SAME

Intended Start Date ASAP

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 X Sedgwick Pools date 7/26/10

Applicant's interest in the land: (if other than owner) Installer of 21' Pool

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

Excavation and leveling to install 21' Rd Aboveground pool. Use of Bobcat to remove sod and level area for base of pool. Pool will be installed By hand with use of a small cement mixer. Silt fence to be installed Before using Bobcat to prevent Dirt from washing into Brook which is 100+ feet from pool location. No other location will work as the well is located in the front right, septic and leach fields are located in rear and front left of property. Excavated area will not exceed 900 sqft this provides a placement for pool and pump/filter equipment. Electrical to be done by seperate contractor

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

900 SQFT.

3) Describe the type of materials you are using for the project: 21 ABOVE GROUND POOL

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

b) include ***volume*** of material to be filled or excavated 5 YD

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

Part D - Site Description

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

Slight slop grade Towards the Brook

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 OTHER AREA FOR POOL

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 7/12/10

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	
Mark Magavzel	15 Bundy Ln	Storrs CT
RMEA Kelly Family LLC	29 Bundy Ln	Storrs CT
Timothy Tolokan	11 Holly Dr	Storrs CT

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.)

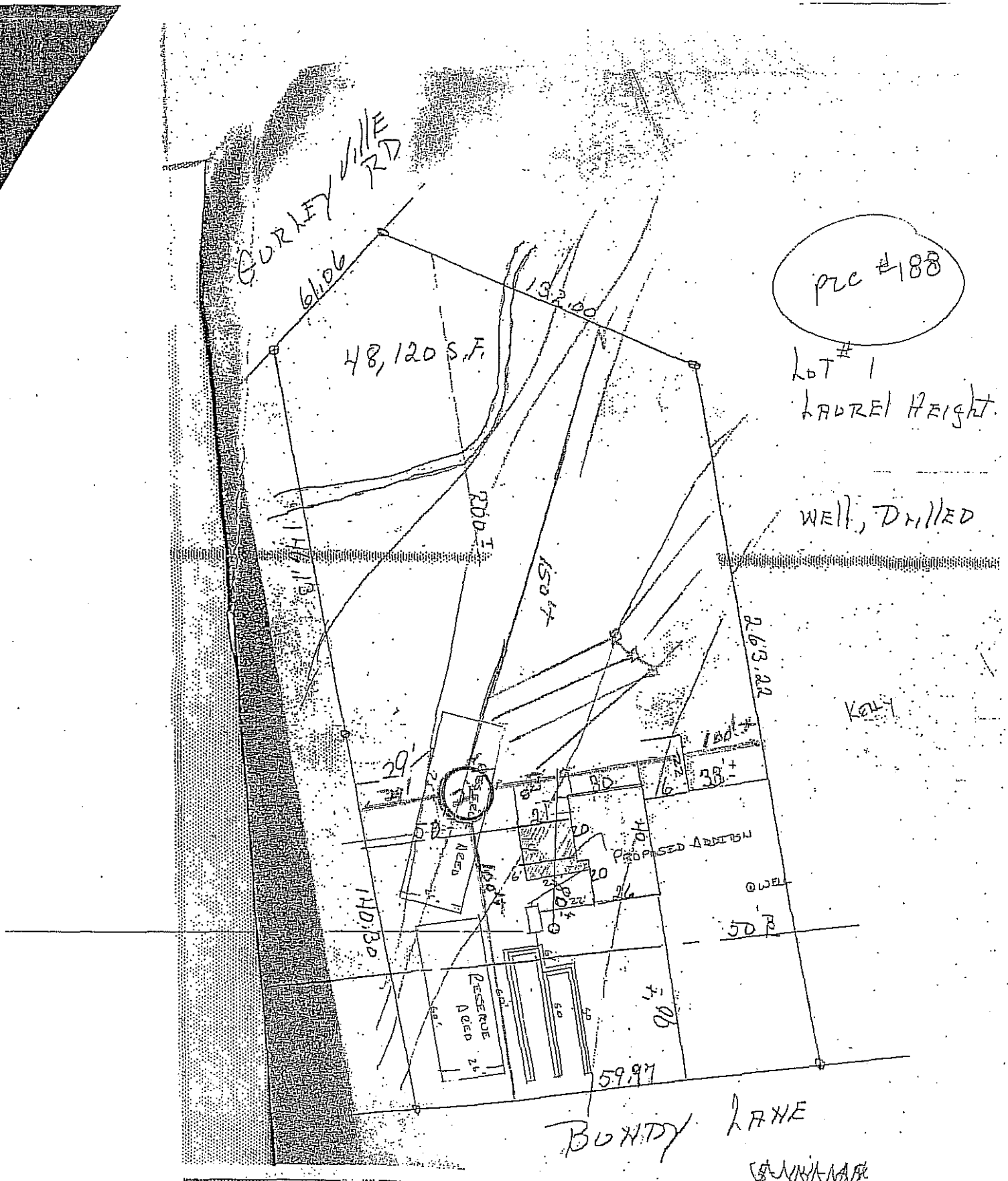
____ $385. ____ $110. ____ $60. ____ $25. $185 paid

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.

X _____ 7-24-10

Applicant's Signature Date


GURLEYVILLE RD
PRC #188
LOT # 1
LAUREL HEIGHT
WELL, DRILLED
48,120 S.F.
132.00
61.06
200 ±
150 ±
263.22
KELLY
29'
38'±
PROPOSED ADDITION
@ WELL
50 R
RESERVE AREA
59.97
BUNDY LANE
PROPERTY OF
HISHAM + JENNIFER ELSHAKES
23 BUNDY LN.
STORRS MANSFIELD CT 06268
FRUEH Job
23 Bundy Lane
1" = 50'
Above ground pool
7-12-10

Town of Mansfield, Connecticut

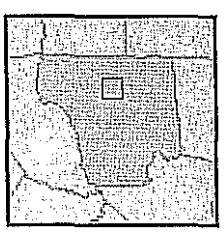
A Address No.
A Parcel ID
A Parcel Area
A Lot Dimensions
A Road Names
Zoning
Roadway
Roads
Streams
Water
Parcels

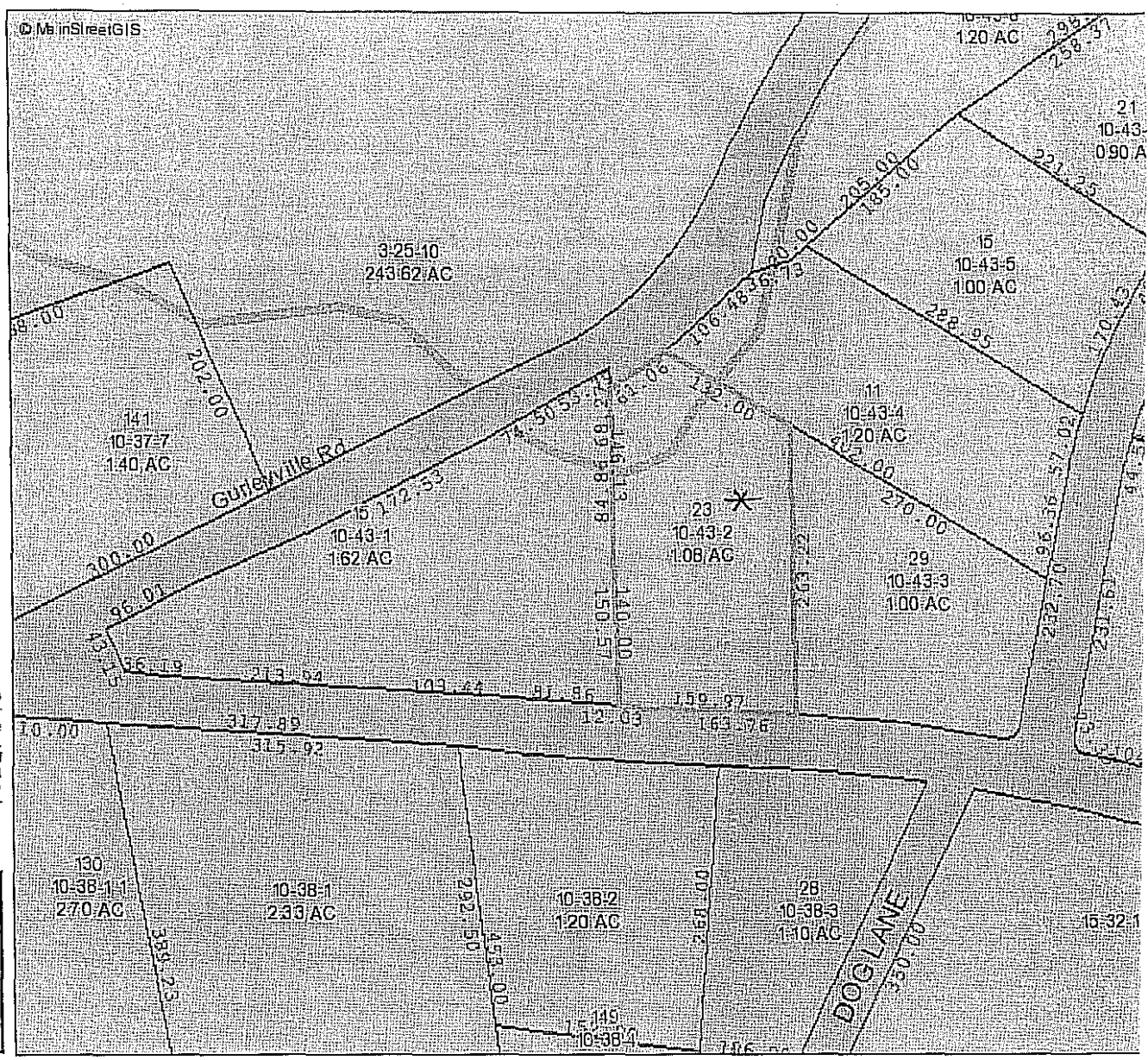
MainStreetGIS

www.mainstreetgis.com

MainStreetGIS makes no warranties, expressed or implied, concerning the accuracy, completeness, reliability, or suitability of these data and does not assume any liability associated with the use or misuse of this information

1 in = 149.76 ft





1 : 1797.12

Data Currency: Property Records 10/8/2009 GIS Parcel Lines 10/1/2009

University of Connecticut
Office of the Vice President and Chief Operating Officer

Office of Environmental Policy

July 30, 2010

Mr. Rowland Denny
Bureau of Water Protection and Land Reuse
Connecticut DEP
79 Elm Street
Hartford, CT 06106

Re: Proposed Reclaimed Water Facility
University of Connecticut
Storrs, Connecticut

Dear Mr. Denny:

For several years, the University of Connecticut has been investigating methods for reducing the amount of potable water used for non-potable purposes in the Central Utility Plant. The concept of reusing wastewater was discussed in the University's *Water and Wastewater Master Plan* (approved by the Connecticut Department of Public Health in 2007) and a separate *Water Conservation Study* conducted for the University. As you may recall, a feasibility study was conducted to identify the most appropriate means of treating wastewater for reuse. The study was published in March 2009. Since that time, the University has proceeded with design of a proposed Reclaimed Water Facility (RWF) to be located adjacent to the existing Water Pollution Control Facility (WPCF), more commonly referred to as the wastewater treatment plant.

The RWF design phase has progressed to the 100% design development milestone. Hence, the Project Narrative, design plans and technical specifications are hereby submitted in association with this letter.

The University has submitted separate permit applications and registrations to DEP in support of the RWF. A Flood Management Certificate (FMC) was submitted to DEP on January 26, 2010 (application FMC-201000037) and is pending review by the Inland Water Resources Division. The FMC application provides a description of stormwater management at the RWF site as related to the University's goals to reduce the net effect of impervious surfaces.

An Equal Opportunity Employer

31 LeDoyt Road Unit 3055
Storrs, Connecticut 06269-3055

Telephone: (860) 486-5446
Facsimile: (860) 486-5477
web: www.ecohusky.uconn.edu

Registrations for coverage under the Water Treatment Wastewater General Permit were submitted to DEP on May 7, 2010. One registration was submitted for the discharge from the RWF back to the WPCF (application 201003004) and one was submitted for the discharge from the reverse osmosis (RO) process at the CUP back to the WPCF (application 201003005).

A registration for General Permit for Stormwater and Dewatering Wastewaters Associated with Construction Activities will be submitted at a later date for the proposed site activities related to construction of the RWF.

A future permit application may seek authorization for use of reclaimed water for turf irrigation. This application would be submitted for administration through the Ground Water Discharge Permit Program.

The University is very excited about the prospect of using reclaimed water at the Central Utility Plant, and encourages your staff to contact us with any questions they might have regarding the project.

Sincerely,

Jason Coite
Environmental Compliance Analyst

Attachments

1) Project Narrative, University of Connecticut Reclaimed Water Facility, July 2010, including the Water Quality Assessment via Mass Balance Modeling report with electronic appendices
2) Design Drawings, Project 901229, Reclaimed Water Facility Contract Documents (one full size set of prints and portable document format [PDF] on data disc)
3) Project Manual, Project 901229, Reclaimed Water Facility Contract Documents, Vols. 1-3 (one paper copy and portable document format [PDF] on data disc)

cc: Ms. Betsey Wingfield, Bureau Chief, CT DEP Bureau of Water Protection and Land Reuse (letter only)
Yvonne Bolton, Bureau Chief, CT DEP Bureau of Material Management & Compliance Assurance (letter only)
Lori Mathieu, Section Chief, CT DPH Drinking Water Section (Attachments 1 and 2, and electronic copy of attachment 3)
Greg Padick, Director of Planning, Town of Mansfield (Attachments 1 and 2, and electronic copy of attachment 3)

PROJECT NARRATIVE
University of Connecticut
Reclaimed Water Facility

JULY 2010

MMI #3502-01-2

Prepared for:

UNIVERSITY OF CONNECTICUT
Office of Environmental Policy
31 Ledoyt Road
Storrs, Connecticut 06269

Prepared by:

MILONE & MACBROOM, INC.
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773
MILONE & MACBROOM®

In Association with:

HAZEN AND SAWYER, P.C.
101 Corporate Place
Rocky Hill, Connecticut 06067
(860) 257-1067

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Appendix A Current UConn WPCF NPDES Permit
Appendix B 2006 UConn WPCF NPDES Permit Application
Appendix C Water Quality Assessment via Mass Balance Modeling

1.0 INTRODUCTION

The University of Connecticut (the University) is located in the Storrs section of the Town of Mansfield, Connecticut. The Depot Campus is located approximately 4.5 miles to the west of the Main Campus, also within the Town of Mansfield. The University is home to approximately 22,500 undergraduate and graduate students and 4,200 faculty at the Storrs and Depot campuses. The University's Storrs campus is approximately 372 acres in size and contains academic buildings, associated parking, and athletic facilities.

The University provides water and wastewater services to its on-campus community, as well as adjacent areas within the Town of Mansfield. The University draws its potable water supply from two groundwater supply sources known as the Willimantic River Wellfield and the Fenton River Wellfield. The Main Campus water system receives water from both wellfields while the Depot Campus water system receives water from the Willimantic River Wellfield.

In response to a severe diminution of flow in the Fenton River in September 2005, the University has moved forward with several significant water conservation measures. A report entitled *Water Conservation Opportunities* was completed by Water Management, Inc. of Alexandria, Virginia in 2007. This report described wastewater treatment via microfiltration and subsequent reuse of the water as a means of reducing the demand for potable water at the University's Central Utility Plant (CUP).

A *Water and Wastewater Master Plan* was completed by Milone & MacBroom, Inc. (MMI) in 2007 to identify and evaluate viable options for meeting the University's future drinking water needs. The plan also includes an evaluation of its wastewater collection and treatment needs. The plan was approved by the Connecticut Department of Health (DPH) and DEP in 2007. The Water and Wastewater Master Plan also promoted the concept of wastewater reuse to diminish the reliance on potable water for non-potable needs at the CUP and for turf irrigation. Thus, a water reclamation facility has been

recognized for several years as one alternative to reducing demand on the water supply system by minimizing the use of potable water for non-potable needs.

The University's water system experiences its highest demand at the end of the summer when students return to campus, coincident with high water usage at the CUP and irrigation water use. It is also at this time that the University's water supplies tend to be most taxed, with periods of low instream flows coinciding with peak demand. The discharges from the University's Water Pollution Control Facility (WPCF) provide a substantial flow that can be further treated to produce reclaimed water for use on campus. It is expected that the use of treated effluent will eventually offset a significant portion of the potable water demand that occurs at this time.

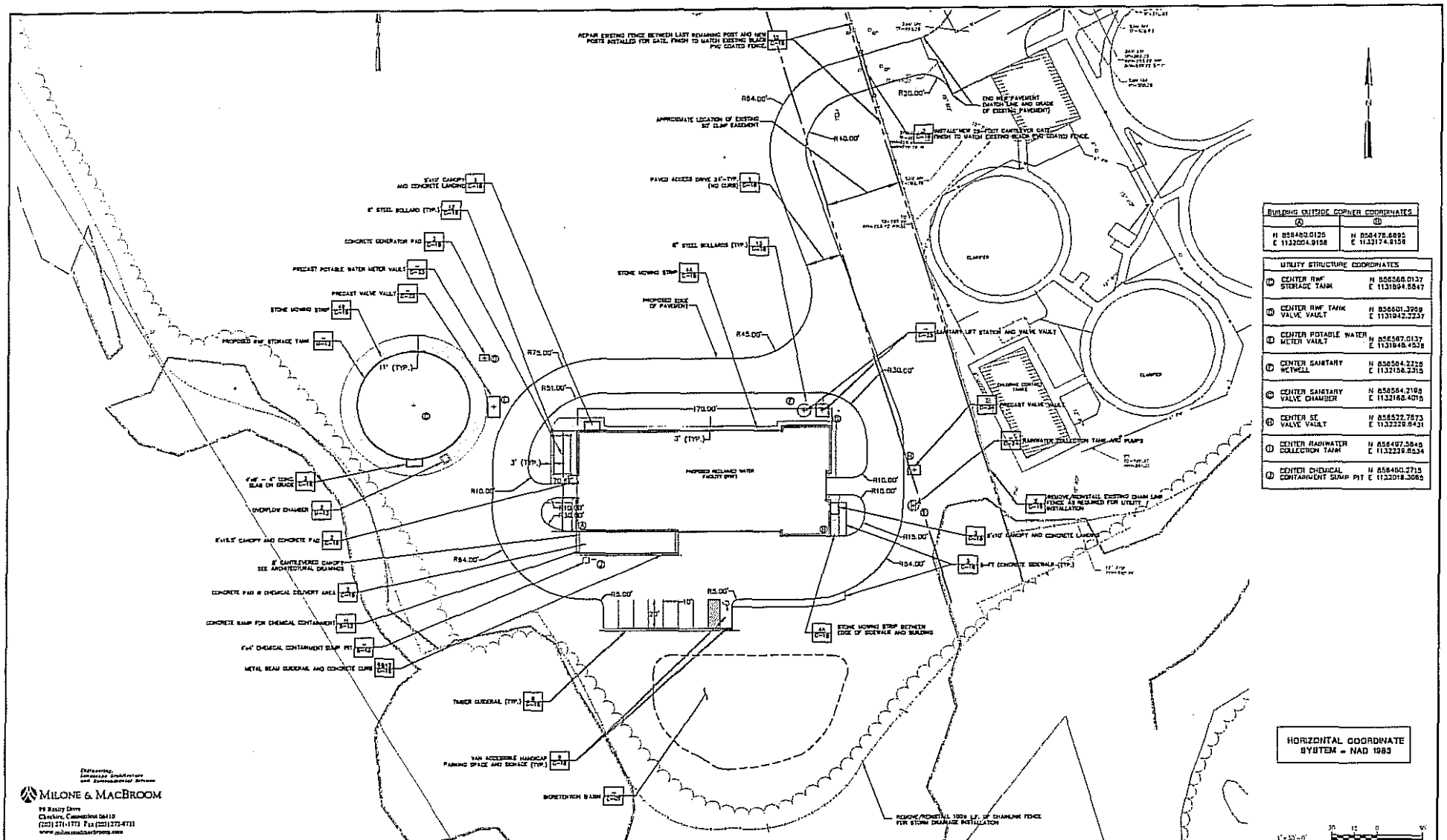
Hazen and Sawyer, P.C. (H&S) was contracted by the University of Connecticut to conduct a feasibility study and subsequently design a Reclaimed Water Facility (RWF). The design entails the expansion of the wastewater treatment plant to include a tertiary water treatment system capable of providing up to 1.0 mgd of treated effluent for reuse on campus. The design utilizes a single process train that employs microfiltration and ultraviolet disinfection to provide high quality product water. The feasibility study was completed in December 2008 and the Basis of Design Report was completed in March 2009. A 30% Design Report was issued in September 2009, and final design was completed in July 2010.

The University's WPCF (facility 078-005) is currently regulated by municipal NPDES Permit CT0101320 issued by the DEP. This permit regulates discharges from the WPCF into the Willimantic River, and the discharges from the WPCF into the Willimantic River must meet the water quality requirements of the NPDES permit. The permit expires on November 12, 2011, and it is expected that a renewal will be approved at such time. A copy of the permit can be found in Appendix A, and a copy of the application for the permit can be found in Appendix B. This Project Narrative has been completed to secure DEP approval of the RWF.

The University has submitted separate permit applications and registrations to DEP in support of the RWF. A Flood Management Certificate (FMC) was submitted to DEP on January 26, 2010 (application FMC-201000037) and is pending review by the Inland Water Resources Division. The FMC application provides a description of stormwater management at the RWF site as related to the University's goals to reduce the net effect of impervious surfaces.

Registrations for coverage under the Water Treatment Wastewater General Permit were submitted to DEP on May 7, 2010. One registration was submitted for the discharge from the RWF back to the WPCF (application 201003004) and one was submitted for the discharge from the reverse osmosis (RO) process at the CUP back to the WPCF (application 201003005).

Upon the receipt of the various DEP approvals and permits needed, the University plans to proceed with construction of the RWF.



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Cheshire, Connecticut 06410
(203) 271-1773 Fax (203) 272-9733
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NO.	DATE	ISSUED FOR	BY
1	JUNE 2010	BIDDING	RC

DESIGNED DD
DRAWN BW
CHECKED DD
REVIEWED —
PROJ. ENGR. —

SCALE 1"=30'

P.E.

HAZEN AND SAWYER

Environmental Engineers & Scientists

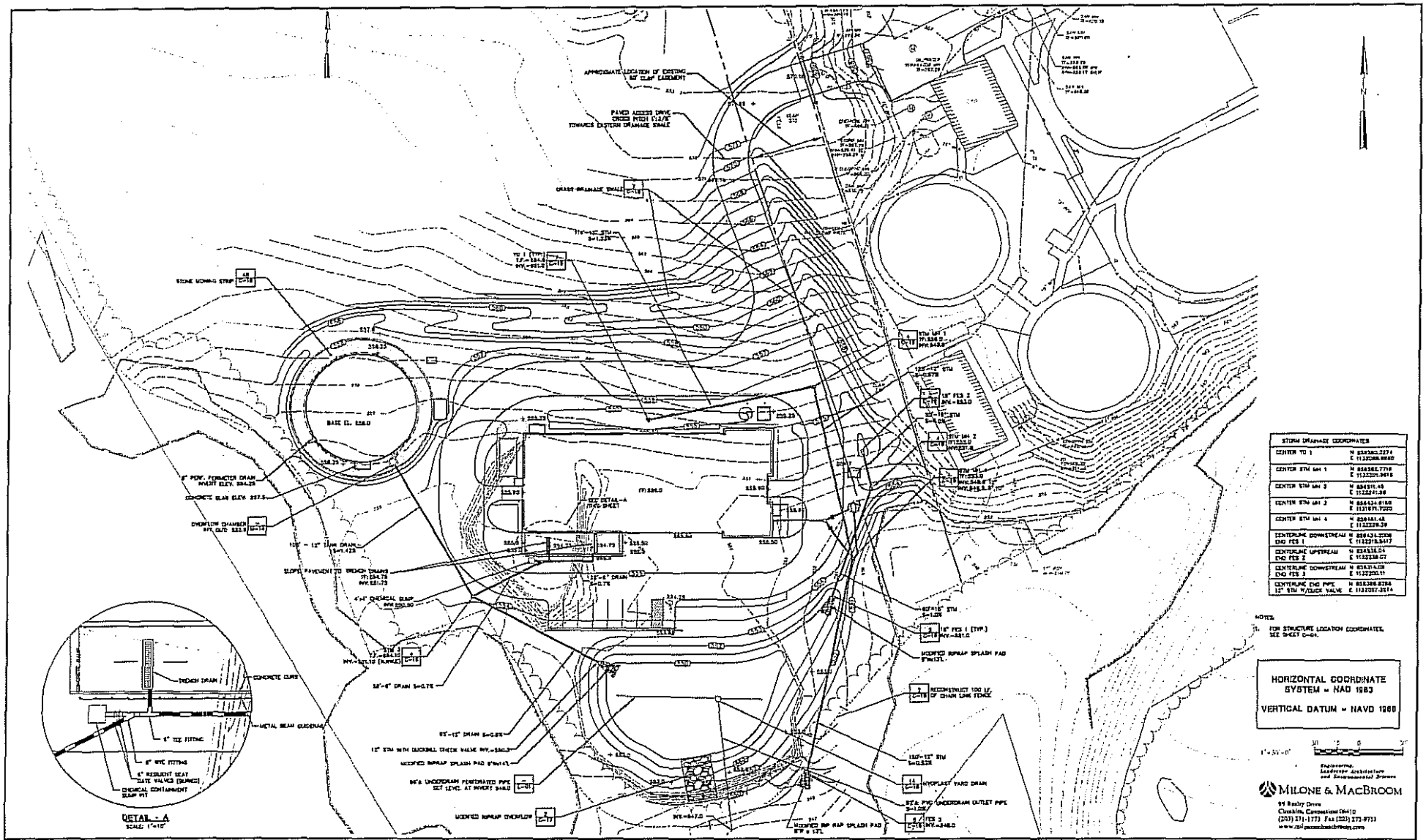
HAZEN AND SAWYER, P.C. • 498 SEVENTH AVE • NEW YORK, NEW YORK 10018

UNIVERSITY OF CONNECTICUT
RECLAIMED WATER FACILITY

CONTRACT 901229

SITE PLAN – LAYOUT

DATE JUNE 2010
SHEET 13 OF 213
DWG. NO. C-04



STORM DRAINAGE COORDINATES	
CENTER YD 1	N 884580.2274 E 1132088.9960
CENTER STM MH 1	N 884585.7716 E 1132201.3015
CENTER STM MH 3	N 884511.45 E 1132241.36
CENTER STM MH 2	N 884434.6150 E 1131971.7223
CENTER STM MH 4	N 884181.48 E 1132239.39
CENTERLINE DOWNSTREAM END FES 1	N 884434.2308 E 1132215.5417
CENTERLINE UPSTREAM	N 884338.24 E 1132238.07
CENTERLINE DOWNSTREAM END FES 2	N 883914.08 E 1132200.11
CENTERLINE END PIPE 12" STM W/QUICK VALVE	N 883386.8286 E 1132037.2574

NOTES:
1. FOR STRUCTURE LOCATION COORDINATES, SEE SHEET C-04.

HORIZONTAL COORDINATE SYSTEM = NAD 1983

VERTICAL DATUM = NAVD 1988

1" = 50'-0"

Engineering, Landscape Architecture and Environmental Sciences

MILONE & MACBROOM

99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773 Fax (203) 272-9733
www.milonemacbroom.com

NO.	DATE	ISSUED FOR	BY
1	JULY 2010	ISSUED FOR	RC

DESIGNED — DJ
DRAWN — RM
CHECKED — DJ
SENIOR CHECK — —
PRINCIPAL — —

SCALE 1"=30'

P.E.

HAZEN AND SAWYER

Environmental Engineers & Scientists

HAZEN AND SAWYER, P.C. • 498 SEVENTH AVE • NEW YORK, NEW YORK 10018

UNIVERSITY OF CONNECTICUT RECLAIMED WATER FACILITY

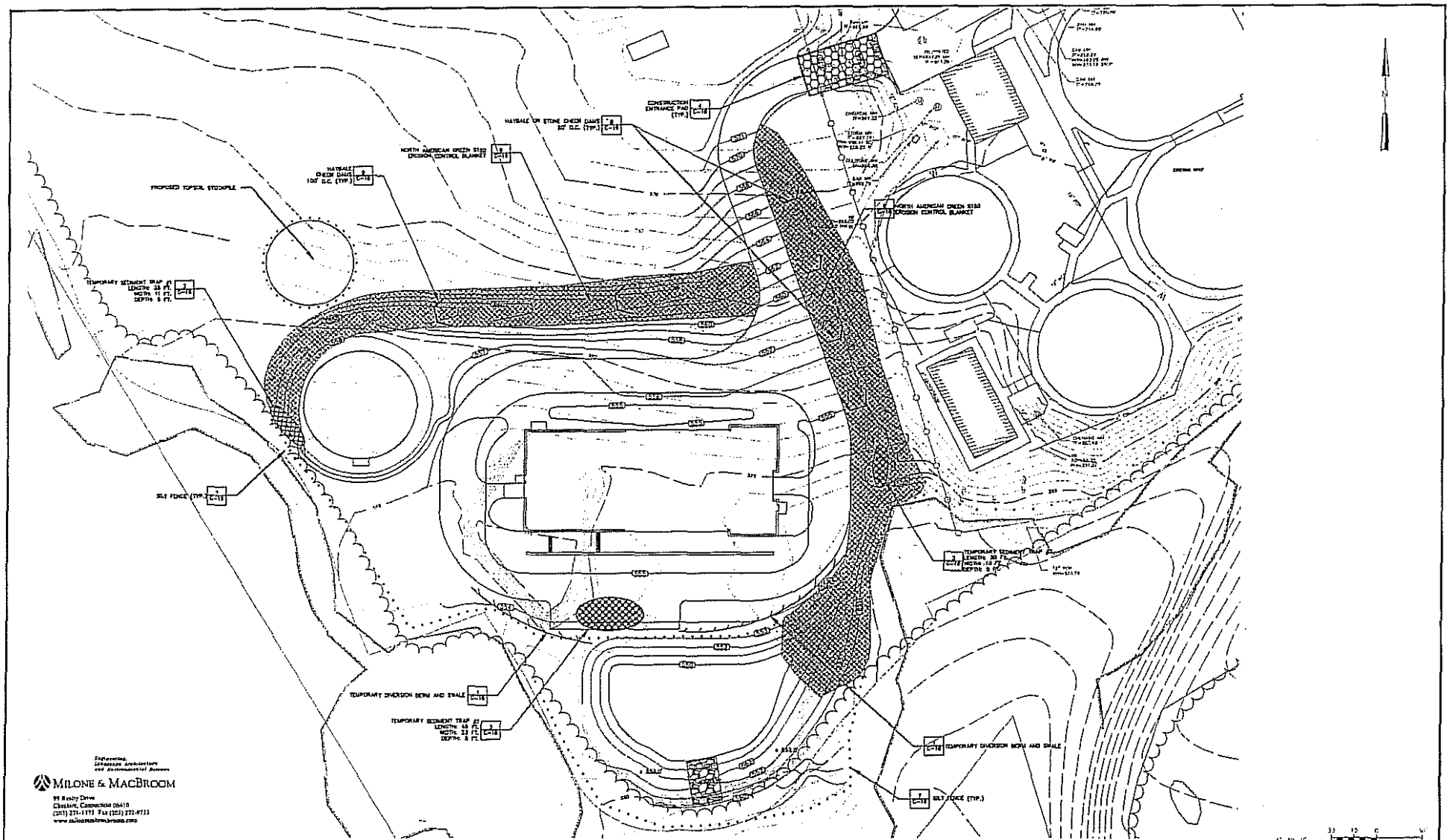
CONTRACT 901229

SITE PLAN – GRADING & DRAINAGE

DATE JUNE 2010

SHEET 14 OF 213

DWG. NO. C-05



NO.	DATE	ISSUED FOR	BY

DESIGNED — CD
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SCALE 1"=30'

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UNIVERSITY OF CONNECTICUT
RECLAIMED WATER FACILITY

CONTRACT 901229

SITE PLAN – EROSION AND SEDIMENT CONTROL

DATE JUNE 2010

SHEET 15 OF 213

DWG. NO. C-06

UNDERGROUND UTILITY LOCATION

PRIOR TO COMMENCEMENT OF PIPELINE CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL UNDERTAKE TEST PIT PROGRAM TO IDENTIFY AND DOCUMENT ELEVATION OF ALL UNKNOWN OR UNVERIFIED PIPELINE – UTILITY CROSSING ELEVATIONS. CONTRACTOR SHALL NOTIFY ENGINEER OF ANY POTENTIAL CONFLICTS.

GENERAL UTILITY INSTALLATION NOTES

1. WHERE EXTENSION OF NEW UTILITY LINES IMPACT AREAS OF EXISTING IMPROVEMENTS, THE SURFACE OF THE DISTURBED AREA FOR TRENCH CONSTRUCTION SHALL BE RESTORED BACK TO ORIGINAL CONDITIONS PRIOR TO WORK. THIS WILL INCLUDE BUT NOT BE LIMITED TO PAVEMENT, SIDEWALKS, CURBS, AND LANDSCAPED AREAS.
2. PERMANENT PAVEMENT REPAIR IN ROADWAYS WITH BITUMINOUS CONCRETE SHALL BE CONSTRUCTED PER DETAIL. RESTORE PAVEMENT MARKINGS TO ORIGINAL CONDITIONS (I.E. CROSS WALK, CENTERLINES OR STOP BARS).
3. OFF ROADWAY RESTORATION TO MATCH EXISTING WITH EITHER GRASS OR MULCH.
4. RE-PLANT ANY TREES AND OR SHRUBS DISTURBED BY TRENCH EXCAVATION. TREES AND SHRUBS TO BE REPLACED IN KIND.
5. WORK SHOULD NOT DISTURB SIDEWALKS, CURBS OR WALLS UNLESS IDENTIFIED ON PLANS.
6. BORING INFORMATION TAKEN FROM SEPTEMBER 2009 GEOTECHNICAL ENGINEERING REPORT BY HALEY & ALDRICH, PC.
7. BEDDING FOR THE PROPOSED FORCE MAIN AND MANHOLES SHALL CONSIST OF A SIX (6) INCH THICKNESS OF BEDDING SAND OVER THE EXISTING SOILS. PER THE SEPTEMBER 2009 GEOTECHNICAL ENGINEERING REPORT, THE EXISTING SOILS ARE NOT SUITABLE FOR PIPE BEDDING. BELOW GROUNDWATER LEVEL, THE UTILITY PIPING SHALL BE SUPPORTED ON A SIX (6) INCH THICKNESS OF CRUSHED STONE SURROUNDED BY A GEOTEXTILE FILTER. WHERE THE SUBGRADE IS DISTURBED BY EXCAVATION, IT SHOULD BE COMPACTED.
8. PROVIDE A MINIMUM 18" VERTICAL SEPARATION AT ALL UTILITY CROSSINGS OR PROVIDE CONCRETE ENCASEMENT PER SPECIFICATION AND DETAIL.

POTABLE WATER - SANITARY SEWER - RECLAIMED WATER SEPARATION NOTES

1) VERTICAL CONTROLS

SANITARY SEWER SYSTEMS AND/OR REUSE WATER MAINS SHALL CROSS UNDER POTABLE WATER MAINS WHENEVER PHYSICALLY POSSIBLE. SANITARY SEWER SYSTEMS AND/OR REUSE WATER MAINS CROSSING BELOW POTABLE WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES BETWEEN THE INVERT OF THE POTABLE WATER MAIN AND THE CROWN OF THE LOWER PIPE.

2) HORIZONTAL SEPARATIONS

WHEREVER IT IS PHYSICALLY POSSIBLE, SANITARY SEWER SYSTEMS REQUIRE A MINIMUM OF A 10-FOOT HORIZONTAL SEPARATION DISTANCE BETWEEN ANY POTABLE WATER MAIN PARALLEL INSTALLATIONS. REUSE WATER MAINS REQUIRE A MINIMUM OF A 3 FOOT CENTER TO CENTER (ABSOLUTE MINIMUM OF 3 FOOT OUTSIDE TO OUTSIDE OF PIPE) HORIZONTAL SEPARATION DISTANCE BETWEEN ANY POTABLE WATER MAIN AND/OR A SANITARY SEWER SYSTEM PARALLEL INSTALLATIONS. WHEREVER OTHER ARE NOT PHYSICALLY POSSIBLE, THEN THE POTABLE WATER MAIN SHALL BE LAID AT THE MAXIMUM PHYSICAL HORIZONTAL SEPARATION DISTANCE POSSIBLE, AND EITHER LAID:

A) IN A SEPARATE TRENCH;

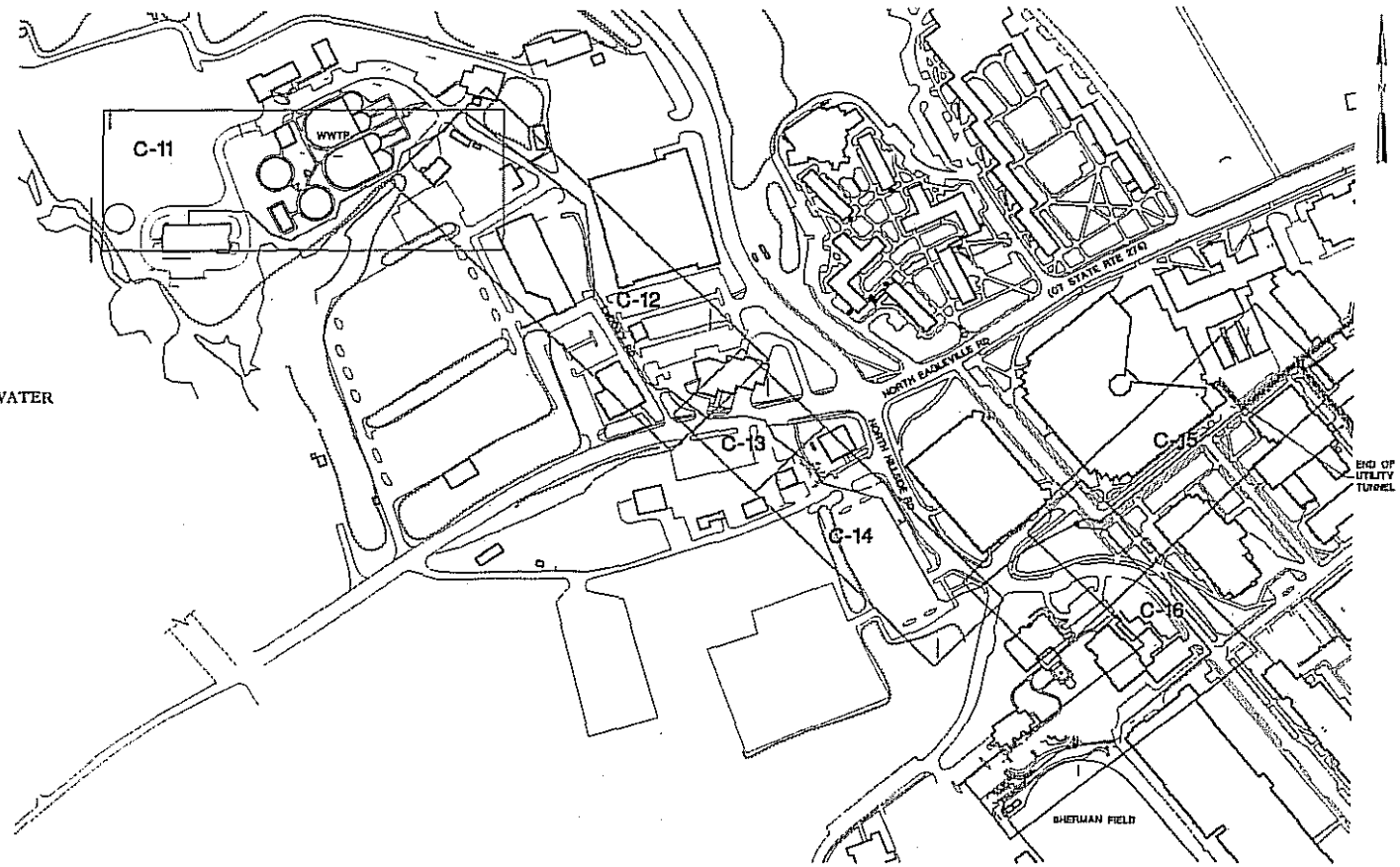
B) ON AN UNDISTURBED EARTH SHELF, WITH A MINIMUM VERTICAL SEPARATION DISTANCE OF 18 INCHES PROVIDED BETWEEN THE INVERT OF THE POTABLE WATER MAIN AND THE CROWN OF THE LOWER PIPE, THUS CONFORMING TO THE MINIMUM VERTICAL CROSSINGS IN PARAGRAPH 1).

3) CONFLICTS

WHEREVER IT IS NOT POSSIBLE TO MAINTAIN THE MINIMUM STANDARDS IN 1) AND 2), THEN ALL PIPING MATERIAL SHALL BE DUCTILE IRON PIPE (DIP). ALL DIP SHALL BE CLASS 53 OR HIGHER. ADEQUATE PROTECTIVE MEASURES AGAINST CORROSION SHALL BE USED AS DETERMINED BY THE DESIGN AND SITE CONDITIONS. ADDITIONALLY, ALL JOINTS ON THE POTABLE WATER MAIN, WITHIN 20 FEET OF THE CONFLICT, SHALL BE MECHANICALLY RESTRAINED. AN ABSOLUTE MINIMUM VERTICAL SEPARATION DISTANCE OF 6 INCHES SHALL BE PROVIDED BETWEEN THE INVERT OF THE UPPER PIPE AND THE CROWN OF THE LOWER PIPE.

LAWN OR MULCH BED RESTORATION

1. AFTER BACKFILLING TRENCH TO TOPSOIL DEPTH, PLACE TOPSOIL AT A MINIMUM DEPTH OF 4" OR MATCH EXISTING DEPTH IF GREATER.
2. FOR MULCH AREAS REPLACE MULCH IN KIND AT A MINIMUM DEPTH OF 3".
3. FOR LAWN AREAS EITHER REPLACE CUT SOD OR SEED AND FERTILIZE DISTURBED AREA ACCORDING TO SPECIFICATION.



Engineering
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SCALE: 1"=200'-0"

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RECLAIMED WATER FACILITY
CONTRACT 901229

REUSE WATER CONVEYANCE PLAN & PROFILE
INDEX SHEET

DATE JUNE 2010
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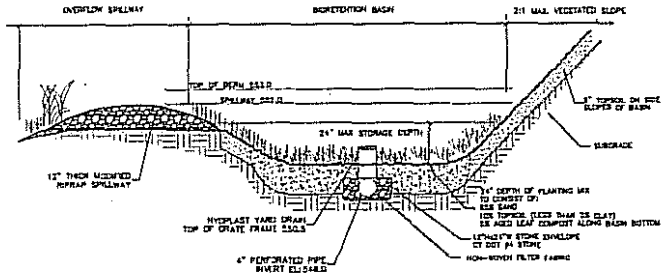

BIORETENTION BASIN SECTION
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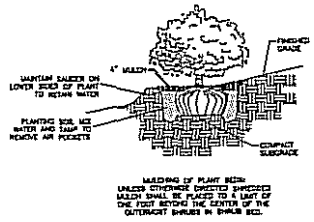


SHRUB DETAIL
N.T.S.

PLANTING SCHEDULE

BOTTOM OF BASIN

QTY	COMMON NAME	BOTANICAL NAME	SIZE	DESCRIPTION
14	SILKY DOGWOOD	Cornus amomum	3'-4' HT.	CONTAINERIZED STOCK
14	WINTERBERRY	Ilex verticillata	3'-4' HT.	CONTAINERIZED STOCK
14	NORTHERN ARROWWOOD	Viburnum dentatum	3'-4' HT.	CONTAINERIZED STOCK
14	SUMMERSWEET CLETHRA	Clethra alnifolia	3'-4' HT.	CONTAINERIZED STOCK
14	STEEPLEBUSH	Spiraea tomentosa	3'-4' HT.	CONTAINERIZED STOCK

SIDE SLOPES AND TOP OF BASIN

QTY	COMMON NAME	BOTANICAL NAME	SIZE	DESCRIPTION
32	GREY DOGWOOD	Cornus racemosa	3'-4' HT.	CONTAINERIZED STOCK
32	RED OSIER DOGWOOD	Cornus sericea	3'-4' HT.	CONTAINERIZED STOCK
32	SWEETGUM	Liquidambar styraciflua	3'-4' HT.	CONTAINERIZED STOCK
32	MEADOWSWEET	Salixe latifolia	3'-4' HT.	CONTAINERIZED STOCK
32	BLACK CHOKEBERRY	Aronia melanocarpa	3'-4' HT.	CONTAINERIZED STOCK

OUTSIDE OF BASIN

QTY	COMMON NAME	BOTANICAL NAME	SIZE	DESCRIPTION
2	SHADBLOW	Amelanchier spp.	8'-10' HT.	B & B
2	PIN OAK	Quercus palustris	8'-10' HT.	B & B
3	RIVER BIRCH	Betula nigra	8'-10' HT.	B & B

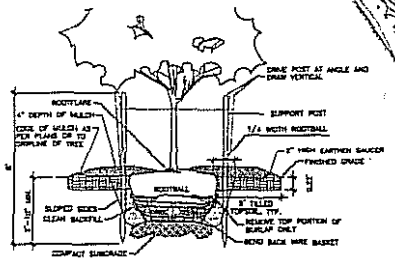
SEED MIX SCHEDULE

SEED MIX #1 – NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES PROVIDED BY NEWP INC. OR APPROVED EQUAL. SEEDING RATE: 20 LBS PER ACRE (1,230 FT²/LB) = 1 LBS

SEED MIX #2 – NEW ENGLAND CONSERVATION/WILDLIFE MIX PROVIDED BY NEWP INC. OR APPROVED EQUAL. SEEDING RATE: 25 LBS PER ACRE. (1,730 FT²/LB) = 13 LBS

PLANTING NOTES

1. CONTRACTOR TO VERIFY LOCATIONS OF UTILITIES PRIOR TO EXCAVATION OF TREE PLANTING PITS.
2. ALL TOPSOIL IS TO BE STOCKPILED AND REUSED TO COVER ALL DISTURBED AREAS.
3. THE SIDES IN THE BIORETENTION BASIN ARE NOT TO BE COMPACTED. NEW BASIN WITH SEED MIXES PER APPLICATION RATES SPECIFIED IN ADDITION TO PLANTS NOTED ABOVE.
4. QUANTITY, PLACEMENT & SPECIES OF BIORETENTION BASIN PLANTS ARE SUBJECT TO AVAILABILITY OF PLANT MATERIAL AT TIME OF INSTALLATION. FINAL LOCATION OF PLANTINGS ARE TO BE DETERMINED IN THE FIELD BY THE LANDSCAPE ARCHITECT/ WETLAND SCIENTIST.
5. ALL BASIN PLANTINGS ARE TO BE PLANTED ONLY AFTER STABILIZATION OF CONTRIBUTING DRAINAGE AREAS.
6. BASIN PLANTINGS SHALL BE CONCENTRATED IN CLUSTERS AND AS SHOWN ON THE PLANS.
7. BASIN PLANTINGS SHALL BE PLANTED FROM APRIL 15 – JUNE 15, OR THE MONTH OF SEPTEMBER. ONLY QUALITY NATIVE PLANTS FROM A NURSERY SHALL BE USED.
8. THE PROPOSED LANDSCAPING PLAN DOES NOT USE PLANTS FROM THE CONNECTICUT INVASIVE PLANT LIST AS PRODUCED BY THE CONNECTICUT INVASIVE PLANTS COUNCIL, CONNECTICUT PUBLIC ACT NO. 03-136, JANUARY 2004.
9. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A 6" MINIMUM DEPTH OF TOPSOIL ON BASIN SLOPES AND WITHIN SEED MIX ZONE #2.
10. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A 24" MINIMUM DEPTH OF PLANTING MIX AT BOTTOM OF BASIN (SEED MIX ZONE #1).
11. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A 4" MIN. DEPTH OF SHREDDED BARK MULCH OVER ALL TREE PLANTINGS AND SHRUBS LOCATED WITHIN SEED MIX ZONE #2.
12. ALL PLANT MATERIAL IS SUBJECT TO INSPECTION AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO AND AFTER PLANTING.
13. PLANT SPECIES MAY BE ADJUSTED BASED ON AVAILABILITY AT TIME OF PLANTING. ALL PLANT MATERIAL SUBSTITUTIONS SHALL BE APPROVED PRIOR TO INSTALLATION BY THE LANDSCAPE ARCHITECT.
14. ALL PLANT MATERIALS SHALL CARRY A FULL GUARANTEE FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE, TO INCLUDE PROMPT TREATMENT OR REMOVAL AND REPLACEMENT OF ANY PLANTS FOUND TO BE IN AN UNHEALTHY CONDITION BY THE LANDSCAPE ARCHITECT. ALL REPLACEMENTS SHALL BE OF THE SAME KIND AND SIZE OF PLANTS SPECIFIED IN THE PLANT LIST.
15. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL ACCEPTANCE BY THE LANDSCAPE ARCHITECT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, TIGHTENING & REPLACING OF GUYS, REPLACEMENT OF SICK OR DEAD PLANTS, RESETTING PLANTS TO PROPER GRADE OR UPRIGHT (PLUMB) PHYSICAL RESTORATION OF SAUCERS, AND ALL OTHER CARE NEEDED FOR PROPER GROWTH OF THE PLANTS.
16. CONTRACTOR TO REMOVE TREE STAKES AFTER ONE GROWING SEASON.



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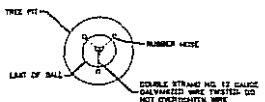

PLAN

NOTES:
1. SUPPORT STAKES SHALL BE REMOVED BY THE CONTRACTOR ONE YEAR AFTER INSTALLATION

TREE DETAIL
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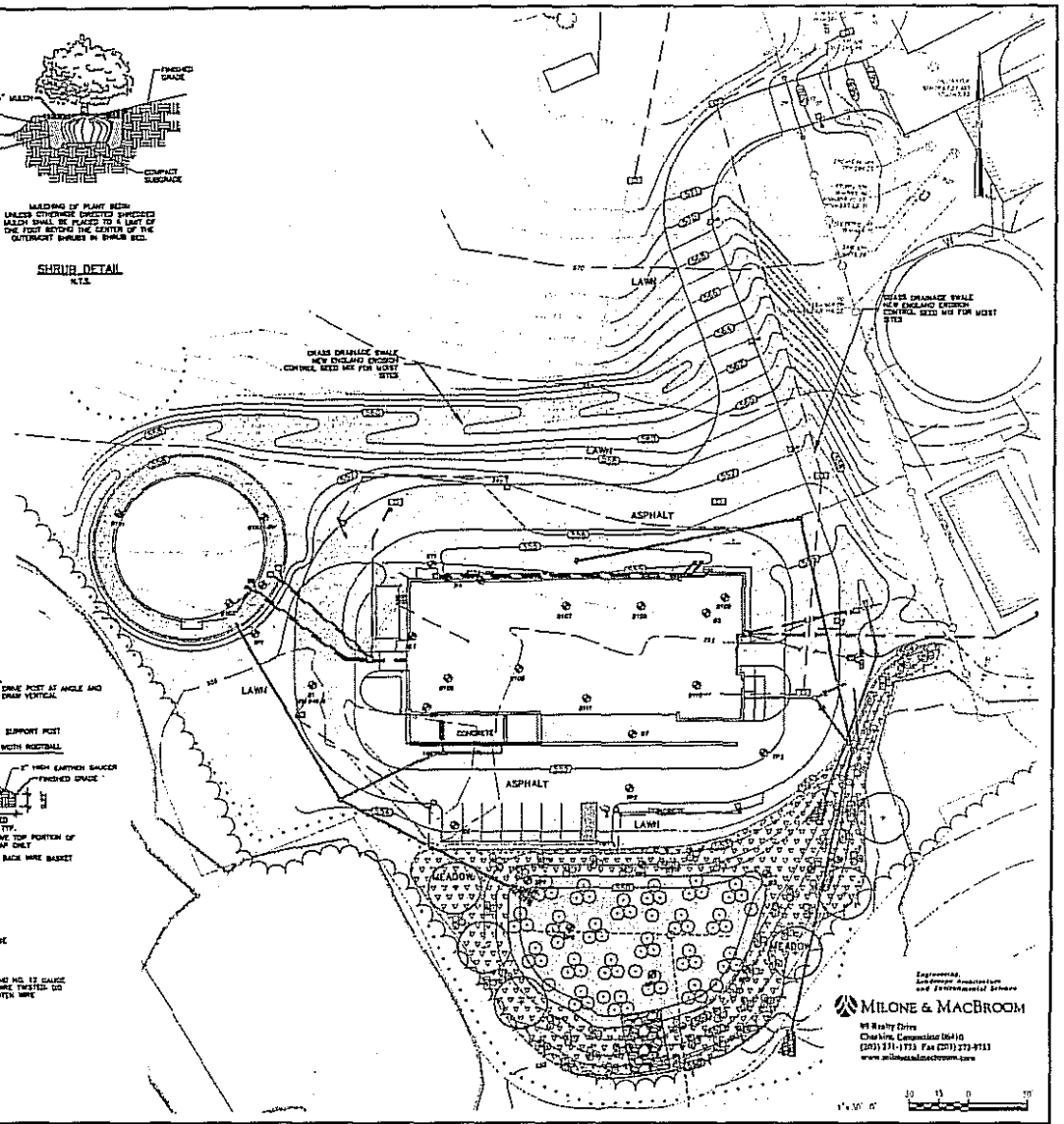

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LANDSCAPING PLAN – RECLAIMED WATER FACILITY

DATE JUNE 2010
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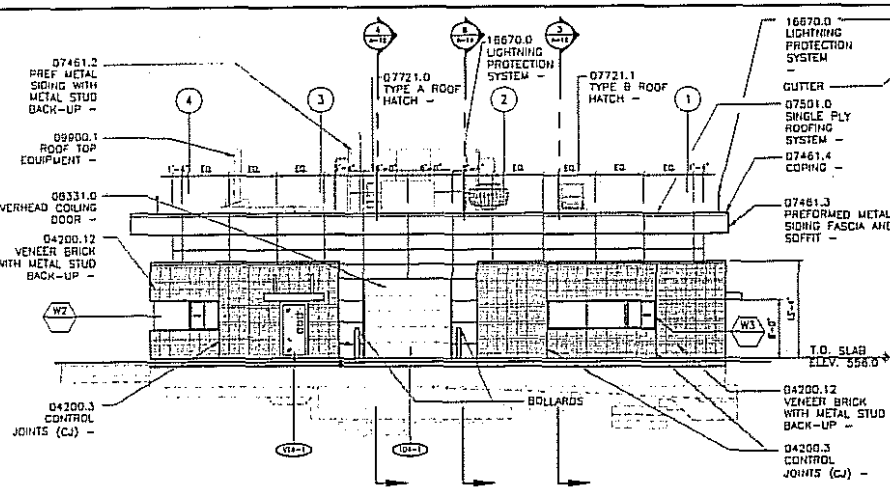

1 EAST ELEVATION
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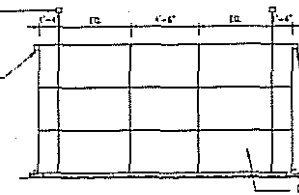

4 STAIR BULKHEAD: EAST ELEVATION
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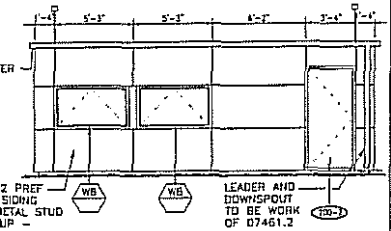

3 STAIR BULKHEAD: SOUTH ELEVATION
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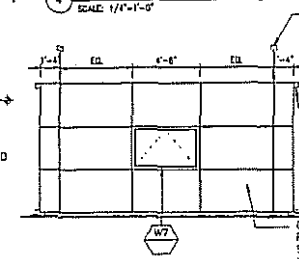

6 STAIR BULKHEAD: WEST ELEVATION
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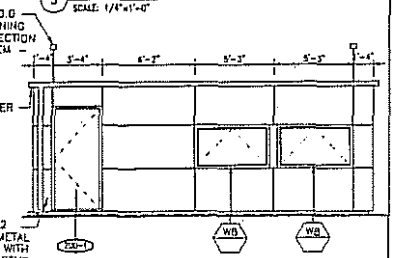

5 STAIR BULKHEAD: NORTH ELEVATION
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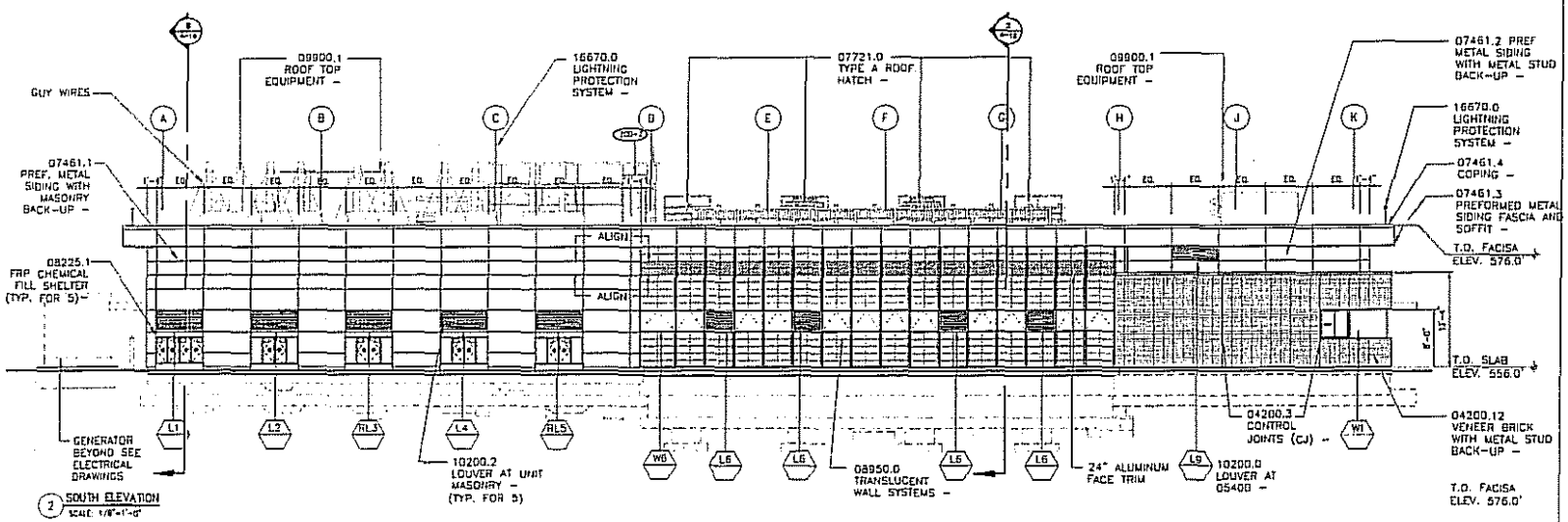

2 SOUTH ELEVATION
SCALE: 1/8"=1'-0"

ARCHITECTURAL NOTES

DIVISION 4

04200.12 VENEER BRICK WITH METAL STUD BACK-UP – PROVIDE VENEER BRICK IN STACKED BOND OVER 4-INCH CAVITY WITH AIR AND VAPOR BARRIER PER NOTE 07272 WITH 2-INCH CAVITY WALL INSULATION. BRICK TIES SPACING SHALL BE 16-INCHES ON CENTER VERTICAL AND HORIZONTAL. PLACE X-TAPE OVER INSULATION WHERE BRICK TIES ARE INSTALLED AND AT ALL JOINTS IN INSULATION. PROVIDE BACKER SEAL PER NOTE 07900.2. PROVIDE MORTAR NET AT THE BOTTOM OF ALL CAVITIES. EXTEND FLASHING 6" ABOVE MORTAR NET. PROVIDE TWO (2) ROWS OF WEEPS SEPERATED BY ONE COURSING ABOVE AND ONE ROW OF WEEPS AT THE TOP OF THE CAVITY. ALL WEEPS SET 16" O.C.

DIVISION 7

07461.1 PREF. METAL SIDING WITH MASONRY BACK-UP – PROVIDE PREFORMED METAL SIDING WITH 4-INCH CAVITY WITH AIR AND VAPOR BARRIER PER NOTE 07272.0 2-INCH CAVITY WALL INSULATION WITH MASONRY BACK-UP PER NOTE 04200.6 SYSTEM AND 09250.0 FOR GYPSUM BOARD SHEATHING.

07461.2 PREF. METAL SIDING WITH METAL STUD BACK-UP – PROVIDE PREFORMED METAL SIDING AND SUB-GRT WITH VAPOR BARRIER PER NOTE 07272.0 AND GYPSUM BOARD PANELS PER NOTE 09250.0 AND 2-INCH CAVITY WALL INSULATION WITH METAL STUD FRAMING PER NOTE 05400.0 FOR COLD ROLLED FRAMING.

07501.0 SINGLE PLY ROOFING SYSTEM – PROVIDE LOOSE LAID BALLAST SINGLE PLY ROOF SYSTEM OVER 4-INCH THICK ROOFING INSULATION, EXCLUSIVE OF TAPERED INSULATION LAYERS. PROVIDE SLIP SHEET AND BALLAST RATE AS INDICATED IN NOTE 07501.1. ROOF PERIMETERS TO HAVE PERFORATED GRAVEL STOP AT HEIGTH TO RETAIN BALLAST IN POSISITON ALONG THE PERIMETER.

07721.0 TYPE A ROOF HATCH – PROVIDE 6-FOOT SQUARE TYPE A ROOF HATCH WITH INSULATED FLASHING CURB ON ELEVATED CURB CONSTRUCTION.

07721.1 TYPE B ROOF HATCH – PROVIDE 6-FOOT WIDE BY 30-INCH DEEP TYPE B ROOF HATCH WITH INSULATED FLASHING CURB AND FIXED HATCH RAILING SYSTEM.

DIVISION 8

08331.0 OVERHEAD COILING DOOR – PROVIDE AUTOMATIC OVERHEAD COILING DOOR IN SIZE SHOWN ON CONTRACT DRAWING. CONTRACTOR IS TO COORDINATE DOOR WITH MASONRY OPENING.

08950.0 TRANSLUCENT WALL SYSTEMS – PROVIDE TRANSLUCENT WALL SYSTEM WITH OPERABLE WINDOW THERMAL BREAK SASH AND SUB GRID/SUPPORTS. TRANSLUCENT WALL SYSTEM SHALL BE SECURED TO ALLOW FOR SEISMIC MOVEMENT TO UNIT MASONRY AND STRUCTURAL CONCRETE FRAME WALL PROVIDES FLASHING IN ACCORDANCE WITH ARCHITECURAL NOTE 07600.1. TRANSLUCENT WALL SYSTEM SHALL INCLUDE WINDOWS AND LOUVERS INSTALLED WITHIN WALL PANELS. SUPPORT FOR ALL COMPONENTS INSTALLED WITHIN AND ATTACHED TO PANEL SYSTEM INCLUDING DAMPER AND MOTOR ASSEMBLIES FOR LOUVERS

DIVISION 9

09900.1 ROOF TOP EQUIPMENT – PAINT ALL EXPOSED ROOF TOP EQUIPMENT IN ACCORDANCE WITH SPECIFICATION 09000– PAINTING.

DIVISION 10

10200.0 LOUVER AT 05400 – PROVIDE LOUVER AS WORK OF 07461 PREFORMED METAL SIDING. MOTORED DAMPER ASSEMBLY TO BE SUPPORTED BY WORK OF 5400.

10200.2 LOUVER AT UNIT MASONRY – PROVIDE LOUVER AS WORK OF 07461 PREFORMED METAL SIDING. MOTORED DAMPER ASSEMBLY TO BE SUPPORTED BY UNIT MASONRY.

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ARCHITECTURAL
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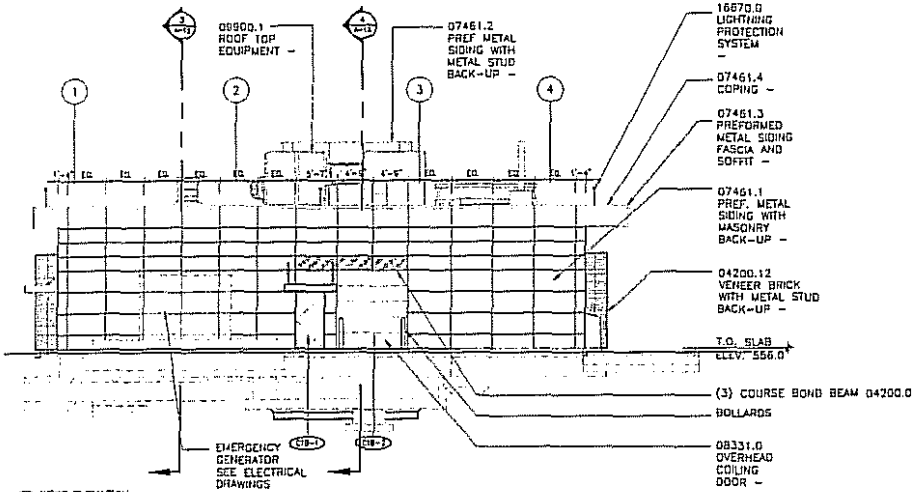
DWG. NO. A-10



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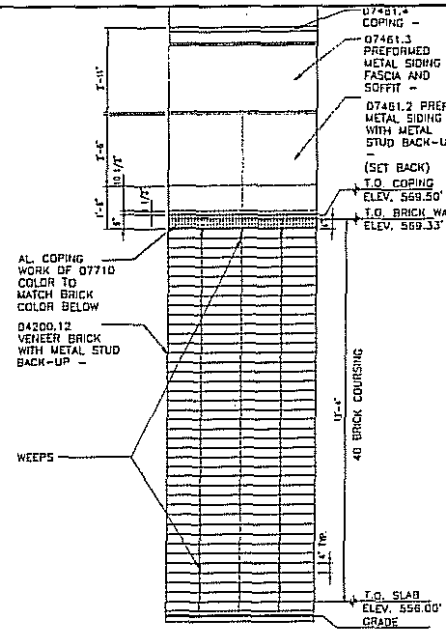

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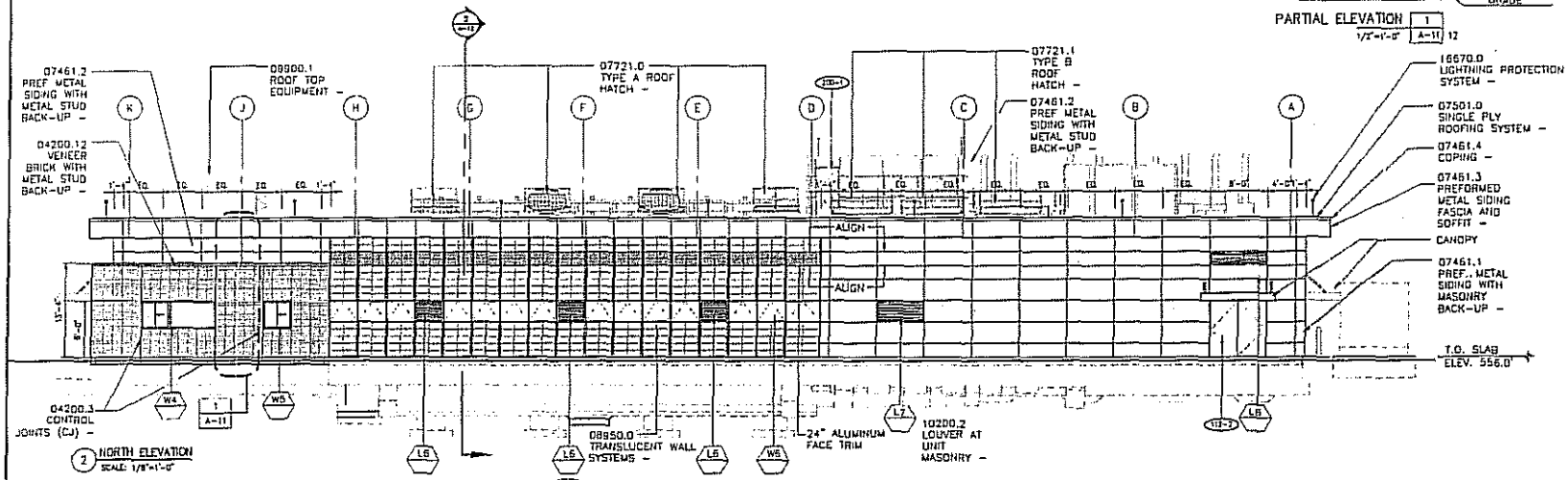

2 NORTH ELEVATION
SCALE: 1/8"=1'-0"

ARCHITECTURAL NOTES

DIVISION 4

04200.12 VENEER BRICK WITH METAL STUD BACK-UP – PROVIDE VENEER BRICK IN STACKED BOND OVER 4-INCH CAVITY WITH AIR AND VAPOR BARRIER PER NOTE 07272 WITH 2-INCH CAVITY WALL INSULATION. BRICK TIES SPACING SHALL BE 16-INCHES ON CENTER VERTICAL AND HORIZONTAL. PLACE X -TAPE OVER INSULATION WHERE BRICK TIES ARE INSTALLED AND AT ALL JOINTS IN INSULATION. PROVIDE BACKER SEAL PER NOTE 07900.2. PROVIDE MORTAR NET AT THE BOTTOM OF ALL CAVITIES. EXTEND FLASHING 6" ABOVE MORTAR NET. PROVIDE TWO (2) ROWS OF WEEPS SEPERATED BY ONE COURSING ABOVE AND ONE ROW OF WEEPS AT THE TOP OF THE CAVITY. ALL WEEPS SET 16" O.C.

DIVISION 7

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DIVISION 8

08950.0 TRANSLUCENT WALL SYSTEMS – PROVIDE TRANSLUCENT WALL SYSTEM WITH OPERABLE WINDOW THERMAL BREAK SASH AND SUB GRID/SUPPORTS. TRANSLUCENT WALL SYSTEM SHALL BE SECURED TO ALLOW FOR SEISMIC MOVEMENT TO UNIT MASONRY AND STRUCTURAL CONCRETE FRAME WALL PROVIDES FLASHING IN ACCORDANCE WITH ARCHITECURAL NOTE 07620.1. TRANSLUCENT WALL SYSTEM SHALL INCLUDE WINDOWS AND LOUVERS INSTALLED WITHIN WALL PANELS. SUPPORT FOR ALL COMPONENTS INSTALLED WITHIN AND ATTACHED TO PANEL SYSTEM INCLUDING DAMPER AND MOTOR ASSEMBLIES FOR LOUVERS

DIVISION 9

09900.1 ROOF TOP EQUIPMENT – PAINT ALL EXPOSED ROOF TOP EQUIPMENT IN ACCORDANCE WITH SPECIFICATION 09000– PAINTING.

DIVISION 10

10200.2 LOUVER AT UNIT MASONRY – PROVIDE LOUVER AS WORK OF 07461 PREFORMED METAL SIDING, MOTORIED DAMPER ASSEMBLY TO BE SUPPORTED BY UNIT MASONRY.

DIVISION 16

16670.0 LIGHTNING PROTECTION SYSTEM – PROVIDE LIGHTNING PROTECTION SYSTEM WITH ALL WIRING TO BE CONCEALED FROM VIEW FROM BUILDING EXTERIOR WALLS.

NO.	DATE	ISSUED FOR	BY
1	JUNE 2010	BIDDING	JC

DESIGNED TN
DRAWN TN/JM
CHECKED MS
SECTIONED AB
PROJ. ENGR. RJB
SCALE AS NOTED

HAZEN AND SAWYER
Environmental Engineers & Scientists
HAZEN AND SAWYER, P.C. • 498 SEVENTH AVE • NEW YORK, NEW YORK 10018

UNIVERSITY OF CONNECTICUT
RECLAIMED WATER FACILITY
CONTRACT 901229

ARCHITECTURAL
BUILDING ELEVATIONS
SHEET 2

DATE JUNE 2010
SHEET 70 OF 213
DWG. NO. A-11

5.0 WATER QUALITY

The current NPDES permit regulates discharges from the University's WPCF into the Willimantic River. The existing permit has been issued for a design flow of 3.0 mgd and sets requirements for discharge water quality and monitoring. Discharges from the WPCF into the Willimantic River must meet the water quality requirements of the NPDES permit. The WPCF is currently meeting the requirements of the NPDES permit, and is expected to continue to meet the requirements of the permit after the construction and use of the RWF.

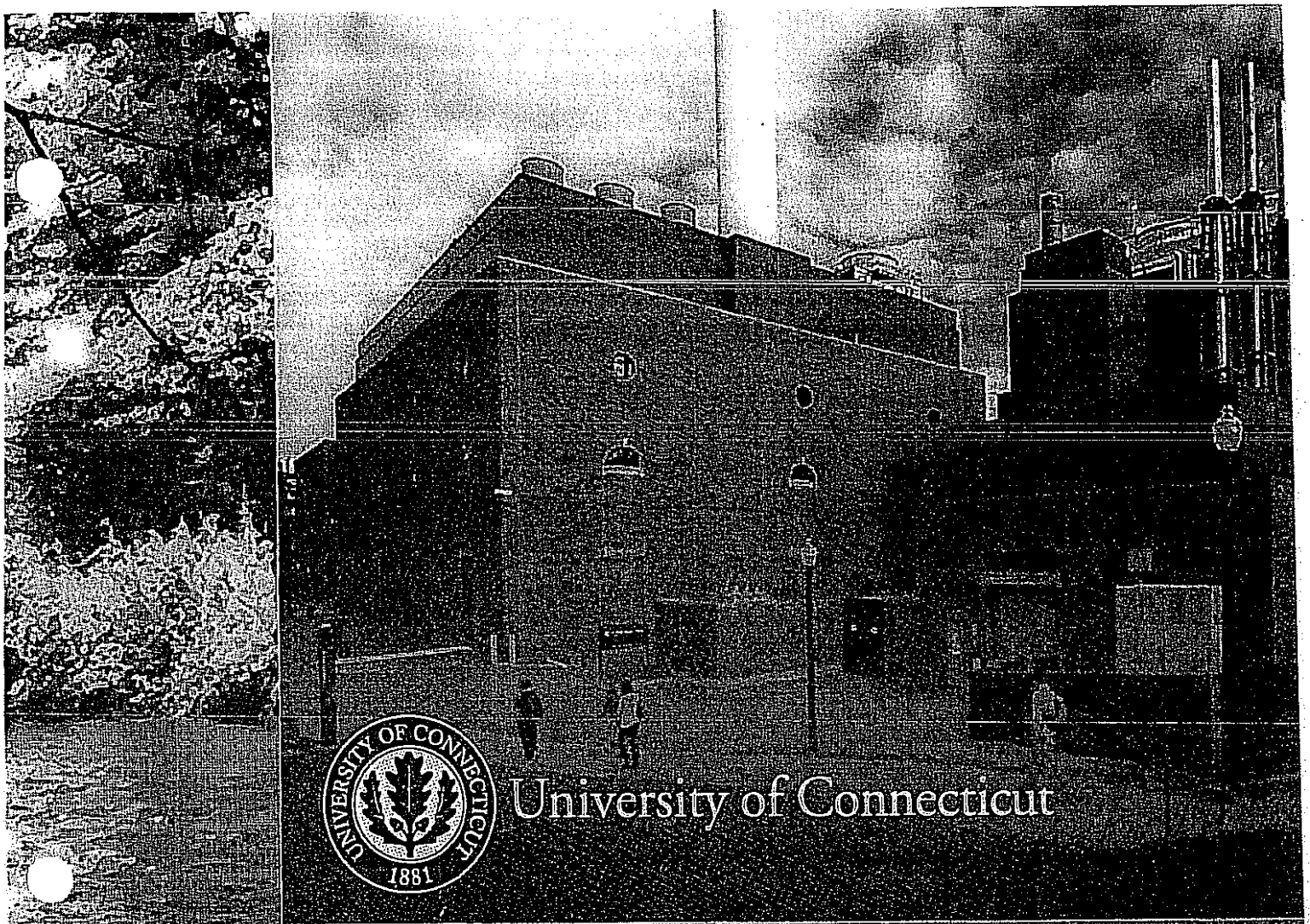
However, the cycling of wastewater from the WPCF to the RWF, from the RWF to the CUP, and from the CUP back to the WPCF presents a potential for increasing levels of total dissolved solids (TDS), and solutes in general, in the recycled water. As TDS and other solutes in the WPCF effluent increase, the potential exists for effluent limits to be approached or exceeded in the discharge to the river. In addition, increasing solutes can adversely impact the system components that require high-quality water, such as the boilers and the cooling towers.

As such, Hazen & Sawyer conducted a mass balance modeling analysis to evaluate the potential for increasing levels of problematic compounds in the recycling water stream. A copy of the report *Water Quality Assessment via Mass Balance Modeling* is attached in Appendix C. The report provides a detailed analysis for the cooling towers, boilers, turf irrigation, the performance of the WPCF, and the effluent discharge to the river. For each of the five cases, appropriate examples of mitigation are recommended. Mitigation strategies generally fall into the categories of chemical addition/modification and temporary use of potable water at the CUP.

Notable conclusions of the mass balance modeling exercise are that overall WPCF function should not be impaired by elevated concentrations of TDS, and aquatic toxicity criteria should not be exceeded under all the modeled scenarios. Although mitigation is therefore not specifically needed to address WPCF operation or aquatic toxicity, it will

likely be necessary at certain times of the year to improve water quality at the CUP and ensure that other effluent standards at the river outfall are not exceeded.

Partial use of potable water at the CUP will likely be necessary when sanitary sewer inflows to the WPCF are lowest (thus limiting "fresh" wastewater availability for creating reclaimed water) while evaporative losses from cooling are highest. While the temporary use of potable water may appear counter to the overarching objective of the RWF – which is to reduce reliance on potable water for non-potable needs – the availability of reclaimed water will still reduce the overall draw from the potable water system in any given month.



University of Connecticut

Water Quality Assessment via Mass Balance Modeling

Water Demand and Reuse Project

Project No. 901229

July 2010

HAZEN AND SAWYER
Environmental Engineers & Scientists

In Association With

MILONE & MACBROOM®

Puckorius & Associates, Inc.

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- B-3: EPA Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms
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1. Executive Summary

The proposed implementation of a reclaimed water system to serve the University of Connecticut at the Storrs, CT Central Utilities Plant (CUP) creates a semi-closed loop system as the blowdown and waste from several of the processes return to the Water Pollution Control Facility (WPCF). The increased mass loading of dissolved constituents at the WPCF due to this looped system could potentially impact the proposed end uses of the reclaimed water including the cooling towers, the steam boilers and any future turf irrigation system. Similarly, the new system could potentially impact other end points such as the outfall discharge and the operation of the existing WPCF. During the initial phases of permitting, CTDEP requested the design team to assess these potential impacts and document the results. Therefore the design team conducted an evaluation and the results are documented in this report.

It is important to note that this semi-closed loop system is a unique condition that is not experienced at other similar reclaimed water facilities around the country. In particular, during certain extreme events in the summer, the flow ratio of CUP water demand/blowdown to total WPCF influent flow can become quite high (i.e. the CUP-cooling tower return waste flow is a large percent of the total wastewater treatment plant influent.) Most WWTPs have a large influent flow relative to the cooling tower returned blowdown stream. This unique condition is what, in large part, makes this analysis necessary. The goal of this study was to assess these extreme condition impacts and identify mitigation strategies.

A mass balance model was created to estimate the impacts of the looped system on the water quality supplied to these end points based on various influent flow and mass loading scenarios as well as various operating conditions for the end uses. In general, the results indicate the system should operate without significant adverse impacts to the end uses or end points. But the model did confirm under certain more extreme scenarios (primarily in the summer months) that some constituents may at times exceed guideline values for specific end points under certain circumstances. The guideline values are generally upper limit targets. These targets were identified via discussion amongst the Project Team including the design team, Nalco and the University staff. Under certain conditions, it may be acceptable for these limits to be exceeded if the water quality is monitored closely, mitigating measures are implemented, and effluent discharge requirements continue to be met.

The design team worked closely with the University Staff and Nalco to identify specific mitigation strategies which included provisions for supplemental chemical addition and installation of new instrumentation such as corrosion and scaling monitors. If extreme conditions occur, where the primary mitigation measures are not sufficient to resolve specific water quality problems, then operations staff will also have the flexibility to blend potable water with the reclaimed water to reduce the dissolved constituent concentrations. If the problem still cannot be resolved through blending, then the University will have the option of shutting down the reclaimed water system and switching the CUP water supply back to potable water, until the event has subsided. It should be noted that these extreme events are most likely to occur during the summer months when the student population is reduced, wastewater flows are low and the cooling tower water demands (and resulting blowdown flow) are high.

The following summarizes the modeling results, including constituents of interest and potential mitigation measures:

Cooling Tower Makeup Water

Scaling:

- Phosphate Scaling: While having some phosphates in the system can provide some corrosion protection; excessive phosphates have the potential to create scaling problems under certain conditions. Phosphates were estimated to exceed the guideline value under many scenarios and therefore mitigation measures will be implemented. Monitoring of these parameters is critical to having the flexibility to address excessive concentrations. Plans are in place to install phosphate monitors at two cooling towers and on the makeup water supply at the CUP. The monitors will allow for the addition of scale control polymer and if needed sulfuric acid to mitigate the impacts of the phosphate. A pH monitor on the CUP makeup water feed will also be used to adjust the chemical dosages.

- Other scaling compounds: The mitigation strategy noted for phosphate will also be sufficient to address potential scaling issues from hardness, iron, sulfates, and silica.

Corrosion:

- Chloramines and Ammonia: Chloramines and ammonia are predicted to exceed the guideline values for the cooling tower under all scenarios due to the intentional creation of chloramines (for disinfection purposes) before entering the distribution system. The chloramines should provide some disinfection benefits inside the cooling towers. Their concentrations will also be someone reduced by the reactions in the towers. Also chloramines and ammonia will volatilize and be partially stripped out of the towers. Mitigation of chloramines that are not stripped in the tower will be accomplished using azole for copper pipe protection. If chloramines and ammonia concentrations become excessive, then sodium bisulfite can be used as a dechlorination agent along with the addition of other antimicrobial agents such as bromine based compounds.

- Chloramine Odors from Cooling Towers: If chloramine odors from the cooling towers become a nuisance, the same mitigation strategy noted above (dechlorinate the chloramines and add other microbial agents) can be employed.

- Chlorides: Chlorides are a concern for steel pipe corrosion. The background levels of phosphate will help to protect the steel pipe under many conditions. For excessively high chloride concentrations, more phosphate addition would be needed (along with additional scale control polymer).

Boiler Feed Water

- Silica was modeled to exceed the guideline value of 0.6 mg/L for the HRSG boilers under current conditions using the potable water feed source. This is likely an issue resulting from the impurities returned to the condensate tank as summarized in the following item. The system has reportedly operated fine with these elevated concentrations. The silica concentrations modeled under most conditions using the reclaimed water are not projected to be significantly higher than those experienced with the current potable water system. The primary mitigation measure to control silica scale will be the addition of a scale inhibitor upstream of the RO system.

- Targeted rehabilitation of the condensate return system to reduce infiltration will assist in reducing the mass of impurities returned to the boiler feed system.

Impacts to the WPCF

Biological Treatment Process

- Biological process impacts are difficult to predict because of the many factors that influence its operation. A cursory assessment was conducted to obtain general thoughts on the potential for process impacts. Definitive conclusions can not be reached based on this evaluation because of the many variables that affect the process. As noted below, some parameters are identified as the most likely to potentially affect the wastewater treatment process. If concentrations of critical parameters become excessive during extreme CUP flow events, then blending with or complete switch over to potable water should occur until the event has subsided.

- Copper and Zinc: In general, copper and zinc are not expected to adversely impact the biological process, but are the most likely candidates during extreme summer events. Ultimately, impacts will be dependent on the specific combination of alkalinity, pH and the concentrations of the metals. Varying combinations of these parameters will result in different adsorption rates and percentages of the metals into the treatment process solids. This adsorption results in removal of the metals from the reclaimed water which is not taken into account in the model due to the complex interactions that drive the reactions. The resulting concentrations of metals could potentially impact the nitrification potential of the biological treatment process, but due to the varying impacts of the adsorption it is not possible to quantify the potential impacts.

Ultraviolet Light Disinfection System

- The effectiveness of the UV disinfection system is based in large part on the ultraviolet light transmissivity (UVT) of the reclaimed water (i.e. the ability of light to shine through the water). Different chemicals such as color, suspended solids, oils and grease, as well as precipitates contained in the water can impact the UVT. The potential impact to UVT is unknown since future water quality data for UVT would be difficult to predict. But modeled water quality data was reviewed with a UV system manufacturer to get their input on the lamp fouling potential. They indicated that fouling potential was also not easy to predict, but they could perform a cursory qualitative review. They indicated that during normal operation the fouling potential appeared to be low to moderate. They also indicated that during extreme events the fouling potential appeared to be moderate to high, which would lead to more frequent and aggressive UV lamp cleanings.

SPDES Permit Criteria

- Zinc: It should be noted that for current conditions at high influent concentrations, the daily zinc mass loading is predicted to exceed permitted limits. Similarly, once the reclaimed water program is initiated, similar excursions could occur during extreme operating conditions. Also, the concentrations are dependent on the number of cycles run through the cooling towers. Optimization of these cycles, depending on the specific flow and loading conditions, may prevent excursions.

- The primary mitigation strategy for zinc in the outfall is to monitor the concentration and if it exceeds the threshold limits during an extreme summer event, then the CUP can switch over to the potable water supply until the event subsides.

- Whole Effluent Toxicity: The University's existing SPDES permit requires that the effluent water discharged to the Willimantic River be monitored for chronic aquatic toxicity and pass acute

aquatic toxicity tests using two indicator organisms: 1) *Daphnia pulex* (water flea) and 2) *Pimephales promelas* (fathead minnow). Since actual future reclaimed water is not available to conduct toxicity tests, the design team performed a literature search for water quality criteria that could be used to complete a cursory assessment of potential toxicity affects of the reclaimed water. The key reference material used to assess whether future effluent water quality could pose potential chronic and acute toxicity was *EPA's National Recommended Water Quality Criteria* document. This document summarizes the recommended water quality criteria for the protection of aquatic life and human health in surface water for approximately 150 pollutants. In order to evaluate the potential toxicity of the reclaimed water, various scenarios were modeled and the effluent water quality was compared against the EPA recommended limits. Based on the modeling results, all constituents currently monitored at the WPCF were shown to be below EPA's recommended acute water quality limits.

Irrigation Water

- Many different criteria can affect the suitability of water for irrigation. Some of the important criteria include the type of plant species, type of soil and drainage conditions, soil structure and chemistry, and the turf management practices. But for certain salt sensitive plant species, such as the Kentucky Bluegrass used on many of the University's ballfields, very stringent limits would need to be met. Also, more rigorous turf management procedures would be needed. As such, the University decided to not proceed with irrigation of natural turf at this time. Only the artificial turf will receive irrigation under this initial phase of the project.

- All irrigation water quality parameters would need to be further evaluated for the specific combination of turf and soil conditions at any potential irrigation site prior to its use.

Gregory J. Padick

From: Weidemann, Gregory [gregory.weidemann@uconn.edu]

Sent: Thursday, July 29, 2010 3:42 PM

To: Town Mngr; Gregory J. Padick; 'natalie@minuttigroup.biz'

Cc: Coite, Jason; Musgrave, Mary; Olsen, Stephen; Richard Miller; Roe, Alexandria; Guillard, Karl; Gene Roberts

Subject: Response to questions regarding the UConn well project

Attachments: Questions from the Town-Gown Committee mtg.docx

In response to neighbor concerns, representatives of UConn provided an overview and update of the UConn Plant Science Farm irrigation project at the meeting of the Mansfield Town/University Relations Committee on June 8, 2010. At that time, several questions required follow up and additional questions were posed via email in response to a UConn letter dated May 14, 2010. Attached is the UConn response to questions posed by the committee members and the audience. Although not required by state or federal regulations, the university conducted a thorough study of the site, installed monitoring wells, made provision for public inspection of water usage from the wells via a web site and tested the monitoring wells for a wide range of pesticides. Our monitoring web site is up and running and results from an independent water analysis has been posted for public viewing. With the completion of these commitments, we have begun to pump water from the wells into the irrigation pond. I trust our responses to these questions will resolve any outstanding concerns regarding water usage and our appropriate use of pesticides in a safe and responsible manner.

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PAGE
BREAK

At the meeting of Mansfield's Town/University Relations Committee on June 8, 2010, Mr. Roberts, Mr. Coite, and Mr. Guillard provided an overview of the UConn Agronomy Farm including irrigation plans; project/timeline; public information process; citizen concerns (water levels, water quality); analysis and testing; and plans for implementation.

Committee members and public participants posed several questions, some of which required follow-up. The questions have been assembled below based on the draft minutes, meeting notes provided by others, and list of questions provided in an email from Mr. Neil Facchinetti in response to a UConn letter dated May 14. 2010. Responses to the technical questions are provided in italics.

Questions from the Committee members:

1. A 15-foot drop in water height in a well corresponds to what percent?

   Generally, average depth of a Storrs Heights bedrock well is about 250 feet, and there is about 200 feet of water in a well. A 15-foot drop corresponds to 7.5% decrease for a typical well that has 200 feet of water.

2. How close is the nearest offsite residential well?

   We do not have accurate mapping of all the off-site wells, but the nearest wells appear to be about 150' from the property line.

Questions from audience:

N. Facchinetti:

1. How were the 15-foot and 25-foot thresholds established?

   The 15-foot threshold was based on the research in Dr. Robbins' study. Based on a review of bedrock well water data in the area, it was observed that typical seasonal fluctuations do not exceed 15 feet. If a drop of 15 feet is observed at the boundary monitoring wells (MW-3 or MW-4) during operation of the irrigation wells, that decrease would exceed the expected seasonal fluctuation before pumping began. Pumping would then be readjusted to reduce the impact to below 15 feet. The 25 foot threshold was set as to not cause more than 10% lowering of the water levels at the farm boundary.

   If curtailing does not reduce the draw down at the monitoring wells and water levels continue to drop, an overall decrease of 25' is set as a threshold when pumping will cease. Cessation of pumping is expected to eliminate the affect on the private wells and the depth of water should recover to pre-pumping conditions.

2. Are all 69 pesticides tested for in the water quality sampling?

We have tested those pesticides and herbicides that a) are used by the farm, and b) have an EPA-approved drinking water test. Several pesticides that are commercially available do not have corresponding drinking water tests that have been approved by EPA. Test results are only as good as the method. Data from test methods that have not been officially approved should not be relied upon.

With respect to those chemicals which are used but have no approved test, before approved for commercial use as a pesticide, the manufactures must develop strict instructions on proper use such that the applicator does not create any unintended affects to human health or the environment. Farm staff are licensed pesticide applicators that are fully aware of the legal and environmentally consequences of deviating the from the manufacturer's instructions.

3. When are pesticides going to be tested?

   Water samples were collected on Monday 6/14/10 from the two shallow wells at the farm along the northern property line. This plan was announced at the 6/8/10 Town/University Relations Committee meeting. In addition, an email was sent on Wednesday 6/9/10 to the EHHD director, the Storrs Heights Association (SHA) president, the Mansfield Conservation Commission chair, and Mr. Facchinetti as a reminder of the planned water sampling.

4. How will pesticide data be disseminated?

   Analytical data was forwarded to EHHD and SHA on July 19, 2010. No chemicals were detected. Had any chemicals been detected, UConn would have consulted with the Department of Environmental Protection. The data are also posted on the farm ground water monitoring website (http://www.agfarm.uconn.edu).

5. Will funding be available to monitor both the water availability and quality going forward?

   It is our expectation that funding will be available for this purpose.

6. How can the use of a dry well (MW-2) be used for monitoring purposes?

   MW-2 is not dry. The water level and responsiveness to pumping is comparable to the other bedrock wells installed at the farm. The water level in MW-2 was monitored while the new irrigation wells were being pump tested. The water level increased and decreased as would be expected in response to the well pumping.

J. Rickards:

Is the DEP concerned with the experimental chemical used in farm research?

Because the use of experimental compounds meets all federal and state requirements, DEP is not consulted on the use of these chemicals. The farm does at times incorporate experimental chemicals into their research. The use of these experimental pesticides is minute, generally amounting to no more than 2 grams (0.07 ounces) of active ingredient per 330 sq. ft. per year with one compound applied at 15 grams (0.53 ounces) in 2009 and 2010 . The use of these pesticides is limited to fields located more than 1,000 feet from the nearest property line of the Storrs Heights community.

In all but one case, the compounds are already registered for use on food crops or turfgras. The research being conducted is investigating the effectiveness of these registered pesticides for other uses. A Materials Safety Data Sheet is available for all of these compounds.

G. Dunne:

Who is the principal university liaison on this?

Gregory Weidemann, Dean of the University of Connecticut College of Agriculture and Natural Resources, is the principal university liaison.

T. Markland:

What happens to the farm's grant-funded research if an off-site well goes dry?

Because UConn has no control on how private well owners use their water supply, the farm's activities is not be tied directly to what's observed at the private wells. If unusual conditions are observed by a nearby well owner, UConn should be contacted so that we can properly investigate by reviewing our monitoring and production data.

R. Coughlin:

1. Is there a contingency plan if we [home owners] run out of water?

   Because UConn has no control on how private well owners use their water supply, UConn will not have a contingency plan for cases where an off-site well runs out of water. If unusual conditions are observed by a nearby well owner, UConn should be contacted so that we can properly investigate by reviewing our monitoring and production data.

2. What chemicals that will be stored on site and the potential unknown side effects, including fire and dispersal of chemicals in the air.

The list of chemicals stored and used at the farm has been previously distributed by the farm staff at the previous public meetings. The farm staff can be contacted for an updated list at any time. Potential health effects are identified on every pesticide's Material Safety Data Sheet, also available upon request.

Q. Kessel:

1. What affect will the *15 to 25 feet* drop in the monitoring wells have on the private drinking wells?

   A drop of 15 to 25 feet at the monitoring wells should correspond to, at most, a drop of 15 to 25 feet at the private drinking water wells that are located even further away from the pumping wells. If pumping causes a drop of 15 to 25 feet drop in a well with 200 to 250 feet of water, which is typical for the nearby private wells, approximately 90% of the water in the well is still available.

2. Will the water levels or pesticides be monitored in the wells?

   Water levels are being monitored in the bedrock monitoring wells. Water samples analyzed for pesticides were collected from the shallow overburden monitoring wells.

3. Can the water levels measured in the monitoring wells be relied upon given that the aquifer is fractured bedrock?

   We believe so based on testing to date. The monitoring wells surrounding the pumping wells are responding to pumpage. The perimeter wells are set at the average depth of wells in the Storrs Heights community. Previous monitoring of the wells in the community show widespread interconnection. Given the locations and depth of the monitoring wells, they should serve as good monitoring points.

R. Thorson:

1. Mr. Thorson spoke to the cone of depression, bedrock aquifers, and concerns about the proposed testing.

   Since this is a bedrock aquifer, the cone of depression model isn't always applicable. But we can rely upon the early data that supports the fact that the private supply wells and our monitoring wells have some of the same fractures in common.

2. Mr. Thorson also stated his desire to have a person not affiliated with the agriculture school conducting the testing and monitoring.

The monitoring data is available for independent review on the website. Sampling and testing for pesticides are conducted by independent firms.

G. Gibson:

Mr. Gibson had questions about whether or not residential developments are subject to the same water requirements/review as this project.

We concur with response G. Padick gave to Mr. Gibson's question at the Town/University Relations Committee meeting. If a residential development is to be supplied potable water from wells, certain DPH regulations are applicable based on the number of persons that are expected to use the water.

Further, a new water supply system that pumps more than 50,000 gallons per day is also subject to DEP regulations. The farm's irrigation wells are not for potable use and the amount of water will be below 50,000 gpd. The wells are not subject to either the DPH or DEP regulations. All the data collection, analyses, and monitoring that's been completed and that will be on-going is completely voluntary to address the concerns of the farm's neighbors.

PAGE
BREAK

Memorandum: July 29, 2010
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.

Mansfield Auto Parts - Route 32

6.10.09: Inspection - no vehicles are within 25' of wetlands.
7.16.09: Inspection - no vehicles are within 25' of wetlands.
8.12.09: Inspection - no vehicles are within 25' of wetlands.
9.14.09: Inspection - no vehicles are within 25' of wetlands.
10.27.09: Inspection - no vehicles are within 25' of wetlands.
11.30.09: Inspection - no vehicles are within 25' of wetlands.
12.28.09: There are two cars that need to be moved. Mr. Bednarczyk indicates their payloader is down for repairs and the cars will be moved as soon as it is repaired.
1.27.10: No change - the payloader is apart with parts on order to complete repairs. It is of 1986 vontage and finding parts is a major proposition.
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.

Mansfield Open Space Preservation Committee
Minutes for July 20, 2010

1. Chairman Jim Morrow called the meeting to order at 7:39 PM

2. Members present:
   Jim Morrow, Quentin Kessel, Ken Feathers, Michael Allison, Vicky Wetherell and Steve Lowrey

3. Kessel/Allison: Motion to approve the minutes of June 15, 2010, motion carried unanimously.

4. Public Comment: No public present.

5. No Executive Session

6. Old Business:
   Dowart Trail and connection to Nipmuck Trail: Jim reported that he had showed the Dorwart Trail and connector to Jen Kaufman. At this point they need to find funding for a small bridge needed on the connector and were hoping that the CFPA would take over construction.

7. New Business

   Discussion regarding Committee Charge and needed members: The Town Council and the Committee on Committees needs to be aware that the OSPC needs to have members with diverse knowledge, but especially knowledge and experience in natural resources and land use. It was suggested that perhaps the Committee should have fewer positions to fill; 6 regular members, 1 specifically from the Conservation Commission and 2 Alternates. The charge from 1987 was reviewed; the Committee felt that the charge should be expanded to include such things as advising various town officials (including but not limited to the PZC , Town Council and Town Manager) in open space policies. The Committee will finalize its recommendations and send them to Town staff.

8. No reports

9. No communications

10. Other

    Lowrey finds that life requires him to move to another town and so must resign from the Committee, effective at the end of this meeting. Chairman Morrow and Vicky Wetherell expressed regret that Steve Lowrey was relocating and would be unable to continue to serve the Town of Mansfield as a member of the Open Space Preservation Committee. The committee members were unanimous in expressing their gratitude to Steve for his important contributions to the committee during his years' of service.

11. No comment on future agendas

12. Adjounment:

Lowrey/Kessel Meeting adjourned at 9:04 PM

Respectfully submitted
Stephen Lowrey

DRAFT MINUTES

MANSFIELD PLANNING AND ZONING COMMISSION
Regular Meeting, Monday, August 2, 2010
Council Chamber, Audrey P. Beck Municipal Building

Members present:	R. Favretti (Chairman), M. Beal, J. Goodwin, R. Hall, K. Holt, G. Lewis, P. Plante, B. Ryan
Members absent:	B. Pociask
Alternates present:	F. Loxsom, K. Rawn, V. Stearns
Staff Present:	Gregory J. Padick, Director of Planning

Chairman Favretti called the meeting to order at 7:40 p.m. and appointed Loxsom to act in Pociask's absence.

Minutes:
7-19-10-Hall MOVED, Ryan seconded, to approve the 7/19/10 minutes as written. MOTION PASSED UNANIMOUSLY.

Zoning Agent's Report:
Noted.

Padick referenced the 8-2-10 communication distributed this evening regarding the Former Husky Mobil and Rosal Apartment Complex groundwater remediation system. A summary of the proposed remedial activities was submitted by Groundwater & Environmental Services, Inc. on behalf of Drake Petroleum, Inc. Padick stated that he and the Chairman determined this to be a minor modification and will approve this as such. Based on the discussion in the IWA meeting, he will also request from this applicant a final report depicting information on the results found versus the standards as set by the CT DEP.

Old Business:

1. **Request to authorize overhead utility lines over conservation easement area dedicated in association with the Hawthorne Park Subdivision, PZC File # 1177**
   Padick recommended that this item be tabled pending CL&P's review of the draft motion by their regulators for acceptability and wording. He added that Tony Mele from CL&P stated that they would not be moving forward on this project until the end of the year at the earliest, and delaying a decision until September would not interfere with any timelines. Padick stated that he has relayed this to Mr. Hawthorne who will be present at the September 7th meeting. Padick also expects to have heard from the two abutting property owners by then. Item was tabled.
2. **Rezoning of Industrial Park Zone and Associated Regulation Revisions, PZC File 907-33**
   Padick summarized the information gathered and distributed in the packet regarding fiscal impact studies, tax income and services provided from multi-family units in Mansfield. These handouts provide technical data but are estimated figures. He encouraged members to review this information and be prepared to discuss the rezoning at the September 7th meeting. Item was tabled.

New Business:

1. **Request for Filing Extension, Mansfield Hollow Estates, Bassetts Bridge Road & S. Bedlam Rds, File #1278**
   Ryan MOVED, Holt seconded, that the Planning and Zoning Commission, pursuant to Section 6.5 of the Subdivision Regulations, grant a ninety-day extension for filing final subdivision plans and monumentation certification for the Mansfield Hollow Estates Subdivision (File #1278). MOTION PASSED UNANIMOUSLY.
2. **Verbal Update from Director of Planning on Storrs Center Project**
   Padick distributed a 7/20/10 Storrs Center Update which gives a projected timeline of events. He noted that he anticipates a modification and zoning permit application this fall.

Reports of Officers and Committees:
Chairman Favretti reminded members that the second meeting of August will be cancelled due to vacation schedules.

Communications and Bills:
Noted.

Adjournment:
Chairman Favretti declared the meeting adjourned at 8:56 p.m.

Respectfully submitted,

Katherine Holt, Secretary

DRAFT MINUTES
MANSFIELD INLAND WETLANDS AGENCY
Regular Meeting
Tuesday, August 2, 2010
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. Ryan,
Members absent:	B. Pociask
Alternates present:	F. Loxsom (7:03), K. Rawn, V. Stearns
Staff present:	G. Meitzler (Wetlands Agent)

Chairman Favretti called the meeting to order at 7:01 p.m. and appointed alternate Stearns to act in Pociask's absence.

Minutes:
7-6-10 – Plante MOVED, Ryan seconded, to approve the 7-6-10 minutes as written. MOTION PASSED with all in favor except Lewis and Stearns who disqualified themselves. Goodwin and Hall noted that they listened to the recording.
7-13-10 Field Trip- Beal MOVED, Holt seconded, to approve the 7-13-10 field trip minutes as written. MOTION PASSED with Beal, Holt, Favretti, Plante and Rawn in favor and all others disqualified.

Communications:
The 7-21-10 draft Conservation Commission minutes and the 7-29-10 Wetlands Agent's Monthly Business report were noted. Particular attention was called to the Conservation Commission's comments on the Baker application, File W1459.

Old Business:
W1459 - Baker - 109 Thornbush Rd - flood proofing
Holt MOVED, Plante seconded, to grant an Inland Wetlands License of the Wetlands and Watercourses Regulations of the Town of Mansfield to Stephen Baker (file # W1459) a front porch addition and stairway into an existing home to be elevated above the flood zone, on property owned by the applicant, located at 109 Thornbush Road, as shown on a map dated 7/6/10 and as described in other application submissions.

This action is based on a finding of no anticipated significant impact on the wetlands, and is conditioned upon the following provisions being met:

1. Appropriate erosion and sedimentation controls shall be in place prior to construction and maintained during construction and removed when disturbed areas are completely stabilized;
2. All excavated material shall be placed either in the present yard or in the basement fill area. It is not to be placed in the nearby wetland.

This approval is valid for a period of five years (until 8/2/2015), 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.

New Business:

Agent Approval:W1460 - Lambert - 1461 Stafford Rd - 12x16 garden shed 80' from wetland

Wetlands Agent Meitzler noted that he has approved this request as an "Agent Approval", and the decision was noticed in the Chronicle and paid for by the applicant as per our newly-revised regulations.

Modification Request: W1441 - Kleinfelder - 7 Storrs Rd - groundwater remediation

Meitzler noted that this is a modification request to their permit approval from 11/2/09. Eric Henry, from Kleinfelder Exxon Mobile, was present to answer any questions on behalf of his client.

Members questioned Henry as to what contaminants are being sought to remedy, what is their backup plan if this doesn't work, is excavating material a possibility, what effects does this remediation have on the Park Spring, and how far east does this contamination spread? After discussion, it was decided that the Agency would like a copy of the pilot study results that will be sent to the Connecticut DEP.

Holt MOVED, Hall seconded, To approve modifications to an Inland Wetlands License pursuant to the Wetlands and Watercourses Regulations of the Town of Mansfield to John Liddon of Kleinfelder (file # W1441) for modifications to approval of permit W1441 previously issued to John Liddon of Kleinfelder for investigation of wetlands surface water and sediment sampling, on property owned by Eugene S. Mittelman, located at 7 Storrs Road, as shown on a map dated 12/14/09 and as described in other application submissions.

This action is based on a finding of no anticipated significant impact on the wetlands, and is conditioned upon the following provisions being met:

1. The conditions of the previous approval are to remain in effect;
2. A report of the pilot study, as sent to the CT DEP, shall also be sent to the Mansfield IWA in a timely fashion.

This approval is valid for a period of five years (until 4/3/2016), 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.

New Application: W1461 - Elshakhs - 23 Bundy La - above ground pool in buffer

Goodwin MOVED, Holt seconded, to receive the application submitted by Hisham Elshakhs (IWA file W1461) under the Wetlands and Watercourses Regulations of the Town of Mansfield, for the installation of a 21 foot above ground pool, located at 23 Bundy Lane, on property owned by the applicant, as shown on a map dated 7/12/10 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:

Chairman Favretti set an 8/9/10 Field Trip at 1 p.m.

Other Communications and Bills:

Noted.

Adjournment:

Favretti declared the meeting adjourned at 7:38 p.m.

Respectfully submitted,

Katherine Holt, Secretary

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

APPROVAL

June 30

RECEIVED
JUL 08 2010

Dean Gregory J. Weidemann
College of Agriculture and Natural Resources
University of Connecticut
1376 Storrs Road, Unit 4066
Storrs, CT 06269

Re: DEP/WPC. 078-005
Fenton River Watershed
Willimantic River Watershed
Town of Mansfield

Dear Dean Weidemann:

The Comprehensive Nutrient Management Plan prepared for the University farm by the United States Department of Agriculture, Natural Resources Conservation Service, received on June 21, 2010, has been reviewed and is hereby approved by the Department of Environmental Protection.

The University is hereby authorized to install the composting facility to compost 4,800 cubic yards of semi-solid manures, beddings, and leaves generated at the University at the site located off of Route 32 in the Willimantic River watershed in accordance with plans and specifications prepared by Stantec Consulting Services Inc filed with this Department on June 28, 2010, and the Compost Operation Plan prepared by the University received June 24, 2010.

This approval is granted subject to the following conditions:

1) The applicant shall retain a Professional Engineer licensed to practice in the State of Connecticut to provide the following services.

   (a) The engineer shall exercise construction administration over the composting facility installation to ensure conformance with the approved plans and specifications.

   (b) The engineer shall submit verification of proper installation of the installed composting facility to the Assistant Director, Bureau of Materials Management and Compliance Assurance, Water Permitting and Enforcement Division and the local director of health.

2) No raw manure for the composting operation shall be stockpiled outside the composting building.

This approval requires the quantities of material composted to be reported to the DEP Recycling Program annually on the enclosed reporting form. This form **will not** be automatically sent to you each year. Please make a copy of the blank form for future submittals, and also keep a copy of the completed form for your files. Please contact Judy Belaval of the DEP Recycling Program at 860-424-3237 with any questions concerning reporting, or to request additional copies of the form.

The Comprehensive Nutrient Management Plan shall be the basis of design for the farm waste management practices developed in the plans and specifications.

This approval is the notification required by Section 22a-416 of the Connecticut General Statutes as amended.

This approval does not relieve you of the obligation to obtain any other authorizations as may be required by Federal, State or Local laws or regulations.

If you have any questions regarding this matter, please contact Joseph Wettemann at (860)424-3803.

Sincerely

Kim E Hudak

Kim E. Hudak, P.E.
Assistant Director
Bureau of Materials Management and
Compliance Assurance
Water Permitting and Enforcement Division

KH/jw

cc: James Hyde, NRCS
Thomas Morris, Plant Science Dept, UConn
Richard Miller, Office of Environmental Policy, UConn
Robert Miller, Eastern Highlands Health Dept.
Matthew Hart, Mansfield Town Manager
Kathy Alexander, DEP Recycling Program
DMR Section

College of Agriculture and Natural Resources
University of Connecticut
1376 Storrs Road, Unit 4066
Storrs, CT 06269

AGRICULTURAL WASTE MANAGEMENT PLAN

December 2009

Prepared by:

Jim Hyde, Soil Conservationist 12-30-09
USDA, Natural Resources Conservation Service Date

This Comprehensive Nutrient Management Plan was developed in accordance with the USDA, Natural Resources Conservation Service Conservation Planning Policy and the USDA NRCS Comprehensive Nutrient Management Planning Technical Guidance.

2/9/10
USDA, Natural Resources Conservation Service Date

Concurred by:

6/3/10
Owner Date

Approved by:

6/30/10
Department of Environmental Protection Date
in accordance with the approval issued
on 6/30/10.
Date

PAGE
BREAK

Certified Mail Return Receipt
#91 7108 2133 3934 5227 3775

TOWN OF MANSFIELD
INLAND WETLAND AGENCY

AUDREY P. BECK BUILDING
FOUR SOUTH EAGLEVILL ROAD
STORRS, CT 06268
(860) 429-3330

FILE

Tuesday, August 03, 2010

Kleinfelder
Attn: John Liddon
99 Lamberton Road, Suite 201
Windsor, CT 06095

Re: Mansfield's IWA Modification Approval
IWA file #1441

Dear Mr. Liddon,

At a meeting held on 8/2/10, the Mansfield Inland Wetlands Agency adopted the following motion:

"To approve modifications to an Inland Wetlands License pursuant to the Wetlands and Watercourses Regulations of the Town of Mansfield to John Liddon of Kleinfelder (file # W1441) for modifications to approval of permit W1441 previously issued to John Liddon of Kleinfelder for investigation of wetlands surface water and sediment sampling, on property owned by Eugene S. Mittelman, located at 7 Storrs Road, as shown on a map dated 12/14/09 and as described in other application submissions.

This action is based on a finding of no anticipated significant impact on the wetlands, and is conditioned upon the following provisions being met:

1. The conditions of the previous approval are to remain in effect;
2. A report of the pilot study, as sent to the CT DEP, shall also be sent to the Mansfield IWA in a timely fashion.

This approval is valid for a period of five years (until 4/3/2016), 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".

If you have any questions regarding this action, please call the Planning Office at 429-3330.

This letter constitutes your license.

Very truly yours,

Katherine K. Holt, Secretary
Mansfield Inland Wetlands Agency

Cc: Eugene S. Mittelman

Memorandum: July 28, 2010

To: Inland Wetlands Agency
From: Grant Meitzler, Inland Wetland Agent
Re: W1441 - Kleinfelder - 7 Storrs Rd - permit modification

plan reference: Plan 1, dated 12-14-2009

REQUEST FOR MODIFICATION

This is a modification request for file #1441 which dealt with groundwater sampling at this 7 Storrs Rd site.

The previous application submission was for borings and sampling discharges being done to establish the contamination levels present. This modification is for an oxygenation treatment that should bring the site into line with the DEP required levels. This does not involve direct or continual discharge of groundwater. It involves addition of oxygen to the groundwater to encourage natural processes to take place.

What is expected will be an application of chemical into new borings that will take approximately one week. This is followed by monitoring. The monitoring may show less than the desired reduction of contaminants in which case a second application would be applied. Discussion with John Liddon indicates that if the treatment is not successful in lowering contaminant levels to acceptable limits after two treatments then alternative treatment along the lines of the current work at the former Esso station at the Four Corners would follow.

Mr. Liddon from Kleinfelder has indicated he would be present for Monday's meeting.

KLEINFELDER
Bright People. Right Solutions.

July 23, 2010

Grant Meitzler
Inland Wetlands Agent
Town of Mansfield Connecticut
4 South Eagleville Road
Mansfield, CT 06268

Re: Inland Wetlands Permit Modification
Former Mobil Service Station No. 01-G1P
7 Storrs Road
Willimantic, Connecticut

Dear Mr. Meitzler:

Kleinfelder Inc. is seeking a modification to a Town of Mansfield Inland Wetland Permit application (Attachment A) originally submitted in September 2009 and subsequently approved by the town's wetland commission. The proposed modification will include the completion of a pilot test study, in an upland review area, to examine the effectiveness of in-situ chemical oxidation (ISCO) and an oxygen releasing compound (ORC) to remediate petroleum impacted soil and groundwater at the above referenced site. A grid of injections points, throughout two target areas, will be used to deliver the ORC to the subsurface in accordance with an approved Connecticut Department of Environmental Protection (CT DEP) Temporary Discharge Authorization permit (Attachment B). Target area 1 is proposed for the area beneath and immediately southeast of the existing canopy, while target area 2 is proposed for the area beneath the station building and immediately north. The remedial products will be introduced to the subsurface using industry standard techniques which include; advancing 2-inch steel rods with direct push technology followed by pumping the ORC in one-foot lifts from thirteen feet below ground surface (bgs) to three feet bgs. During application activities, Kleinfelder technicians will be continuously monitoring soil vapor and groundwater at previously installed monitoring wells within the target areas.

A detailed explanation of the proposed work and site map identifying existing site features, monitoring points and target areas is provided in Attachment B.

If you have any questions please feel free to contact either of the undersigned at 860-683-4200.

Copyright 2010 Kleinfelder 99 Lamberton Road, Suite201, Windsor, CT 06095 p | 860.683.4200 f | 860.683.4206

Sincerely,
Kleinfelder

Digitally signed by John Liddon
Date: 2010.07.23 11:03:12 -04'00'

John J. Liddon
Environmental Scientist

Digitally signed by Dan Hunter
Date: 2010.07.23 11:03:37 -04'00'

Daniel M. Hunter, P.G.
Project Manager

Enclosures

C: Mary Caruso, Quantum Management Inc.

Copyright 2010 Kleinfelder

APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3331
FAX: 860-429-6863

FOR OFFICE USE ONLY

File #
W_____
Fee Paid _____
Official Date of Receipt_____

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 John Liddon of Kleinfelder

Mailing Address 99 Lamberton Road, Suite 201

Windsor, CT Zip 06095

Telephone-Home_____ Telephone-Business 860-683-4200 ext 139

Title and Brief Description of Project
Delineation Investigation and Wetland Surface Water/Sediment sampling

Location of Project 7 Storrs Road, Willimantic, CT

Intended Start Date Upon wetland permit approval

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

Name Eugene S. Mittelman

Mailing Address 3400 South Ocean Boulevard

Palm Beach, FL Zip 33480

Telephone-Home_____ Telephone-Business_____

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

Signature__ see attached_____ date_____

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

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

APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3331
FAX: 860-429-6863

FOR OFFICE USE ONLY
File #
W
Fee Paid
Official Date of Receipt

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 John Liddon of Kleinfelder

Mailing Address 99 Lamberton Road, Suite 201

Windsor, CT Zip 06095

Telephone-Home Telephone-Business

Title and Brief Description of Project
Delineation Investigation and Wetland Surface Water/Sediment sampling

Location of Project 7 Storrs Road, Willimantic, CT

Intended Start Date Upon wetland permit approval

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

Name Eugene S. Mittelman

Mailing Address 3400 South Ocean Boulevard

Palm Beach, FL Zip 33480

Telephone-Home 802-297-1591 Telephone-Business

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

Signature Eugene S. Mittelman date 9/22/09

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

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

See attached scope of work

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

Kleinfelder staff will enter a topographically depressed area within 150 feet from the wetland area. Kleinfelder will enter the area by foot and use only hand tools to remove approximately two liters of soil from four locations at depths between 1 -15 feet below ground surface. Additionally, Kleinfelder will remove two liters of surface water and two liters of surface sediment. See attached SOW for details.

3) Describe the type of materials you are using for the project:
Hand auger, hand geoprobe, garden spade and sampling collection jars.

a) include ***type*** of material used as fill or to be excavated Surface water, soil and sediment
b) include ***volume*** of material to be filled or excavated Approximately eight liters of soil/sediment and two liters of surface water.

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).

A single foot path will be used to enter and exit the highly vegetated area adjacent to the wetland area.

Part D - Site Description

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

Generally flat with a gentle slope downward from west to east.

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.

N/A

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 9/18/09

3) Zone Classification PB-1 (Planned Business 1 zone)

4) Is your property in a flood zone? _____Yes _✓_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
Colonial BT LLC	145 I Foster Drive Willimantic, CT 06226-1527
Paul Kozelka Republic Oil Co.	PO Box 436 Willimantic, CT 06226
Connecticut DOT	2800 Berlin Turnpike Newington, CT 06131-7546

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 ☑ 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.)

____ $365. _____ $110. ____ $60. ____ $25. ☑ $155.00

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.

2009.09.24 12:02:24 -04'00'

Applicant's Signature Date

KLEINFELDER
Bright People. Right Solutions.

ATTACHMENTS F AND G
APPLICATION FOR EMERGENCY OR TEMPORARY DISCHARGE AUTHORIZATION

Former Mobil Service Station No. 01-G1P
7 Storrs Road
Willimantic, Connecticut

FEBRUARY 2010

INTRODUCTION

Kleinfelder Inc. (KFG) has prepared this work plan for pilot study of in-situ chemical oxidation (ISCO) and enhanced bioremediation at former Mobil Service Station No. 01-G1P located at 7 Storrs Road in Willimantic, Connecticut. The pilot study will evaluate the use of RegenOx™ and Advanced Oxygen Release Compound (ORC Advanced®) to treat vadose and saturated zone soils impacted with petroleum-related contaminants as shown on the attached site plan. This work plan has been prepared by KFG to satisfy the requirements of Attachments F and G of the Connecticut Department of Environmental Protection (CTDEP) Application for Emergency or Temporary Discharge Authorization Permit, DEP-WD/REM-APP-200.

SITE DESCRIPTION

The station building is a single-story, 1,872 square foot, brick/concrete structure with a convenience store, two automotive service bays, and restrooms. The service station is currently inactive. The service station formerly operated five underground storage tanks (USTs) as follows: two 10,000-gallon gasoline tanks, one 12,000-gallon gasoline tank, one 550-gallon fuel-oil tank, and one 550-gallon used-oil tank. These USTs were installed in 1987 and removed in March 2008. The service station formerly dispensed gasoline from four multi-product dispensers (MPDs); these MPDs and associated piping were also removed in March 2008. The current and former site features are depicted on Attachment A.

The site is an approximately two acre parcel (Attachment B). According to CTDEP records, the site operated as a Mobil-branded gasoline service station and convenience store from 1970 through 2008

Area Land Use

According to the *Zoning Map of the Town of Mansfield, Connecticut*, the site is located within a designated Planned Business 1 zone. The site is bordered by Conantville Road No. 2 and beyond that by Colonial Apartments to the west, by a wooded area, Sawmill Brook, and associated wetlands to the north, by Storrs Road (Connecticut Route 195) and beyond that New Alliance Bank to the east, and Foster Drive and beyond that Alex Caisse Park to the south.

Site Utilities

Willimantic Water Works of Connecticut provides public water to the site and the surrounding properties. Willimantic Reservoir serves as the public water resource for the area and is located approximately 5,300 feet northeast of the site. The water service lateral generally runs north-south from the intersection of Conantville Road No. 2 and Foster Drive to the southern portion of the station building.

Sewer service is provided by the Town of Willimantic Public Works Sewer Division. No maps showing the actual location of the service lateral could be obtained from town

records. A limited portion of the sewer lateral to the site building was encountered during tank removal activities. The exposed lateral was buried approximately 6 feet below grade and appeared to run north to south.

The site slopes gently from west to east. Storm run-off is directed to two, interconnected catch basins located in the eastern portion of the site. These catch basins discharge storm water to the Sawmill Brook associated wetlands north of the site for recharge.

Telephone services (Verizon) are supplied to the site via a sub-grade conduit located west of the site building. This burial depth of this service lateral is presumed to be relatively shallow thus preferential flow along this conduit is unlikely. Electricity is provided via overhead service by Connecticut Light and Power. Electrical service to the various on-site improvements (e.g. sign, lights, MPDs, tanks, etc.) is supplied via sub-grade conduits. The burial depths of these service conduits is presumed to be relatively shallow thus preferential flow is unlikely.

Heating oil was stored on-site in a 550-gallon UST formerly located west of the station building. This UST was removed in March 2008.

ENVIRONMENTAL SETTING

Topography

The site slopes gently downward from west to east as depicted on the United States Geological Survey (USGS) 7.5 Minute Topographic map of the Willimantic, Connecticut quadrangle. The relevant portion of the quadrangle is depicted on the Site Locus (Plate 1).

Groundwater Classification

The site is located within a GA groundwater area. The GA classification is designated for groundwater within the area of existing private water supply wells or an area with the potential to provide water to public or private water supply wells. The CTDEP presumes that groundwater in such an area is suitable for drinking or other domestic uses without treatment.

Surface Water Classification

An unnamed pond (Alex Caisse Park) is located approximately 50 meters south of the site. Sawmill Brook borders the property to the northeast and flows in a southeasterly direction, to the Natchaug River. The Natchaug River is located approximately 250 meters east of the site and flows in a southeasterly direction toward the Shetucket River, located approximately 6,500 feet southeast of the site. According to the CTDEP *Water Quality Classifications Map of the Housatonic River, Hudson River and Southwest Coastal Basins,* Sheet 2 of 3, the Natchaug River is a class B surface water body which is designated as habitat for fish and aquatic life and wildlife, recreation, navigation, and industrial and agricultural water supply. According to the

Connecticut GIS database, an unnamed wetland is located approximately 50 meters east of the site, in between Storrs Road and the Natchaug River.

Geology

Surficial geology in the vicinity of the site is described on the *Surficial Materials Map of Connecticut* (Stone, et al, 1992) as a mix of sand and gravel overlying sand and alluvium. Sand and gravel is generally defined as less than 20 feet thick, horizontally bedded, and overlies inclined layers of sand (deltaic deposits). Alluvium is described as overlying fines. Geology observed during drilling is consistent with published descriptions. In general, medium to fine sand with lesser amounts of fine gravel, coarse sand, and silt were encountered overlying fine sand and silt. Increasing silt content was observed with increasing depth. To date, maximum exploration depth is approximately 12 feet (ft) below surface grade.

The underlying bedrock is identified on the *Bedrock Geological Map of Connecticut* (J. Rodgers, 1985) as Hope Valley Alaskite Gneiss (Proterzoic Z), comprised of a light-pink to gray, medium to course-grained, locally porphyritic, variably lineated and foliated alaskitic gneiss. Bedrock was not encountered during subsurface investigation activities conducted at the site.

Hydrogeology

Groundwater monitoring was conducted at the site in January, September, and December 2008 and in April 2009. Water level data collected during these events was used to model the potentiometric surface and estimate groundwater flow direction. Groundwater flow direction was consistently eastward across the site and thus, for purposes of this report, west is considered to be hydraulically up-gradient, east is considered to be hydraulically down-gradient, and north and south considered to be hydraulically cross-gradient.

During the recent April 2009 sampling event, depth to groundwater ranged from 1.99 feet below well casing at well MW-5 to 11.15 feet below well casing at well OS-1. Data indicate that the seasonal groundwater elevation fluctuation is as much as 1.43 feet seasonally. To date, the lowest groundwater elevations were observed in September (Fall) and the highest groundwater elevations were observed in April (Spring). Hydraulic gradient is seasonally consistent, ranging from approximately 0.03 ft/ft in February 2008 to 0.05 ft/ft in April 2009.

Potential Sensitive Receptors

The following potential sensitive receptors were identified in the vicinity of the site:

- A public drinking water supply (Alex Caisse Park Spring) is located approximately 100 meters south (cross-gradient) of the site.
- Sub-grade utilities including the water and sewer laterals in the southern portion of the site and the storm water system in the eastern portion of the site
- A utility vault located in Foster Drive south of the site

- Sawmill Brook and associated wetlands located north of the site
- Natchaug River and associated wetlands located east of the site
- An unnamed pond (Alex Caisse Park) located 50 meters south of the site

INJECTION WORK PLAN

KFG proposes to study the use of Regenesis chemical oxidation and oxygen enhancement products to remediate soil and groundwater at the site. RegenOx™ is a sodium percarbonate based oxidant that will treat residual petroleum contaminants while producing minimal heat and remain reactive for a period of up to 30 days following injection. ORC Advanced® will then provide a long term source of oxygen for aerobic bio-treatment of residual hydrocarbons in the dissolved phase. The work plan and rationale is summarized below.

Target Areas

Based on the observed nature and extent of the residual contaminants, two target areas were defined for pilot study. Target Area #1 is located in the vicinity of the former product piping and dispensers (AOC-2). Soil and groundwater in this area are impacted with gasoline-related VOCs. Target Area #1 covers approximately 2,000 square feet (ft^2) and spans approximately ten vertical feet, e.g., from three to 13 feet below the ground surface (bgs), encompassing a total volume of approximately 750 cubic yards (yds^3). Target Area #2 is located in the vicinity of the former garage (AOC-3) and used oil UST area (AOC-4). Soil and groundwater in this target area are impacted with ETPH. Target Area #2 covers approximately 2,200 ft^2 and spans approximately ten vertical feet, e.g., from three to 13 feet bgs, encompassing a total volume of approximately 800 yds^3.

RegenOx™

RegenOx™ is effective at treating a wide range of organic contaminants including aromatic and aliphatic VOCs, polycyclic aromatic hydrocarbons (PAHs), and oxygenates. The RegenOx™ oxidant technology uses two parts, an oxidizer and an activator. The oxidizer is a mixture of sodium percarbonate, sodium carbonate, sodium silicate, and silica gel. The activator is a mixture of sodium silicate solution, silica gel and ferrous sulfate. The application process involves combining the two parts in the field then injecting the aqueous mixture into the zone of contamination. Sodium percarbonate is the active oxidant. Once in the subsurface, the RegenOx™ product produces various oxidation reactions including: surface mediated oxidation, a vendor patent-pending process whereby the soil particle is coated with an activator then the oxidant and contaminant react with the activator on the surface of the soil particle, direct oxidation and free radical oxidation. Regenesis has indicated that minimal heat is produced and that the oxidation reactions can last for periods of up to 30 days following injection. Material safety data sheets (MSDS) for RegenOx™ are provided in Appendix A.

ORC Advanced®

ORC Advanced® is a proprietary formulation of food-grade, calcium oxy-hydroxide that produces a controlled-release of molecular oxygen for period of up to 12 months upon hydration. It is designed to accelerate the rate of naturally occurring aerobic contaminant biodegradation in groundwater and saturated soils. A MSDS for ORC Advanced® is provided in Appendix A.

Chemical Dosage

Regenesis of San Clemente, CA (www.regenesis.com) completed the chemical dosage calculations based on information provided by KFG on site geology, hydrogeology, and the nature, degreem and extent of contaminants. Regenesis has estimated that 7,260 pounds of RegenOx™ and 1,625 pounds of ORC Advanced® will be required. Chemical dosage calculations are provided as Appendix B.

Permits

This *Application for an Emergency or Temporary Discharge Authorization* (DEP-WD/REM-APP-200) has been completed and submitted for CTDEP approval.

Chemical Injections

KFG plans to inject a liquid/slurry mixture of RegenOx™ and ORC Advanced® at a total of thirty-five (35) locations, e.g., 15 locations at Target Area #1 and 20 locations at Target Area #2, using the Geoprobe® drilling techniques. The injections will be spaced on 12½ foot centers as shown on the attached site plan. The injections will be completed at a maximum depth of thirteen (13) feet bgs. Approximately one foot of clean sand will be placed over the liquid/slurry mixture followed by approximately one foot of hydrated bentonite chips. Quick-set concrete (approximately one foot thickness) will be used to cap the boring to surface grade. Chemicals will be applied to the subsurface through using high pressure grout injection machine directly through the Geoprobe® tools. The actual injection pressures will be dictated by the geology and thus determined during field application activities. Chemicals will be mixed and injected in accordance with the Regenesis procedures provided as Appendix C.

Health and Safety

Prior to the initiation of the injections, KFG will develop a site specific health and safety plan (HASP). The HASP will identify hazards which can be expected, as well as outline emergency procedures, contacts, and mitigation measures. Additional activities to ensure the health and safety of employees, the general public, and the environment are outlined below.

Site Control

Access to the site will be restricted to authorized personnel during the injections. All personnel will enter and exit the area through specific work zones. Prior to the start of work, a safety officer will establish specific work zones to reduce the transport and exposure of contaminants at the site. The following work zones will be established.

- Exclusion Zone: The Exclusion Zone is an area centered on (at least a 20-foot radius, if possible) the point of activity. All personnel in the exclusion zone will be required to wear the level of personal protective equipment (PPE) specified by the site safety officer. Entry and exit to the exclusion zone will be regulated and will be permitted only in a pre-specified area.
- Support Zone: The Support Zone is established in a clean or non-contaminated area away from (and upwind when possible) from the Exclusion Zone. This area will contain support facilities and areas for potable water, first aid, and eating and changing. Normal work clothes are permitted in this area.

Safety Meetings

Prior to the start of work each day, the site safety officer will instruct field personnel and others that will be on-site during the injections of the following:

- The anticipated scope of work
- Location of nearest medical facility
- Review of the site-specific health and safety plan (HASP)
- Review the Job Safety Analysis (JSA) for each task
- Review known potential hazards with the work/chemicals

Safety meetings will also be conducted to address site-specific potential hazards prior to the start of work on a daily basis.

MONITORING PROGRAM

The objectives of the monitoring program are to demonstrate that the remediation process is protective of human health, safety, and the environment and to assess the effectiveness of the chemical injections. The program will consist of groundwater and vapor monitoring before, during, and after the oxidant/ORC injection activities to achieve these objectives.

Baseline Monitoring

Approximately one week prior to the injections, low-flow groundwater sampling of existing monitoring wells MW-3, MW-4, MW-102, MW-103S, MW-103D, MW-105, MW-106, MW-107, MW-110, and MW-112 will be conducted. Wells will be monitored for the following parameters:

- Depth to water
- Dissolved oxygen (DO_2)
- Oxidation-reduction potential (ORP)
- pH
- Specific conductivity
- Temperature
- Dissolved carbon dioxide (DCO_2)

The groundwater samples collected from the monitoring wells associated with Target Area #1 (e.g., MW-102, MW-103S, MW-103D, MW-105, and MW-112) will be analyzed for VOCs including methyl tertiary butyl ether (MTBE), Resource Conservation Recovery Act (RCRA) metals, biological oxygen demand (BOD), chemical oxygen demand (COD), alkalinity, and iron. The groundwater samples collected from the monitoring wells associated with Target Area #2 (e.g., MW-3, MW-4, MW-106, MW-107, and MW-110) will be analyzed for VOCs, ETPH, polycyclic aromatic hydrocarbons (PAHs), RCRA metals, BOD, COD, alkalinity, and iron.

Vapor monitoring of wells MW-3, MW-4, MW-102, MW-103S, MW-103D, MW-105, MW-106, MW-107, MW-110, and MW-112 and the two on-site storm water catch basins will be conducted. Wells will be monitored for the following parameters:

- Oxygen (O_2)
- Total volatile organic vapors (TVOVs) using a photo-ionization detector (PID)
- Lower explosive limit (LEL)
- Carbon dioxide (CO_2)

Injection Monitoring

Injections pressures and uptake will be monitored by the selected drilling contractor in accordance with Regenesis guidance. During the injection activities, groundwater and vapor at existing monitoring wells MW-3, MW-4, MW-102, MW-103S, MW-103D, MW-105, MW-106, MW-107, MW-110, and MW-112 will be monitored periodically for the following parameters:

- Depth to water
- DO_2
- Oxidation-reduction potential (ORP)
- pH
- Specific conductivity
- Temperature
- DCO_2
- Hydrogen peroxide (H_2O_2)
- O_2
- TVOVs
- LEL
- CO_2

The two on-site catch basins will also be screened for O_2, TVOVs, LEL, and CO_2.

Post-Injection Monitoring

Approximately one month, three months, and six months following the injections, low-flow groundwater sampling of existing monitoring wells MW-3, MW-4, MW-102, MW-103S, MW-103D, MW-105, MW-106, MW-107, MW-110, and MW-112 will be conducted. Wells will be monitored for the following parameters:

- Depth to water

- DO_2
- ORP
- pH
- Specific conductivity
- Temperature
- DCO_2

The groundwater samples collected from the monitoring wells associated with Target Area #1 (e.g., MW-102, MW-103S, MW-103D, MW-105, and MW-112) will be analyzed for VOCs, MTBE, RCRA metals, BOD, COD, alkalinity, and iron. The groundwater samples collected from the monitoring wells associated with Target Area #2 (e.g., MW-3, MW-4, MW-106, MW-107, MW-110) will be analyzed for VOCs, ETPH, PAHs, RCRA metals, BOD, COD, alkalinity, and iron.

Vapor monitoring of wells MW-3, MW-4, MW-102, MW-103S, MW-103D, MW-105, MW-106, MW-107, MW-110, and MW-112 and the two on-site storm water catch basins will be conducted. Wells will be monitored for the following parameters:

- O_2
- TVOVs
- LEL
- CO_2

EVALUATION OF PILOT STUDY

The effectiveness of ISCO and enhanced bioremediation will be based on groundwater measurements. Decreases in primary indicators such as VOCs and ETPH and secondary indicators such as DCO_2 and increases in secondary indicators such as DO_2 and ORP would indicate that the injections were effective. An *In-situ Chemical Oxidation and Enhanced Bioremediation Pilot Study Report* will be prepared summarizing the methods and results of the pilot study following the groundwater monitoring.

APPENDICES

Plate 1, Site Plan with Proposed RegenOx/ORC Injection
Appendix A, MSDS for RegenOx™ and ORC Advanced®
Appendix B, Chemical Dosage Calculations
Appendix C, Chemical Mixing and Injection Procedures

July/August 2010

Connecticut Wildlife

Eye on the Wild

Dogs and Wildlife

Pet owners are passionate about their dogs. I know because I have a dog. When it comes to where dogs can be and what they can do, especially when it involves state parks and wildlife management areas, things get complicated. Many people believe that dogs should be allowed to roam free. They also may think their pet would never harm wildlife.

From a wildlife manager's perspective, dogs being walked by their owners should not be allowed to run free in areas that are important for the conservation of wildlife (wildlife areas, natural preserves, beaches, etc.). Free-roaming dogs wander into fields, forests, and wetlands. There is no doubt about it, and there is scientific evidence to support it – dogs can be a threat and disturbance to wildlife. They are perceived by wildlife as predators. Ground nesting birds are easily disturbed by dogs and may abandon or lose their nests if constantly disturbed. Dogs also chase wildlife, including their helpless offspring. Even though an owner may think he has control of his dog, once the dog is focused on the pursuit of a squirrel, rabbit, deer, or shorebird, it may be difficult to get the dog to stop before the damage is done. Dogs and wildlife can be a deadly combination unless responsible pet owners keep their dogs on a leash and refrain from bringing them into restricted areas that are posted for the protection of wildlife.

The DEP has rules regarding pets in parks and wildlife areas by posting rules on signs. Environmental Conservation Police Officers regularly patrol parks and wildlife areas. However, it really is up to dog owners to follow the rules and understand how devastating dogs can be to the wildlife. Most dog owners follow the rules. But, those who do not can have a profound impact on wildlife.

The majority of Connecticut state parks allow dogs on a leash. The shoreline parks (Hammonasset Beach, Harkness, Rocky Neck, Silver Sands, Sherwood Island) prohibit dogs on the beach at all times of the year. Dogs are not allowed at Sherwood Island State Park from April 15-September 30. The "no dogs on the beach" rule provides protection for beach-nesting shorebirds (i.e., piping plovers, least terns; see article on page 8). Although the shoreline parks are heavily used by the public over the summer, they also provide important habitat for a multitude of wildlife species.

A new regulation went into effect 2 years ago that requires dogs be on a "leash no longer than 7 feet and under the control of their owner or keeper" at all state wildlife management areas. The only exception is dogs in the act of hunting or training for hunting. Wildlife management areas have been set aside primarily for the conservation of wildlife populations and their habitat. Public use of these areas, including dog walking, is a benefit, but not the main reason for their existence.

Kathy Herz, Editor

Cover:

Tidal wetland restoration projects along the Connecticut coastline have benefitted the saltmarsh sharp-tailed sparrow and other wildlife. These projects are conducted by the Connecticut Tidal Wetland Restoration Team, which recently received the Coastal America Partnership Award (see page 16).

Photo courtesy of Paul J. Fusco

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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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Survey Seeks to Find Long-eared Owls

Written by Jeremy Leifert

The long-eared owl is a member of the owl family Strigidae, which contains most of the world's owl species. Although widely distributed throughout North America, Europe, and Asia, the long-eared owl is listed in several Northeast states as endangered, threatened, or special concern due to dramatic drops in populations and loss of preferred nesting habitat. Connecticut currently lists the long-eared owl as endangered, with an extremely low number of confirmed nesting sites. Long-eared owls are seen or heard in the state during winter while roosting.

Long-eared owls often nest in dense coniferous forests, roost in open forests, and hunt over open fields for small mammals and other birds. Preferred nest sites are re-used stick nests of birds, such as crows, ravens, or hawks, among thick stands of hemlock and spruce.

The long-eared owl is 1 of 4 target species of the Wildlife Division's Night Bird Callback Survey Project. This project is part of a statewide initiative to more thoroughly assess the nocturnal avian species that breed in Connecticut.

Survey Methods

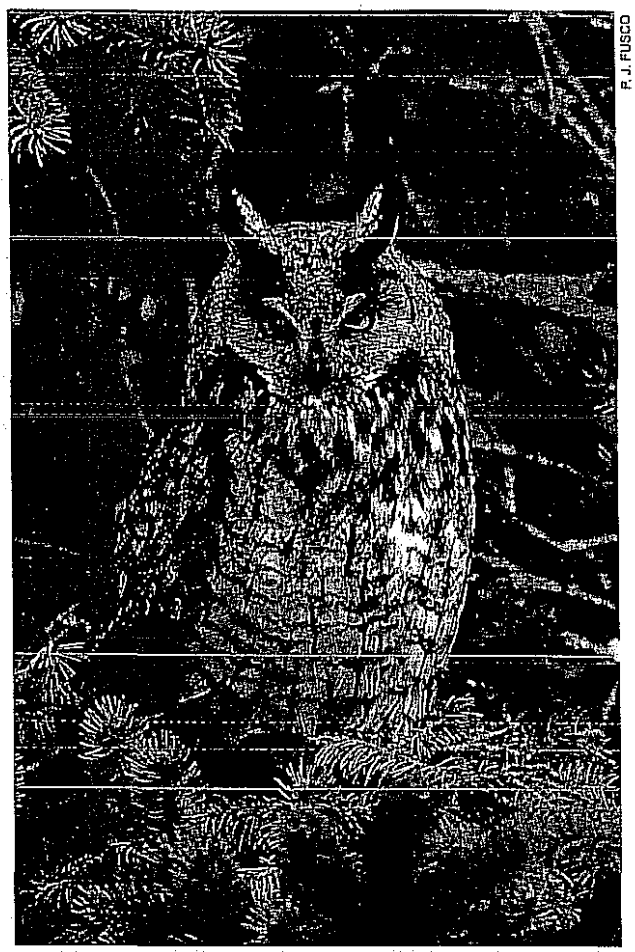
Throughout April 2010, Division staff conducted point-count callback surveys along 8 established nightbird survey routes in which long-eared owls were detected during the 2007-2009 surveys. Three additional point surveys were conducted in areas with historical nesting records of long-eared owls. These surveys were conducted to confirm the presence of long-eared owls and identify locations for future nest searches.

The 11 routes were surveyed twice during April, with 3 survey points per route. The points were chosen by selecting existing nightbird survey points with past long-eared owl detections, as well as the nearest points before and after along their respective routes, creating a survey radius of more than 1 mile around each detection. Survey routes near areas with older historical records were created by placing 3 points within 1 mile of the historical detection point.

Survey protocols for winter nightbird surveys were used, with each survey beginning at midnight. A 10-minute callback recording was used at each point to elicit responses from owls in the area. This recording contained an eastern screech owl call at the 3-minute mark, a long-eared owl call at the 6-minute mark, and silence for the last 4 minutes. Any owls detected were recorded individually on the data sheet by indicating the species and which time period during the survey that the owls were detected. For any long-eared owl detections, subsequent daytime nest searches were performed to confirm nesting activity in the vicinity of the calls.

Survey Results

Over the course of the surveys, 1 long-eared owl was detected. Division staff returned to this site and performed a nest search in mid-May 2010. During the search, 2 separate ideal stick nests were found in areas of thick hemlock and spruce, but no long-eared owls were seen. It was difficult to determine if these were long-eared owl nests (as the owls often re-use nests of other species) and if they were recent, active nests. Continued monitoring of this area will be necessary during future breeding seasons to confirm the use of the nests.



R. J. FUSCO

The long-eared owl was a common Connecticut resident in the late 1800s, nesting in thick evergreen stands and in low brush along the coast. Populations began to decline around 1900. Long-eared owls are now uncommon winter visitors along the coast and the Connecticut River valley from November through mid-April; they are seldom seen inland. This endangered species now rarely nests in the state.

The Future

Many factors could be contributing to low populations of long-eared owls in Connecticut. Loss of preferred habitat and encroaching development are two intertwined threats to this species. Many of the survey sites that were visited are already suffering from pressures, such as noise pollution from nearby roads and industrial buildings, as well as new housing developments. In addition, many of the survey points with records of long-eared owls contained an abundance of barred owls, which can be ferociously territorial. Barred owls, along with great horned owls, pose a direct threat to long-eared owl territories and nests.

Identifying and concentrating future survey efforts near larger tracts of hemlock and spruce that are adjacent to open fields will be necessary to gain a clearer understanding of the distribution of long-eared owls in Connecticut, along with the long-term health of the habitats.

If you observe a long-eared owl, please report your observation to the Wildlife Division's Sessions Woods office at 860-675-8130 (Monday through Friday, from 8:30 AM-4:30 PM). A fact sheet on the long-eared owl is available on the DEP Web site at www.ct.gov/dep/wildlife. More information about the long-eared owl also is available at:

www.owlpages.com

www.allaboutbirds.org/guide/Long-eared_Owl/lifehistory

Jeremy Leifert is a seasonal research assistant for the Wildlife Division

New England Cottontail Projects Making Strides in CT

Written by Travis Goodie

The Wildlife Division has been studying the New England cottontail for the past decade. It is the only species of rabbit native to Connecticut. It occupies areas with dense shrubs and thickets. Populations have been declining throughout the state and New England due to habitat loss and fragmentation and competition from the introduced eastern cottontail.

The Wildlife Division is working in cooperation with the University of Connecticut Department of Natural Resources and the Environment and other New England states to keep New England cottontail populations healthy to help prevent the species from being listed as endangered. The New England cottontail is currently considered a species of greatest conservation need in Connecticut and a Northeast species of regional conservation concern. It also has been designated as a candidate for federal Endangered Species Act protection.

B. EMBACHER, DEER PROGRAM

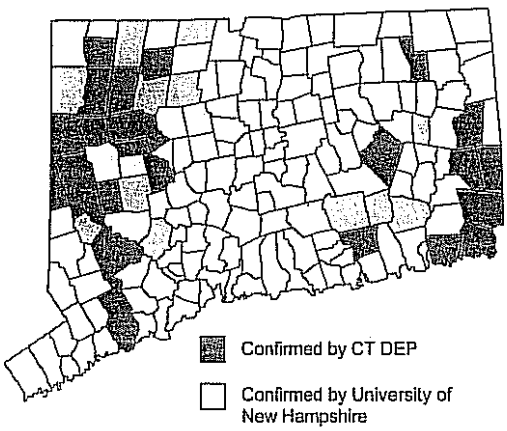
Research Assistant II Travis Goodie is about to release a cottontail that was live-trapped as part of a project to study the statewide distribution of New England and eastern cottontails.

Several projects are currently under way in Connecticut, including an ongoing distribution study; a telemetry study looking at habitat use, movement, and survival; a cooperative project with the U.S. Fish and Wildlife Service (USFWS) to conduct habitat work on town and private land; habitat restoration projects on 5 state-owned properties; and sampling of imperiled habitats to assess use by New England cottontails.

Distribution of Cottontails

Since 2000, the majority of distribution data has been collected from hunter harvest data, roadkill specimens, DEP live-trapping efforts, and fecal pellet collections. To date, New England cottontails have been documented in 38 Connecticut towns. This past winter, 8 new towns were sampled via live trapping, resulting in the capture of 19 rabbits (species confirmation through DNA analysis is pending). Additionally, 10 other towns were sampled via fecal pellet collection (129 pellets). DNA analysis of live-trapped rabbits and fecal pellets is being conducted by the University of New Hampshire, with results expected by the end of summer. Based on pelage (fur) characteristics of two rabbits captured in Southbury and Washington, they are likely New England cottontails. These results will increase the statewide distribution this year. Those who would like to donate roadkilled rabbits or harvested rabbits for species identification should contact the Division's Franklin Wildlife office at 860-642-7239.

New England Cottontail Confirmed Towns in Connecticut



Radio Telemetry Study

The Division initiated a 2-year telemetry study in 2008 at 5 sites in eastern (North Stonington, Salem, Scotland) and western (Kent, Morris) Connecticut. In the first year of the 2-year study, no New England cottontails were captured in Salem. Efforts were moved to a new location in Scotland where the species was known to exist.

Over 2 years, 129 cottontails (48 New England, 81 eastern) were live-trapped and outfitted with radio telemetry collars. All collared rabbits were monitored during the day and at night for at least a year unless they experienced mortality. Telemetry data have been collected and are being analyzed to quantify home range and core area size, habitat preferences, and mortality rates for the 2 species.

Creating Habitat for Cottontails

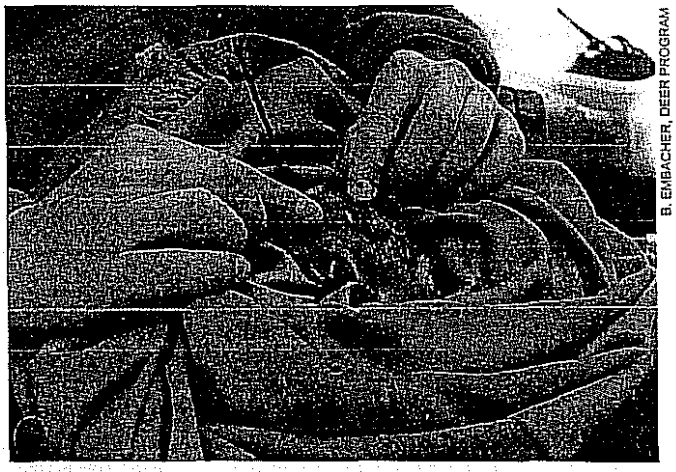
The largest problem New England cottontails are facing is the loss and modification of their habitat due to the natural process of succession and alterations made by human activities. Because the New England cottontail is considered a habitat specialist and thrives in large areas of early successional habitat and shrub thickets, it is imperative to provide such habitat so that they can survive and flourish. Quality New England cottontail habitat is achieved when there is a minimum of 20,000 stems/acre. This can be accomplished by clearing areas of larger trees and promoting the regeneration of stems that are less than 3 inches in diameter.

Currently, there are 5 areas on state land where habitat projects are underway, providing 157 acres of new habitat for

existing populations of New England cottontails. A 13-acre site has already been cut at Roraback Wildlife Management Area (WMA) in Harwinton, with 24 more acres to be added before the end of the year. Habitat management also has been initiated at Camp Columbia State Forest in Morris where a 5-acre area has been cut and an adjoining 3 acres will be added over the winter. Other locations where habitat work will be conducted include Goshen WMA (Goshen; 71 acres), Housatonic River WMA (Kent and Cornwall; 38 acres), and Zemko Pond WMA (Salem; 3 acres). Before each area is cut, stem density counts and presence/absence of cottontails will be recorded to help with the future assessment of the project. New England cottontails currently exist at 4 of the 5 project sites. In addition to the work being implemented by the DEP, the USFWS has plans to conduct habitat projects with Old Lyme Open Space and Avalonia Land Conservancy in Ledyard.

Searching Imperiled Habitats

Several habitat types in Connecticut are imperiled, including white cedar swamps, red cedar swamps, coastal headlands and bluffs, and grasslands. Some of these habitats were sampled this past winter via pellet collections to see if New England cottontails were using any of these imperiled habitats. The white and red cedar swamps that were visited seemed to be void of any cottontails, only yielding 1 pellet from 1 of the 10 visited sites. Most of the cedar swamps were inundated with water and lacked a thick understory growth that is needed by cottontails. The coastal sites seemed to be the most promising locations visited, with a total of 92 pellets collected from 9 of 14 coastal sites. A healthy population of New England cottontails has already been documented at Bluff Point Coastal Reserve in Groton, which is the largest undeveloped coastal peninsula between Boston and New York City. All of the samples collected will be sent to the University of New Hampshire for analysis this summer.


B. EMBACHER, DEER PROGRAM

An eastern cottontail exhibiting a white spot on its forehead is fitted with a radio-collar to track its movements.

With several projects well underway, it seems like Connecticut may have a light at the end of the tunnel for the New England cottontail. Persistence and continuous work to provide habitat for the New England cottontail will play a large contributing role in the future of the species. The Division will continue its efforts to monitor New England cottontails in the state and to try to provide them with what they need to persist.

Travis Goodie is a Research Assistant II for the University of Connecticut's Natural Resources Department

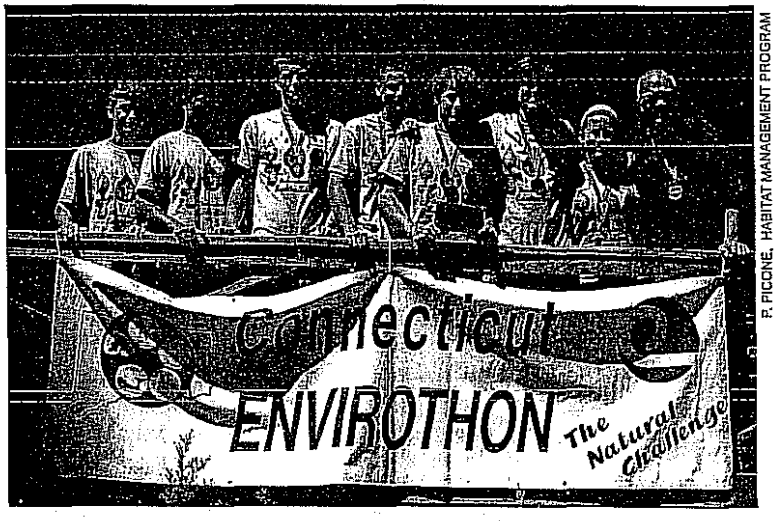
The 19th Annual Connecticut Envirothon a Huge Success

Written by Peter Picone

Envision a warm, sunny spring day next to a crystal clear lake surrounded by woods — that was the backdrop for the 19th Annual Connecticut Envirothon held at Deer Lake Boy Scout Reservation in Killingworth on May 20, 2010. Teams from several Connecticut high schools and one home-schooled team competed in the event by taking exams that covered the subjects of wildlife, forestry, soils, aquatics, and water resource planning. Each team consisted of 5 students who studied the 5 subject areas throughout the school year to prepare for the Envirothon. The students had the option to attend 5 training seminars prior to the competition and to download study materials from the Connecticut Envirothon Web site (www.ctenvirothon.org) to sharpen their knowledge of natural resources. Teams registered 5 students and 2 alternates to participate. The five exams are taken as a team. A portion of the testing involved giving an oral presentation on this year's special topic, Water Resource Planning.

The Litchfield High School team earned first place and will travel to California State University in Fresno, California, to compete in the Canon Envirothon competition in early August.

Peter Picone is a Wildlife Biologist with the Division's Habitat Management Program



P. PICONE, HABITAT MANAGEMENT PROGRAM

The Litchfield High School team earned first place at the 19th Annual Connecticut Envirothon. The team will travel to California State University in Fresno, California, to compete in the Canon Envirothon competition. The team consists of 5 students, 2 alternates, and a team advisor.

The 2011 Connecticut Envirothon will be held at Rocky Neck State Park, in East Lyme, in May.

2009 Disease Surveillance in White-tailed Deer

Written by Paul Lewis

Chronic wasting disease (CWD) is a degenerative neurological disease that affects cervids, such as deer, elk, and moose. First documented in Colorado in the late 1960s, CWD has since been documented in 19 states, 2 Canadian provinces, and the Republic of Korea.

CWD in the Northeast

The first case of CWD in the Northeast was documented in 2005 when the disease was confirmed in 5 captive bred deer and 2 wild deer from New York (Oneida County). Since discovering CWD in 2005, New York has been collecting about 1,500 deer a year and all tests suggest that the disease was discovered early and eradicated.

Two other states in the eastern United States have confirmed the presence of CWD (Hampshire County, West Virginia and Fredrick County, Virginia). In West Virginia, 3 free-range deer tested positive for CWD in 2005. Surveillance efforts conducted by West Virginia have resulted in a total of 74 deer being confirmed positive for CWD in Hampshire County as of spring 2010. Virginia's first positive case of CWD came from a deer harvested in 2009. Over 200 deer were tested in this active surveillance area; only 1 came back positive and it was harvested less than a mile from the West Virginia state line.

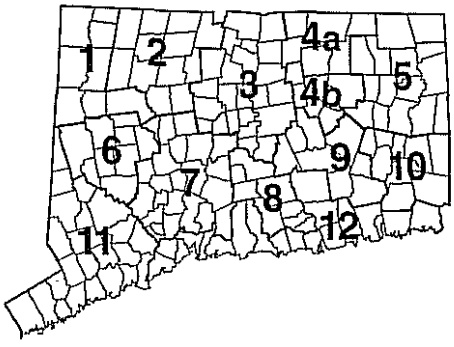
New Cases of CWD

North Dakota (2009) and Missouri (2010) have recently discovered CWD within their states. In Sioux County, North Dakota, a sick-looking mule deer harvested in fall 2009 tested positive for CWD. Since 2002, more than 14,000 deer, elk, and moose have been tested in North Dakota and were negative for the disease. In Linn County, Missouri, a captive-bred white-tailed deer tested positive for CWD in 2010. The disease has not been documented in free-ranging deer in Missouri.

P. J. FUSCO

A total of 623 testable samples were collected from deer harvested during the 2009 archery, shotgun/rifle, or crop damage seasons and from deer killed on roadways throughout the state. All samples tested negative for CWD.

Connecticut Deer Management Zones



CWD Testing in Connecticut

The fact that CWD was documented in New York only 150 miles from the Connecticut border, Connecticut deer management zones (1, 6, 11) that border New York have been designated as "high risk areas" and surveillance efforts were intensified. The rest of the deer management zones throughout the state have been designated as "moderate risk." The DEP, in cooperation with the University of Connecticut Wildlife Research Center, established an objective to collect 298 deer from both the high and moderate risk areas.

During the 2009 CWD surveillance period, 623 testable samples were collected from deer harvested during the archery, shotgun/rifle, or crop damage seasons and from deer killed on roadways throughout the state. Over 350 deer came from taxidermists and meat processors who generously offered to participate in CWD collection efforts. A total of 287 samples were collected from the "high risk" area and 336 were collected from the "moderate risk" area. Samples were submitted to the Wisconsin Veterinary Diagnostic Laboratory for testing and all tested negative for CWD.

Harvest reporting requirements changed for the 2009 shotgun/rifle season from the previous years. Biological check stations were only open for the first 4 days of the 3-week season. These 4 days are considered peak harvest days. After the 4-day check station period, all deer were required to be checked by phone or online. Reducing the number of days check stations were open made it difficult to collect enough samples for CWD surveillance. Additionally, warm weather during the first 4 days of the season and a large mast crop (acorns) led to a 30% decline from 2008's shotgun/rifle harvest. To collect the required samples, hunters in certain areas were contacted directly and asked to donate samples. This was made possible by the new reporting system that compiles the harvest data quickly and efficiently, allowing hunters to be contacted before they disposed of the deer carcass. Collecting samples from butchers and taxidermist has been instrumental in data collection.

Parapoxvirus Detected

In addition to CWD sampling, deer from the town of Lebanon were tested for parapoxvirus in 2009. Parapoxvirus causes skin diseases in sheep, goats, and cattle. Recently, a hunter in Connecticut and one from Virginia were believed to have been exposed to the virus while processing a harvested deer. Both patients reported having open cuts on their hands while handling deer carcasses about 2 weeks prior to the onset of symptoms. Parapoxvirus symptoms in infected animals generally include lesions, scabs, and blisters around the mouth, lips, and muzzle, sometimes showing up on other body areas that animals may rub against each other. The case of human parapoxvirus in Connecticut was believed to have been transmitted by a deer harvested in Lebanon in 2008. Nine samples were collected from deer harvested in Lebanon (7 males, 2 females) in 2009. All tests were conducted by the Centers for Disease Control and were negative for parapoxvirus. Hunters also were asked questions about whether they had observed deer showing signs of parapoxvirus. Of 9 hunters surveyed, none reported observing the characteristic lesions on a deer or themselves.

Parapoxvirus should be of little concern to hunters. However, the same general precautions should be applied to all deer harvested: avoid shooting, handling, or consuming any animal that is behaving abnormally or appears to be sick, and wear latex or rubber gloves when field dressing and processing deer. Wash hands and instruments thoroughly after field dressing is completed. Instruments should be placed in a bleach-water solution (1:1 ratio) for an hour and left to air dry before reusing.

Testing to Continue in 2010

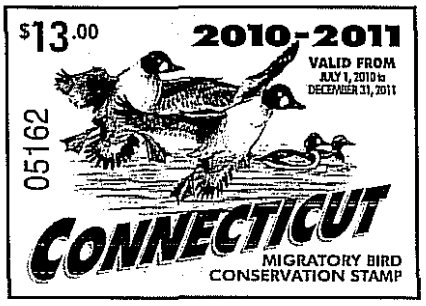
The Wildlife Division and University of Connecticut Wildlife Research Center thank all hunters, butchers, and taxidermists for their assistance in making the 2009 CWD surveillance season successful. Anyone who shares an interest in deer is strongly encouraged to participate in this ongoing surveillance program. The Department will continue collecting deer heads for CWD testing throughout the state during the 2010 fall deer hunting season. Those interested in donating deer heads for testing should call 860-424-6060 or the Wildlife Division's Franklin office 860-642-7239 so a pickup can be arranged (typically the next day). Heads should be stored in a cool place or refrigerated. Anyone who observes deer displaying symptoms associated with CWD (abnormal behavior, staggering, lowered head and ears, and emaciation) or parapoxvirus (lesions, scabs, and blisters around the mouth) should contact the Division of Law Enforcement (860-424-3333), the Franklin Wildlife office (860-642-7239) or the Division's Sessions Woods office (860-675-8130).

Paul Lewis is a Seasonal Research Assistant for the Division's Deer Program

CT Duck Stamps to Be Valid for Calendar Year

The hunting privileges associated with the Connecticut Migratory Bird Conservation Stamp (Duck Stamp) are changing to a calendar year, January 1 through December 31. To facilitate this change, for the remainder of calendar year 2010 and 2011, the DEP will issue a 2010-2011 Duck Stamp with privileges that begin on July 1, 2010 and end on December 31, 2011. Connecticut Duck Stamps purchased earlier in 2010 are considered equivalent to the new 2010-2011 stamp. Starting in 2012, duck hunting privileges will be for a calendar year, January 1 through December 31. This change is due to legislation passed in April 2010 by the Connecticut State Legislature. The legislation also increased the cost of the Duck Stamp to $13.

The Migratory Bird Conservation Fund also has been recreated, meaning that all money collected from the sale of stamps will once again go directly toward wetland conservation projects and improvement of waterfowl hunting access in Connecticut. Over $1.1 million have been raised and spent on wetland habitat conservation in Connecticut since 1993, when the Connecticut Migratory Bird Conservation Stamp Program was initiated. These funds have been provided, in large part, by hunters. A substantial portion of the $1.1 million also was raised through sales to Duck Stamp collectors and to collectors of artistic prints from 1993 until 2002, when the production and sale of prints was discontinued.



Hunters 16 years of age or older are required to purchase a Connecticut Duck Stamp every year if they plan to hunt waterfowl in Connecticut. However, anyone who has an interest in wetland and waterfowl conservation can purchase and collect stamps. The stamps feature a different waterfowl species each year. The 2010-2011 stamp features an illustration of the common goldeneye by Clint Herdman, a wildlife artist from Beacon Falls, Connecticut. Mr. Herdman is an avid conservationist and the current Vice President of the Connecticut Waterfowlers Association. He and several other sportsmen worked with the State Legislature to help recreate the Connecticut Migratory Bird Conservation Fund.

Duck Stamps can be purchased at town halls, select DEP facilities, outdoor equipment and bait and tackle stores, the DEP's License and Revenue office at 79 Elm Street in Hartford, or on the DEP Web site (www.ct.gov/dep/sportsmenlicensing).

Don't wait until the last minute! Sign up for a Conservation Education/Firearms Safety course today. Check the DEP Web site (www.ct.gov/dep/hunting) for class times and locations or call the Division's Franklin Wildlife (860-642-7239) or Sessions Woods (860-675-8130) offices during business hours.

Many Helping Hands Protect Piping Plovers and Least Terns

Written by Kathy Herz

Over the past 24 years, the Wildlife Division has been challenged with trying to protect undisturbed sandy beach areas along the Connecticut coastline so that piping plovers and least terns are able to nest and raise their young. The plight faced by these threatened shorebirds is discussed every year in *Connecticut Wildlife* and in press releases. Yet, the birds just don't seem to get a break.

Every spring, staff from the Wildlife Division and the U.S. Fish and Wildlife Service, along with several Master Wildlife Conservationists and other volunteers, head to the coastline to fence off beach nesting areas. The string fencing needs to be erected before the arrival of hot summer days when people come out in droves to lay on the beach, go fishing, or enjoy the outdoors. Once these critical areas are fenced off, workers and volunteers, known as plover monitors, check the beaches every day to locate nests, protect them from predators and human disturbance, and monitor nesting success.

In April, when string fencing and warning signs are first placed around large sections of plover and tern nesting areas, the beaches are quiet and largely empty of people. Only a few anglers or walkers may be encountered. The plover pairs have arrived from their spring migration and can be seen darting across the sand as they attempt to establish a nesting territory. Least terns arrive at the nesting areas in May, shortly after the fences are erected. It's hard to imagine what these birds will have to face when warm, sunny weather arrives.

Just as the birds seem to settle on the eggs in their nests, the chaos begins. The beaches become filled with people. And, with these people comes garbage, which attracts raccoons, rats, gulls, and other predators. The people also bring along their dogs, which are not allowed on most beaches but are often seen running off the leash and either trampling a nest or scaring away the birds.

Most beach visitors respect the fencing and heed the signs that say "Please Keep Away." People are usually even more cooperative after a plover monitor explains the importance of the string fencing and of not disturbing the birds. However, it just takes a few people who ignore the signs and fences to ruin a nesting season for these small birds. The plover monitor's job is to either try to prevent disturbances from happening or to minimize their effects. Unfortunately, every year, nesting plovers and terns have to contend with trash on the beaches, crowds of people, bonfires, racing ATVs, loose dogs and cats, fireworks displays, predators, and people who just don't care. It's amazing that these birds are able to successfully rear their young at all.

Efforts to protect shorebird nesting areas and nest sites are making a difference. Although numbers have fluctuated over the years, the 44 pairs of piping plovers that bred along the Connecticut coastline in 2009 is above the federal recovery goal of 30 pairs. To be considered a recovered population by the USFWS, 30 or more pairs would have to breed in Connecticut for 5 consecutive years. 2009 was the ninth consecutive year that the state has had 30 or more breeding pairs. Results are still pending for the 2010 nesting season. Although exclosing nests is a time consuming and labor intensive task, in areas with high predator populations or human and dog activity, it is very effective.

The number of least terns observed throughout the southern New England/New York region has remained stable since 1990. However, the number of least terns nesting in Connecticut continues to decrease; in 2009, the lowest number of nesting least tern pairs was recorded. The low number of chicks being fledged by this species in recent years has been a concern. In addition, some traditional

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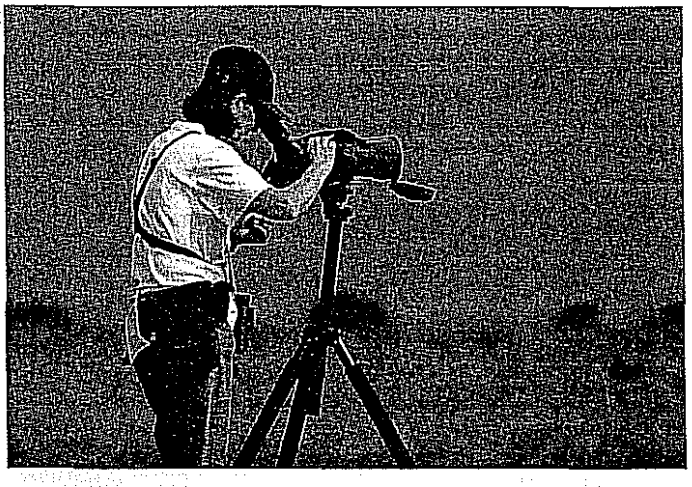
P. J. FUSCO (2)



Top photo: Master Wildlife Conservationist and volunteer plover monitor Maria Stockmal scans the beach in search of plover and tern nests. Bottom photo: Shorebird beach nesting areas are roped off with string fencing and marked with informational signs.

Annual Breeding Waterfowl Survey Completed

Written by Kelly Kubik

Staff from the Wildlife Division completed the annual breeding waterfowl survey in April. Each state in the Atlantic Flyway from Virginia north to New Hampshire participates in this survey. The survey began in 1989 and became fully operational in 1991. The data derived from this survey are used in the Eastern Mallard Adaptive Harvest Management models. The results of these models are used to set duck hunting regulations in the Atlantic Flyway.

P. J. FUSCO

Survey Methods

In Connecticut, this ground based survey targets 56 randomly selected 1-km^2 plots in rural, suburban, and urban areas. Because these plots are randomly selected, they fall on both private and public property. The plots are distributed within 3 ecological strata: Litchfield highlands, central lowlands, and coastal saltmarsh. The majority of the plots are located in the central lowlands strata because this physiographic area constitutes the greatest percentage of habitat in the state. The coastal saltmarsh stratum was added in 1993 because it was not well represented by the initial statewide random plot selection. Salt marshes are important to black ducks in Connecticut and these plots help provide an index to the coastal breeding population of black ducks.

This survey is timed to coincide with peak breeding activity in the state. All 56 plots were surveyed between April 21-30, 2010. Surveys were conducted by ground checking all water bodies and any suitable terrestrial habitat where waterfowl could be found within the plot boundary. Per survey protocol, 20% of the plots were checked at either dawn or dusk.

A drake index (drakes/pairs+drakes) was calculated for each species to determine if survey timing was appropriate. A high drake index indicates good survey timing. It shows that local ducks have begun nesting and most migrants have moved north to their breeding grounds. A low index shows the survey was conducted too early and paired migrants may still be present. A drake index between 0.50 and 0.75 is indicative of a well-timed survey.

The breeding waterfowl survey not only provides an index of waterfowl breeding populations, but also provides managers with an idea of current habitat conditions in the state. While most of Connecticut received record rainfall prior to this year's survey, low water levels were noted in some of the surveyed plots. This was primarily due to the breaching of beaver dams or drainage associated with construction activities. Even though these types of habitat changes are inevitable over the years, they are one of the major factors that affect breeding waterfowl populations.

Survey Results

Mallards continue to dominate the survey in Connecticut. The mallard estimate for 2010 was 18,038 pairs. This result is less than a 1% decrease from 2009 and a 7% increase from the 5-year average. The mallard drake index was 0.71. Mallards are adaptable, regularly nesting in a variety of habitats and tolerable of human disturbance.

The Canada goose estimate for 2010 was 12,415 pairs. This represents a 29% increase from 2009 and a 23% increase from the 5-year average. The greatest densities of breeding Canada geese were seen in plots that occurred in urban areas. Connecticut's resident goose hunting seasons are having an impact on goose populations, though primarily in rural areas where hunters have access to the birds.

The wood duck estimate for 2010 was 7,989 breeding pairs. This is a 34% increase from 2009 and a 1% decrease from the 5-year average. The wood duck drake index was 0.50.

Black ducks were observed in an inland survey plot for only the third time since 2001. The breeding black duck estimate for 2010 was 604 breeding pairs, representing a 151% increase from 2009 and a 60% increase from the 5-year average. Large fluctuations in breeding pair estimates for black ducks is likely attributed to ever changing habitat conditions and particularly the birds' secretive nature. Black ducks that breed in inland areas prefer forested wetlands where it is difficult for surveyors to detect them. The 2010 black duck drake index was 0.60.

Connecticut's wetlands are essential for continued biodiversity in the state. As the state continues to experience residential and commercial development, it is essential that the continued acquisition, enhancement, and protection of remaining wetland ecosystems occur.

Kelly Kubik is a technician with the Division's Migratory Gamebird Program

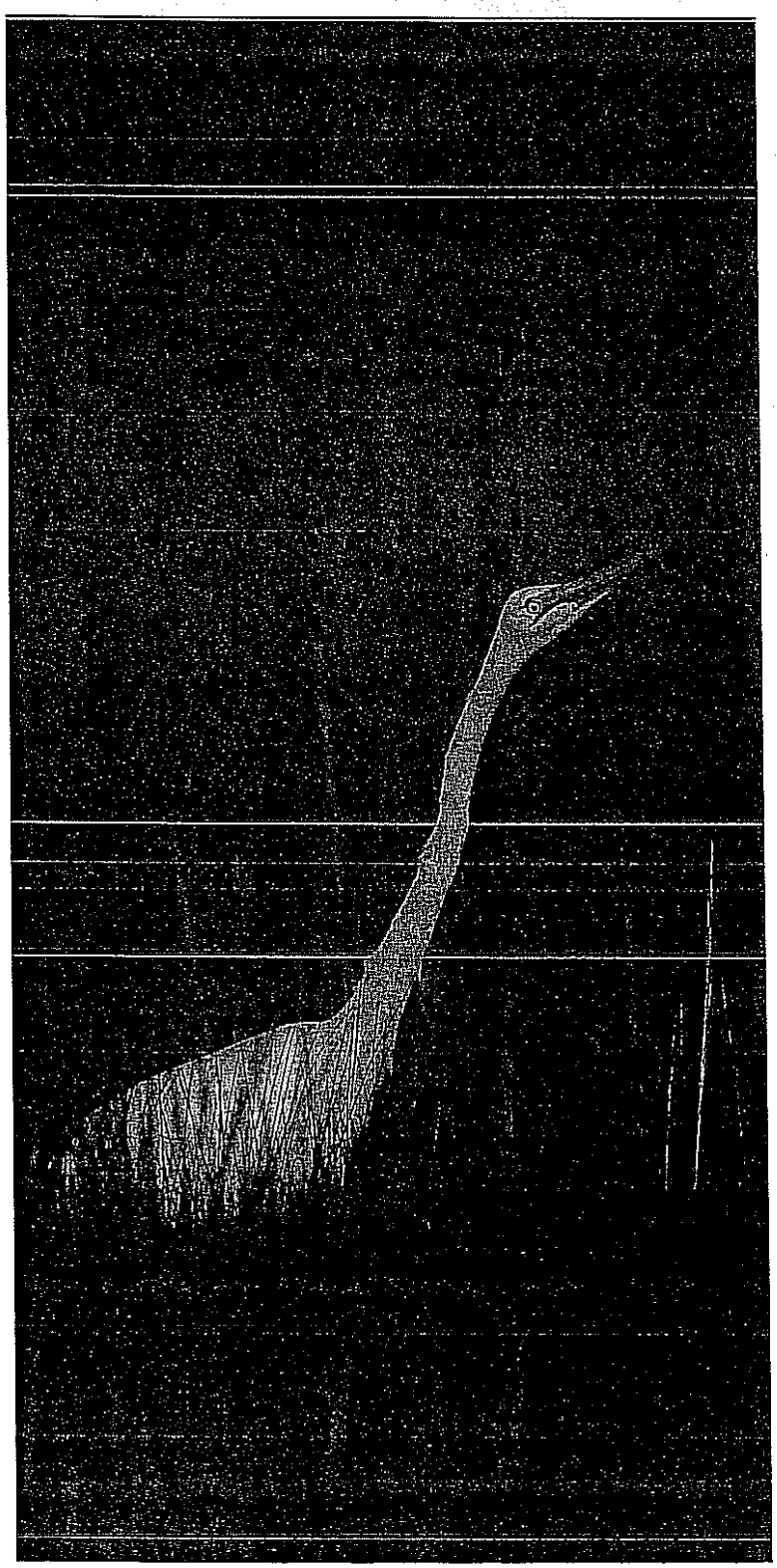
Connecticut Breeding Waterfowl Pair Estimates for Major Species

Species	2009	2010	5-Year Avg.
Black Duck	241	604	377
Canada Goose	9,620	12,415	10,053
Mallard	18,112	18,038	16,850
Wood Duck	5,946	7,989	8,063

Bird of Stature - The Great Egret

Article and photography by Paul Fusco

Connecticut's salt marshes are highly productive environments. They are dynamic systems that filter pollution, reduce flood damage, serve as nursery areas for fish and shellfish, and provide critical habitat for many wildlife species. The importance of salt marsh habitat to migratory birds cannot be understated. These marshes are critical stopover areas for thousands of shorebirds, ducks, geese, herons, egrets, rails, and songbirds that depend on this habitat to rest safely and build up fat reserves before continuing on their enduring migrations. Over the last 100 years, Connecticut has lost 35% of its original salt marsh habitat due to filling and dredging activities. It has become increasingly important to protect the remaining salt marshes in the state. Since the 1970s, tidal wetland protection laws and, more recently, wetland restoration projects have helped to maintain quality salt marsh habitat that benefits both wildlife and people.



The salt marsh is the best place to look for one of Connecticut's most striking birds. Standing over 3 feet tall, with a wingspan approaching 5 feet, the great egret is elegant and graceful. Its snow-white plumage and long, flowing breeding plumes, together with long black legs, slender body, and long neck, give this bird its stately appearance.

Moving slowly and purposefully in the marsh, an egret stalks its prey. When a potential meal is seen, the egret will slowly lean forward, zeroing in on the target before striking with lightning speed to grab the prey in its long, pointed bill. Small fish make up the majority of their diet, although the birds also will take small snakes, frogs, mice, and crabs.

Great egrets are primarily found along the coast during the breeding months in spring and summer. Post-breeding wanderers in late summer and fall may be found throughout the state. Egrets are hardy birds, with some individuals being found in Connecticut salt marshes well into winter, especially in mild years when marshes remain partially open.

In typical heron fashion when in flight, the great egret holds it neck folded backwards with its head between its shoulders, and long legs trailing behind. The wings are broad and rounded. Seen at a distance, the wingbeats are not as rapid as the smaller snowy egret and their flight is more buoyant than the larger great blue heron.

Great egrets are the largest egret in North America. Their North American breeding range extends from southern Canada south to Florida, the entire Gulf Coast into Mexico, the Mississippi River Valley, and parts of the western United States, including the Pacific Coast from Oregon into Mexico. They also are found in South America, the Caribbean Islands, and warmer parts of the Eastern Hemisphere. In winter, great egrets retreat from northern parts of their range, with most of the eastern population wintering from Virginia south.

Conservation

The first modern documented nesting of great egrets in Connecticut was in 1961 in the Norwalk Islands. Starting in 1977, the Wildlife Division, in cooperation with the U.S. Fish and Wildlife Service, has been conducting surveys every 3 years to estimate the number of egrets and other colonial nesting birds that breed in our state. The first survey yielded a count of 20 pairs of birds. The great egret population slowly grew during the 1980s. Since the early 1990s, estimated numbers increased to an average of over 100 pairs per survey, including a high of 134 pairs in the 1998 survey.

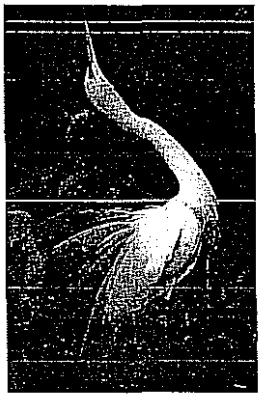
The Colonial Waterbird Survey represents an approximate total for breeding birds, providing the DEP with a

Great egrets hunt with their neck extended, feeding on small fish that they catch by striking out with their long neck and bill.

general trend for species populations. The next survey is scheduled to take place in the summer of 2010, so look for the newest count results for great egrets and other colonial waterbirds in a future issue of *Connecticut Wildlife*.

While great egrets are fairly common throughout their range, the population is still recovering from past market hunting. The great egret is listed as a threatened species in Connecticut because breeding areas are few and vulnerable. The population is fairly stable.

Great egrets breed in colonies, called rookeries, on offshore islands where they build loose stick nests in the taller trees. Rookeries must be relatively free from human disturbance and predators to be successful. Threats have the potential of causing total nesting failure of whole rookeries and abandonment of the colony if the situation is severe enough. Nesting areas are protected with signage and fencing, and public access is restricted during the breeding season at several offshore islands in Connecticut. For example, Charles Island in Milford and Duck Island in Westbrook are closed to the public every year during the nesting season. The Wildlife Division encourages people to help reduce threats by staying away from fenced nesting areas and not leaving food scraps behind when visiting coastal areas. Litter and food scraps attract predators, such as raccoons, which can have devastating effects on colonial waterbird rookeries.



If nest predation becomes too severe, the birds will be forced to abandon their rookery and may not return the following year. Raccoons have been responsible for this situation in Connecticut in the past. For this reason, it is important to protect both potential island rookery habitats and the rookeries currently being used. If one island becomes unsuitable for nesting, the birds need to have an alternate place to go. Offshore islands that are suitable breeding areas for egrets are few in Connecticut and need to be protected on a continuing basis to maintain healthy egret populations.

Paul Fusco is the Art Director and Wildlife Photographer for the Division's Outreach Program

The Plumes

Egrets get their name from the French word *aigrette*, which means ornamental plume. Grown during the breeding season, these long showy feathers almost led to the species' demise as plume hunters wantonly killed egrets to supply plumes for use in women's hats. This sparked one of the most significant grassroots conservation initiatives in United States history. The initiatives resulted in landmark bird protection laws, the beginning of the National Wildlife Refuge system, and the formation of the National Audubon Society, which has used the great egret as its symbol ever since.

Connecticut Hunting and Fishing Appreciation Day, Sept. 25

September 25, 2010, is Connecticut Hunting and Fishing Appreciation Day at Sessions Woods Wildlife Management Area in Burlington. This free event, which is sponsored by the Friends of Sessions Woods and the Wildlife Division, celebrates the contributions of hunters and anglers to the conservation of Connecticut's natural resources.

Fun activities for all ages are planned for the event, along with educational programs and workshops about hunting and fishing. There also will be drawings and door prizes for a variety of hunting, fishing, and outdoor equipment. Anyone interested in fish and wildlife, not just hunting and fishing, is encouraged to attend this fun and informative event. Best of all, the event is free to attend!

So, mark your calendar. Come practice your shooting and casting skills. Talk to DEP biologists about wildlife and fisheries. Learn some tips about getting that big buck or hooking that monster bass. Be sure to bring the kids and grandkids. Older children will be able to test their skills on the pellet gun and archery ranges and perhaps win some prizes. Younger children will be able to enjoy playing games, learning about wildlife, and making crafts. Food will be available for sale. But, if you want, bring your own picnic lunch to enjoy. Activities will begin at 10:00 AM and continue throughout the day until 4:00 PM.

A list of specific activities and presentations, as well as a schedule for the day, will be posted on the DEP Web site at www.ct.gov/dep/HuntFishDay as the date approaches. You may also contact the Sessions Woods office at 860-675-8130 (Monday-Friday, 8:30 AM-4:30 PM) for more information. The Sessions Woods Wildlife Management Area is located at 341 Milford Street, in Burlington.

Thank You Connecticut Hunters and Anglers!

Hunters and anglers have been at the forefront of the conservation movement for over 100 years. They showed their support for conservation by requesting taxes and special fees on hunting and fishing equipment to help pay for wildlife and fish management, habitat restoration and other conservation programs. Through carefully planned research, management and habitat protection, the public continues to have the opportunity to enjoy the fish and wildlife resources of Connecticut. It is important to recognize the outstanding contributions that hunters and anglers have made and continue to make towards wildlife conservation.

Project to Benefit the State Endangered Variable Sedge

Written by Judy Wilson

Edward and Kathleen Tessman live at the end of a cul-de-sac in a comfortable residential development in Clinton. Their neatly trimmed yard bordered by a strip of woods and adjacent to wetlands is typical of many residential areas. What is not typical is that their property is host to the state endangered variable sedge (*Carex polymorpha*). This sedge, which looks like coarse grass, is known to occur at only a handful of other sites across the state. The Tessmans were interested in providing stewardship for this plant, which previously had been identified by soil scientist Rich Snarsky. The Tessmans understood that the variable sedge represented a small and fragile, but important part of the state's biodiversity, so they applied to the Wildlife Division's Landowner Incentive Program and were approved for funding. The Landowner Incentive Program was designed to not only benefit at-risk wildlife, but also at-risk plants, which includes state-listed plant species found in priority habitats, such as early successional habitats and wetlands.

One of the unique aspects of the Landowner Incentive Program is that the expertise of the Division staff is applied to the approved projects as needed. Once Division technician Robin Blum gathered all the existing data regarding plants at the site and visited the Tessmans, she immediately called upon the expertise of the Division's Natural Diversity Data Base Ecologist Ken Metzler. Ken, who retired a year ago, was instrumental in designing a plan to help the variable sedge.

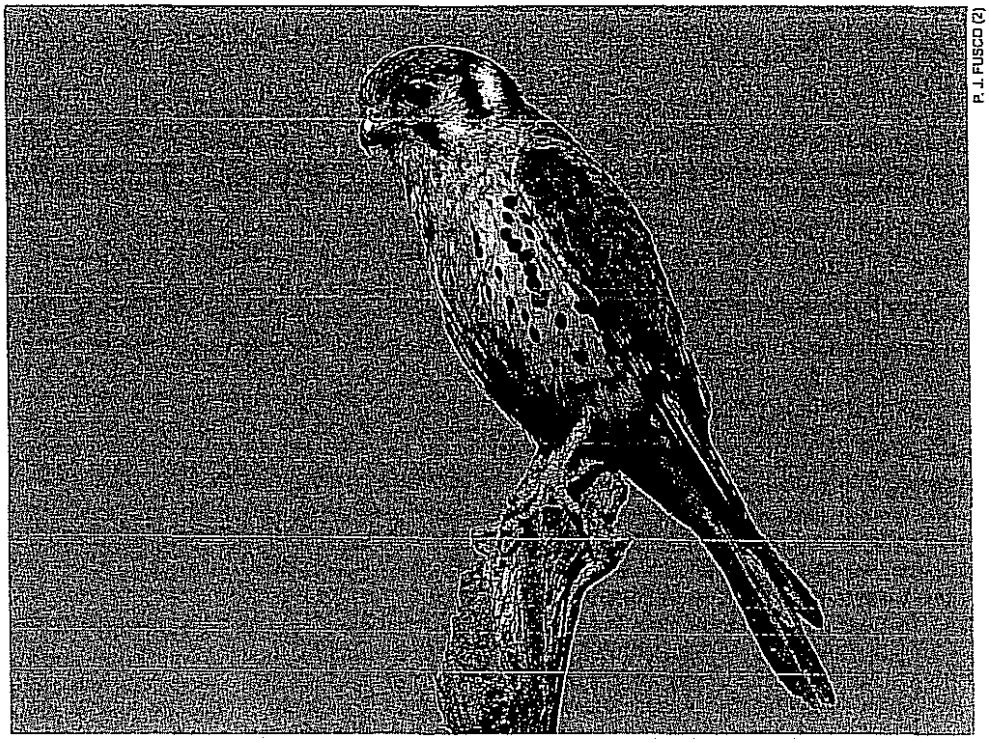
This sedge thrives in semi-open, early successional conditions where there is adequate sunlight. It does not grow well in forest understories. The woodland edge at the site was rapidly growing over into a completely closed canopy. Due to the sensitivity of the endangered plant, the small area involved, and the logistics of working so close to the Tessman's residence, Ken proposed that small saplings, invasive shrubs, and certain trees be selectively removed by hand. Because the project was small scale and no specialized equipment was needed, it was decided that the most efficient and effective way to provide stewardship of this sedge was to carry out the project using Division staff.

Five Division staff members used hand loppers and brush cutters to cut small saplings, shrubs, and lower limbs on larger trees. Invasive shrubs and plants were pulled up by hand when possible. Much to everyone's surprise, Ken documented approximately 25 plants. While this effort greatly improved growing conditions, the variable sedge still faces an uphill battle because the plants are growing in a small and isolated area. However, with conscientious stewards like the Tessmans, these plants will stand a much better chance of perpetuating into the future.

Judy Wilson is the Division's Private Lands Program Biologist

American Kestrel

Falco sparverius



P. J. FUSCO (2)

Background

The American kestrel is a small, slender falcon that is about the size of a robin. It is found in open habitats that have plenty of nesting cavities and hunting perches. Kestrels can be seen in the state throughout the year. They are considered uncommon residents in winter and somewhat common migrants in fall and spring. Migrant populations increased during the early 1900s but breeding populations were comparatively low. Kestrels were more numerous when agriculture was at its peak in Connecticut. Currently, with the disappearance of agriculture, along with the regrowth of forests and an increase in suburban development, open, grassy areas are in short supply. This change in Connecticut's landscape has caused many wildlife species that rely on open areas, including the kestrel, to experience long-term declines. Kestrels also were negatively affected by the use of organochlorine pesticides, such as DDT. DDT was banned from use nationwide in 1972.

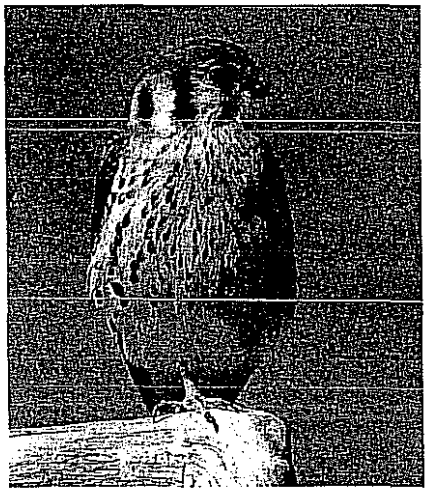
The American kestrel was listed as threatened on Connecticut's Endangered, Threatened, and Special Concern Species List in 2004, primarily due to a lack of information, coupled with a perceived decline in nesting and migrating numbers and diminishing habitat.

Range

American kestrels are found throughout most of North and South America. Most of the kestrels that breed in North America overwinter in the United States and Mexico, although a small proportion migrate as far south as northern South America.

Description

The American kestrel is the smallest falcon found in North America. Like most falcons, kestrels have long, pointed wings and long tails. The birds are easily recognized by two vertical black lines on the cheeks and a rufous-colored back and tail. The female has rufous-colored wings while the male has black-banded, bluish-gray wings. This species is the only falcon in which the male and female show such a marked difference in plumage.



The kestrel ranges in size from 9 to 12 inches long with females being larger than males.

Habitat and Diet

Kestrels prefer open grassy or shrubby areas with short vegetation in which to hunt for their prey. In Connecticut, kestrels are usually seen around agricultural areas (hay fields, orchards, pastures), airports, large parks, and power line rights-of-ways. Meadows, grassy fields, and old fields also may be inhabited. It is not unusual to find kestrels using urban and suburban areas and even buildings (barns, silos, cornices) for nest sites. Kestrels require natural tree cavities or nest boxes for nesting, along with perches in the form of trees, shrubs, or telephone poles.

The kestrel's diet varies seasonally and consists mainly of insects, including grasshoppers, crickets, beetles, dragonflies, butterflies, moths, and cicadas. Mice, voles, shrews, small snakes, frogs, and small birds also are eaten. Kestrels typically hunt from a conspicuous perch, although they occasionally hover over an open area when perches are lacking.

Life History

Connecticut's nesting kestrels begin courtship in late March to early April. An average of 4 to 5 brown-spotted eggs are laid by the end of April in a tree cavity or man-made nest box on little or no nesting material. They are incubated, primarily by the female, for 29 to 31 days. Males catch most of the food for the brooding female and, later, for the developing young. Usually 3 to 5 chicks are hatched and will grow quickly. The chicks are ready to fledge (reach flying stage) about a month after hatching. After fledging, the young stay with the adult birds for several weeks. In Connecticut, American kestrels will usually have 1 brood per season and will renest if the first nest fails.

Interesting Facts

Another name for the kestrel is the sparrow hawk, although

birds are not a main prey item.

Kestrels have a habit of pumping their tail feathers up and down when perched, especially after landing. They are known for their rapid flight and have been recorded to fly between 22 and 39 m.p.h.

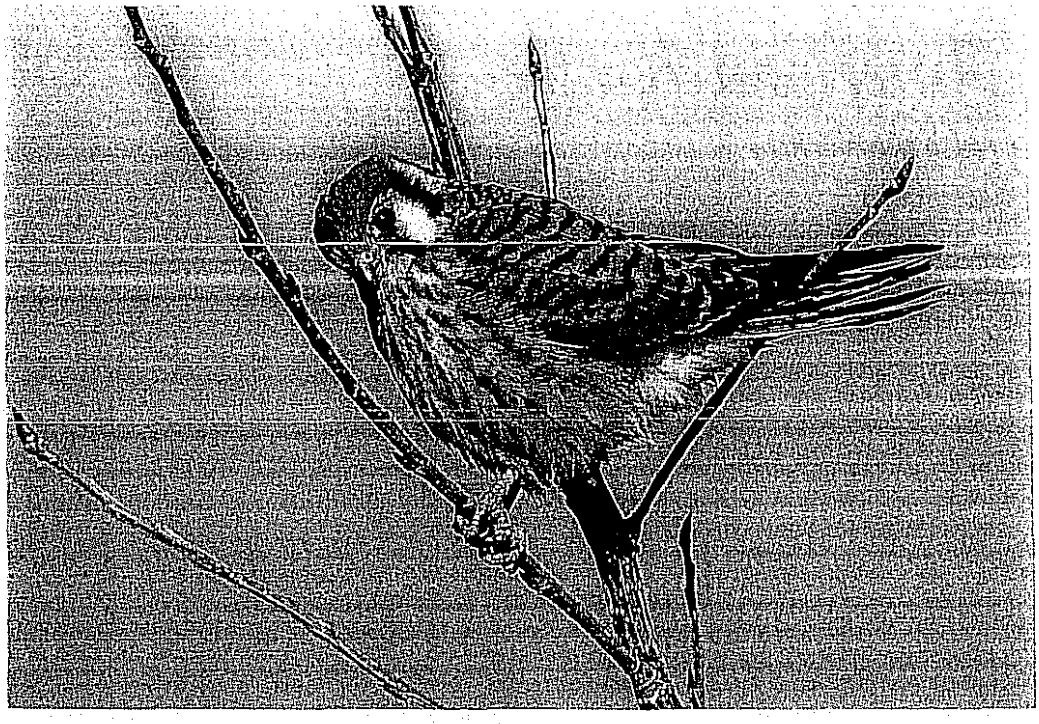
Kestrels are quite vocal. Their call is a loud, repeated "killy, killy killy" when they are excited or alarmed.

American kestrels do not need to drink freestanding water. They get all the water they need from the moisture of their prey.

Some of the predators that hunt kestrels are great-horned owls and red-tailed hawks. Other predators that have been known to attack raptors include coyotes, bobcats, skunks, raccoons, crows, and ravens.

Populations of the larger Cooper's hawk increased throughout northeastern North America from 1976-2003, and studies at Hawk Mountain Sanctuary, in Pennsylvania, and elsewhere have suggested this species preys on kestrels.

Kestrels are protected by the federal Migratory Bird Treaty Act of 1918 and Connecticut General Statutes Sec. 26-92 and Sec. 26-311 (threatened and endangered species legislation).



Conservation Concerns

According to Hawk Mountain Sanctuary, data from raptor migration counts, Breeding Bird Surveys, and Christmas Bird Counts indicate that American kestrel populations have declined in much of northeastern North America (including Connecticut) since 1974. Loss of habitat is most likely the cause of the kestrel decline in Connecticut. The number of farms in the state has been decreasing, many old agricultural fields are returning to forest, and suburban development has replaced suitable habitat. A lack of available nest cavities also can limit the number of kestrel breeding pairs.

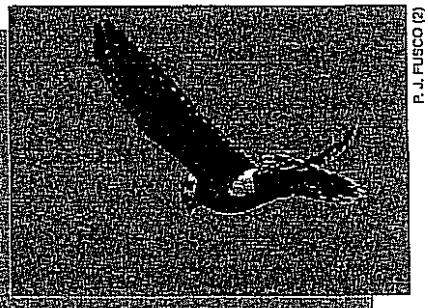
What You Can Do

Because kestrels do not excavate their own nesting cavities, they seek out ready-made homes, such as abandoned woodpecker holes or nest boxes provided by people. Specially-made nest boxes have helped kestrels throughout the country in areas where there are few natural cavities. Nest box programs for kestrels enable populations to increase in locations where nest sites are limiting. If you live near suitable habitat, you should consider providing and maintaining nest boxes for kestrels. Box plans are available by sending an E-mail to the Wildlife Division at dep.wildlife@ct.gov. To be successful, nest boxes should be placed in open field habitat. Preferred habitats are large grasslands, pastures, orchards, and hay fields with cover at about 10 inches high. Nest boxes require continuous maintenance and should be monitored to prevent non-native starlings from using them. A program to promote natural nest sites (cavities in snags) should occur along with a nest box program.

Counting Kestrels in Connecticut

One of the methods used to monitor trends in raptor populations is a hawk watch at key locations where large numbers of raptors pass overhead during fall migration. A hawk watch is a systematic and organized effort to collect standardized migration count data about raptors. Records include species identities (including color morph), sex, and age classes, when possible, quantities, and behaviors of seasonal migrant hawks. Data also are collected on weather and observation conditions. Observations at a hawk watch are conducted on a regularly repeated basis (daily or nearly daily) from a single monitoring site.

Several hawk watch sites are located throughout Connecticut, but Lighthouse Point Park in New Haven is one of the best known. It is a coastal plain watch site with a 360 degree view of Lighthouse Point Park, East New Haven Harbor, and Long Island Sound. Data collected at hawk watch sites show that the kestrel population decline has been particularly large and statistically significant at coastal hawk migration count sites in the northeastern United States, including Lighthouse Point Park (-5% per year from 1974-2004). From 1994 to 2004, statistically significant declines in kestrel numbers were recorded at Lighthouse Point (-9.2% per year). Population indices suggest that population declines for kestrels have accelerated since 2000 at Lighthouse Point. Continued population change at the 1994-2004 rates would lead to a 50% decline of American kestrel source populations in approximately 8 years at Lighthouse Point, the quickest decline compared to other hawk watch locations in the Northeast. (Data provided by Hawk Mountain Sanctuary, www.hawkmountain.org, and Northeast Hawk Watch, www.hawkwatch.com/nehw.)



P. J. FUSCO (2)

School Children Visit the Woods

Written by Laura Rogers-Castro

P. J. FUSCO (2)

Students from Noah Webster School in Hartford enjoy the interpretive wildlife hike presented by the author at the Sessions Woods Wildlife Management Area in Burlington.

Sessions Woods Wildlife Management Area in Burlington was a busy place this past spring. Several school groups from Hartford, Bristol, Terryville, and Farmington visited the site for guided programs on Connecticut's wildlife and wildlife habitat. Every student received a copy of the 36-page booklet *Exploring Wildlife at Sessions Woods* and some of the classes were reimbursed for bus transportation fees. A few of the classes discovered how to draw by observing nature with Burlington artist Judy Bird. Master Wildlife Conservationists assisted Wildlife Division staff with the guided wildlife programs. The booklet, bus transportation fees, and nature drawing classes were made possible by a grant to the Friends of Sessions Woods from Newman's Own Foundation, Inc.

The children enjoyed a 2-mile round trip hike to the beaver marsh located on the Sessions Woods property. The hike provided visits to forest, wetland, and field habitats and focused on the wildlife found at each location. The children were told about the return of wild turkeys and black bears to Connecticut's forest habitats. While at the beaver marsh, the children were shown several lodges and dams constructed by beavers and discovered how this created habitat was now home to a variety of different animals.

This enthusiastic fourth grader loved the nature drawing workshop led by Burlington artist Judy Bird. Each student had the opportunity to increase their observational skills while spending time outdoors.

Some of the children had never been in a woodland environment before and the feedback was encouraging. Two fourth graders stated, "This is the best place I have ever been in my life" and "I love it here and wish I could stay all day and forever."

The importance of showing children the outdoors, teaching them how to observe nature, and demonstrating how to become good conservationists is a rewarding experience. All children would benefit by having this opportunity. Any adult in the position to mentor a child should value the time shared outdoors and do their best to help a child become an informed environmental steward for the future.

For additional information on school trip visits to Sessions Woods, please contact Natural Resource Educator Laura Rogers-Castro at 860-675-8130 or laura.rogers-castro@ct.gov.

Laura Rogers-Castro is a Natural Resource Educator for the Wildlife Division. She would like to extend her appreciation to the Friends of Sessions Woods, Newman's Own Foundation, and Master Wildlife Conservationist volunteers for providing the opportunity for school children to visit Sessions Woods.

FROM THE FIELD

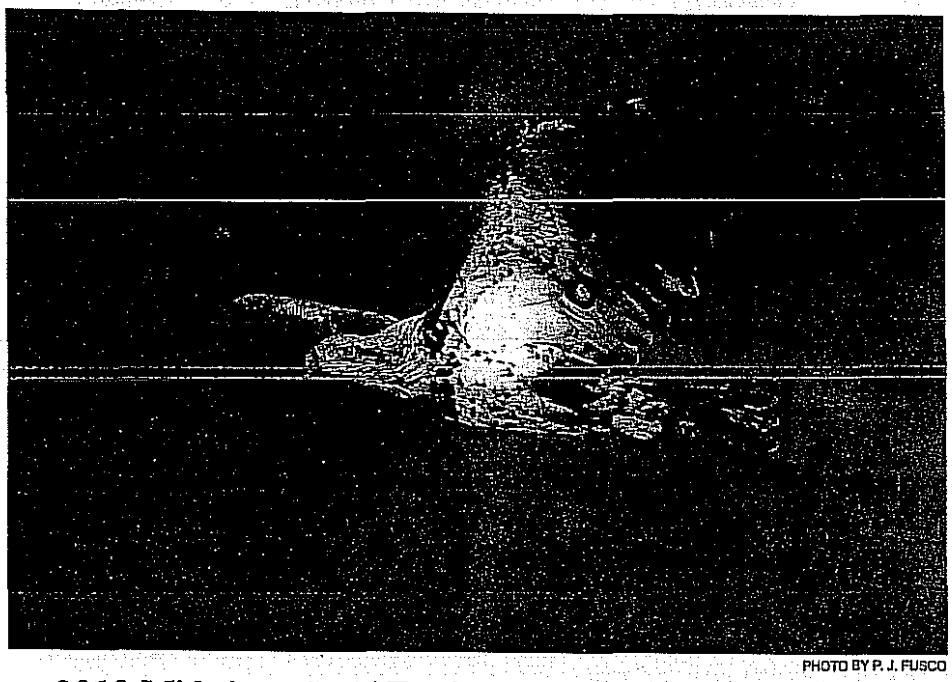


PHOTO BY P. J. FUSCO

2010 Midwinter Bald Eagle Survey

Despite the chilly weather, 202 volunteers headed outdoors to conduct the 2010 Midwinter Bald Eagle Survey on January 8-9, 2010. The volunteers surveyed 85 sites statewide to document the presence of wintering bald eagles in Connecticut. Survey results indicated that 108 eagles were counted – 67 adults and 41 immatures. Eagles were observed at 24 of the survey locations.

Results for this survey have varied over the years. The first survey in 1979 yielded 20 eagles, followed by only 11 in 1980. The highest number of eagles observed during the survey occurred in 1996 when 128 were counted, followed by 114 seen in 1997. Bald eagles migrate south from the northern states during winter to areas of open water where they are able to catch fish. Cold weather conditions, which keep most waterways to the north covered with ice, mean that higher numbers of eagles will be counted in Connecticut.

The Midwinter Bald Eagle Survey is not a complete census of the entire wintering population in Connecticut, but an index of the species' use of the state, which can be compared from year to year. The target date for next year's survey will be January 7-8, 2011. Those interested in participating in the 2011 survey should contact Wildlife Division biologist Julie Victoria by E-mail only (julie.victoria@ct.gov) and provide a name and mailing address.

Thanks are extended to all of the volunteers for their time and efforts to survey the eagles.

2010 Midwinter Bald Eagle Survey, January 8-9, 2010

Location	Adults	Immatures
Connecticut River	24	15
Housatonic River	14	2
Lake Gaillard	1	2
Lake Saltonstall	0	1
Branford Lake	0	1
Candlewood Lake	1	0
Farmington River	1	1
Quinnipiac River	2	1
Pomperaug River	0	1
Barkhamsted Reservoir	2	0
Groton Reservoir	2	0
Congamond Lakes	1	0
Leander Pond	1	0
Quinebaug River	4	2
Tadotopaug Lake	1	1
Alexander Lake	1	2
Morris Reservoir	1	0
Thames River	1	1
Saltonstall Reservoir	2	0
Naugatuck River	1	0
Burlington Hatchery	2	3
Willimantic Reservoir	1	0
Lake Waltner	1	0
Hockanum River	0	1
Total	67	41

State wide Total = 108 bald eagles

Old Saybrook to Massachusetts Line

CT Partners Receive Coastal America Award for 30 Years of Wetland Restoration

The Connecticut Tidal Wetland Restoration Team was presented with the Coastal America Partnership Award at a ceremony held at Rocky Neck State Park in East Lyme in May. This national award for public, private, and corporate partnership efforts recognizes outstanding efforts to accomplish coastal restoration, preservation, and protection projects.

In a letter of recognition to the team, U.S. Department of Commerce Secretary Gary Locke wrote, "Your team's long-term, dedicated efforts and thoughtful collaboration streamlined the process, conserved resources, and ultimately resulted in the restoration of over 1,148 acres of tidal flow at 71 different sites. Even more impressive, as one of the first such groups to work in concert, your team helped establish Connecticut as a national leader in collaborative salt marsh restoration." At the heart of this partnership is the site plan review committee, the group that actively participates in restoration design. Important to the success of the program are the participants that help with securing funding and on-the-ground construction.

The Coastal America Partnership is an action-oriented, results-driven collaboration process dedicated to restoring and preserving coastal ecosystems and addressing critical environmental issues. The Partnership brings together people and resources from federal agencies, state and local governments, nongovernmental organizations, and the private sector to collaboratively address our nation's coastal environmental challenges. With a goal of better management of coastal resources, the partnership coordinates the statutory responsibilities and combines the resources and expertise of 16 federal agencies, 23 Coastal Ecosystem Learning Centers, and hundreds of corporate partners. As a result, the Coastal America Partnership maximizes the environmental and economic benefits—and minimizes the costs—of addressing complex watershed, coastal, and marine problems.

The Technical Services Section of the DEP's Office of Long Island Sound Programs (OLISP) was presented with the large partnership plaque for its role as team leader since 1980. Other team members include, but are not limited to: DEP Division staff (Inland Fisheries, Wildlife, Agency Support Services, and OLISP); U.S. Fish and Wildlife SNE-NY Coastal Ecosystems Program; NOAA Northeast Restoration Center; National Marine Fisheries Service; U.S. Army Corps of Engineers, Connecticut College; USDA Natural Resources Conservation Service; U.S. Environmental Protection Agency; Save the Sound; The Nature Conservancy; Ducks Unlimited; and the Connecticut Chapter of the Corporate Wetlands Restoration Partnership.

Eastford Students Install Bluebird Nest Boxes

During April and May, 2010, 7 sixth-grade students from Eastford Elementary School participated in making bluebird boxes in celebration of Earth Day as part of the school's After School Program. Under the leadership of science teacher Candice Mead, the students used pre-cut wood from the Wildlife Division's Bluebird Restoration Project to construct the boxes. Roger Wolfe, from the Division, brought tools and posts for the students to use to build and mount the boxes. The boxes were placed around the school's athletic field, which is adjacent to the George M. Askew Nature Trail. All students are now aware of the boxes and are encouraged to help monitor activity by posting sightings on the school's Web site. As an added bonus, 6 of the students also helped install a wood duck nest box, provided by the Connecticut Waterfowlers Association and the Wildlife Division, at an old mill site in the Still River that runs beside much of the trail.

The Town of Eastford received a grant through The Last Green Valley Institute in 2009 to upgrade the nature trail, which included trail maintenance, producing a trail map, installing interpretive signs, purchasing two backpacks (complete with binoculars, compass, and field guides) that visitors can check out of the town library, installing custom-made natural-looking benches, and creating an outdoor classroom along the river.

Roger Wolfe, Mosquito Management Program

C. MEAD, EASTFORD SCHOOLS

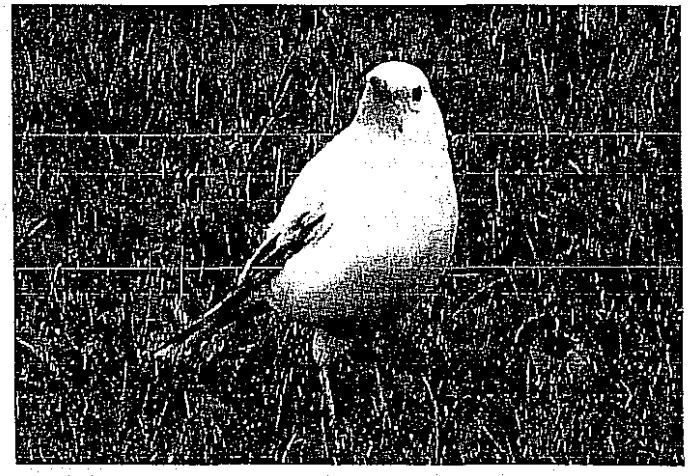
Students at Eastford Elementary School built and installed bluebird nest boxes and a wood duck nest box on school property to encourage bird use and provide viewing opportunities.

Your Questions Answered ? ? ?

Do you have a wildlife question you would like to have answered?
Please send it to: Your Questions Answered, DEP - Wildlife Division, P.O. Box 1550, Burlington, CT 06013; Email: dep.ctwildlife@ct.gov

Odd Robin

I receive your publication and enjoy hearing about local wildlife very much. Recently I noticed a very bright white bird that acts like a robin. I cannot identify it. I'm attaching a picture. It hangs out where the robins are, but flies away when robins get close to it. It bops around in the grass picking up worms just like a robin, but it is bright white with grey on its wings. Can you help me identify this bird? Thank you, Bette Jane Haskell, Harwinton.



Your initial suspicion is correct. This bird is indeed a robin. It doesn't happen often, but once in a while there are robins whose genetics produce feathers that are white or mostly white and sometimes even albino. Because this bird has black primary feathers on the wings and its eyes are the normal color for a robin, it isn't a true albino. It is definitely among the most uniformly white of any of the varied robins I've seen over the years. It may fly off when the "regular" robins arrive because it has been harassed or attacked by them previously. Unfortunately, white robins tend to be a lot more obvious to predators and often do not survive too long in nature. Every now and again though, there are birds that beat the odds and live a full life span. This one may fit that category as it has already survived at least one fall and winter as a juvenile and has reached adulthood.

Thank you for sharing your wildlife observation and photographs.

Jenny Dickson, Supervising Wildlife Biologist

Plovers and Terns

continued from page 8

least tern nesting areas have been completely abandoned by the birds in recent years. This whole situation has biologists concerned. Human disturbance may not be the only reason why plovers and terns are struggling, but disturbance should be much easier to control than predators, weather, tides, and the loss of habitat. All it takes is a little effort from everyone who uses Connecticut's beaches to give these birds the space they need.

Kathy Herz is a biologist with the Wildlife Division and Editor of Connecticut Wildlife

The Wildlife Observer

Do you have an interesting wildlife observation to report to the Wildlife Division?

Please send it (and any photos) to:

Wildlife Observations, DEP Wildlife Division, P.O. Box 1550, Burlington, CT 06013, or email: dep.ctwildlife@ct.gov

"Snake Ball" in Cromwell

Jeff Feldmann, of West Hartford, submitted this photograph and interesting wildlife observation:

"On the first day of spring (Vernal Equinox) for the past 10 years or so, a group of my friends and I canoe and kayak the Mattabessett River, in Cromwell. Some years, the river is flooded and there is a chill in the air. Sometimes there is snow on the ground with patches of ice. This year's paddle was quite different. The temperatures were in the 70s. As we got close to the mouth of the river, before it entered the Connecticut River, we stopped for a break to celebrate this year's arrival of spring.

Someone noticed that a bush on the bank of the river looked like it was moving. I took a look with my binoculars and shouted out "snakes!" I moved in for a closer look. Sure enough, it was a gathering of garter snakes. I would say there were at least 10-15 of them. As I always carry my camera with me, I proceeded to take some photos.

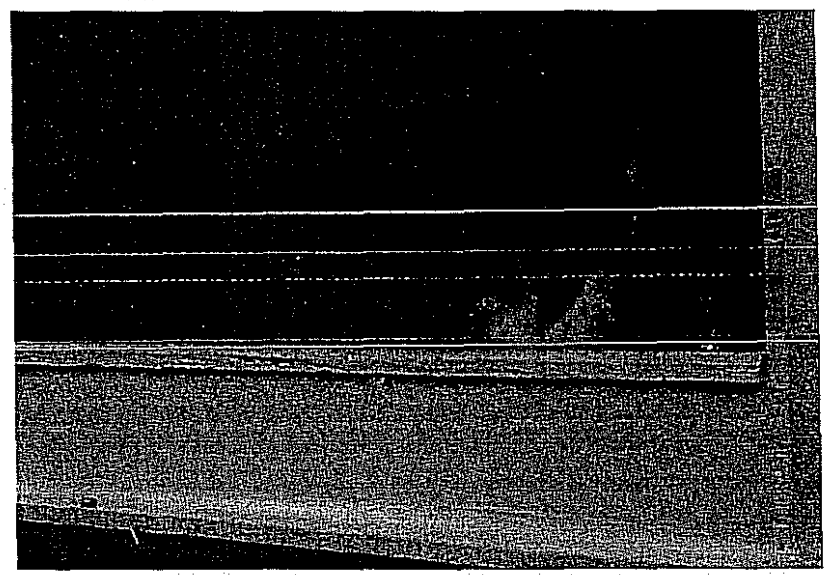
When I got home that afternoon, I searched the Internet to get as much information as I could about what I had seen. One site said that if the "conditions are right," the males and females will come out of their winter dens and look for mates. I suspect that is what we saw. It was an awesome sight and the first time I had photographed this species of snake."

According to Wildlife Division biologist Julie Victoria, what Jeff witnessed was a "breeding ball" or "mating ball" of mating common garter snakes (previously called eastern garter snake). This usually happens when the snakes come out of hibernation. There usually are a few females in the mix, although the majority are males that were waiting for the females to come out of hibernation.

Peregrine Nest Box at Millstone Power Station

2010 marks the third successful nesting season for a peregrine falcon pair at the Millstone Power Station in Waterford. The pair raised 3 young in a nest box at the mid 200-foot level of a 385-foot stack. The young hatched around May 16, a little later than last year. The peregrines have dominated over the other species of interest at the site – osprey. There are 5 active osprey platforms in the vicinity of the peregrines and the ospreys have learned to give the peregrines plenty of space as they pass by in order to avoid their aggressiveness.

Greg Decker, Biologist at the Millstone Environmental Lab and a Master Wildlife Conservationist, mounted a wireless/solar camera just outside the nest box to monitor the reproductive success of the pair. Because peregrines are attracted to industrial stack landings for nesting, the pair was not hard to attract. The nest box is made of a honeycomb lightweight fiberglass material to ensure longevity in the salty environment on the coast.



This peregrine nest box sits 200 feet up on an industrial stack landing at Millstone Power Station in Waterford. The box is made of a honeycomb lightweight fiberglass material to ensure longevity in the salt water environment.

Sharon Audubon Festival: August 14-15

The 43rd annual Sharon Audubon Festival takes place Saturday and Sunday, August 14-15, at the Sharon Audubon Center, located on Route 4 in Sharon. The festival features 2 days of various nature programs and hikes throughout the Audubon property, live animal presentations, musical performances, vendors, food, and more. Gates are open from 8:30 AM to 5:30 PM on Saturday and 9:30 AM to 5:30 PM on Sunday. Admission is $7 for adults and $5 for children age 12 and under. For more information, contact the Audubon Center at 860-364-0520 or www.sharon.audubon.org.

Wildlife Calendar Reminders

May-August ..... Respect fenced and posted shorebird nesting areas when visiting Connecticut beaches. Also, keep dogs and cats off of shoreline beaches to avoid disturbing nesting birds. Herons and egrets are nesting on offshore islands in Long Island Sound. Refrain from visiting these areas to avoid disturbing the birds.

..... Dispose of fishing line in covered trash containers or specifically marked recycling receptacles. Improperly discarded fishing line is a hazard for wildlife.

Sept. 15 ..... Report use of bluebird nest boxes by sending in a Bluebird Nest Box Survey card to the Wildlife Division. Cards are available by calling 860-675-8130.

Sept. 25 ..... National Hunting and Fishing Day

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.

August 3 ..... **Nature Walk and Drawing Workshop**, starting at 6:00 PM. The Friends of Sessions Woods is sponsoring a special workshop, focusing on wildlife habitat observation and nature drawing, with artist Judy Bird and Wildlife Division Natural Resource Educator Laura Rogers-Castro. Laura will lead an interpretive walk, weather permitting, followed by Judy providing a lesson on personal observation and expression of nature. This workshop is funded through the generosity of the Newman's Own Foundation. Participants should dress for both indoor and outdoor activities.

August 24 ..... **Midsummer Evening Hike at Sessions Woods**, starting at 6:00 PM. Visit the beaver marsh at Sessions Woods during a late summer's evening. Learn about beavers and wildlife habitat on this 2-mile round trip, educational walk led by Natural Resource Educator Laura Rogers-Castro of the Wildlife Division.

Sept. 25 ..... **Connecticut Hunting and Fishing Appreciation Day** (see page 12 for more information).

Hunting Season Dates

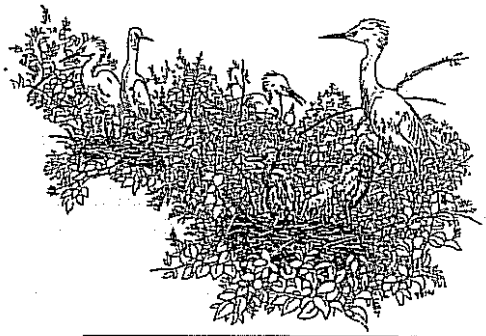
Sept. 1-30 ..... Early squirrel season

Sept. 15-Nov. 16 ..... First portion of the deer and turkey bowhunting season on state land.

Sept. 15-Dec. 31 ..... Deer and turkey bowhunting season on private land (private land bowhunters in deer management zones 11 & 12 may hunt deer until January 31, 2011).

..... Consult the 2010 Connecticut Hunting and Trapping Guide for specific season dates and details. The guide is on the DEP Web site (www.ct.gov/dep/hunting), and also is available at town halls, DEP facilities, bait and tackle shops, and outdoor equipment stores. Go to www.ct.gov/dep/sportsmenlicensing to purchase Connecticut hunting, trapping, and fishing licenses, as well as all required deer, turkey, and migratory bird permits and stamps. The system accepts payment by VISA or MasterCard.

CORRECTION to article in May/June 2010 issue: Because of space limitations, text was mistakenly omitted from the article "CE/FS Instructors Awarded with Governor's Proclamation" on page 6 of the May/June 2010 issue of *Connecticut Wildlife*. The text should have read "*Planning and development of the meeting with Lieutenant Governor Fedele was arranged by Gary Bennett and Stan Esposito. Ray Hanley, Bob Crook, Chas Catania, Warren Speh, and several other instructors were helpful in making contacts with the instructor corps on the date and time of the meeting.*" Apologies are extended to those individuals who did not receive recognition for their efforts in the original article.



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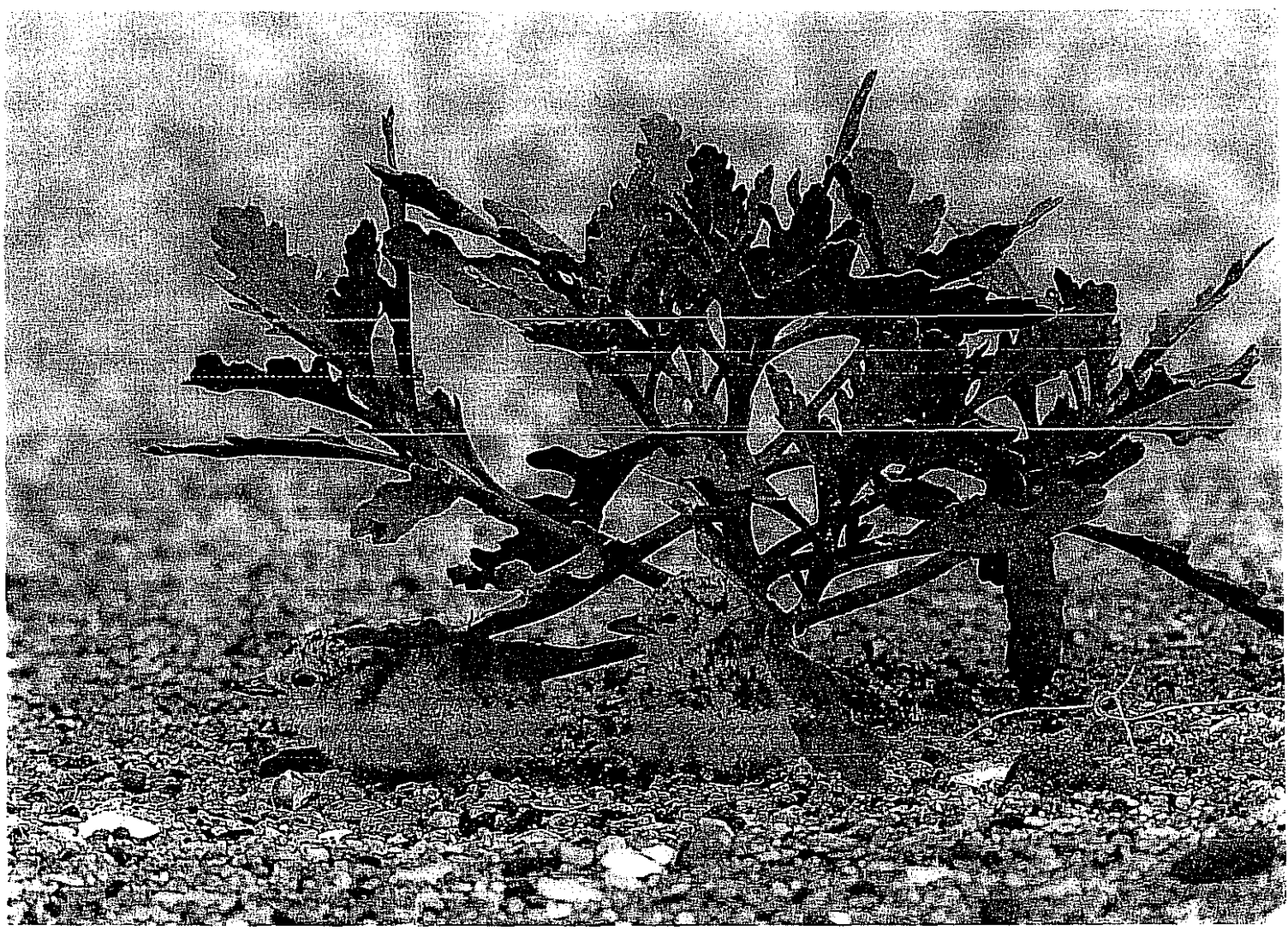

A pair of day-old least tern chicks find shelter and cover under a sea rocket plant on the Connecticut shoreline.