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Response to USEPA Questions
Commonwealth of Massachusetts
October 17, 2012
New Bedford Marine Commerce Terminal (NBMCT)

Introduction

Thank you for this opportunity to provide USEPA additional information related to the development of the NBMCT. Development of this facility represents an important opportunity to deliver lasting environmental benefits to the New Bedford region, as well as accelerate economic development throughout the region.

This document provides responses to some of the USEPA's questions and requests for information submitted by letter dated October 5, 2012 and submitted by e-mail dated October 17, 2012.

The format of the document will follow a comment–and-response outline, where each of the USEPA Comments will be listed in the order in which they were presented in the USEPA's Memoranda with the Commonwealths Response to each Comment presented immediately thereafter.

Question 1 (Item 2 From EPA's October 5, 2012 Letter): The Commonwealth has provided 21E site assessments for eight parcels (which we assume are the parcels to be included in the project) but not for two areas on other parcels where it will only hold easements to allow passage of trucks and equipment for access to construct and operate the marine terminal. The Commonwealth and/or the owner have been reluctant to perform 21E site assessments for the two easements. EPA is concerned that, because portions of these easements are unpaved, any contamination that may be present could be released through this use during construction and operation of the terminal. In the absence of 21E assessments of these areas, EPA would like confirmation from the Commonwealth, that in consultation with EPA's TSCA program, the Commonwealth will (1) apply asphalt to all unpaved areas of these easements; (2) repair any cracks or deterioration of these areas; and (3) monitor and maintain, pursuant to an agreed upon schedule, all asphalt on these easements throughout the duration of the easement interest.

SDMS Doc ID 70005507

EPA position: We need a confirmation from the Commonwealth that it will institute the above measures by October 17.

Response: In the absence of 21E assessments upon properties that the Commonwealth plans to utilize as a transportation corridor between the main facility and the Former Dartmouth Finishing facility, which are primarily already paved, and include the easements that the Commonwealth proposes to include within the final configuration for the facility, the Commonwealth commits to the following:

In consultation with EPA's TSCA program, the Commonwealth will:

(1) apply asphalt to all unpaved areas;

(2) repair any cracks or deterioration of these areas; and

(3) monitor and maintain, pursuant to an agreed upon schedule, all asphalt on these areas so long as the Commonwealth has control of these areas.

Question 2 (Item 7 From EPA's October 5, 2012 Letter, and Items 1 and 2 from EPA's October 17, 2012 e-mail): In the last couple days, EPA has become aware of a potential proposal to mitigate impacts on fish involving use of silt curtains, bubble curtains and techniques to move the fish to areas outside the silt curtains. Because such methods may affect the performance standards upon which the water quality and turbidity standards in the Draft Determination were based (and on which the draft TSCA risk-based determination is based), EPA needs sufficient detail about the design, location, any changes to monitoring methods and other relevant information about this proposal before it can issue a final TSCA Determination for the project or a Final Determination on the performance standards.

EPA position: EPA needs this information by October 17 in order to review and identify if further information is necessary and/or revise the performance standards and draft TSCA determination.

Response: Please see the attached Fish Deterrent Plan:

Project Summary

The New Bedford Marine Commerce Terminal (NBMCT) (see **Figure 1** for a site location plan) in New Bedford Harbor has been promulgated in order to develop a multi-purpose marine

terminal, a primary purpose of which will be to provide critical infrastructure to serve offshore renewable energy facilities and accommodate international shipping at the new facility. The proposed facility will also be capable of supporting other industries within New Bedford, and will beneficially re-use sand from navigational dredging or the construction of confined aquatic disposal facilities to the extent approved by US EPA.

An assessment of the potential locations for supporting offshore renewable energy facilities and international shipping completed within the document entitled "State Enhanced Remedy in New Bedford, South Terminal", promulgated by the Commonwealth on January 18, 2012 has resulted in the conclusion that South Terminal in New Bedford, Massachusetts is the only practicable location due to a number of constraints, including: horizontal clearance, jack-up barge access, overhead clearance, total wharf and yard upland area, berthing space, site control/availability, and proximity. Due to the lack of other practicable alternatives, and the avoidance and minimization of impacts to resource areas to the maximum extent practicable, the South Terminal CDF is the Least Environmentally Damaging Practicable Alternative that will meet the primary Project Purpose.

During construction of the NBMCT, many activities (including dredging) may have a temporary detrimental effect to the fish that may be present within New Bedford Harbor. A Fish Monitoring Workgroup (including members from NMFS, EPA and MassDMF) was convened to prepare a Fish Deterrent Plan that could be utilized to reduce the impact to fish by excluding them from a proposed area. The input from the Fish Monitoring Workgroup has been incorporated into this Fish Deterrent Plan. This Fish Deterrent Plan (FDP) will include all measures to be taken that will decrease the chance of mortality to marine species of concern and their spawning activities (where applicable), including: Atlantic sturgeon, Winter and Windowpane Floudners, Scup, and Anadromous fish species as directed by the National Marine Fisheries Service (NMFS).

Objectives

The objective of this FDP is to construct the NBMCT without restricting access to daily fishing traffic and have the "least environmentally damaging as practicable alternative" in place to deter fish species from the NBMCT construction area, so that none are harmed or inadvertently "taken." The system is also intended to prevent spawning within the area of work, such that the eggs of the species in question will not be present when work commences, and therefore will not be damaged or destroyed. The fish species in question are as noted in the "NMFS comments on the Draft Determination for South Terminal in New Bedford, MA" dated August 21, 2012 and included below:

- Atlantic Sturgeon;
- Winter Flounder;
- Windowpane Flounder;
- Scup;
- Black Sea Bass.

Methods

Engineered Barriers

A series of engineered barriers will be in place to exclude fish from entering the areas where dredging and other marine construction are to take place. The barriers will re-direct, but not otherwise limit vessel traffic in the area of work. The three types of barriers to be erected are a fish weir, silt curtain, and bubble barrier. Coupled with an extensive monitoring program, the system is intended to exclude fish from using the area while work is taking place. The layout of the engineered barriers is depicted on **Figure 2.**

Fish Weir

A fish weir is a net which is placed in the water column and extends approximately 4 feet off the bottom. It is designed to channel ground fish away from the area where work is to take place. The weir will be placed on the outside of all the engineered barriers in close proximity to the bubble curtain and silt curtain. A detail of the fish weir is depicted on **Figure 3.**

Silt Curtains

Turbidity Barriers, also known as turbidity curtains, silt barriers, and silt curtains in the industry are designed specifically to contain and control the dispersion of floating turbidity and silt in a water body related to marine construction, pile driving, site work, and dredging activities. Silt curtains or silt protectors minimize these impacts by improving settling times and settling suspended solids in a defined area well away from natural resources.

For the NBMCT project, a modified silt curtain will be used both for turbidity control and also as a fish barrier. Traditional silt curtains may or may not touch the harbor bottom. In the past silt curtains which do not touch the bottom have been utilized in the Harbor during disposal activities at CAD Cell #2, and during dredging activities during the posted time of year (TOY) restriction when water depth is greater than 4 feet. The water depth is critical as when there is a tidal exchange the bottom of the curtain creates turbidity as it moves up and down in the mud. The Commonwealth proposes to create a solid barrier extending silt curtains to the harbor bottom; however the curtain will be modified so that the curtain does not create turbidity. Two sections will be at the site of the proposed New Bedford Marine Commerce

Terminal and the third section will be at the proposed CAD Cell #3. The silt curtain will utilize a tidal flux pocket, the tidal flux pocket consists of a continuous line of floatation running the length of the silt curtain that is 4 feet from the harbor bottom, ensuring that the portion of the silt curtain nearest the bottom is always held taut and vertical preventing the contact which often is the cause of increased turbidity common in traditional silt curtain installations. This floatation accounts for the tidal range of New Bedford Harbor, which is ± 5 feet. When the tide is high, the silt curtain will be extended and will be stretched to its full length. When the tide falls, the floats at the 4 foot level will hold the bottom portion of the silt curtain off of the harbor floor, while the upper portion of the silt curtain will be supported on one side by the lower floats and on the other side by the surface floats. This modified silt curtain design will eliminate potential turbidity generation by the silt curtain, while allowing the silt curtain to extend from the water surface to the harbor floor. (**See cross section Figure 4**).

Bubble Barrier

The bubble barrier is a fairly recent addition to the mitigation techniques used in marine construction. Bubble barriers are, in their simplest form, a perforated pipeline running along the bottom of a waterway. Compressed air is pushed through the pipeline creating an array of bubbles along the northern limits of proposed construction site. This barrier carries three significant functions. First, fish species see the bubble array as a solid barrier, in effect a wall of air bubbles. Second, the air bubbles dampen sounds created by construction activities. Third, because the bubble barrier is a non-physical barrier, vessels may still use the existing South Terminal and Gifford Street channels during construction.

For the NBMCT project, one bubble barrier will be incorporated into the fish barrier. The bubble barrier will be placed on the northern end of the channel leading from the Gifford Street Boat Ramp. The bubble barriers and silt curtain will be overlapped to eliminate the potential for fish swimming around the barriers. A cross section of the barrier is attached as **Figure 5**. The combination of fish barrier silt curtain and bubble barrier for a fish barrier system.

Fish Monitoring

After the fish exclusion efforts are installed, a weekly monitoring procedure will be carried out. This procedure will be first implemented one day after the initial fish exclusion efforts are undertaken and once a week thereafter. The survey will be done with a sonar fish finder and a towed video system. The perimeter of the area will be surveyed twice: first to verify the silt curtain and bubble curtains are in place and second to verify the weir leader net is in place). Then the dredge area will be surveyed to determine if fish are present using the following procedure:

- Run transects parallel to shore or depth contours with a randomly selected start point for each survey.
- The survey area is approximately 1200 feet in length and runs parallel to shore. Survey will be run at approximately 1 nautical mile per hour.
- Transects will be spaced 100' on center and will begin 50' from the eastern boundary of the Silt Curtain.
- Two methods for detecting fish will be utilized: a fish finder used for identifying pelagic fish schools, and a video surveillance system used to identify flat fish.
- The video method is most appropriate for detecting flat fish. In order to ensure that visibility is acceptable for the survey, a laser scaling method will be used at each transect to visually confirm the seafloor.
- If a transect fails the visibility test, the monitoring them can select up to 5 additional grids to transect.
- If more than 5 transects fail the visibility test, then divers will complete the survey. Since the camera survey will image at a maximum 3% of the dredge area, the conservative measure of a single fish being imaged will be used as the threshold for implementing additional fish exclusion efforts.

The following decision tree will be used for the implementation of fish exclusion efforts:

VIDEO

If no flatfish are encountered → the area will be considered free of fish.

If 1 or more flatfish are encountered → fish removal procedure will be initiated.

SONAR

If <5 pelagic schools are encountered on sonar → the area will be considered free of fish.

If >=5 pelagic school are encountered on sonar → fish removal procedure will be initiated.

Reporting

A video monitoring report will be provided to the Fish Monitoring Workgroup weekly within 4 days of the monitoring. For every video monitoring event the report will describe:

1. The condition of the engineered barriers (silt curtain, bubble curtains, and weir leader net);
2. The prevalence of flatfish and other fish at the base of the fish exclusion devices;
3. Any actions taken to improve the conditions of the fish exclusion devices;

4. The total count of grid/transects completed;
5. The total count of grid transects skipped due to visibility – if grid survey method used;
6. Description of any survey alterations due to lack of visibility;
7. Total count of flatfish encountered;
8. Total count of other fish encountered;
9. Total count of schools on the sonar record;
10. Description of any actions taken to remove fish from the area;
11. Any turbidity monitoring exceedances;
12. Recommendations to improve the survey methodology, the fish exclusion devices, or the fish removal tactics;
13. Field notes from video and sonar survey (note that the video and sonar data will be observed in the field but will not be recorded).

Fish Exclusion Efforts

In the event that fish are found to be present during the monitoring surveys (the first video survey), measures will be taken to use a "fish startle system" to move fish outside the aforementioned barriers. The bubble barrier will be turned off and fish exclusion techniques will the deployed. The three different types of systems that will be mounted to the survey vessel to startle fish species are:

- Light
- Sound
- Tactile

All three systems will be used during all fish startling activities. The light system will include strobe lights mounted on either side of the helm with extendable poles. The lights range in size from four to eight feet in length. Range of the color of light projected will vary, as will the intensity of light emitted. Bright lights have been shown to startle fish in many studies. The extendable poles will allow the lights to startle fish farther down in the water column than if the system was mounted to the helm. The sound emitting part of the startle system will be an underwater speaker capable of sound ranges from 100-1200 hertz. The speaker will hang on a tether into the water column. The tactile fish deterrent will be made of a fish net with light chain hanging to the harbor bottom. The net will be large enough gauge line that the fish will see it but will have large openings so they are not caught. The system will progress through the deterrence area at 2-4 knots on a calm day. During the fish startle activities the bubble barrier will not be active to allow fish to pass through these areas unimpeded (see **Figure 7** for schematic of fish startle boat mount set up). The bubble curtain will then be turned on.

The video survey will be repeated (second video survey). If fish are found again, time permitting a second attempt at removing the fish will be attempted and the video survey will

be repeated again. If fish are still found in the work area during the third video survey, the Commonwealth will re-inspect the integrity of the fish exclusion methodology. If there is a breach or other issue with implementation of the fish exclusion methodology, it will be repaired and monitoring will begin again.

If, after one month of deployment, the fish exclusion methodology does not appear to be meeting all of the goals of the fish exclusion program, the Commonwealth will meet with the Fish Monitoring Workgroup (FMW), the Commonwealth's monitoring team, and others with relevant expertise, to discuss issues and potential mitigation measures. The procedures implemented will be reviewed with the FMW, and potential alternate methods for monitoring and/or silt curtain maintenance, mitigation, or additional fish exclusion methods will be discussed.

Once a breach, issue, or problem, or once a potential alteration/mitigation measure is implemented, the monitoring will begin again to determine its effectiveness. Should fish be found in three consecutive video surveys after implementation of the mitigation measure, the Commonwealth will first re-inspect the integrity of the fish exclusion methodology. If there is a breach or otherwise issue with implementation of the fish exclusion methodology, it will be repaired and monitoring will begin again. Otherwise, either a subsequent alteration/mitigation measure will be implemented, or a meeting with the FMW will be scheduled to discuss whether or not modifications to the engineering controls could be made.

Figure 1:
SITE LOCUS

SCALE 1"=2400'

NEW BEDFORD
MARINE COMMERCE TERMINAL
FIN FISH EXCLUSION PLAN
NEW BEDFORD, MA

APEX
184 High Street, Suite 502
Boston, Massachusetts
Phone: (617) 728-0070

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APEX

ROCKVILLE, MD
SOUTH WINDSOR, CT - BOSTON, MA -
NEW BEDFORD, MA - HOLYOKE, MA

184 HIGH STREET, SUITE 502
BOSTON, MA 02210

58H CONNECTICUT AVENUE
SOUTH WINDSOR, CT

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PROJECT
NEW BEDFORD
MARINE COMMERCE
TERMINAL

OWNER
MASSACHUSETTS CLEAN ENERGY CENTER
55 SUMMER STREET, 9TH FLOOR
BOSTON, MA

NO.	DATE	DESCRIPTION	BY

PROJECT NO.	6690
CADD FILE	GIFFORD_ST
DESIGNED BY	JER
DRAWN BY	JER
CHECKED BY	CHM
DATE	9-27-12
DRAWING SCALE	1"=150'

GRAPHIC SCALE
SCALE: 1"=150'
0 75 150 300

SHEET TITLE

NEW BEDFORD
MARINE COMMERCE
TERMINAL
FISH BARRIER

DRAWING NO.

FIGURE 2

1 OF 1

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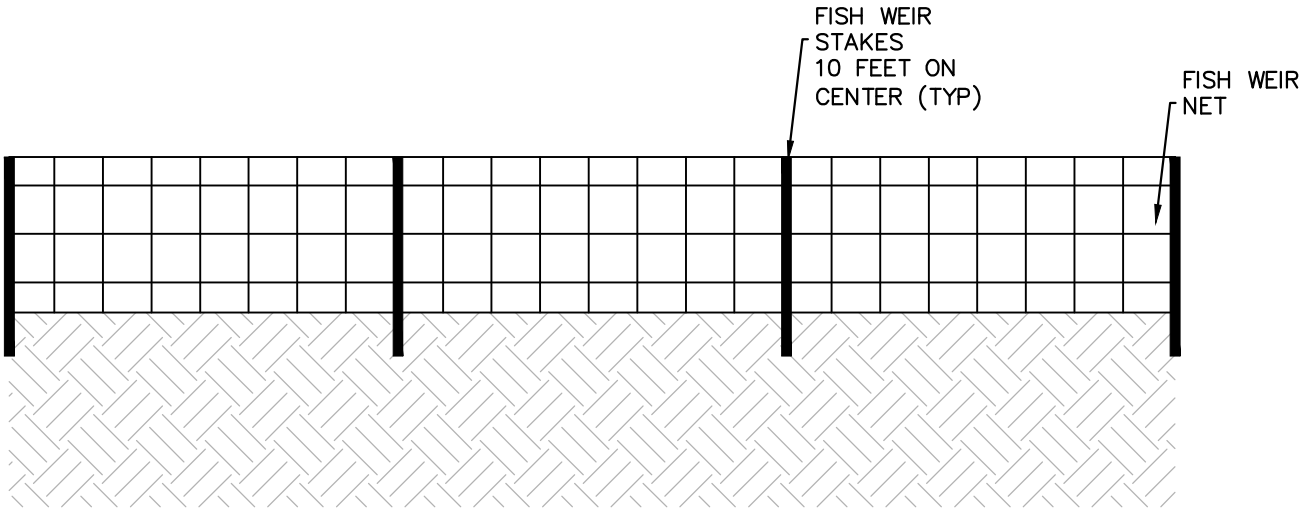


NOTE: ALL DIMENSIONS ARE APPROXIMATE

FIGURE 3:
FISH WEIR
DETAILS

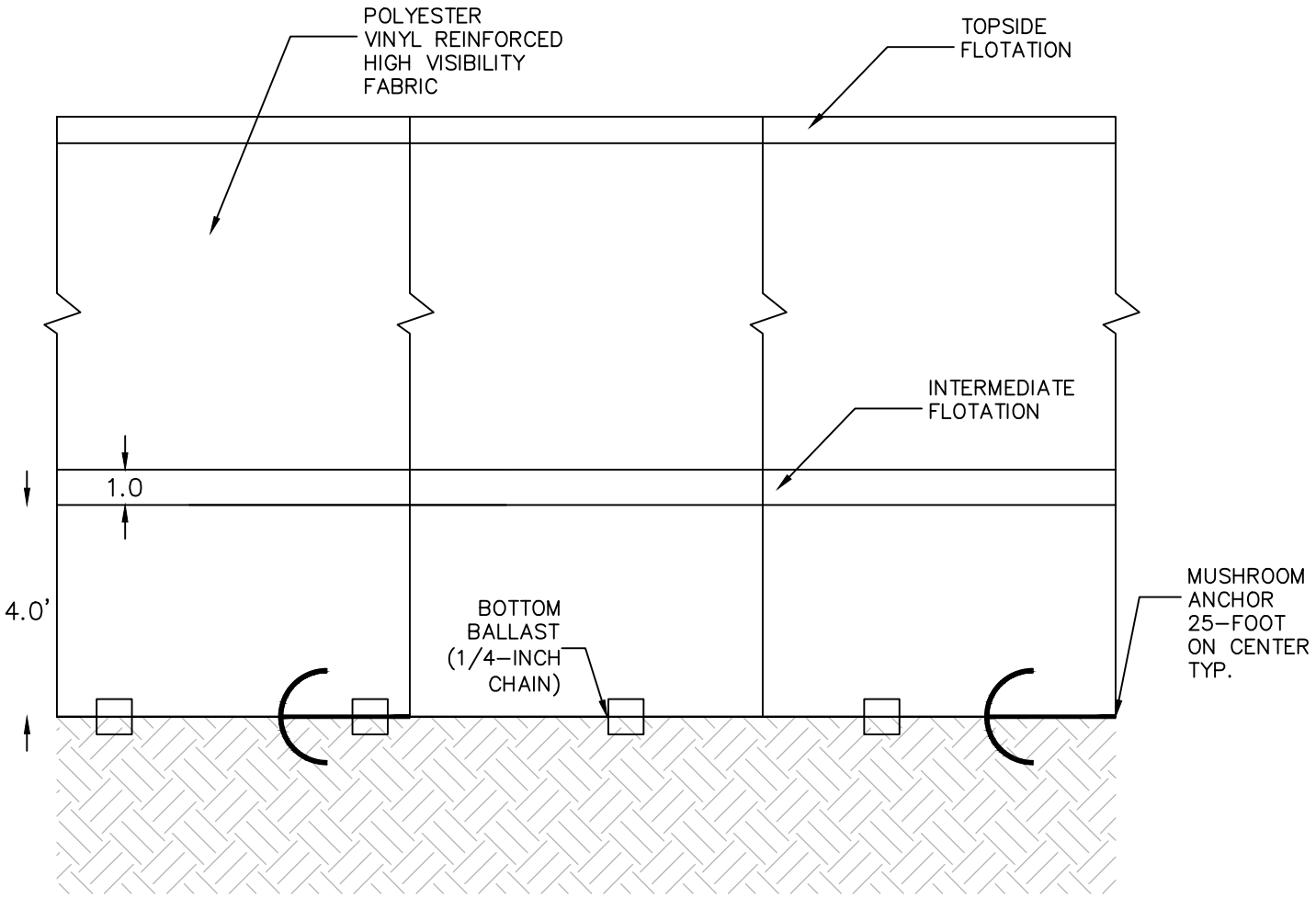
FISH PROTECTION
PLAN
NEW BEDFORD MARINE
COMMERCE TERMINAL

APEX
184 High Street, Suite 502
Boston, Massachusetts
Phone: (617) 728-0070

P:\Jobs\6690 NBH_ Phase IV\PLANS\SILT_&_BUBBLE_CURTAIN.dwg

SPECIFICATIONS

- FABRIC – POLYESTER REINFORCED VINYL HIGH VISIBILITY YELLOW
- CONNECTOR – SECTIONS ARE LACED TOGETHER THROUGH GROMMETS AND LOAD LINES ARE BOLTED TOGETHER.
- FLOTATION – 6" EXPANDED POLYSTYRENE OVER 9 LBS./FT. BUOYANCY.
- BALLAST – 1/4" GALVANIZED CHAIN (.7 LBS/FT)



NOTE: ALL DIMENSIONS ARE APPROXIMATE

FIGURE 4: SILT CURTAIN DETAILS	FISH PROTECTION PLAN NEW BEDFORD MARINE COMMERCE TERMINAL	APEX 184 High Street, Suite 502 Boston, Massachusetts Phone: (617) 728–0070

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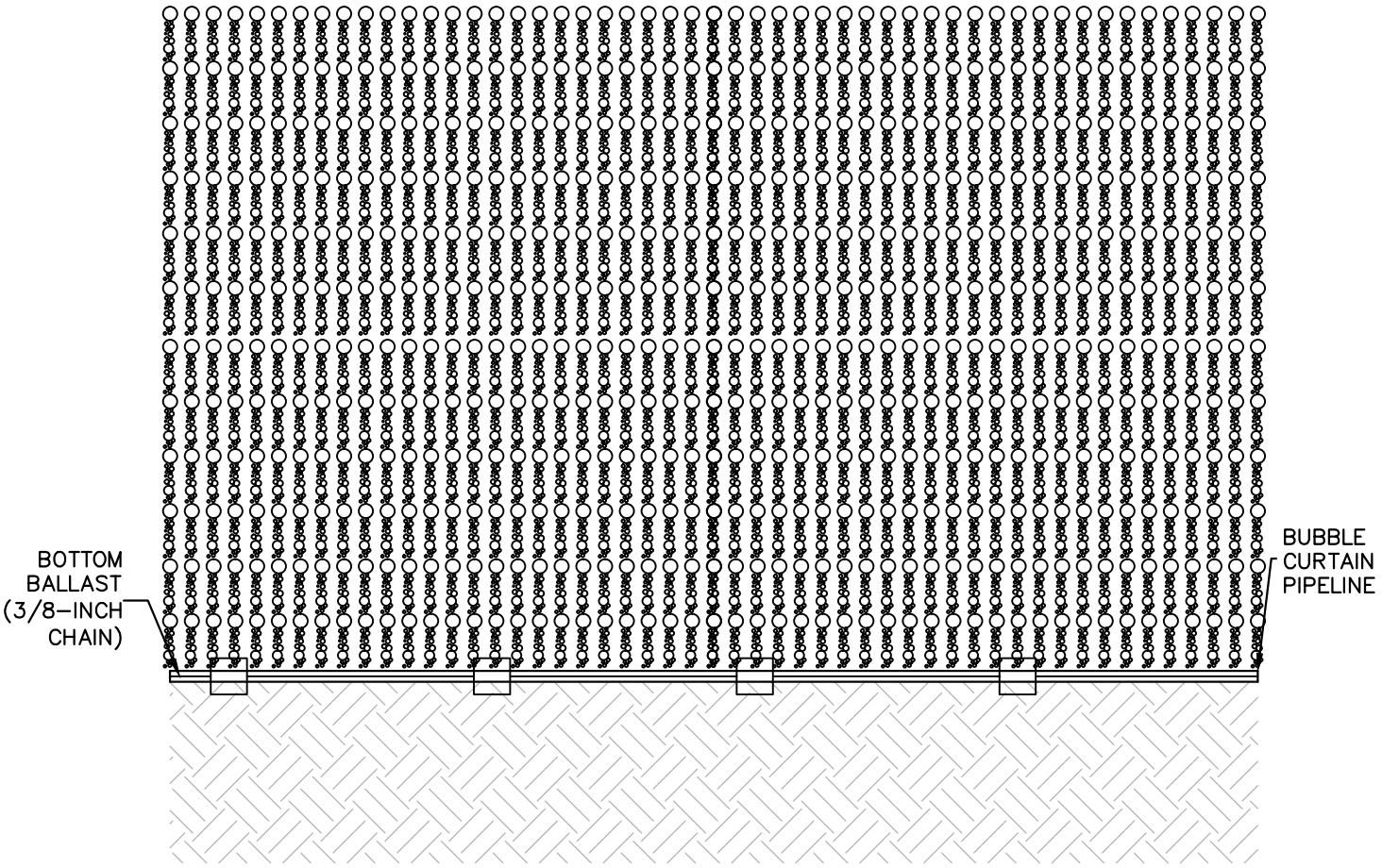

NOTE: ALL DIMENSIONS ARE APPROXIMATE

FIGURE 5:
BUBBLE CURTAIN
DETAILS

FISH PROTECTION
PLAN
NEW BEDFORD MARINE
COMMERCE TERMINAL

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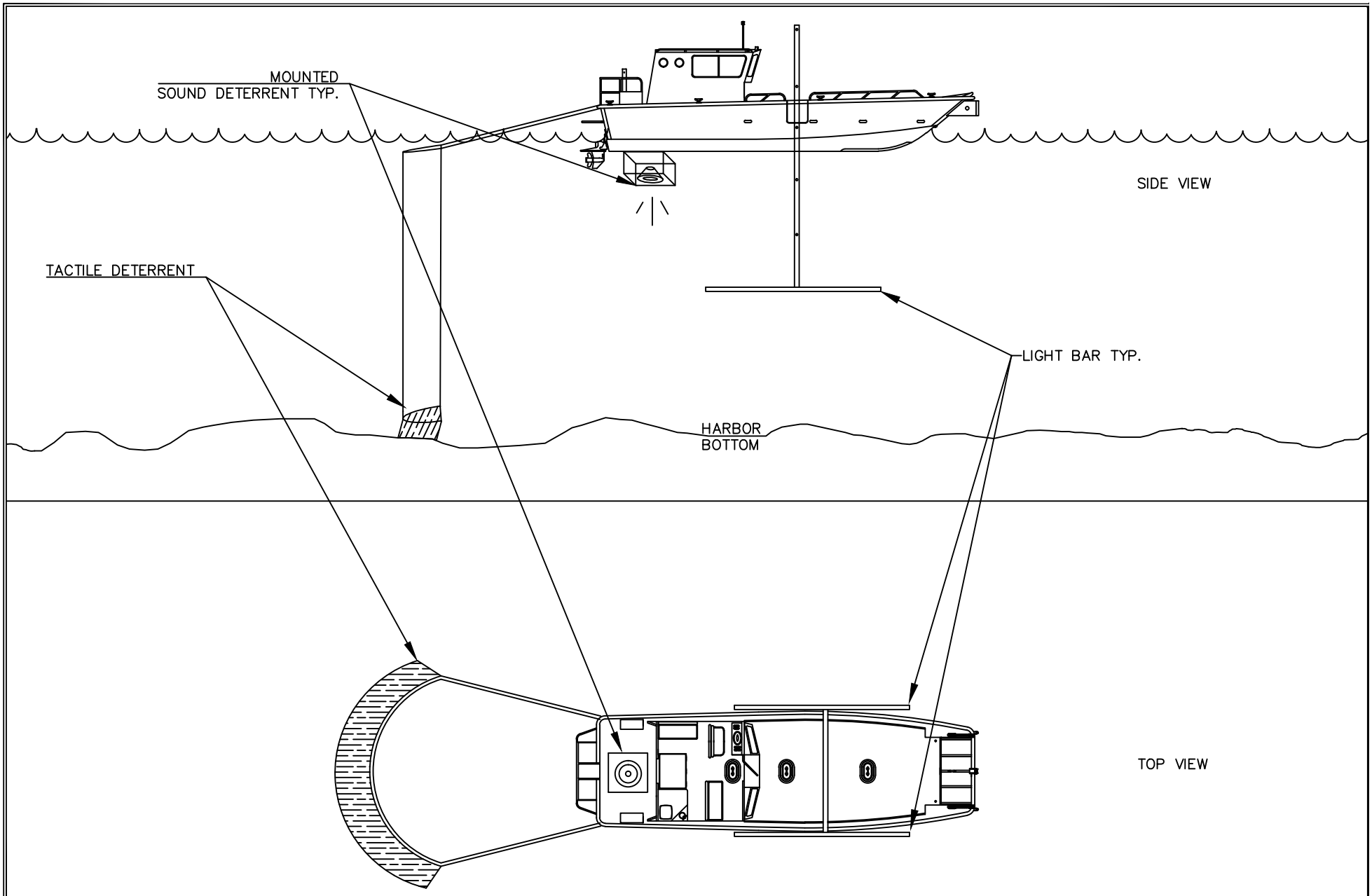

FIGURE 6:
FISH STARTLE SYSTEM

NEW BEDFORD MARINE
COMMERCE TERMINAL

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125 Broad Street, Fifth Floor
Boston, Massachusetts 02110
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