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GEOTECHNICAL
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MANAGEMENT

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May 14, 2018
File No. 01.P000181.19

Ms. Sarah Porter
Conservation Agent
City of New Bedford
133 William Street, Room 304
New Bedford, Massachusetts 02740

Re: Notice of Intent Peer Review Consulting Services
East Beach Proposed Sand Nourishment Project
City of New Bedford
Massachusetts

Dear Ms. Porter,

Pursuant to your request, GZA GeoEnvironmental, Inc. (GZA) is pleased to provide The City of New Bedford Conservation Commission (NBCC; Client) our proposal for peer review services for a Notice of Intent for a beach nourishment project known as "East Beach Proposed Sand Nourishment".

BACKGROUND

The proposed beach nourishment project is located in the City of New Bedford on the east side of East Rodney French Boulevard (Site). Based on information provided by the Client we understand that the City of New Bedford Department of Public Infrastructure has submitted a Notice of Intent (NOI) and is seeking an Order of Conditions (OOC) through the NBCC under the Wetlands Protection Act and the City of New Bedford Wetland Ordinance to perform limited beach nourishment work at the site. The stated goal of the proposed beach nourishment project is to provide storm damage protection to the existing seawall and increase the desirability and functionality of East Beach to the community. The proposed placement of material would be above (i.e. landward) the line that is jurisdictional under the Chapter 91 regulations. The placement is proposed to be completed over a 3-year period. We understand that the NOI hearing has opened and is continued to the May 15, 2018 agenda.

SCOPE OF WORK

In support of Client's request for a peer review of the East Beach Proposed Sand Nourishment Project, GZA will complete the following tasks:

TASK A – ENGINEERING REVIEW

1. Review data pertinent to the project to establish an understanding of the geomorphologic and climatologic conditions at the site. Data review will include historical aerials, wave and water level data published by publicly available sources such as National Oceanic and Atmospheric Administration (NOAA) and the U.S. Army Corps of Engineers (USACE), and historical beach profile data collected by the client or available through public databases.



2. Review CAD drawings for the beach nourishment design to determine appropriateness of the design to project goals. This review will include selection of berm crest elevation, slope, and tie-in location to existing grade. GZA will also review design contour lines and provide comments on the beach nourishment design.
3. Review sediment collection locations and gradation test results.
4. Using historical aerials and beach profile data, provide a qualitative evaluation of potential erodibility issues. If historical beach profile data is not available, provide a list of analyses that can be performed to determine beach longevity and costs associated with these analyses.

TASK B – PERMITTING REVIEW

1. Review the NOI application, including the Stormwater Report, to assess whether it is completed in accordance with the Massachusetts Wetlands Protection Act and the City of New Bedford Wetlands Ordinance. Our review will include an assessment of the project in relation to the Performance Standards under the WPA and New Bedford Wetlands Ordinance for the relevant coastal resources.
2. Identify additional wetlands and waterways-based local, state and federal permits or authorizations that may be required to conduct the project. In order to assess federal and state jurisdiction under the Clean Water Act, the High Tide Line associated with the Site must be identified so, to that end, GZA will obtain publicly available information to identify the High Tide and Low Tide lines for the Site.
3. Review the accuracy of the Chapter 91 “Fill Line” shown on the plan. This review will also assist with Item B2 because jurisdiction under the Massachusetts Public Waterfront Act (M.G.L. Chapter 91) is determined based on a combination of geography and contemporary and historic mean high water (MHW) line. GZA will use a combination of our understanding and interpretation of the Chapter 91 Regulations and GIS-based data layer analysis to assess the accuracy of the line represented as the “fill line” on Figure 1 East Beach: Existing Conditions, New Bedford, MA dated April 17, 2018.
4. Evaluate whether the proposed beach nourishment methodology presented in the NOI and Stormwater Management Report, including the transect lines, sampling plan and monitoring plan is in accordance with the March 2007 MassDEP Beach Nourishment Best Management Practices.

TASK C - MEMORANDUM OF FINDINGS

We will prepare a memorandum summarizing engineering and permitting review findings and recommendations. The memorandum will include a GIS-based aerial plan depicting the relevant jurisdictional lines (i.e. High Tide Line, Chapter 91 line, mean high water, mean low water). The memo will also contain suggested Special Conditions for the Order of Conditions.

TASK D - ATTENDANCE AT CONSERVATION COMMISSION MEETINGS (OPTIONAL)

Upon request, GZA will attend one Conservation Commission public hearing meeting to present our findings to the Commission and respond to questions. Depending on the nature of the anticipated questions, the GZA representative could be the coastal engineer, the wetlands scientist or both. This is listed as an optional task in our budget.



ASSUMPTIONS

To accomplish the work described above, we have assumed the following:

- Survey data collected to determine existing topographic conditions, any available historical beach profile data, and files containing analyses performed during engineering design will be provided to GZA.
- CAD files for the beach nourishment plans, cross sections and details will be provided to GZA in a format compatible with the AutoCAD software.
- We will conduct one round of NOI and Stormwater Management Plan (including supporting figures) review to develop the memorandum. Revised plans and application materials will be reviewed, upon request, on a time and materials basis.
- GZA will perform no field work in support of this scope of work.

SCHEDULE

Given the tight schedule for this project we anticipate initiating the work immediately upon receipt of this agreement signed by Client. We understand that the Client would like our peer review completed within three weeks of the notice to proceed and we will plan to meet the requested deadline.

PROJECT BUDGET & BASIS OF BILLINGS

To complete the work described above we have established the budget presented in the table below. Billings for GZA's professional services will be based on actual accrued time and expenses billed in accordance with the rate table included as **Attachment 1**. Attachment 1 also includes resumes of the key personnel that will be working on this project. GZA in-house expenses will be at standard rates without mark-up. Expenses and subcontractors (if required) will be billed at cost plus 10 percent mark-up.

<i>Task</i>	<i>Estimated Budget</i>
Task A - Engineering Review	\$3,500
Task B - Permitting Review	\$2,100
Task C - Memorandum of Findings	\$2,900
Task D - Optional Meeting Attendance with 1 or 2 GZA Representative	\$1,000
TOTAL without Optional Meeting	\$8,500
TOTAL with Optional Meeting	\$9,500



CONDITIONS OF ENGAGEMENT

The conditions of our engagement are detailed in the Terms and Conditions of Agreement (08/08 Edition/05 9010) included as **Attachment 2**. This Proposal for Services and the Terms and Conditions of Agreement shall constitute the entire agreement between the parties.

ACCEPTANCE

This proposal may be accepted by signing in the appropriate spaces below and returning one copy to us. The executed agreement must be received prior to initiation of the services described above. Issuance of a purchase order implicitly acknowledges acceptance of attached Terms and Conditions of engagement. This Proposal is valid for 30 days from the date of submittal.

Thank you very much for the opportunity to submit this proposal. If you have any questions, please contact Hande McCaw at 781-278-5760 or hande.mccaw@gza.com.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads "H McCaw". The signature is fluid and cursive, with the first name "H" being a large, stylized letter.

Hande McCaw, PE
Senior Project Manager

A handwritten signature in blue ink that reads "Michele Simoneaux". The signature is written in a cursive style, with the first name "Michele" being the most prominent part.

Michele Simoneaux, PWS, CESSWI
Senior Wetland Scientist

A handwritten signature in blue ink that reads "Chad Cox". The signature is written in a cursive style, with the first name "Chad" being the most prominent part.

Chad Cox, PE
Principal

Attachments:

Attachment 1: GZA Rate Sheet

Attachment 2: Terms and Conditions (08/08 Edition/05 9010)



This Proposal for Services and the attached Terms and Conditions are hereby accepted and executed by a duly authorized signatory, who by execution hereof, warrants that he/she has full authority to act for, in the name, and on behalf of Client.

CITY OF NEW BEDFORD CONSERVATION COMMISSION

By (Signature): _____

Title: _____

Typed Name: _____

Date: _____

Billing Address (if different from above):



Attachment 1 – GZA Billing Rate Sheet and Resumes



**GZA GEOENVIRONMENTAL, INC.
METRO BOSTON OFFICES**

**GOVERNMENT SERVICES
SCHEDULE OF FEES - CALENDAR YEAR 2017**

FOR PROPOSAL FOR SERVICES DATED May 14, 2018 FILE NO. 01.P000181.19

LABOR

	<u>Per Hour</u>
Field Technician II	\$ 90
CAD/Technical Designer	\$ 95
Field Technician I	\$ 95
Technical/Administrative Support	\$ 92
Engineer/Scientist/Geologist II	\$ 95
Engineer/Scientist/Geologist I	\$105
Assistant Project Manager	\$130
Senior CAD/Technical Designer	\$130
Project Manager/Technical Specialist	\$165
Senior Project Manager/Technical Specialist	\$175
Senior Consultant	\$202
Associate Principal	\$205
Principal	\$225
Senior Principal	\$255
Outside Services and Subcontractors	Cost Plus 10%
Expenses	Cost Plus 10%

The above rates for technical and support personnel will be charged for actual time worked on the project, including time required for travel from company office to job or meeting site and return. For work requiring out-of-town overnight stay, the minimum charge for work on the project will be eight (8) hours per day.

Overtime work by "Non-Exempt" personnel will be billed at 1.5 times the standard rate.

A fifty percent (50%) premium will be added to the above rates for expert witness and other special services.

The above-listed rates are valid for the calendar year in which the work is performed. GZA reserves the right to modify this rate schedule on an annual basis to reflect changes in employee compensation and Client acknowledges that labor rates may change during the execution of this project.

EXPENSES

- Rental of specialized field or monitoring equipment and vehicle charges based on standard unit prices
- Transportation, lodging and subsistence for out-of-town travel
- Printing, reproduction, plotting, and wide-format scanning
- Express mail and shipping charges
- Personal vehicle travel for projects at IRS rates
- Long distance, local and cellular telephone, facsimile and postage (via U.S. Postal Service) are included in a flat rate Communication Fee of 3 percent per invoice on labor only

INVOICES

GZA will submit invoices periodically and payment will be due within 20 days from invoice date. Overdue payments will bear interest at 1½ percent per month or, if lower, the maximum lawful rate. GZA may terminate its services upon 10 days' written notice any time your payment is overdue on this or any other project.



**GZA GEOENVIRONMENTAL, INC.
METRO BOSTON OFFICES**

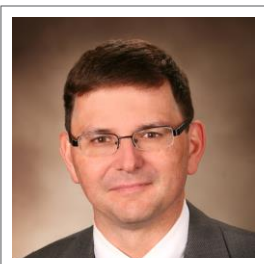
**GOVERNMENT SERVICES
SCHEDULE OF FEES - CALENDAR YEAR 2017**

BUDGETS

The Budget contained within GZA's Proposal represents our estimate of the work involved. Actual charges can vary either upward or downward depending upon many factors. GZA considers a substantial budget variance to be 15% and we will not exceed this variance without notifying Client.

RETAINER

Any retainer specified in GZA's Proposal shall be due prior to the start of services and will be applied to the final invoice for services.



Chad W. Cox, P.E.

Principal, Civil Engineer

Summary of Experience

Mr. Cox has extensive experience in many aspects of civil engineering including dam safety and design, hydroelectric project development, water supply, transportation, and geotechnical construction. In addition, he is also well-versed in the permitting process which accompanies large civil works, having prepared permit applications required by the U.S. Army Corps of Engineers, EPA, NEPA, MEPA, and others as well as hydropower licensing documents for the Federal Energy Regulatory Commission. Mr. Cox has worked on numerous dams performing such tasks as inspection, deficiency evaluation, planning, hydraulic, structural, and geotechnical design, contract writing, contractor submittal review, and construction observation. Mr. Cox's hydropower experience extends the full range from resource evaluations to final design and construction. Before joining GZA, Mr. Cox was with The Benham Group where, in addition to working on dam projects, he was involved in highway planning and design. Mr. Cox served overseas with the Peace Corps for over two years as a water supply engineer. His duties included water system design and repair, extensive interaction with governmental and donor agency officials, and field visits into remote regions of the Himalayas. In 2005-2006, Mr. Cox proposed and facilitated a research trip for MIT graduate students to study water quality issues in Lake Yojoa in Honduras. Project experience includes:

Education

B.S.E., 1992, Civil Engineering/Water Resources, Princeton University
M.Eng., 1999, Civil and Environmental Engineering, Massachusetts Institute of Technology

Registrations & Certificates

Professional Engineer,
Massachusetts, 45856

Areas of Specialization

- Dam Safety and Design
- Flood Studies
- Hydropower Engineering
- Water Resources Engineering
- Geotechnical Engineering

Relevant Project Experience

Principal-in-Charge /Project Manager, Upper Mystic Lake Dam Rehabilitation, Arlington/Medford, Massachusetts. A project to design and permit the rehabilitation of the DCR-owned Upper Mystic Lake Dam. The project included subsurface investigations, a deficiency verification program with slope stability analyses, preparation of an Emergency Action Plan, hydraulic analysis, conceptual design, permitting, and final design. The design addresses inadequate spillway capacity, insufficient slope stability, and potentially liquefiable soil conditions. Project features include two new bottom-hinged crest gates, a new ogee secondary spillway and conduits, a new composite sheetpile cutoff wall, reconstructed embankment portions, new riprap filter toe, a fish ladder, and the first permanent eelway structure in MA. Sheet pile cofferdams allowed for two construction phases without lake drawdown or spillway capacity loss. Permits were obtained from MEPA, USACE, MADEP, Office of Dam Safety, & two conservation commissions.

Principal-in-Charge, Flood Hazard Reevaluation, Multiple Nuclear Power Stations, USA Principal-in-Charge for external flood hazard reevaluation of multiple nuclear power plant sites on coastal and riverine settings. The external flood reevaluations are performed in response to NRC's 10 CFR part 50, Section 50.54 (f) request for information issued March 12, 2012, and included evaluation of Probable Maximum Hurricane (PMH), Probable Maximum Storm Surge (PMSS), Probable Maximum Seiche (PMS) and Probable Maximum Tsunami (PMT). The flood re-evaluation was performed in accordance with current regulatory guidelines including NUREG/CR-7046 "Design-Basis Flood Estimation for Site Characterization at Nuclear Power Plants in the United States of America", 2011



Chad W. Cox, P.E.

Principal, Civil Engineer

Project Manager, Indian Point Energy Center ISFSI facility, Buchanan, New York. This project included hydrologic and hydraulic analyses and drainage design for Entergy Nuclear Northeast, Inc.'s proposed construction and operation of an Independent Spent Fuel Storage Installation (ISFSI). Mr. Cox managed the effort to evaluate the proposed drainage plan to ensure that it was in accordance with New York State Stormwater Management Design Requirements. Erosion, sedimentation, and water quality control measures were designed to help meet the needs of the client as well as state and local regulations. Mr. Cox substantially prepared the Stormwater Pollution Prevention Plan and the drainage report for the proposed ISFSI Storage Pad.

Principal-in-Charge, Mumford River LOMR Application review, Northbridge, Massachusetts. At the request of the Town, GZA reviewed a LOMR application prepared on behalf of a private land owner which sought to revise flood plain limits along the Mumford River. GZA made a site visit to "groundtruth" model assumptions, reviewed model methodologies, assessed response to FEMA RFIs, and provided a detailed review letter to the Town including recommendations regarding critical drainage structures.

Principal-in-Charge, Flood Hazard Vulnerability Assessment for Commercial Property, Wellesley, Massachusetts. GZA reviewed existing FEMA information and cross-referenced with USGS streamflow data to assess the potential flood vulnerability of a large commercial office park on the Charles River prior to the purchase of the property. Following the sale, GZA worked with the owner and the insurer (FM Global) to prepare a flood emergency response plan, which included the identification of specific structures and features to be protected.

Principal-in-Charge, Hemlock Gorge Spillway Dike Rehabilitation, Newton, Massachusetts. After multiple inspections found this ancillary dike on the Charles River to be in Unsafe condition, GZA assisted DCR with design and implementation of interim repairs to the structure. GZA then designed a complete replacement for the dike and developed project plans, specifications, contract documents, and permit applications under an expedited schedule. GZA design and permitting of the project was completed in approximately 3 months. The design included a new reinforced concrete structure with post-tensioned anchors. Project challenges included providing temporary water control on the Charles River, accommodating historic and cultural resources concerns, and mitigating impacts in an environmentally sensitive area.

Principal-in-Charge, Forge Pond Dam Emergency Breaching, Freetown, Massachusetts. A project to breach the Unsafe Forge Pond Dam on an expedited basis. GZA's inspection of the Forge Pond Dam found the structure to be in Unsafe condition, but the private owner was unresponsive to orders to correct deficiencies at the dam. Working with the MADCR Office of Dam Safety, GZA prepared an EAP Inundation Map and a conceptual plan to breach the dam. When flooding in the spring of 2010 threatened to cause the failure of the dam, GZA assisted the DCR with emergency response and recommended the dam be breached. GZA prepared bid ready prepare plans and specifications in two weeks and assisted the DCR in obtaining emergency permits. GZA consulted with environmental permitting agencies to prepare a fish-friendly breach design. GZA provided design services during construction to assist in the dynamic process of shaping the new channel. The dam was successfully breached.

Principal-in-Charge, Byron Weston Mill Dams No. 1 & No. 2 Hydropower Pre-Feasibility & Feasibility Studies and Final Design and Licensing, Dalton, Massachusetts. A project to rapidly assess the potential for hydroelectric power generation at two existing dams on the Housatonic River. Power and energy potential were preliminarily evaluated along with estimated costs and simple payback period. Results of the study were included in a grant application prepared by GZA and submitted to the Massachusetts Technology Collaborative (now Mass CEC). The grant application was approved, leading to a full feasibility study, including technical and economic analysis of a number of project alternatives. The Owner selected at preferred alternative and GZA prepared a second Mass CEC grant application, which was awarded. GZA prepared a Preliminary Permit application to FERC and has submitted a final FERC exemption application package to FERC. GZA is preparing final project designs.

Project Manager, Ponkapoag Brook Hydraulic Analysis, Canton, Massachusetts. This project involved the development of a hydraulic analysis computer model (HEC-RAS) for the Ponkapoag Brook between the dam and the MHD culvert crossing at Rt. 138 in Canton. The model included multiple culvert and small bridge crossings. Model was used to estimate water surface elevations and flow velocities throughout the brook in response to stream flows resulting from various frequencies of storms. Recommended removal of obstructions in brook channel to mitigate flooding.



Hande McCaw, P.E.

Senior Coastal & Oceanographic Engineer

Summary of Experience

Ms. Hande McCaw provides beach and shoreline transformation and restoration, storm surge/wave/sediment transport numerical modeling expertise as well as technical modeling support, staff training and project management for GZA's coastal hydraulics and extreme flooding practice. Ms. McCaw has worked on numerous feasibility studies and beach management plans, for locations in the eastern U.S. coastline. She has also performed numerous coastal analyses and assessments including wave hindcasting, storm surge analysis, numerical along and cross-shore change modeling and shoreline recession analysis. Her numerical modeling experience also includes wave transformation, circulation and sediment transport modeling.

Relevant Project Experience

Senior Technical Specialist, Winnapaug Pond Dredging and Wuskenau Beach Nourishment, Westerly, Rhode Island. Ms. McCaw has served as a Senior Coastal Engineer for this project. She led a design team for outlining dredging plan, dredge volume and fill calculations, sediment coring and sampling, dredge material quality control, and beach nourishment fill design. She has also provided construction management support by quality controlling the construction operations and cut/fill volumes.

Project Manager, Long Wharf Living Shoreline Design, New Haven, Connecticut. Ms. McCaw is the lead Coastal Engineer and Project Manager for Long Wharf Living Shoreline Project. She is leading the project team to design a hybrid living shoreline that will improve the coastal resiliency of the district.

Project Manager, Long Wharf Flood Protection, New Haven, Connecticut. Ms. McCaw is the lead Coastal Engineer and Project Manager for Long Wharf Flood Protection Project. She is leading the project team to assess flood risk of the district by using high resolution numerical circulation and wave models. Project's goal is to identify multiple project alternatives to reduce flooding and improve coastal resiliency within the district.

Senior Technical Specialist, Seaside State Park Environmental Impact Evaluation, Waterford, Connecticut. Ms. McCaw is the Lead Coastal Engineer for the project. The

project involved redeveloping the site while preserving the beach and associated coastal resources. Redevelopment plans included four conceptual design alternatives for the shoreline. GZA was tasked to evaluate design alternatives to determine their feasibility under existing environmental and climate conditions and their impact to the environment. Design alternatives included adding different combinations of oyster reefs, dunes, wet meadows, and tidal pools to the site and in some of the alternatives potentially removing the existing seawall. GZA analyzed proposed features under normal tidal and wave conditions as well as during extreme events such as hurricanes and nor'easters. GZA also evaluated the impact of sea level rise.

Senior Technical Specialist, Westport Town Wide Drainage Evaluation, Comprehensive Stream Improvement Plan, and Downtown Resiliency and Recovery Plan, Westport, Connecticut. Ms. McCaw is the technical lead for the two

Education

M.S., 2006, Coastal and Oceanographic Engineering, University of Florida
B.S., 2005, Civil Engineering, Middle East Technical University

Registrations & Certificates

Professional Engineer – 2013, Florida, #75564

Affiliations

- American Society of Civil Engineers
- American Shore and Beach Preservation Association

Areas of Specialization

- Coastal Hydraulic Engineering
- Oceanographic Engineering
- Beach Nourishment Design
- Sediment Transport Analysis
- Extreme Flood Analysis
- Numerical Modeling of Storm Surge & Wind Driven Waves
- Flood Resiliency Design
- Green Infrastructure



Hande McCaw, P.E.

Senior Coastal & Oceanographic Engineer

studies covered under this project: Riverine Hydrology and Hydraulics and Saugatuck River Flood Evaluation. The overall study aims to study flood conditions on tidally influenced Saugatuck River and 8 of its tributaries. Study also identifies key municipal facilities that will be subject to flooding and provides recommendations for pre-storm preparation, storm mitigation during events and post-storm recovery.

Senior Technical Specialist, Town of Marshfield Sediment Study, Massachusetts. Ms. McCaw is the technical lead for the Marshfield Sediment Study. This study aims to identify sediment characteristics of the town beaches and to create a sediment budget to understand the shoreline change patterns over decades. This study also analyzed feasibility of a beach nourishment project to replace the existing seawall.

Senior Technical Specialist, Osprey Beach Stormwater Outfall Littoral Drift/Sediment Transport Analysis, New London, Connecticut. Ms. McCaw is the consultant reviewer of the project. The City of New London proposes to build an extension to an existing storm drain at Osprey Beach located just north of the intersection of Pequot Ave and Jerome Road in New London. GZA is currently completing a littoral drift and sediment transport analysis associated with the construction of a proposed stormwater outfall. GZA's study is being performed to evaluate the effects of the proposed outfall construction of Osprey Beach littoral drift – the transport of noncohesive sediments along the foreshore and shoreface due to the action of breaking waves and the longshore and cross shore currents.

Project Engineer, Community Coastal Resilience Plan, Stratford, Connecticut. Ms. McCaw is a Coastal Engineer dedicated to the living shoreline engineering features and conceptual designs for the GZA team that the Town of Stratford recently selected to develop a Community Coastal Resiliency Plan. GZA was selected to assist the Town in facilitating the social, economic and ecological resilience of the Town to the impacts of sea-level-rise and to anticipated increases in the frequency and severity of storm surge, coastal flooding and erosion.

Senior Technical Specialist, Winnapaug Pond Dredging, Westerly, Rhode Island. Ms. McCaw has served as a Senior Coastal Engineer for this project. She led technical work for outlining dredging plan alternatives, dredge volume calculations, sediment sampling, and dredge material quality check. She has also worked on finding alternative beneficial use sources for the dredge material and designed beach nourishment templates for Westerly Town Beach.

Post-Fukushima Flooding and Seismic Hazard Re-evaluations. After the devastating earthquake and tsunami at Fukushima, Japan, the Nuclear Regulatory Commission required that all U.S. nuclear power plants re-evaluate their seismic and flood vulnerability, with the evaluations to be completed by March, 2015. GZA was selected to characterize the external flood hazards at 35% (23 plants) of U.S. nuclear power plants, representing five different power providers. Ms. McCaw has served as a Senior Coastal Engineer for the projects. She trained personnel on coastal engineering applications such as high resolution numerical wave models, wave runup on natural and stabilized shorelines. Ms. McCaw also served as a reviewer to ensure QA/QC of coastal related tasks performed by technical staff.

Prior Experience

Ms. McCaw has consulting engineering experience in planning, designing and overseeing construction and maintenance of engineering projects. Her work experience prior to GZA includes:

Designed beach construction profiles and borrow area; analyzed profile behaviors and completed shoreline evolution predictions for Bathtub Beach, Martin County, FL; Walton County 30A Corridor, FL; Western Destin, Okaloosa County, FL and Jupiter Carlin, Palm Beach County, FL.

Ms. McCaw completed Flood Insurance Mapping Studies for multiple counties in FEMA Regions I, IV and X. Her work included leading the mapping phase of all FEMA studies, organizing training sessions, providing technical support and assuring quality of modeling and mapping products.

Publications/Presentations

Caliskan (now McCaw), H. and A. Valle-Levinson. "Wind-wave transformations in an elongated bay." Continental Shelf Research, 28: 1702-1710, 2008.

"Setting Priorities for Nature-based Solutions", New Hampshire Coastal Climate Summit, Greenland, NH, 2015.

"Setting Priorities for Nature-based Solutions", Society of Wetland Scientists: Changing Climate, Changing Wetlands, Providence, RI, 2015

"Coastal Processes Analysis for Vilano Beach, St. Johns County, Florida", Florida Shore & Beach Preservation Association Conference, Jacksonville, FL, 2011.

"Measurement of Velocity and Sediment Transport Profiles to Calibrate the MIKE 21 Model in Ft. Pierce Inlet, St. Lucie County, Florida," Eleventh International Conference on Coastal and Estuarine Modeling, Seattle, WA, 2009.



S. Michele Simoneaux, PWS, CESSWI

Senior Technical Specialist/Senior Wetland Scientist

Summary of Experience

Ms. Simoneaux is an Ecologist with a specialization in wetlands science, regulations and permitting. She holds a Master's Degree in Conservation Biology and a Bachelor's Degree in Environmental Studies. She is an experienced wetlands scientist with a track record of successfully obtaining permits on behalf of clients, including Order of Conditions, Water Quality Certifications, NPDES permits, Army Corps of Engineers Permits, and Massachusetts Environmental Policy Act (MEPA) authorizations. She has extensive experience conducting coastal and inland wetlands assessments and wildlife habitat evaluations, which require knowledge of the upland and wetland natural communities as well as wildlife species and their habitats and autecology. Prior to employment at GZA, Ms. Simoneaux spent 5 years as the Conservation Agent for the Town of Norwell administering and enforcing the Massachusetts Wetlands Protection Act and the Town Wetlands Bylaw. She is thoroughly familiar with the Massachusetts Wetlands Protection Act and her employment for the Conservation Commissions in two municipalities in Massachusetts was invaluable in helping her give guidance to clients on regulatory and permitting requirements. Ms. Simoneaux also served as a member of the Norton Conservation Commission and, until February 2018, was a member of the Southborough Conservation Commission.

Relevant Project Experience

Independent Observer, Phase I and Phase II New Bedford Regional Airport Safety Improvements Project, New Bedford, Massachusetts. The New Bedford Airport conducted an obstruction removal project from 2010-2011 for which the applicant was required by the Superseding Order of compliance with the Order of Conditions issued for stream remediation actions under the MCP and she continues to provide guidance to the client regarding permit compliance.

Conditions (SOOC) to retain an Independent Observer (IO) to report directly to MassDEP regarding compliance with conditions of the SOOC. GZA was selected as the IO for Phase I, Obstruction Removal and was on site weekly observing work in and near wetlands and waterways and reported to MassDEP monthly or as needed. IO responsibilities include reporting on compliance with erosion and sedimentation controls and other stormwater controls relative to the SOOC conditions. GZA was then selected as the IO for Phase II, Phase III and Phase IV and was on site on a weekly basis to observe work associated with 19 acres of wetland replication and mitigation and subsequent runway improvement construction work. GZA produced weekly and monthly compliance reports that were submitted directly to MassDEP and the Conservation Commission.

Senior Wetland Scientist, Mitchell River Bridge Replacement Project Salt Marsh Restoration, Chatham, Massachusetts. The Massachusetts Department of Transportation replaced the Mitchell River Bridge and an area of salt marsh was disturbed as a result. GZA was contracted by the Contractor to oversee the salt marsh restoration, monitoring and reporting under the MassDEP and Army Corps of Engineers requirements. Ms. Simoneaux is the lead Wetland Scientist for this project and conducts the required monitoring and reporting.

Education

B.S., 1993, Environmental Studies
(Ecology and Environmental Biology),
University of North Carolina,
Asheville, NC
M.S., 1999, Conservation Biology,
Antioch New England Graduate School,
Keene, NH

Licenses/Certifications

Professional Wetland Scientist (PWS
#2461)
Invasive Plant Species Management
Certificate (UMASS)
40-Hour OSHA HAZWOPER per 29 CFR
1910.120, November 2007
Certified Erosion, Sediment and Storm
Water Inspector (CESSWI #5224)

Associations

- Voting Member, Association of Massachusetts Wetland Scientists (AMWS)
- Society of Wetland Scientists
- Society of Wetland Scientists-New England Chapter
- Southborough Conservation Commission Member
- Boston Bar Association

Areas of Specialization

- Wetlands Permitting & Regulatory Guidance
- Aquatic & Wetland Science
- Wetlands Delineation per MassDEP and ACOE Methodology
- Wildlife Habitat Evaluation
- Wetland Mitigation Design
- Invasive Species Management
- Water Quality Certification Assessments



S. Michele Simoneaux, PWS, CESSWI

Senior Technical Specialist/Senior Wetland Scientist

Project Manager/Senior Wetland Scientist, Long Island Bridge Demolition, Quincy and Boston, Massachusetts.

The Mayor of the City of Boston closed the Long Island Bridge, spanning from Long Island in Boston to Moon Island in Quincy in October 2014 due to unsafe conditions. The contractor selected for the job soon expressed serious concerns that the bridge could not be taken down safely in the manner in which it had been approved so an alternative methodology of removing the bridge by placing charges in strategic locations and dropping it in the water was proposed but this represented a significant change from the methodology approved in the contract documents and emergency permits and authorizations. GZA was retained to coordinate with the regulators and obtain appropriate new authorizations and permit to conduct the demolition work. GZA worked to coordinate with representatives of the Massachusetts Department of Environmental Protection (MassDEP), Massachusetts Division of Marine Fisheries (DMF), Massachusetts Environmental Policy Act (MEPA) Unit, US Army Corps of Engineers (ACOE), US Environmental Protection Agency (EPA) and National Marine Fisheries Agency (NMFS) to discuss an alternative method of bridge demolition. GZA then successfully obtained emergency permits and authorizations on behalf of the contractor and continue to be the primary liaison between the contractor and the regulators.

Senior Wetland Scientist, Confidential Urban Site, Eastern Massachusetts. Natural resource delineation and analysis, environmental permitting for a large private development along the tidal Mystic River. Prepared sections for MEPA documentation, Notice of Intent, 401 WQC in support of project development to assist co-consultant. Additionally, permitted various environmental remediation phases of project.

Professional Activities

40-Hour OSHA HAZWOPER per 29 CFR 1910.120, November 2007

Member of Massachusetts Association of Wetland Scientists (AMWS)

Professional Wetland Scientist Certification through Society of Wetlands Scientists

Professional Activities

Massachusetts Association of Conservation Commissions; Annual Conferences 2002-2016

Society of Wetlands Scientists- Speaker at International Annual Conference 2015 (and on Planning Committee)

Society of Wetland Scientists-New England Chapter- Planning Committee & Co-chaired 2016 Annual Conference in Plymouth, MA

Massachusetts Association of Conservation Commissions Fundamentals Courses

Stormwater Management Policy, Phase II Implementation- CEI 2005

PGP Stream Crossing Standards-Army Corps of Engineers June 8, 2005

Hydric Soils Workshops (Peter Fletcher) – 2003, 2007, 2009

LSPA Meetings and Workshops (examples: Improve Your Understanding of Ecological Risk Assessments to Write a Better RAO; MCP for Everyone- A Short Course for non-Licensed Site Professionals (LSP's))

MEPA/NEPA One Day Advanced Workshop, Law Seminars International, June 2008

Boston Bar Association (examples: Coastal Resiliency, NPDES MS4 Regulatory Changes, MassDEP Chapter 91 Regulatory Changes)

Publications and Speaking Engagements

Cavanaugh, P.E. and Michele Simoneaux, Manomet Center for Conservation Sciences, 2003 "Planning For Wildlife: Improving Wildlife Conservation Through Better Open Space and Recreation Plans".

Simoneaux, M. and P. Davis. 2015. Building resiliency Design in Coastal Wetland Restoration Projects. Annual Meeting 2015, Society of Wetlands Scientists. Providence, RI. May 31 – June 4, 2015.

P. Davis and M. Simoneaux. 2015. A Changing Biosphere & Evolving Ecological Regulations. What's New in Massachusetts. The Harvard Club, Boston, MA. Invited Presentation, October 12, 2015.



Attachment 2 – Terms & Conditions



TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

Including Site Investigation, Remediation, Geotechnical, Construction, And Testing

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Client ("You"): City of New Bedford, MA

Proposal No: 01.P000181.19

Site: Massachusetts

These Terms and Conditions, together with GZA's Proposal, make up the Agreement between GZA and you, Client, named above.

BEFORE SIGNING THE PROPOSAL, BE SURE YOU READ AND UNDERSTAND THE PARAGRAPHS ENTITLED "INDEMNIFICATION" AND "LIMITATION OF REMEDIES" WHICH DEAL WITH THE ALLOCATION OF RISK BETWEEN YOU AND GZA.

- 1. Services.** GZA will perform the services set forth in its Proposal and any amendments or change orders authorized by you. Any request or direction from you that would require extra work or additional time for performance or would result in an increase in GZA's costs will be the subject of a negotiated amendment or change order.
- 2. Standard of Care; Warranties.**
 - a. GZA will perform the services with the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time under similar conditions in the same or similar locality.
 - b. GZA warrants that its construction services will be of good quality, free of faults and defects and in conformance with the Proposal.
 - c. **EXCEPT AS SET FORTH IN SUBSECTIONS 2a AND 2b, ABOVE, NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTY OF MARKETABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS MADE OR INTENDED BY GZA'S PROPOSAL OR BY ANY OF GZA'S ORAL OR WRITTEN REPORTS.**
 - d. GZA assigns to you any manufacturers' warranties of equipment or materials purchased from others, to the extent they are assignable, and your sole recourse will be against the manufacturer. Full risk of loss of materials and equipment will pass to you upon delivery to the Site, and you will be responsible for insuring and otherwise protecting them against theft and damage.
- 3. Payment.**
 - a. Except as otherwise stated in the Proposal, you will compensate GZA for the services at the rates set forth in the applicable Proposal, amendment or change order; reimburse its expenses, which will include a communication fee calculated as a percentage of labor invoiced; and pay any sales or similar taxes thereon.
 - b. Any retainer specified in GZA's Proposal shall be due prior to the start of services and will be applied to the final invoice for services.
 - c. GZA will submit invoices periodically, and payment will be due within 20 days from invoice date. Overdue payments will bear interest at 1½ percent per month or, if lower, the maximum lawful rate. GZA may terminate its services upon 10 days' written notice anytime your payment is overdue on this or any other project and you will pay for all services through termination, plus termination costs. You will reimburse GZA's costs of collecting overdue invoices, including reasonable attorneys' fees.
- 4. Your Responsibilities.**
 - a. Except as otherwise agreed, you will secure the approvals, permits, licenses and consents necessary for performance of the services. If you are the owner or operator of the Site, you will provide GZA with all documents, plans, information concerning underground structures (including but not limited to utilities, conduits, pipes, and tanks), information related to hazardous materials or other environmental or geotechnical conditions at the Site and other information that may be pertinent to the services or, if you are not the owner or operator of the Site, you agree to make reasonable efforts to obtain these same documents and provide them to GZA. Unless otherwise indicated in writing, GZA will be entitled to rely on documents and information you provide.
 - b. If you use the services of a construction manager at the Site, you agree to use best and reasonable efforts to include in your agreement(s) with the construction contractor provisions obligating the latter:
 - (i) to indemnify and hold harmless, to the fullest extent permitted by law, you and GZA, its officers, employees and principals, for or on account of any claims, liabilities, costs and expenses, including attorneys' fees, arising out of or relating to the design or implementation of construction means, methods, procedures, techniques, and sequences of construction, including safety precautions or programs, of the contractor, or any of its subcontractors or any engineer engaged by it;
 - (ii) to name you and GZA as additional insureds under general liability and builder's risk insurance coverages maintained by the contractor, or any of its subcontractors; and



(iii) to require that all of its subcontractors agree and be bound to the obligations set forth in (i) and (ii) above.

c. In the event that you are unable to secure such provisions in the agreement(s) with the construction contractor, you shall promptly notify GZA and GZA shall have the opportunity to negotiate with you reasonable substitute risk allocation and insurance indemnities and protections.

5. Right of Entry; Site Restoration. You grant GZA and its subcontractor(s) permission to enter the Site to perform the services. If you do not own the Site, you represent and warrant that the owner has granted permission for GZA to enter the Site and perform the services; you will provide reasonable verification on request; and you will indemnify GZA for any claims by the Site owner related to alleged trespass by GZA or its subcontractors. GZA will exercise reasonable care to limit damage to landscaping, paving, systems and structures at the Site that may occur and you agree to compensate GZA for any restoration it is asked to perform, unless otherwise indicated in the Proposal.

6. Underground Facilities. GZA's only responsibility under this Section will be to provide proper notification to the applicable state utility "Call-Before-You-Dig" program. You further agree to assume responsibility for and to defend, indemnify and hold harmless GZA with respect to personal injury and property damages due to GZA's interference with subterranean structures including but not limited to utilities, conduits, pipes, and tanks:

(i) that are not correctly shown on any plans and information you or governmental authorities provide to GZA; or

(ii) that are not correctly marked by the appropriate utility.

7. Reliance. The services, information, and other data furnished by you shall be at your expense, and GZA may rely upon all information and data that you furnish, including the accuracy and completeness thereof. You acknowledge that the quality of the services provided by GZA is directly related to the accuracy and completeness of the information and data that you furnish to GZA. **GZA'S REPORTS ARE PREPARED FOR AND MADE AVAILABLE FOR YOUR SOLE USE. YOU ACKNOWLEDGE AND AGREE THAT USE OF OR RELIANCE UPON THE REPORT OR THE FINDINGS IN THE REPORT BY ANY OTHER PARTY, OR FOR ANY OTHER PROJECT OR PURPOSE, SHALL BE AT YOUR OR SUCH OTHER PARTY'S SOLE RISK AND WITHOUT ANY LIABILITY TO GZA.**

8. Lab Tests and Samples. GZA is entitled to rely on the results of laboratory tests using generally accepted methodologies. GZA may dispose of samples in accordance with applicable laws 30 days after submitting test results to you unless you request in writing for them to be returned to you or to be held longer, in which case you will compensate GZA for storage and/or shipping beyond 30 days.

9. GZA Professionals. GZA employees or consultants may act as licensed, certified or registered professionals (including but not limited to Professional Engineers, Licensed Site or Environmental Professionals, or Certified Industrial Hygienists collectively referred to in this section as "GZA Professionals") whose duties may include the rendering of independent professional opinions. You acknowledge that a federal, state or local agency or other third party may audit the services of GZA or other contractor/consultant(s), which audit may require additional services, even though GZA and such GZA Professionals have each performed such services in accordance with the standard of care set forth herein. You agree to compensate GZA for all services performed in response to such an audit, or to meet additional requirements resulting from such an audit, at the rates set forth in the applicable Proposal, amendment or change order.

10. Hazardous Materials; GZA "Not a Generator". Before any hazardous or contaminated materials are removed from the Site, you will sign manifests naming you as the generator of the waste (or, if you are not the generator, you will arrange for the generator to sign). You will select the treatment or disposal facility to which any waste is taken. GZA will not be the generator or owner of, nor will it possess, take title to, or assume legal liability for any hazardous or contaminated materials at or removed from the Site. GZA will not have responsibility for or control of the Site or of operations or activities at the Site other than its own. GZA will not undertake, arrange for or control the handling, treatment, storage, removal, shipment, transportation or disposal of any hazardous or contaminated materials at or removed from the Site, other than any laboratory samples it collects or tests. You agree to defend, indemnify and hold GZA harmless for any costs or liability incurred by GZA in defense of or in payment for any legal actions in which it is alleged that GZA is the owner, generator, treater, storer or disposer of hazardous waste.

11. Limits on GZA's Responsibility. GZA will not be responsible for the acts or omissions of contractors or others at the Site, except for its own subcontractors and employees. GZA will not supervise, direct or assume control over or the authority to stop any contractor's work, nor shall GZA's professional activities nor the presence of GZA or its employees and subcontractors be construed to imply that GZA has authority over or responsibility for the means, methods, techniques, sequences or procedures of construction, for work site health or safety precautions or programs, or for any failure of contractors to comply with contracts, plans, specifications or laws. Any opinions by GZA of probable costs of labor, materials, equipment or services to be furnished by others are strictly estimates and are not a guarantee that actual costs will be consistent with the estimates.

12. Changed Conditions.

a. You recognize the uncertainties related to environmental and geotechnical services, which often require a phased or exploratory approach, with the need for additional services becoming apparent during the initial services. You also recognize that actual conditions encountered



may vary significantly from those anticipated, that laws and regulations are subject to change, and that the requirements of regulatory authorities are often unpredictable.

- b. If changed or unanticipated conditions or delays make additional services necessary or result in additional costs or time for performance, GZA will notify you and the parties will negotiate appropriate changes to the scope of services, compensation and schedule.
- c. If no agreement can be reached, GZA will be entitled to terminate its services and to be equitably compensated for the services already performed. GZA will not be responsible for delays or failures to perform due to weather, labor disputes, intervention by or inability to get approvals from public authorities, acts or omissions on your part, or any other causes beyond GZA's reasonable control, and you will compensate GZA for any resulting increase in its costs.

13. Documents and Information. All documents, data, calculations and work papers prepared or furnished by GZA are instruments of service and will remain GZA's property. Designs, reports, data and other work product delivered to you are for your use only, for the limited purposes disclosed to GZA. Any delayed use, use at another site, use on another project, or use by a third party will be at the user's sole risk, and without any liability to GZA. Any technology, methodology or technical information learned or developed by GZA will remain its property. Provided GZA is not in default under this Agreement, GZA's designs will not be used to complete this project by others, except by written agreement relating to use, liability and compensation.

14. Electronic Media. In accepting and utilizing any drawings, reports and data on any form of electronic media generated by GZA, you covenant and agree that all such electronic files are instruments of service of GZA, who shall be deemed the author and shall retain all common law, statutory law and other rights, including copyrights. In the event of a conflict between the signed documents prepared by GZA and electronic files, the signed documents shall govern. You agree not to reuse these electronic files, in whole or in part, for any purpose or project other than the project that is the subject of this Agreement. Any transfer of these electronic files to others or reuse or modifications to such files by you without the prior written consent of GZA will be at the user's sole risk and without any liability to GZA.

15. Confidentiality; Subpoenas. Information about this Agreement and GZA's services and information you provide to GZA regarding your business and the Site, other than information available to the public and information acquired from third parties, will be maintained in confidence and will not be disclosed to others without your consent, except as GZA reasonably believes is necessary: (a) to perform its services; (b) to comply with professional standards to protect public health, safety and the environment; and (c) to comply with laws and court orders. GZA will make reasonable efforts to give you prior notice of any disclosure under (b) or (c) above. Information available to the public and information acquired from third parties will not be considered confidential. You will reimburse GZA for responding to any subpoena or governmental inquiry or audit related to the services, at the rates set forth in the applicable Proposal, amendment or change order.

16. Insurance. During performance of the services, GZA will maintain workers compensation, commercial general liability, automobile liability, and professional liability/contractor's pollution liability insurance. GZA will furnish you certificates of such insurance on request.

17. Indemnification. You agree to hold harmless, indemnify, and defend GZA and its affiliates and subcontractors and their employees, officers, directors and agents (collectively referred to in this paragraph as "GZA") against all claims, suits, fines and penalties, including mandated cleanup costs and attorneys' fees and other costs of settlement and defense, which claims, suits, fines, penalties or costs arise out of or are related to this Agreement or the services, except to the extent they are caused by GZA's negligence or willful misconduct.

18. Limitation of Remedies.

- a. To the fullest extent permitted by law and notwithstanding anything else in this Agreement to the contrary, the aggregate liability of GZA and its affiliates and subcontractors and their employees, officers, directors and agents (collectively referred to in this paragraph as "GZA") for all claims arising out of this Agreement or the services is limited to \$50,000 or, if greater, 10% of the compensation received by GZA under this Agreement.
- b. You may elect to increase the limit of liability by paying an additional fee, such fee to be negotiated prior to the execution of this Agreement.
- c. Any claim will be deemed waived unless received by GZA within one year of substantial completion of the services.
- d. GZA will not be liable for lost profits, loss of use of property, delays, or other special, indirect, incidental, consequential, punitive, exemplary, or multiple damages.
- e. GZA will not be liable to you or the Site owner for injuries or deaths suffered by GZA's or its subcontractors' employees.
- f. You will look solely to GZA for your remedy for any claim arising out of or relating to this Agreement, including any claim arising out of or relating to alleged negligence or errors or omissions of any GZA principal, officer, employee or agent.



19. Disputes.

- a. All disputes between you and GZA shall be subject to non-binding mediation.
- b. Either party may demand mediation by serving a written notice stating the essential nature of the dispute, the amount of time or money claimed, and requiring that the matter be mediated within forty-five (45) days of service of notice.
- c. The mediation shall be administered by the American Arbitration Association in accordance with its most recent Construction Mediation Rules, or by such other person or organization as the parties may agree upon.
- d. No action or suit may be commenced unless mediation has occurred but did not resolve the dispute, or unless a statute of limitation period would expire if suit were not filed prior to such forty-five (45) days after service of notice.

20. Miscellaneous.

- a. Massachusetts law shall govern this Agreement.
- b. The above terms and conditions regarding Limitation of Remedies and Indemnification shall survive the completion of the services under this Agreement and the termination of the contract for any cause.
- c. Any amendment to these Terms and Conditions must be in writing and signed by both parties.
- d. Having received these Terms and Conditions, your oral authorization to commence services, your actions, or your use of the Report or Work Product constitutes your acceptance of them.
- e. This Agreement supersedes any contract terms, purchase orders or other documents issued by you.
- f. Neither party may assign or transfer this Agreement or any rights or duties hereunder without the written consent of the other party.
- g. Your failure or the failure of your successors or assigns to receive payment or reimbursement from any other party for any reason whatsoever shall not absolve you, your successors or assigns of any obligation to pay any sum to GZA under this agreement.
- h. These Terms and Conditions shall govern over any inconsistent terms in GZA's Proposal.
- i. The provisions of this Agreement are severable; if any provision is unenforceable it shall be appropriately limited and given effect to the extent it is enforceable.
- j. The covenants and agreements contained in this Agreement shall apply to, inure to the benefit of and be binding upon the parties hereto and upon their respective successors and assigns.