



**US Army Corps
of Engineers**
Philadelphia District

Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice

Public Notice No.
CENAP-OP-R-2012-0699

Date
February 13, 2019

Application No.

File No.

In Reply Refer to:
REGULATORY BRANCH

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: MURTECH

AGENT: Mark Washington
Murtech
820 Cromwell Park Drive
Glen Burnie, Maryland 21061

WATERWAY: Atlantic Ocean

LOCATION: Approximately 0.75 nautical miles east of the Indian River Inlet, near Rehoboth Beach, Sussex County, Delaware

ACTIVITY: The applicant proposes to place an articulating barge off the coast of Delaware which would convert salt water to potable water, and install a pipeline from shore to the barge in order to bring potable water from the barge on-shore. This office previously issued a permit for the work described below on January 8, 2014. The barge would be located approximately 0.75 of a nautical mile east of the Delaware Coastline. The barge would be secured to the existing ocean floor by 3 sand filters that would be connected to their associated mooring buoy, which would be connected to the barge. The barge would contain two spud wells that would serve as damping plates that are part of the system to optimize the performance of the barge in wave energy conversion. These damping plates can be set at various depths below the barges keel to tune the damping affects for optimizing the articulated barge system performance. Inside the sand filters, gravel and sand would be present to form the primary filtration for the water entering the barge. The water would be gravity fed through the sand filters, flow through flexible intake pipelines onto the barge. The intake pipelines would be stabilized in the ocean by floating mooring buoys. The articulating vessels will pump the saline water through a reverse osmosis filter to create potable water. Excessive salt would be pumped back into the surrounding ocean water at a concentration of about 70 parts per trillion. The potable water would be delivered on shore via a pipeline.

The 6 inch HDPE diameter pipeline would be installed from the shore via directional drilling to a location approximately 1400 feet waterward of the mean high water line. From there, the pipeline would be installed using an ocean trenching system called an Aquaplow. This plow would cut through the ocean floor and install the pipeline approximately 6 feet below the existing substrate. The pipeline would terminate at the barge, 3750 feet waterward of mean high water. The vessel would pump continually, sending the potable water on-shore. During significant storm events, the vessel would be disconnect to the on-shore pipeline, and would relocate to outside the Indian River Marina. The pipeline to shore would be secured to one of the 3 intake pipeline buoys that would remain at the site during the storm event.

A trailer will be placed on the upland portion of the site to perform monitoring of the proposed vessel. Upon completion of the testing, the pipeline would be removed to the shoreline via the Aquaplow system described above, only in reverse. Vessels would be deployed to perform maintenance on the equipment within the ocean approximately twice a year.

According to Federal regulation 33 CFR 325.1(d)(7), applicants wishing to discharge fill material into waters of the U.S. must include a statement on how they have avoided and minimized impacts as well as how they intend to compensate for unavoidable impacts. The applicant has avoided/minimized impacts to the aquatic environment by incorporating engineering/construction procedures into the process that will substantially reduce impacts to aquatic resources. The proposed project is engineered to avoid and minimize impacts to the aquatic environment. Generally, the project utilizes wave energy to power the desalinization instead of relying on fossil fuels. The articulating barge is designed with floating and portable components for easy removal and minimal impact, consisting of a floating barge and portable mooring buoys. Additionally, the site location was selected based in part on the absence of shell fish beds.

The concentrated ocean water generated by the desalinization process will be released back into the surrounding ocean. The Delaware DNREC has determined that no NPDES or state Water Quality Certification is required based upon a determination that the concentrated ocean water will have a negligible impact on the waterway, a minimal potential to impact fish or marine organisms, and does not violate State water quality standards. Furthermore, the applicant is required by DNREC to annually monitor and measure peak discharge volumes, rates of waste brine, and the size of the dilution zone. Therefore, all potential impacts on aquatic resources from the concentrated ocean water have been avoided and no compensatory mitigation is deemed to be necessary.

PURPOSE: The applicant's stated purpose is to test the viability of the barge converting salt water into potable water.

A preliminary review of this application indicates that the proposed work would not affect listed species or their critical habitat pursuant to Section 7 of the Endangered Species Act as amended. As the evaluation of this application continues, additional information may become available which could modify this preliminary determination.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits

which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the proposed work should be submitted, in writing, within 15 days to the District Engineer, U.S. Army Corps of Engineers, Philadelphia District, Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390.

A survey was performed in the permit area of the project to if the site would yield resources eligible for inclusion in the National Register of Historic Places (NRHP). In a letter dated May 9, 2013, the District's Cultural Resource Specialist/Tribal Liaison informed the Delaware Historic Preservation Office that based on the survey, no historic properties were found in the permit area and further investigation is not justified. As such, no further action with respect to historic properties, is required by this office.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act 1996 (Public Law 104-267), requires all Federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely effect Essential Fish Habitat (EFH). A preliminary assessment of the species listed in the "Guide to Essential Fish Habitat Designations in the Northeastern United States, Volume IV: New Jersey and Delaware", dated March 1999, specifically page 90, the project will have an adverse effect on EFH, specifically on Winter Flounder (*Pseudopleuronectes americanus*), however it will not be substantial. Concentrated saline water would be discharged by the barge during the desalination process, creating an area of high salt content in the water. This anomaly will be in a limited area and the overall affect will be minimal. Finally, the sand filters and spuds that would secure barge to the ocean floor and supply water to the barge will impact a portion of the habitat at the site. The water entering the barge would be gravity feed, minimizing entrapment of smaller fish in the area. The footprint of the 3 sand filters would be one thousand fifty (1050) square feet, having minimal impacts on the EFH. Based on the above, it is the determination of this office that no mitigative measures would be require to off-set the minimal impacts to EFH, and the species of concern.

In accordance with Section 307(c) of the Coastal Zone Management Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's Coastal Zone Management Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State Coastal Zone Management (CZM) Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

Compensatory Mitigation: There is no proposed placement of dredged or fill material in waters or wetlands. The only discharge will be the temporary disturbance caused by the installation of the pipeline. As such, compensatory mitigation has not been proposed and is not anticipated.

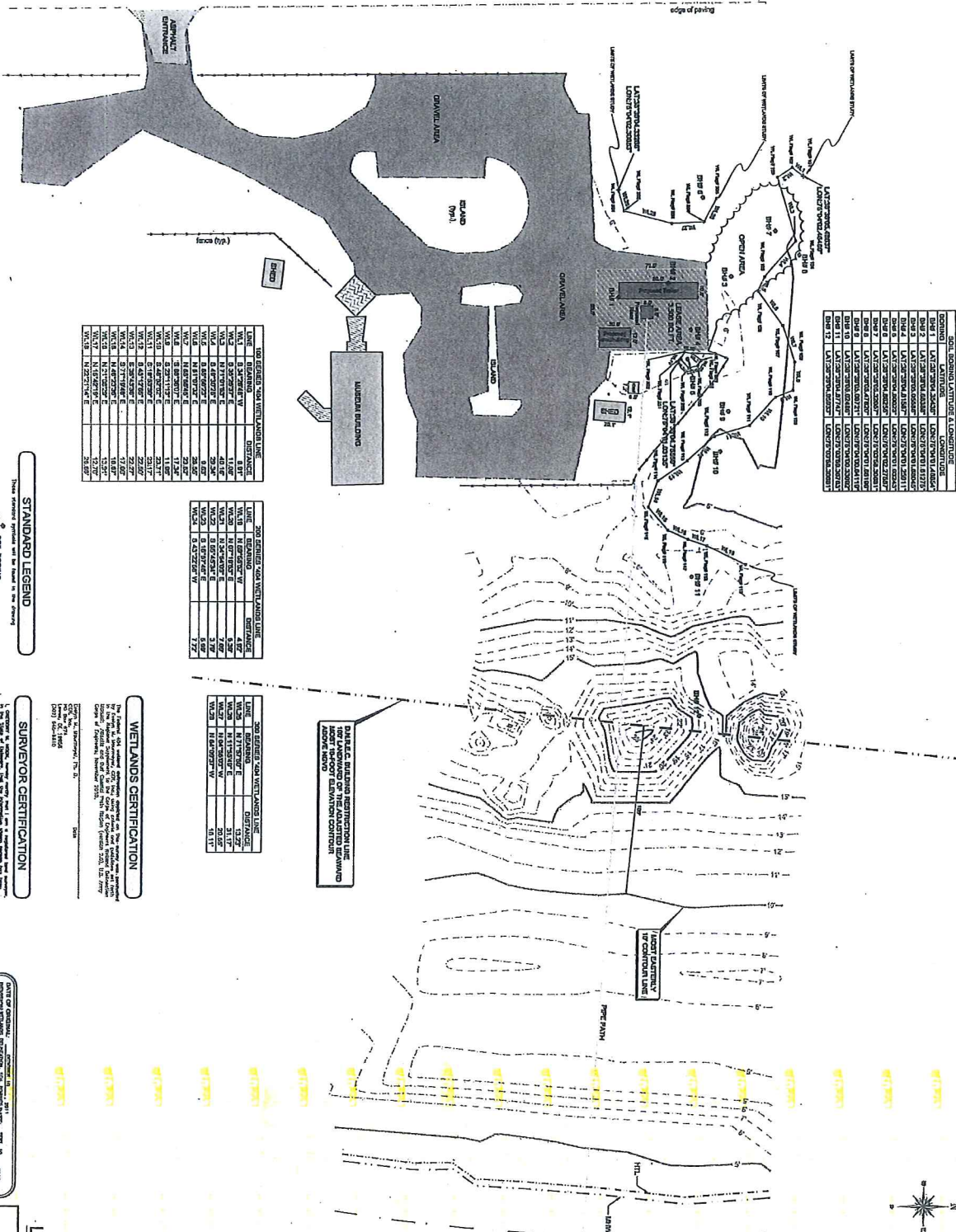
Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state in writing, with particularity, the reasons for holding a public hearing.

Additional information concerning this permit application may be obtained by calling Lawrence M. Slavitter at 215-656-6734 , via email at lawrence.m.slavitter@usace.army.mil, or writing this office at the above address.



Edward E. Bonner
Chief, Regulatory Branch

U.S. ROUTE NO. 1 (NORTH BOUND LANE)



POINT	ELEVATION	COORDINATES
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WETLANDS CERTIFICATION

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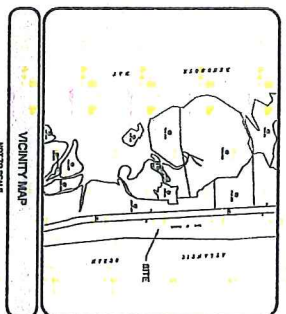
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SITE DATA

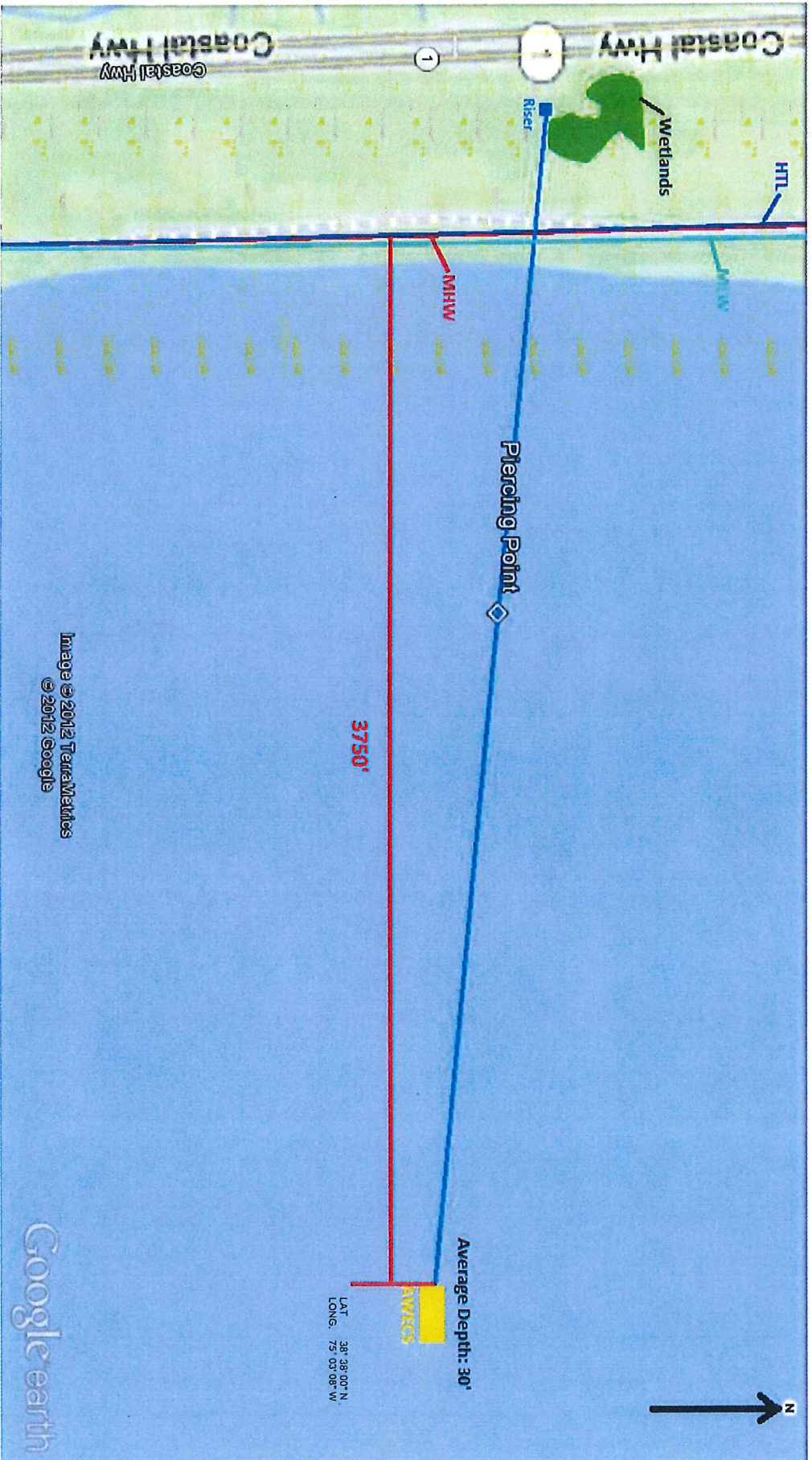
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LIFE SAVING STATION MUSEUM
 JURISDICTION: SUSSEX COUNTY, DE
 EPOCH DATUM: LEWES, DE (STATION 8557380)

HTL: 3.20'
 MHW: 2.67'
 MLW: 0.15'



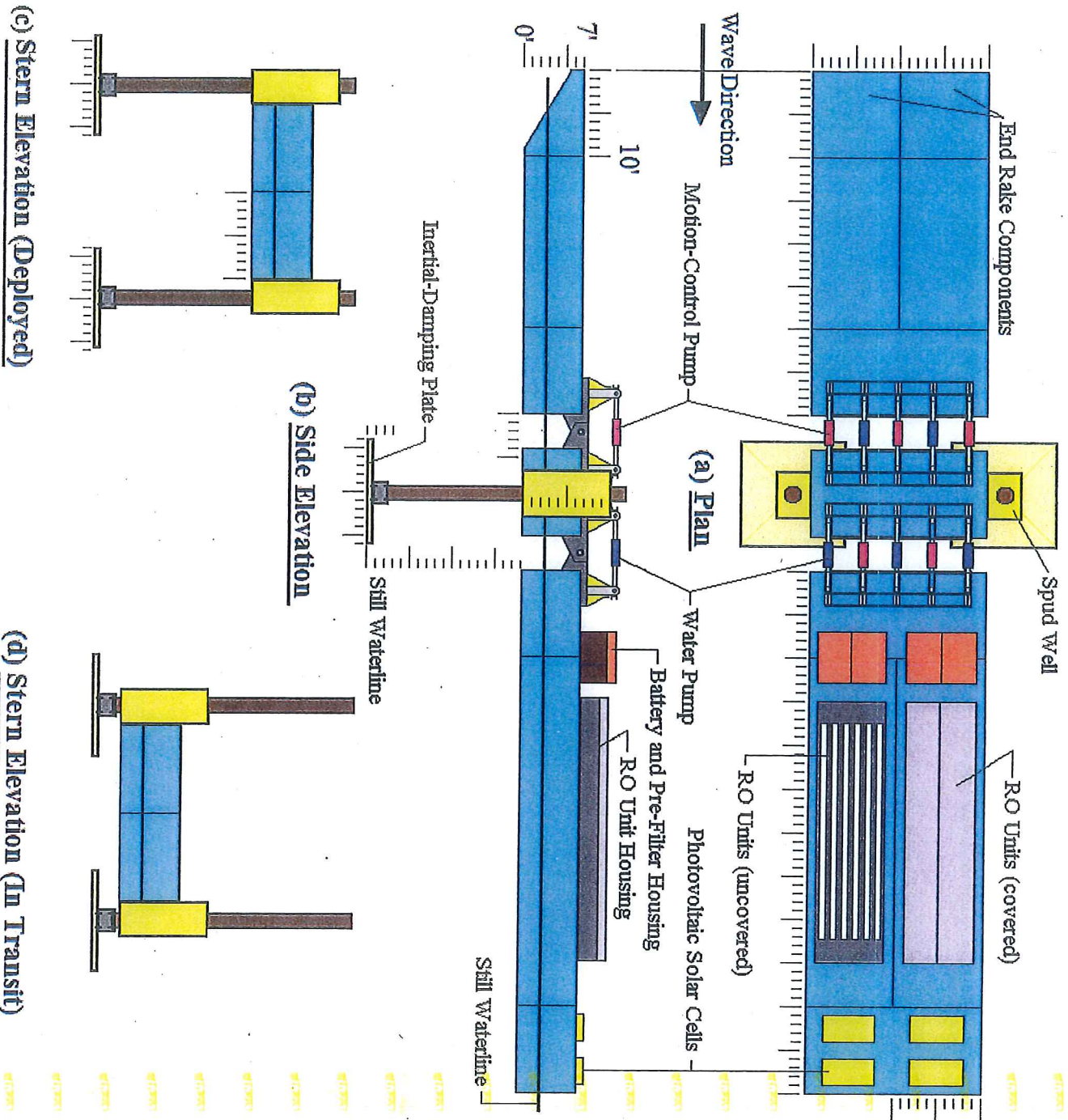
PLAN VIEW
 LIFE SAVING STATION MUSEUM
 SUSSEX COUNTY, DE

PROJECT: AWECS

DRAWN	STEPHEN MANN	DATE	12/04/12
CHECKED		SCALE	AS NOTED
APPROVED		SHEET NO.	CO-5

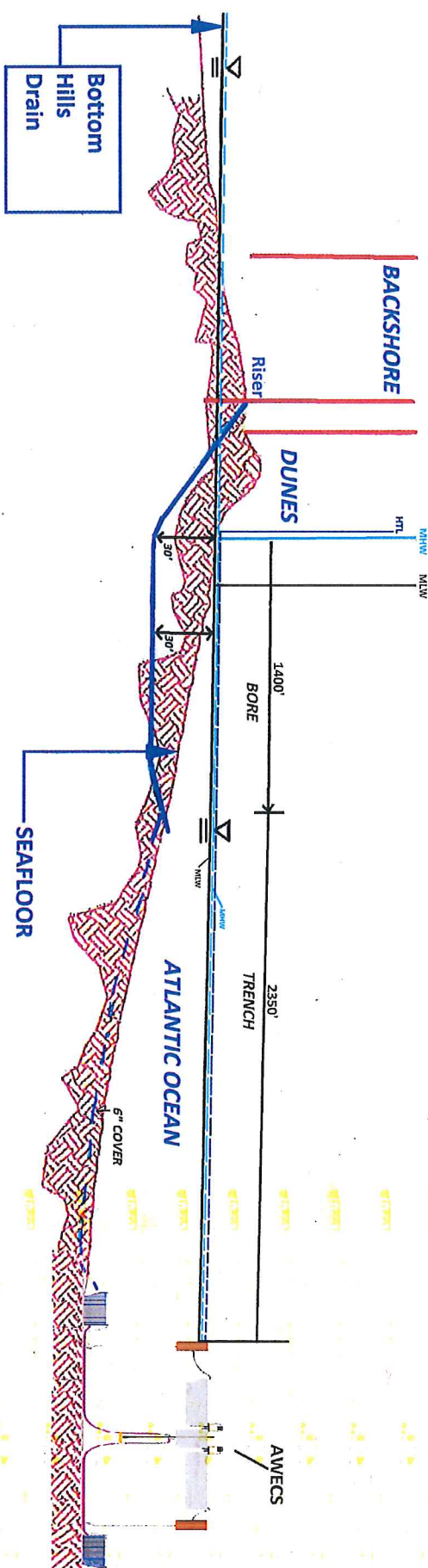
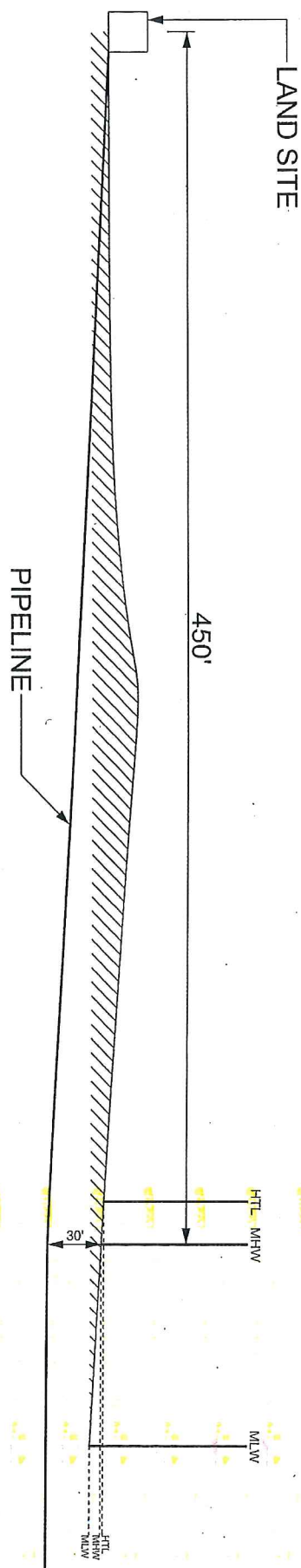
MURTECH, INC.
 820 CROMWELL PARK DRIVE
 SUITE J
 GLEN BURIE, MD 21061

Figure 1: Design Sketches of the Aurtech AWECS



NORTH OF ROUTE 1
LIFE SAVING STATION MUSEUM
LAT. 38° 38' 00" N
LONG. 75° 03' 08" W

HTL: 3.20'
MHW: 2.67'
MLW: 0.15'



PROFILE VIEW
LIFE SAVING STATION MUSEUM
SUSSEX COUNTY, DE

PROJECT: AWECs

DRAWN	STEPHEN MANN	DATE	12/04/12
CHECKED		SCALE	AS NOTED
APPROVED		SHEET NO.	CO-4

MURTECH, INC.
820 CROMWELL PARK DRIVE
SUITE J
GLEN BURNIE, MD 21061

LAT. 38° 38' 00" N
LONG. 75° 03' 08" W

BARGE DRAFT = ±4'

DISTANCE TO INDIAN RIVER INLET IS ± 2 MI

39415 INLET ROAD

REHOBOTH BEACH, DE 19971

MHHW	7.44'
MHW	7.01'
MSL	5.01'
MLW	2.94'
MLLW	2.78'
GTR	4.66'



VICINITY MAP
INDIAN RIVER
INLET TEST SITE
SUSSEX COUNTY, DE

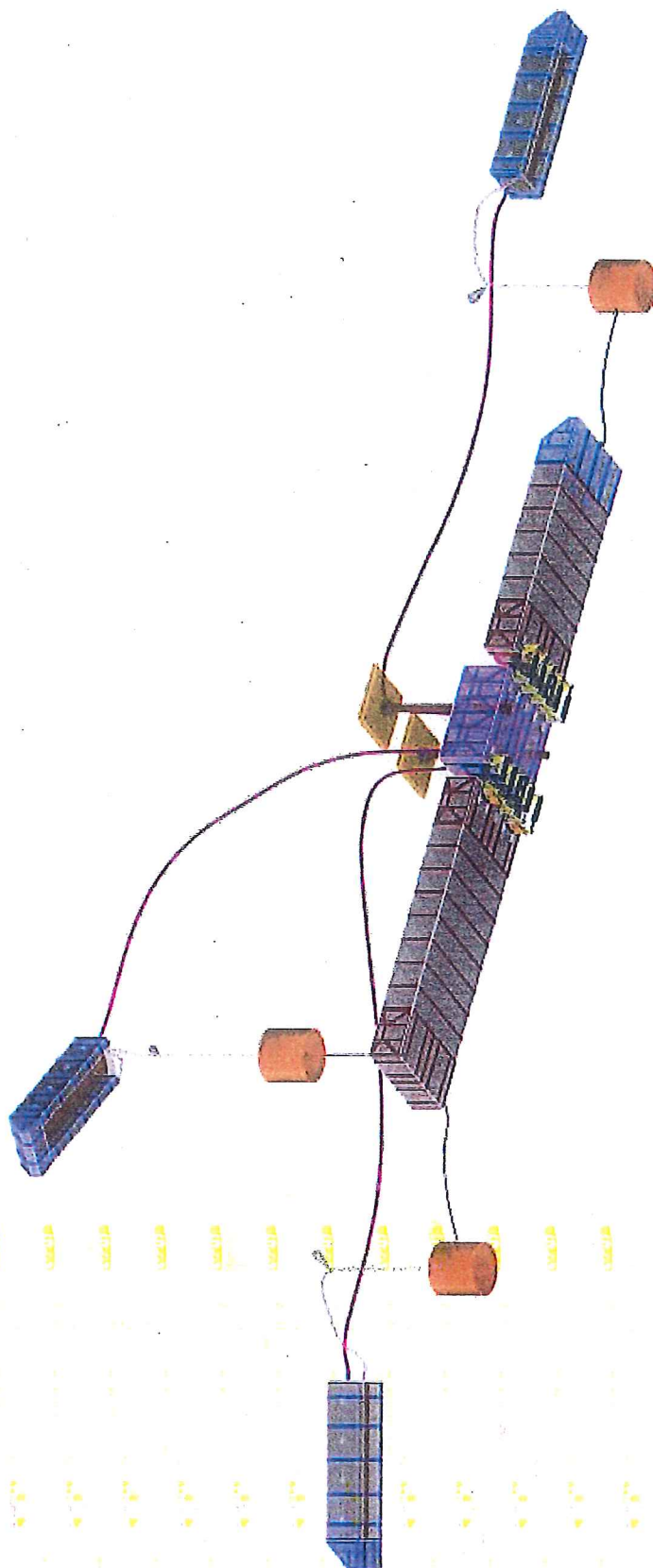
PROJECT: AWECS

DRAWN	STEPHEN MANN	DATE	09/25/12
CHECKED	---	SCALE	AS NOTED
APPROVED	---	SHEET NO.	CO-1

MURTECH, INC.
820 CROMWELL PARK DRIVE
SUITE J
GLEN BURNIE, MD 21061

Figure 2: AWECS Perspective

Entire Assembly - Perspective View - Ghosted



Company Proprietary
Do Not Copy or Distribute

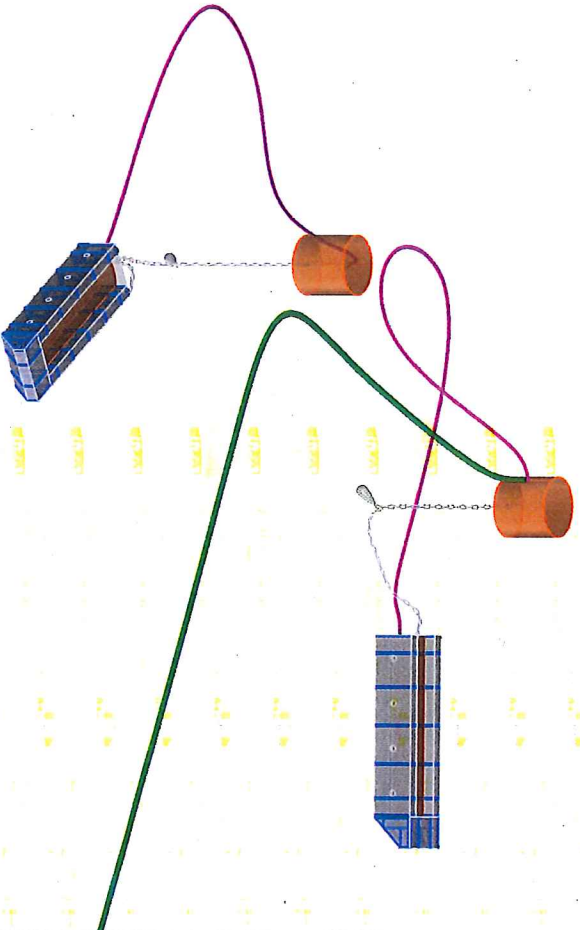
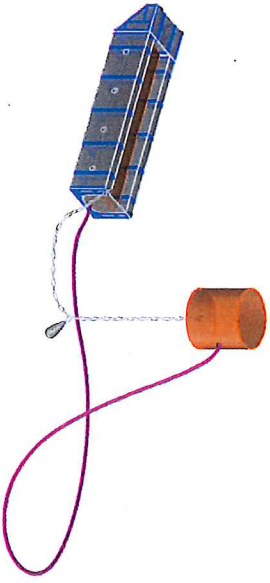
MURTECH, INC.
KIDDERVILLE PARK, VA
20150-2015

MURTECH AWECS

STEPHEN A. MANN
ROBERT MANTHA

05/24/12
05/25/12

Foul Weather Scenario Perspective View - Ghosted



MURTECH, INC.
820 CROWMELL PARK DR.
GLEN BURNIE, MD. 21051-2574

MURTECH

DRAWING TITLE
WAVE ATTENUATING BUOY SYSTEM
SCALE
AS SHOWN

DRAWING NO. 1
REV. 1
ANSI B

SHEET 1 OF 1
A

DESIGNED BY
STEPHEN A. MANN
11/14/12
DATE ISSUED
A/H

MURTECH

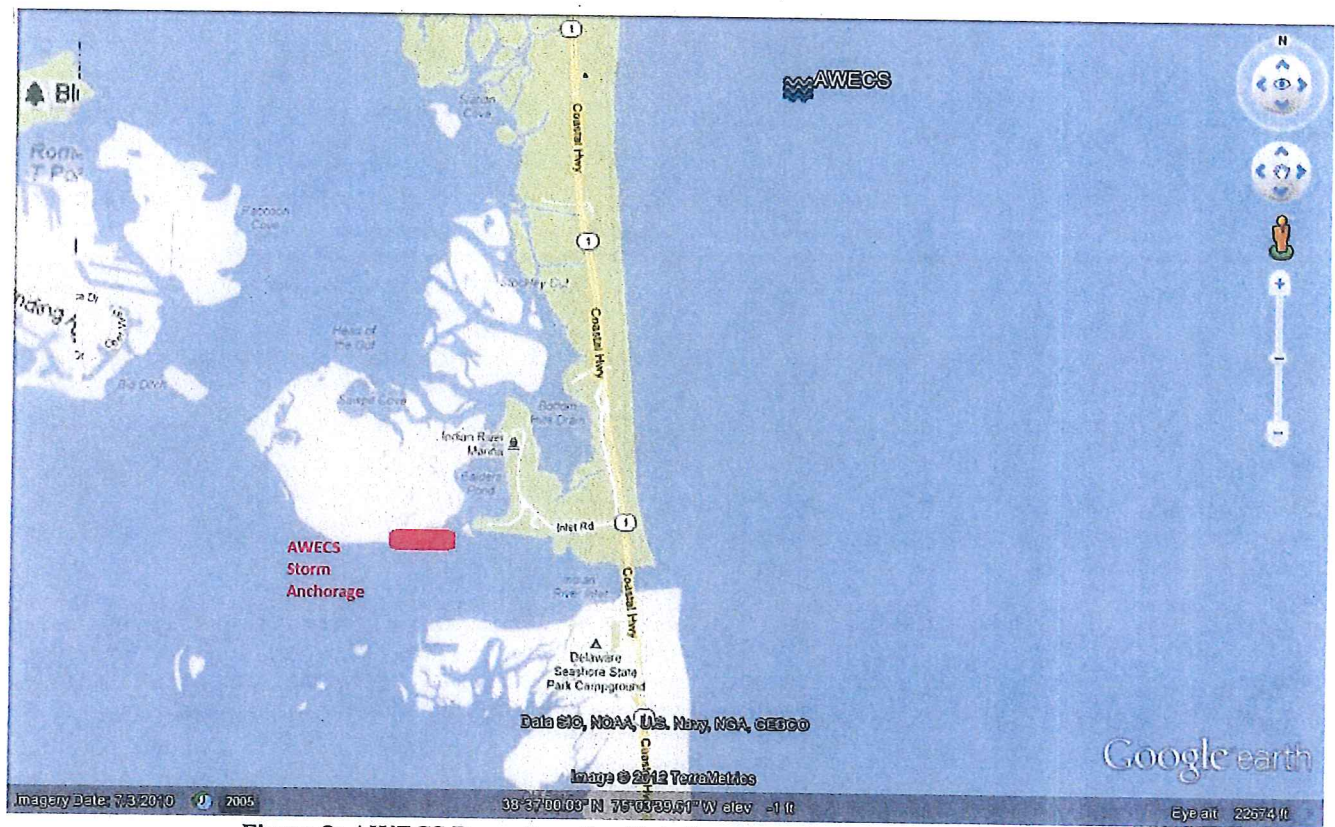


Figure 3: AWECS Barge Location Relationship to Safe Anchorage Location