



Proactive by Design

GEOTECHNICAL

ENVIRONMENTAL

ECOLOGICAL

WATER

CONSTRUCTION
MANAGEMENT

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Revised July 30, 2019
GZA File No. 15.0166765.00

Ms. Dawn McKay
Connecticut Department of Energy and Environmental Protection
Wildlife Division
79 Elm Street
Hartford, CT 06106

Re: Wood Turtle (*Glyptemys insculpta*) Protection Plan
Middletown/Durham, Connecticut
NDDB Determination Nos: 201705726, 201601369, 201601361

Dear Ms. McKay;

The City of Middletown and the Town of Durham are proposing to install a new waterline for potable water access (the Project). The Project site has been identified as potential habitat, or proximal to habitat, for the Wood Turtle (*Glyptemys insculpta*), a state-listed species designated as *Special Concern*. This Turtle Protection Plan (TPP) was prepared on behalf of the City of Middletown and Town of Durham as was required per Spec Section 01 57 20, 3.4.5, which required a TPP with site visits at each location. Per the Connecticut Department of Energy and Environmental Protection's (DEEP) requirements, the Project can occur as proposed, provided this protection plan's recommendations are integrated into work operations at either the onset of overall work or at each project location as the work progresses. This plan as implemented would be guided or approved by a qualified turtle biologist. Work is expected to occur between June 2019 and December 2020; however, the project schedule may extend due to weather related construction delays or other reasons unforeseen at this time. Coordination with the turtle biologist if delays or changes to the operational plan become evident is recommended.

In accordance with the DEEP approval, the TPP must be prepared and implemented under the supervision of a qualified turtle biologist. Mr. Steven Riberdy, Mr. Seth Taylor, and Ms. Robin Casioppo will serve as the qualified turtle biologists, with Mr. Riberdy as the lead. We are also formally seeking a Scientific Collectors Permit (SCP) to allow the handling and potential re-location of Wood Turtles if found during construction.

The turtle protection plan will consist of the major elements outlined below (additional details are provided in following sections):

- Pre-construction contractor education and informational signage.
- Installation of turtle barriers as specified below or as field recommended prior to construction.
- Sweeps for turtles within work areas prior to construction.
- A total of three (3) site visits, or more as needed, during construction in the active turtle season (April 1 – September 30) for on-land work and the inactive season (October 1 – March 30) for in-water work.



- Any “unconfined” instream work within Allyn Brook and Hersig Brook should be restricted to the period from June 1 to September 30.
- Post-construction reporting to DEEP.

TURTLE PROTECTION PLAN

CONTRACTOR EDUCATION AND SIGNAGE

Prior to the start of any on-site work within the turtle habitat areas (see *Table 1*), GZA’s turtle biologist will hold a meeting with the contractor to familiarize the contractor with the requirements of the TPP. The meeting will include sufficient details to educate the contractor and personnel on the requirements for protection and handling of the turtles, including laminated information sheets outlining the basic biology of a wood turtle, visual aids to identify a wood turtle and procedures to follow if a wood turtle is encountered within the construction area. During the meeting, the turtle biologist will provide a brief educational session presenting the information in the information sheet, and when and where wood turtles are most likely to be encountered on site relative to time of year so that site personnel can actively identify a wood turtle if encountered during daily construction activity. Copies of the information sheet will be posted in conspicuous locations on-site and made available as reference for the contractor’s personnel. The information sheets will remain where posted for the entirety of the proposed work and will be replaced as necessary.

TURTLE BARRIERS

Prior to the start of work within the designated turtle habitat areas, barriers to deter turtles from entering the construction area will be established. These barriers, as shown on the approved drawings (*Durham Meadows Waterline Road, April 2018*) identified below, will consist of a combination of temporary coffer dams (at stream crossing locations) and silt fences, which will create sufficient barriers to turtle passage in and around each work location. Once turtle barriers are installed, the turtle biologist will inspect the barriers and direct the contractor to make any required corrective actions, as necessary, to provide effective barriers to turtles entering the work area. Table 1 below details the recommendations for each work location. Drawings referenced in the table below have been annotated, where appropriate, to show proposed locations of additional turtle barriers not depicted on the original drawings. The actual, installed locations and limits of turtle barriers may vary from that shown on the drawings based on observations made by the turtle biologist and/or contractor staff educated in turtle identification and protection.

Table 1. Work Site Recommendations within Turtle Habitat Areas

Work Area Location	Turtle Protection BMPs
Access driveway to Cherry Hill Tank off Talcott Ridge Drive (<i>Drawings C-3 & C-4</i>)	<p>The work area along the new road will be lined with silt fence, except for the three residential driveways on the south side of the road. Due to the presence of residential driveways within the limit of work, contractor staff educated in turtle identification and protection will sweep the interior of the silt fence and work area (daily) prior to the start of work.</p> <p>Some materials will not be placed/installed on private land, see Drawing C-4, as permission has not been received. Contractor staff educated in turtle identification and protection will perform turtle sweeps in and around any gaps in turtle exclusion barriers at this location.</p>



Work Area Location	Turtle Protection BMPs
Meter Vault at the intersection with SR-17 and Acorn Drive <i>(Drawing C-11)</i>	The meter vault work area will be enclosed with silt fence. The turtle biologist or contractor staff educated in turtle identification and protection will inspect the work area to confirm the absence of turtles within the turtle exclusion area.
Allyn Brook crossing at Main Street (Route 17) <i>(Drawing C-25)</i>	Silt fence will be installed along the east side of Main Street (Route 17) starting at the road edge near Allyn Brook and continuing along the south side of the proposed water main. Due to the presence of residential driveways within the limit of work, contractor staff educated in turtle identification and protection will sweep the interior of the silt fence and work area (daily) prior to the start of work.
Allyn Brook crossing at Maple Avenue <i>(Drawing C-27)</i>	<p>A coffer dam will be installed within the stream, upstream of the work area. During dewatering, turtles can move either downstream or to terrestrial habitat. A downstream coffer dam or other barrier (silt fence) will then be installed to enclose the work area within the stream. The turtle biologist will inspect the work area to confirm the absence of turtles within the stream. Silt fencing will be installed around the limit of work. Contractor staff educated in turtle identification and protection will sweep the interior of the silt fence/cofferdam and work area (daily) prior to the start of work.</p> <p>This work will only be performed during the turtles' active season from April 1 through September 30.</p>
Allyn Brook crossing at Maiden Lane <i>(Drawing C-39)</i>	Silt fence will be installed along the east edge of Brick Lane continuing along the north edge of Maiden Lane. Due to the presence of driveways within the limit of work, contractor staff educated in turtle identification and protection will sweep the interior of the silt fence and work area (daily) prior to the start of work.



Work Area Location	Turtle Protection BMPs
Allyn Brook crossing at Pickett Lane <i>(Drawing C-41)</i>	<p>A coffer dam will be installed within the stream, upstream of the work area. During dewatering, turtles can move either downstream or to terrestrial habitat. A downstream coffer dam or other barrier (silt fence) will then be installed to enclose the work area within the stream. The turtle biologist will inspect the work area to confirm the absence of turtles within the stream. Silt fencing will be installed around the limit of work. Contractor staff educated in turtle identification and protection will sweep the interior of the silt fence/cofferdam and work area (daily) prior to the start of work.</p> <p>This work will only be performed during the turtles' active season from April 1 through September 30.</p>
Hersig Brook crossing at Pickett Lane <i>(Drawing C-43)</i>	<p>Silt fence will be installed along the west edge of Pickett Lane proximal to the Hersig Brook crossing, continuing to the edge of the first driveway. Due to the presence of driveways within the limit of work, contractor staff educated in turtle identification and protection will sweep the interior of the silt fence and work area (daily) prior to the start of work.</p>

PRE-CONSTRUCTION SITE SWEEPS

Once the turtle barriers are installed to the satisfaction of the turtle biologist at the Cherry Hill Water Tank and access road, Allyn Brook crossing at Maple Avenue and Allyn Brook crossing at Pickett Lane, he/she will conduct site sweeps within the protected turtle exclusion areas to locate and remove any turtles that may have been trapped within the limit of work. Both terrestrial and, if needed, aquatic sweeps (inspections) will occur within the protected turtle exclusion areas, prior to the start of land disturbance within said areas. The turtle biologist will sweep the protected areas after the turtle barriers are installed. Once these site sweeps have occurred, the contractor will be given permission to start work. It is noted that the aquatic areas that will be swept are shallow (generally less than 2-feet deep), sandy/rocky and may be exposed at the time of survey due to low flows in the river. No snorkeling is expected to be necessary to conduct aquatic surveys.

If tree clearing or other minor activities are needed within vegetated areas immediately adjacent to work areas prior to the installation of the turtle barriers, the turtle biologist or contractor staff educated in turtle identification and protection will sweep these areas immediately (same day) in advance of access.

If found, any wood turtles will be re-located to outside of the turtle barriers in similar forested or aquatic habitats to where they were found. All individuals will be sexed, measured, weighed, briefly examined for injuries or parasites and photo-documented prior to release, with the utmost care taken in handling the individuals and contact time minimized to prevent stress to the individuals.

Re-sweeps of the protected turtle exclusion areas by the turtle biologist or contractor staff educated in turtle identification and protection will be required in the event of a work stoppage of greater than 24 hours during the months of June to August and 72 hours during other times during the active turtle season (April 1 - September 30).



CONSTRUCTION SITE INSPECTIONS/SWEEPS

During construction, routine daily sweeps will be performed by contractor staff educated in turtle identification and protection in accordance with the procedures outlined above.

These site visits are anticipated to occur during the turtle's active season (April 1 – September 30) for on-land work. If in-water work is required outside of the turtle's active season, aquatic sweeps will continue.

The turtle biologist will conduct additional site inspections of the protected turtle exclusion areas and the turtle barriers at the Cherry Hill Water Tank and access road, and the Allyn Brook crossing at Maple Avenue and Allyn Brook crossing at Pickett Lane as needed based on site conditions and observed turtle activity.

CONTRACTOR RESPONSIBILITY

The contractor will be required to perform the following activities:

- Conduct daily inspections of the turtle barrier and correct breaches immediately (if observed).
- Report any breaches of the turtle barrier to the turtle biologist immediately.
- Conduct general site sweeps of the protected turtle exclusion area(s) and be generally aware of turtles.
- Report any turtle observations to the turtle biologist immediately.
- Contractor will not park vehicles or machinery in turtle habitat, including wetlands and undisturbed forest areas.
- If stockpiles are required in areas where turtle protection measures are required, the contractor shall install silt fencing around such stockpiles during early spring and late summer.

POST-CONSTRUCTION OBSERVATIONS

Following completion of construction activities within the protected turtle exclusion areas, the turtle biologist will perform an inspection of the areas to document that all turtle barriers have been removed and the status of the restoration areas, including aquatic habitats. If necessary, a punch list of items needing correction will be provided to the contractor. Following implementation of any required corrective actions, the turtle biologist will re-visit the site to document that the deficiencies have been addressed.

REPORTING

If turtles are encountered within any of the protected turtle exclusion areas, DEEP Natural Diversity Database (NDDDB) Special Animal Survey Forms will be prepared and submitted within 10 days following such occurrence. If previously tagged turtles are encountered within the protected area on multiple occasions, the procedures described above will be followed and the contact number of the transmitter will also be documented. A final report documenting the monitoring program will be prepared and submitted to DEEP within 30 days of the final inspection. Because the project will extend beyond December 31, 2019, an interim-findings report will be generated and submitted to DEEP as well as an updated SCP for the 2020 season.



PROJECT PERSONNEL (RESUMES ATTACHED)

Mr. Steven Riberdy: Primary permit holder, responsible for preparation of the TPP and will oversee all monitoring activity, conduct the initial site inspection(s) and turtle sweep(s), and provide the contractor education. Mr. Riberdy will direct terrestrial sweeps and aquatic surveys performed by the sub-permittees.

Mr. Seth Taylor: Sub-permittee, will assist in site sweeps and inspection of the barriers during construction.

Ms. Robin Casioppo: Sub-permittee, will assist in site sweeps and inspection of the barriers during construction.

CLOSING

We trust the information included above is sufficient to demonstrate compliance with DEEP's conditions for approval of the project, and approval of the proposed Turtle Protection Plan. If you require further information or have any questions, please do not hesitate to call any of the undersigned at 413-726-2100.

Very truly yours,

GZA, INC.

A blue ink signature of Robin J. Casioppo.

Robin J. Casioppo, PSS
Ecologist

A blue ink signature of Steven D. Riberdy.

Steven D. Riberdy, M.S., PWS, CE, CWB, PSS
Senior Ecologist

A black ink signature of Stephen Lecco.

Stephen Lecco
Consultant / Reviewer

A black ink signature of Stephan T. Roy.

Stephan T. Roy
Principal

Encl: Scientific Collector's (Wildlife) Permit Application 26-60, Annotated Construction Drawings showing Protected Turtle Exclusion Areas, Resumes for Steve Riberdy, Robin Casioppo and Seth Taylor.



SCIENTIFIC COLLECTOR'S (Wildlife) PERMIT APPLICATION 26-60

A

CHECK ONE: ☒ New Study ☐ Permit Renewal – permit # _____ (with changes ☐ without changes ☐)

B

APPLICANT INFORMATION:

Principle Investigator: Steven Riberdy GZA GeoEnvironmental, Inc.

Address: 1350 Main Street, Suite 1400 Name _____ Affiliation _____

City: Springfield State: MA Zip Code: 01103

Phone: Work 413-726-2112 Home: _____

Fax Number: _____ Email: steven.riberdy@gza.com

C

TIME PERIOD OF STUDY: June 2019 to December 2020
(Note: A permit may be issued for a period of up to three years.)

LOCATION OF STUDY: *(Please be as specific as possible and list any lands that are state owned. If it is a state property you must also submit a corresponding map detailing your study area and list any permanent markers that will used.)*
Within existing street rights-of-way, including Main Street (Route 17), Maple Avenue, Pickett Lane, and Maiden Lane in Middletown, and Main Street (Route 17) to east of Talcott Ridge Drive. (See attached Figure 1 Locus Map and Drawing G-4 Key Plan)

SPECIES TO BE STUDIED including an estimated # of each species that will be collected, handled, marked or salvage:
Wood turtle (*Glyptemys insculpta*)

Turtles found within construction work areas will be handled and moved a safe distance to appropriate habitat.

ADDITIONAL FORMS REQUIRED: Please attach a project proposal which includes a detailed description of your methodology along with a Resume, List of references, Copy of Relevant Federal Permits, Animal Care & Use Committee approval when applicable, and the Names and titles of all Subpermittees.

D

LIST ESTIMATED NUMBER OF EACH SPECIES THAT WILL BE HANDLED, MARKED, COLLECTED, SALVAGED ETC...

Turtles found within construction work areas will be handled and moved a safe distance to appropriate habitat.

Applicant's Signature _____

June 11, 2019
Date

See attached *Turtle Protection Plan* (June 11, 2019) for the Durham Meadows Waterline Project.

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Instructions for Filing a Scientific Collector's (Wildlife) Permit Application

A special permit from the Department of Energy & Environmental Protection is required for all activities that involve the capture, handling, marking, or salvage of wild birds, mammals, reptiles, amphibians, or invertebrate species. These permits are issued at the discretion of the Commissioner, and an annual fee of \$25.00 is charged. Permits may be issued for a period of up to three years. Enclosed is a permit application. Please follow the instructions below when filling out the form. Return completed forms to:

DEEP, Wildlife Division
79 Elm St.
Hartford, CT 06106-5127
Attn: Laurie Fortin

Instructions:

Section A: Indicate whether the application is for a NEW Study or a Permit Renewal. Be sure to include your expired permit number if you are filing for a permit renewal.

Section C: Must be filled out completely whether or not a separate proposal is included with the application. Briefly summarize the research objective and expected benefits in the space provided. Please be as detailed as possible in describing the location of your activities. Will your activities take place on state or private land? If it is private land, have you secured permission to be there? If it involves state lands please list all the state areas that you wish to use and provide a detailed map indicating where your activities will occur. Please also indicate if you will be using any permanent markers and what time of year and time of day your activities will occur.

Section D: If more than one species will be involved in the study, list information for each species separately.

Number Handled refers to the estimated number of each species that will be trapped and/or captured during the study. Section E, or an attached proposal should describe capture techniques that will be used.

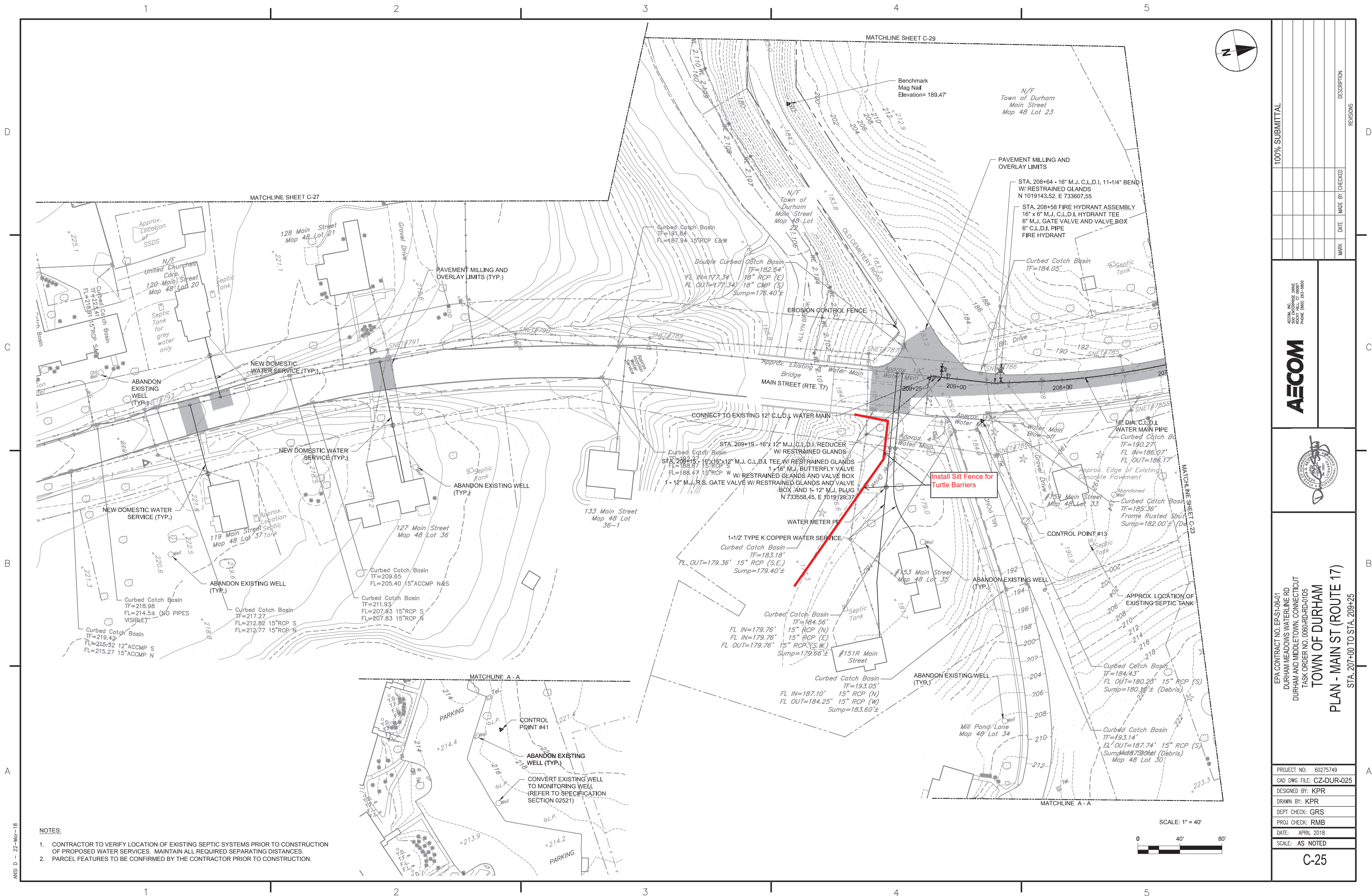
Number Marked refers to the estimated number of each species that will be marked by banding, tagging, coloring or physical alteration. Section E, or an attached proposal should describe any marking techniques that will be used.

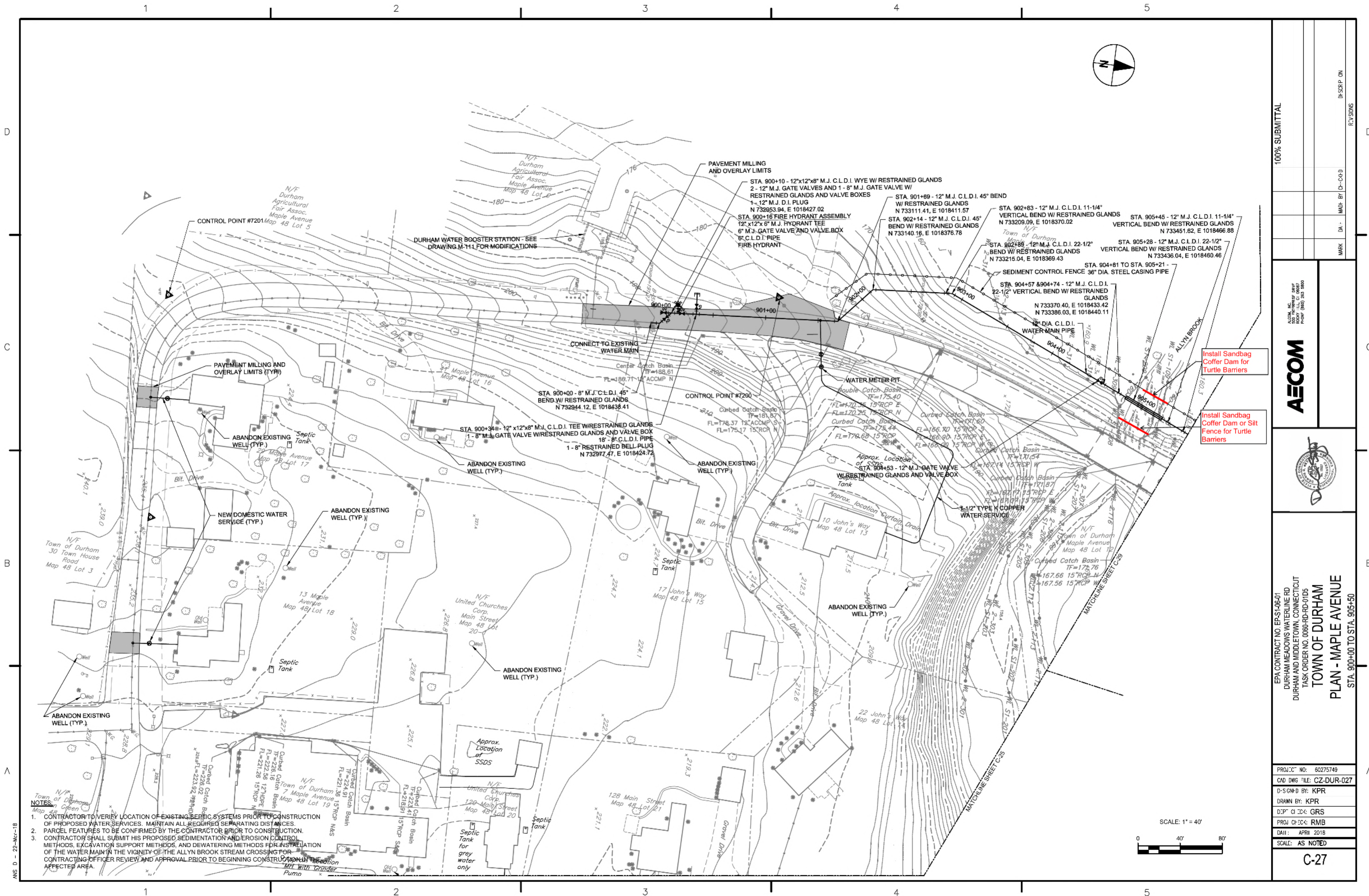
Number Collected or Salvaged refers to the estimated number of each species that will be killed or removed from the study area. Section E, or an attached proposal should state where collected specimens will be stored following the study's completion.

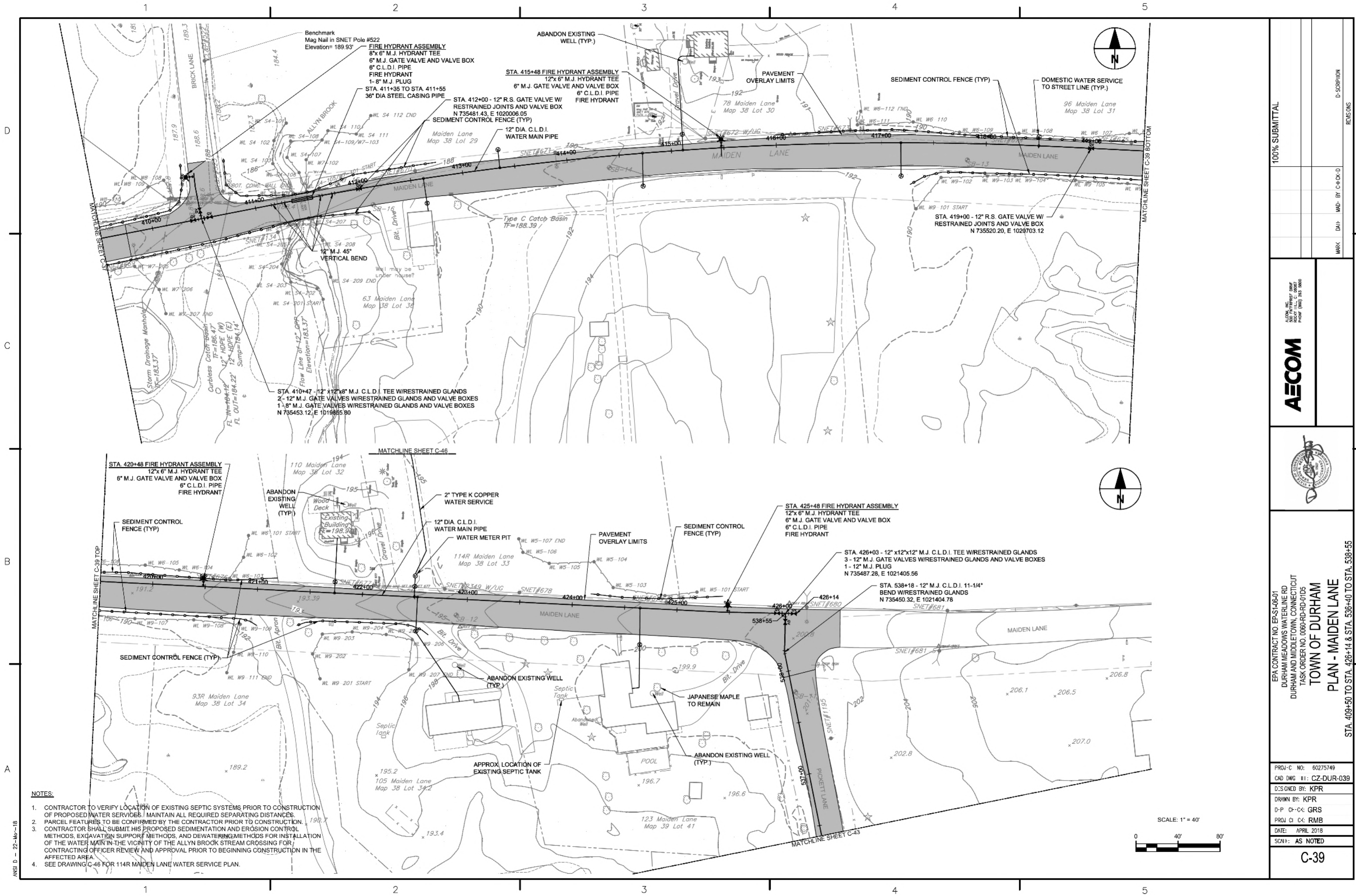
Section E: May be filled out on the application or a proposal fully describing the study techniques may be attached to the application. The study description should also include citations of studies in which similar techniques were successfully used.

Attachments:

- New applicants must include an updated resume and at least two references.
- Copies of all applicable federal permits are required.
- Applicants handling raccoons, skunks, foxes or bats must show proof of pre-exposure vaccinations.
- Animal Care & Use Committee approval is required when applicable.
- Individuals handling small mammals shall follow protocol established by the Society of Mammalogists to prevent disease exposure.
- Individuals using immobilizing chemicals must provide the name and license number of the individual authorized to use these drugs.
- In situations that involve research being conducted by college students, the application must be submitted by the professor overseeing the research activities and the student should be listed as a subpermittee.

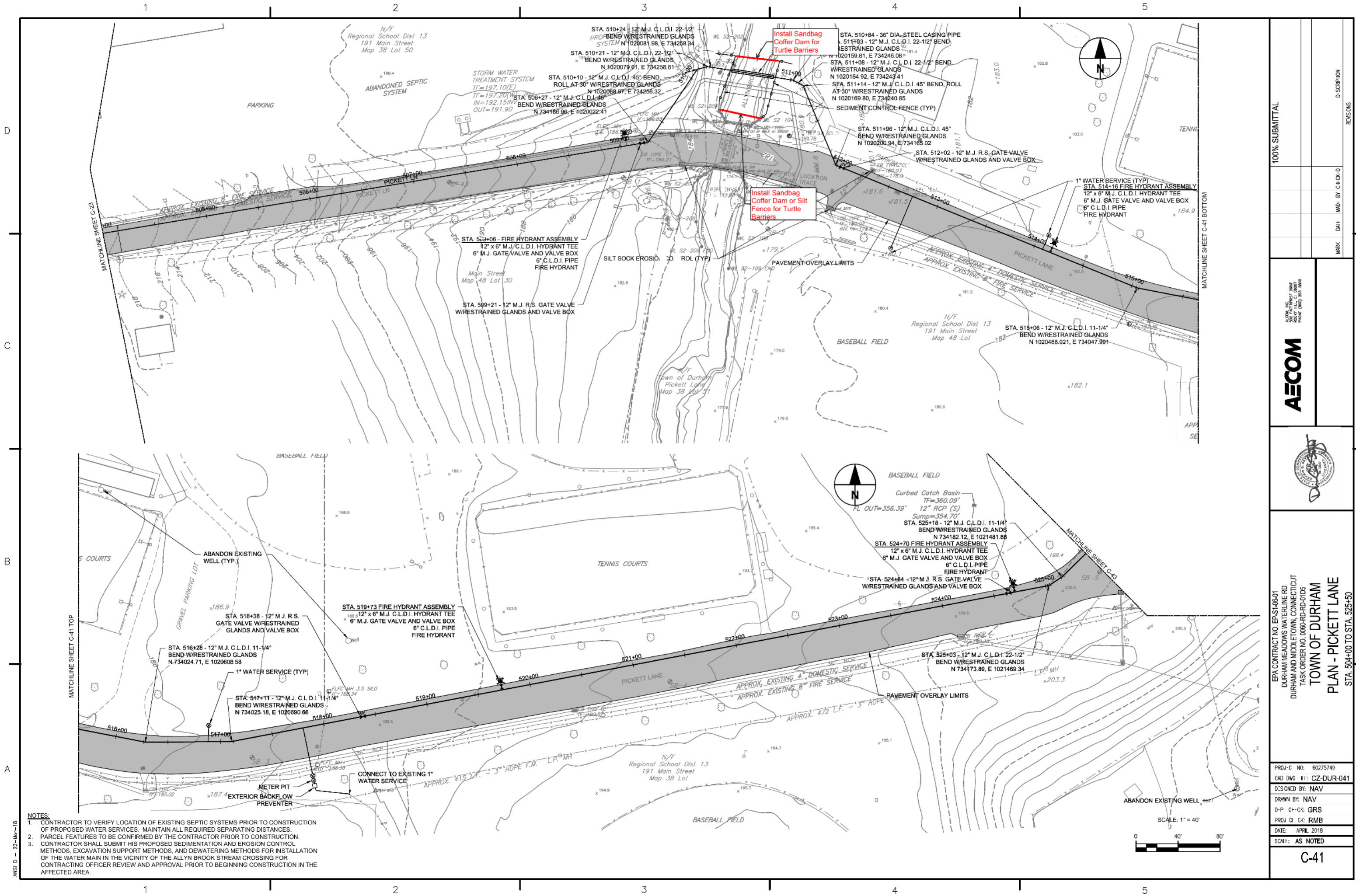






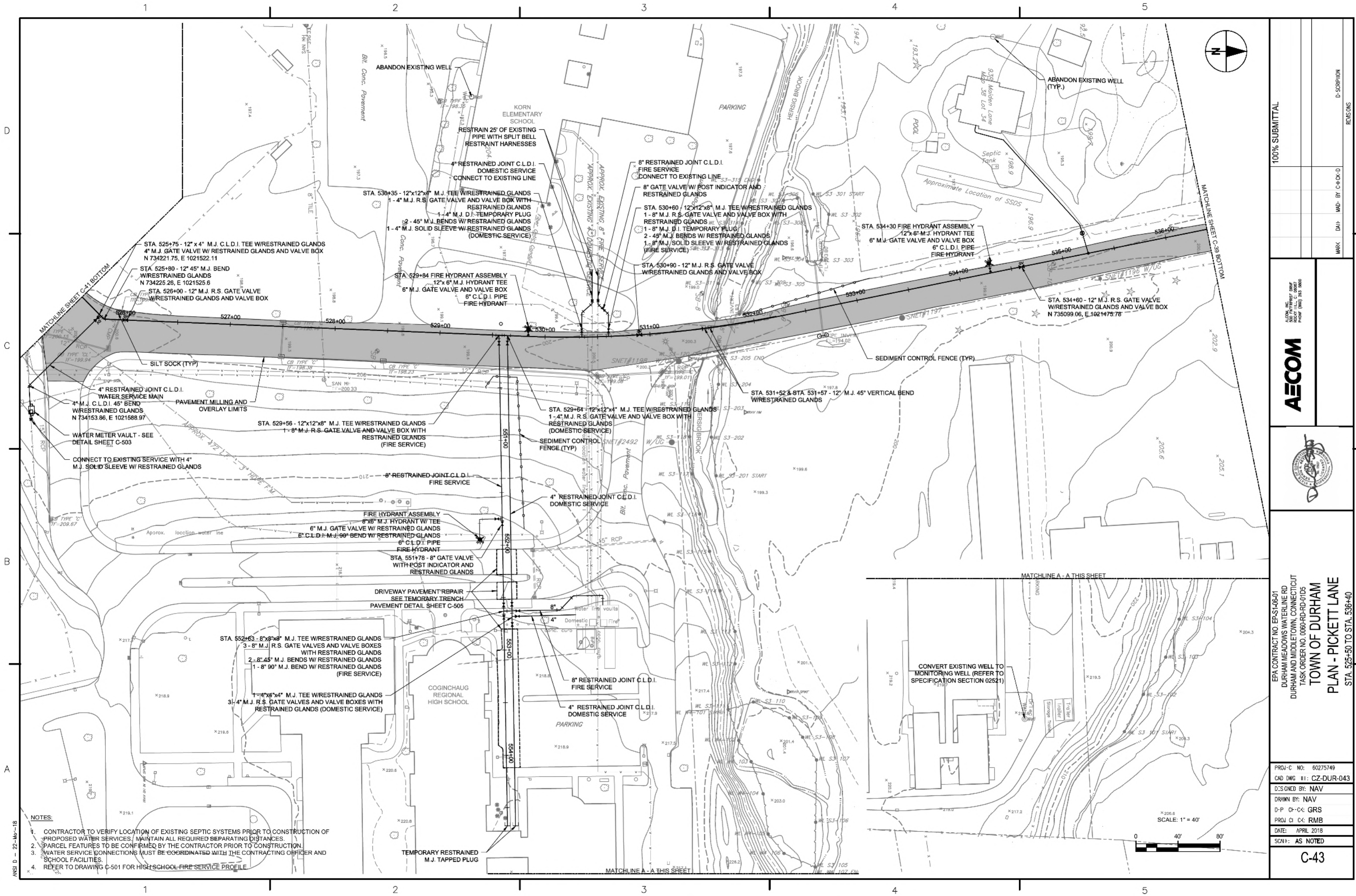
- NOTES:
1. CONTRACTOR TO VERIFY LOCATION OF EXISTING SEPTIC SYSTEMS PRIOR TO CONSTRUCTION OF PROPOSED WATER SERVICES. MAINTAIN ALL REQUIRED SEPARATING DISTANCES.
 2. PARCEL FEATURES TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
 3. CONTRACTOR SHALL SUBMIT HIS PROPOSED SEDIMENTATION AND EROSION CONTROL METHODS, EXCAVATION SUPPORT METHODS, AND DEWATERING METHODS FOR INSTALLATION OF THE WATER MAIN IN THE VICINITY OF THE ALLYN BROOK STREAM CROSSING FOR CONTRACTING OFFICER REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION IN THE AFFECTED AREA.
 4. SEE DRAWING C-46 FOR 114R MAIDEN LANE WATER SERVICE PLAN.

100% SUBMITTAL		REVISIONS	
AECOM		D-DESCRIPTION	
ALCON, INC. 500 FIFTH STREET, SUITE 200 DURHAM, NC 27701 PHONE (919) 286-5000		MARK: DAIH BY: C-H-CK-D	
EPA CONTRACT NO. EP-S1-06-01 DURHAM MEADOWS WATERLINE RD DURHAM AND MIDDLETOWN, CONNECTICUT TASK ORDER NO. 006-RD-RD-0105 TOWN OF DURHAM		STA. 409+50 TO STA. 426+14 & STA. 538+40 TO STA. 538+55	
PLAN - MAIDEN LANE		C-39	
PROJ-C NO: 60275749 CAD DWG. III: CZ-DUR-039 DESIGNED BY: KPR DRAWN BY: KPR D-P CH-CK: GRS PROJ CH-CK: RMB DATE: APRIL 2018 SCALE: AS NOTED			



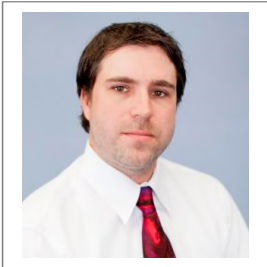
NOTES:
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2. PARCEL FEATURES TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL SUBMIT HIS PROPOSED SEDIMENTATION AND EROSION CONTROL METHODS, EXCAVATION SUPPORT METHODS, AND DEWATERING METHODS FOR INSTALLATION OF THE WATER MAIN IN THE VICINITY OF THE ALLYN BROOK STREAM CROSSING FOR CONTRACTING OFFICER REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION IN THE AFFECTED AREA.

100% SUBMITTAL		REVISIONS	
DATE	BY	DATE	BY
AECOM		TOWN OF DURHAM	
EPA CONTRACT NO. EP-S1-06-01 DURHAM MEADOWS WATERLINE RD DURHAM AND MIDDLETOWN, CONNECTICUT TASK ORDER NO. 006-RD-RD-01DS		PLAN - PICKETT LANE STA. 504+00 TO STA. 525+50	
PROJ-C NO: 60275749 CAD DWG. III: CZ-DUR-041 DESIGNED BY: NAV DRAWN BY: NAV D-P CH-CX: GRS PROJ CH-CX: RMB DATE: APRIL 2018 SCALE: AS NOTED		C-41	



- NOTES:
1. CONTRACTOR TO VERIFY LOCATION OF EXISTING SEPTIC SYSTEMS PRIOR TO CONSTRUCTION OF PROPOSED WATER SERVICES. MAINTAIN ALL REQUIRED SEPARATING DISTANCES.
 2. PARCEL FEATURES TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
 3. WATER SERVICE CONNECTIONS MUST BE COORDINATED WITH THE CONTRACTING OFFICER AND SCHOOL FACILITIES.
 4. REFER TO DRAWING C-501 FOR HIGH SCHOOL FIRE SERVICE PROFILE.

100% SUBMITTAL		REVISIONS	
DATE	MADE BY	DATE	DESCRIPTION
AECOM			
EPA CONTRACT NO. EP-S1-06-01 DURHAM MEADOWS WATERLINE RD DURHAM AND MIDDLETOWN, CONNECTICUT TASK ORDER NO. 006-RD-RD-0105		TOWN OF DURHAM PLAN - PICKETT LANE STA. 525+50 TO STA. 536+40	
PROJ. C. NO: 60275749 CAD DWG. III: CZ-DUR-043 DESIGNED BY: NAV DRAWN BY: NAV D-P CH-CX: GRS PROJ. CH-CX: RMB DATE: APRIL 2018 SCALE: 1" = 40'		C-43	

**Steven D. Riberdy, M.S., CWB®, PWS, CE, CERP, PSS**

Senior Ecologist

Summary of Experience

Mr. Riberdy is an experienced wetland ecologist and wildlife specialist, employed at GZA since 2001. His relevant experience includes wetland ecology, herpetology, botany, soil science, ecological restoration and wildlife biology along with a strong background in GIS. Mr. Riberdy's current work at GZA includes a variety of natural resource projects throughout southern New England, specifically focusing on the wetlands, flora and fauna of the region. Mr. Riberdy manages many of his natural resource projects directly or works as part of a larger team of scientists on larger or multi-phase projects. Mr. Riberdy has designed and conducted many vernal pool and endangered species surveys, (both flora and fauna) with special emphasis on the plants, herpetiles, lepidoptera and other species of New England, in addition to preparing and contributing to many conservation permits under MESA along with habitat management plans for affected rare species. Mr. Riberdy has also conducted hundreds of wetland evaluations throughout the area and has also authored many general wildlife habitat assessments ranging from small lots to parcels over 800 acres in size. Mr. Riberdy has attended bat training courses and has conducted over 50 Phase I habitat assessments for federally and locally rare bat species in New England in addition to Phase II acoustic work. Mr. Riberdy is also adept at conducting aquatic surveys of streams and ponds, with skills in identification of aquatic macrophytes, invertebrates and habitats. Mr. Riberdy has also conducted numerous wetland delineations and permitting projects in both MA and CT following State and Federal criteria. Permitting efforts include MA WPA, MEPA, 401 Water Quality, Section 404, in addition to local wetland permits and peer review of wetland permits for other clients. Mr. Riberdy has also designed and oversaw construction of many wetland and ecological replication and restoration sites in his years with GZA including invasive species management, stream daylighting and ecological restoration. Mr. Riberdy is also an accomplished Soil Scientist.

Relevant Project Experience**RARE SPECIES**

Project Manager, Rare Wildlife Species Habitat Assessments and Management Planning, Various Locations, Massachusetts and Connecticut. Project manager, lead scientist and author on many rare species habitat assessments throughout MA and CT. Several conservation and management plans have been successfully developed and approved by state rare species regulatory agencies on project ranging from small single family lots to larger commercial structures to municipal and state infrastructure projects. Designed and conducted many rare species habitat investigations, visual encounter surveys and trapping for several state listed species. Species, which Mr. Riberdy has familiarity with, include Wood Turtle (*Glyptemys insculpta*), Spotted Turtle (*Clemmys guttata*), Eastern Box Turtle (*Terrapene c. carolina*), Bog Turtle (*Glyptemys muhlenbergii*) USFWS Phase I, Northern Copperhead (*Agkistrodon contortrix*), Blue Spotted Salamander (*Ambystoma laterale*), Jefferson Salamander (*Ambystoma jeffersonianum*), Four Toed Salamander (*Hemidactylum*

Education

M. S., 2011, Wetland Ecology, University of Massachusetts- Amherst
B. S., 2000, Environmental Science/Biology, Westfield State University

Licenses & Registrations

Certified Ecologist
Certified Soil Scientist
Professional Wetland Scientist
Certified Wildlife Biologist
Certified Ecological Restoration Practitioner

Areas of Specialization

- Wetland Ecology
- Herpetology
- Botany & Botanical Studies
- Rare Species Surveys, Permitting, Mgmt.
- Wildlife Habitat Assessment
- Wetland Assessment/Delineation & Mitigation
- Soil Science
- Aquatic Surveys and Stream Restoration Design



Steven D. Riberdy, M.S., CWB®, PWS, CE, CERP, PSS

Senior Ecologist

scutatum), Marbled Salamander (*Ambystoma opacum*), Spadefoot Toad (*Scaphiopus holbrookii*) and Northern Slimy Salamander (*Plethodon glutinosus*). Also conducted blacklight and daylight moth surveys for several rare lepidoptera species in Montague and Nantucket, MA.

Project Manager, Botanical Surveys and Management Planning, Various Locations, Massachusetts, Connecticut and New Hampshire. Lead scientist, project manager and author of numerous botanical surveys and assessments (for both rare and common flora) throughout New England. Investigated many sites ranging from small single family lots to parcels in excess of 1,000 acres, including many airports in Massachusetts.

Project Manager, Donny Brook Country Club Botanical Survey, Lanesborough, Massachusetts. Project manager, lead investigator and principal author of a 300-acre botanical assessment in Lanesborough MA. Involved the identification, location and mapping of 10 species of rare and watch listed plants as well as natural community identification and mapping for MESA and MEPA permits.

Project Scientist, Rare Species Impact Assessment for Connecticut River Dike Repairs, Massachusetts. Conducted Massachusetts Detailed Wildlife Habitat Evaluations for over seven miles of floodplain habitat along the Connecticut, Chicopee, and Westfield Rivers in relation to proposed maintenance activities for the flood control systems of these rivers. Specific habitat evaluations and surveys were conducted for the state listed species; many-fruited false loosestrife (*Ludwigia polycarpa*) and bald eagle (*Haliaeetus leucocephalus*).

Project Manager, Mt. Tom Environmental Permitting, Holyoke, Massachusetts. Manager and lead scientist for the permitting and natural resource assessment of Mt. Tom in Holyoke, MA in support of a new powerline easement to the summit, construction of new transmission towers and other additional work at the summit. Work included wetland delineation and assessment, rare species and assessments, (including rare snake, turtle and salamander species), and rare plant surveys. Conducted associated permitting with local Conservation Commission and MA DEP as well as rare species permitting with MA NHESP.

Senior Ecologist, Plum Island Rare Plant Surveys, Newburyport, Massachusetts. Mr. Riberdy designed and conducted a MA NHESP approved survey for seabeach needlegrass across a 5 acre are of interdunal habitats in support of a dune restoration project. Several populations of this plant were located and marked for protection during the dune restoration work.

Senior Ecologist / Project Manager, Thresher Road Eastern Box Turtle Survey, Hampden, Massachusetts Mr. Riberdy was the lead scientist in charge of developing a 35-acre study for eastern box turtle in support of the development of a sub-division. This study was conducted from April to October 2016 and involved over 500 man-hours of intensive turtle survey and habitat mapping. Following surveys, a final report was prepared detailing survey efforts and findings.

Senior Ecologist / Project Manager, Hopper Road Bridge Rare Plant Survey, Williamstown, Massachusetts. Mr. Riberdy designed and conducted a MA NHESP approved survey for crooked stem aster along a 1-mile stretch of the Green River in Williamstown, MA in support of monitoring a population of transplanted crooked stem asters. Full plant counts were taken, and a final report submitted to and approved by MA NHESP.

Senior Wildlife Biologist / Project Manager, Borrego Solar Phase I Bat Assessments, Various Locations, Massachusetts and New York. Mr. Riberdy is the senior wildlife biologist in charge of designing and conducting and Full US FWS Phase I investigation for northern long eared and Indiana Bat in support of potential solar development sites across MA and NY. Between 2016 and 2018 Mr. Riberdy conducted 50 assessments on sites averaging 50 acres in size.

Senior Wildlife Biologist / Project Manager, Borrego Solar Natural Resource Inventory, Cotuit, Massachusetts. Mr. Riberdy is project manager and senior wildlife biologist in charge of developing a Natural Resource Inventory following Cape Cod Commission guidelines for a 40-acre solar array on watershed land in Cotuit, MA. This NRI included multiple visits, surveys and assessing natural communities, plants and animal populations.



Steven D. Riberdy, M.S., CWB®, PWS, CE, CERP, PSS

Senior Ecologist

Senior Ecologist / Project Manager, Shattuck Road Spadefoot Toad, Hadley, Massachusetts. Mr. Riberdy is the lead biologist in charge of developing survey protocols and MA NHESP permit scoping related to a potential subdivision in Hadley, MA. As part of this effort, Mr. Riberdy has successfully interfaced with MA NHESP and secured approvals for several alternative subdivision designs a 6 impact to rare species while still maximizing the buildable area for the client. Mr. Riberdy designed and conducted rare plant surveys for Hartford fern and spadefoot toad, including breeding habitat surveys and quality assessment.

Senior Ecologist, Eversource - Besack Transmission Line Reclamation, Branford to Wallingford, Connecticut. Mr. Riberdy is the senior ecologist responsible for conducting rare species assessments and surveys, vernal pool assessment and surveys and also assisted in wetland delineations for this 13.5-mile transmission line right of way vegetation reclamation project. Mr. Riberdy conducted habitat assessments and mapping for eastern box turtle as well as conducted vernal pool assessments of 10 potential vernal pools along this corridor. Mitigation and BMP's for work in vernal pools and vernal pool habitat were developed with the project engineers for CT DEEP approval.

Senior Ecologist, Eversource-Canton Transmission Line Project, Canton, Connecticut. Mr. Riberdy was the senior ecologist in charge of conducting rare species surveys and assessments along this transmission line. These included surveys for Frosted Elfin butterflies and eastern box turtle. Reports were prepared and presented to CT DEEP and the Connecticut Citing Council as part of Eversource petition filings.

Senior Ecologist / Project Manager, Falcon Drive Rare Moth Assessment, Westfield, Massachusetts. Mr. Riberdy is lead scientist and project manager in support of this project to develop a 4-acre wooded parcel located in rare moth habitat (New Jersey Tea Inchworm and Pine Barren Speranza). Mr. Riberdy conducted initial site assessments and surveys to document the sites potential use by these moth species, prepared a report documenting findings and presented these finding to MA NHESP. Based on these habitat assessments the site was deemed to be not functional habitat by MA NHESP and development permitted under MESA.

Senior Ecologist, Morgan Street Rare Species Assessment, Granby, Massachusetts. Mr. Riberdy was senior ecologist and worked as part of a team with his role to perform due diligence assessments of rare species habitats and vernal pools on this 40-acre site for potential future development as a subdivision. Mr. Riberdy assessed habitats for blue spotted salamanders, wood turtle and Hartford fern on this site as well as conducted vernal pool investigations of the 8 potential vernal pools on site. Mr. Riberdy drafted a multi-species habitat assessment and constraint analysis based on these findings for the client.

Senior Ecologist / Project Manager, BJ's Turtle Nesting Habitat Assessment, Oxford, Massachusetts. Mr. Riberdy is the senior ecologist and project manager in charge with conducting surveys every three years for a large eastern box turtle mitigation project in Uxbridge, MA. Mr. Riberdy has conducted several years of the monitoring efforts outlined in the CMP and has prepared reports that document the habitat and make management recommendations to the client and MA NHESP.

Senior Ecologist, River Road Retaining Wall Repair, NHESP Permitting, Northampton, Massachusetts. Mr. Riberdy is the senior ecologist in chare with conducting all habitat and rare species assessments in support of this project in this case for the wood turtle and ocellated darter dragonfly. Mr. Riberdy conducted general wildlife habitat assessments under the MA Wetland Protection Act and also conducted species specific assessments for these rare species. Mr. Riberdy prepared a report of findings and successfully secured MA NHESP permits for work within these protected habitat areas. As part of these permits, a site specific turtle protection plan and contractor education program was developed and implemented. Work began in late 2017, at since this time Mr. Riberdy serves as the on-site turtle biologist.

Senior Ecologist, Kristala Rest Area Bat Study, Illinois. Mr. Riberdy was part of a team of biologist and worked with manual vetting of bat calls from this acoustic monitoring project. Mr. Riberdy used both EchoClass and SonoBat software in assisting with call vetting. In total over 400 calls were analyzed for potential Indiana or Northern long-eared bat presence. Most were successfully ruled out; however, several potential northern long-eared bat calls were identified.



Steven D. Riberdy, M.S., CWB®, PWS, CE, CERP, PSS

Senior Ecologist

Senior Ecologist, Stockbridge Bowl Dredging and Drawdown, Stockbridge, Massachusetts. Mr. Riberdy is senior ecologist in charge of MESA and MEPA permitting and survey efforts for this multiyear project in Stockbridge, MA. To date Mr. Riberdy has developed survey protocols for a species of rare snail (Boreal Marstonia) found in only two waterbodies in the state of Massachusetts. Permits require a six-year assessment of this snail species populations in the lake with addition surveys conducted in the outlet channel in support of a proposed channel dredge project and deep 5.5-foot lake drawdown.

Project Manager, Vernal Pool Investigations, Various Locations, Massachusetts and Connecticut. Project manager and lead scientist on the assessment of over 100 vernal pools throughout Massachusetts and Connecticut. Assessments have been for private, local and state clients, with assessment of current habitat quality as well as potential impacts from development conducted.

Project Manager, Construction Monitoring in Rare Turtle Habitat, Various Locations, Massachusetts and Connecticut. Lead scientist and project manager on many construction monitoring projects involving state listed turtle species. A substantial portion of construction monitoring activity involved roadway work for MASS Highway; however, similar monitoring projects have been done on remediation sites, for private landowners, and for commercial and municipal clients.

Project Manager, Wildlife Habitat Assessments, Various Locations, Massachusetts and Connecticut. Lead scientist, project manager and author of many wildlife habitat assessments for common species throughout southern New England. Projects ranged in size from small, single family lots to large, in excess of 500-acre parcels.

Project Manager, Liberty Auto Wash Rare Species Permitting, Springfield, Massachusetts. Project Manager and principal scientist involved in conducting wetlands and rare species assessments and permitting for a proposed self-storage facility in Springfield, MA. Conducted wetland delineations, rare species assessments (worm snake) and associated rare species permitting (MESA).

Senior Ecologist, I-91 Deerfield River Bridge Reconstruction, Deerfield, Massachusetts. Mr. Riberdy was lead scientist in charge of conducting rare species permitting and compliance monitoring for the wood turtle for this three-year repair of I-91 over the Deerfield River from damage caused by hurricane Irene.

Senior Ecologist/Project Manager, Shattuck Road Rare Species, Hadley, Massachusetts. Mr. Riberdy is project manager and senior ecologist for this rare species assessment and permitting project for a subdivision off of Shattuck Road with both rare plants (climbing fern) and eastern spadefoot toad as listed species. As part of this project Mr. Riberdy conducted wetland delineation and assessments, rare plant surveys, as well as spadefoot toad calling and breeding pool surveys and assessment. Mr. Riberdy coordinated with the client and NHESP to develop a plan that met both party's needs.

Senior Ecologist/Project Manager, Water Street Rare Plants, Williamstown, Massachusetts. Mr. Riberdy is project manager and senior ecologist in charge with assisting MA DOT with NHESP permitting, rare plant (crooked stem aster) survey, mitigation design, transplantation and long-term monitoring for a roadway reconstruction project in Williamstown, MA.

Senior Ecologist/Project Manager, Orange Airport Rare Species, Orange, Massachusetts. Mr. Riberdy is senior ecologist and project manager in charge with conducting rare species surveys at ORE. Surveys included grasshopper sparrow and vesper sparrow on two separate years under Better Robo and Charles Quinlan.

Senior Ecologist/Project Manager, Altaria Apartments Bat Study, Lebanon, New Hampshire. Mr. Riberdy is senior ecologist and project manager in charge with developing and conducting a Phase I Northern Long Eared and Indiana bat survey for a proposed apartment complex in Lebanon, NH.

Senior Ecologist/Project Manager, Old Easthampton Road Rare Species Permitting, Holyoke, Massachusetts. Mr. Riberdy is project manager and senior ecologist for this project to develop a single-family home on 5 acres of land in rare species habitat in Holyoke, MA. Rare species on site include three listed snake species as well as marbled salamander and the eastern box turtle. This



Steven D. Riberdy, M.S., CWB®, PWS, CE, CERP, PSS

Senior Ecologist

project involved MA NHESP coordination, site surveys, habitat assessment and NHESP permitting which ultimately allowed the homeowner to build in this highly sensitive habitat.

Senior Ecologist/Project Manager, Seaside Rare Species Surveys, New Haven, Connecticut. Mr. Riberdy is senior ecologist in charge of conducting habitat assessments and rare species surveys in this coastal habitat for proposed development as a state park for CT DEEP. This project involved surveys for several rare coastal and dune plants, rare Lepidoptera habitats and host plant survey and surveys for, and finding, a rare tiger beetle.

Senior Ecologist, Rockwell Pond Dredging, Hampden, Massachusetts. Mr. Riberdy is senior ecologist in charge of conducting a rare species assessment and permitting for this proposed dredging of a 5-acre pond in Hampden, MA. This project involved site assessment and limited survey for eastern worm snake, eastern box turtle and wood turtle as well as NHESP coordination and permitting. In addition, wetlands delineation and permitting was conducted at the federal, state and local levels.

Affiliations/Memberships

- Society of the Study of Amphibians and Reptiles (SSAR)
- New England Botanical Club
- Ecological Society of America (ESA)
- Society of Wetland Scientists (SWS)
- Assoc. MA Wetland Scientists (AMWS)
- CT Association of Wetland Scientists (CAWS)
- The Wildlife Society, New England Chapter (TWC)
- New England Wildflower Society Plant Conservation Volunteer (PCV)
- Soil Science Society of Southern New England



Seth R. Taylor, CESSWI, CIPM-RI

Assistant Project Manager / Environmental Planner

Summary of Experience

Mr. Taylor is an Environmental Planner who has worked on various natural and cultural resource projects throughout New England and New York. Work has involved regulatory environmental impact evaluations resulting from land development in both marine and freshwater environments. Typical projects have included road and bridge replacements, marine infrastructure and dredging operations and land development. Environmental evaluations and permitting approvals have included: Federal: Categorical Exclusions (CATEX), Environmental Assessments (EA), and Environmental Impact Statements (EIS) SV, PCN, and Individual Section 404 and Section 10 Permit Applications; State: Environmental Impact Evaluations (EIE) in Connecticut, Environmental Impact Reports (EIR) in Massachusetts, and Environmental Impact Statements (EIS) in New York, Section 401 Water Quality Certificates, Dam Safety Permits, and Chapter 91 Permits and Licenses; Local: Notice of Intent (NOI's) in Massachusetts, Inland Wetlands Applications (IWA's) in Connecticut, and Small Business Services, Local Waterfront Revitalization Program submissions. Integration of ArcGIS and AutoCAD platforms are common.

Relevant Project Experience

Compliance Monitor and Environmental Monitor, Eversource Energy, GHCC Green Hill Substation Expansion, Madison, CT, 1710/1730 Structure Replacement Project, Milford, CT, and Thames River Crossing Project, Uncasville, Connecticut. Was the lead scientist overseeing construction monitoring for SWPPP compliance. Construction period tasks included monitoring erosion and sedimentation controls, interfacing with contractors and client, recommending BMP improvements, turbidity sampling and SWPPP reporting. Pre-construction tasks included team-orientated wetland delineation and GPS data collection, eastern box turtle (*Terrapene carolina carolina*) surveys, and permit scoping.

Ecologist, Eversource-Canton Transmission Line Project, Canton, Connecticut. Was part of a team in charge of conducting rare species surveys and assessments along this transmission line. These included surveys for Frosted Elfin (*Callophrys irus*) butterflies and eastern box turtle (*Terrapene carolina carolina*). Reports were prepared and presented to CT DEEP and the Connecticut Citing Council as part of Eversource petition filings.

Ecologist, Holyoke Community College, Holyoke, Massachusetts. Conducted pre-construction, active-construction, and post-construction surveying and monitoring for the black rat snake (*Pantherophis alleghaniensis*), MA listed endangered, for a newly constructed roadway for the college through prime habitat, tasks involved survey, data collected, and physical relocation of snakes when present in site limits, as well as post production and placement at site limits and contractor education.

Ecologist, State of Connecticut, Site Confidential, Connecticut. Conducted site surveys for eastern box turtle (*Terrapene carolina carolina*), CT listed special concern, timber rattlesnake (*Crotalus horridus*), CT listed endangered, eastern hognose snake (*Heterodon platirhinos*) CT listed species concern –possibly present, and tiger beetle

Education

Masters Candidate, Energy & Environmental Management, University of Connecticut
B.S., Conservation Biology, FSU
B.A., History (ma), German Literature (mn), UMass Amherst

Licenses & Registrations

Rhode Island Certified Invasive Plant Manager (University of Rhode Island Invasive Plant Management Certification Program (IPMCP))
Massachusetts Certified Invasive Plant Manager (UMass Invasive Plant Certification Program)
Certified Erosion, Sediment and Stormwater Inspector™ (CESSWI), Envirocert International Inc.

Areas of Specialization

- State and Federal Environmental Planning & Permitting
- NEPA, MEPA, CEPA, SEQR Documentation Preparation
- Dredging Feasibility Analysis
- Land Use Review
- Geographic Information Systems (GIS) Data Analysis
- Invasive Species Management



Seth R. Taylor, CESSWI, CIPM-RI

Assistant Project Manager / Environmental Planner

(*Cicindela spp.*). Affixed radio transmitters to EBT track movements and relocate via radio telemetry.

Ecologist, Holyoke Revolver Club, Holyoke, Massachusetts. Conducted site surveys for timber rattlesnake (*Crotalus horridus*) and habitat evaluations as part of post improvement unauthorized construction monitoring for the City of Holyoke and MA NHESP.

Ecologist, Robinson State Park, Agawam Massachusetts. Conducted site surveys and relocated eastern box turtles (*Terrapene carolina carolina*) in front of transmission conductor install for the Massachusetts Department of Conservation and Recreation.

Independent Observer, New Bedford Regional Airport, New Bedford, Massachusetts. Conducted environmental observations of contractor compliance to a MassDEP Variance Order of Conditions (OOC) such as erosion and sediment control measures and stormwater BMP's, the preparation of weekly inspection reports, and observations of success of invasive species management and adherence to the MA NHESP CMP (eastern box turtle (*Terrapina carolina Carolina*)) site surveys and telemetry tracking of EBT's.

Environmental Monitor / Turtle Biologist, Marshfield Municipal Airport, Marshfield, Massachusetts. Conducted pre-construction wetland delineations, pre- and active-construction turtle surveys, and construction permit compliance to the Marshfield Conservation Commission's Variance Order of Conditions, MassDEP Variance Order of Conditions, and USACOE Section 404 individual permit conditions, and Massachusetts Natural Heritage and Endangered Species Program's (NHESP) Conservation Management Permit (CMP). Field work included construction monitoring, telemetry tracking of a large population of eastern box turtle (*Terrapina carolina Carolina*) throughout construction, implementation of a Vegetation Management Plan (VMP), and implementation of an Invasive Species Management Plan (IMP) and contractor observation of those tasks.

Ecologist, Thresher Road Eastern Box Turtle Survey, Hampden, Massachusetts. Developed a 35-acre study for eastern box turtle (*Terrapene carolina carolina*), MA listed special concern, in support of the development of a sub-division. This study was conducted from April to October 2016 and involved over 500-man hours of intensive turtle survey and habitat mapping. Following surveys, a final report was prepared detailing survey efforts and findings.

Environmental Scientist, I-91 North and Southbound Bridge Replacement, Deerfield, Massachusetts. Monitored contractor compliance to an EPA SWPPP and an MA NHESP Wood Turtle Protection Plan (*Glyptemys insculpta*), MA listed special concern; prepared weekly and yearly reports.

Ecologist, Plum Island Rare Plant Surveys, Newburyport, Massachusetts. Conducted a MA NHESP approved survey for seabeach needlegrass (*Aristida tuberculosa*), MA State listed endangered, across a 5 acre are of interdunal habitats in support of a dune restoration project. Several populations of this plant were located and marked for protection during the dune restoration work.

Environmental Scientist. Beatties Pond Salt Marsh Restoration Evaluation & Impact Assessment. Guilford, Connecticut. Performed wetland delineations and terrestrial and aquatic vegetation surveys. Developed a Salt Marsh Restoration Plan in a 60± acre flooded former saltmarsh. Evaluations included an inventory of subaqueous soils, existing flora/fauna biodiversity (including invasive species such), documentation of existing salt marsh fringe areas, and an assessment for potential saltmarsh restoration success. Collected data on tidal fluctuations and flow velocity upstream and downstream of a bottlenecking culvert.

Environmental Scientist, Milford Pond Aquatic Habitat Restoration Project, Milford, Massachusetts. Prepared an Environmental Notification Form (EENF) and an Environmental Impact Report (EIR) for the Massachusetts Environmental Policy Act office, a Notice of Intent (NOI) for the Town of Milford, a MassDEP 401 Water Quality Certificate, and a USACOE Section 404 permit application for the hydraulic dredging and beneficial reuse within a 120-acre waterbody to restore water depth, reduce hyper-eutrophication, and to restore aquatic habitat for resident and native endangered birds (American bittern, least bittern, pied-billed grebe, king rail, and the common moorhen) by the creation of native-species marsh land.

Environmental Monitor, Bass Creek Restoration Project, Marshfield, Massachusetts. Conducted daily observations of dredging and vegetation clearing operations for a tidal creek restoration project due to invasion of significant stands of the invasive species *Phragmites australis*, eastern box turtle (*Terrapene carolina carolina*) sweeps.



Seth R. Taylor, CESSWI, CIPM-RI

Assistant Project Manager / Environmental Planner

Environmental Scientist/Invasive Species Manager, Runnins River in East Providence, City of East Providence, Rhode Island. Developed and oversaw the implementation of an Invasive Species Implementation Plan along a portion of Runnins River in East Providence overrun with *Phragmites australis* which has caused flooding in the surrounding neighborhood. Contractor applied herbicides, removed biomass, and opened a channel

Compliance Monitor, Eversource, Towantic Switching Station, Oxford, Connecticut. Was part of a team responsible for weekly compliance monitoring for sedimentation and erosion controls in accordance with approved SWPCP, including turbidity sampling and reporting construction activities.

Project Manager, Dredging Time-of-Year Restriction Study within Long Island Sound and its Major Tributaries, Connecticut Wide. Prepared, on a team, an overview of the operational characteristics of typical dredging operations within Long Island Sound (LIS), provided detailed descriptions of the regulatory processes governing projects under the purview of CT DEEP and the US ACOE, provided a summary of time of year restrictions within LIS for dredging projects in neighboring states from Maine to New Jersey; reviewed previously issued CT DEEP and US ACOE permits in detail and collected and analyzed data using the ArcGIS platform.

Project Manager, US Coast Guard Station New London Floating Dock Wave Attenuator, New London, Ct. Prepared Section 401 Water Quality Certificate and a USACOE ACOE Section 404/10 permit application for the installation of two new floating dock wave attenuator extensions in the Thames River in New London at the US Coast Guard Station New London, preparation of Essential Fish Habitat analysis for National Marine Fisheries Service concurrence.

Project Manager, Lynn Residences Redevelopment, Lynn, Massachusetts. Prepared an Environmental Notification Form (ENF) for the MEPA office for the proposed development of a site near to Lynn Harbor.

Environmental Scientist, Henry Hudson Bridge Rehabilitation of Skewbacks, Viaduct Piers and Lower Level North Abutment, Manhattan/Bronx, New York. Prepared New York State Section 401 Water Quality Certificate (WQC), Tidal Wetlands Permit, Excavation and Fill, Federal Consistency (CZM), New York City Local Consistency Assessment Evaluation and Waterfront Construction Permit, and a Federal US ACOE Section 404/10 permit documents, including SEQRA, for repair of concrete foundation structures affected by alkali-silicate reactions. Work includes construction of a temporary trestle bridge to access the southern skewbacks along the Harlem River.

Environmental Scientist, Bulkhead Replacement along Gowanus Canal, Brooklyn, New York. Prepared New York State Section 401 Water Quality Certificate (WQC), Tidal Wetlands Permit, Excavation and Fill, Federal Consistency (CZM), New York City Local Consistency Assessment Evaluation and Waterfront Construction Permit, and a Federal US ACOE Section 404/10 permit documents for a proposed steel bulkhead along the shore of the Gowanus Canal, an EPA Superfund Site. The bulkhead replaced an existing and failing wooden crib bulkhead. This project is part of the overall proposed remedy for the canal cleanup which will also include a major sediment dredging, treatment and capping effort.

Environmental Scientist, Fort Warren Site Improvements, Massachusetts Department of Conservation and Recreation, Boston Harbor, Massachusetts. Prepared a Notice of Intent (NOI) for the Boston Conservation Commission for civil improvements at the civil war era former military fort turned state park.

Environmental Scientist & GIS Specialist, Stockbridge Bowl Dredging and Restoration Project, Stockbridge, Massachusetts. Conducted wetland delineations and ecological evaluations, collected data on invasive aquatic species and on rare and endangered aquatic snail species. Prepared an Expanded Environmental Notification Form (EENF) with a Single Environmental Impact Report (SEIR) for the MEPA office, a Notice of Intent (NOI) for the Stockbridge Conservation Commission, a combined 401 WQC/Chapter 91 Dredging Permit application, and a USACOE Section 404 permit application.

Environmental Scientist, Connecticut Department of Transportation – Environmental On-Call Services, Brookfield, Connecticut. Prepared and implemented an Invasive Species Management Plan for wetland replication sites Brookfield, CT. Management of these sites occurred from 2012-2017. Species included: Japanese hops, *Phragmites australis*, multiflora rose,



Seth R. Taylor, CESSWI, CIPM-RI

Assistant Project Manager / Environmental Planner

wineberry, garlic mustard, mugwort, purple loosestrife, autumn olive, Asiatic bittersweet, common nightshade, and Japanese barberry. Collected wetland monitoring data for 404 post-construction reporting.

Environmental Scientist, Woods Hole Ferry Terminal Reconstruction Project, The Woods Hole, Martha's Vineyard and Nantucket Steamship Authority, Woods Hole, Massachusetts. Prepared an Expanded Environmental Notification Form (EENF) for the MEPA office, a Notice of Intent (NOI) for the Falmouth Conservation Commission, a combined MassDEP Section 401 Water Quality Certificate/Chapter 91 License, and a USACOE Section 404 permit application for a \$65M ferry terminal redevelopment project. Oversaw the collection of marine sediment samples and personally processed the samples.

Environmental Scientist, Seaside State Park Master Plan Implementation EIE, University of Connecticut, Storrs, Connecticut. Prepared an Environmental Impact Evaluation (EIE) for the Connecticut Office of Policy and Management (OPM) for the implementation of the Seaside State Park Master Plan.

Environmental Scientist, Consue Springs Dredging and Stormwater Improvements, Nantucket, Massachusetts. Conducted wetland delineation, terrestrial and aquatic vegetation surveys, and sediment sampling for both archeological surveys and chemical analysis. Prepared a Notice of Intent (NOI) for the Nantucket Conservation Commission, a combined MassDEP Section 401 WQC/Chapter 91 Dredging Permit application, and a USACOE Section 404 permit application for the dredging and tidal restoration of Goose Pond.

Group Lead, Environmental Scientist, Connecticut Department of Transportation – Interstate I-84, exits 23-25. Lead field coordinator and technician involved with the long-term water quality sampling and reporting for Mad River and Beaver Pond Brook sample sites as part of a USACOE Section 404 permit; performed quality checks on analytical data.

Environmental Scientist, Various Dam Repair Projects, Connecticut. Performed multiple wetland delineations for dam repair projects in Connecticut and prepared Connecticut Department of Environmental and Energy Protection's (DEEP) Dam Construction Permits and a USACOE Section 404 applications.

Environmental Scientist, U.S. Coast Guard Academy Waterfront Improvements, New London, Connecticut. Prepared a Connecticut Department of Environmental and Energy Protection's (DEEP) Section 401 Water Quality Certificate (WQC) and a USACOE Section 404 permit application for the demolition and reconstruction of Jacob's Rock Causeway and Main Pier as well as improvements to shoreline road and revetment structures. Prepared an Essential Fish Habitat Analysis (EFH) in support of the Section 404 permit.

Environmental Scientist, U.S. Coast Guard New London Station Waterfront Improvements, New London, Connecticut. Prepared a Connecticut Department of Environmental and Energy Protection's (DEEP) Section 401 Water Quality Certificate (WQC) and a USACOE Section 404 permit application for the demolition and reconstruction of Jacob's Rock Causeway and Main Pier as well as improvements to shoreline road and revetment structures. Prepared an Essential Fish Habitat Analysis (EFH) in support of the Section 404 permit.

Environmental Scientist, Charles River Dredging, Brighton, Massachusetts. Conducted bathymetric survey, sediment sampling for chemical analysis, and wetland delineation. Prepared separate Notice of Intent's (NOI) for the Boston and Watertown Conservation Commissions, a combined MassDEP Section 401 Water Quality Certificate/Chapter 91 Dredging Permit application, and a USACOE Section 404/10 permit application.

Environmental Scientist, Quinebaug Regional Technical Park EIE, Putnam, Connecticut. Prepared an Environmental Impact Evaluation (EIE) for the Connecticut Office of Policy and Management (OPM) for a 267-acre site along the Quinebaug River being proposed for a new Technical Park and YMCA facility.

Environmental Scientist, Harriman and West Airport – North Adams, Massachusetts. Oversaw the construction of a 3-acre replication wetland area, collected vegetation and well data in support of a USACOE Section 404 permit and a MassDEP Section 401



Seth R. Taylor, CESSWI, CIPM-RI

Assistant Project Manager / Environmental Planner

Water Quality Certificate (WQC), and conducted construction monitoring services in support of engineering for multiple phases of a runway and taxiway reconstruction project.

Environmental Scientist, New Engineering and Sciences Building EIE, University of Connecticut, Storrs, Connecticut. Prepared an Environmental Impact Evaluation (EIE) for the Connecticut Office of Policy and Management (OPM) for the proposed Science, Technology, Engineering and Math (STEM) Engineering and Sciences Building at the UConn Storrs campus.

Environmental Scientist, Forest Park Ponds, Springfield, Massachusetts. Conducted native and invasive aquatic vegetation surveys within four ponds at Forest Park over a multitude of years and made recommendations on invasive species management of European naiad, curly pond weed, and *Phragmites australis*.

Environmental Scientist. South Hadley Landfill. Waste Management. South Hadley, Massachusetts. Conducted post-construction E&S BMP inspections and prepared weekly reports following a South Hadley Conservation Commission's Enforcement Order (EO) for permit non-compliance.

Environmental Scientist. Delbarre Avenue Reconstruction. Conway, Massachusetts. Prepared a Notice of Intent (NOI) for the Conway Conservation Commission for the repair of a failing roadway embankment.

Environmental Scientist, Hampden Country Club Enforcement Order, Hampden, Massachusetts. Conducted wetland delineations and E&S BMP monitoring for compliance with both a MassDEP issued Unilateral Administrative Order and an Administrative Consent Order.

GIS Specialist/Environmental Scientist, Multiple Projects, Eversource Energy, Various Towns, Connecticut. Performed various tasks on a multi-disciplinary team of engineers, planners, and scientists on a multitude of projects spanning across the entire state of Connecticut. Prepared complex GIS figures for field planning, technical plans, and permit documents based on resource delineations. Field tasks included wetland delineation and GPS data collection. Prepared Connecticut Siting Council petitions as well as USACOE Section 404 permit applications.

GIS Specialist/Environmental Scientist, DESPP Firearms Training Facility Siting Study, Connecticut. Prepared and presented a public scoping presentation for the Connecticut State Police in compliance with Connecticut Office of Policy and Management (OPM) an eventual development of an Environmental Impact Evaluation (EIE).

Environmental Scientist, Hampton Inn & Restaurant Complex, Enfield, Connecticut. Developed a wetland restoration plan and conducted post-construction monitoring efforts; including the collection of vegetation data.

Environmental Scientist, North Riverfront Park, Springfield, Massachusetts. Prepared a Notice of Intent (NOI) for the Springfield Conservation Commission for the redesign of a park in the north end of the city on the Connecticut River.

Environmental Scientist, Camp Star Angelina, Forest Park, Springfield, Massachusetts. Conducted a wetland delineation and collected GPS data for a proposed trail; prepared a Notice of Intent (NOI) for the Springfield Conservation Commission for the redevelopment of a children's camp at Forest Park in Springfield.

Environmental Scientist, CJM Engineering, Greater Connecticut. Mr. Taylor has contributed to the identification of State and Federal wetland resources at several bridges slated for repair or replacement. The delineation work included the collection of pertinent field data in support of subsequent permit applications to be submitted to State and Federal agencies. Mr. Taylor also produced GIS mapping for the bridge project and tidal gauge project in Guilford, CT. Mr. Taylor installed the data logging devices for the purpose of measuring tidal fluctuations upstream and downstream of a bridge assessment area that was being modeled for potential repair or replacement. He monitored the devices weekly for two months, downloaded the data and removed the devices at the completion of the project. Mr. Taylor also conducted flow velocity measurements in support of the tidal fluctuation/modeling project. He conducted field wetland delineations, sediment sampling, and ecosystem analyses.



Seth R. Taylor, CESSWI, CIPM-RI

Assistant Project Manager / Environmental Planner

Washburn CSO Project, Springfield, Massachusetts. Provided contractor support services for water quality sampling efforts for a project in the North End of Springfield. Various testing parameters included metals and fats, oils, and greases (FOG's), and volatile organic compounds (VOC's); adherence to chain of custody procedures, and collected and managed data on pH and flow meter readings taken.

Environmental Scientist, Mansfield Municipal Airport, Mansfield, Massachusetts. Mr. Taylor conducted monitoring for a wetland mitigation area including invasive species control, and Vegetation Management Plan development.

Publications and Presentations

Taylor, Seth. 2018. The Invasive Japanese Hops, Not Just for Beer. Connecticut Association of Wetland Scientists - Annual Conference. Meriden, CT, March 2018.

Davis, P.G., J. Burke, & S. Taylor. 2017. Straightening Interstate 84 and Re-Meandering the River: Making the Mad River Less Angry. GZA Technical Excellence Conference, Norwood, MA. March 2017.

Awards

Davis, P.G., J. Burke, & S. Taylor. 2017. Straightening Interstate 84 and Re-Meandering the River: Making the Mad River Less Angry. GZA Technical Excellence Conference, Norwood, MA. 2017. Practice Excellence Award, First Place, Natural Resources & Permitting.

Development of North Riverfront Park, Springfield, Massachusetts. GZA Technical Excellence Conference, Norwood, MA. Practice Excellence Award, First Place, Geotechnical. 2016.

Nashua Municipal Airport Runway Expansion: Wetlands and Rare Species Permitting, Mitigation and Construction Observations. GZA Technical Excellence Conference, Norwood, MA. Practice Excellence Award, First Place, Natural Resources & Permitting and Sustainability. 2015.

Under the Gun – The Search for a New Firearms Training Facility in Connecticut. GZA Technical Excellence Conference, Norwood, MA. Practice Excellence Award, First Place, Natural Resources and Sustainability. 2014.

Wetland, Turtle & Tree Impact Mitigation & Permitting for Runway Extension at Marshfield Airport. Marshfield, MA. GZA Technical Excellence Conference, Norwood, MA. Practice Excellence Award, Second Place, Water & Natural Resources and Sustainability. 2013.

Affiliations/Memberships

- American Planning Association
- Western Dredging Association
- New York State Wetlands Forum
- Connecticut Association of Wetland Scientists
- Association of Massachusetts Wetland Scientists
- International Erosion Control Association

Training

- OSHA 10-Hour Safety



Robin Casioppo

Assistant Project Manager

Summary of Experience

Ms. Casioppo is a field biologist who specializes in botany, wildlife, wetland ecology, and soil science. She is responsible for conducting botanical surveys, rare species surveys and monitoring (plant and animal), wetland delineations, and natural resources inventories.

Ms. Casioppo is experienced in botanical field surveys consisting of rare species, vegetation observation plots, and species richness and abundance. Her knowledge of plant species is focused on those found in New England habitats, including forest, shrub, meadow, inland wetland, and coastal salt marsh communities. Ms. Casioppo is also experienced in ornithological field studies, including capturing and handling, and specializes in avian identification through visual and auditory observations. Her ornithological experience spans from song bird northern forested habitat to shorebird coastal habitat throughout New England.

Experience Prior to GZA

Wetland and Watercourse Delineation, Permitting, Mitigation, and Biomonitoring, Massachusetts and Connecticut.

Utility Transmission and Distribution Line Environmental Services and Permitting Support.

Construction Compliance Monitoring.

Massachusetts Conservation Commission Public Hearing Attendance.

Rare Species Botanical Survey, Avon, Connecticut. Survey included Purple Giant Hyssop, Davis' Sedge, Dillenious' Tick Trefoil, Virginia Waterleaf, Three-leaved False Solomon's-seal, and Starry Campion.

Rare Species Botanical Survey, Woodbridge, Connecticut. Survey included Hairy angelica, Puttyroot, Dragon's-mouth, Boreal bog sedge, Reznicek's sedge, Hairy lip-fern, Yellow lady's-slipper, Whitlow-grass, Tall cinquefoil, Virginia snakeroot, Fir clubmoss, Water pennywort, Creeping bush-clover, Green adder's-mouth, Long-awn hairgrass, Eastern prickly pear, Warty panic grass, Hoary plantain, Vasey's pondweed, Sand blackberry, Northern arrowhead, Rough dropseed, Northern dropseed, Nodding pogonia, Narrow-leaved vervain, and possum haw.

Rare Species Botanical Survey, Agawam and West Springfield, Massachusetts. Survey included smooth rockcress.

Wetland Mitigation Vegetative Assessment, Various Locations throughout New England.

Wetland Delineation Vegetation Observation Plots, Various Locations throughout New England.

Rare Species Botanical Survey, Monroe, Connecticut. Survey included Meadow horsetail.

Rare Species Botanical Survey, Groton, Connecticut. Survey included Woolly beach-heather.

Education

MS, 2014, Environmental Studies with a concentration in Conservation Biology, Antioch University New England
BS, 2004, Environmental Biology, Plymouth State University

Licenses & Registrations

Soil Scientist Certification – UMass, Amherst

Areas of Specialization

- Wetland Habitat Characterization
- Phase I Environmental Site Assessments
- Environmental Constraints Analysis for Site Development
- ArcGIS



Robin Casioppo

Assistant Project Manager

Rare Species Botanical Survey, Pittsfield, Massachusetts. Survey included Wapato, Mustard White, and Dion skipper.

Rare Species Botanical Survey/Species Richness Survey, Seymour, Connecticut. Survey included Great St. John's-wort, Hairy-fruited sedge, Meadow horsetail, Weigand's wild rye, Lizard's tail, Sideoats grama, Sweet-scented Indian plantain, and Water pennywort.

Botanical Survey and Critical Habitat Assessment, Groton, Connecticut. Survey included *Solidago sempervirens*.

Botanical Survey, Charlestown, Rhode Island. Survey included salt marsh species.

Rare Species Observations and Successful Identification, Various, Massachusetts. Species included wood turtle and eastern box turtle.

Rare Species Survey, Woodbridge, Hamden, New Haven, Connecticut. Species included Five-lined skink, Smooth green snake and Eastern hognose snake.

Wood Turtle Monitoring, Lenox, Massachusetts.

Wood Turtle Rare Species Survey, Pittsfield, Massachusetts.

Vernal Pool Surveys, Massachusetts and Connecticut. Surveys included Wood frog, Spotted salamander, and Jefferson salamander.

Rare Species Monitoring, Woodbridge, Hamden, New Haven, Connecticut. Monitoring included Peregrine falcon and Whip-poor-will.

Rare Species Monitoring, Milford, Connecticut. Monitoring included Peregrine falcon.

Song Bird Banding, Manomet Center, Plymouth, Massachusetts.

Winter Bird Survey, Troy, New Hampshire.

Saw-Whet Owl Banding, Pisgah State Park, Chesterfield, New Hampshire.

Raptor Migration Count, Pack Monadnock Raptor Migration Observatory, Peterborough, New Hampshire.

Canada Warbler Habitat Assessment, Canaan, New Hampshire.

Mist Netting and Song Bird Handling, La Parguera, Puerto Rico and Canaan, New Hampshire.

Certifications/Training

- 40-Hour OSHA HAZWOPER
- Turtle Monitor Training
- Metro North Railroad Safety Training, 2016, 2017