STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

Petition of BNE Energy Inc. for a Declaratory Ruling for the Location, Construction and Operation of a 3.2 MW Wind Renewable Generating Project on New Haven Road in Prospect, Connecticut ("Wind Prospect")

Petition No. 980

February 16, 2011

PRE-FILED TESTIMONY OF MATTHEW DAVISON

Q1. Please state your name and profession.

A. Matthew Davison and I am a registered soil scientist and Connecticut certified forester (#193) with Vanasse Hangen Brustlin, Inc. ("VHB"). VHB is located at 54 Tuttle Place in Middletown, Connecticut.

Q2. Please summarize your professional background and experience.

A. I have a B.S. in forestry from the University of Massachusetts. I have 13 years of experience as a natural resource professional. My experience includes various activities related to wetlands delineation, evaluation, forest management and permitting before local, state and federal bodies. In addition, I have worked on a number of utility projects including substations and transmission corridor studies, conducting state and federal wetlands delineation, wetland functions and values assessments, habitat assessments and consultations with the Department of Environmental Protection (CTDEP) regarding state listed species. My resume is attached hereto as Exhibit 1, which details my qualifications and experience.

Q3. What did you do to determine the existence of wetlands on the proposed wind energy project site?

A. I performed an on-site inspection of the approximate 67.5 acre parcel located at 178 New Haven Road in Prospect, Connecticut (the "Property"). The Property was inspected in its entirety in order to properly evaluate potential turbine locations and access options. This inspection was conducted over several dates including January 5, March 11 and March 18, 2010. Based upon the on-site inspections, I prepared a Wetlands Delineation Report, dated March 30, 2010. See the Petition, Volume 3, Exhibit I, Attachment A.

Q4. Based upon your inspection are there any wetlands located on the Property, and if so, please describe these wetlands?

A. Yes. There are four wetland systems on the Property. All of the delineated wetland areas are similar in their soil, hydrology and vegetative characteristics. Each system is characterized as a forested hillside seepage area generally located where topographical gradient diminishes and seasonal high groundwater persists long enough for reducing soil conditions to exist resulting in

the support of a dominance of hydrophytes (wetland vegetation). Intermittent watercourse features were noted within the interior of most of the delineated wetland areas. Each system drains in a westerly direction off-site towards the New Naugatuck Reservoir. The tree canopies are dominated by red maple, white ash and yellow birch, while the shrub layer includes spicebush and a vigorous Japanese barberry component which forms a virtual monoculture below three feet above ground.

Q5. Based upon your investigation, are there any vernal pools located on the Property?

A. No potential vernal pool habitat was identified during the wetland delineation or during subsequent site visits on June 23, August 10 and November 22, 2010. The delineated wetlands on the Property are characterized as hillside seepage areas. Hillside seepage wetlands typically lack the physical characteristics necessary to provide vernal pool habitat (e.g., topographical depressions to support seasonal pools). The wetlands identified on the Property do not contain topographical depressions. In addition, these wetlands possess a gradient which prevents seasonal high ground or surface water from ponding. Rather than ponding, surface water within these wetland systems is subject to diffuse and channelized conveyance that do not support vernal pool habitat.

Q6. Were efforts made during the design phase of this project to avoid impacts to wetland resources?

A. Yes. Following an evaluation of two years of wind data, General Electric (GE) provided BNE Energy its recommended turbine locations. These locations would effectively maximize the turbine outputs based solely on wind speed, direction and elevation. Unfortunately, the locations provided by GE would have resulted in permanent direct wetland impacts to site wetlands. The project team - including myself, BNE and GE - worked to re-configure the turbine locations to avoid wetland impacts. The resulting turbine layout avoids direct wetland impacts.

Q7. Based upon your review of the site plans, Stormwater Management Plan and Erosion and Sediment Control Plan, would the construction and operation of the wind energy project result in a likely adverse impact to wetlands?

A. The proposed development has been successful in avoiding direct wetland impacts. Potential short term indirect wetland impacts are primarily associated with site construction disturbance and subsequent erosion and sedimentation resulting from failed or inadequate erosion control features. Potential long term indirect wetland impacts associated with the proposed project are related to stormwater discharges. In order to avoid erosion and sedimentation of wetland resources, the Erosion and Sediment Control Plan should be consistent with the Connecticut Department of Environmental Protection (CTDEP), *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. BNE is currently working with the Connecticut Water Company (CWC) to address concerns regarding the potential for short term, indirect wetland impacts resulting from erosion and sedimentation of the wetland resources (Wetland 3) adjacent to Turbine Location Two. A letter has been submitted to the CWC detailing modifications to the site plans which address the majority of these concerns. A copy of this letter has been provided to the Connecticut Siting Council (CSC). In summary, the following revisions have been incorporated into the site plans. The majority of disturbance

activities associated with the construction of Turbine Location Two have been moved eastward to provide a larger undisturbed buffer to Wetland 3; the limits of clearing associated with the portion of the Blade Laydown Area that would drain to Wetland 3 (areas upslope) have been pushed back from 5± feet to 35± feet from Wetland 3, providing a greater distance between disturbance activities and this resource. This change was made by overlapping a small portion of the Blade Assembly Area onto the Tower Assembly Area. By reconfiguring the existing construction area, as opposed to shifting the entire limits of disturbance to the east, this modification will not require additional cutting into the upslope hillside. In addition, erosion control features will be inspected by a third party inspector once every seven days and after significant rainfall events of greater than one half inch to ensure that proper precautions are taken to avoid the release of sediment into nearby resource areas. These inspections will be documented on an Erosion and Sedimentation (E&S) Control Site Inspection Form and, at the completion of construction activities, submitted to CWC and CSC for their records. This E&S control inspection procedure will help avoid erosion and sedimentation problems by ensuring that the erosion control devices are installed, maintained and functioning properly, thereby protecting nearby wetland and watershed resources. Following construction activities, a wildlife/conservation seed mix containing native grasses and forbs will be used to stabilize exposed areas of the site including areas in proximity to Turbine Location Two and the adjacent wetland resource. An erosion control blanket has been incorporated into the plans to prevent erosion and sedimentation of exposed areas adjacent to Wetland 3 and aid in the establishment of vegetation and permanent stabilization. In order to minimize the potential for groundwater contamination, the site contractor will be required to adhere to a strict spill prevention plan that will include precautions to contain and properly clean up any inadvertent fuel or petroleum (i.e., oil, hydraulic fluid, etc.) spill due to the project's location in a public water supply watershed. A spill containment kit consisting of a sufficient supply of absorbent pads and absorbent material will be maintained by the site contractor at the construction site throughout the duration of the project. In the unlikely event of a release, immediate notifications will be made to the CWC, the CSC and appropriate local and state authorities.

Long term indirect impacts are lessened by the unmanned nature of the turbines and the low traffic it generates. One long term indirect impact potentially resulting from the project is the discharge of stormwater. The Stormwater Treatment Practice section of the Stormwater Management Plan developed for this project describes stormwater treatment being provided by a water quality swale located along the access road. Water quality swales are considered a Primary Stormwater Treatment Practice by the CTDEP, *2004 Connecticut Stormwater Quality Manual* provided they can perform as follows: capture and treat the design water quality volume; capture and treat at least 80% of the average annual total suspended solid load; remove at least 80% of floatable debris; and, demonstrate operational longevity in the field. Stormwater discharge from water quality swales should be properly dissipated (e.g., through the use of a level spreader) in order to prevent erosion and sedimentation of adjacent wetland resources.

Q8. Describe the efforts that were undertaken to determine whether or not the proposed wind project could impact any state listed Endangered, Threatened and Special Concern species?

A. I performed a review of the CTDEP's Natural Diversity Database (NDDB) which identifies general areas of concern with regards to state and federally listed Endangered, Threatened, and Special Concern species and significant natural communities. No areas of concern with regard to threatened or endangered species and/or significant natural communities

were identified at or in the vicinity of the Site. However, VHB completed and submitted a NDDB Review Request Form and supporting materials to the CTDEP for confirmation of this preliminary conclusion. CTDEP responded that eastern box turtle, a State Special Concern species, occurs in the vicinity of the Property. Rather than conduct site specific surveys for eastern box turtle, presence of eastern box turtle was assumed and protection measures recommended to avoid potential mortality. These protective recommendations were forwarded to CTDEP for concurrence. The CTDEP agreed with VHB's recommendations in a letter dated October 26, 2010. This concurrence letter is provided in the Petition, Volume 3, Exhibit I, Attachment C.

In addition, VHB environmental scientists Linda Vanderveer and Jeffrey Peterson conducted a site visit to document vegetative and structural habitat features on the Property. Copies of their resumes are attached hereto as Exhibit 2. Using this field collected information, as well as information I collected during various site visits, Ms. Vanderveer used DeGraaf and Yamasaki's *New England Wildlife: Habitat, Natural History, and Distribution* (2001) as a reference and general predictive tool to identify potential terrestrial mammals and herpetofauna (of note, VHB did not evaluate the Property with respect to birds and bats) that may be occupying the Property. This reference book provides a compendium of natural history, distribution, and habitat relationships for 338 terrestrial and aquatic wildlife species that breed, winter, or reside in New England. The 2001 edition of the book is a revision of DeGraaf and Rudis' *New England Wildlife* (1986). This reference provides a set of matrices based on dominant cover type that determine which avian, amphibian, reptile and mammal species may occupy an area based on general and specific habitat requirements. The habitat types found on the Property were correlated with cover types used in the matrices and a list of potential species was identified. State-specific information about the distribution and habitat requirements of amphibians, reptiles, and some mammals through a review of various scientific literature was used to help narrow the list of potential species anticipated to utilize the habitats found on the Property. Klemens' *Amphibians and Reptiles of Connecticut and Adjacent Regions* (1993), and *Amphibians and Reptiles in Connecticut* by the same author (2000) provide distribution information and specific habitat comments pertinent to Connecticut's physiography that provide a more localized view of potential amphibian and reptile species. Wildlife fact sheets from the CTDEP Wildlife Division, and articles from the Wildlife Division's bimonthly magazine, *Connecticut Wildlife*, were also used to identify potential locations of species within the state. Potential species that may be utilizing the Property are described in the Terrestrial Wildlife Habitat and Wetland Impact Analysis report (Exhibit I), Mammal and Herpetofauna Evaluation section. Other than eastern box turtle, which has been addressed, no other state and federally listed Endangered, Threatened, and Special Concern species were identified as potentially occurring on the Property based on this analysis. Therefore, species-specific wildlife surveys were not recommended for the project.

The statements above are true and accurate to the best of my knowledge.

February 15, 2011
Date

Matthew E. Davison

EXHIBIT 1

Matthew E. Davison
Soil Scientist

Mr. Davison provides natural resource permitting support including wetland delineation (including state of Connecticut and Federal methods), soil mapping and classification, wetland evaluation, wetland impact assessments, local, state and federal permitting, habitat surveys and components of NEPA documentation. Mr. Davison has expertise in a variety of activities related to forest management including forest mensuration, management planning, forest products harvesting and marketing.

Representative projects are summarized below.

On Call Environmental Services, Northeast Utilities Transmission Group

Supported various Connecticut projects, including assessment and permitting of bulk power substations, transmission lines/structures, underground utility installations, and environmental investigations of existing and proposed facilities. Provided natural resources inventories of existing flora and fauna, habitat evaluations, wetland delineations, wetland evaluations, site layout and design impact assessments, preparation of technical documents, coordination with State and local agencies, and permitting support.

Northeast Utilities, Central Connecticut Reliability Project

Managed and performed field efforts for natural resource and constructability evaluation along 35 miles of transmission lines in Central Connecticut. Natural resource evaluation included Connecticut and Federal wetland delineation, Army Corps of Engineers data plots, wetland functions and values assessment, inventory of State and Federal Threatened and Endangered species and cover type mapping. Constructability evaluation included documenting and mapping potential construction and maintenance access routes and transmission tower locations with respect to wetland and natural resource impacts and constructability constraints.

Northeast Utilities, Greater Springfield Reliability Project

Performed data collection, documentation and evaluation of constructability issues along 57 miles of transmission lines in Connecticut and Massachusetts. Evaluated potential construction and maintenance access routes and transmission tower locations with respect to wetland and natural resource impacts and constructability constraints.

Due Diligence Site Assessment, Utility Client, Connecticut

Provided technical support for due diligence site assessment regarding a proposed utility substation in Waterford, Connecticut. Tasks included habitat assessment, wildlife survey, wetland delineation, coordination of field work and documents necessary to show zoning compliance.

East Hartford Multi-Use Trail, East Hartford, CT

Provided wetland and permitting support services for a proposed 2.75-mile extension of the Charter Oak Greenway multi-use trail. Wetland services included Connecticut and Federal wetland delineations and wetland evaluation. Prepared CTDEP Stream Channel Encroachment Line (SCEL) Permit and Flood Management Certification Applications for activities conducted within the SCEL and 100-year floodplain of the Connecticut River. Coordinated proposed design within these resources with CTDEP and ConnDOT Environmental Planning regarding permitting implications of the proposed design of the trail and alterations that would minimize impact to floodplain resources to facilitate permitting effort.

Mr. Davison is a Registered Soil Scientist and Connecticut Certified Forester working in VHB's Middletown, Connecticut office. His areas of expertise include state and federal wetland delineation and evaluation, public testimony, federal, state and local permit preparation and a variety of activities related to forest management including forest mensuration, management planning, harvesting and forest products marketing.

13 years professional experience

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Waterford High School Expansion, Waterford, CT
Responsible for wetland delineations, wetland functions and values assessment, site layout and design impact assessments, preparation of technical documents, coordination with State and local agencies and permitting support. Responsible for wetland environmental permitting, as well as attending public meetings.

Verizon Wireless Permitting Support
Provide technical support including wetland delineation and site assessments for Verizon Wireless' wetland program. Responsible for wetland delineation, assessment, USFWS compliance documentation, design review for permit feasibility of telecommunications facilities in Connecticut and Massachusetts.

CVS/Pharmacy
Responsible for wetland delineations, wetland evaluations, site layout and design impact assessments, preparation of technical documents, coordination with State and local agencies and permitting support. Responsible for wetland environmental permitting, as well as attending public meetings.

Price Chopper, Oxford, CT
Responsible for wetland delineations, wetland evaluations, site layout and design impact assessments, preparation of technical documents, coordination with State and local agencies and permitting support.

Education	B.S., Forestry, University of Massachusetts, 1997
	New England Regional Soil Science Certificate, UMass and University of Connecticut, 2000
Registration	Member, Society of Soil Scientists of Southern New England , since 2001
Certifications	Connecticut Certified Forester #193, since 1999

EXHIBIT 2

Linda D. Vanderveer
Wildlife Biologist

Ms. Vanderveer is a biologist working in the Environmental Services Group at the Vanasse Hangen Brustlin Inc. Providence, Rhode Island office. Her skills include avian and vegetation surveys, wildlife habitat assessments, and environmental permitting.

Ms. Vanderveer is a biologist whose skills include avian and vegetation surveys, wildlife habitat assessments, and environmental permitting. Ms. Vanderveer has a Master's Degree in Environmental Science and Management with a specialization in Avian Ecology from the University of Rhode Island. Representative projects include:

National Grid 24-mile Rhode Island Reliability Project, North Smithfield to Warwick, RI
VHB was retained by National Grid to provide environmental services for proposed improvements to a 24-mile transmission line corridor through northern Rhode Island. As part of this effort, Ms. Vanderveer surveyed plants and wildlife along the corridor and conducted multiple natural resource surveys to identify existing conditions and state-listed rare plants and animals within the corridor. Linda also delineated state and federal Freshwater Wetland Resources along the corridor and identified vernal pool habitat in accordance with U.S. Army Corps of Engineers (ACOE) regulations. Ms. Vanderveer was part of the team responsible for preparing and filing all federal, state, and local permit applications for the project. She contributed chapters to comprehensive reports written for the Energy Facility Siting Board, Rhode Island Department of Environmental Management, and local building and planning departments. The project was successfully permitted and is now under construction.

National Grid Transmission Line Refurbishment, Saugus, MA
VHB was retained by National Grid to provide environmental consulting services during the Q-169 Transmission Line Reconductoring Project in Saugus, Revere, and Lynn, Massachusetts. A portion of the line runs through the Rumney Marshes, a state designated Area of Critical Environmental Concern in Saugus. VHB developed a five-year vegetation monitoring plan to document impacts resulting from construction activities. Linda assisted with the collection of baseline salt marsh vegetation data along the transmission line route as well as data collection in Year 1 post construction. As part of her work she identified plant species, conducted stem counts, and analyzed changes in vegetative dominance within designated survey plots. She then compared the baseline data with post-construction data and summarized her findings in a report that was subsequently submitted to the Massachusetts Executive Office of Environmental Affairs.

NSTAR Access Road Maintenance Program, Various Locations, MA
Ms. Vanderveer was one of seven field crews that delineated and located wetland areas along approximately 200 miles of existing Right-of-Way throughout Massachusetts to support NSTAR's comprehensive Access Road Maintenance Program in 2010. As part of her work, Ms. Vanderveer used a Trimble Geo XH handheld GPS unit to collect data for natural and cultural resource assessment, as well as environmental constraint data for use in identifying access roads that could be maintained.

Northeast Utilities Transmission Line Environmental Assessment, Watertown to Bloomfield, CT
As part of the regional New England East-West Solution project, VHB was retained by NU to perform environmental and constructability assessments on an existing 35-mile transmission corridor in Connecticut. Linda identified and assessed vernal pool habitat along the right-of-way, surveyed for rare plant and wildlife species, and conducted both field and desktop analyses of potential wildlife habitat. She prepared required documentation to support permit applications to the Connecticut Siting Council. Linda also conducted a field survey of 10 alternative route segments for the project, which involved identifying and mapping potential constraints such as statutory facilities, wetlands, and accessibility issues.

Calais LNG Wildlife Habitat Assessment, Calais, ME

Calais LNG retained VHB to document wildlife and vegetation necessary for a proposal to the Federal Energy Regulatory Committee to construct a liquefied natural gas receiving terminal and gas transmission pipeline. Ms. Vanderveer conducted a wildlife habitat assessment at the terminal site in Calais and throughout the 21-mile pipeline route. Her work included bird and wildlife field surveys, and synthesis of existing data gathered from local, state, and federal agencies.

Northeast Utilities Transmission Line Constructability Assessment, CT and MA

Linda was responsible for collecting data on accessibility and constructability issues along the 50-mile transmission line corridor of the Greater Springfield Reliability Project which spans parts of Massachusetts and Connecticut. She used a Trimble Geo XH handheld GPS unit in the field to gather data, such as impacts to wetlands and cultural features, and then helped prepare a written analysis and map set compiled from the data using GIS software.

National Grid Project Insulator Fitting and Replacement Project, Pawtucket, RI to Swansea, MA

Ms. Vanderveer was part of a two-person field crew that delineated wetlands and waterbodies along a 24-mile transmission corridor primarily located in southeastern Massachusetts. Linda used a Trimble Geo XH handheld GPS unit to collect wetland and other natural resource data along the proposed access routes to structures scheduled to be repaired After field work for the project was completed she helped prepare maps that depicted environmental and cultural constraints as well as preferred access routes to the structures.

National Grid Construction Monitoring, North Smithfield to Warwick, RI

National Grid retained VHB to conduct environmental monitoring for the Rhode Island Reliability Project. As an environmental monitor on the project, Ms. Vanderveer conducts weekly substation inspections to ensure compliance with federal, state, and local permit requirements. She is also part of a team of environmental monitors that conducts daily inspections of foundation drilling sites along this 24-mile corridor.

National Grid Distribution Line Coastal Permits, Various Locations, RI

VHB has been retained by National Grid to handle coastal permitting for electric and gas line maintenance and improvement projects. Ms. Vanderveer conducts site assessments and prepares permit applications for submission to Rhode Island's Coastal Resources Management Council.

Education	Master of Environmental Science and Management, University of Rhode Island, Kingston, RI, 2007 B.A., Communications, James Madison University, Harrisonburg, VA, 1996
Affiliations	Rhode Island Natural History Survey (RINHS) The Wildlife Society (TWS)

Jeffrey C. Peterson, CPSS, CPESC

Environmental

Jeffrey Peterson is a Senior Soil and Wetland Scientist at VHB with 25 years experience. He has worked for VHB the last 17 years. His academic and professional background in soil science and ecology includes skills in wetland delineation, soil description, soil classification, erosion and sediment control planning, plant identification, environmental permitting and project impact evaluation. He holds ARCPACS certification as a Certified Professional Soil Scientist, CPESC certification as a professional in erosion and sediment control, and is certified by the Baltimore District of the Army Corps of Engineers as a Wetland Delineator. He has served on the New England Hydric Soils Technical Committee, responsible for establishing criteria for identifying wetland soils, since 1999.

As VHB's principal soil scientist, he is consulted on projects which involve soils related issues such as wetland delineation, soil stabilization, storm water management site selection and design, soil/chemical interactions, wetland mitigation site selection and design, wetland functional assessments, and monitoring studies. Jeffrey also is skilled in field ecology and botany and has conducted pool breeding amphibian and rare plant surveys for projects in Connecticut, Rhode Island, and Massachusetts. He has authored studies of breeding birds along recreational trails and power line corridors and used in successful state and federal permit applications. Representative projects include:

National Grid Reconductoring Projects, Various Location MA and RI
Jeffrey completed wetland delineations along more than 40 miles of transmission line ROW during the spring and summer of 2010. This delineation work was used to prepare applications to the Army Corps of Engineers required to replace conductors on existing transmission lines. Jeffrey assisted in the identification of access roads for use during this work.

National Grid Rhode Island Reliability Project, North Smithfield to Warwick, RI
Jeffrey completed vernal pool and rare, threatened and endangered species surveys along the 24-mile long project corridor that passes through six Rhode Island municipalities Data collected were used to complete the successful RIDEM Application to Alter a Freshwater Wetland and USACE Category II Programmatic General Permit application. Jeffrey responded to requests by the RIDEM for field locations of rare taxa in the northern portion of the project and produced figures included in the approval documents issued by the RIDEM.

Narragansett Electric Company Transmission Line Extension Project, Southern, RI
VHB was retained by the Narragansett Electric Company (TNEC) to delineate and inventory wetlands and prepare an Application to Alter Freshwater Wetlands for the RI Department of Environmental Management Office of Water Resources and an Individual Permit Application from the Army Corps of Engineers for a 12 mile long 115-kV transmission construction project. Jeffrey directed an effort to inventory breeding bird and wildlife habitat associated with the corridor and coordinate with the RI Natural Heritage Program. Jeffrey worked with TNEC staff to develop access plans and methods for clearing the corridor that would minimize habitat impacts. He authored portions of the permit applications dealing with wetland functions and values, existing wildlife habitat, and assessments of project impacts to existing resources.

Mr. Peterson is a Soil and Wetland Scientist with VHB specializing in soil classification and mapping, soil chemistry, plant taxonomy, and delineation and evaluation of wetland resources. As a senior member of the Environmental Staff, his responsibilities include delineation and documentation of wetland resources by state and federal criteria, wetland functional assessments and wetland and wildlife monitoring studies.

NSTAR Access Road Maintenance Program, Various Locations, MA
Jeffrey led one of seven field crews that delineated wetland areas along approximately 200 miles of existing Right-of-Way throughout Massachusetts in 2010 to support NSTAR's comprehensive Access Road Maintenance Program in 2010. Mr. Peterson used his knowledge of New England landforms to direct the efficient and accurate delineation of wetlands within the transmission line ROW. .

Northeast Utilities Transmission Line Environmental Assessment, Watertown to Bloomfield, CT
As part of the regional New England East-West Solution project, VHB was retained to perform environmental and constructability assessments on an existing 35-mile transmission corridor in Connecticut. Jeffrey led an effort to identify and evaluate vernal pool habitat along the right-of-way and produced a report classifying the sixty vernal pools encountered. He also coordinate with CTDEP staff to obtain information and conduct field surveys for rare plant and wildlife species. Element occurrence forms were completed to document the rare taxa encountered in the field. These forms were forwarded to the client and subsequently the Connecticut Natural Diversity Data Base to update records. Jeffrey also conducted field surveys of 10 alternative route segments for the project, which involved identifying and mapping potential constraints such as RTE species, cold water fisheries, wetlands, public water supply aquifers, and erosion hazards.

Calais LNG Wildlife Habitat Assessment, Calais, ME
Calais LNG retained VHB to document wildlife and vegetation necessary for a proposal to the Federal Energy Regulatory Committee to construct a liquefied natural gas receiving terminal and gas transmission pipeline. Jeffrey conducted habitat assessments along portions of the 21-mile alignment, focusing on the vegetation in umbrotrophic bogs. He also assisted in the collection of bird survey data use in the preparation of state and federal applications.

Education	Graduate Level Studies in Soil Science, University of Massachusetts Graduate Research in Soil Science, University of Connecticut B.S., Biology, University of Connecticut, 1977
Certifications	ARCPACS Certified Professional Soil Scientist No. 25010 CPESC Certified Professional in Erosion and Sediment Control No. 2696 CRMC Master Design Certificate in Low Impact Development No. 1106034 RIDEM Class IV Soil Evaluator D4039 USACOE Certified Wetland Delineator No. DCP93MD0919983B