

August 29, 2013

Mr. Michael L. Bachand, P.E.
Levee Safety Program Manager
United States Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

RE: Request for District Engineer Review Of Engineering Assessment Which Outlines the Procedures that Will Result in No Modification or Alternation to a Corps of Engineers Project: Blasting Associated With Construction of New Bedford Marine Commerce Terminal, New Bedford, MA

Thank you so much for meeting with us on August 22, 2013, a meeting in which we discussed the New Bedford Marine Commerce Terminal, and our request for revisions to the planned implementation of blasting in association with its construction.

On behalf of the Commonwealth of Massachusetts, and pursuant to 33 U.S.C 408, the Massachusetts Clean Energy Center (MassCEC) has prepared this document and the attached plans and report in accordance with:

*U.S. Army Corps of Engineers (USACE)
MEMORANDUM FOR MAJOR SUBORDINATE COMMANDS,
Subject: Policy and Procedural Guidance for the Approval of Modification and Alteration of
Corps of Engineer Projects, dated October 23, 2006*

And

*USACE MEMORANDUM FOR SEE DISTRIBUTION,
SUBJECT: Clarification Guidance on the Policy and Procedural Guidance for the Approval of
Modifications and Alterations of Corps of Engineers Projects, dated November 17, 2008.*

This submittal is a revision of the January 2013 submission by Apex Companies, LLC, on behalf of the Commonwealth of Massachusetts, to USACE, which was approved by your office on March 1, 2013. The proposed revision is in accordance with our discussions at an August 22, 2013 meeting at the New England District of the United States Army Corps of Engineers (USACE) in Concord, Massachusetts in which MassCEC and its subcontractors, Apex Companies, LLC (Apex) and GZA GeoEnvironmental, Inc. (GZA) described the conservative nature of the previous assessment approved by USACE, and requested a proposed modification

in order to increase the allowable charge weights per delay to facilitate blasting in the vicinity of the New Bedford Harbor HPS.

Also attached is a revised Vibration Monitoring Plan, previously approved via e-mail by your office on August 15, 2013. The revised Vibration Monitoring Plan includes MassCEC's proposal (also discussed at our August 22, 2013 meeting) that a robust monitoring plan include the installation of piezometers into the New Bedford HPS in order to monitor pore water pressure (a more rigorous method for monitoring liquefaction potential). As part of this process, MassCEC will be able to confirm the composition and state of the "Dumped Earth Fill" which is currently present (according to USACE design drawings) within the center of the HPS. This information may be useful to USACE during future design analysis and/or seismic analysis of the New Bedford Harbor HPS.

The revised assessment, dated August 2013, prepared by GZA GeoEnvironmental, Inc. is included as **Attachment 1**. The revised Vibration Monitoring Plan is included as **Attachment 2**. Please see the end of the document for an explanation of how the comments were more specifically addressed.

PROJECT DESCRIPTION

The Massachusetts Clean Energy Center is in the process of constructing a multiuse marine facility, the New Bedford Marine Commerce Terminal (NBMCT), within New Bedford Harbor, in the vicinity of the New Bedford Hurricane Protection System (HPS) in New Bedford Massachusetts (a Corps of Engineers project subject to 33 CFR 208.10 and 33 U.S.C. 408). In January of 2013, the Commonwealth anticipated that it will require the use of blasting to assist in the removal of rock in construction of the NBMCT. Investigations conducted since that time have confirmed that blasting is necessary and have also indicated significantly larger quantities of rock than previously anticipated based on the design-level investigations conducted prior to the Commonwealth's initial submittal to USACE in November of 2012. Pursuant to Section 408, which prohibits the impairment of works built by the United States, MassCEC has conducted a detailed engineering assessment to outline a methodology that would allow implementation of blasting without impact to the New Bedford Hurricane Protection System.

MassCEC is providing the results of this assessment to assure USACE that the proposed construction of the facility will not alter, modify, injure or impair the HPS. The work in question will require no alteration or modification to a Corps of Engineers Project. This document has been prepared only as a means to submit the attached documents to the USACE for review and approval. Please note that the permitting of this project has been completed directly by USEPA under its CERCLA authority associated with the New Bedford Harbor Superfund Site, and the State Enhanced Remedy provision of the 1998 Record of Decision.

In multi-agency reviews of the NBMCT, the USACE expressed concern that the construction of the NBMCT may impact the HPS, specifically that the potential blasting of rock within the proposed navigational channel for the facility may adversely affect the HPS. MassCEC has employed GZA to study the potential impacts to the hurricane barrier from blasting, and the resulting report is included with this document. The consultant's report specifies the maximum charge size which can be used to fracture rock relative to a given distances from the HPS without impacts to the design Factors of Safety integral to the Corps operated structure. GZA's analysis

included both slope stability and liquefaction calculations. The following is Table 1 from GZA's report of the recommended maximum charge weight per delay associated with blasting, as it relates to the distance of that charge from the HPS:

Dist. (ft)	10 Hz	20 Hz	30 Hz	40 Hz	50 Hz	60 Hz	70 Hz	80 Hz	90 Hz
	Pounds per Delay								
250	198	83	50	35	26	21	17	15	13
300	200	120	72	50	38	30	25	21	18
350	200	163	98	69	52	41	34	29	25
400	200	200	128	89	68	54	44	38	32
450	200	200	162	113	86	68	56	48	41
500	200	200	200	140	106	84	69	59	51
550	200	200	200	169	128	102	84	71	61
600	200	200	200	200	152	121	100	85	73
700	200	200	200	200	200	165	136	115	99
800	200	200	200	200	200	200	178	150	130
900	200	200	200	200	200	200	200	190	164
1000	200	200	200	200	200	200	200	200	200
1100	200	200	200	200	200	200	200	200	200
1200	200	200	200	200	200	200	200	200	200

In their report, GZA states that it is their opinion that if the blast levels are kept below these recommended levels, the stability of the hurricane barrier will not be adversely affected, and that negligible settlement of the barrier will result due to blasting activities. Based on the results of the investigation conducted by GZA, the commitment by MassCEC to include the distance vs. charge weight per delay requirements into MassCEC's specifications for the project, and for MassCEC to institute the monitoring program suggested by GZA within its report (and further detailed within the Vibration Monitoring Plan, MassCEC has concluded that no risk and/or damages to the New Bedford HPS will occur from the proposed blasting associated with the construction of the New Bedford Marine Commerce Terminal.

MassCEC has incorporated the findings of the report into the project plans and specifications, and will ensure their implementation. No alteration to the HPS is planned as part of the construction of the NBMCT, and MassCEC will continue to implement the construction of the facility with the input of the USACE to ensure that the HPS is not adversely affected by construction activities.

With regard to Executive Order 11988, as there is no planned modification to the HPS and the contemplated blasting will be designed such that no alteration occurs, there are no anticipated changes to the floodplain of the Acushnet river nor to the protections offered by the HPS.

ATTACHMENTS

For completeness in submitting materials for review under the guidance documents cited above, the following materials are included as attachments:

- **Attachment 1:** “Assessment of Blasting Impacts to the New Bedford-Fairhaven Hurricane Barrier, New Bedford Marine Commerce Terminal, New Bedford Massachusetts.” Prepared for Apex Companies, LLC, Boston, Massachusetts. Prepared By: GZA GeoEnvironmental, inc., Providence, Rhode Island, dated October 2012 revised December 2012, and August 2013.
- **Attachment 2:** “Vibration Monitoring Plan For the Hurricane Shore Protection (HSP) System New Bedford Marine Commerce Terminal” Prepared By Apex Companies, LLC dated June 19, 2013 revised August 2013.

MassCEC sincerely appreciates your consideration of this very important matter. If you have any questions related to this proposed revision, please do not hesitate to contact me at 617-315-9330.

Sincerely,

Bill White

Bill White
Director, Offshore Wind Sector Development

Attachments: 1) “Assessment of Blasting Impacts to the New Bedford-Fairhaven Hurricane Barrier, New Bedford Marine Commerce Terminal, New Bedford Massachusetts.” Prepared for Apex Companies, LLC, Boston, Massachusetts. Prepared By: GZA GeoEnvironmental, inc., Providence, Rhode Island, October 2012, revised December 2012 and August 2013.
2) “Vibration Monitoring Plan.” Prepared for Apex Companies, LLC, Boston, Massachusetts. Prepared By: GZA GeoEnvironmental, inc., Providence, Rhode Island, June 2013, revised August 2013.