



www.chilmarkma.gov

TOWN OF CHILMARK CHILMARK, MASSACHUSETTS

TOWN OFFICES:
Beetlebung Corner
Post Office Box 119
Chilmark, MA 02535
508-645-2100
508-645-2110 Fax

March 10, 2014

Ms. Julia Knisel
Coastal Shoreline & Floodplain Manager
Massachusetts Office of Coastal Zone Management
251 Causeway Street; Suite 800
Boston, MA. 02114


Subject: Town of Chilmark Application
Green Infrastructure for Coastal Resilience Pilot Grants Program FY'14
RFR ENV 14 CZM 07

Dear Julia:

This provides Chilmark's application for \$280,000 of Grant funds to expand and restore the Town's public Squibnocket Beach shoreline and parking area. The Town plans to invest \$400,000 of Community Preservation Act Open Space Preservation Funds to fund the remainder of the project's expenses.

Thank you for all of your help and we look forward to receiving wonderful news on April 28th.

Best regards,


Chuck Hodgkinson

GREEN INFRASTRUCTURE FOR COASTAL RESILIENCE

PILOT GRANTS PROGRAM FY14

RFR ENV 14 CZM 07

Applicant: Cape Cod and the Islands: Town of Chilmark, Massachusetts

Address: 401 Middle Road; P.O. Box 119; Chilmark, MA. 02535

Local Project Manager

Name: Chuck Hodgkinson

Department: Town Administration

Email: chodgkinson@chilmarkma.gov

Phone: 508-645-2114

Fax: 508-645-2110

Type of Green Infrastructure Project: Beach enhancement & restoration with compatible sediment and native vegetation; possible bio-engineering if feasible.

Project Title: Squibnocket Town Beach Expansion, Restoration

Total Project Cost: \$680,000

Match Amount: \$400,000 (Town Community Preservation Act Open Space Preservation Funds.

Grant Amount Requested: \$280,000

Project Summary: Due to aggressive erosion and rising sea level the Town of Chilmark's Squibnocket Beach is now only accessible at low tide. This project will increase the size of the Town's beach by over five times its current shoreline; provide space for a new, accessible public beach parking area that is naturally protected from erosion; provide an opportunity to restore the current section of Squibnocket Bight to its original barrier beach state and native habitat and provide the Squibnocket Farm Homeowner's Association with safe and reliable causeway access to their homes. The Town is planning to invest \$400,000 to lease the additional section of beach for the next 99 years. This application requests \$280,000 in grant funds for planning, permitting, restoration and related Town beach construction needs.

Cape Cod and the Islands
Town of Chilmark, Massachusetts

Green Infrastructure for Coastal Resilience
Pilot Grants Program – FY 2014
March 2014

Squibnocket Town Beach Expansion, Restoration

Contact: Chuck Hodgkinson
Chilmark Town Hall
P.O. Box 119
Chilmark, MA. 02535
chodgkinson@chilmarkma.gov
508-645-2114

See Visual: Atlantic Ocean – Squibnocket Bight

Atlantic Ocean – Squibnocket Bight



- The following outlines a joint partnership project among the Town of Chilmark, MA. on the island of Martha's Vineyard, the Squibnocket Farm Homeowner's Association (private residents), archaeological research with the Wampanoag Tribe of Aquinnah and land acquisition with a non-profit organization – the Vineyard Open Land Foundation (VOLF).
- Not all elements of this program are being considered for a Green Infrastructure for Coastal Resilience Grant (GICRG).
- The total plan is provided to provide context for the Town's application for the GICRG.
- The project is presented in two sections:
 - The Town's plans for Squibnocket Beach and Parking and the GICRG application.
 - The Squibnocket Farm Homeowner's Association's plan to construct an elevated roadway that provides safe and reliable access to their homes. This is not a part of this grant application but, is a key element of the partnership and project.
- The scope of this grant application includes costs for the portion of the project that expands the Town's public beach, restores the Town's current section of Squibnocket barrier beach and habitat and constructs a new environmentally sound and accessible Town beach parking area:

■ <u>Surveying & permitting:</u>	<u>\$ 15,000</u>
■ <u>Construct new beach parking area, walking path & skiff launch:</u>	<u>\$100,000</u>
■ <u>Remove, restore current parking area:</u>	<u>\$100,000</u>
■ <u>Revetment removal, beach restoration:</u>	<u>\$ 65,000</u>
■ <u>Total:</u>	<u>\$280,000</u>
- Working Timeline:
 - Now – April 28, 2014: Hire engineers, consultants and prepare plans and public forums for the Town's portions of the project.
 - April 28, 2014 Annual Town Meeting: Voters endorse total plan and authorize Selectmen to proceed with negotiations.
 - May 2014: Receive notice on Hurricane Sandy Coastal Competitive Grant application.
 - October 2014: Special Town Meeting authorizing the Selectmen to execute the \$400,000, 99-year new beach and parking lease.

- **October 2014 – May 2015:** Obtain required permits, perform archaeological survey of the proposed new parking area with the Wampanoag Tribe of Aquinnah, field Requests for Proposals for the Town's portions of the project, award contracts. Begin construction.
- **May 2016:** Complete construction.

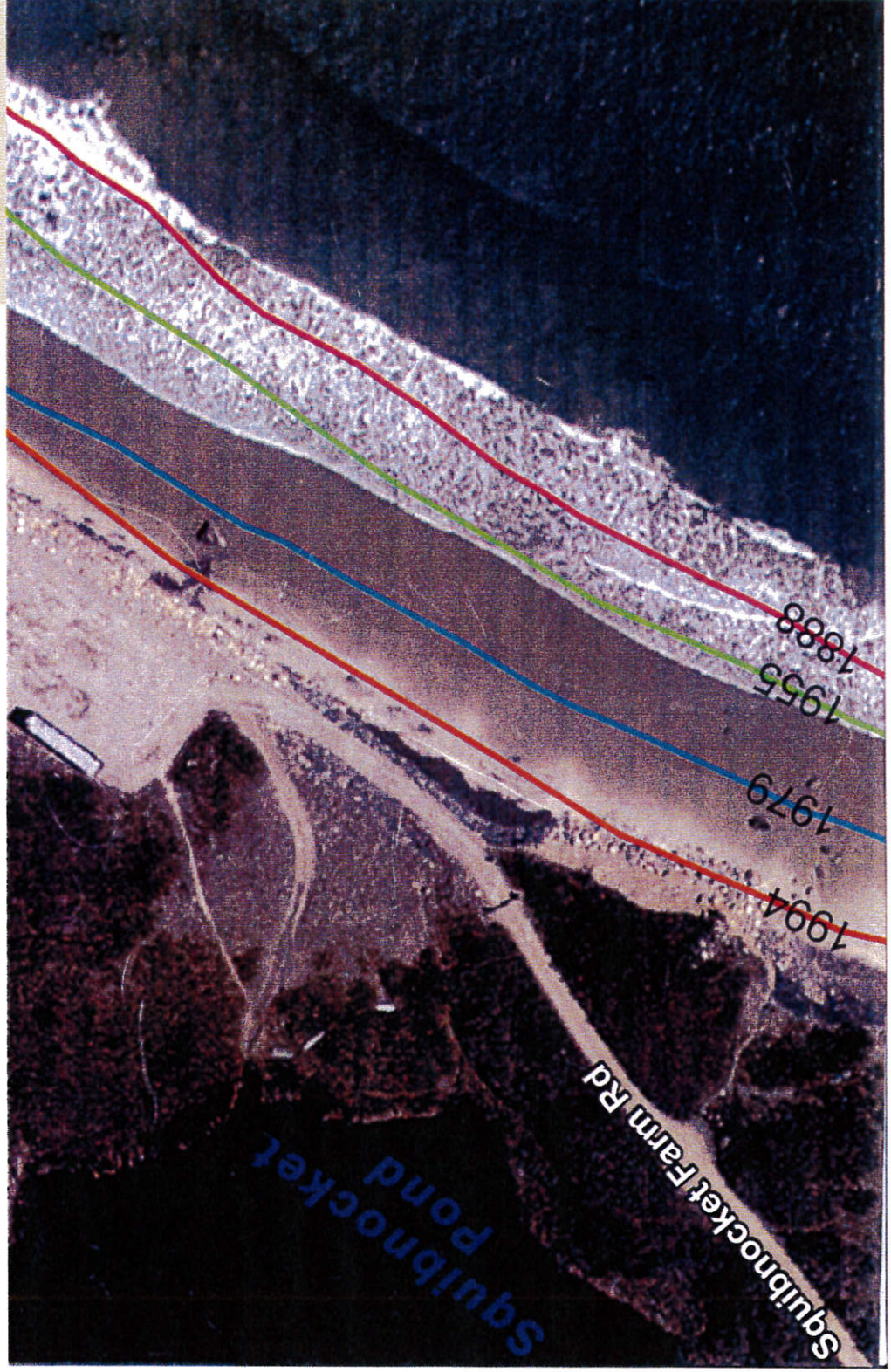
BACKGROUND

- In recent years, the Town's Squibnocket Beach and parking area and the roadway to the residential security gate have experienced significant damage and erosion caused by rising mean high tide levels and severe coastal storms.
 - On-going winter storms and sea level rise.
 - 2011 Hurricane Irene.
 - 2012 Hurricane Sandy.
- In 2012, the Town's current Squibnocket Beach parking area alone sustained over \$20,000 in damage from Hurricane Sandy. The homeowners lost underground power, utilities and access to their homes for almost one week.
- The Town's current 100-year lease for the Squibnocket Beach and Parking Area with the Squibnocket Farm Homeowner's Association expires in 36 years – year 2050.
- Since 1950 a significant portion of the Town's leased beach and land has eroded as the mean high tide level has risen -- causing the shoreline to migrate north.
- Squibnocket Beach is now much smaller and mostly used at low tide.
- In April 2013 the Selectmen formed a Committee comprised of key stakeholders to find a long-term solution:
 - Two Selectmen,
 - Conservation Commission member,
 - Two residents from the Squibnocket Farm Homeowner's Association,
 - The Coastal Planner from the Martha's Vineyard Commission staff,
 - Director of the Vineyard Open Land Foundation,
 - Beach Committee member,
 - Chair of the Town's Squibnocket Pond District Advisory Committee.

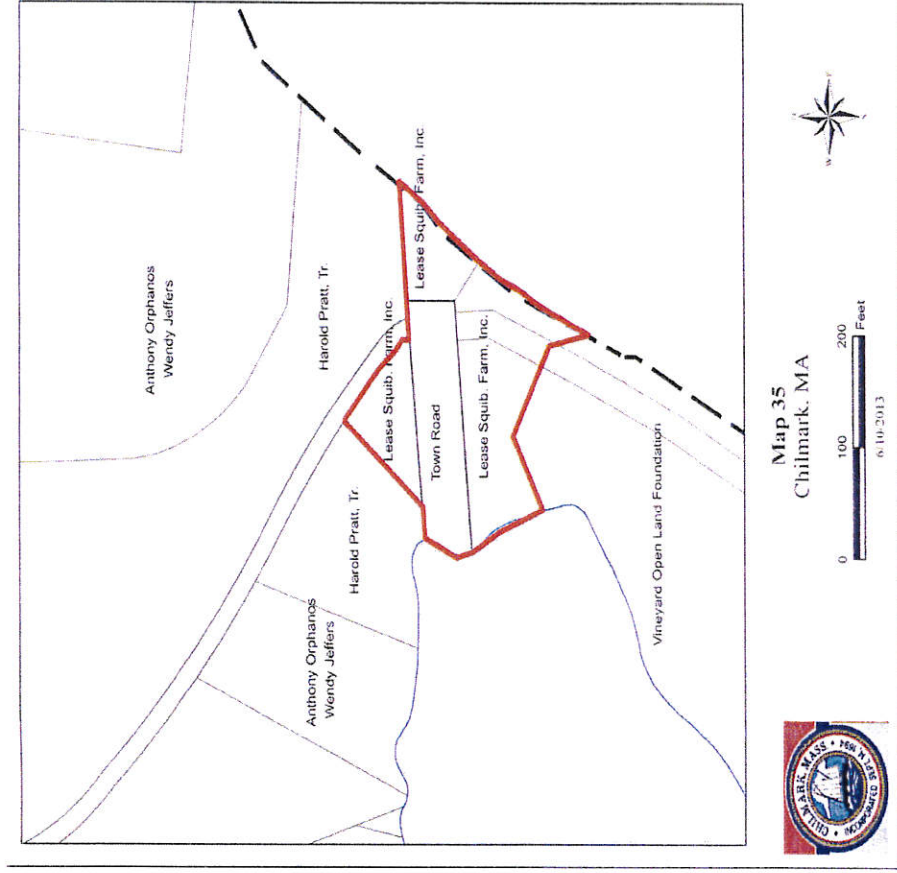
See Visuals:

- **Beach Shoreline Migration 1888-Today**
- **Current Lease 1950-2050 Assessors Map**
- **1950 Survey of Leased Land (Notice Pond Shoreline and Ocean)**
- **Leased Land Today (Notice No Pond Shoreline)**
- **1950 Survey of Land – Today (Notice Leased Land in Ocean)**

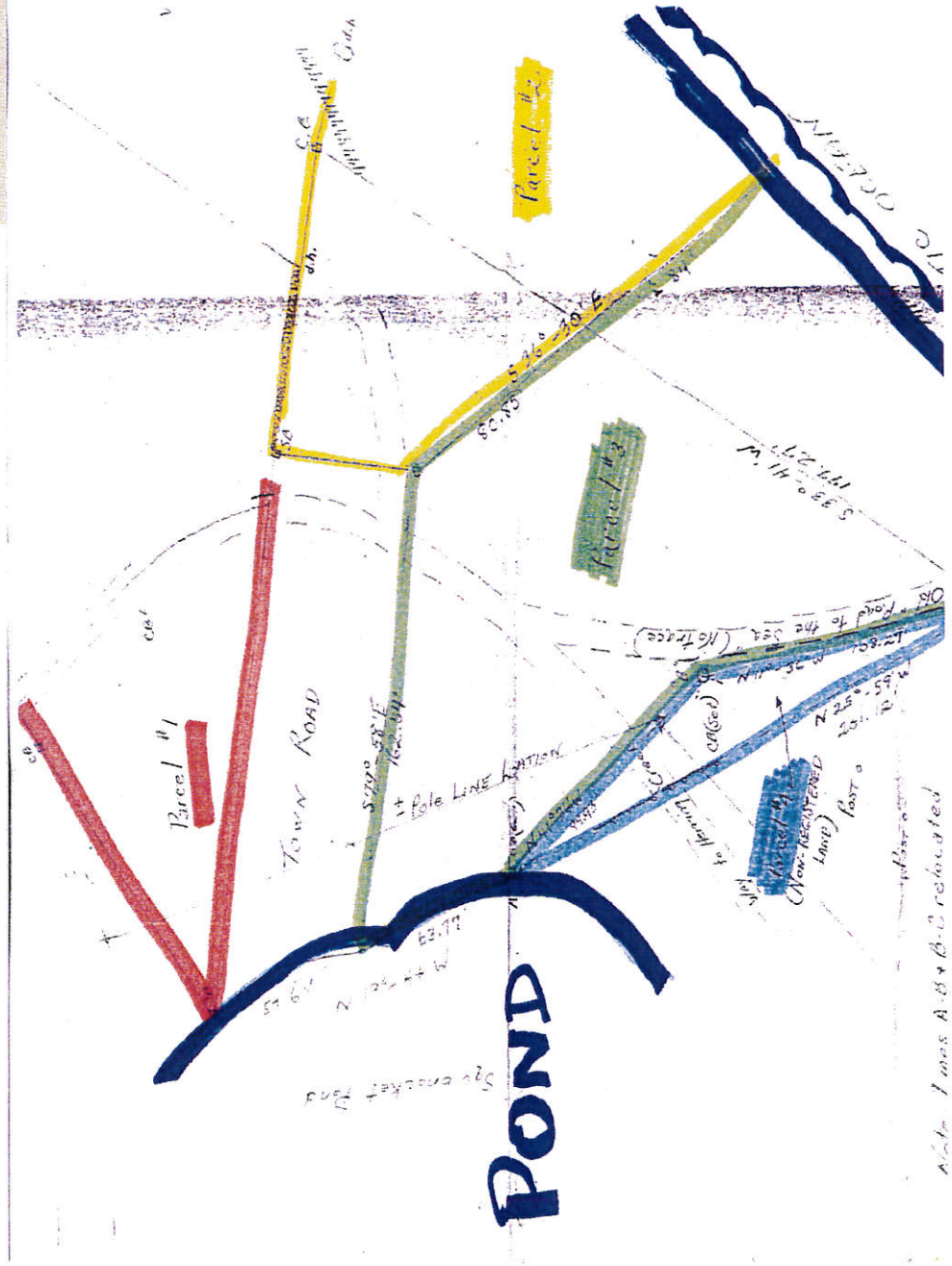
Beach Shoreline Migration 1888 - Today



Current Lease 1950 - 2050 Assessors Map



1950 Survey of Leased Land (Notice Pond Shoreline and Ocean)



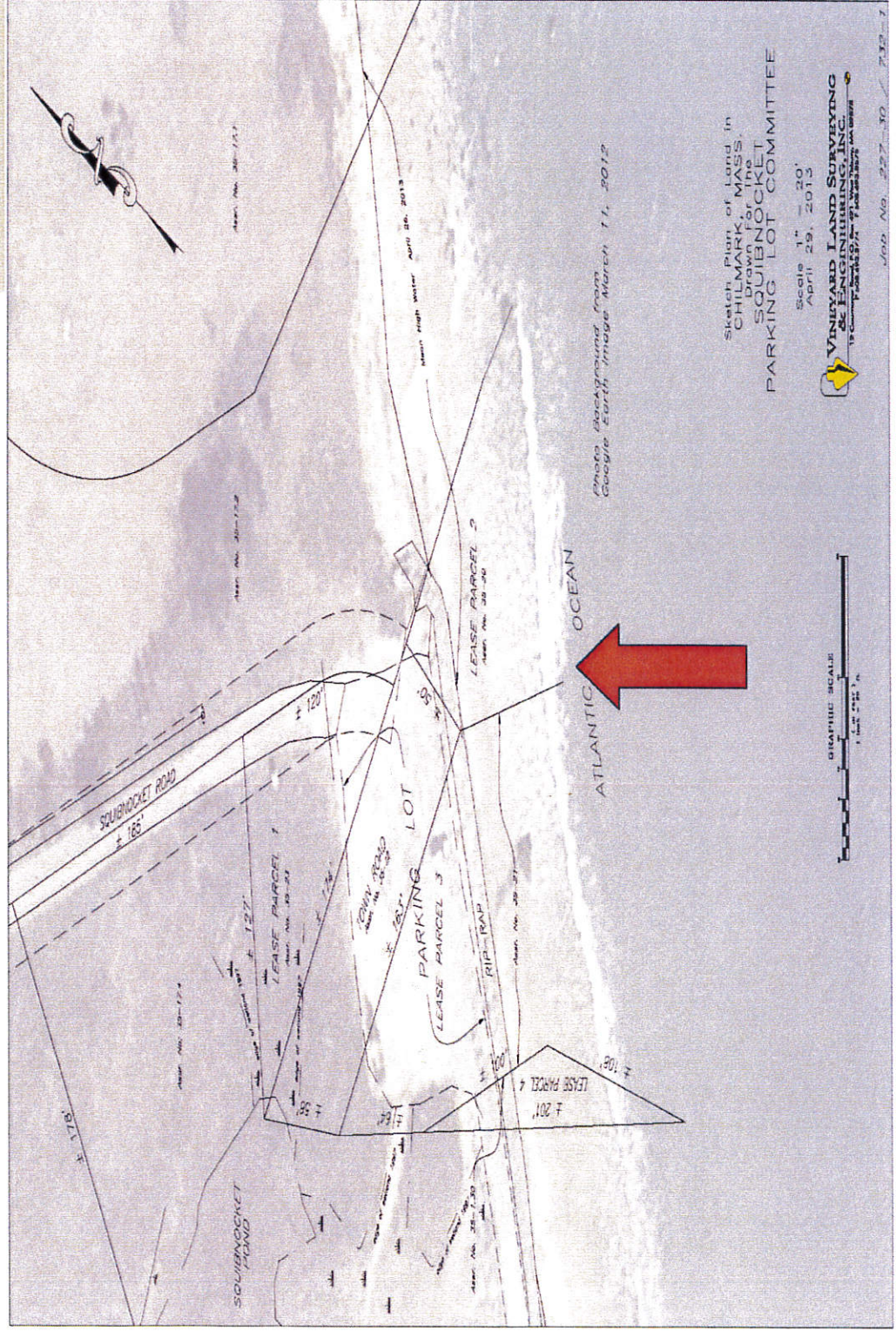
Leased Land - Today (Notice No Pond Shoreline)



Copyright © 2007 Pictometry International Corp.

1950 Survey of Land – Today

(Notice Leased Land in Ocean)



NEW BEACH AND PARKING AREA LEASE

- Lease all of the existing beach and parking area, plus 10.5-acres of additional land abutting the currently leased land in order to:
 - Expand the Town Beach shoreline (5 X larger).
 - Current Squibnocket Beach = Approx. 280 feet
 - + Additional Beach = + Approx. 1,125 feet
 - New Total Squib. Beach = Approx. 1,405 feet
- Relocate the beach parking area. It will be accessible, the same area (square footage) as the current parking area and designed in an environmentally sound manner—versus the concrete surface that is used in the current lot.
- The additional beach and new parking area locations have existing natural protection from excessive erosion.
- There will be native vegetation screening between the new parking area and Squibnocket Farm Rd. to the north.
- Relocate security gate past the new parking area.
- Provide Squibnocket Pond access path. Relocate the commercial skiff (10 HP Max.), provide Commonwealth Pond water quality monitoring access and recreational kayak launch path.
- Add an accessible walking path from the parking area to the shore.
- The Squibnocket Farm Homeowner's Association has a purchase and sale agreement for the 10.5-acre expanded beach land with the Vineyard Open Land Foundation (VOLF) and has proposed a new, 99-year lease to the Town for a cost of \$400,000 in rental payments and legal fees.
- Subject to voter approval, the Town plans to use existing Community Preservation Act (CPA) Open Space Preservation Funds to pay for the lease.

See Visuals:

- New beach & Parking Area Lease Concept 2014-2113
- New Beach & Parking Area Illustrated Concept 2014-2113
- View of Total Proposed Town Beach to Mussel Bed
- Current Skiff Launch Path to be Relocated

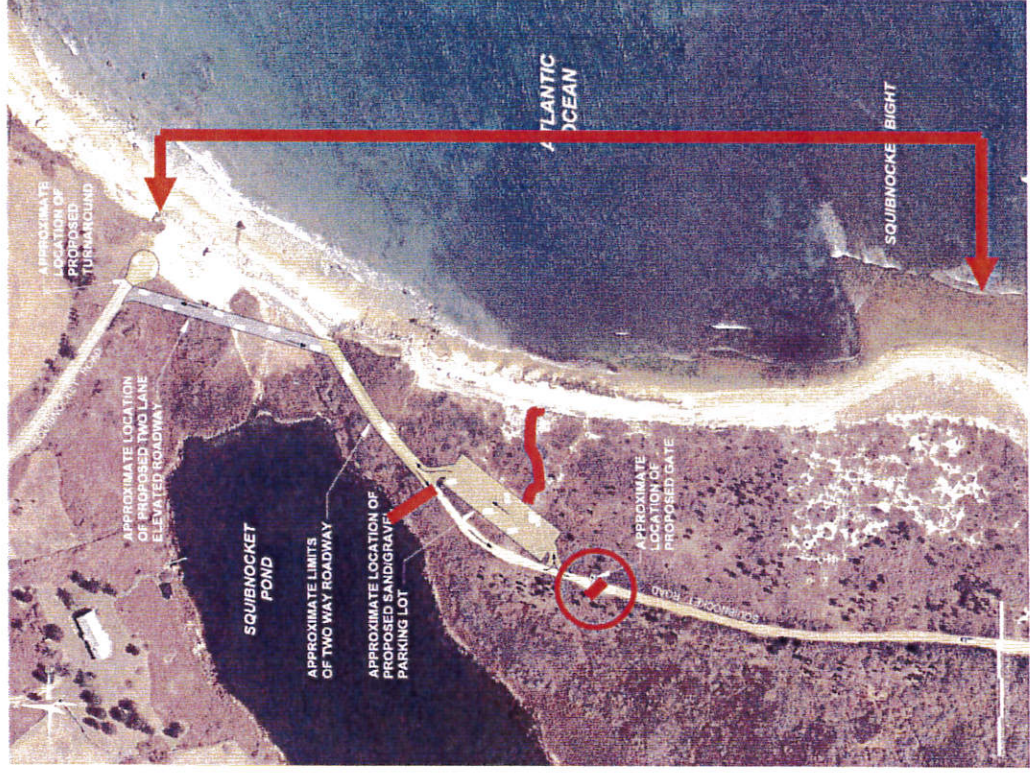
New Beach & Parking Area Lease Concept 2014 - 2113



Map 35 Lot 1.30
Chilmark, MA



New Beach & Parking Area Illustrated Concept 2014 - 2113



View of Total Proposed Town Beach to the Mussel Bed



Current Skiff Launch Path to be Relocated



HOW LONG WILL THE NEW PARKING AREA LAST?

- The rate of erosion of Squibnocket Beach has varied over time by the specific section of beach.
- Between 1994-2009, the rate of erosion for the section of beach shoreline east of the Mussel Bed and in front of the new parking area has averaged only 0.75 feet or 9 inches per year.
- The Mussel Bed is providing natural protection against beach erosion for this section of beach.
- The south (ocean side) edge of the new parking area will be approximately 120 feet north of the current shoreline.
- Based upon the historic rate of erosion, this section of the shoreline will not reach the new parking area for 120 – 150 years.

Source: http://maps.massgis.state.ma.us/map_ol/czm_shorelines.php

See Visual:

- High Tide Shoreline Erosion by Beach Section 1844-2009

[illegible]

SQUIBNOCKET FARM ELEVATED ROADWAY

- This section of the plan is not a part of the grant application but, is a part of the partnership agreement.
- Erosion, rising mean high tide and increased storm frequency and severity are threatening the long-term viability of the current roadway that runs:
 - from Squibnocket Road,
 - through the current beach parking area,
 - to the security gate,
 - to Squibnocket Farm Road,
 - to the Squibnocket Farm residences.
- The Squibnocket Farm Homeowner's Association's plan to build an elevated roadway leading to the new Town Beach parking area and their homes is environmentally sound – versus currently driving on the filled barrier beach.
- It will be designed to allow a natural water exchange from the ocean to Squibnocket Pond once the revetment is removed and the barrier beach restored.
- The Squibnocket Farm Homeowner's Association will cover all costs for designing, permitting and constructing the elevated roadway.
- The roadway design must withstand storm surge, support seasonal traffic volume to beach parking and residences—including emergency vehicles.
- After the elevated roadway is built and the beach parking area is relocated, the portions of the rock revetment at the ocean side of the current parking area will be removed and beach nourishment (sand) will be added to restore the barrier beach to its original state. The Town has retained the services of two independent consultants to advise on a feasible exit strategy—Greg Berman of the Woods Hole Oceanographic Institute and Jim O'Connell of Brant Rock, MA.
- The Town's Menemsha drive-on dock design was used to create this concept.
- The elevated roadway will also have a concrete deck with wooden side rails.
- The average height of the elevated roadway deck will be approximately 3 - 4 feet above the top of the ocean-side rock revetment of the current parking area—approximately 15 feet above sea level (above current FEMA flood levels).

- The power and utility lines for Squibnocket Farm will pass through conduit underneath the elevated roadway deck.
- Depending upon the final exit strategy and plan, the current parking area and beach will eventually return to their original barrier beach state. The ocean will most likely have a natural water exchange with the wetlands and Squibnocket Pond during significant storm events – without disrupting the elevated roadway.

IMPROVE THE HEALTH OF SQUIBNOCKET POND

- The natural salt water exchange with Squibnocket Pond will improve its health.
 - Shellfish habitat.
 - Promote eel grass growth.
 - Increased white perch count and improved herring run.
 - The Commonwealth's Division of Fisheries will have skiff access for regular monitoring of the pond's water quality.

See Visuals:

- Squibnocket Farm Elevated Roadway Located Behind Current Parking Area
- Squibnocket Farm Elevated Roadway Menemsha Drive-on Dock
- Squibnocket Farm Elevated Roadway Current View – Facing Ocean
- Squibnocket Farm Elevated Roadway Proposed View – Facing Ocean
- Squibnocket Beach – Remove Rock Revetment, Restore Beach
- Squibnocket Beach – Early 1900's No Revetment
- Squibnocket Town Beach 2014-2113 Illustration Current Lot, Revetment
- Squibnocket Town Beach 2014-2113 Illustration No Current Lot, Revetment

Squibnocket Farm Elevated Roadway Located Behind Current Parking Area



Squibnocket Farm Elevated Roadway Menemsha Drive-on Dock



Squibnocket Farm Elevated Roadway

Current View - Facing Ocean



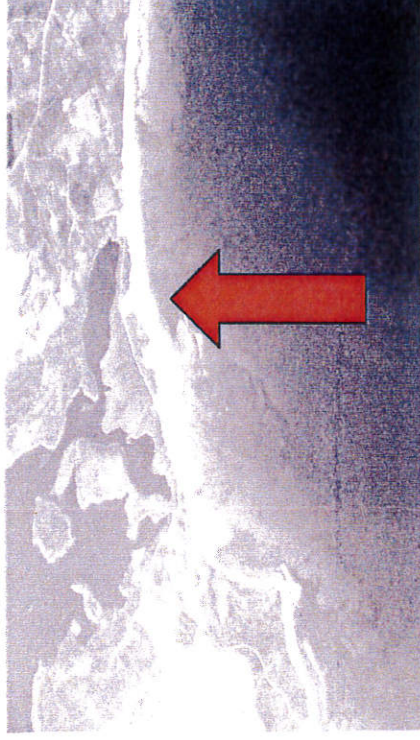
Squibnocket Farm Elevated Roadway Proposed View - Facing Ocean



Squibnocket Beach - Remove Rock Revetment, Restore Beach



Squibnocket Beach - Early 1900's No Revetment



Squibnocket Town Beach 2014 – 2113

Illustration Current Lot, Revetment



Squibnocket Town Beach 2014 – 2113

Illustration No Current Lot, Revetment



PROJECT CONSTRUCTION SEQUENCE

1. Town voters authorize the Selectmen to execute a new Squibnocket Beach and Parking Area lease.
2. The entire project will be referred to the Martha's Vineyard Commission (MVC) and permitted by the Chilmark Conservation Commission and possibly other municipal and state agencies.
3. After permitting, the elevated roadway will be built and the utility lines and security gate relocated.
4. Then the Town will install the new beach parking area, the skiff launch and beach access paths and the native vegetation.
5. Lastly, the Town will return the current beach to its natural state by removing the rock revetment and re-nourishing the beach with sand and native vegetation.

SOURCES OF FUNDS BY PROJECT SEGMENT

- Engineering, consulting, Wampanoag Tribe of Aquinnah joint archaeological survey performed by the Public Archaeological Laboratory in Pawtucket, R.I., relocate and build the new parking area, accessible walking path and skiff access to Squibnocket Pond; add native vegetation, remove the revetment, current parking area and re-nourish the current parking and barrier beach area: Green Infrastructure for Coastal Resilience Grant (GICRG).
- \$410,000 for 99-Year Town expanded beach and parking area lease from the Squibnocket Farm Homeowner's Association: Town CPA Open Space Preservation Funds.
- \$3 – 4 million cost to design, permit and construct the elevated roadway: Squibnocket Farm Homeowner's Association (SFHA).
- Cost to acquire 10.5-acres of ocean-front land from the Vineyard Open Land Foundation that will be leased to the Town: SFHA.

Thank You for your consideration.

Project Team:

Chuck Hodgkinson: Chilmark Town Administrator for Special Projects; Conservation Agent, Administrator for the Zoning Board of Appeals, Conservation Commission, Site Review Committee, Community Preservation Committee, Historical Commission and Coordinator of Administrative Support.

Outside Consultants:

Reid Silva; PE, PLS and owner of Vineyard Land Surveying & Engineering.

Jim O'Connell, Coastal Geologist & Land Use Specialist; Brant Rock, MA.

Greg Berman, M.S. Geological Oceanography; Coastal Processes Specialist; Woods Hole Oceanographic Institute.

Jo-Ann Taylor, M.A. Geology; Martha's Vineyard Commission Coastal Planner.

Chilmark Squibnocket Beach Expansion and Restoration
Budget Details

Surveying & permitting: **\$ 15,000**

Total: **\$100,000**

- Archaeological survey: \$ 7,000
- Clear, construct parking area,
stabilize surface: \$ 56,000
- Parking area amenities (stops): \$ 5,000
- Create walking path to beach: \$ 2,000
- Construct seasonal accessible
walkway: \$ 5,000
- Create skiff launch path: \$ 10,000
- Plant parking area screening: \$ 15,000

Total: **\$100,000**

- Remove, dispose existing soil
cement surface: \$ 48,400
- Create new turnaround: \$ 19,200
- Grade lot surface: \$ 4,200
- Truck in, spread topsoil: \$ 10,200
- Landscape parking area
surface: \$ 18,000
- Revetment removal, beach restoration (if done):

Total: Revetment removal, beach restoration (if done): **\$ 65,000**

- Remove all of the 210' revetment: \$ 39,800
- Truck in, spread 300 yards
white beach sand: \$ 25,200*

* If done, there may be an opportunity to use the Menemsha Channel dredging sand—if it matches the current beach sand grain size.

RESUMES

Gregory A. Berman, PG, GISP

**Jim O'Connell, Coastal Geologist,
Land Use Specialist**

Gregory A. Berman, PG, GISP

Coastal Processes Specialist

Summary of Credentials

- 18+ years of experience with surveying, interpreting, and reporting on coastal geology
- Managed multiple coastal erosion surveys, floodplain mapping surveys, environmental site investigations (for a consulting firm). Projects clients included non-profits, commercial, and government clients with contract values ranging from \$50k to > \$1M.
- Proficient with a wide range of surveying equipment including transit, total station, and GPS (including DGPS and RTK).
- 13+ years of experience using ESRI GIS software to analyze nearshore geophysical data and creating 2D and 3D graphics to display results. Extensive experience with analysis of shoreline change through aerial photographs and bathymetric and topographic mapping.
- Extensive experience with aquatic sediment collection (vibracore, pushcore, surface grabs, underway sampling, dredging, etc.) and land-based borings with subsequent description, processing, and analysis.
- Proficient with surface water sampling, stream discharge and water quality parameter measurements in addition to groundwater monitoring well installation and sampling.

Higher Education

Master of Science. University of South Florida College of Marine Science. Geological Oceanography. (1998-2002)
 Bachelor of Science. Eckerd College Department of Marine Science. Marine Geology. (1994-1998)

Professional Licensing

Certified Professional Geologist (PG)
 Certified Geographic Information Systems Professional (GISP)

Current Work Responsibilities

Providing technical assistance and extension education programs for coastal communities on topics including shoreline change, erosion control alternatives, coastal landform delineation, potential effects of various human activities on coastal landforms, coastal floodplains, coastal hazards and hazard mitigation analyses, sea level rise, storm surge, dune restoration techniques, and other coastal resources management issues.

Giving formal and informal presentations to regulatory, business, and community groups, and at conferences and workshops. Planning, promoting and conducting seminars, workshops and meetings. Translating and extending the results of research for the use of non-scientists in decision making processes.

Developing and implementing interdisciplinary community-focused research and extension projects. Assisting local grant proposal efforts to fund community-focused applied research and extension projects.

Employment History

2009 – Present	Woods Hole Sea Grant & Cape Cod Cooperative Extension Coastal Processes Specialist
2003 – 2009	Science Applications International Corporation (Newport, RI) Coastal Geologist
2002 – 2003	USGS-Water Resources Division (Honolulu, HI) Hydrologist
1998 – 2002	USGS- Coastal and Marine Science Center (St. Petersburg, FL) Laboratory Technician
1999 – 2002	USF- Center for Coastal Ocean Mapping (St. Petersburg, FL) Graduate Research Assistant
1995 – 1998	Eckerd College (St. Petersburg, FL) Undergraduate Research Assistant

Computer Proficiency

MS Office (Word/Excel/Powerpoint/Outlook), Adobe Photoshop and Illustrator, SigmaPlot Multibeam Bathymetry Acquisition and Processing Software, Neptune, Fledermaus, HYPACK, SonarPro, SonarWIZ, ISIS, SonarWEB, Triton Elieg Delph, ArcGIS 9.X (Spatial Analyst, 3D Analyst, Geostatistical Analyst), Rockworks, EarthVision, SURFER

Gregory A. Berman

Other Professional Qualifications

2003 USGS STAR award for excellent service in GIS database design and implementation
 Certificate for Managing Projects from George Washington University School of Business
 Certified Master Scuba Diver in the NAUI system. Certified Scientific, First Aid, and Nitrox Diver
 Small boat handling and trailering skills
 Occupational Safety & Health Administration (OSHA) 40 hour certified & 8 hour Supervisor
 American Heart Association 1st Aid Certified

Publications

- Maio, C. and **G. Berman**. What is that sticking out of the sand?. Marine Extension Bulletin. Woods Hole Sea Grant & Cape Cod Cooperative Extension. July 2013.
- How-To Guide for No Adverse Impact Mitigation. Contributing Author. Association of State Floodplain Managers. 49p. July 2013.
- Homeowner's Handbook to Prepare for Coastal Hazards. Woods Hole Sea Grant, MIT Sea Grant & Cape Cod Cooperative. 89p. June 2013.
- Berman, G.A.** and K. Nemunaitis-Monroe. Hurricane Vs. Nor'easter. Marine Extension Bulletin. Woods Hole Sea Grant & Cape Cod Cooperative Extension. May 2012.
- Berman, G.A.**, K. Nemunaitis-Monroe. Hurricane Vs. Nor'easter. Marine Extension Bulletin. Woods Hole Sea Grant & Cape Cod Cooperative Extension. May 2012.
- Rogers, S., J. Tanski, W. Carey, C. McCoy, **G. Berman**, J. Miller. "Win-Win" Climate Change Adaptation Strategies: Lessons Learned From Sea Grant Coastal Processes and Hazards Programming. UNC-SG-12-06. February 20, 2012.
- Berman, G.A.**, M. Borrelli, G. Giese, T. Keon, S. McKenna, C. Ridley, A. Walsh. Coastal Resource Guide for Pleasant Bay and Chatham Harbor. Ridley, C. (Ed.). Pleasant Bay Alliance. 2011.
- Berman, G.A.**, 2011, Longshore Sediment Transport, Cape Cod, Massachusetts. Marine Extension Bulletin. Woods Hole Sea Grant & Cape Cod Cooperative Extension.
- Berman, G.A.**, Biodegradable Erosion Control. Marine Extension Bulletin: Woods Hole Sea Grant & Cape Cod Cooperative Extension. February 2011.
- Tracey, G., **G.A. Berman**, S. Insalaco, J. Swanko, S. Powell, R. Pruhs, R. Reali, W. Daniels, C. Carter. Optimizing Management of PAH Contaminated Sediment from the Appomattox River Federal Navigation Channel. American Society of Mining and Reclamation National Meeting, June 14-19, 2008. R.I. Barnhisel (Ed.). Published by ASMR, 3134 Montavesta Road, Lexington, KY 40502.
- Esten, M., A. Wilbur, D. Sampson, D. Carey, **G. Berman**, and C. Woods. Applying Habitat Mapping Schemes to Massachusetts Bay. New England Arc Users Conference. November 2007. Burlington, Vermont.
- Carey, D., R. Valente, M. Esten, A. Wilbur, D. Sampson, S. Ackerman, K. Ford, M. Carullo, R. Glenn, C. Woods, **G. Berman**, P. Neubert. Between a Rock and a Sponge: Applying benthic habitat classification schemes to seafloor mapping data. Estuarine Research Federation Conference. November 2007. Providence, Rhode Island.
- Waddington, T.R. and **G.A. Berman**. The Use of Acoustic and Optical Imagery Data to Characterize Benthic Habitats. U.S. HYDRO 2007, May 2007, Norfolk VA.
- Berman, G.A.**, 2007, 3d PAH Contamination Assessment at Elizabeth River, Virginia. NOAA Coastal Geotools'07 Conference, Myrtle Beach, South Carolina, March 5-8, 2007.
- Berman, G.A.** Environmental Risk Assessment at Philadelphia Naval Reserve Basin. 2005 ESRI International User Conference Proceedings - Paper Presentation. <http://gis.esri.com/library/userconf/proc05/papers/pap1421.pdf>.
- Berman, G.A.**, D.F. Naar, A. Hine, G. Brooks, S. Tebbens, B. Donahue, and R. Wilson, 2003. Geologic structure and hydrodynamics of Egmont Channel: An anomalous inlet at the mouth of Tampa Bay, Florida. Journal of Coastal Research, Vol. 21, No.2, March 2005, pp 331-357.
- Naar, D.F., B.T. Donahue, **G.A. Berman**, M.L. McIntyre, S. Saleem, D. Wilder, B.D. Jarrett, B. Suthard, K. Ciembronowicz, and D.J. Mallinson, 2003. Multibeam sonar surveys of Egmont Deep and of sedimentary bedforms, limestone ledges, real and artificial reefs surrounding Florida, the Bahamas, and American Samoa. Coastal Sediments '03, May 18-23, 2003, P12, Clearwater Beach, Florida.
- Berman, G. A.**, 2002. Geophysics and hydrodynamics of Egmont Channel: An anomalous inlet at the mouth of Tampa Bay, Florida: M.S. Thesis, Department of Marine Science, University of South Florida, St. Petersburg, FL, 95p.
- Berman, G.A.**, D.F. Naar, A. Hine, S. Tebbens, B. Donahue, G. Brooks, R. Wilson, 2002. Geologic structure and hydrodynamics of Egmont Channel: An anomalous inlet at the mouth of Tampa Bay, Florida. Eos Trans. AGU, 83(47).
- Holmes, C.W., E.A. Shinn, **G.A. Berman**, 2001. Atmospheric transport and deposition of arsenic and potential link to Florida groundwater, American Geophysical Union (AGU), Program with abstracts.
- Naar, D.F., **G.A. Berman**, and others, 1999. Preliminary results from an EM 3000 multibeam class survey along the west coast of the Florida carbonate platform, AGU, Program with abstracts, p164.
- Berman, G. A.** and D. F. Naar, 1999. High-resolution multibeam bathymetric mapping of a deep zone in the mouth of Tampa Bay, Florida. Eos Trans. AGU 80(46).
- Berman, G. A.**, 1998. Origin and distribution of blackened grains across the West-Central Florida continental shelf: B. S. Thesis, Department of Marine Science, Eckerd College, St. Petersburg, FL, 42 p.
- Obrochta, S., D.S. Duncan, **G.A. Berman**, G.R. Brooks, 1998. Offshore ledges as a possible source for siliciclastic sediments to the starved inner west-central Florida carbonate shelf. American Association of Petroleum Geologists, Abstracts with Programs.
- Berman, G.A.**, G.R. Brooks, 1997. Origin and distribution of blackened grains on the inner west-central Florida continental shelf: Geo. Society of America, Abstracts with Programs, vol.29, no.3, p. A4.

JIM O'CONNELL
P.O. Box 401, Brant Rock, MA 02020
(781) 588-0502
JimOConnell28@gmail.com

Professional Experience

October 2010 – Present

Coastal Geologist/Coastal Land-use Specialist
Coastal Advisory Services, P.O. Box 401, Brant Rock, MA 02020

- Provide technical and regulatory analyses to public and private sectors relating to a project's potential effects on coastal processes and coastal resources; regulatory compliance of coastal projects; effects of coastal erosion and coastal erosion control alternatives analyses; coastal resources delineation (e.g. coastal bank; coastal dune); coastal floodplain analyses for building and compliance.

January 2013 – Present

Hazard Mitigation Coastal Geologist (coastal storms related temporary appointment)
Federal Emergency Management Agency (FEMA)
Joint/Disaster Field Office
Warwick, RI

- Assisting FEMA in addressing coastal issues relating to coastal storm damage along the coasts of CT, Rhode Island and Massachusetts

April 2011 – November 2012

Conservation Department Head - Conservation Agent
Natural Resources Officer/FEMA-CRS Coordinator
Town of Scituate, MA 02066

- Manage the Conservation Department staff and budget;
- Advise the 7-member Conservation Commission on pros and cons of hundreds of proposed projects, including compliance with state and local Wetlands Protection Regulations and bylaws, and mitigation actions;
- Enforce local and state Wetlands Protection standards for coastal and inland resources;
- Implement the Town's participation in FEMA's Community Rating System (Class 8); and,
- Initiate and carry out grant projects for natural resources and conservation land management and planning initiatives.

April 2012 - Present

Adjunct Faculty (Coastal Processes & Coastal Land Use Specialist)
University of Hawaii, Sea Grant College Program, Honolulu, HI 96822

July 2008 – April 2010

Coastal Processes & Hazards/Coastal Land-use Specialist
University of Hawaii, Sea Grant Program, Honolulu, HI 96822

- Stationed on the Island of Kauai assisting Kauai County Government and residents on coastal and shoreline issues, including updating shoreline set-back policies based on coastal erosion and preparing regulations; Co-Leader Kauai Tsunami Observation Team; University of Hawaii Sea Level Rise Hui participant; bring UH coastal research to the Island for practical use.

Feb 1999 – July 2008

Coastal Processes & Coastal Hazards Specialist

Woods Hole Oceanographic Institution, Sea Grant Program
 193 Oyster Pond Road, MS #2, Woods Hole, MA 02543-1525
 and

Coastal Processes Specialist

Cape Cod Cooperative Extension, Barnstable County
 P.O. Box 367, Barnstable, MA 02630

- Provided results of applied coastal research from the Woods Hole Oceanographic Institution and elsewhere to Barnstable County, state and local officials and residents; initiated conferences, workshops, bulletins and publications relating to coastal processes, coastal landforms, sea level rise, coastal floodplains, beaches, dunes and barrier beaches; co-authored a *coastal floodplain model bylaw*, produced *DVD on coastal processes & erosion control alternatives*, *Dune Restoration booklet*, as well as other publications and presentations.

May 1998 - Feb 1999 **Marine Resources Specialist**

Cape Cod Commission
 3225 Main Street, Barnstable, MA 02643

- Advised County planners and officials on all aspects of coastal resources and coastal floodplain management.

June 1985 - June 1998 **Coastal Geologist and Hazards Coordinator**

Massachusetts Coastal Zone Management
 100 Cambridge Street, Boston, MA 02202

- Initiated and Chaired the MA state Coastal Floodplain Task Force;
- Initiated and Chaired the State Coastal Bank Delineation Task Force;
- Chaired the MA Coastal Hazards Commission's Coastal Protection Sub-Committee;
- Initiated & coordinated the MA State Coastal Storm Damage Assessment Team over 9 years through 3 Presidential Declarations of Disasters;
- Revised and implemented policies and regulations relating to coastal floodplains, coastal banks, sea level rise, coastal erosion, and beaches, dunes and barrier beaches to preserve their beneficial functions;

- Provided technical assistance and coordinated initiatives with federal, state, county, and local officials, non-profit organizations, and coastal and floodplain residents.

Sept 83 - May 1985 **Electronics Technician**
Consumers Electronic Service Co., Canton, MA

Sept 1980 - June 1983 **Research Assistant:** The Bureau of Economic Geology, Texas
Teaching Assistant: Geography Department, University of Texas
Austin, TX

June 1978 - Sept 1980 **Physical and Biological Research Assistant**
NOAA, National Marine Fisheries Service, Woods Hole, MA

Professional Expertise

- *Independent Technical and Regulatory Review of Coastal Projects (Coastal Landform specialty);*
- *Coastal Erosion Control Alternatives Analyses;*
- *Coastal Landform Delineations (e.g. Coastal Banks and Coastal Dunes);*
- *Coastal Landform Beneficial Function Descriptions (including human impacts);*
- *Coastal Regulations / State & Local Coastal Wetlands Protection;*
- *Presentations on Shoreline Processes & Human-interactions, Coastal Erosion & Coastal Erosion Control Alternatives, and Sea Level Rise;*
- *Coastal Landforms & Coastal Floodplain By-law/Ordinance Review & Support;*
- *Expert Testimony on Coastal Landform & Coastal Erosion Issues.*

Professional Affiliations (current)

Massachusetts Association of Conservation Commissions

Massachusetts Association of Wetlands Scientists

Duxbury Beach Reservation, Inc, Board of Directors & Technical Committee, (owners in-trust of a 4.5 mile long barrier beach) (former VP)

American and Northeast Shore & Beach Preservation Association

Sea Grant College Program, Climate Change/Sea Level Rise Hui

Professional Affiliations (former)

Marshfield (MA) Conservation Commission

Massachusetts Coastal Hazards Commission (Chair of Protection Working Group - 2007)

Massachusetts Barrier Beach Task Force (Technical advisor)

Massachusetts Coastal Floodplain Task Force (Initiator & former Chair)

Massachusetts Coastal Bank Delineation Task Force (Initiator & former Chair)

North and South Rivers Watershed Association (Board of Directors)

New England Floodplain and Stormwater Managers Association (Board of Directors (2-terms))

Massachusetts Rapid Response Storm Damage Assessment Team (Initiator & Team Leader '91-'98)

Tsunamis Observation Team (Co-Leader, Kauai, HI - 2008-2010)

The Coastal Society Board of Directors

Educational History

M.A. Physical Geography/Geomorphology, 6/1983, University of Texas, Austin, TX

Thesis Title: *The Shoreline Variability Measurement Technique: A Synthesis of Short- and Long-term Shoreline Changes*

Award: The Outstanding Research Award

B.S. Geology/Contract Minor: Coastal Studies, 1980, University of MA

Award: Bookstore Scholarship

MA State Electronics License, 1973, GTE Sylvania Technical School, Waltham, MA

Military Service

3/70 - 10/71

Army Commendation Medal

U.S. Army (Airborne/Paratrooper)

Sp5: Honorable Discharge

Viet Nam Services (in country): Aug 1970 - Oct 1971

Publications & Abstracts

O'Connell, J.F., 2010, *Shoreline Armoring Impacts and Management along the Shores of Massachusetts and Kauai, Hawaii*, in Shipman, H., Dethier, M.N., Gelfenbaum, G., Fresh, K.L., and Dinicola, R.s., eds., 2010, *Puget Sound Shorelines and the Impacts of Armoring - Proceedings of a State of the Science Workshop*, May 2009; U.S. Geological Survey Scientific Investigations Report 2010-5254, p. 65-76.

O'Connell, J.F., Aiu, I., Milnes, L., and Smith, L.E., 2010, *The Island of Kauai, Hawaii's Progressive Shoreline Setback and Coastal Protection Ordinance*, Proceedings of The Coastal Society's 22nd Annual Conference, Shifting Shorelines: Adapting to the Future, Wilmington, N.C., June.

Titus, J., Hudgens, D.E., Trescott, D.L., Craghan, M., Nuckols, W.H., Hershner, C.H., Kassakian, J.M., Linn, C.J., Merritt, P.G., McCue, T.M., O'Connell, J.F., Tanski, J., Wang, J., 2009, *State and Local Governments Plan for Development of Most Land Vulnerable to Rising Sea Level along the U.S. Atlantic Coast*, Environmental Research Letters, V. 4.

O'Connell, J.F., and Justus, S., 2009, *Effectively Managing Coastal Floodplain Development: A Model By-law*, published jointly by Woods Hole Sea Grant, Hawaii Sea Grant, Cape Cod Commission (MA) and Cape Cod Cooperative Extension (MA): available from Cape Cod Commission, Barnstable, MA, or web site <http://www.capecodcommission.org/bylaws/home.htm>

O'Connell, J.F., Eversole, D., and Norcross-Nu'u, Z., 2009, *A Progressive, Balanced Coastal Construction Setback Ordinance for the Island of Kauai, Hawaii: Implementation and Lessons Learned*, Coastal Zone '09, Boston, MA, July, Abstract with program.

O'Connell, J.F., 2008, *Comprehensive Barrier Beach Management: Balancing Storm Restoration, Recreational Use, and Coastal Resource Protection using Progressive Practices, Duxbury Beach, Massachusetts*, Solutions to Coastal Disasters, Conference Proceedings, AM Society of Civil Engineers, COPRI, Oahu, HI.

O'Connell, James F., 2008, *Coastal Dune Protection and Restoration, Using Cape American Beach Grass and Fencing*, Marine Extension Bulletin, Woods Hole Sea Grant and Cape Cod Cooperative Extension, December, 16pgs, (<http://www.whoi.edu/seagrant/images/DunesRestoration-FINAL.pdf>)

O'Connell, J.F., 2007, DVD: '*Coastal Landforms, Coastal Processes, and Erosion Control Alternatives on Cape Cod & Southern Plymouth, MA*' (published by & available from Woods Hole Sea Grant, Woods Hole, MA).

O'Connell, J.F., 2007, *The Beginning: A Geologic View of Duxbury Beach, Massachusetts*, in The Duxbury Beach Book, Kearney, M.M. and Foster, K. eds. Duxbury Beach Reservation, Inc, Duxbury, MA

Brodeur, J., and DeRosa, S., (eds), 2007, *The Future of Massachusetts Beaches: Relocate, Nourish or Lose Them*, proceedings of a Workshop held at the Woods Hole Oceanographic Institution, May, 2007.

O'Connell, J.F., 2006, DVD: '*Coastal Hazards in Massachusetts: Discussions with Local Legislators*', published by Woods Hole Sea Grant, (permission from Scituate Community Television and Falmouth Community Television).

O'Connell, J.F., 2005, *Shoreline Change and the Effects of Human Activity along the Wellfleet Harbor Shore*, Third Annual State of Wellfleet Harbor Conference, Wellfleet, MA, abstracts w/program.

Smith, L.B., Vautrinot, A., Rosen, P., Fitzgerald, D., O'Connell, J.F., 2005, *Sacrificial Dune Role in Coastal Barrier Protection: Duxbury Beach*, in Solutions to Coastal Disasters Conference Proceedings, ASCE, Charleston, S.C., May 2005.

O'Connell, J.F., 2005, *Documenting Short-term Changes in Beaches and Dunes using a Regional Volunteer Beach Profiling Program on Cape Cod, the South Shore and Nantucket, MA*, Abstracts with Program, 10th Annual Cape Cod Natural History Conference, Barnstable, MA.

O'Connell, J.F., 2004, *Beach and Dune Profiling: Training in the Use of the Emory and O'Emory Rod Methods*, (DVD), production of WHOI Sea Grant & Cape Cod Cooperative Extension produced by Blue Bear Productions (WHOI-V-04-005).

O'Connell, J.F., 2004, *Are We Protecting the Beneficial Functions of Coastal Landforms: An Analysis of Activities Permitted on Coastal Landforms in Cape Cod in 1999*, Proceedings of The Coastal Society 19th Biennial Conference, Newport, R.I., May 2004.

Buynevich, I., and O'Connell, J.F., 2004, *Beyond the Chart: The Geological Legacy of the Historic North River Inlet, Massachusetts*, NE-GSA, Abstracts w/Program, VA.

O'Connell, J.F., 2004, *Cape Cod Landforms and Coastal Processes* (large format, full-color poster), produced by Cape Cod Cooperative Extension and WHOI Sea Grant.

O'Connell, J.F., 2003, *The Art and Science of Mapping Shorelines and Interpreting Shoreline Change: The Massachusetts Experience*, Proceedings of the 13th International Symposium on Coastal and Ocean Management, CZ'03, Baltimore, MD.

O'Connell, J.F., 2003, *Beach and Dune Profile Monitoring: A Massachusetts Citizen Monitoring Effort to Document Short-term Changes to Dunes and Beaches*, 8th Annual Cape Cod Natural History Conference, Abstract with Program, hosted by Massachusetts Audubon Society, Cape Cod Community College, Barnstable, MA.

- O'Connell, J.F., 2002, *New Shoreline Change Data and Analysis for the Massachusetts Shore with Emphasis on Cape Cod and the Islands: Mid-1800s to 1994*, Environment Cape Cod (published by Barnstable County), V. 5, No. 1, September 2002.
- O'Connell, J.F., 2002, *The Challenge of Stabilizing Coastal Landforms with Bioengineering Techniques: Do They Really Work?*, in *Stabilizing Dunes and Coastal Banks using Vegetation and Bioengineering: Proceedings of a workshop held at the Woods Hole Oceanographic Institution, Woods Hole, MA.*
- O'Connell, J.F., ed, 2002, *Stabilizing Dunes and Coastal Banks using Vegetation and Bioengineering: Proceedings of a Workshop held at the Woods Hole Oceanographic Institution, Woods Hole, MA, WHOI Technical Report #WHOI-2002-12*, Dec 2002.
- O'Connell, J.F., 2002, *Updated Shoreline Change Data for Cape Cod: Where are We Losing and Gaining Shore?*, Abstracts with Program, Proceedings of the 7th Annual Cape Cod Natural History Conference, Barnstable, MA
- Thieler, E.R., O'Connell, J.F., and Schupp, C., 2001, *The Massachusetts Shoreline Change Project: 1800s to 1994 Technical Report*, USGS Administrative Report, September 2001 (project funded by MA CZM).
- Schupp, C., Thieler, E.R., and O'Connell, J.F., 2001, *Mapping and Analyzing Historical Shoreline Changes in Massachusetts*, in Proceedings of CoastGIS '01: Managing the Interfaces Conference, Halifax, Nova Scotia, June 18-20, 2001.
- O'Connell, J.F., 2001, ed, *Can Humans and Coastal Landforms Co-exist?*, Proceedings of a Workshop held at the Woods Hole Oceanographic Institution, Woods Hole, MA, WHOI Technical Report #WHOI-2001-14.
- O'Connell, J.F., 2000, *The Coastal Landform System Sustainability Project: An Analysis of Activities Permitted on Coastal Landforms on Cape Cod, Massachusetts in 1999*, Environment Cape Cod, V. 3, No. 2, December 2000.
- O'Connell, J.F., 2000. *Coastal Landform System Sustainability Project: An Analysis of Activities Permitted on Coastal Landforms on Cape Cod, Massachusetts in 1999*, Woods Hole Oceanographic Institution, Woods Hole, MA, Technical Report WHOI-2000-09.
- O'Connell, J.F. and Leatherman, S.P., 1999. *Coastal Erosion Hazards and Mapping along the Massachusetts Shore*, Journal of Coastal Research, Special Issue #28.
- O'Connell, J.F., 1998, *Shoreline Change: Coastal Landform Management Dilemma*, in *Coastal Landform Management in Massachusetts*, Woods Hole Oceanographic Institution, Sea Grant Program, , eds, Crago, T.I. and DeRosa, S.D., proceedings of a Workshop held at WHOI, Woods Hole, MA, Sea Grant Report WHOI-W-97-001.
- O'Connell, J.F., 1997, *Mapping of Coastal Erosion Hazard Areas*, Proceedings of the Sixth Annual Conference of the New England Floodplain and Stormwater Managers Association, Milford, MA.

O'Connell, J.F., 1997, *Historic Shoreline Change Mapping and Analysis along the Massachusetts Shore*, Proceedings of the Tenth Symposium of Ocean and Coastal Management, Coastal Zone '97, Boston, MA.

O'Connell, J.F., 1997, *Technical Standards to Protect the Beneficial Functions of Land Subject to Coastal Storm Flowage*, Proceedings of the Tenth Symposium of Ocean and Coastal Management, Coastal Zone '97, Boston, MA.

Office of Technology Assessment, Environmental Division, U.S. Congress, 1995, *Technologies to Benefit Shoreline Property and Rare Species Habitat: An Atlantic Coast Example*, contributing author.

O'Connell, J.F., 1995, *Massachusetts Coastal Zone Management's High Hazard Area Mapping and Shoreline Change Project: The Value of NOS/FEMA/OCRM/State Data Exchange*, Proceedings of the Ninth Symposium of Coastal and Ocean Management, Coastal Zone '95, Tampa, FL, pgs 476-477

O'Connell, J.F. 1995, *Massachusetts Experience through Three Presidentially Declared Coastal Storm Disasters, Hazard Mitigation, and New Initiatives*, Proceedings of the 19th Annual Conference of the Association of State Floodplain Managers, Portland, ME.

Published Bulletins

New Shoreline Change Data Reveal Massachusetts is Eroding, 2003, Woods Hole Oceanographic Institution, Sea Grant Program, Marine Extension Bulletin.

Evaluation of Coastal Erosion Hazards: Results of a National Study and Massachusetts Perspective, 2001, Woods Hole Oceanographic Institution, Sea Grant Program, Focal Point, August 2001.

Beach and Dune Profiling: An Educational Tool for Observing and Comparing Dynamic Coastal Environments, 2001, Woods Hole Oceanographic Institution, Sea Grant Program, Marine Extension Bulletin, January 2001.

Shoreline Change and the Importance of Coastal Erosion, 2000, Woods Hole Oceanographic Institution, Sea Grant Program, Focal Point, April 2000.

Certified Training & Specialty

Wetland Delineation (3 courses); Erosion & Sedimentation Control; sponsored by MA Association Conservation Commissions 2011-2012

Tsunamis Observation Training, 2008, Kauai, HI

Coastal Construction (REC-105) Training Certificate, 2007, MEMA

Techniques of Supervision, 1997, Human Resources Division, Commonwealth of MA

Hazard Mitigation Training Course, 1992, Federal Emergency Management Agency

Basic Chart Navigation, 1992, MA Maritime Academy

Loran C and Navigation, 1992, MA Maritime Academy

Outboard Engine Repair, 1993 & 1994 (2 Certificates), MA Maritime Academy

Certified Scuba Diver (sport & spear-fisherman)

CPR Certification, 2009

Basic First Aid, Certified, 2009

Outboard Motor Boat owner for 20+ years

Avid Sea & Surf Kayaker

Hawaiian Outrigger Canoe Paddler (Pu'uwai Racing Team, Kauai, HI)



www.chilmarkma.gov

TOWN OF CHILMARK CHILMARK, MASSACHUSETTS

TOWN OFFICES:
Beetlebung Corner
Post Office Box 119
Chilmark, MA 02535
508-645-2100
508-645-2110 Fax

January 15, 2014

Hurricane Sandy Coastal Resiliency Competitive Grant
Town of Chilmark, MA.
Squibnocket Beach Project and Application

To whom it may concern:

The Town has been working on this joint partnership and project since April 2013. The plan as described and submitted with this application is favorable to all entities involved.

- Town residents get an expanded Squibnocket Beach and parking area that is accessible.
- The Commonwealth Division of Fisheries will have access to Squibnocket Pond for water quality and habitat monitoring.
- The pond's shellfish habitat will improve when the revetment is removed and the beach re-nourished.
- The Squibnocket Farm Homeowner's Association and Town emergency vehicles will have a long-term, environmentally sound and stable roadway to their homes.

The Board of Selectmen has been quite involved with this project and fully endorses the plan as presented in this application.

Sincerely,

Warren Doty, Chairmah
Chilmark Board of Selectmen

Daniel W Greenbaum
P.O. Box 701
Chilmark, MA 02535

December 6, 2013

Members of the Committee addressing the Squibnocket Beach issues.

I just had the opportunity to review the presentation of the proposal for expanding and enhancing Squibnocket Beach, and want to congratulate you on an incredibly positive solution that will be of great benefit to Chilmark residences.

I have many fond memories of the beautiful expansive beach three-quarters of a century ago. With the removal of the revetment, parking lot and roadway, we can hope that the beach will begin to return to those conditions.

Many thanks to you all for your imaginative proposal, with special thanks to the Squibnocket Farm Association. I will do anything I can to support this proposal.

Dan Greenbaum