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Subject: Re: DRAFT Meeting Notes for the August 21, 2012 Interagency Meeting on Potential Impacts to the New Bedford Hurricane Barrier from Blasting Associated with the South Terminal Project (UNCLASSIFIED)

Hi Paul - Thanks for putting together the draft meeting notes for the 8/21/12 meeting at the Corps regarding potential blasting impacts to the NBH Hurricane Barrier. I have taken the liberty of making a few suggested minor editorial changes (see highlighted areas). All in all, I think this captures the major points of the meeting.

Thanks,

Mike

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Date: 08/22/2012 03:22 PM

Subject: DRAFT Meeting Notes for the August 21, 2012 Interagency Meeting on Potential Impacts to the New Bedford Hurricane Barrier from Blasting Associated with the South Terminal Project (UNCLASSIFIED)

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Caveats: NONE

All:

Enclosed are my DRAFT meeting notes from yesterday's interagency meeting to discuss potential impacts to the New Bedford Hurricane Barrier associated with proposed blasting impacts from the South Terminal Project. Carl Dierker of EPA had requested that I put together some notes from this meeting in order to share with the larger EPA - South Terminal Team. I wanted to run my DRAFT meeting notes by you to ensure that I am adequately covered the major discussion points before sending them out for wider distribution. Please let me know if you have any outstanding concerns or comments with this document. Thanks for your review.

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DRAFT MEETING NOTES:

On Tuesday August 21, 2012 representatives from the Commonwealth of Massachusetts, Apex Companies, the U.S. Army Corps of Engineers, and the Environmental Protection Agency ("EPA") met to discuss the scope of potential impacts that blasting associated with the South Terminal Project may have on the adjacent New Bedford Hurricane Barrier. Attendees to this meeting included the following Gary Davis (Massachusetts EEA), Jay Borkland (Apex), Chet Myers (Apex), Michael Marsh (EPA), Mike Keegan (Corps), Scott Michalak (Corps), Michael Bachand (Corps), Rose Schmidt (Corps), and Paul Sneeringer (Corps). This document summarizes the major discussion points from this meeting.

1.) The Commonwealth of Massachusetts made it clear that their preference is not to blast. They understand the spectrum of regulatory, engineering, and political concerns associated with blasting.

2.) The limited boring surveys that have been completed for the South Terminal Project have identified the presence of shallow bedrock formations in and adjacent to the proposed marine terminal bulkhead and the proposed navigational channels. The boring logs document the bedrock layer at depths between -25 and -35 feet mean lower low water ("MLLW"). Therefore, the presence of this bedrock would not likely be a concern for the proposed -14 foot MLLW tug channel. It will likely be a concern for the dredging of the proposed main shipping channel (-32 foot MLLW) and the construction of the South Terminal Bulkhead, where up to 5-8 feet of bedrock may need to be removed.

3.) Apex indicates that the bedrock appears to be fractured. This material may be able to be removed without blasting, but there is ~~a good detail of~~ uncertainty about this

issue due to the current level of survey. Although the Commonwealth could specify that blasting is not allowed to remove the bedrock, they are concerned that the timing of this work could greatly delay the construction schedule for South Terminal and it is uncertain how the "no blasting" requirement would affect potential bidders for this project. Based upon these reasons, the Commonwealth is interested in continuing to pursue the blasting option.

4.) Scott Michalak of the Corps indicated that he has significant concerns about the potential impacts that blasting could have on the adjacent New Bedford Hurricane Barrier. The New Bedford Hurricane Barrier foundation was not built into the underlying bedrock, but instead into the overburden of sands and silts. Seismic waves from the proposed blasting could directly lead to settlement issues for the hurricane barrier.

5.) Due to the potential impacts to the New Bedford Hurricane Barrier, the Corps will need to accept a FINAL blasting plan (33 CFR 408) prior to the Commonwealth starting blasting operations. Scott Michalak indicated that Corps Headquarter would need to review and comment on the FINAL Blasting plan prior to any acceptance letter. Nationwide problems with the undermining of Corps Dams and Levees has been a major issue for Corps Headquarters recently. So there is no guarantee that the Corps Headquarter will approve a blasting plan for this South Terminal Project. Therefore, the Commonwealth should seriously consider alternative non-blasting techniques to break up the bedrock (e.g., expansion grout).

6.) The Corps indicated that they would need additional information before a blasting review package could be circulated to Headquarters. The Commonwealth will need to model seismic impacts associated with the proposed blasting plan, conduct a ~~liquefaction~~ **liquefaction** analysis, and provide more detailed information on existing overburden. The Corps will prepare a more detailed list of information that they will need from the Commonwealth in order to continue their review of potential blasting impacts. The Corps will also provide the Commonwealth and Apex with the original site geology and embankment and foundation design memorandums for the New Bedford Hurricane Barrier. This information will be helpful to put together the blasting analysis. The Commonwealth may choose to reduce the size of charges in order to limit potential collateral blasting impacts. It will be important to identify ~~conservation~~ **conservation** **only size d** charge **s** when doing the seismic modeling, in order to allow for potential over loading of charges by the blaster and to maintain a level of safety. The Corps also indicated that they will review and make recommendations on the DRAFT Construction Specifications for Blasting, which were included with the June 18, 2012 submittal. Once the New England District team has adequate documentation for a FINAL Blasting Plan, this information will need to be **submitted for** review by the Corps Headquarters. The Commonwealth should expect ~~this~~ **this the Corps Headquarters** review to take at least 4-6 months **after the submission of the Final Blasting Plan** before an acceptance letter could be finalized.

Additional Successional Marsh Discussion:

In general, the Corps Levee Safety Team is supportive of proposed changes to the design for Successional Marsh Mitigation work within the New Bedford Hurricane Barrier drainage way. By limiting the work to expanding the channel, impact to the hydraulic capacity of the drainage way have been avoided. The Corps had a few design recommendations. The Commonwealth may want to conduct a bank stability analysis to see if the banks adjacent to the salt marsh creation/restoration areas need to be armored.

If armoring is need, the Commonwealth should consider reusing the existing riprap. Finally, abandoned pipelines (through the hurricane barrier) should be appropriately grouted and sealed to minimize potential erosion of the hurricane barrier.

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