COASTAL
engineering co.

August 26, 2019

C19196.00

By Hand Delivery

Conservation Commission
Attn: Jane Varkonda, Agent
66 Highpoint Lane, Right Trailer
Vineyard Haven, MA 02568

Re: **Notice of Intent Application Filing Package**
Proposed Marina and Associated Site Modifications and Improvements
Martha's Vineyard Shipyard
159 & 173 Beach Road
Tisbury, MA
Map ID: 9/B/32 & 33

On behalf of our client, Martha's Vineyard Shipyard, we are submitting an original plus one copy of a Notice of Intent Application Filing Package, two original checks for municipal filing fees, and two copies of the plans for the above referenced project. The following items are enclosed:

- Notice of Intent Application
- Performance Standards Narrative, Alternatives Analysis and Construction Protocol
- Shellfish Sustainability Statement
- NOI Wetland Fee Transmittal Form
- Copy of $2,487.50 check made payable to Commonwealth of MA - DEP for state share of DEP fee, (original sent to lockbox)
- Copy of $2,512.50 check made payable to Town of Tisbury for town share of DEP fee
- Copy of $80.00 check made payable to Town of Tisbury for town bylaw fee
- Copy of $300.00 check made payable to Commonwealth of MA – NHESP (original sent directly to NHESP)
- Affidavit of Service, Abutter Notification Letter
- Tisbury Abutter List, Abutter Map and Assessor Map 9 identifying locus
- Mass. Division of Marine Fisheries Submittal Letter
- NHESP Map identifying locus, NHESP Submittal Letter, Photographs of Site for MESA Review
- USGS Map, identifying locus
- AECOM Shellfish Survey
- Alpha Analytical Sediment Sample Analysis, dated 4/8/19
- Coastal Engineering Co., Inc. Stormwater Management Report, dated 8/23/19
- Coastal Engineering Co., Inc. Plan Showing Existing Site Conditions, Sheet C1.2.1 dated 2/21/19
- Coastal Engineering Co., Inc. Plan Showing Proposed Site Improvements Layout and Materials Plan, Sheet C2.1.1 dated 8/23/19
- Coastal Engineering Co., Inc. Plan Showing Proposed Site Improvements Drainage, Grading and Utility Plan, Sheet C2.2.1, dated 8/23/19

- Coastal Engineering Co., Inc. Plan Showing Proposed Site Details, Sheet C2.4.1, dated 8/23/19
- Coastal Engineering Co., Inc. Plan Showing Proposed Marina, Sheet C3.1.1, dated 8/22/19
- Coastal Engineering Co., Inc. Plan Showing Proposed Marine Detail, Sheet C3.2.1, dated 8/22/19
- Coastal Engineering Co., Inc. Sketch Plan Showing Bathymetry from Hydro Survey, SKC-1, dated 8/22/19
- Coastal Engineering Co., Inc. Sketch Plan Showing Proposed Dredge Face, SKC-2, dated 8/22/19

Please schedule this for the **September 17, 2019** public hearing. If you have any questions or require additional information, please give our office a call. Thank you.

Sincerely,

COASTAL ENGINEERING CO., INC.

Carla Davis

Enclosures: as stated

cc: Mass. DEP/SERO - Wetlands
NHESP
Division of Marine Fisheries
Tisbury Harbormaster
Tisbury Shellfish Constable
Martha's Vineyard Shipyard
Donald K. Munroe, Project Manager

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

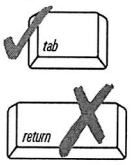
Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Tisbury
City/Town

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

159 and 173 Beach Road — a. Street Address
Tisbury — b. City/Town
02568 — c. Zip Code

Latitude and Longitude:
41° 27' 20.8332" N — d. Latitude
70° 35' 30.912" W — e. Longitude
9/B — f. Assessors Map/Plat Number
32 & 33 — g. Parcel /Lot Number

2. Applicant:

a. First Name
b. Last Name
Martha's Vineyard Shipyard, Inc. — c. Organization
P.O. Box 1119 — d. Street Address
Vineyard Haven — e. City/Town
MA — f. State
02568 — g. Zip Code
h. Phone Number
i. Fax Number
j. Email Address

3. Property owner (required if different from applicant): ☐ Check if more than one owner

a. First Name
b. Last Name
c. Organization
d. Street Address
e. City/Town
f. State
g. Zip Code
h. Phone Number
i. Fax Number
j. Email address

4. Representative (if any):

Donald K. — a. First Name
Munroe — b. Last Name
Coastal Engineering Co., Inc. — c. Company
260 Cranberry Highway — d. Street Address
Orleans — e. City/Town
MA — f. State
02653 — g. Zip Code
508-255-6511 — h. Phone Number
508-255-6700 — i. Fax Number
dmunroe@coastalengineeringcompany.com — j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

$5,000.00 — a. Total Fee Paid
$2,487.50 — b. State Fee Paid
$2,512.50 — c. City/Town Fee Paid

Massachusetts Department of Environmental Protection
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A. General Information (continued)

6. General Project Description:

Proposed Marina and Associated Site Modifications and Improvements

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☒ Commercial/Industrial
4. ☒ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ☐ Transportation
9. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ☐ Yes ☒ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Dukes
a. County

b. Certificate # (if registered land)

159 Beach Rd: Bk 428/Pg 638

173 Beach Rd: Bk 241/Pg 575
d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ☐ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☐ Riverfront Area	1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

   ☐ 25 ft. - Designated Densely Developed Areas only

   ☐ 100 ft. - New agricultural projects only

   ☐ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: _____ square feet

4. Proposed alteration of the Riverfront Area:

   a. total square feet _____ b. square feet within 100 ft. _____ c. square feet between 100 ft. and 200 ft. _____

5. Has an alternatives analysis been done and is it attached to this NOI? ☐ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☐ Yes ☐ No

3. ☒ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☒ Land Under the Ocean	74,086 S.F.(dredging) + 54 S.F. (dock piles) = 74,140 S.F. 4,700 2. cubic yards dredged	
c. ☒ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☒ Coastal Beaches	11 1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☒ Land Containing Shellfish	74,086 S.F.(dredging) + 54 S.F. (dock piles) = 74,140 S.F.	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☒ Land Subject to Coastal Storm Flowage	34,200 (upland) + 11(marine) = 34,219 (total)	

4. ☐ Restoration/Enhancement

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

   a. ☒ Yes ☐ No

   If yes, include proof of mailing or hand delivery of NOI to:

   Natural Heritage and Endangered Species Program
   Division of Fisheries and Wildlife
   1 Rabbit Hill Road
   Westborough, MA 01581

   2019
   b. Date of map

   If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

   c. Submit Supplemental Information for Endangered Species Review*

      1. ☐ Percentage/acreage of property to be altered:

         (a) within wetland Resource Area _____ percentage/acreage

         (b) outside Resource Area _____ percentage/acreage

      2. ☐ Assessor's Map or right-of-way plan of site

2. ☒ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

   (a) ☒ Project description (including description of impacts outside of wetland resource area & buffer zone)

   (b) ☒ Photographs representative of the site

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* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

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C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/mesa/mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ☐ Not applicable – project is in inland resource area only b. ☒ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

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C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ☒ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ☒ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ☒ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ☒ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ☒ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☒ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ☐ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ☒ List the titles and dates for all plans and other materials submitted with this NOI.

Plan Showing Proposed Marina & Plan Showing Proposed Marine Details, dated 8/22/19
Plan Showing Proposed Site Improvements Drainage, Grading and Utility Plan, dated 8/23/19

Coastal Engineering Co., Inc.	Tarja L. McGrail, PE and Roger P. Michniewicz, PE
b. Prepared By	
See plans	See plans
d. Final Revision Date	e. Scale

Plan Showing Proposed Site Improvements Layout and Materials Plan 8/23/19
Plan Showing Proposed Site Details &Plan Showing Existing Conitions 8/23/19

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☒ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☒ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ☒ Attach NOI Wetland Fee Transmittal Form

9. ☒ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

165	8/26/19
2. Municipal Check Number	3. Check date
164	8/26/19
4. State Check Number	5. Check date
	Coastal Engineering Co., Inc.
6. Payor name on check: First Name	7. Payor name on check: Last Name

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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date 8/14/19

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

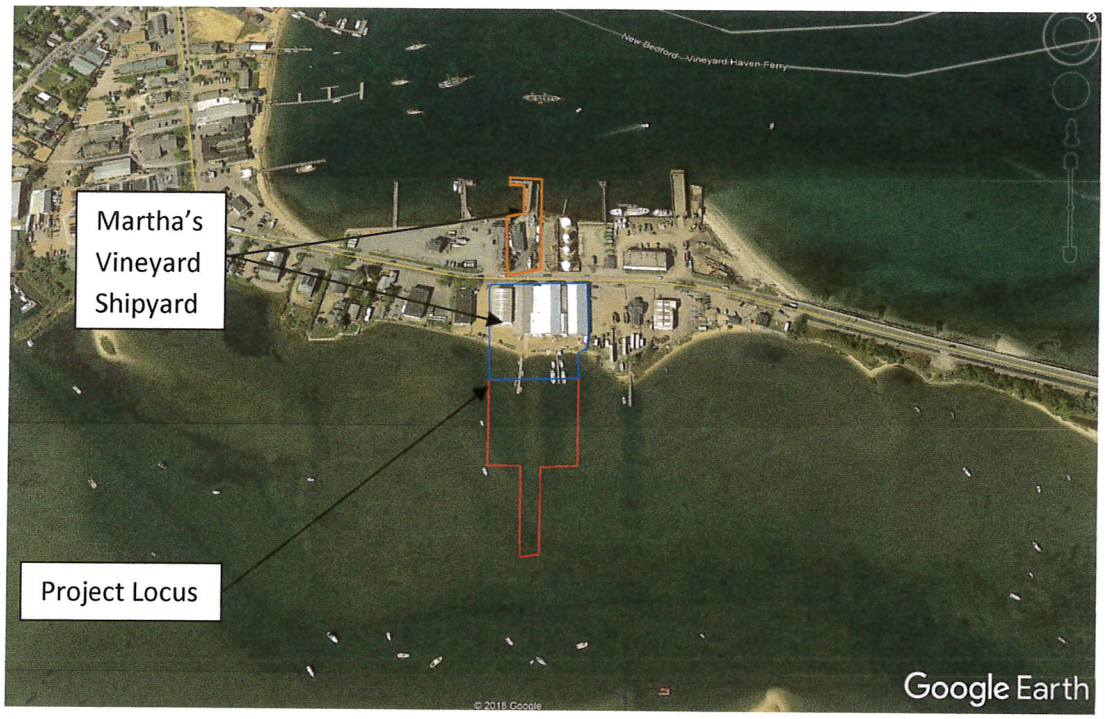
The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Project Narrative

I. Existing Property Description

Martha's Vineyard Shipyard is located at 159 and 173 along Beach Road in the Town of Tisbury, MA and has been owned by the Hale family for three generations since 1961. The Martha's Vineyard Shipyard Facility is composed of one parcel located on the north-west side of Beach Road (that provide access to Vineyard Haven) and two parcels located on the south-east side of Beach Road (that provide access to Lagoon Pond). The project site is limited to work proposed on the parcels located on the south-east side of Beach Road. The existing project site is currently developed with 4 warehouse buildings used for seasonal storage of vessels, two concrete boat ramps, a seasonal floating dock, fixed pier, a rip-rap (6-9" stone) armored slope along the shoreline, and dirt/gravel driveways and parking areas. Currently the use of the property is to seasonally launch and haul vessels, provide service (mechanical, cleaning etc.) to vessels, and store vessels during the off-season.

Aerial Image of Google Earth shwoing Vineyard Haven, Lagoon Pond, and the project locus.



Zoomed in aerial image from Google Earth shwoing the project locus and the properties owned by Martha's Vineyard Shipyard.

Martha's Vineyard Shipyard is one of the oldest businesses on Martha's Vineyard and has been operating since 1856. Since the Shipyard has been operating it has been essential to the working waterfront of Vineyard Haven. Over the years the Shipyard use has remained the same. The occupation of the property (configuration of buildings and structures) has been modified over time to adapt to the changing environment, changing marine industry, and maintain the working waterfront. In the past few decades the Shipyard has constructed a new warehouse building (smaller building in the south west edge of the property) to increase seasonal storage capabilities and removed and replaced their rail launch system with two concrete boat ramps. A pier was constructed and floating docks were installed to store vessels and improve boater access to Lagoon Pond.

Martha's Vineyard Shipyard is now one of the few remaining facilities with access to the waterfront that services public boaters in Martha's Vineyard. The Shipyard is currently facing issues with increasing rates of coastal flooding and limitations to waterfront access for the public. Coastal flooding due to storm surges and high astronomical tides has always been an issue for the Shipyard, but over the past decade the owners of the Shipyard have noticed the rate of coastal flooding has increased due to sea level rise. Coastal flooding can cause damage to the buildings, structures, and stored vessels on the property. Coastal flooding can also be a working hazard to employees. The Shipyard is currently limited in providing access to public boaters to Lagoon Pond because there are limited dock slips for vessel storage and limited public parking onsite due to the current occupation of the lot. For these reasons the owners of Martha's Vineyard Shipyard are proposing to make several new improvements to their existing facilities to adapt to climate change, improve the coastal resiliency against sea level rise, increase public boater access to Lagoon Pond, improve water quality and continue to serve its essential role to maintain the working waterfront.

II. Project Description

The proposed project is to modify the existing Shipyard facility located along and adjacent to Lagoon Pond to adapt to climate change, improve the coastal resiliency against sea level rise, provide improved access to the waterbody for boaters, and maintain the working waterfront. The proposed project will include several improvements to the shorefront area and portions of the property that are currently used as warehouse storage and parking.

Proposed Shorefront Improvements

Shorefront improvements include the following: installation of two piers/ ramps/ and floating dock systems, and two finger floats adjacent to the existing boat ramps; a zone of float reconfiguration; an offshore pile to mark the channel entrance and provide nesting habitat for Ospreys; and modest re-dredging (in a previously dredged area) around the area of the slips as well as the approach to the existing navigational channel. The proposed footprint for re-dredging includes the "boat slip basin" (area around the proposed floating docks), and the "approach channel" (50 foot wide channel connecting the boat slip basin to the existing channel through Lagoon Pond).

The proposed pier/ ramp/ floating dock systems are designed to berth approximately **48 small-craft vessels**. The total area of the proposed floats is **5,107 S.F**. The proposed float system will allow for easier and safer water access for the Martha's Vineyard Shipyard patrons. The float system will also allow for safer maneuverability of the work staff in the parking area by reducing any potential congestion as boats will now be in the water as opposed to on the upland.

The proposed dredge depth is to 4' below mean low water (MLW) with a one foot allowable over-dig to 5' below MLW. In reference to sheet C3.1.1 and C3.2.1 of the accompanying plans it can be observed that the entire proposed dredge footprint does not currently need to be dredged because the existing seafloor in many areas is already deeper than the proposed dredge depth. The primary area that needs to be dredged currently is the middle and west-side of the proposed "boat slip basin" (refer to the attached sketch plans titled "Sketch Plan Showing Bathymetry From Hydro Survey" and "Sketch Plan Showing Proposed Dredge Face" for more information). This deeper depth (after dredging) will contribute to safer navigation as well as increased water flow during tide cycles. Increased water flow will provide for better water circulation, which will improve water quality. Increased water depth will also alleviate potential prop-wash. Reducing prop-wash will alleviate sediment being re-suspended into the water column by boat propellers. Reducing sediment into the water column will improve water quality. The proposed dredge volume to the design grade is **2,350 C.Y.** and the total dredge volume to the allowable over-dig is **4,700 C.Y.** Prior to this application, **six** sediment samples from the proposed dredge footprint were obtained, and a grain size distribution (GSD) analysis were completed for each sample. The results from the laboratory analysis demonstrated there are less than 10% fines in each sample. Based on DEP Division of Water Quality, the results of the analysis indicated that the dredge sediment is suitable for re-use as beach nourishment. Dredge construction may be completed by either hydraulic or mechanical means as approved by the engineer. Dredged material can be pumped or placed in a de-watering/ containment area to be constructed within the footprint of the existing warehouse buildings that will be removed. De-watering of dredge sediment may also be done on a barge and then offloaded onto shore using the existing boat ramps. Stock piling of dredged material will be onsite within the dewatering/ containment area. Some of the de-watered dredged sediment (approximately 500 cubic yards depending on the size of the excavation from removing the warehouses) will be re-used on site, and the remaining dredge sediment will be disposed of at an approved upland site that is permitted to receive beach compatible sediment.

A shellfish survey was completed of the area surrounding the project area in March, 2019. Refer to attached shellfish study titled "Martha's Vineyard Shipyard Shellfish Study" as well as the attached "Shellfish Sustainability Statement". After reviewing the results of the shellfish study the dredge footprint in the approach channel was re-designed to avoid certain areas where shellfish were observed. In reference to the Shellfish Sustainability Statement, the Shipyard owners are willing to voluntarily take additional measures to further promote the shellfish habitat and shell-fishing community. These measures include: 1. not allowing over-night boaters; 2.

removing the shellfish prior to dredging; and 3. donating funds towards a shellfish seeding budget (refer to attached Shellfish Sustainability Report for more specific details).

There is no existing salt marsh or eelgrass within 100 feet of the project locus.

Proposed Upland Improvements

Upland improvements include: removal of two existing warehouse buildings; re-grading; and constructing (within the footprint of the removed warehouse buildings and existing parking areas) a new smaller warehouse building and formal parking areas. A stormwater management system is proposed for management, treatment, and recharge of stormwater runoff from the improved parking areas and new building roof. The stormwater management system proposed will be a great improvement over the existing stormwater conditions on the site and is described in detail in the Stormwater Management Report that is submitted as part of this application. Overall, as a result of the proposed upland site improvements the impervious building coverage on the property will be reduced by 15,200 +/- S.F. The net reduction in existing impervious coverage area within the footprint of the two removed warehouse buildings and existing dirt/gravel parking areas will be 9,300 +/- S.F. Landscape areas are proposed along the seaward edge of the existing parking areas to provide a vegetated buffer. The vegetated buffer will further enhance stormwater management and erosion control on the re-developed site by providing enhanced pollution prevention and stabilization of the slope located between the parking area and beach. The reduction of the impervious areas and implementation of planting areas on the site will reduce the direct flow of rain runoff into Lagoon Pond which will help improve the water quality of the pond.

As previously mentioned, after razing the two existing warehouse buildings a temporary dredge sediment de-watering/ containment area will be constructed within the footprint of the removed buildings. Upon completion of dredging, the de-watered dredge sediment will be used to re-grade the area and/or be removed from the property and disposed offsite in approved locations. The area will be regraded to direct storm water runoff away from the waterbody and toward the stormwater management system. Grade will also be raised as much as 18+" in some areas to reduce the occurrence of flooding. A parking area for boat slip holders will be constructed to allow parking of up to **42 new spaces for patrons** with **5 additional oversize spaces** primarily used for garage bay access to the proposed building. (The existing parking at the site consists of open dirt/ gravel space along the existing warehouse. There are currently no designated parking areas, and there is currently room for approximately 25 cars to park. The proposed 42 new spaces are not located within the current parking area, so the new spaces will be in addition to the existing 25 spaces). The parking area will consist of bituminous concrete pavement along the main driveway access aisle and in front of the boat storage garage access bays with pervious gravel parking spaces reinforced with the True-Grid gravel pave system. Bituminous/concrete paving is proposed for the driveway aisle and garage bay access aisle to provide support for the boat lift that transports boats between the Shipyard's facilities. The gravel True Grid reinforced parking spaces will allow rain water to percolate directly into the ground. The True Grid parking spaces will have a gravel surface which will also reduce the volume of rain runoff into the waterbody. Several plant beds are also proposed along the existing rip-rap slope along the shorefront of the property as well as along the beach road side of the property.

Access for upland site work will be from Beach road, and access for dredging and pier/ dock installation will be primarily by barge. (Refer to access and limit of work (L.O.W.) as shown on the accompanying plan). Siltation barriers (as shown on sheet C2.4.1) will be placed along the perimeter of the upland L.O.W. to contain any silt produced by the construction. Dredging will be completed by mechanical or hydraulic means and from a barge. Material will be pumped by pipe or brought to the disposal area by barge, sand bags, or trucks using the boat ramps for access. Dredged sediment may also be dewatered on a barge and then brought to shore using the existing boat ramps. The piers, floating docks, and ramps may be constructed using equipment staged in the upland area, equipment on the coastal beach, and/or equipment on a barge.

III. Resource Areas

The wetland resources areas that are located within the project locus are, Barrier Beach, Land Under the Ocean, Land Containing Shellfish, 100-foot buffer zone to a Coastal Beach, and Land Subject to Coastal Storm Flowage based on the Massachusetts Online Viewer GIS[1] (OLIVER) map and the Massachusetts Department of Environmental Protection (MA DEP) Wetland Regulations[2] (310 CMR 10.00).

10.25: Land under the Ocean

(2) Definitions

(a) "Land under the Ocean" means land extending from the mean low water line seaward to the boundary of the municipality's jurisdiction and includes land under estuaries.

(b) "Nearshore Areas" of land under the ocean means that land extending from the mean low waterline to the seaward limit of a municipality's jurisdiction, but in no case beyond the point where the land is 80 feet below the level of the ocean at mean low water. However, the nearshore area shall extend seaward only to that point where the land is 30 feet below the level of the ocean at mean low water for municipalities bordering Buzzard's Bay and Vineyard Sound (west of a line between West Chop, Martha's Vineyard and Nobska Point, Falmouth), 40 feet below the level of the ocean at mean low water for Provincetown's land in Cape Cod Bay, and 50 feet below the level of the ocean at mean low water for Truro's and Wellfleet's land in Cape Cod Bay.

10.27: Coastal Beaches

(2) Definitions

(a) "Coastal Beach" means unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of salt water and includes gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bank line or the seaward edge of existing man-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.

(b) "Tidal Flat" means any nearby level part of a coastal beach which usually extends from the mean low water line landward to the more steeply sloping face of the coastal beach or which may be separated from the beach by land under the ocean.

10.29: Barrier Beaches

(2) Definitions

(a) "Barrier Beach" means a narrow low-lying strip of land generally consisting of coastal beaches and coastal dunes extending roughly parallel to the trend of the coast. It is separated from the mainland by a narrow body of fresh, brackish or saline water or a marsh system. A barrier beach may be joined to the mainland at one or both ends.

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[1] Massachusetts Online Viewer, GIS Mapping Database. http://maps.massgis.state.ma.us/map_ol/oliver.php. Accessed March 25, 2019.

[2] 310 CMR Department of Environmental Protection, 310 CMR 10.00: Wetlands Protection Act Regulations. http://www.mass.gov/eea/docs/dep/service/regulations/310cmr10a.pdf Online Copy Accessed March 25, 2019.

10.34: Land Containing Shellfish

(2) Definitions

(a) "Land Containing Shellfish" means land under the ocean, tidal flats, rocky intertidal shores, saltmarshes and land under salt ponds when any such land contains shellfish.

(b) "Shellfish" means the following species: Bay scallop (Argopecten irradians); Blue mussel (Mytilus edulis); Ocean quahog (Arctica islandica); Oyster (Crassostrea virginica); Quahog (Mercenaria merceneria); Razor clam (Ensis directus); Sea clam (Spisula solidissima); Seascallop (Placopecten magellanicus); Soft shell clam (Mya arenaria).

(c) "Shellfish Constable" means the official in a city or town, whether designated a constable, warden, natural resources officer, or by some other name, in charge of enforcing the laws regulating the harvest of shellfish.

Land Subject to Coastal Storm Flowage means land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater.

The project lies outside of the Natural Heritage and Endangered Species Program Estimated or Priority Habitat of Rare Wildlife and Species.

IV. FEMA

The entire property is below the flood zone of **10 feet NAVD88 as shown on FEMA FIRM Panel #25007C0104J Revised on July 20, 2016.**

V. Summary

The applicant is seeking approval for the proposed project which entails: 1) two new pier/ ramp/ floating dock systems, zone of float reconfiguration, two finger docks adjacent to the existing boat ramps, and modest re-dredging (in a previously dredged area) of the proposed approach channel and proposed boat slip area; 2) de-construction of two warehouse buildings, construction of temporary dredge spoil dewatering/ containment area, re-grading, construction of a new (smaller warehouse), construction of a parking area, and implementation of several plant beds.

The purpose of the proposed project is to maintain the working waterfront by: improving boater access to the waterbody; improving navigation in the waterbody; making the shipyard a safer work environment; adapt to climate change; and improving the coastal resiliency of the property by raising the grade along the upland side of the property to increase protection against sea-level rise. The project will also have a positive effect on the surrounding environment by: reducing runoff to the water body through the reduction of impervious coverage; increasing water depth that will improve water flow and circulation; and reducing the potential for prop-wash. Each of these factors will help improve the over-all water quality of Lagoon Pond which will benefit the environment and the habitat for wildlife, shellfish, and vegetation.

The project will decrease the impervious area of the property by removing two of the warehouses and replacing them with a partially gravel parking lot and a smaller warehouse building. This will increase the leaching capabilities of the site which will decrease the direct flow of rain runoff from the property into the waterbody. Re-grading the site and implementing several plant beds will also reduce the flow of rain runoff into the water body. The reduction of rain runoff into the waterbody will improve the water quality which will provide a healthier habitat for shellfish, finfish, shore birds, eelgrass, and saltmarsh. Dredging will also increase the depth of water which will improve tidal flushing and water circulation which will also improve water quality. The addition of vessels berthed within Lagoon Pond at Martha's Vineyard Shipyard will not have an adverse effect on water quality because the area is within an existing "no discharge zone" so there will be no discharging of waste water from the vessels. The Shipyard does not have and is not proposing a pump-out facility on the Lagoon Pond side of their property. Therefore the addition of new vessels will not increase the rate of vessel pump-outs on the site.

The owners of Martha's Vineyard Shipyard are also willing to no allow dockage for "over-night vessels" **if** it minimizes the seasonal shellfish closure area set forth by Massachusetts Division of Marine Fisheries (MA DMF) around the proposed docks. Additionally, slips will be rented seasonally and not daily to minimize the number of boats utilizing the proposed Project. There are also no new bathrooms, pump-out facilities, or public fueling facilities existing or proposed within the project locus. The proposed vessel slip area is also located within a "no discharge zone", so any discharge of waste will be strongly prohibited. For these reasons the proposed project will be an overall benefit to the working waterfront of Martha's Vineyard, the environment, and the community.

Performance Standards Narrative

The proposed project will meet the performance standards within the Massachusetts State Wetlands Protection Regulations (310 CMR 10.00) and the Town of Tisbury Wetlands Protection Regulations. The following sections address how these performance standards are met for the proposed project.

I. 310 CMR 10.00: State Wetlands Protection Act Performance Standards

10.25: Land Under the Ocean

WHEN LAND UNDER THE OCEAN OR NEARSHORE AREAS OF LAND UNDER THE OCEAN ARE FOUND TO BE SIGNIFICANT TO THE PROTECTION OF MARINE FISHERIES, PROTECTION OF WILDLIFE HABITAT, STORM DAMAGE PREVENTION OR FLOOD CONTROL, 310 CMR 10.25 (3) through (7) SHALL APPLY:

(3) Improvement dredging for navigational purposes affecting land under the ocean shall be designed and carried out using the best available measures so as to minimize adverse effects on such interests caused by changes in:

(a) bottom topography which will result in increased flooding or erosion caused by an increase in the height or velocity of waves impacting the shore;

The proposed modest re-dredging (in a previously dredged area) will not alter the bottom topography in a way that will increase storm damage or erosion because the dredge area is protected from open water within Lagoon Pond. Lagoon Pond is a relatively small waterbody and protected waterbody connected to open water through a small inlet from Vineyard Haven. There is not enough "fetch" (distance for waves to build up) in Lagoon Pond for waves to exceed a couple feet, even during severe storms. For this reason, the depth of the seafloor will have little to no effect on waves building up in Lagoon Pond that would cause damage along the shoreline. The proposed dredging will also take place below the intertidal zone. Therefore wave heights in the proposed maintenance dredging area will be negligible. Therefore the existing intertidal zone will remain as is and would cause waves to break offshore and dissipate their energy and not cause increased flooding or erosion along the beach.

(b) sediment transport processes which will increase flood or erosion hazards by affecting the natural replenishment of beaches;

Sediment transport processes will not be affected as the dredging will take place below the intertidal zone. The intertidal zone will remain at the same elevation as it currently is and the dredging will therefore; not increase flood or erosion hazards.

(c) water circulation which will result in an adverse change in flushing rate, temperature, or turbidity levels;

The proposed modest re-dredging (in a previously dredged area) will increase the water depth which will reduce prop wash from the vessels and improve water circulation, therefore improving the flushing rate in and out of Lagoon Pond thus improving water quality. Prop wash

can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The proposed dredging will increase the distance between the boat propeller and the sea floor thus reducing the potential for turbidity in the water column thereby improving water quality. There will be a temporary short-term increase in turbidity during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. Water temperature will not be affected as dredging operations do not generate temperature changes.

The proposed dock reconfiguration will consist of floating docks and will be located within the proposed dredge area to ensure there is sufficient water depth between the docks and the seafloor. This will also ensure there will be no adverse effects of water circulation or water quality as a result of the proposed installation of the floating docks.

(d) *or marine productivity which will result from the suspension or transport of pollutants, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of marine fisheries habitat or wildlife habitat.*

The proposed modest re-dredging (in a previously dredged area) will not result in the long-term suspension or transport of sediments. Dredging the top layer of sediment will also ensure that bottom-dwelling organisms are not smothered by sediment. The proposed dredging project will deepen the seafloor which will increase water flow and therefore improve the water circulation in the area. Improved water circulation has a positive impact on water quality which will improve the marine fisheries and wildlife habitats.

(4) *Maintenance dredging for navigational purposes affecting land under the ocean shall be designed and carried out using the best available measures so as to minimize adverse effects on such interests caused by changes in marine productivity which will result from the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of marine fisheries habitat or wildlife habitat.*

The proposed modest re-dredging (in a previously dredged area) and future maintenance dredging events will only take place during the allowed time of year (TOY) period for dredging. No dredging will take place during the TOY restrictions set forth by MA DMF or MA NHESP for this project. There will be no adverse effects caused by changes in marine productivity which will result from the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of habitat or nutrient source areas. As demonstrated by the laboratory results of the sediment to be dredge has less than 10% fines, As discussed in the 401 Water Quality Regulations dredge sediment with less than 10% fines requires no chemical testing as it has been shown that chemical contaminants in sediment will only bond to dredge material with greater than 10% fines.

Dredging will make the seafloor deeper which will increase water flow in the project area and will therefore improve water circulation. Improved water circulation will increase flushing rates for Lagoon Pond which will reduce nutrient loading in Lagoon Pond. This will improve the water quality in the area which will benefit the marine fisheries and wildlife habitat.

(5) *Projects not included in 310 CMR 10.25(3) or 10.25(4) which affect nearshore areas of land under the ocean shall not cause adverse effects by altering the bottom topography so as to increase storm damage or erosion of coastal beaches, coastal banks, coastal dunes, or salt marshes.*

The proposed modest re-dredging (in a previously dredged area) will not alter the bottom topography in a way that will increase storm damage or erosion because the dredge area is protected from open water within Lagoon Pond. Lagoon Pond is a relatively small waterbody and protected waterbody connected to open water through a small inlet from Vineyard Haven. There is not enough "fetch" (distance for waves to build up) in Lagoon Pond for waves to exceed a couple feet, even during severe storms. For this reason, the depth of the seafloor will have little to no effect on waves building up in Lagoon Pond that would cause damage along the shoreline. The proposed dredging will also take place below the intertidal zone. Therefore the existing intertidal zone will remain as is and would cause waves to break offshore and dissipate their energy.

(6) Projects not included in 310 CMR 10.25(3) which affect land under the ocean shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries habitat or wildlife habitat caused by:

a. *alterations in water circulation;*

Water circulation will be improved. Depth will be increased, which will increase flushing of Lagoon Pond. No adverse effect to circulation will occur. Water circulation for marine fisheries and wildlife habitat will be improved as a result of increased tidal water exchange.

The proposed dock reconfiguration will consist of floating docks and will be located within the proposed improvement dredge area to ensure there is sufficient water depth between the docks and the seafloor. This will also ensure there will be no adverse effects of water circulation or water quality as a result of the proposed installation of the floating docks.

b. *destruction of eelgrass (Zostera marina) or widgeon grass (Rupia maritina) beds;*

According to the DEP mapping of Natural Resources, there are no eelgrass or widgeon grass beds in the project dredging, proposed float reconfiguration, or sediment placement areas. Additionally, the shellfish study performed found no eelgrass present consistent with the MA DEP results.

c. *alterations in the distribution of sediment grain size;*

There are no proposed changes to the distribution of sediment grain size. The sediment in the channel originates from the nearby beaches and is part of the natural littoral transport system. The proposed dredging would remove the top layer of sediment (which was determined to be well-graded sand from the grain size distribution analysis) which has accreted over time from sand that has eroded from nearby beaches.

d. *changes in water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants; or*

Another factor that will improve the water quality on the site is the reduction of the impervious area on the upland area. By decreasing the impervious area on the property, the flow of rain runoff into the waterbody will decrease as well. Rain runoff can contain pollutants that can cause contamination as it flows into the waterbody. Therefore, decreasing the flow of rainwater is beneficial to the water quality which is also beneficial to the wildlife and vegetation in the area including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

The proposed project will have no long-term adverse effects of water quality. Water quality will improve as a result of the project due to increased water circulation and a decrease in the possibility of "prop wash". Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash

increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The dredging will increase the distance between the boat propeller and the sea floor thus reducing the potential for prop-wash. The increase in depth will improve water quality by the reduction of potential prop-wash and by the increase in water circulation due to the increased depth. There will be a temporary short-term increase in turbidity during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. The proposed dredging project will increase the water depth which will reduce prop wash from the vessels. Therefore, the long-term effects will lead to an improvement in the water quality. Dredging operations have not been shown to increase water temperature. The equipment used will not add pollutants to the water column as the equipment is similar to other ocean-going equipment. There will be minor localized effect to the dissolved oxygen in the immediate area where the dredge removes the sediment, but it has been demonstrated that this is temporary, minimal and recovers almost immediately.

(e) alterations of shallow submerged lands with high densities of polychaetes, mollusks or macrophytic algae.

There is evidence that polychaetes, mollusks or macrophytic algae recover on a regular basis over the short term. This means there may be a short-term impact on these species as a result of the project, however there will be no long-term impacts on the species because the species will recover shortly after the completion of the project. Dense mats of benthic algae as a consequence of eutrophication from nitrogen loading to Lagoon Pond from the surrounding upland area that were identified during the shellfish study will be removed during the dredging process and will improve benthic habitat quality for macrofaunal organisms.

(7) *Notwithstanding the provisions of 310 CMR 10.25(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

See discussion under 10.37 below.

10.27 Coastal Beaches

(1) Preamble.

When coastal beaches are determined to be significant to storm damage prevention or flood control, the following characteristics are critical to the protection of those interests:

(a) volume (quantity of sediments) and form; and

The coastal beach volume will not be affected, dredging operations will be below the intertidal zone.

(b) the ability to respond to wave action.

As is currently the case, the beach will continue to respond to wave action as the intertidal zone will remain as is. As previously stated, Lagoon Pond is a protected waterbody that is not exposed to waves exceeding a couple feet. Therefore the depth of the seafloor does not have a major effect on wave propagation in the area so any changes made to the seafloor as a result of the project will not change the height or energy of the waves.

When coastal beaches are significant to the protection of marine fisheries or wildlife habitat, the following characteristics are critical to the protection of those interests:

(a) distribution of sediment grain size;

There are no proposed changes to the distribution of sediment grain size along the beach. The dredge area is below the intertidal zone, therefore there is no proposed dredging along the beach. The only proposed work on the beach is the construction of two small piers and pedestrian access stairs which will no effect the grain size along the beach.

(b) water circulation;

Water circulation will improve as a result of the dredging. Tides will still fluctuate and currents will flow along the coastal beach. The only proposed work on the beach is the construction of two small piers and pedestrian access stairs which were designed to minimize the number and size of the structural members thus minimizing the affected area on the beach.

(c) water quality; and

Water quality will improve as a result of the dredging and decrease in impervious area on the site. By decreasing the impervious area on the property the flow of rain runoff into the waterbody will decrease as well. This is beneficial to the wildlife and vegetation in the area including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

(d) relief and elevation.

The profile of the beach will remain as is because there is no nourishment or major activities proposed on the beach. As previously stated, Lagoon Pond is a protected waterbody that is not exposed to waves exceeding a couple feet. Therefore the depth of the seafloor does not have a major effect on wave propagation in the area so any changes made to the seafloor as a result of the project will not change the height or energy of the waves that would break along the beach and accelerate erosion.

When tidal flats are in a designated port area, 310 CMR 10.26(1) through (4) shall apply.
When tidal flats are significant to land containing shellfish, 310 CMR 10.34(1) through (8) shall apply.

WHEN A COASTAL BEACH IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION, FLOOD CONTROL, OR PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(3) THROUGH (7) SHALL APPLY:

(3) Any project on a coastal beach, except any project permitted under 310 CMR 10.30(3)(a), shall not have an adverse effect by increasing erosion, decreasing the volume or changing the form of any such coastal beach or an adjacent or downdrift coastal beach.

The only proposed work on the beach is the construction of two small piers and pedestrian access stairs which were designed to minimize the number and size of the structural members thus minimizing any changes in water circulation around the supporting piles. As previously stated, Lagoon Pond is a protected waterbody that is not exposed to waves exceeding a couple feet. Therefore the depth of the seafloor does not have a major effect on wave propagation in the area so any changes made to the seafloor as a result of the project will not change the height or energy of the waves that would break along the beach and accelerate erosion. For these reasons, the proposed project will not affect the ability of the coastal beach erode or accrete sediment.

(4) *Any groin, jetty, solid pier, or other such solid fill structure which will interfere with littoral drift, in addition to complying with 310 CMR 10.27(3), shall be constructed as follows:*

Not applicable.

(5) *Notwithstanding 310 CMR 10.27(3), beach nourishment with clean sediment of a grain size compatible with that on the existing beach may be permitted.*

The sediment to be dredged within the proposed dredge footprint was sampled in several locations and grain size distribution analysis were conducted for each sample. As a result of the analysis, the sediment was found to be well-graded sand with less than 10% fines which is suitable for re-use on the beach. There is no proposed nourishment within the project locus, however excess dredged sediment may be used for beach nourishment at a nearby beach if applicable.

WHEN A TIDAL FLAT IS DETERMINED TO BE SIGNIFICANT TO MARINE FISHERIES OR THE PROTECTION OF WILDLIFE HABITAT, 310 CMR 10.27(6) SHALL APPLY:

No tidal flats are located within the proposed project area, therefore 310 CMR 10.27(6) does not apply.

10.28: Coastal Dunes

Note: The site is located within a designated barrier beach land-form delineated by MA GIS MORIS: CZM's Online Mapping Tool. Therefore, as stated in the performance standards for barrier beaches, 310 CMR 10.27 (3) through (6) (for coastal beach) 310 CMR 10.28 (3) through (6) (for coastal dune) are applicable. (Refer to the above performance standards for Coastal Beach).

In the preamble of the 310 CMR 10.28 for coastal dune, it states "on retreating shorelines, the ability of the coastal dunes bordering the coastal beach to move landward at the rate of shoreline retreat allows these dunes to maintain their form and volume, which in turn promotes their function of protecting against storm damage or flooding". The project locus is located along a shoreline that does not get supplied with sand through the natural littoral process that would allow the formation of a natural dune through wind and water movement of sediment. This is partially due to the fact that the much of the surrounding shoreline has been altered and covered which does not allow sediment to be eroded and transported down the beach. The area is also relatively sheltered from increased wave energy or tide producing currents (the tidal range at this site is only 2~3 feet) that would cause significant erosion of sediment and transport. This is supported by our visual inspections of the shoreline along the property and the surrounding area. After several visits of the site, observing the surrounding area, and reviewing historic pictures and aerial images, the particular site and surrounding area has been altered and covered by paved roads, bridges, parking areas, industrial buildings, and other structures for a long time (over 50 years). The shoreline at this particular property is, and has been for decades, armored with a rip-rap slope that does not allow the area landward of the coastal beach to erode or accumulate sand and therefore "act" like a natural coastal dune as stated in the preamble. The area along the coastal beach is also not mapped as an estimated habitat for rare wildlife therefore the barrier beach system does not serve as wildlife protection.

For these reasons, the barrier beach system on the subject property is not playing the role of a coastal dune which includes storm damage prevention, flood control, or the protection of wildlife. Therefore, the area landward of the coastal beach should not be classified as a coastal dune so the performance standards for coastal dunes should not be applicable to this project.

10.29: Barrier Beaches

(1) Preamble. Barrier beaches are significant to storm damage prevention and flood control and are likely to be significant to the protection of marine fisheries and wildlife habitat and, where there are shellfish, the protection of land containing shellfish.[3]

Barrier beaches protect landward areas because they provide a buffer to storm waves and to sea levels elevated by storms. Barrier beaches protect from wave action such highly productive wetlands as salt marshes, estuaries, lagoons, salt ponds and fresh water marshes and ponds, which are in turn important to marine fisheries and protection of wildlife habitat. Barrier beaches and the dunes thereon are also important to the protection of wildlife habitat in the ways described in 310 CMR 10.27(1) (Coastal Beaches) and 10.28(1) (Coastal Dunes).

Barrier beaches are maintained by the alongshore movement of beach sediment caused by wave action. The coastal dunes and tidal flats on a barrier beach consist of sediment supplied by wind action, storm wave overwash and tidal inlet deposition. Barrier beaches in Massachusetts undergo a landward migration caused by the landward movement of sediment by wind, storm wave overwash and tidal current processes. The continuation of these processes maintains the volume of the landform which is necessary to carry out the storm and flood buffer function.

When a proposed project involves removal, filling, dredging or altering of a barrier beach, the issuing authority shall presume that the barrier beach, including all of its coastal dunes, is significant to the interest(s) specified above. This presumption may be overcome only upon a clear showing that a barrier beach, including all of its coastal dunes, does not play a role in storm damage prevention, flood control, or the protection of marine fisheries, wildlife habitat, or land containing shellfish, and if the issuing authority makes a written determination to such effect.

When a barrier beach is significant to storm damage prevention and flood control, the characteristics of coastal beaches, tidal flats and coastal dunes listed in 310 CMR 10.27(1) and10.28(1) and their ability to respond to wave action, including storm overwash sediment transport, are critical to the protection of the interests specified in 310 CMR 10.29.

(3) When a Barrier Beach Is Determined to Be Significant to Storm Damage Prevention, Flood Control, Marine Fisheries or Protection of Wildlife Habitat. 310 CMR 10.27(3) through (6) (coastal beaches) and 10.28(3) through (5) (coastal dunes) shall apply to the coastal beaches and to all coastal dunes which make up a barrier beach.

Refer to statements for 310 CMR 10.27(3) through (6) and 310 CMR 10.28(3) through (5)

(4) Notwithstanding the provisions of 310 CMR 10.29(3), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

See discussion under 10.37 below.

10.34: Land Containing Shellfish

(1) Preamble.

When a resource area is found to be significant to the protection of land containing shellfish under 310 CMR 10.34(3), and is, therefore, also significant to marine fisheries the following factors are critical to the protection of those interests:

(a) shellfish,

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[3] For regulations concerning land containing shellfish see 310 CMR 10.34

According to the Massachusetts Online GIS mapping, there is an area within the proposed dredging work limits that is considered a shellfish habitat. For this reason a shellfish survey was completed of the site in March, 2019. (Refer to attached shellfish study titled "Martha's Vineyard Shipyard Shellfish Study"). After reviewing the results of the shellfish study the dredge footprint in the approach channel was revised to avoid certain areas where shellfish were observed.

The proposed project will benefit the shellfish habitat within Lagoon Pond in the long term because dredging will improve water circulation. The proposed upland site improvements will decrease the impervious area of the property which will decrease the flow of rain runoff into the waterbody which will improve the water quality. (Refer to water quality compliance statements).

As previously stated, shellfish survey was completed as part of the design process. With the results of the survey, the proposed dredge footprint was revised to avoid as many areas where living shellfish were found as possible. As stated in the Shellfish Suitability Statement, the owners of the shipyard are also willing to voluntarily take several additional measures to further promote the shellfish habitat and shell-fishing community. These additional measures include: 1. not allowing over-night boaters; 2. removing the shellfish prior to dredging; and 3. donating funds towards a shellfish seeding budget (refer to attached Shellfish Sustainability Report for more specific details).

(b) water quality,

The proposed project will have no long term adverse effects of water quality. Water quality will improve as a result of the project due to increased water circulation and a decrease in the possibility of "prop wash". Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. The proposed dredging project will increase the water depth which will reduce prop wash from the vessels, therefore the long term effects will lead to an improvement in the water quality.

Another factor that will improve the water quality on the site is the reduction of the impervious area on the upland area. By decreasing the impervious area on the property the flow of rain runoff into the waterbody will decrease as well. Rain runoff can contain pollutants that can cause contamination as it flows into the waterbody. Therefore decreasing the flow of rainwater is beneficial to the water quality which is also beneficial to the wildlife and vegetation in the area including (but not limited to) shellfish, finfish, and shore birds.

(c) water circulation,

The proposed modest re-dredging (in a previously dredged area) will increase the water depth which will reduce prop wash from the vessels and improve water circulation, therefore improving the flushing rate in and out of Lagoon Pond. Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. Water temperature will not be affected.

The proposed dock reconfiguration will consist of floating docks and will be located within the proposed dredge area to ensure there is sufficient water depth between the docks and the seafloor. This will also ensure there will be no adverse effects of water circulation or water quality as a result of the project.

(d) the natural relief, evaluation or distribution of sediment grain size of such land.

The side slopes of the dredge area are to be one horizontal to three vertical (1V:3H) to mimic a natural slope based on the characteristics (natural angle of repose) of the sediment found on the seafloor. Therefore the project will not change the slope of the seafloor in a way that is not suitable for shellfish.

(3) Significance. Land containing shellfish shall be found significant to the protection of land containing shellfish and to the protection of marine fisheries when it has been identified and mapped as follows:

(a) by the conservation commission or the Department in consultation with DMF and based upon maps and designations of DMF, or

(b) by the conservation commission or the Department, based upon maps and written documentation of the shellfish constable or the Department. In making such identification and maps the following factors shall be taken into account and documented: the density of shellfish, the size of the area and the historical and current importance of the area to recreational or commercial shellfishing.

WHEN A RESOURCE AREA, INCLUDING LAND UNDER THE OCEAN, TIDAL FLATS, ROCKY INTERTIDAL SHORES, SALT MARSHES, OR LAND UNDER SALT PONDS IS DETERMINED TO BE SIGNIFICANT TO THE PROTECTION OF LAND CONTAINING SHELLFISH AND THEREFORE TO THE PROTECTION OF MARINE FISHERIES, 310 CMR 10.34(4) through (8) SHALL APPLY:

(4) Except as provided in 310 CMR 10.34(5), any project on land containing shellfish shall not adversely affect such land or marine fisheries by a change in the productivity of such land caused by:

(a) alterations of water circulation,

The proposed modest re-dredging (in a previously dredged area) will increase the water depth which will reduce prop wash from the vessels and improve water circulation, therefore improving the flushing rate in and out of Lagoon Pond. Improved water circulation increases oxygen in the water which is beneficial for shellfish. Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. Water temperature will not be affected.

The proposed dock reconfiguration will consist of floating docks and will be located within the proposed dredge area to ensure there is sufficient water depth between the docks and the seafloor. This will also ensure there will be no adverse effects of water circulation or water quality as a result of the project.

(b) alterations in relief elevation,

The slope is intended to mimic a channel and shall have no adverse impacts to shellfish habitat. The side slopes of the dredge area are to be one horizontal to three vertical (1V:3H) to mimic a natural slope based on the characteristics (natural angle of repose) of the sediment found on the seafloor. Therefore the project will not change the slope of the seafloor in a way that is not suitable for shellfish.

(c) the compacting of sediment by vehicular traffic,

The work over land containing shellfish will be done by a dredge and will not be in contact with the ground, and therefore will not compact the sediment. The access and location of construction equipment during the pier and float installation process will be above MHW or from the boat ramp as much as possible.

(d) alterations in the distribution of sediment grain size,

There will not be a change in the grain size distribution as a result of this project. The sediment in the channel originates from the nearby beaches and is part of the natural littoral transport system. The proposed dredging would remove the top layer of sediment (which was determined to be well-graded sand from the grain size distribution analysis) which has accreted over time from sand that has eroded from nearby beaches.

(e) alterations in natural drainage from adjacent land,

The proposed project includes re-grading the upland area, reducing the impervious area, and implementing several plant beds in order to reduce rain runoff into the waterbody. These changes will decrease the flow of runoff into the water body which will decrease the possibility of contaminants from the upland area flowing into the waterbody during rain storms or coastal flooding events. This will benefit the water quality in the area which will make it more suitable for wildlife and vegetation including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

(f) or, changes in water quality, including, but not limited to, other than natural fluctuations in the levels of salinity, dissolved oxygen, nutrients, temperature or turbidity, or the addition of pollutants.

There will be a temporary increase in turbidity due to dredging operations, but the water quality will return to the existing conditions or better, as previously discussed, shortly after dredging operations are completed. Upland improvements to the site that will decrease rain runoff into the waterbody will also improve the water quality. Flushing rates will improve as a result of increased water circulation which will increase the rate of mixing the water within Lagoon Pond and Vineyard Haven. This will regulate the salinity, temperature, and dissolved oxygen as well as increase the dissipation of any pollutants within Lagoon pond.

(5) Notwithstanding the provisions of 310 CMR 10.34(4), projects which temporarily have an adverse effect on shellfish productivity but which do not permanently destroy the habitat may be permitted if the land containing shellfish can and will be returned substantially to its former productivity in less than one year from the commencement of work, unless an extension of the Order of Conditions is granted, in which case such restoration shall be completed within one year of such extension.

As in many other dredging projects there will be only a temporary affect to the shellfish habitat in the dredge footprint. As previously stated (10.34,1,a) the shellfish habitat will improve as a result of the proposed project due to improvements to water circulation and water quality.

(6) In the case of land containing shellfish defined as significant in 310 CMR 10.34(3)(b) (i.e., those areas identified on the basis of maps and designations of the Shellfish Constable), except in Areas of Critical Environmental Concern, the issuing authority may, after consultation with the Shellfish Constable, permit the shellfish to be moved from such area under the guidelines of, and to a suitable location approved by, DMF, in order to permit a proposed project on such land. Any such project shall not be commenced until after the moving and replanting of the shellfish have been commenced.

Refer to attached shellfish mitigation report.

(7) Notwithstanding 310 CMR 10.34(4) through 10.34(6), projects approved by DMF that are specifically intended to increase the productivity of land containing shellfish may be permitted. Aquaculture projects approved by the appropriate local and state authority may also be permitted.

N/A

(8) *Notwithstanding the provisions of 310 CMR 10.34(4) through (7), no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.*

See discussion under 10.37 below.

10.37 Estimated Habitats of Rare Wildlife (for coastal wetlands)

If a project is within estimated habitat which is indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetlands Wildlife (if any) published by the Natural Heritage and Endangered Species Program (hereinafter referred to as the Program), a fully completed copy of the Notice of Intent (including all plans, reports, and other materials required under 310 CMR 10.05(4)(a)&(b)) for such project shall be sent to the Program via the U.S. Postal Service by express or priority mail (or otherwise sent in a manner that guarantees delivery within two days). Such copy shall be sent no later than the date of the filing of the Notice of Intent with the issuing authority. Proof of timely mailing or other delivery to the Program of the copy of such Notice of Intent shall be included in the Notice of Intent which is submitted to the issuing authority and sent to the Department's regional office.

Estimated Habitat Maps shall be based on the estimated geographical extent of the habitats of all state-listed vertebrate and invertebrate animal species for which a reported occurrence within the last 25 years has been accepted by the Program and incorporated into its official data base.

Within 30 days of the filing of such a Notice of Intent with the issuing authority, the Program shall determine whether any state-listed species identified on the aforementioned map are likely to continue to be located on or near the site of the original occurrence and, if so, whether the area to be altered by the proposed project is in fact part of such species' habitat. Such determination shall be presumed by the issuing authority to be correct. Any proposed project which would alter a resource area that is not located on the most recent Estimated Habitat Map (if any) provided to the conservation commission, shall be presumed not to be within a rare species' habitat. Both of these presumptions are rebuttable and may be overcome upon a clear showing to the contrary. If the issuing authority fails to receive a response from the Program within 30 days of the filing of such a Notice of Intent, a copy of which was received by the Program in a timely manner, it shall issue its Order of Conditions based on available information; however, the fact that a proposed project would alter a resource area that is located on an Estimated Habitat Map shall not be considered sufficient evidence in itself that such project is in fact within the habitat of a rare species.

If the Program determines that a resource area which would be altered by a proposed project is in fact within the habitat of a state-listed species, it shall provide in writing to the applicant and to the Conservation Commission and the Department, the identification of the species whose habitat would be altered by the proposed project, and all other relevant information which the Program has regarding the species' location and habitat requirements, insofar as such information may assist the applicant and the issuing authority to determine whether the project is or can be designed so as to meet the performance standard set in 310 CMR 10.37.

Notwithstanding 310 CMR 10.24(7) and 10.25 and 310 CMR 10.27 through 10.35, if a proposed project is found by the issuing authority to alter a resource area which is part of the habitat of a state-listed species, such project shall not be permitted to have any short or long term adverse effects on the habitat of the local population of that species. A determination of whether or not a proposed project will have such an adverse effect shall be made by the issuing authority. However, a written opinion of the Program on whether or not a proposed project will have such an adverse effect shall be presumed by the issuing authority to be correct. This presumption is rebuttable and may be overcome upon a clear showing to the contrary.

The conservation commission shall not issue an Order of Conditions under 310 CMR 10.05(6) regarding any such project for at least 30 days after the filing of the Notice of Intent, unless the Program before such time period has elapsed has either determined that the resource area(s) which would be altered by the project is not in fact within the habitat of a state-listed species or, if it has determined that such resource area(s) is in fact within rare species habitat, rendered a written opinion as to whether the project will have an adverse effect on that habitat.

Notwithstanding any other provision of 310 CMR 10.37, should an Environmental Impact Report be required for a proposed project under the M.G.L. c. 60, §§ 6 through 62H, as determined by 301 CMR 11.00 the performance standard established under 310 CMR 10.37 shall only apply to proposed projects which would alter the habitat of a rare species for which an occurrence has been entered into the official data base of the Massachusetts Natural Heritage and Endangered Species Program prior to the time that the Secretary of the Executive Office of Environmental Affairs has determined, in accordance with the provisions of 301 CMR 11.09(4), that a final Environmental Impact Report for that project adequately and properly complies with the M.G.L. c. 30, §§ 6 through 62H (unless, subsequent to that determination, the Secretary requires supplemental information concerning state-listed species, in accordance with the provisions of 301 CMR 11.17).

According to the current Natural Heritage Endangered Species Program (NHESP) information on the Oliver MassGIS mapping tool of estimated rare species locations, there is an area designated as PH 163 habitat in the proposed project dredge area. A review under the Massachusetts Endangered Species Act (MESA) will be requested along with this Notice of Intent as required.

II. Town of Tisbury Wetland Regulations

Section 2.01 Land Under the Ocean
Characteristics and Protected Interests

1. *The Commission finds that regulations applicable to activities involving land under the ocean are necessary and proper for the following reasons:*

    a. *Land under the ocean provides feeding areas, spawning and nursery grounds and shelter for many coastal organisms related to marine fisheries and wildlife. Destruction of eelgrass beds (Zostera marina) will harm scallop production. Nearshore areas, and in some cases offshore areas, of land under the ocean help reduce storm damage, erosion and flooding by diminishing and buffering the high energy effects of storms. Submerged sand bars dissipate wave energy. Such areas provide a source of sediment for seasonal rebuilding of coastal beaches and dunes. The bottom topography and sediment type of nearshore areas of land under the ocean is critical to erosion control, storm damage protection, and flood control. Water circulation and flushing rates, distribution of sediment grain size, water quality (including but not limited to turbidity, temperature, nutrients, pollutants, salinity and dissolved oxygen), and the habitat of wildlife, fin fish and shellfish are all factors critical to the protection of wildlife and marine fisheries and shell fisheries. Land under the ocean in an unobstructed state is important to recreational swimming, fishing and shellfishing to recreational boating and sailing, and to commercial fishing and shellfishing.*

2. *In view of the foregoing, whenever a proposed project involves removing, filling, dredging, altering or building upon land under the ocean, the Commission shall find that such land is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, fisheries, shellfish, wildlife and recreation. These findings may be overcome only upon a clear showing that the Land Under the Ocean does not play a role in protecting one or more of the interests given above and only upon a specific written determination to that effect by the Commission.*

When Land Under the Ocean is Determined to be significant to an Interest Protected by the By-law, the following regulations shall apply:

Improvement and maintenance dredging for navigational purposes shall be designed and carried out using the best available measures as determined by the Commission so as to have the least possible adverse effects or changes in marine productivity caused by changes in, or resulting from suspension or transport of pollutants, sediment transport, smothering of bottom organisms, accumulation of pollutants by organisms, destruction of habitat or nutrient source areas, or changes in water circulation and water quality. Dredging, particularly important dredging shall also use such best available measures to minimize adverse effects caused by changes in bottom topography resulting in an increase in height and velocity of waves hitting the shore or in changes in sediment transport which affect natural replenishment of beaches or maintenance of channels.

As previously stated, dredging will not affect the propagation of waves in the area because there is limited fetch that restricts waves from building up even during extreme wind events. Dredging will be completed in the best available measures to maintain a naturally sloping seafloor by dredging to a 1v:3h side slope to that matches the adjacent areas. After dredging is completed, turbidity levels will return to normal and water quality will remain as is or improve as a result of the project.

Water quality will improve as a result of the project due to increased water circulation and a decrease in the possibility of "prop wash". Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. The proposed dredging project will increase the water depth which will reduce prop wash from the vessels, therefore the long term effects will lead to an improvement in the water quality.

Increased water depth will increase water circulation as well as the rate of flushing. Flushing occurs during incoming and outgoing tides causing water from the open ocean (through Vineyard Haven) to mix with the water within Lagoon Pond. When flushing rates are low water can become stagnant and allow for the accumulation of pollutants. By increasing water circulation the project will increase the dissipation of pollutants within Lagoon Pond which will benefit the habitats for shellfish, wildlife, and vegetation.

Another factor that will improve the water quality on the site is the reduction of the impervious area on the upland area. By decreasing the impervious area on the property the flow of rain runoff into the waterbody will decrease as well. Rain runoff can contain pollutants that can cause contamination as it flows into the waterbody. Therefore decreasing the flow of rainwater is beneficial to the water quality which is also beneficial to the wildlife and vegetation in the area including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

Construction of residential piers shall be accomplished as determined by the Commission so as not to change shoreline movement of sediments, harm significant shellfish resources, obstruct commercial shellfishing or obstruct the reserved public rights of fishing, fowling, navigation or passage. No solid fill piers shall be permitted.

The piers will be designed so that the number of support piles and size of the piles is the least possible to support the weight, wind, and wave loading on the pier. The pier was also designed so that most of the pier is located above the mean low water (MLW) line and on the coastal beach. For this reason the piles will be above the water line at most phases of the tide and therefore have a limited effect on the circulation of water. Any minor and limited effects on water circulation caused by the pier pilings will be offset by the improvements to water circulation through dredging. Therefore there will be no net change in water circulation that would cause a change in sediment transport. There are no solid filled piers proposed.

The regulations contained in regulations 4 and 8 of this section do not apply to water dependent commercially zoned uses except where DCPC regulations supercede.

Regulations for piers in all town waters shall be those contained in Section 1.06 A and 1.06 B. The inner harbor is exempt from these requirements.

Construction of commercial piers shall not affect sediment transport, and shall not destroy or pollute fisheries and shellfish habitat or nutrient source areas for those resources. No solid-fill piers shall be permitted.

The piers are designed so that the number of support piles and size of the piles is the least possible to support the weight, wind, and wave loading on the pier. The piles will have a limited effect on water circulation which will be offset by the improvements to water circulation through dredging. Therefore, there will be no net change in water circulation that would cause a change in sediment transport. There are no solid filled piers proposed. As previously stated, the proposed project will increase flushing rates for Lagoon Pond which will reduce nutrient loading in Lagoon Pond. This will improve the water quality in the area which will benefit the marine fisheries and wildlife habitat.

Best available measures as determined by the Commission shall be used to minimize adverse effects of a commercial or residential pier on the interests protected by the By-law.

Aquaculture projects shall be undertaken pursuant to such means as may be established by the Commission so as to have the least possible adverse effect on wildlife, erosion control, storm damage prevention, flood control, recreation or public access. No destruction of habitat or areas where shellfish feed, or change in water quality or circulation in any manner which adversely affects productivity or marine fisheries or shellfish beds shall be permitted.

N/A no aquaculture projects are proposed.

No new bulkheads or coastal engineering structures shall be permitted to protect structures built after August 10, 1978. Existing bulkheads may be repaired or reconstructed in a similar location and according to the guidelines in the Army Corps of Engineers "Shore Protection Manual," so as to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches and structures due to changes in wave action, and only to its original length, if it is protecting an existing house. Bulkheads may be rebuilt only if the Commission determines there is no environmentally better way to control an erosion problem, including in appropriate cases the moving of the threatened building.

N/A no bulkheads are proposed.

Water dependent projects shall be designed and performed so as to cause no adverse effects on wildlife, erosion control, marine fisheries, shellfish beds, storm damage prevention, flood control and recreation.

The proposed project will have a positive impact on the environment because it takes all necessary measures to maintain or improve water quality in the area. Water quality will improve as a result of the project due to increased water depth and increase in water circulation and a decrease in the possibility of "prop wash". Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. By increasing the water depth there will be an increase in the distance from the boat propeller to ten sea floor thus reducing

the potential for prop-wash. This reduction in prop-wash will keep sediment from being introduced into the water column thus improving water quality.

There will be a temporary short-term increase in turbidity during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. The proposed dredging project will increase the water depth which will reduce prop wash from the vessels, therefore the long term effects will lead to an improvement in the water quality.

Another factor that will improve the water quality on the site is the reduction of the impervious area on the upland area. By decreasing the impervious area on the property the flow of rain runoff into the waterbody will decrease as well. Rain runoff can contain pollutants that can cause contamination as it flows into the waterbody. Therefore decreasing the flow of rainwater is beneficial to the water quality which is also beneficial to the wildlife and vegetation in the area including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

No activity on land under the ocean which is not water dependent shall be permitted by the Commission, except activity allowed pursuant to a waiver from these regulations, as set forth in Section 1.02.

The Commission may impose such additional requirements as are necessary to protect the Interests protected by the By-law.

Section 2.02 Coastal Beach and Tidal Flats

Characteristics and Protected Interests

1. *The Commission finds that regulations applicable to activities involving coastal beaches and tidal flats are necessary and proper for the following reasons:*
    1. *Coastal beaches dissipate wave energy by their gentle slope, their permeability and their granular nature which permit changes in beach form in response to changes in wave conditions. Coastal beaches serve as a sediment source for dunes and subtidal areas. Steep storm waves cause beach sediment to move offshore, resulting in a gentler beach slope and greater energy dissipation. Less steep waves cause an onshore return of beach sediment, where it will be available to provide protection against future storm waves. A coastal beach at any point serves as a sediment source for coastal areas downdrift from that point. The oblique approach of waves moves beach sediment alongshore in the general direction of wave action. Thus the coastal beach is a body of sediment which is moving along the shore. Coastal beaches serve the purpose of storm damage prevention, erosion control, and flood control by dissipating wave energy, by reducing the height of storm waves and by providing sediment to supply other coastal features, including coastal dunes, land under the ocean and other coastal beaches. Interruptions of these natural processes by man-made structures reduces the ability of the coastal beach to perform these functions.*
    2. *Tidal flats are important to the protection of marine fisheries because they provide habitats for marine organisms, such as polycheate worms and mollusk which in turn are food sources for fish. Tidal flats are also sites where organic and inorganic materials are entrapped and then returned to the photosynthetic zone of the water column to support algae and other primary producers of the marine food web. Coastal beaches and flats serve as important habitats for a wide variety of wildlife. They are used in particular by coastal birds for feeding areas and nesting sites. The natural erosional and depositional cycles, sediment grain size, water quality (including but not limited to turbidity, temperature, nutrients, pollutants, salinity and dissolved oxygen) and circulation and elevation of the land surface are all features of wildlife habitat which are critical characteristics for the protection of wildlife. Characteristics of coastal beaches and flats which are critical to the protection of marine fisheries and shellfish include: distribution of sediment grain size, movement of sediment, water quality (including the characteristics given above) and circulation and beach relief and elevation. Characteristics of coastal beaches and flats which are critical to storm damage prevention, erosion*

control, or flood control include sediment volume and form, their depositional cycles, and wave intensities. Characteristics of coastal beaches which are critical to recreation are topography, sediment grain size, water quality, water circulation rates and patters, unobstructed access along the shore, natural erosional and depositional cycles and wave intensity. Land within 100 feet of a coastal beach or tidal flat is considered to be important to the protection and maintenance of coastal beaches and tidal flats and therefore to the protection of the wetland values which these areas contain.

3. *In view of the foregoing, whenever a proposed project involves removing, filling, dredging, altering or building upon a coastal beach or flat, the Commission shall find that the beach or flat is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, fisheries, shellfish, wildlife and recreation. These findings may be overcome only upon a clear showing that the beach or flat does not play a role in protecting one or more of the interests given above and upon only a specific written determination to that effect by the Commission.*

Section 2.02

When a coastal beach, tidal flat or land within 100 feet of a coastal beach or tidal flat is determined to be significant to an Interest Protected by the By-law, the following regulations shall apply:

The provisions of Section 2.01 B (1-8) (Land Under the Ocean) shall apply to coastal beaches and tidal flats.

No new bulkheads or coastal engineering structures shall be permitted. Existing bulkheads may be repaired or reconstructed in a location similar to the existing location and only to its original length, if it is protecting an existing house built prior to August of 1978. Bulkheads may be rebuilt according to guidelines in the Army Corps of Engineers "Shore Protection Manual," so as to minimize, using best available measures, adverse effects on adjacent, nearby coastal beaches and structures due to changes in wave action, and only if the Commission determines there is no environmentally better way to control an erosion problem, including in appropriate cases the moving of the threatened building. Existing coastal engineering structures, other than bulkheads, may not be repaired, re-built or re-habilitated.

N/A no bulkheads are proposed

Dredging projects in flats must be done in accordance with such procedures as the Commission determines would disturb the absolute minimum amount of habitat possible.

Refer to project description for dredging methods. The dredge footprint is located seaward of mean low water and is thus outside of the "flats"

No fill shall be placed within 25 feet of a coastal beach. If a project is water dependent, the Commission may allow limited placement of fill after making a written finding that there is no feasible way to avoid filling the beach or within 25 feet of the beach. All possible mitigation measures shall be taken as determined by the Commission to limit the adverse effects of the fill.

No fill is proposed to be placed within 25 feet of the coastal beach.

No newly constructed, except for an upgrade/replacement of a failed cesspool or septic system (as determined and/or ordered by the Board of Health or other such Agency), or determined to fail in the immediate future, (as determined by a R.P.E., Registered sanitarian or the Health inspector) shall be placed in shifting sands or on a coastal beach. No newly constructed septic system shall be within 100 feet of the landward edge of a coastal beach or tidal flat. No newly constructed septic system shall be installed in soils with a percolation rate of five (5) minutes per inch where the distance to naturally occurring ground elevation to maximum ground water elevation is less than five feet, and in soils with a percolation rate of less than five (5) minutes per inch where the distance between naturally occurring ground elevation to maximum ground water elevation is less than seven (7) feet.

N/A no new septic systems are proposed.

All work on projects which are not water dependent shall maintain at least a 25 foot natural undisturbed area adjacent to a coastal beach. All structures which are not water dependent shall be at least 50 feet from a coastal beach.

N/A the proposed project is water dependant.

In areas of eroding shoreline, the distance from all buildings to the coastal beach shall be at least 20 times the average annual shoreline erosion or 50 feet, whichever is the greater. The average annual shoreline erosion rate shall be determined by averaging the annual erosion over a 150-year period ending the date the notice of intent was filed, or if no notice of intent was filed, the date construction began. If erosion data is not available for the 150-year period, the Commission shall determine the average annual erosion rate from the such lesser time period for which erosion data is available.

The only proposed building is a warehouse that will be constructed further landward than the other 2 existing warehouses. The proposed project will include the removal of 2 ware house buildings landward of the coastal beach.

Cleaning, raking of coastal beaches must be accomplished using a rake in such a manner as to preserve the existing form, volume and grain size distribution of the beach. Cleaning of the beach is permitted on the areas of the beach between mean high tide and the spring high tide. Exceptions to this shall be taken into account when the area adjacent to the spring high tide zone is designated a nesting habitat for any species of tern or the piping plover. The party responsible for the cleaning, raking, shall provide the Commission with a description of the rake, this information if required in order to insure that the rake teeth are sufficiently separated so that the beach sediment will not be removed and that the beach form will not be altered.

N/A

Cleaning, raking, of a coastal beach is prohibited in the Drift line zone due to the sensitive nature of this portion of the high beach. The drift line zone consists chiefly or organic material deposited on the backshore during high spring tides or storms. Drift lines may contain large quantities of marine algae, eelgrass, and marsh detritus. Bacteria and fungi quickly break down this organic matter, releasing nutrients into the sand and eventually back to the sea.

N/A

The application of any inorganic fertilizers, pesticides, fungicides or other quick release chemicals is prohibited within 100 feet of a coastal beach or tidal flat. The Commission may grant a waiver for the application of all but inorganic fertilizers upon a clear and convincing showing the application of such chemicals is necessary to control:

- *A pest deemed a health hazard by the Local Board of Health or,*
- *A pest which has damaged twenty percent (20%) of a commercial crop or a crop necessary for livestock.*

Conditions:

- *The request for the waiver must be accompanied by a recommendation including the amount, frequency and specific chemical to be applied by the Dukes County Extension Service or Pesticide Bureau.*

- *Applications of organic fertilizers are prohibited within 100 feet of a coastal beach or tidal flat unless a permit is first granted by the Commission. The permit request must be accompanied by the results of a soil analysis and recommendations from the Dukes County Extension Service.*
- *The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw.*

Section 2.04: BARRIER BEACHES
Characteristics and Protected Interests

The Commission finds that the regulations applicable to activities involving barrier beaches are necessary and proper for the following reasons:

Barrier beaches protect landward areas from flooding and erosion because they provide a buffer to storm waves and to sea levels elevated by storms. Barrier beaches protect from wave action such highly productive areas as salt marshes, estuaries, lagoons, harbors, slat ponds and freshwater marshes and ponds, which are in turn important to fisheries and shellfish. Barrier beaches are maintained by the alongshore movement of beach sediment caused by wave action. The coastal dunes, beaches, and tidal flats of a barrier beach are made up of sediment supplied by wind action, storm wave overwash and tidal inlet deposition. Barrier beaches in Massachusetts undergo a landward or alongshore migration caused by the landward and alongshore movement of sediment by wind, storm waves and tidal current processes. The continuation of these processes maintains the volume of the land form which is necessary to carry out its storm and flood buffer functions.

The ability of barrier beaches to respond to wave action, including storm overwash sediment transport, is critical to the protection of the wetlands values of barrier beaches. The Characteristics and Protected Interests of Coastal Beaches, set forth in 2.02A of these regulations and the Characteristics and Protected Interests of Coastal Dunes, set forth in Section 2.03A also apply to Barrier Beaches.

In view of the foregoing, whenever a proposed project involves removing, filling, dredging, altering or building upon a barrier beach, the Commission shall find that the barrier beach is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, fisheries, shellfish, wildlife and recreation. Barrier beaches shall be found significant to private water supply and ground water if there are existing houses with wells on or near the barrier beach or if the barrier beach abuts, creates, or protects a swamp, freshwater marsh or pond. These findings may be overcome only upon a clear showing that the barrier beach does not play a role in protecting one or more of the interests given above and only upon a specific written determination to that effect by the Commission.

Section 2.04
When a Barrier Beach or land within 100 feet of a Barrier Beach is determined to be significant to an Interest Protected by the Bylaw, the following regulations shall apply:

- *No coastal revetments or coastal engineering structures of any type shall be constructed, rebuilt or repaired unless they are designed to maintain historic navigational channels using best available measures. Commercially zoned water dependent properties and uses along Beach Road are exempt.*

  No new coastal engineered structures are proposed.

- *Fill may be used only if the Commission authorizes its use and only if such fill is to be used for beach and dune nourishment projects.*

  The project will include placing fill in an area that is already covered by two warehouse buildings and dirt/gravel parking areas. The removal of the buildings and installation of fill will reduce the impact on the barrier beach by decreasing the overall area of impervious coverage

on the site. All fill will be dredged sediment that has been determined to be beach nourishment compatible aside from any aggregates need for the concrete/ gravel parking area.

- *No septic systems or buildings shall be constructed on a barrier beach. Buildings and septic systems which pre-exist these regulations may be maintained and repaired, but not enlarged.*

  N/A no septic systems are proposed

- *Excavation of sand around existing houses may be permitted, but no new projects shall be permitted which will require periodic sand removal for maintenance. All disturbed areas (including blowouts) shall be stabilized through planting of vegetation. The evacuated sand must be retained in the area and be a part of the barrier beach.*

  No periodic sand removal will take place within the upland area.

- *Vehicular access for existing houses, fishing areas or shellfishing areas shall be done in accordance with such procedures as the Commission determines will minimize any adverse effect on the beach.*

  The proposed project will not have an adverse effect on the beach or access to the beach.

- *Projects such as Pond openings for the enhancement of fisheries and shellfisheries, may be permitted if they are performed in a manner which will not permanently adversely affect the interests of storm damage prevention and flood control.*

  N/A

- *Piers are prohibited from barrier beaches, including, but not limited to those State (CZM) and/or Federally listed barrier beaches. Commercially zoned properties and uses on Beach Road are exempt.*

  The subject property is commercially zoned, so it is exempt from this standard.

- *Asphalt or bituminous paving is prohibited.*

  Beach Road and the surrounding area is considered a barrier beach by MA MORIS: CZM's Online Mapping Tool. The area is already affected by bituminous pave roads and parking areas. The proposed parking area is already covered by two warehouse buildings. The removal of two of the buildings and replacement with a parking area and a smaller warehouse building will decrease the impact on the barrier beach.

- *The use, storage or possession of fertilizers, herbicides or insecticides, fungicides or other quick release chemicals are prohibited.*

  N/A

The storage possession of any hazardous chemical substance, as classified by the Federal Environmental Protection Agency or the Mass. Department of Environmental Protection, other than common household substances in volumes or concentrations not to exceed twice that found in the normal retail size container is prohibited.

The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw.

Section 2.08 LAND CONTAINING SHELLFISH
Characteristics and Protected Interests

The Commission finds that regulations applicable to activities involving land containing shellfish are necessary for the following reasons.

Shellfish are one of the Interests protected by the Bylaw. Land containing shellfish is found within many of the areas protected by this Bylaw. In addition to their regulations, this section discusses additional protection for shellfish. Shellfish in Tisbury, particularly scallops, are a very important recreational, commercial and economic resource. Shellfish used as a human food resource, as they are in Tisbury, need very clean, uncontaminated and relatively competitor and predator free environment. Shellfish are a valuable renewable resource. The maintenance of productive shellfish beds not only assures the continuance of shellfish themselves but also plays a direct role in supporting fish stocks by providing a major food source. Characteristics of land containing shellfish which are critical to the protection of shellfish include, but are not limited to: water circulation patterns, rates of waterflow, and amounts of water; the relief, elevation, distribution, grain size analysis and pollutant load of the sediments; the presence and population of competitive and predative flora and fauna; and water quality (including but not limited to: turbidity, temperature, pollutants, nutrients, salinity and dissolved oxygen).

In view of the foregoing, whenever a proposed project involves removing, filling, dredging, altering or building upon land containing shellfish or the water overland containing shellfish, the Commission shall find that the land containing shellfish is significant to the protection of the following interests; shellfish, fisheries and recreation. These findings may be overcome only upon a clear and convincing showing that the land containing shellfish does not play a role in protecting one or more of the interests given above and only upon a specific written determination to that effect by the Commission.

Section 2.08
When land containing shellfish or land within 100 feet of land containing shellfish is determined to be significant to an interest protected by the by-law, the following regulations shall apply:

Projects shall not change water quality (including, but not limited to: changes in turbidity, temperature, salinity, dissolved oxygen, and additional nutrients and pollutants), water circulation, the elevation of the land, the sediment grain size of the substrate, competitor and predator populations or natural drainage from adjacent lands.

The proposed modest re-dredging (in a previously dredged area) will increase the water depth which will reduce prop wash from the vessels and improve water circulation, therefore improving the flushing rate in and out of Lagoon Pond. Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. Water temperature will not be affected.

The proposed dock reconfiguration will consist of floating docks and will be located within the proposed dredge area to ensure there is sufficient water depth between the docks and the seafloor. This will also ensure there will be no adverse effects of water circulation or water quality as a result of the project.

Water quality will improve as a result of the project due to increased water circulation and a decrease in the possibility of "prop wash". Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the

channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. The proposed dredging project will increase the water depth which will reduce prop wash from the vessels, therefore the long term effects will lead to an improvement in the water quality.

Another factor that will improve the water quality on the site is the reduction of the impervious area on the upland area. By decreasing the impervious area on the property the flow of rain runoff into the waterbody will decrease as well. Rain runoff can contain pollutants that can cause contamination as it flows into the waterbody. Therefore decreasing the flow of rainwater is beneficial to the water quality which is also beneficial to the wildlife and vegetation in the area including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

Elevation of the beach will not be affected by a result of this project because the dredge footprint was designed so that all dredging will take place seaward of the MLW line.

The side slopes of the dredge area are to be one horizontal to three vertical (1V:3H) to mimic a natural slope based on the characteristics of the sediment found on the seafloor.

Regulations for piers in all coastal water bodies containing shellfish shall be those contained in Section 1.06 (A) and 1.06 (B). The inner harbor and commercially zoned uses/properties are exempt.

The proposed project is commercially zoned so this standard is not applicable.

In determining the potential impact of the pier and the importance of the shellfish bed or eel grass bed the Commission shall solicit and review comments from The Martha's Vineyard Shellfish Group.

Land containing shellfish shall not be compacted by vehicular traffic or other means.

There is no proposed vehicular access proposed within land contain shellfish. Access for dredging will be by a barge from the waterbody.

Projects shall not obstruct the ability of the public to gather shellfish recreationally or the ability of commercial fishermen to harvest shellfish.

Any project which will release pollutants shall use such procedures the Commission determines to utilize the best known technology to remove pollutants or prevent risk of pollution.

As previously stated, the project will reduce rain runoff into the waterbody which will reduce the possibility of contaminants flowing into the waterbody.

All septic leach facilities shall be at least 100 feet from land containing shellfish. No newly constructed septic system shall be installed in any soils with a percolation rate of five (5) minutes per inch where the distance from naturally occurring ground elevation to maximum ground water elevation is less than five (5) feet or in soils with a percolation rate greater than five minutes per inch where the distance from naturally occurring ground elevation to maximum groundwater elevation is less than seven (7) feet.

N/A no septic systems are proposed.

No project detrimental to shellfish shall be permitted, except activity allowed pursuant to a waiver from these regulations, as set forth in Section 1.02.

As previously stated, the project will improve the shellfish habitat.

The application of any inorganic fertilizers, pesticides, fungicides or other quick release chemicals is prohibited within 100 feet of land containing shellfish. The Commission may grant a waiver for the application of all but inorganic fertilizers upon a clear and convincing showing that the application of such chemicals is necessary to control:

N/A

- *A pest deemed a health hazard by the local Board of Health or:*
- *A pest which had damaged twenty percent (20%) of a commercial crop or crop necessary for livestock food.*

The request for the waiver must be accompanied by a recommendation including the amount, frequency and specific chemical to be applied by the Dukes County Extension Service or Pesticide Bureau.

The permit for the application of organic fertilizers must be accompanied by the results of a soil analysis and recommendations from the Dukes County Extension Service.

The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw.

Section 2.09: LAND SUBJECT TO COASTAL STORM FLOWAGE
Characteristics and Protected Interests

The Commission finds that regulations applicable to activities involving land subject to coastal storm flowage are necessary and proper for the following reasons:

Land subject to coastal storm flowage (the coastal flood plain) buffers and protects upland areas from severe storm conditions. Since the flood plain contains areas where the water table is close to the surface (as well as other wetland resource areas) pollutants in a flood plain, including contents of septic systems and fuel tanks, may affect private water supply, groundwater quality, wildlife fisheries and shellfish during and after a storm. Direct and collateral damage to man-made structures in the flood plain are caused by wave impacts and inundation by flood waters and storm driven debris. Protecting lives and property in flood plains during a storm can be expensive to the Town of Tisbury and unsafe for its Police, Fire and Medical personnel involved in such efforts. Desires of property owners to protect themselves from the effects of storms can lead to pressure on the Town and its regulatory bodies to erect engineering structures in wetlands which can have detrimental effects on wetland values and surrounding lands.

In view of the foregoing, whenever a proposed project involves removing, filling, dredging, altering or building upon land subject to coastal storm flowage, the Commission shall find that the land is significant to the protection of the following interests: flood control, erosion control and storm damage prevention. These findings may be overcome only upon a clear and convincing showing that the land subject to coastal storm flowage does not play a role in one or more of the interests given above and only upon a specific written determination to that effect by the Commission.

Section 2.10
When land subject to coastal storm flowage or land within 100 feet of land subject to coastal storm flowage is determined to be significant to an Interest Protected by the Bylaw, the following regulations shall apply:

The work shall not reduce the ability of the land to absorb and contain floodwaters, or to buffer inland areas from flooding and wave damage.

The proposed project will reduce impervious coverage area on the property by 9,300 S.F.+/-. This reduction in impervious coverage will reduce the volume and flow of stormwater runoff generated on the site during a rain fall event. The reduction in impervious coverage will also increase the ability of the site to absorb and recharge floodwaters.

Projects shall not cause ground, surface, or salt water pollution triggered by coastal storm flowage. All newly constructed septic tanks and leach facilities shall be outside the100 year flood plain.

There are no septic systems proposed. The proposed stormwater management best management practices will capture, provide water quality treatment, and recharge of runoff that is currently flowing via surface runoff patterns untreated toward the resource area. The reduction in impervious area will reduce the volume and peak flow of runoff generated from the site during storm events. Both of the described improvements will reduce the risk of introduction of pollutants into the waterbody during rain storms and coastal flooding events.

All private underground fuel tanks shall be outside the 100 year flood plain. Commercial tanks shall be outside the 100 year flood plain, or if the Commission determines this is not practical, the commercial tanks shall be secured so that they cannot float loose.

There are no fueling tanks existing or proposed within the project locus.

The application of inorganic fertilizers, pesticides, fungicides or other quick release chemicals is prohibited within land subject to coastal storm flowage and within 100 feet of the100 year flood. The Commission may grant a waiver for the application of all but inorganic fertilizers upon a clear and convincing showing that the application of such chemicals is necessary to control:

N/A

- *A pest deemed a health hazard by the local Board of Health, or:*
- *A pest which has damaged twenty percent (20%) of a commercial crop or crop necessary for livestock food.*

The request for a waiver must be accompanied by a recommendation, including the amount, frequency and specific chemical to be applied by the Dukes County Extension of Pesticide Bureau.

Applications of organic fertilizers are prohibited within 100 feet of land subject to coastal storm flowage unless a permit is first granted by the Commission. Permit requests for the application of organic fertilizers must be accompanied by the results of a soil analysis and recommendations from the Dukes County Extension Service.

No newly constructed, except for an upgrade/replacement of a failed cesspool or septic system, (as determined and/or offered by the Board of Health or other such agency) or a system determined to fail in the immediate future, as determined by a R.P.E., Registered Sanitician or Health Inspector shall be placed in land subject to coastal storm flowage in soils with a percolation rate of five (5) minutes per inch where the distance from naturally occurring ground elevation to maximum ground water elevation is less than five (5) feet or in soils with a percolation rate faster than five (5) minutes per inch where the distance from naturally occurring ground water elevation to maximum ground water elevation is less than seven (7) feet.

N/A there are no septic systems proposed.

The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw.

Section 3.01

The following projects may be permitted, provided that they adhere to the provision listed in 3.01 (B) (1-6).

Pedestrian walkways, designed to minimize the disturbance to the vegetative cover and the traditional nesting and feeding habitats of wildlife.

Plantings compatible with the natural vegetative cover.

1.06 LAGOON POND D.C.P.C. AND LAKE TASHMOO REGULATIONS:

Preface: Projects in and within 100 feet of Lagoon Pond and Lake Tashmoo or any resource area adjacent to Lagoon Pond and Lake Tashmoo shall, if water dependent, be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water dependent, have no adverse effects on the interests outlined in Section I of the Tisbury Wetlands By-law caused by:

- *Alterations in water circulation;*

  Water circulation will improved by the proposed project. Increased water depth will increase water circulation as well as the rate of flushing. Flushing occurs during incoming and outgoing tides causing water from the open ocean (through Vineyard Haven) to mix with the water within Lagoon Pond. When flushing rates are low water can become stagnant and allow for the accumulation of pollutants. By increasing water circulation the project will increase the dissipation of pollutants within Lagoon Pond which will benefit the habitats for shellfish, wildlife, and vegetation.

- *Destruction of eelgrass (Zostera marina) beds;*

  There is no eelgrass within the project locus

- *Alterations in the distribution of sediment grain size;*

  There will not be a change in the grain size distribution as a result of this project. The sediment in the channel originates from the nearby beaches and is part of the natural littoral transport system. The proposed dredging would remove the top layer of sediment (which was determined to be well-graded sand from the grain size distribution analysis) which has accreted over time from sand that has eroded from nearby beaches.

- *Changes in water quality, including, but not limited to, other than natural fluctuations in, the level of dissolved oxygen, temperature or turbidity or the addition of pollutants;*

  The proposed modest re-dredging (in a previously dredged area) will increase the water depth which will reduce prop wash from the vessels and improve water circulation, therefore improving the flushing rate in and out of Lagoon pond. Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. Water temperature will not be affected.

The proposed dock reconfiguration will consist of floating docks and will be located within the proposed dredge area to ensure there is sufficient water depth between the docks and the seafloor. This will also ensure there will be no adverse effects of water circulation or water quality as a result of the project.

Water quality will improve as a result of the project due to increased water circulation and a decrease in the possibility of "prop wash". Prop wash can be caused by power-driven vessels during lower tides due to the accretion of sediment which causes turbidity in the water column. The effects of prop wash increase in shallower waters because the propeller of a power-driven vessel is closer to the seafloor. The turbidity caused by prop wash is an effect of the vessels not having adequate depth to navigate the channel. The turbidity level will have a temporary short-term increase during dredging operations, but it will return to existing conditions and improve after dredging operations are completed. The proposed dredging project will increase the water depth which will reduce prop wash from the vessels, therefore the long term effects will lead to an improvement in the water quality.

Another factor that will improve the water quality on the site is the reduction of the impervious area on the upland area. By decreasing the impervious area on the property the flow of rain runoff into the waterbody will decrease as well. Rain runoff can contain pollutants that can cause contamination as it flows into the waterbody. Therefore decreasing the flow of rainwater is beneficial to the water quality which is also beneficial to the wildlife and vegetation in the area including shellfish, finfish, shore birds, eelgrass, and saltmarsh.

- *Alterations of shallow submerged lands with high densities of polychaetes, mollusks, or macrophytic algae;*

  Elevation of the seafloor, intertidal area, and beach will not be effected by a result of this project because the dredge footprint was designed so that all dredging will take place seaward of the MLW line. The side slopes of the dredge area are to be one horizontal to three vertical (1V:3H) to mimic a natural slope based on the characteristics of the sediment (natural angle of repose) found on the seafloor.

- *Alterations in relief elevations;*

  Relief elevations will not be affected by a result of this project because the dredge footprint was designed so that all dredging will take place seaward of the MLW line. The proposed project will not change the ability of the intertidal zone and coastal beach to provide sediment to down-drift beaches and protect the upland area because wave heights and energy will not change as a result of the project. The proposed dredging will not alter the bottom topography in a way that will increase storm damage or erosion because the dredge area is protected from open water within Lagoon Pond. Lagoon Pond is a relatively small waterbody and protected waterbody connected to open water through a small inlet from Vineyard Haven. There is not enough "fetch" (distance for waves to build up) in Lagoon Pond for waves to exceed a couple feet, even during severe storms. For this reason, the depth of the seafloor will have little to no effect on waves building up in Lagoon Pond that would cause damage along the shoreline. The proposed dredging will also take place below the intertidal zone. Therefore wave heights in the proposed maintenance dredging area will be negligible. Therefore the existing intertidal zone will remain as is and would cause waves to break offshore and dissipate their energy and not cause increased flooding or erosion along the beach.

The compacting of sediment by vehicular traffic;

Vehicular traffic for construction will mostly take place from the upland area or existing concrete boat ramps. Any movement of equipment on the coastal beach will be minimized to minimize the compaction of sediment along the coastal beach. Any "ruts" caused by construction equipment will re-graded to the pre-existing conditions.

- *Alterations in natural drainage from adjacent lands; or*

The proposed project is designed to reduce the direct flow of rain runoff into the waterbody by re-grading the site and re-surfacing the area with pervious (gravel/ true grid) parking spaces. Currently the proposed parking area is completely covered by existing warehouses. The removal and replacement of the two warehouses with the proposed parking area will limit the flow of rain runoff into the water body through increased percolation through the gravel/ true grid parking spaces and diversion of flow into proposed plant beds and rain gardens. Therefor the project improves the drainage capabilities of the site.

- *The growth, composition and distribution of salt marsh vegetation.*

N/A there is no salt marsh within the project locus.

1.06 A REGULATIONS FOR PIERS IN LAGOON POND AND LAKE TASHMOO:
Permanent/fixed piers are prohibited from proven shellfish beds and from proven eelgrass beds and from areas with a high probability of development for shellfish and eelgrass beds when identified and/or mapped as follows;

- *By the Conservation Commission based upon maps and/or designations of the Division of Marine Fisheries, or*
- *By the Conservation Commission based upon maps and/or designations by the Martha's Vineyard Commission, or*
- *By the Conservation Commission, based upon maps and/or designations and/or written documentation from the shellfish constable, or*
- *By the Conservation Commission, based upon maps and/or designations and/or written documentation from the Martha's Vineyard Shellfish Group.*

The proposed piers are located landward of the shellfish suitability area as shown on MA GIS MORIS: CZM's Online Mapping Tool. The proposed piers were designed so that they do not extend seaward from the MLW line and are therefore landward of land under the ocean and land containing shellfish. The proposed floats will be located within the dredged footprint so that there will be at least 2.5 feet of water between the bottom of the floats and the seafloor. Therefore the floating docks will not come in contact with the seafloor and will not have a negative effect on any existing shellfish beds.

There is no eelgrass within the project locus.

In making such identification and/or maps, the following factors shall be taken into account and documented:

- *The density of shellfish, the size of the area and the historical and current importance of the area to recreational or commercial shellfishing.*
- *Piers with removable floating extensions are prohibited from proven and potential shellfish and eelgrass beds (when identified and/or mapped as described in Section 1.06 (A-1) (a-c).*

The proposed piers are located landward of the shellfish suitability area as shown on MA GIS MORIS: CZM's Online Mapping Tool. The proposed piers were designed so that they do not extend seaward from the MLW line and are therefore landward of land under the ocean and

land containing shellfish. The proposed floats will be located within the dredged footprint so that there will be at least 2.5 feet of water between the bottom of the floats and the seafloor. Therefore the floating docks will not come in contact with the seafloor and will not have a negative effect on any existing shellfish beds.

- *No pier shall exceed fifty (50) feet in length from mean high water; if necessary, floating extensions may be constructed to reach appropriate depth of water.*

  The proposed piers exceed mean high water by less than 15 feet.

- *Floating extensions must be removed during the off-season, November 1st to April 1st.*

  The proposed floating docks will be removed during the offseason and stored on the upland area of the property in a way that will not adversely affect any nearby wetland resource areas.

- *Piers shall be designed with piles spaced at least ten (10) feet apart so as to allow water to pass relatively unimpeded through them.*

  The pier is located on the coastal beach and above the mean low water (MLW) line. Therefore the water flow in between the piles will be minimal due to the shallow depth of water (dry at low tide) around the pile. For this reason the flow of water will not be impeded by the proposed piles because it is already restricted by the shallow depth of water.

- *During construction, turbidity must be contained using best available measures.*

  The contractor's means and methods for construction will be reviewed at the pre-construction meeting and shall be approved by the Conservation Agent and Engineer prior to construction. The contractor shall take all measures necessary to reduce turbidity during dredging and pile driving operations.

- *Non-leaching wood preservatives must be used to treat the pier.*

  The pier shall be treated with non-leaching wood preservatives.

- *Mechanical pile driving is required.*

  The contractor shall use mechanical pile driving equipment rather than jetting the piles into the seafloor.

- *Construction is to be done from floating barges.*

  Construction shall be completed by floating barges, from the existing boat ramps, from the coastal beach (above MHW) or from the upland area using a crane that can reach the piers. Construction will be completed so that the vehicular equipment will not be situated in the water.

- *Planks on the piers shall have a minimum spacing of one (1) inch so as to allow sunlight penetration.*

  As specified on the accompanying plans sheet C3.2.1, the pier planking shall be installed so that there is at least 1" spacing between the planks to allow for sunlight penetration.

- *No pier shall interfere with alongshore navigation or restrict maneuverability.*

The proposed pier is landward of the mean low water line and is therefore outside of navigable waters for motor-powered or sail-powered vessels.

- *Piers are prohibited from State and Federally designated barrier beaches.*

The project locus is within a designated barrier beach by MA GIS MORIS: CZM's Online Mapping Tool. However, the barrier beach is within a commercial/industrial zone with a state road, bridge, several properties containing large warehouses and parking areas, and existing piers. Therefore, the designated barrier beach does not function like a typical barrier beach and this regulation should not be applicable. The proposed project will reduce the affected area on the barrier beach by removing two warehouses and replacing them with a smaller warehouse and a partially pervious parking area.

- *Rafting of boats on piers is prohibited.*
- *Piers shall not restrict lateral access along the shore.*

The proposed piers will not affect the lateral access along the shore for pedestrians because there is an existing set of steps on the west side of the proposed piers and there is another proposed set of steps to the east of the proposed piers. Pedestrians will be able to walk up the steps and along the top of the rip- rap armored slope from one end of the property to the other end and back down the steps to the beach. Signs for pedestrian access will be displayed on each set of stairs.

- *Piers with permits from the Tisbury Conservation Commission shall clearly display the assigned D.E.P. number at all times.*

Storage of prohibited products on piers, including but not limited to the following:

- *fuel*
- *solvents*
- *paints*
- *chemicals*
- *cleansers*

All fuel based products, solvents, paints, chemicals, and cleansers will be stored in the upland area of the property and not on the proposed piers. There is no existing or proposed public fueling facilities at either of the Martha's Vineyard Shipyard locations.

The maximum width of a pier shall not exceed five (5) feet, with the exception of a "T" or "L" at the end of the pier.

The width of the proposed piers does not exceed 5 feet at any point. There are no "T's" or "L's" on either pier.

Piers within one hundred (100) feet of proven or potential shellfish or eelgrass beds shall be constructed during the period between November 1st and April 1st.

All construction including dredging and installation of piers will take place during the required time of year (TOY) requirements set forth for the site.

1.06 B. MINIMUM SUBMITTAL REQUIREMENTS FOR APPLICATIONS FOR PIERS AND DOCKS:
The presence of any shellfishing areas must be indicated within 100 feet of the proposed project. This pertains to both seeded and naturally occurring beds.

- *The presence of any eel grass beds must be indicated within 100 feet of the proposed project.*

  There are no eelgrass beds within 100 feet of the proposed project.

- *Marked navigation channels within 100 feet.*

  There is no marked channel within 100 feet of the pier.

- *Location of existing public or commercial moorings within 100 feet of the pier.*

  There are no commercial moorings within 100 feet of the pier

- *Location of existing Town, commercial or private piers and docks, and Town landings within 300 feet of the proposed pier.*

  See accompanying plans sheet C3.1.1. The only pier within 300 feet of the proposed pier/ floating docks is on the abutting property to the north and is 137.2 feet away from the closest proposed floating dock.

- *Provisions for ensuring the continued public access to the foreshore and the tidelands must be given.*

  Public access to the foreshore and tidelands will not be restricted because there is an existing set of steps on the west side of the proposed piers and there is another proposed set of steps to the east of the proposed piers. Pedestrians will be able to walk up the steps and along the top of the rip-rap armored slope from one end of the property to the other end and back down the steps to the beach. Signs for pedestrian access will be displayed on each set of stairs.

- *Applicant must submit description of removal and/or storage of any removable portions of the structure.*

  The proposed floating docks will be stored at the storage area owned by Martha's Vineyard Shipyard at the Airport Business Park during the off-season.

- *Description of how Mean High Water was determined.*

  The elevation of Mean High Water (MHW) was determined using Vdatum (Online Vertical Datum Transformation) tool published by NOAA. Using VDatum MHW for Lagoon Pond is 0.35 feet above NAVD88. To determine the MHW line the 0.35 foot contour was extracted from the topographic survey data that was collected at the site in February and March, 2019.

III. Summary

For the reasons stated in this report, the proposed project meets and exceeds the performance standards set forth by the Massachusetts State Wetlands Protection Regulations (310 CMR 10.00) and the Town of Tisbury Wetlands Protection Regulations. The proposed project is to modify Martha's Vineyard Shipyard which will include: modest re-dredging (in a previously dredged area); installation of piers, ramps, and floating docks; and the removal and replacement of two warehouse buildings with a smaller warehouse, parking area, and native planting areas. The proposed dredging will increased the depth of water within the dredge footprint and therefore

improve water circulation in the area. Improved water circulation will increase flushing rates and tidal mixing of the water within Lagoon Pond and the open ocean which will regulate salinity and temperature and help prevent nutrient loading in Lagoon Pond. The proposed removal and replacement of the warehouse buildings with a smaller warehouse and partially pervious parking areas will reduce the impervious area on the upland potion of the site by 9,300 S.F.+/-. In addition to the reduction in impervious coverage area, the implantation of several plant beds located between the redeveloped parking areas and Lagoon Pond resource area, a rain garden, and True Grid stormwater management BMP's will reduce the volume and flow of rain runoff contributed from the site directly into the waterbody. As described, the proposed improvements will decrease the introduction of pollutants into the waterbody caused by rain runoff and/or coastal flooding. The improvements to water circulation as well as the reduction in rain runoff into the waterbody as a result of the proposed project will improve the water quality of the area which will benefit the coastal resource areas and habitats for shellfish, wildlife and vegetation. For the reasons stated, the proposed project will improve boater access to Martha's Vineyard, improve safety of the work place, adapt to climate change, provide improved coastal resiliency against sea-level rise, and will be an overall benefit to the working waterfront, the environment, and the community.

ALTERNATIVE ANALYSIS

Proposed Redevelopment of Martha's Vineyard Shipyard

Alternative 1 - Do Nothing

If nothing were done, the area would continue to function as a shipyard for storage and service of vessels. The working waterfront, navigation, safety of working environment, and public boater access to the water way would not be improved by the proposed dredging and installation of the pier/ ramp/ floating dock systems. Water circulation and water quality would remain as is if the proposed dredging and proposed site re-development does not take place. Sea level rise will continue to increase which will increase the rate of coastal flooding. Increasing rates of coastal flooding will cause more damage to the facilities and further limit the Shipyard to continue to function its essential role in maintaining the working waterfront.

Alternative 2 – Redevelop the existing Shipyard Marine & Upland Facilities (preferred alternative)

The proposed project is to modify the existing Shipyard facility located along and adjacent to Lagoon Pond to provide improved access to the waterbody for boaters and improve navigation in the area. The proposed project will include improvements to the shorefront area as well as upland portions of the property that are currently used as warehouse storage and parking. The proposed facility improvements are designed to also have positive environmental impacts. Shorefront improvements including modest re-dredging (in a previously dredged area) and pier/ ramp/ floating dock installation will improve water circulation and water quality in the area. The proposed upland improvements will decrease the impervious area of the property and decrease the flow of rain runoff into the Lagoon Pond Waterbody. Decreased flow of runoff into the waterbody will also improve the water quality of the area. The site will also be razed in order to reduce the likelihood of coastal flooding resulting from sea level rise. The reduction in coastal flooding will also decrease the flow of nutrients from the upland area into the waterbody. For these reasons the proposed project is the preferred alternative because it will help maintain the working waterfront, provide a safer workplace, make the waterway safer for navigation and more accessible to public boaters, adapt to climate change, improve the coastal resiliency of the site, and have a positive impact on the environment.

As part of this alternative, several different concepts, layouts, and configurations were considered:

Alternative 2A – Design of Dredge Footprint

The dredge footprint was designed after the hydrographic survey of was completed to provide a "basin" for the boat slip area and an "approach channel" (50 feet wide) to connect the basin to the existing navigational channel through Lagoon Pond. The approach channel was originally designed so that it followed the area where the existing seafloor contours were naturally deeper than the surrounding area. After reviewing the results of the shellfish survey, it was observed that there were a few locations where shellfish were observed in the original design of the approach channel. The approach channel was then re-designed so that it is now located outside of any areas where shellfish were observed during the survey. As a result, the proposed dredging will have the least impact possible on any living shellfish.

Alternative 2B – Proposed Additional Measures to Promote the Shellfish Habitat and the Shell-fishing Community

As stated in the NOI Performance Standards and in the Shellfish Sustainability Statement, the owners of the Shipyard are willing to voluntarily take additional measures to promote the shellfish

habitat and shell-fishing community. These measures include: 1. not allowing over-night boaters; 2. removing the shellfish prior to dredging; and 3. donating funds towards a shellfish seeding budget (refer to attached Shellfish Sustainability Report for more specific details). There is already a pump-out facility on the northern property along Vineyard Haven and there are no proposed pump-out facilities associated with this project along Lagoon Pond. For this reason, the introduction of additional vessels will not introduce new pump-out operations into Lagoon Pond. Lagoon Pond is already designated as a "No Discharge Zone" so any discharging of waste will be prohibited.

Alternative 2C – Additional Shorefront Stabilization and Protection

The shorefront along the Shipyard property is protected by a low-profile rip-rap armored slope. The armored slope is approximately 2 feet high and serves as protection to the upland area from coastal erosion. Additional hardscape measures could have been implemented as part of this project that would allow the grade of the upland area to be razed significantly and therefore more resilient against coastal erosion and coastal flooding due to sea-level rise. This was not the preferred alternative because there were concerns if it would cause any changes to the hydrodynamics and littoral transport system of the area. Razing the upland area more than is proposed would also be difficult given the existing elevation of Beach Road. For these reasons, it was decided that the existing armored slope as well as the proposed razing and re-grading of the site would sufficiently reduce the likely-hood of coastal flooding to manageable levels for the fore-seeable future.

Alternative 2D – Layout and Configuration of the Dock Slips

Several different slip configurations were considered through the design process and the proposed configuration was chosen because it optimized the area of water the Shipyard is allowed to use. The proposed configuration of the dock slips was designed for the seasonal storage of 48 vessels. The layout and location of the floats were designed with an open area down the middle of the slip area to provide a safe path of navigation from the boat ramps through the proposed boat slip basin and into the approach channel. The layout was also designed to minimize the impact on the abutters. For these reasons the proposed dock configuration is the preferred alternative.

Alternative 2E – Layout and Configuration of Upland Area

The upland area was designed to provide parking spaces for the patrons of the Shipyard, maintain enough storage space for seasonal vessels in the warehouses as well as the proposed parking area, and maintain a safe workspace for employees. It was also designed to reduce the impervious area and therefore the direct flow of rain run-off into Lagoon Pond. Several concepts where considered throughout the design process, and the current layout was determined to be the preferred alternative. Other concepts included: 1. removal of only one building; 2. paving the entire parking lot; 3. re-surfacing the parking area with just gravel rather than True-grit Pavers to support the gravel.

1. Removal of only 1 building rather than two of the buildings was not preferred because removing two of the existing buildings and reconstructing a parking area and smaller warehouse in their place would further reduce the impervious area and provide more parking spaces for patrons.
2. Paving the entire parking area was not preferred because pavement would not reduce the impervious area of the site.
3. Resurfacing the parking lot with just gravel rather than True-grit pavers and gravel would reduce the impervious area however the True-grit pavers will provide more stability and allow water to infiltrate the surface at a higher rate.

CONSTRUCTION PROTOCOL

Proposed Maintenance Dredging & Float Reconfiguration

PRIOR TO CONSTRUCTION

ON-SITE MEETING:

Prior to start of construction a meeting will occur with the following individuals represented:

Construction Contractor
Coastal Engineering Co. Engineers
Martha's Vineyard Conservation Commission Representative

To be discussed during this meeting:

Existing site conditions, necessary precautions to be taken by the Contractor
Periodic maintenance requirements that may be required during construction
Necessary post-construction reparations and conditions
Procedure for post-construction inspection

PRE-CONSTRUCTION REQUIREMENTS TO BE MET BY CONTRACTOR:

Proof and Certification of Insurance Coverage
Waiver, Release and Indemnification
Posting of DEP sign
Formal Notice of Start to the Conservation Commission, as per the Order of Conditions

PRE-CONSTRUCTION REQUIREMENTS TO BE MET BY OWNER:

Pre-construction photographs of the access and staging area, access route, and project locus.

ACCESS AND STAGING AREAS

The access will be over the upland of the locus property. The staging area for construction equipment shall be on the locus property.

EQUIPMENT

Equipment for installing the piers/ ramps/ floats will work from the upland area of the property (above the rip-rap armored slope), the existing boat ramps, or by barge as much as possible to limit vehicular access on the beach.

Dredging will be completed mechanically or hydraulically from a barge. Any dredged pipes or vehicular access to transport dredged sediment will be done using the existing boat ramps.

STORAGE OF MATERIAL AND EQUIPMENT

When not in use, equipment to be stored on the Owner's upland area, and/or as specified during the Pre-Construction Conference.

Material (if any) is to be stored in the staging areas.

WORK COMPLETION

Upon completion of the dredging and grading of dredged materials, the access way and staging areas are to be re-graded to their pre-existing contours. The disturbed surfaces (if any) are to be re-graded to pre-existing contours, ready for re-vegetation to be performed by others (if required), as soon as the weather allows.

The Contractor is to notify the Engineer for a meeting with the parties taking part in the pre-construction meeting, prior to removal of front-end loading equipment. Deficiencies will be identified to the Contractor on re-contouring requirements, and road conditions, which will be performed as specified by the Engineer.

POST-CONSTRUCTION PHOTOGRAPHS

The Owner shall supply the Conservation Commission with Post-Construction photographs of the access and staging area, access route, and the project locus, as well as the final vegetation plantings.

SHELLFISH SUSTAINABILITY STATEMENT

The proposed project is to modify the existing Shipyard facility located along and adjacent to Lagoon Pond to maintain the working waterfront of Martha's Vineyard, adapt to climate change challenges of increased tidal surge and storm events, provide improved access to the waterbody for public boaters, improve navigation in the area and improve water quality in Lagoon Pond. The proposed project will include improvements to the tidally influenced Lagoon Pond shorefront area as well as upland portions of the property that are currently used as working waterfront and associated parking.

The proposed facility improvements are designed using best management practices to ensure there are no negative environmental effects.

The proposed project includes modest re-dredging in previously dredged areas that will improve water circulation and water quality in the area and pier/ ramp/ floating dock installation near existing piers and boat ramp. The area that currently needs to be dredged is less than the proposed dredge footprint, because there are areas within the footprint that are as deep or deeper than the proposed dredge footprint.

The proposed upland improvements will decrease the existing impervious area of the property and eliminate direct flow of runoff into the Lagoon Pond Waterbody. Decreased flow of runoff into the waterbody will also improve the water quality of the area and benefit shellfish habitat. The site will also be raised through utilization of the clean dredged material onsite to provide coastal resiliency and protection in order to adapt to projected sea level rise and reduce the likelihood of coastal flooding. The reduction in coastal flooding will also decrease direct runoff from the upland area into the Lagoon Pond.

For these reasons the proposed project, as designed, will have a positive impact on the water quality which will have beneficial impact on the shellfish habitat as well as Lagoon Pond as a habitat for wildlife and vegetation.

As part of the design process of the redevelopment of the Shipyard, a shellfish survey was completed for the entire nearshore area within the seaward extents of the Shipyard's property boundaries. (Refer to attached shellfish study for more details and information). Following the shellfish study and determination of results, the proposed dredge footprint was relocated to minimize potential impacts associated with dredging.

The proposed project was designed using best management practices to minimize and/or avoid potential negative environmental impacts as a result of the proposed Project. In addition, the owners of the Shipyard are willing to voluntarily implement additional measures to further ensure the health of the shellfish habitat and benefit the local shell-fishing community.

1. The Shipyard is willing to voluntarily not allow "over-night boaters" (people who plan to stay on their docked vessel over-night) **if it minimizes the footprint of the** State required seasonal shellfish closure area set forth by Massachusetts Division of Marine Fisheries to the smallest size possible (at the two furthest piers of the proposed project). Additionally, slips will be rented seasonally and not daily to minimize the number of boats utilizing the proposed Project.

2. The Shipyard is willing to voluntarily rake the area where the dredging is proposed and will move these shellfish to areas adjacent to the project location but outside the dredging footprint.
3. The Shipyard is willing to voluntarily donate $2,500 towards a shellfish seeding budget for the first year after construction to the Town. The Town can select its preferred strategy to use these funds for their seeding program.

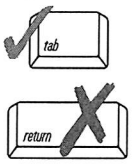
Other measures taken by the project to specifically improve the water quality and promote the shellfish habitat include improvements to existing pump-out facilities so as to eliminate any need for others to develop additional discharge locations on the Lagoon Pond area. There is already a pump-out facility as well as bathrooms on the North side of the property. This will ensure there is no additional effluent flowing into Lagoon Pond as a result of this project. The site is located in an existing "no discharge zone" so discharging of any waste will be strongly prohibited. There are also no public fueling operations existing or proposed at either location owned by Martha's Vineyard Shipyard. Overall, this proposed Project meets local and Commonwealth of Massachusetts Wetlands Protection Act Performance Standards and has been designed to improve water quality that will benefit shellfish habitat.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

159 and 173 Beach Road	Tisbury
a. Street Address	b. City/Town
164	$2,487.50
c. Check number	d. Fee amount

2. Applicant Mailing Address:

a. First Name	b. Last Name

Martha's Vineyard Shipyard, Inc.
c. Organization

P.O. Box 1119
d. Mailing Address

Vineyard Haven	MA	02568
e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

a. First Name	b. Last Name

c. Organization

d. Mailing Address

e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Cat 2b (Parking Lot)	1	$500.00	$500.00
Cat 3b (each building for development including site)	1	$1,050.00	$1,050.00
Cat 4h (Dredging)	1	$1,450.00	$1,450.00
Cat 5a (Dock)	1	$4.00 x 1,171 LF	($4,684.00) $2,000 max

Step 5/Total Project Fee: $5,000.00

Step 6/Fee Payments:

Total Project Fee:	$5,000.00 a. Total Fee from Step 5
State share of filing Fee:	$2,487.50 b. 1/2 Total Fee **less** $12.50
City/Town share of filling Fee:	$2,512.50 c. 1/2 Total Fee **plus** $12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

COASTAL ENGINEERING CO INC.
SANDWICH OFFICE
260 RT. 6A
ORLEANS, MA 02653-3114

164

Date 8/26/19

53-7107 2113

Pay To The Order Of Commonwealth of MA - DEP $ 2,487.50

Two thousand four hundred and Eighty Seven 50/100 Dollars

Cape Cod 5

Memo C19196.00

Carla Nelson

MP

⑆211371078⑆ 83 2550639⑈ 00164

COASTAL ENGINEERING CO INC.
SANDWICH OFFICE
260 RT. 6A
ORLEANS, MA 02653-3114

165

Date 8/26/19

53-7107 2113

Pay To The Order Of Town of Fisbury $ 2,512.50

Two thousand five hundred and twelve 50/100 Dollars

Cape Cod 5

Memo C19196.00

Carla Nelson

MP

⑆211371078⑆ 83 2550639⑈ 00165

COASTAL ENGINEERING CO INC.
SANDWICH OFFICE
260 RT. 6A
ORLEANS, MA 02653-3114

166

Date 8/26/19

53-7107 2113

Pay To The Order Of Town of Tisbury $ 80.00

Eighty dollars 00/100 Dollars

Cape Cod 5

Memo C19196.00

Carla Nelson

⑆211371078⑆ 83 2550639⑈ 00166

COASTAL ENGINEERING CO INC.
SANDWICH OFFICE
260 RT. 6A
ORLEANS, MA 02653-3114

167

Date 8/26/19

53-7107 2113

Pay To The Order Of Commonwealth of MA - NHESP $ 300.00

Three hundred dollars 00/100 Dollars

Cape Cod 5

Memo C19196.00

Carla Nelson

⑆211371078⑆ 83 2550639⑈ 00167

COASTAL
engineering co.

C19196.00/DKM

AFFIDAVIT OF SERVICE

Massachusetts Wetlands Protection Act

M.G.L., CH 131, Sec. 40

I, Carla Davis, of Coastal Engineering Co., Inc. hereby certify under the pains and penalties of perjury that on August 26, 2019 I sent notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131 Section 40 and the Department of Environmental Protection's Guide to Abutter Notification dated April 8, 1994 in connection with the following matter:

A Notice of Intent was filed under the Massachusetts Wetlands Protection Act and the Tisbury Wetlands Protection By-law, by Martha's Vineyard Shipyard, Inc. with the Tisbury Conservation Commission on August 26, 2019 for property located at 159 & 173 Beach Road Map ID: 9/B/32 & 33 in Tisbury, MA. The project is for the Proposed Marina and Associated Site Modifications and Improvements.

The form of the notification and a list of the abutters to whom the notice was given and their addresses are attached to this Affidavit of Service.

Very truly yours,

COASTAL ENGINEERING CO., INC.

Carla Davis

Enclosures

cc: Mass. DEP/SERO - Wetlands
NHESP
Division of Marine Fisheries
Town of Tisbury Harbormaster
Town of Tisbury Shellfish Constable
Martha's Vineyard Shipyard
Donald K. Munroe, Project Manager – Marine
Tarja L. McGrail, Project Manager - Civil

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COASTAL
engineering co.

August 26, 2019 C19196.00

ABUTTER NOTIFICATION

Massachusetts Wetlands Protection Act

M.G.L. Chapter 131 Section 40

Return Receipt Requested

Dear Abutter:

In accordance with the second paragraph of Massachusetts General Laws, Chapter 131, Section 40, and the Town of Tisbury Wetlands Bylaw, you are hereby notified that the Martha's Vineyard Shipyard, Inc. has filed a Notice of Intent with the Tisbury Conservation Commission for the Proposed Marina and Associated Site Modifications and Improvements at 159 & 173 Beach Road Map ID: 9/B/32 & 33 in Tisbury, MA. This work falls within an Area Subject to Protection under the Wetlands Protection Act (M.G.L. c. 131, s.40).

Information and plans for the Notice of Intent may be examined or obtained at the Tisbury Conservation Commission Office located at 66 Highpoint Lane, Right Trailer, Vineyard Haven, MA 02568 or by calling them at (508) 696-4260. A public hearing will be held Tuesday evening, September 17, 2019 at 6:00 pm, at the Tisbury Town Hall Annex, 66 High Point Lane, Vineyard Haven, MA 02568. This information will also be published in the local newspaper at least five (5) days prior to the hearing.

You may also contact our office or the Massachusetts Department of Environmental Protection, Southeast Region at (508) 946-2800 for more information about this application or the Wetlands Protection Act.

Very truly yours,

COASTAL ENGINEERING CO., INC.

Carla Davis

cc: Mass. DEP/SERO - Wetlands
NHESP
Division of Marine Fisheries
Tisbury Harbormaster
Tisbury Shellfish Constable
Martha's Vineyard Shipyard
Donald K. Munroe, Project Manager

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100 foot Abutters List Report

Tisbury, MA
August 22, 2019

Subject Property:

Parcel Number:	9-B-32	Mailing Address:	MARTHAS VINEYARD SHIPYARD INC
CAMA Number:	9-B-32		BOX 1119
Property Address:	159 BEACH RD		VINEYARD HAVEN, MA 02568

Abutters:

Parcel Number:	9-B-31	Mailing Address:	GODWIN PHYLLIS P TRUSTEE
CAMA Number:	9-B-31		JOHNSON CHARLES A TRUSTEE
Property Address:	147 BEACH RD		19 QUINCY AVE GRANITE CTY
			QUINCY, MA 02169
Parcel Number:	9-B-31.2	Mailing Address:	BEACH ROAD LLC
CAMA Number:	9-B-31.2		PO BOX 9
Property Address:	151 BEACH RD		EDGARTOWN, MA 02539
Parcel Number:	9-B-33	Mailing Address:	MARTHAS VINEYARD SHIPYARD INC
CAMA Number:	9-B-33		P O BOX 1119
Property Address:	173 BEACH RD		VINEYARD HAVEN, MA 02568
Parcel Number:	9-C-13	Mailing Address:	TISBURY WHARF CO INC
CAMA Number:	9-C-13		BOX 1317
Property Address:	138 BEACH RD		TISBURY, MA 02568
Parcel Number:	9-C-14	Mailing Address:	TISBURY WHARF CO INC
CAMA Number:	9-C-14		BOX 1317
Property Address:	158 BEACH RD		TISBURY, MA 02568
Parcel Number:	9-C-15	Mailing Address:	MARTHAS VINEYARD SHIPYARD INC
CAMA Number:	9-C-15		BOX 1119
Property Address:	164 BEACH RD		VINEYARD HAVEN, MA 02568
Parcel Number:	9-C-16	Mailing Address:	PACKER R M CO INC
CAMA Number:	9-C-16		BOX 308
Property Address:	188 BEACH RD		VINEYARD HAVEN, MA 02568

100 foot Abutters List Report

Tisbury, MA
August 22, 2019

Subject Property:

Parcel Number: 9-B-33
CAMA Number: 9-B-33
Property Address: 173 BEACH RD

Mailing Address: MARTHAS VINEYARD SHIPYARD INC
P O BOX 1119
VINEYARD HAVEN, MA 02568

Abutters:

Parcel Number: 10-A-1
CAMA Number: 10-A-1
Property Address: 190 BEACH RD

Mailing Address: TISBURY MARINE TERMINAL LLC
PO BOX 308
VINEYARD HAVEN, MA 02568

Parcel Number: 10-A-1
CAMA Number: 10-A-1
Property Address: 190 BEACH RD

Mailing Address: TISBURY MARINE TERMINAL LLC
PO BOX 308
VINEYARD HAVEN, MA 02568

Parcel Number: 10-A-1
CAMA Number: 10-A-1
Property Address: 190 BEACH RD

Mailing Address: TISBURY MARINE TERMINAL LLC
PO BOX 308
VINEYARD HAVEN, MA 02568

Parcel Number: 10-A-1
CAMA Number: 10-A-1
Property Address: 190 BEACH RD

Mailing Address: TISBURY MARINE TERMINAL LLC
PO BOX 308
VINEYARD HAVEN, MA 02568

Parcel Number: 10-B-1
CAMA Number: 10-B-1
Property Address: 199 BEACH RD

Mailing Address: PACKER R M CO INC
P O BOX 308
VINEYARD HAVEN, MA 02568

Parcel Number: 9-B-31.2
CAMA Number: 9-B-31.2
Property Address: 151 BEACH RD

Mailing Address: BEACH ROAD LLC
PO BOX 9
EDGARTOWN, MA 02539

Parcel Number: 9-B-32
CAMA Number: 9-B-32
Property Address: 159 BEACH RD

Mailing Address: MARTHAS VINEYARD SHIPYARD INC
BOX 1119
VINEYARD HAVEN, MA 02568

Parcel Number: 9-B-34
CAMA Number: 9-B-34
Property Address: BEACH RD

Mailing Address: PACKER R M CO INC
P O BOX 308
VINEYARD HAVEN, MA 02568

Parcel Number: 9-C-14
CAMA Number: 9-C-14
Property Address: 158 BEACH RD

Mailing Address: TISBURY WHARF CO INC
BOX 1317
TISBURY, MA 02568

Parcel Number: 9-C-15
CAMA Number: 9-C-15
Property Address: 164 BEACH RD

Mailing Address: MARTHAS VINEYARD SHIPYARD INC
BOX 1119
VINEYARD HAVEN, MA 02568

100 foot Abutters List Report

Tisbury, MA
August 22, 2019

Parcel Number: 9-C-16
CAMA Number: 9-C-16
Property Address: 188 BEACH RD

Mailing Address: PACKER R M CO INC
BOX 308
VINEYARD HAVEN, MA 02568

159 Beach Road

Tisbury, MA

August 22, 2019

1 inch = 141 Feet

0 141 282 423

CAI Technologies
Precision Mapping. Geospatial Solutions.

www.cai-tech.com

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

173 Beach Road

Tisbury, MA

August 22, 2019

1 inch = 141 Feet

0 141 282 423

CAI Technologies
Precision Mapping. Geospatial Solutions.

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Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

THIS MAP IS FOR ASSESSMENT PURPOSES. IT IS NOT VALID FOR LEGAL DESCRIPTION OR CONVEYANCE.
THE HORIZONTAL DATUM IS THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, NAD 83.
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11 Pleasant Street, Littleton, NH 03561
800.322.4540 - www.cai-tech.com

LEGEND
AREA SURVEYED ..... AC
AREA CALCULATED ..... AC CAL
RECORD DIMENSION ..... 100'
SCALED DIMENSION ..... 100'(S)
MATCH LINE
WATER
EXEMPT PROPERTY ..... E
SUBDIVISION LOT NO. 2
RIGHT OF WAY/ACCESS 40
COMMON OWNERSHIP ..... OR
ADJACENT SHEET NO. 2
BLOCK LETTER ..... D

SCALE: 1" = 100'
FEET 100 50 0 100 200 300
METERS 25 12.5 0 25 50 75
REVISED TO: JANUARY 1, 2018

TOWN OF TISBURY

BOARD OF ASSESSORS
VINEYARD HAVEN, MASSACHUSETTS

MAP NO. 9

COASTAL
engineering co.

August 26, 2019 C19196.00

Division of Marine Fisheries
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744

RE: **NOTICE OF INTENT**
Proposed Marina and Associated Site Modifications and Improvements
Martha's Vineyard Shipyard
159 & 173 Beach Road
Tisbury, MA
Map ID: 9/B/32 & 33

Dear Sir/Madam:

Enclosed please find a copy of the Notice of Intent we have filed with the Town of Tisbury Conservation Commission for the above referenced project.

Sincerely,

COASTAL ENGINEERING CO., INC.

Donald K. Munroe

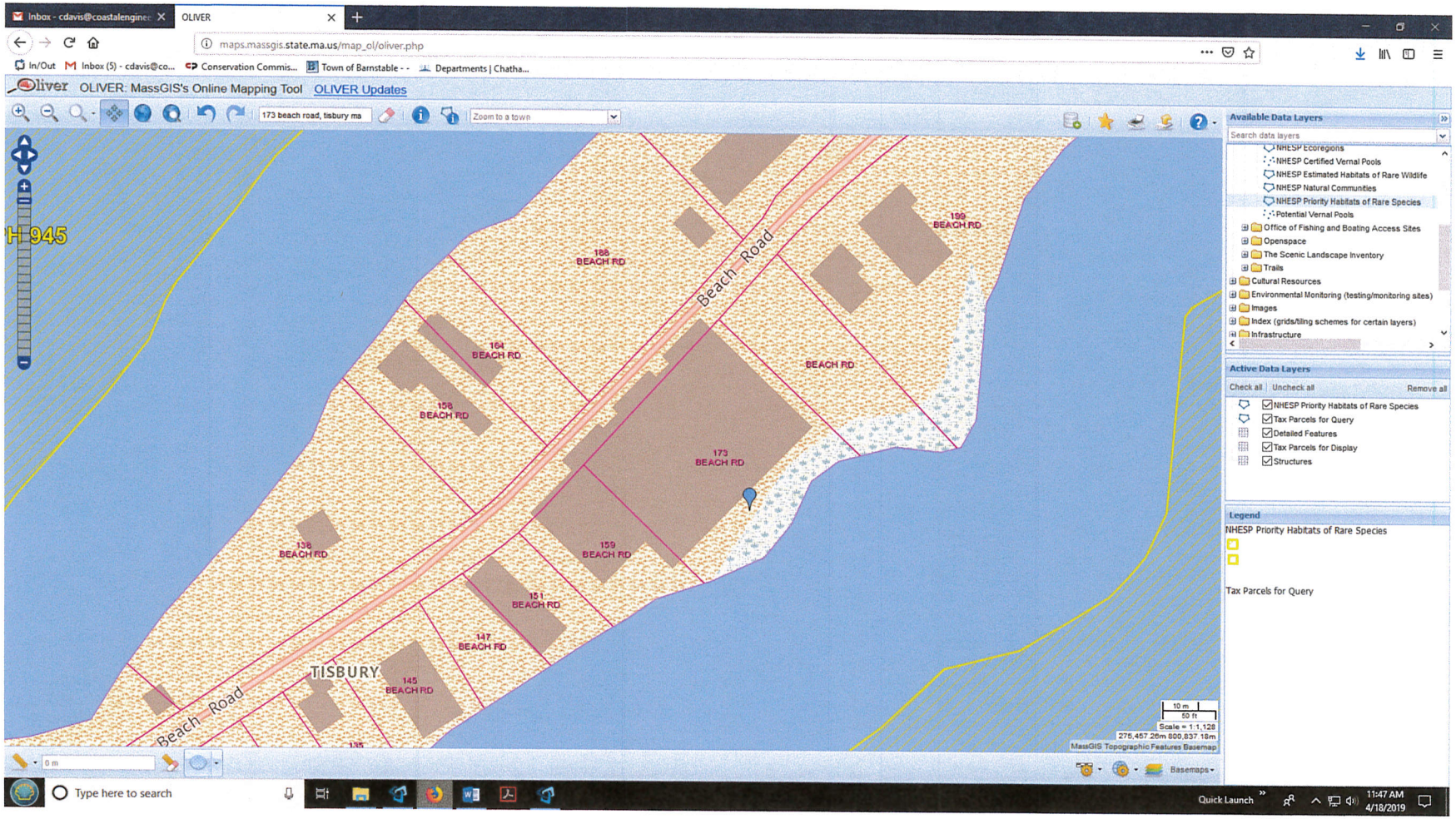
DKM/cad

Enclosures

cc: Mass. DEP/SERO - Wetlands
NHESP
Tisbury Harbormaster
Tisbury Shellfish Constable
Martha's Vineyard Shipyard
Donald K. Munroe, Project Manager

D:\DOC\C19100\19196\Permitting\NOI\MA Division Marine Fisheries Letter SEND BY EMAIL.doc

MESA
159 and 173 Beach Road, Tisbury, MA
Map ID: 9/B/32 & 33



COASTAL
engineering co.

August 26, 2019

C19196.00

Via Certified Mail

Natural Heritage & Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

RE: **NOTICE OF INTENT**
Proposed Marina and Associated Site Modifications and Improvements
Martha's Vineyard Shipyard
159 & 173 Beach Road
Tisbury, MA
Map ID: 9/B/32 & 33

Dear Sir/Madam:

Enclosed, please find a copy of the Notice of Intent we have filed with the Tisbury Conservation Commission for the above referenced project. The proposed project/limit of work is located in an area designated as an Estimated Habitat, therefore subject to the endangered species protection provisions of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.37, 10.58(4)(b), & 10.59) and your review.

The proposed project/limit of work is also located in an area designated as a Priority Habitat, which is subject to a Massachusetts Endangered Species Act (MESA) review under 321 CMR 10.18. Enclosed please find a $300.00 check made payable to Commonwealth of MA - NHESP for the MESA filing fee.

If you have any questions, or require any additional information, please give our office a call.

Sincerely,

COASTAL ENGINEERING CO., INC.

Donald K. Munroe

DKM/cad

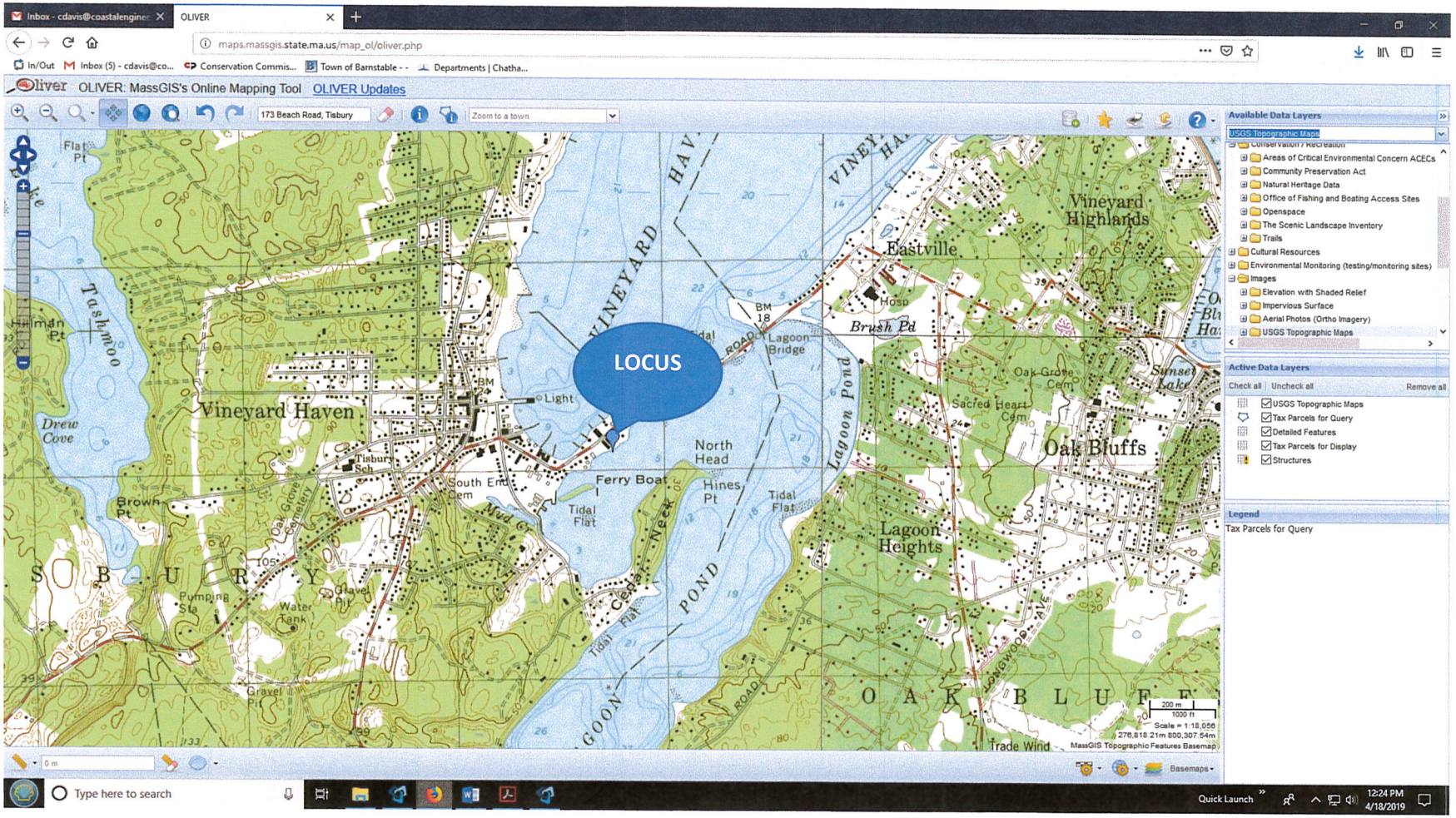
Enclosures

cc: Mass. DEP/SERO - Wetlands
Division of Marine Fisheries
Tisbury Harbormaster
Tisbury Shellfish Constable
Martha's Vineyard Shipyard
Donald K. Munroe, Project Manager

D:\DOC\C19100\19196\Permitting\NOI\NHESP Ltr.doc

260 Cranberry Highway, Orleans, MA 02653
508.255.6511 | coastalengineeringcompany.com

SITE PHOTOS FOR MESA



C19196.00, Martha's Vineyard Shipyard
159 and 173 Beach Road, Tisbury, MA
Map ID: 9/B/32 & 33
41° 27' 20.8332" N 70° 35' 30.912" W

MARTHA'S VINEYARD SHIPYARD SHELLFISH SURVEY

Submitted to:
James Hale
Martha's Vineyard Shipyard
164 Beach Rd
Vineyard Haven, MA 02568

Submitted by:
AECOM
9 Jonathan Bourne Dr
Pocasset, MA 02559

Statement of Qualifications and Limitations

The attached Report (the “Report”) has been prepared by AECOM Technical Services Inc. (“AECOM”) for the benefit of the Martha’s Vineyard Shipyard (“Client or MVSY”) in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents AECOM’s professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and

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2. Survey Methodology 3
3. Survey Results 4
4. Conclusions 4

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Figure 1. Proposed Project Location

Figure 2. Massachusetts Division of Marine Fishieres Shellfish Suitability and Growing Area Maps

Figure 3. Shellfish results

Figure 4. Visual sediment texture

F

1. Introduction

AECOM performed a shellfish habitat assessment at the request of Martha's Vineyard Shipyard in support of permitting requirements for a proposed marina development and dredging project located in Lagoon Pond, Vineyard Haven, Martha's Vineyard, Massachusetts. This shellfish habitat assessment was performed to be included with the Notice of Intent (NOI) submittal for the proposed project. The work was performed under the guidance of Pamela Neubert, Ph.D. who has performed numerous marine habitat assessments including shellfish surveys throughout New England. Dr. Neubert was assisted by AECOM's marine biologists (Mr. Darron Kriegel and Mr. Tony Wong-Li). The field survey was completed in one 12-hour field day.

The proposed project location is show in Figure 1. This project includes the development of a marina to include 48 slips and to accommodate these vessels proposes approximately 2,350 cubic yards of dredging to a depth of -4.0 ft. or 4,700 cubic yards to a depth of -1.0 mean low water (MLW). The dredging footprint has been selected to minimize potential impact to shellfish resources that have been mapped by Massachusetts Division of Marine Fisheries (MADMF) as suitable for quahogs (*Mercenaria mercenaria*), bay scallops (*Argopecten irradiens*), and soft-shelled clams (*Mya arenaria*) along with a small section of habitat determined to be suitable for blue mussels (*Mytilus edulis*) and razor clams (*Ensis directus*) (Figure 2). MADMF maps the area as approved for shellfish growing (Figure 2). This information was acquired from the MASSGIS geospatial database OLIVER Online Mapping Tool on May 8, 2019. No eelgrass was identified, which is consistent with Massachusetts Department of Environmental Protection (MADEP) online eelgrass mapping tool with information obtained also on May 8, 2019.

2. Survey Methodology

AECOM's habitat assessment methodologies were specifically designed for the project to provide an accurate shellfish assessment within and outside the proposed project area (Figure 1). The shellfish survey was performed on March 18, 2019 and extended from the existing rip rap bulkhead to approximately 675 feet (ft.) into the open water of Lagoon Pond, Vineyard Haven, Martha's Vineyard. A 25 foot grid was established over the survey area with sampling nodes selected randomly from where transects crossed. From this grid, fifty-two (52) grid nods were randomly selected as shellfish sampling stations (Figure 3). Shellfish stations were evaluated for the presence, abundance, and type of shellfish within sampled substrate. Abundance for the following shellfish species were noted as part of AECOM's assessment survey: quahogs (*Mercenaria mercenaria*), soft-shell clams (*Mya arenaria*), bay scallops (*Argopecten irradians*), razor clams (*Siliqua patula*), and American oysters (*Crassostrea virginica*). Sediment characteristics were visually observed and recorded at each sample location along with presence of other benthic infauna and algae. Martha's Vineyard Shipyard provided a small sampling barge with moon-pool and winch as well as a Captain that allowed the AECOM team to use a small Ted Young modified Van Veen grab to collect shellfish from areas that were too deep to use the telescoping hand rake.

Shellfish samples were collected as follows:

1. In water depth less than 12 feet, AECOM sampled with a clam rake with a telescoping handle to 15 ft. This rake was specifically designed by AECOM with Ribb Rake to obtain one cubic foot of sediment by the addition of 9 inch (in.) long tines and an extra wide basket. This shellfish rate has been used routinely for scientific surveys for private and municipal clients throughout Cape Cod and the Islands. Sediment obtained was sieved through the basked lined with a ¼-inch mesh.

2. In water depth greater than 12 feet, AECOM sampled with a 0.04m2 Ted-Young modified Van Veen grab that was deployed from the Martha's Vineyard Ship Yard mooring barge equipped with a winch through a centrally located moon-pool.

Live shellfish obtained were enumerated, measured, and then returned to the same area from where they were collected.

3. Survey Results

While this survey was designed to sample shellfish, AECOM additionally searched each grab sample as well as wadeable areas for eelgrass. Eelgrass was not observed within the sampled area, which was consistent with Massachusetts Department of Environmental Protection (MassDEP) eelgrass mapping results (http://maps.massgis.state.ma.us/images/dep/eelgrass/eelgrass_map.htm)

AECOM's results identified shellfish from twenty-one (21) of the fifty-two (52) stations sampled. From the twenty-one (21) stations having shellfish, there were twenty-four (24) quahogs, seven (7) soft-shell clams, eight (8) scallops, and two (2) razor clams identified from the samples (Figure 3). Of these shellfish identified, only seven (7) were obtained from within the proposed project footprint of the following species: three (3) bay scallops, and four (4) quahogs. Visual sediment texture was observed and recorded and is shown in Figure 4. The study area was largely comprised of sand (coarse to fine) with occasional larger grain size (small pebbles). A few patches of black, silty sand with sulfidic odor were observed within fifty ft. of the existing rip rap wall (Figure 4, red circles).

4. Conclusions

AECOM's shellfish survey was performed using a methodology that accurately maps abundances and distribution of shellfish. This method was utilized within the proposed Project area (Figure 1), as well as surrounding vicinity.

Twenty four (24) quahogs, seven (7) soft-shell clams, eight (8) scallops, and two (2) razor clams were collected during the survey. The area is approved for shellfish growing by MADMF and area is shown to be suitable for quahogs, bay scallops, and soft-shelled clams along with a small section determined to be suitable for blue mussels, razor clams, however, no blue mussels were found during this survey. No eelgrass was found within the project area.

Pertinent Resource Areas as defined by the Town of Tisbury Wetlands By-Laws and Commonwealth of Massachusetts 310 CMR include:

- Land Under the Ocean Massachusetts 310 CMR 10.25, Tisbury Section 2.01
- Land Containing Shellfish 310CMR 10.34, Tisbury Section 2.08
- There are no coastal dunes, salt marsh, mud flats, and/or rocky intertidal natural resources associated with the proposed project

Town of Tisbury Section 2.01 Land Under the Ocean Performance Standards

Town of Tisbury Wetlands By-Laws state relative to Land Under the Ocean "*Water dependent projects shall be designed and performed so as to cause no adverse effects on wildlife, erosion control, marine fisheries, shellfish beds, storm damage prevention, flood control and recreation." In view of the foregoing (Land Under the Ocean), whenever a proposed project involves removing, filling, dredging, altering or building upon land under the ocean, the Commission shall find that such land is significant to the protection of the following interests: flood control, erosion control, storm damage prevention, fisheries, shellfish, wildlife and recreation. These findings may be overcome only upon a clear showing that the Land Under the Ocean does not play a role in protecting one or more of the interests given above and only upon a specific written determination to that effect by the Commission. Construction of commercial piers shall not affect sediment transport, and shall not destroy or pollute fisheries and shellfish habitat or nutrient source areas for those resources. No solid-fill piers shall be permitted*."

Massachusetts 310CMR 10.25 Land Under the Ocean Performance Standards

Massachusetts 310CMR 10.25 states: *"When land under the ocean or nearshore areas of land under the ocean are found to be significant to the protection of marine fisheries, protection of wildlife habitat, storm damage prevention or flood control, 310CMR 10.25(3) through (7) shall apply*". These include as summarized below:

(3) Improvement dredging for navigational purposes affecting land under the ocean shall be designed and carried out using the best available measures so as to minimize adverse effects on such interests caused by changes in: bottom topography, sediment transport processes, water circulation, turbidity, temperature levels, or marine productivity resulting from pollutants, smothering of bottom organisms, and destruction of marine fisheries habitat.

(4) Maintenance dredging shall be designed to utilize best management practices

(5) Project not included in 310CMR 10.25(3) or (4) which affect nearshore areas of land under the ocean shall not cause adverse effects by altering the bottom topography so as to increase storm damage, erosion, coastal banks, dunes or salt marshes.

(6) Projects not included in 310 CMR 10.25(3) which affect land under the ocean shall if water-dependent be designed and constructed, using best available measures, so as to minimize adverse effects, and if non-water-dependent, have no adverse effects, on marine fisheries habitat or wildlife habitat caused by:

(a) alterations in water circulation;

(b) destruction of eelgrass (Zostera marina) or widgeon grass (Rupia maritina) beds;

(c) alterations in the distribution of sediment grain size;

(d) changes in water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants; or (e) alterations of shallow submerged lands with high densities of polychaetes, mollusks or macrophytic algae.

(7) Notwithstanding the provisions of 310 CMR 10.25(3) through (6), no project may be permitted which will have any adverse effect on specified habitat sites of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37.

Pertaining to Town of Tisbury Wetlands-Bylaws and Massachusetts 310CMR 10.25 Land Under the Ocean:

The proposed Project will not adversely affect sediment transport, destroy or pollute fisheries and shellfish habitat or add nutrients to Lagoon Pond and no solid-fill pier is being proposed. A small amount of dredging is proposed that has been designed to avoid areas of shellfish based on AECOM's survey results. The proposed project will provide water quality improvements through redesign of the upland facilities including permeable surfaces. Dredge material will be reused on site to elevate structures outside the coastal flood zone. Additionally, areas with black, hypoxic sediment will be removed improving shellfish habitat, new pump-out facilities for boats will be made available and no live-aboard vessels will be allowed for dockage as part of the proposed project. There is no eelgrass or widgeon grass in the Project area, there are no rare vertebrates or invertebrate species identified that would be affected by this project. There are no beaches, dunes coastal banks or salt marshes associated with the project so there will be no negative impact associated with the proposed Project. Only seven (7) shellfish were found within the proposed project footprint: four (4) quahogs (*Mercenaria mercenaria*) and three (3) bay scallops (*Argopecten Irradiens*). The applicant is proposing shellfish mitigation as determined by the Conservation Commission that will be orders of magnitude greater than the number of shellfish identified and will work with the Town Shellfish Constable to implement this mitigation in the manner the Town prefers.

Town of Tisbury Section 2.08 Land Containing Shellfish Performance Standards:

As stated within the Town of Tisbury Wetlands By-Laws:

When land containing shellfish or land within 100 feet of land containing shellfish is determined to be significant to an interest protected by the by-law, the following regulations shall apply:

Projects shall not change water quality (including, but not limited to: changes in turbidity, temperature, salinity, dissolved oxygen, and additional nutrients and pollutants), water circulation, the elevation of the land, the sediment grain size of the substrate, competitor and predator populations or natural drainage from adjacent lands.

Regulations for piers in all coastal water bodies containing shellfish shall be those contained in Section 1.06 (A) and 1.06 (B). The inner harbor and commercially zoned uses/properties are exempt.

In determining the potential impact of the pier and the importance of the shellfish bed or eel grass bed the Commission shall solicit and review comments from The Martha's Vineyard Shellfish Group.

Land containing shellfish shall not be compacted by vehicular traffic or other means.

Projects shall not obstruct the ability of the public to gather shellfish recreationally or the ability of commercial fishermen to harvest shellfish.

Any project which will release pollutants shall use such procedures the Commission determines to utilize the best known technology to remove pollutants or prevent risk of pollution.

All septic leach facilities shall be at least 100 feet from land containing shellfish. No newly constructed septic system shall be installed in any soils with a percolation rate of five (5) minutes per inch where the distance from naturally occurring ground elevation to maximum ground water elevation is less than five (5) feet or in soils with a percolation rate greater than five minutes per inch where the distance from naturally occurring ground elevation to maximum groundwater elevation is less than seven (7) feet.

No project detrimental to shellfish shall be permitted, except activity allowed pursuant to a waiver from these regulations, as set forth in Section 1.02.

The application of any inorganic fertilizers, pesticides, fungicides or other quick release chemicals is prohibited within 100 feet of land containing shellfish. The Commission may grant a waiver for the application of all but inorganic fertilizers upon a clear and convincing showing that the application of such chemicals is necessary to control:

- *A pest deemed a health hazard by the local Board of Health or:*
- *A pest which had damaged twenty percent (20%) of a commercial crop or crop necessary for livestock food.*

The request for the waiver must be accompanied by a recommendation including the amount, frequency and specific chemical to be applied by the Dukes County Extension Service or Pesticide Bureau.

The permit for the application of organic fertilizers must be accompanied by the results of a soil analysis and recommendations from the Dukes County Extension Service.

The Commission may impose such additional requirements as are necessary to protect the Interests Protected by the Bylaw."

Massachusetts 310CMR 10.34 Land Containing Shellfish Performance Standards

Massachusetts 310CMR 10.34 defines land containing shellfish as follows:

"*Land Containing Shellfish means land under the ocean, tidal flats, rocky intertidal shores, salt marshes and land under salt ponds when any such land contains shellfish. Significance. Land containing shellfish shall be found significant to the protection of land containing shellfish and to the protection of marine fisheries when it has been identified and mapped as follows:*

(a) by the conservation commission or the Department in consultation with the Division of Marine Fisheries and based upon maps and designations of the Division of Marine Fisheries;

or

(b) by the conservation commission or the Department, based upon maps and written documentation of the shellfish constable or the Department. In making such identification and maps the following factors shall be taken into account and documented: the density of shellfish, the size of the area and the historical and current importance of the area to recreational or commercial shellfishing.

Except as provided in 310 CMR 10.34(5), any project on land containing shellfish shall not adversely affect such land or marine fisheries by a change in the productivity of such land caused by:

(a) alterations of water circulation;

(b) alterations in relief elevation;

(c) the compacting of sediment by vehicular traffic;

(d) alterations in the distribution of sediment grain size;

(e) alterations in natural drainage from adjacent land; or

(f) changes in water quality, including, but not limited to, other than natural fluctuations in the levels of salinity, dissolved oxygen, nutrients, temperature or turbidity, or the addition of pollutants.

(6) In the case of land containing shellfish defined as significant in 310 CMR 10.34(3)(b) (i.e., those areas identified on the basis of maps and designations of the Shellfish Constable), except in Areas of Critical Environmental Concern, the issuing authority may, after consultation with the Shellfish Constable, permit the shellfish to be moved from such area under the guidelines of, and to a suitable location approved by, the Division of Marine Fisheries, in order to

permit a proposed project on such land. Any such project shall not be commenced until after the moving and replanting of the shellfish have been commenced.

(7) Notwithstanding 310 CMR 10.34(4) through (6), projects approved by the Division of Marine Fisheries that are specifically intended to increase the productivity of land containing shellfish may be permitted. Aquaculture projects approved by the appropriate local and state authority may also be permitted.

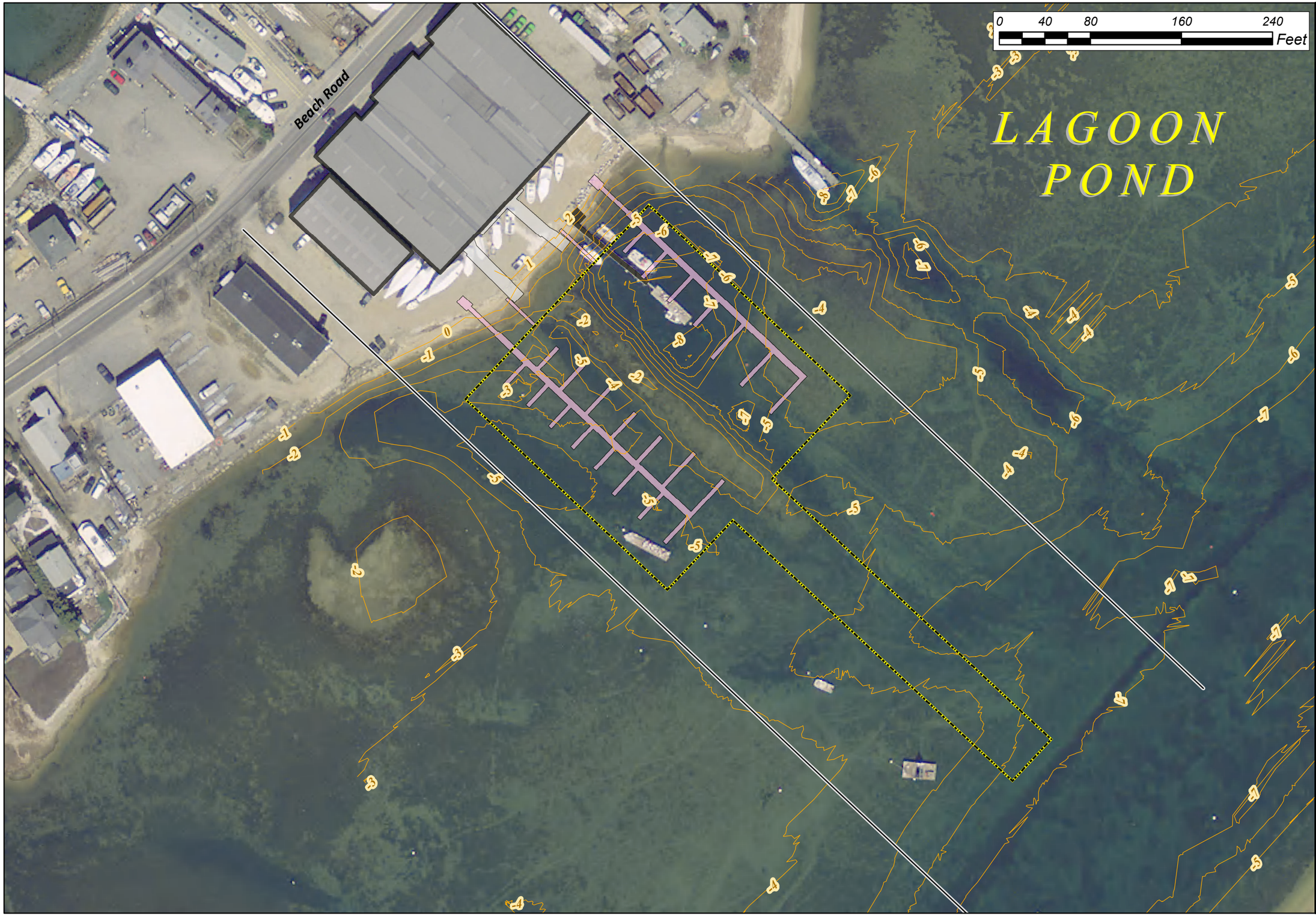
(8) Notwithstanding the provisions of 310 CMR 10.34(4) through (7), no project may be permitted which will have any adverse effect on specified habitat of rare vertebrate or invertebrate species, as identified by procedures established under 310 CMR 10.37".

Pertaining to Town of Tisbury Wetlands-Bylaws2.08 and Massachusetts 310CMR 10.34 Land Containing Shellfish:

According to 310 CMR 10.34(5) Notwithstanding the provisions of 310 CMR 10.34(4), "*projects which temporarily have an adverse effect on shellfish productivity but which do not permanently destroy the habitat maybe permitted if the land containing shellfish can and will be returned substantially to its former productivity in less than one year from the commencement of work, unless an extension of the Order of Conditions is granted, in which case such restoration shall be completed within one year of such extension*". With only seven shellfish individuals found within the proposed project area, this project will not significantly and negatively affect shellfish or Land Containing Shellfish. With Conservation Commission led mitigation in the form of funds dedication to shellfish seed, this project will likely benefit shellfish through improved water quality conditions and with the addition of shellfish to Lagoon Pond in orders of magnitude greater than those found in the proposed Project footprint.

- Water circulation would not be adversely changed by the small amount of proposed dredging. Tidal currents in the area are small and would not be altered by the placement of the proposed marina pylons.
- Relief elevation would not be changed because the dredge area is below mean high water.
- There will not be an increase in compacting of sediment by vehicular traffic.
- The project will not alter the distribution of sediment grain size through the small amount of dredging as the sediment has been shown in studies by Coastal Engineering Company (2019) to be comprised largely of fine to medium sand.
- The project will not adversely alter the natural drainage from adjacent land, and, will likely improve drainage with the implementation of new, permeable surfaces as well as the reuse of dredge material to elevate structures to account for 100 year flooding events.
- The project will not change the water quality, including, salinity, dissolved oxygen, nutrients, temperature or turbidity, or the addition of pollutants.
- This project will have no adverse effect on rare vertebrate or invertebrate species as the proposed Project is not within an area considered as habitat for rare wildlife for coastal wetlands.

FIGURES



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Legend

- Proposed Dredge Area
- Extended Property Line
- Bathymetry
- Building
- Concrete Ramp
- Existing Dock
- Proposed Floating Dock

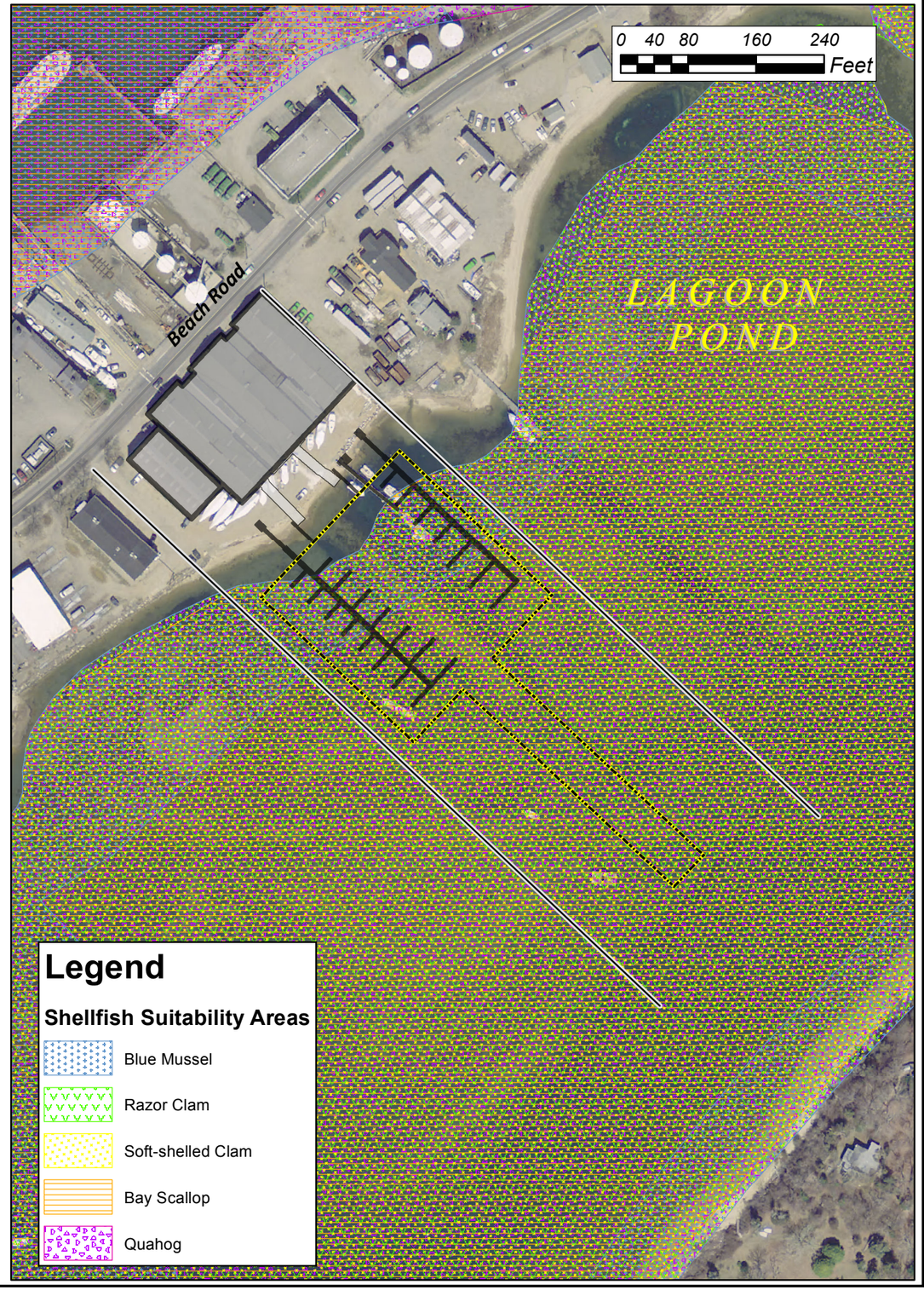
Site Map

Proposed Dredging Project
Martha's Vineyard, Tisbury, Massachusetts

AECOM

5/6/2019

Figure 1



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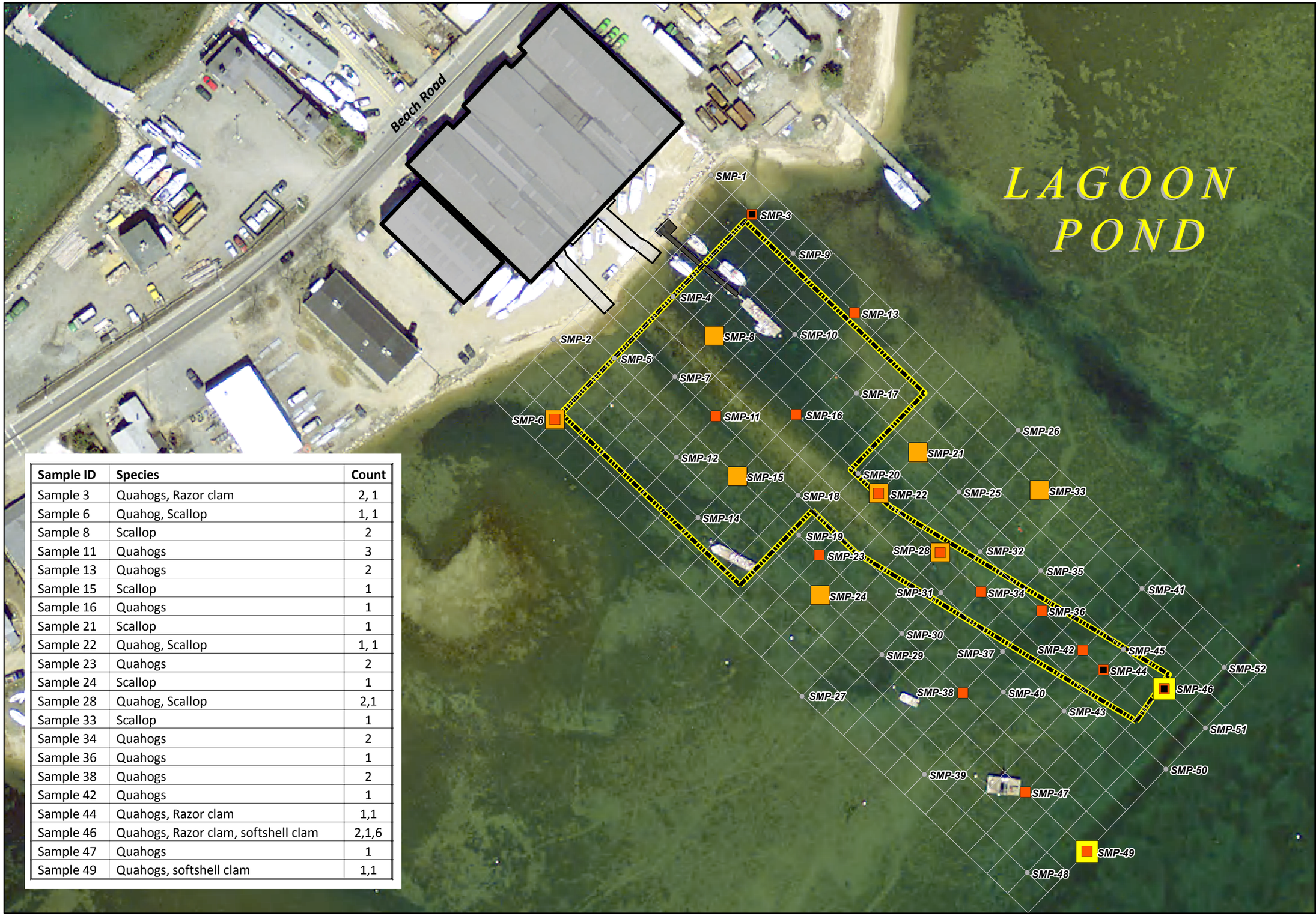
MADAF Shellfish Suitability Areas and Shellfish Growing Areas

Proposed Dredging Project
Martha's Vineyard, Tisbury, Massachusetts

AECOM

5/8/2019

Figure 1



Sample ID	Species	Count
Sample 3	Quahogs, Razor clam	2, 1
Sample 6	Quahog, Scallop	1, 1
Sample 8	Scallop	2
Sample 11	Quahogs	3
Sample 13	Quahogs	2
Sample 15	Scallop	1
Sample 16	Quahogs	1
Sample 21	Scallop	1
Sample 22	Quahog, Scallop	1, 1
Sample 23	Quahogs	2
Sample 24	Scallop	1
Sample 28	Quahog, Scallop	2,1
Sample 33	Scallop	1
Sample 34	Quahogs	2
Sample 36	Quahogs	1
Sample 38	Quahogs	2
Sample 42	Quahogs	1
Sample 44	Quahogs, Razor clam	1,1
Sample 46	Quahogs, Razor clam, softshell clam	2,1,6
Sample 47	Quahogs	1
Sample 49	Quahogs, softshell clam	1,1

N
W E
S

Legend

- Survey Grid
- Proposed Dredge Area
- Building
- Concrete Ramp
- Existing Dock

Sample Locations

- None Observed
- Razor clam
- Quahog
- Scallop
- Softshell clam

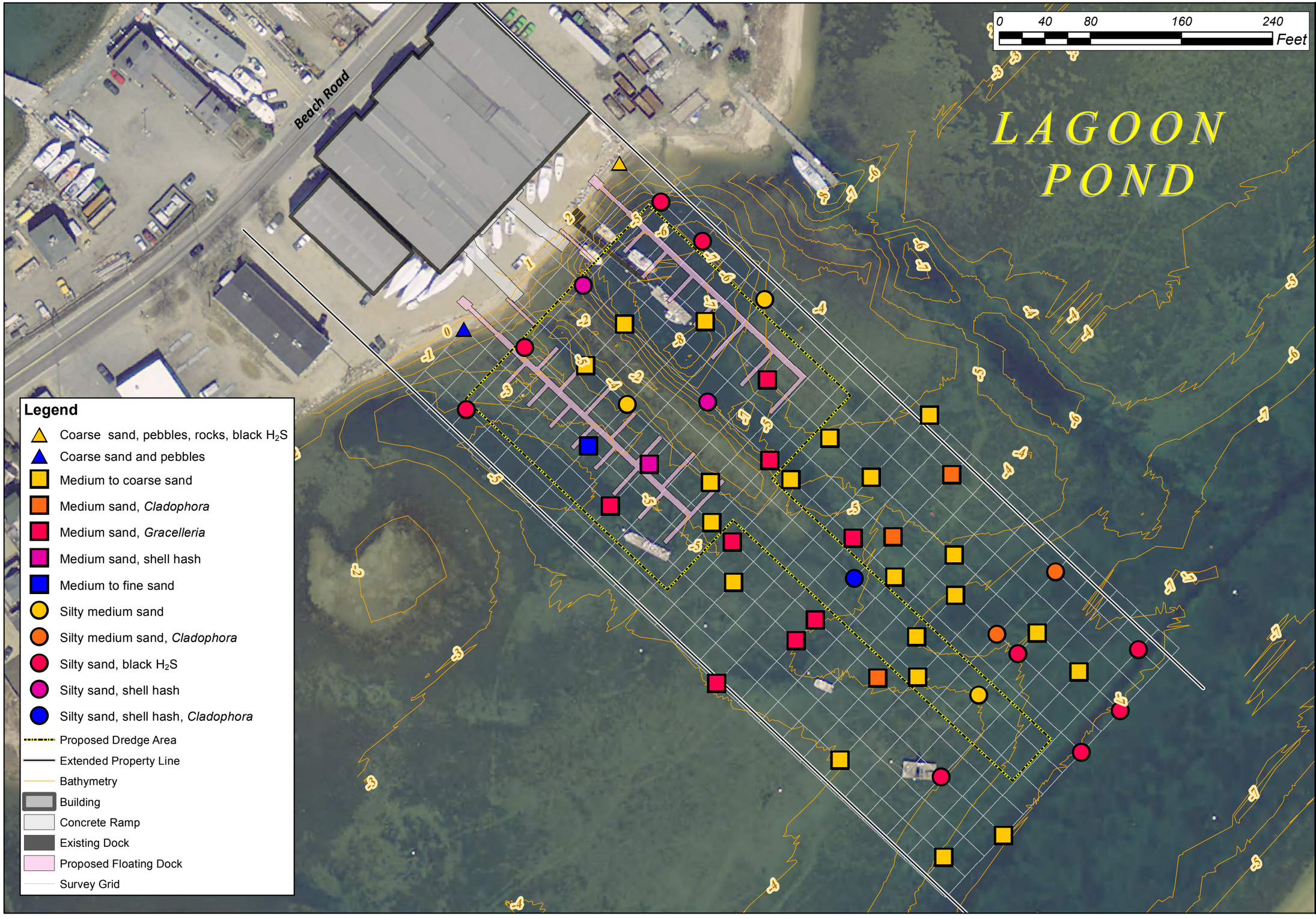
Sampling Locations

Proposed Dredging Project
Martha's Vineyard, Tisbury, Massachusetts

AECOM

3/27/2019

Figure 1



N
W E
S

Sediment Characterization

Proposed Dredging Project
Martha's Vineyard, Tisbury, Massachusetts

AECOM

5/7/2019

Figure 1

ANALYTICAL REPORT

Lab Number:	L1913811
Client:	Coastal Engineering Company 260 Cranberry Highway Route 6A Orleans, MA 02653
ATTN:	Charles Agro
Phone:	(508) 255-6511
Project Name:	MARTHA'S VINEYARD SHIPYARD
Project Number:	C19196.00
Report Date:	04/08/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00

Lab Number: L1913811
Report Date: 04/08/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1913811-01	S-2	SOIL	LAGOON POND, MARTHA'S VINEYARD	03/14/19 10:15	03/18/19
L1913811-02	S-4	SOIL	LAGOON POND, MARTHA'S VINEYARD	03/14/19 11:00	03/18/19
L1913811-03	S-5	SOIL	LAGOON POND, MARTHA'S VINEYARD	03/14/19 11:15	03/18/19
L1913811-04	S-6	SOIL	LAGOON POND, MARTHA'S VINEYARD	03/14/19 11:30	03/18/19
L1913811-05	S-7	SOIL	LAGOON POND, MARTHA'S VINEYARD	03/14/19 12:00	03/18/19
L1913811-06	S-8	SOIL	LAGOON POND, MARTHA'S VINEYARD	03/14/19 12:30	03/18/19

Project Name:	MARTHA'S VINEYARD SHIPYARD	**Lab Number:**	L1913811
Project Number:	C19196.00	**Report Date:**	04/08/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	MARTHA'S VINEYARD SHIPYARD	**Lab Number:**	L1913811
Project Number:	C19196.00	**Report Date:**	04/08/19

Case Narrative (continued)

Grain Size Analysis

The WG1224329-1 Laboratory Duplicate RPDs for % fine gravel (133%) and % total fines (21%), performed on L1913811-01, are outside the acceptance criteria. The elevated RPDs have been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 04/08/19

INORGANICS
&
MISCELLANEOUS

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00
Lab Number: L1913811
Report Date: 04/08/19

SAMPLE RESULTS

Lab ID: L1913811-01
Client ID: S-2
Sample Location: LAGOON POND, MARTHA'S VINEYARD
Sample Depth:
Matrix: Soil

Date Collected: 03/14/19 10:15
Date Received: 03/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Gravel	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Gravel	43.5		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Sand	13.3		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Medium Sand	20.5		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Sand	18.2		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Total Fines	4.50		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
General Chemistry - Westborough Lab										
Solids, Total	66.9		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA
Moisture	33.1		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00
Lab Number: L1913811
Report Date: 04/08/19

SAMPLE RESULTS

Lab ID: L1913811-02
Client ID: S-4
Sample Location: LAGOON POND, MARTHA'S VINEYARD
Sample Depth:
Matrix: Soil

Date Collected: 03/14/19 11:00
Date Received: 03/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Gravel	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Gravel	16.8		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Sand	9.10		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Medium Sand	50.4		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Sand	17.3		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Total Fines	6.40		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
General Chemistry - Westborough Lab										
Solids, Total	70.7		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA
Moisture	29.3		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00
Lab Number: L1913811
Report Date: 04/08/19

SAMPLE RESULTS

Lab ID: L1913811-03
Client ID: S-5
Sample Location: LAGOON POND, MARTHA'S VINEYARD
Sample Depth:
Matrix: Soil

Date Collected: 03/14/19 11:15
Date Received: 03/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Gravel	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Gravel	0.500		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Sand	7.70		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Medium Sand	60.2		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Sand	25.9		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Total Fines	5.70		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
General Chemistry - Westborough Lab										
Solids, Total	76.4		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA
Moisture	23.6		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00
Lab Number: L1913811
Report Date: 04/08/19

SAMPLE RESULTS

Lab ID: L1913811-04
Client ID: S-6
Sample Location: LAGOON POND, MARTHA'S VINEYARD
Sample Depth:
Matrix: Soil

Date Collected: 03/14/19 11:30
Date Received: 03/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Gravel	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Gravel	29.9		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Sand	2.90		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Medium Sand	51.2		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Sand	12.8		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Total Fines	3.20		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA
Moisture	20.8		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00
Lab Number: L1913811
Report Date: 04/08/19

SAMPLE RESULTS

Lab ID: L1913811-05
Client ID: S-7
Sample Location: LAGOON POND, MARTHA'S VINEYARD
Sample Depth:
Matrix: Soil

Date Collected: 03/14/19 12:00
Date Received: 03/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Gravel	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Gravel	5.60		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Sand	5.10		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Medium Sand	48.3		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Sand	35.5		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Total Fines	5.50		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
General Chemistry - Westborough Lab										
Solids, Total	75.6		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA
Moisture	24.4		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00
Lab Number: L1913811
Report Date: 04/08/19

SAMPLE RESULTS

Lab ID: L1913811-06
Client ID: S-8
Sample Location: LAGOON POND, MARTHA'S VINEYARD
Sample Depth:
Matrix: Soil

Date Collected: 03/14/19 12:30
Date Received: 03/18/19
Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Grain Size Analysis - Mansfield Lab										
Cobbles	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Gravel	ND		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Gravel	28.9		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Coarse Sand	12.0		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Medium Sand	40.7		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Fine Sand	14.0		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
% Total Fines	4.40		%	0.100	NA	1	-	04/08/19 15:44	12,D6913/D7928	GD
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA
Moisture	21.1		%	0.100	NA	1	-	03/19/19 03:44	121,2540G	YA

Lab Duplicate Analysis

Batch Quality Control

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00

Lab Number: L1913811
Report Date: 04/08/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-06 QC Batch ID: WG1224247-1 QC Sample: L1900004-26 Client ID: DUP Sample						
Solids, Total	56.4	59.4	%	5		20
Moisture	43.6	40.6	%	7		20
Grain Size Analysis - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1224329-1 QC Sample: L1913811-01 Client ID: S-2						
Cobbles	ND	ND	%	NC		20
% Coarse Gravel	ND	ND	%	NC		20
% Fine Gravel	43.5	3.50	%	**133**	Q	20
% Coarse Sand	13.3	4.20	%	2		20
% Medium Sand	20.5	45.1	%	5		20
% Fine Sand	18.2	32.9	%	5		20
% Total Fines	4.50	14.3	%	**21**	Q	20

Project Name: MARTHA'S VINEYARD SHIPYARD
Project Number: C19196.00

Lab Number: L1913811
Report Date: 04/08/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1913811-01D	Glass 250ml/8oz unpreserved	NA	NA			Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-CSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1913811-01F	Glass 500ml/16oz unpreserved	NA	NA			Y	Absent		TS(7),MOISTURE(7)
L1913811-02D	Glass 250ml/8oz unpreserved	NA	NA			Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-CSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1913811-02F	Glass 500ml/16oz unpreserved	NA	NA			Y	Absent		TS(7),MOISTURE(7)
L1913811-03D	Glass 250ml/8oz unpreserved	NA	NA			Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-CSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1913811-03F	Glass 500ml/16oz unpreserved	NA	NA			Y	Absent		TS(7),MOISTURE(7)
L1913811-04D	Glass 250ml/8oz unpreserved	NA	NA			Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-CSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1913811-04F	Glass 500ml/16oz unpreserved	NA	NA			Y	Absent		TS(7),MOISTURE(7)
L1913811-05D	Glass 250ml/8oz unpreserved	NA	NA			Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-CSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1913811-05F	Glass 500ml/16oz unpreserved	NA	NA			Y	Absent		TS(7),MOISTURE(7)
L1913811-06D	Glass 250ml/8oz unpreserved	NA	NA			Y	Absent		A2-HYDRO-TFINE(),A2-HYDRO-CGRAVEL(),A2-HYDRO-FSAND(),A2-HYDRO-MSAND(),A2-HYDRO-CSAND(),A2-HYDRO-COBBLES(),A2-HYDRO-FGRAVEL()
L1913811-06F	Glass 500ml/16oz unpreserved	NA	NA			Y	Absent		TS(7),MOISTURE(7)

*Values in parentheses indicate holding time in days

Project Name:	MARTHA'S VINEYARD SHIPYARD	**Lab Number:**	L1913811
Project Number:	C19196.00	**Report Date:**	04/08/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	MARTHA'S VINEYARD SHIPYARD	**Lab Number:**	L1913811
Project Number:	C19196.00	**Report Date:**	04/08/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	MARTHA'S VINEYARD SHIPYARD	**Lab Number:**	L1913811
Project Number:	C19196.00	**Report Date:**	04/08/19

REFERENCES

12 Annual Book of ASTM Standards. (American Society for Testing and Materials) ASTM International.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

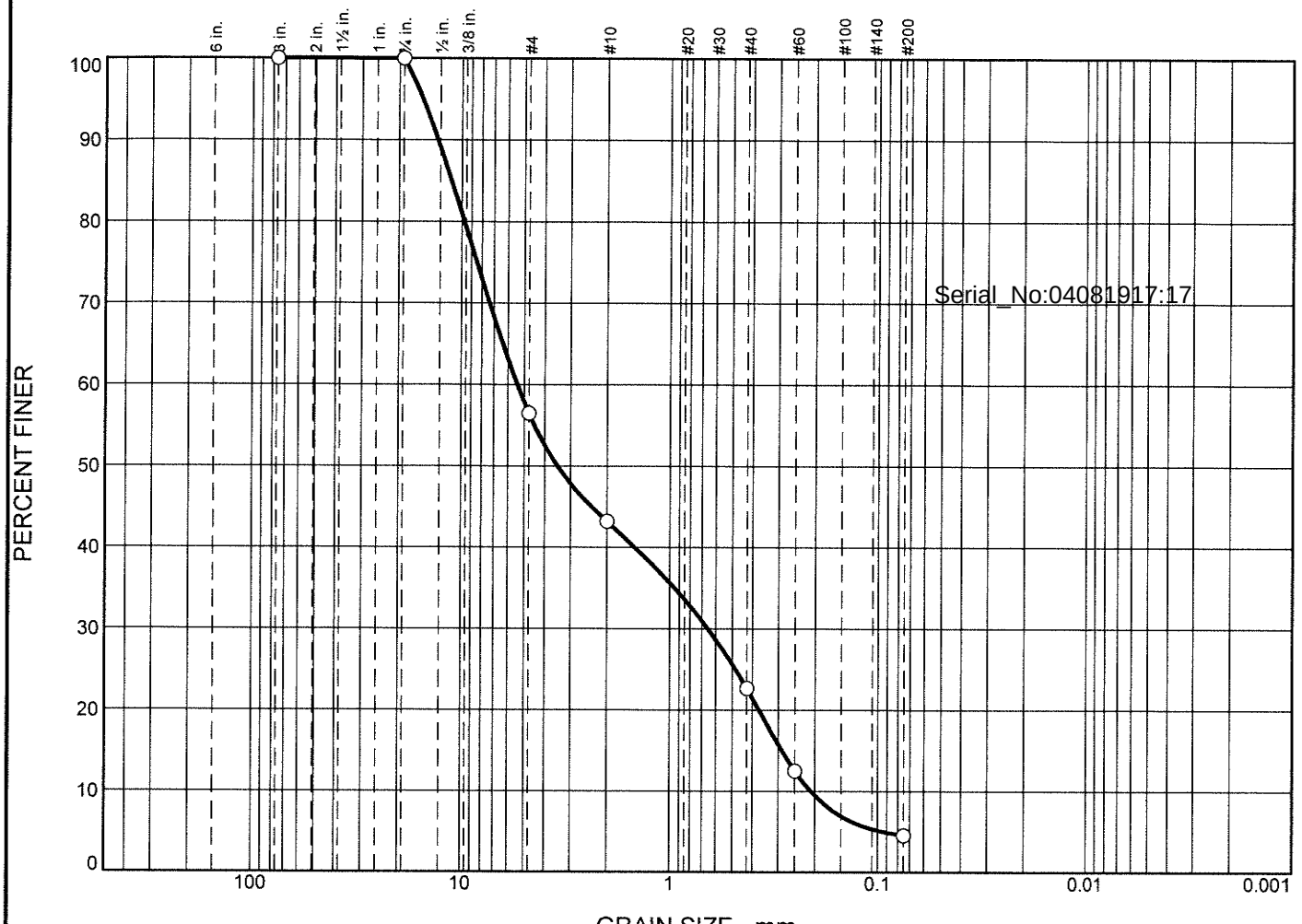
Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

ASTM D6913/D7928

GRAIN SIZE ANALYSIS

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	43.5	13.3	20.5	18.2	4.5	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				11.2113	5.4050	3.4662	0.6553	0.2886	0.2096	0.38	25.79

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** S-2 **Sample Number:** L1913811-01

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-2

Sample Number: L1913811-01

USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 75.30
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
75.30	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	32.78	0.00	56.5
		#10	10.00	0.00	43.2
		#40	15.45	0.00	22.7
		#60	7.67	0.00	12.5
		#200	5.98	0.00	4.5

Serial_No:04081917:17

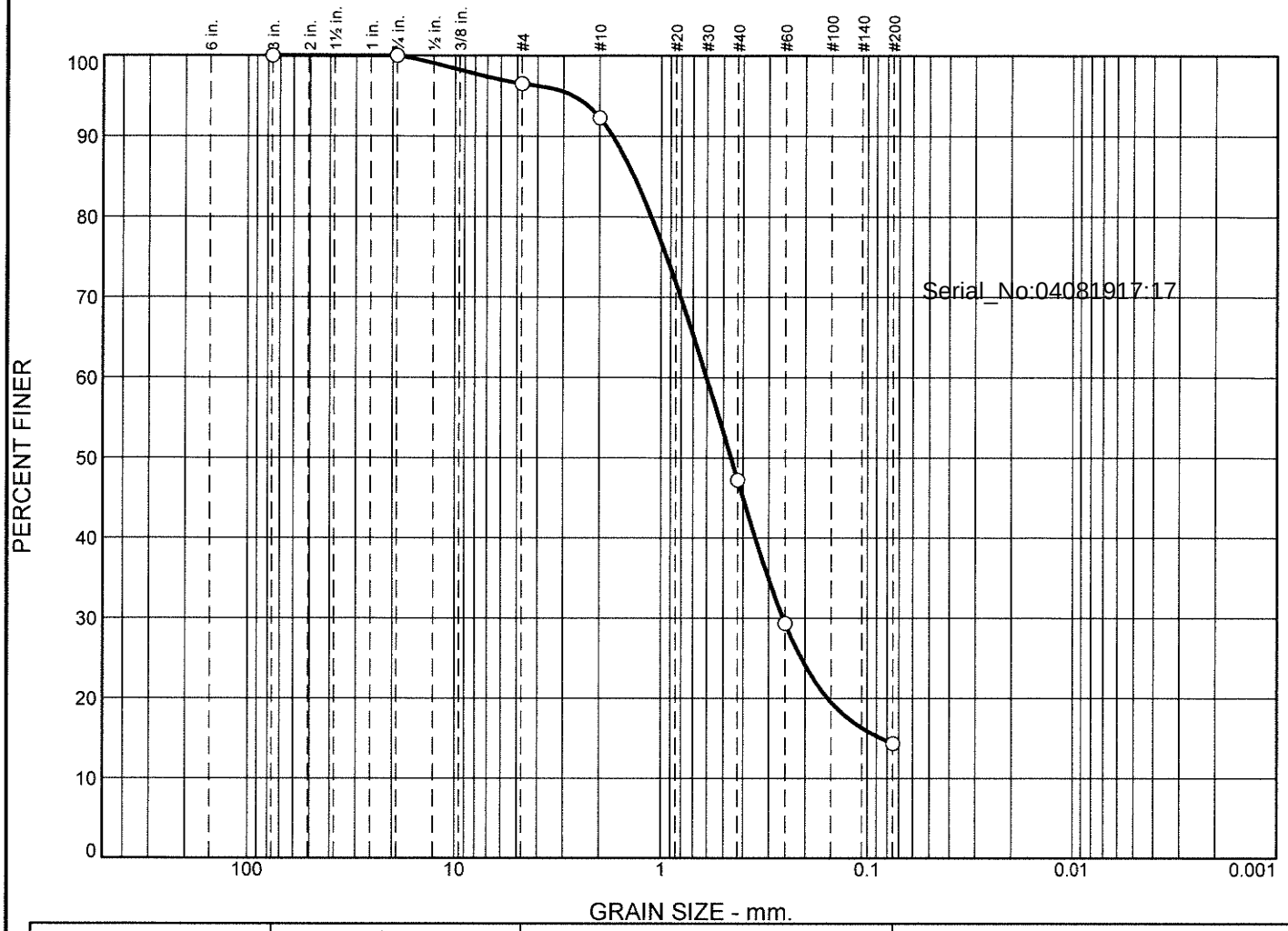
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	43.5	43.5	13.3	20.5	18.2	52.0			4.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0940	0.2096	0.2886	0.3714	0.6553	1.4734	3.4662	5.4050	9.7236	11.2113	13.0352	15.4262

Fineness Modulus	C_u	C_c
4.30	25.79	0.38

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.5	4.2	45.1	32.9	14.3	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				1.3548	0.6023	0.4579	0.2561	0.0853			

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** S-2 **Sample Number:** WG1224329-1

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-2

Sample Number: WG1224329-1

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 46.53
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
46.53	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	1.62	0.00	96.5
		#10	1.97	0.00	92.3
		#40	20.96	0.00	47.2
		#60	8.33	0.00	29.3
		#200	6.98	0.00	14.3

Serial_No:04081917:17

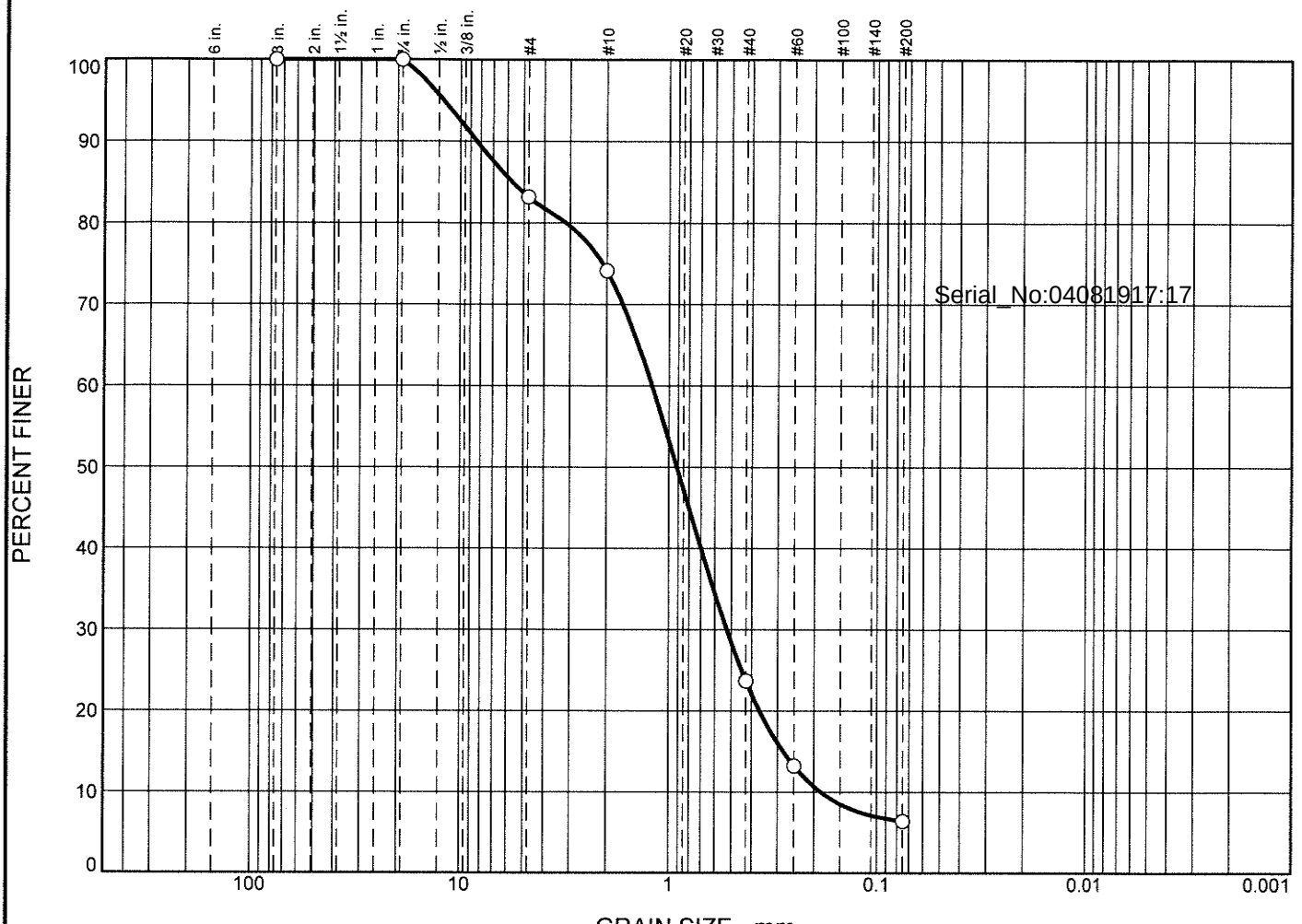
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.5	3.5	4.2	45.1	32.9	82.2			14.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0853	0.1554	0.2561	0.3486	0.4579	0.6023	1.1160	1.3548	1.7246	2.6798

Fineness Modulus
2.15

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	16.8	9.1	50.4	17.3	6.4	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				5.6864	1.2077	0.9150	0.5252	0.2821	0.1858	1.23	6.50

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** S-4 **Sample Number:** L1913811-02

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-4

Sample Number: L1913811-02

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 72.31
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
72.31	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	12.18	0.00	83.2
		#10	6.52	0.00	74.1
		#40	36.49	0.00	23.7
		#60	7.56	0.00	13.2
		#200	4.94	0.00	6.4

Serial_No:04081917:17

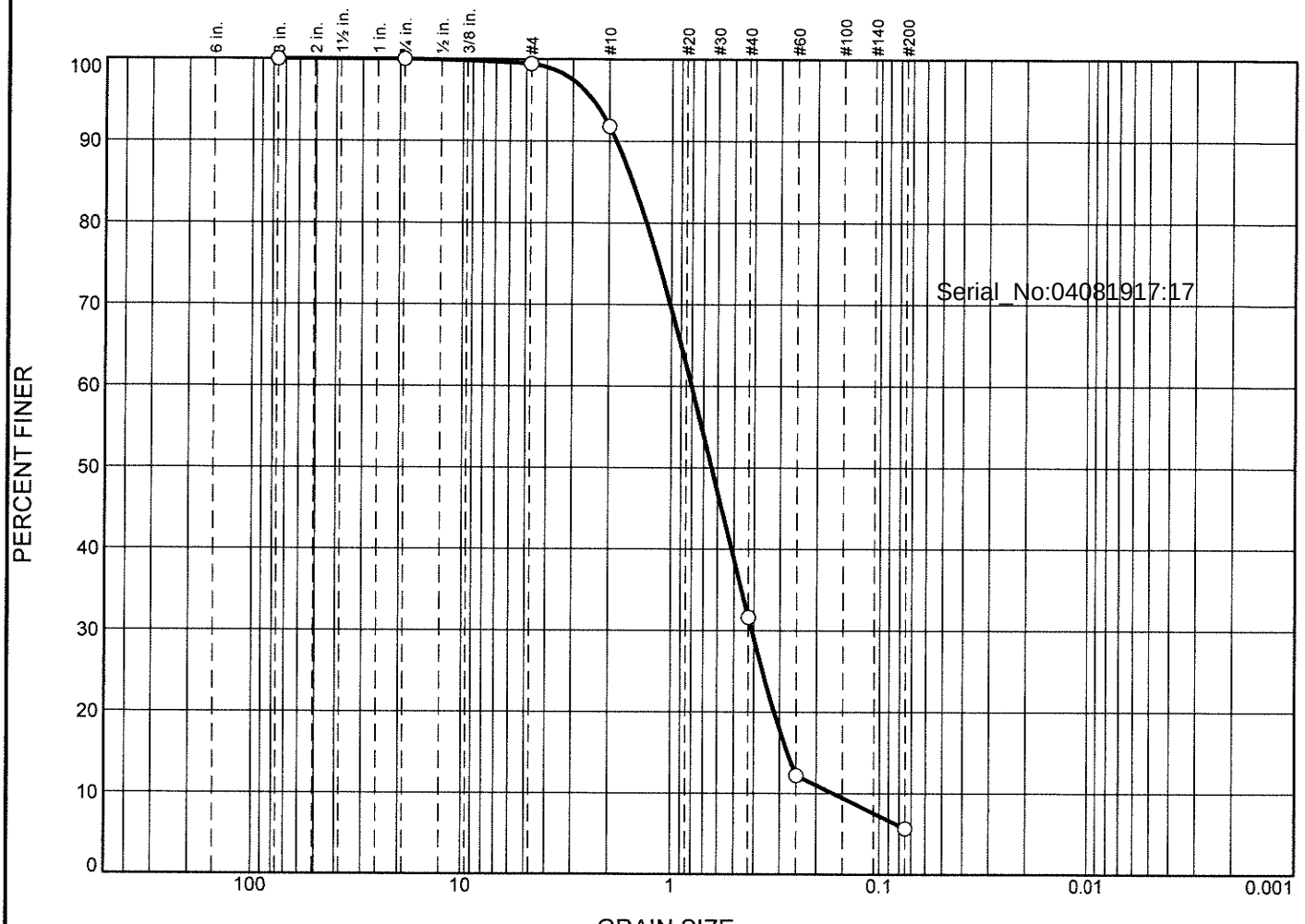
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	16.8	16.8	9.1	50.4	17.3	76.8			6.4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1858	0.2821	0.3662	0.5252	0.6995	0.9150	1.2077	3.1505	5.6864	8.3723	12.0346

Fineness Modulus	C_u	C_c
3.30	6.50	1.23

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.5	7.7	60.2	25.9	5.7	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				1.5384	0.8016	0.6409	0.4092	0.2755	0.1666	1.25	4.81

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** S-5 **Sample Number:** L1913811-03

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-5

Sample Number: L1913811-03

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 74.54
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
74.54	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	0.40	0.00	99.5
		#10	5.71	0.00	91.8
		#40	44.85	0.00	31.6
		#60	14.48	0.00	12.2
		#200	4.88	0.00	5.7

Serial_No:04081917:17

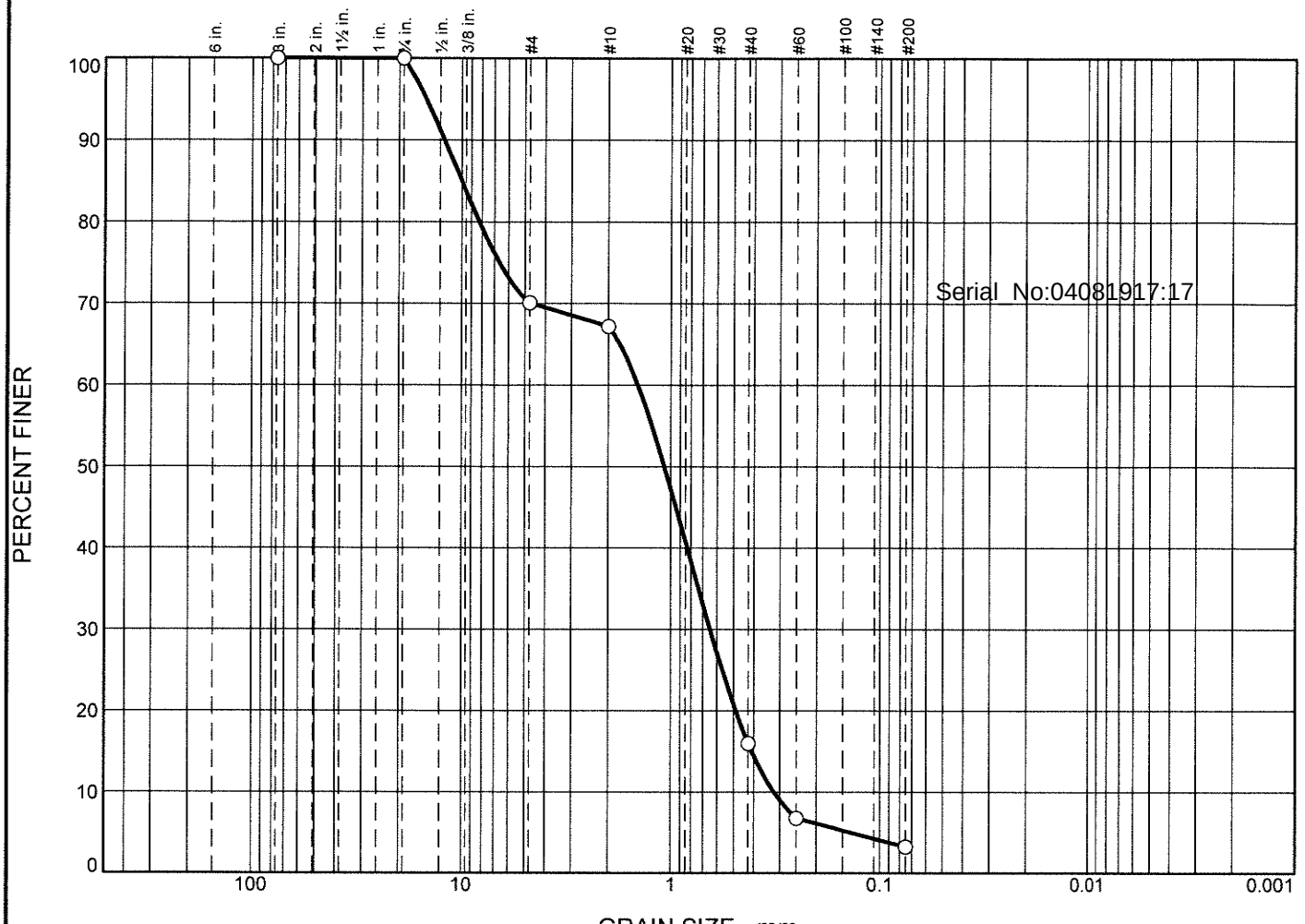
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.5	0.5	7.7	60.2	25.9	93.8			5.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1666	0.2755	0.3190	0.4092	0.5136	0.6409	0.8016	1.3204	1.5384	1.8466	2.3987

Fineness Modulus	C_u	C_c
2.56	4.81	1.25

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	29.9	2.9	51.2	12.8	3.2	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				10.0019	1.4438	1.0752	0.6472	0.4094	0.3202	0.91	4.51

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** S-6 **Sample Number:** L1913811-04

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-6

Sample Number: L1913811-04

USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 76.38
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
76.38	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	22.84	0.00	70.1
		#10	2.22	0.00	67.2
		#40	39.13	0.00	16.0
		#60	7.02	0.00	6.8
		#200	2.71	0.00	3.2

Serial_No:04081917:17

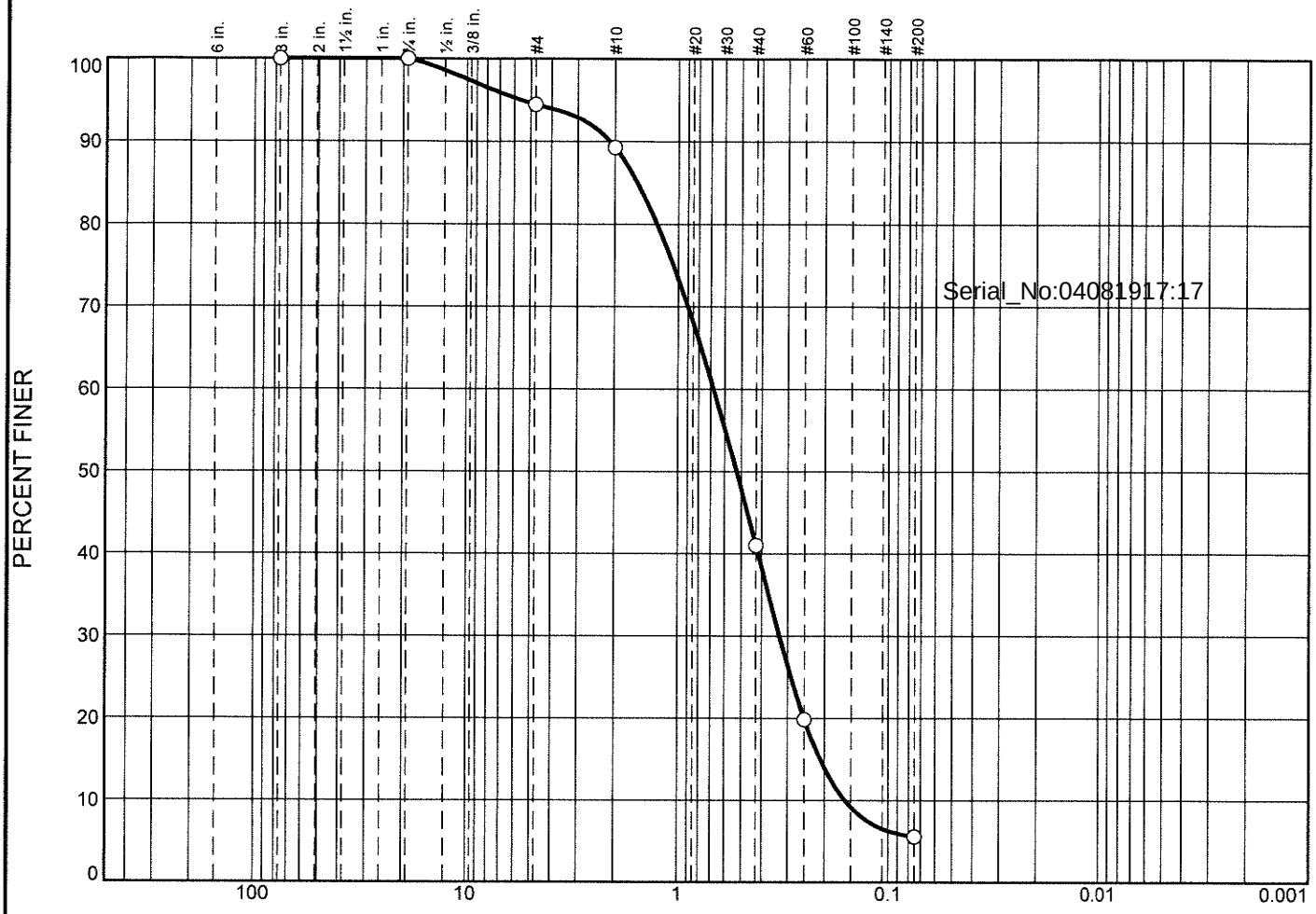
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	29.9	29.9	2.9	51.2	12.8	66.9			3.2

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.1372	0.3202	0.4094	0.4882	0.6472	0.8330	1.0752	1.4438	8.2397	10.0019	12.0926	14.8108

Fineness Modulus	C_u	C_c
3.84	4.51	0.91

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	5.6	5.1	48.3	35.5	5.5	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				1.5625	0.6789	0.5265	0.3283	0.2097	0.1601	0.99	4.24

	Material Description	USCS	AASHTO
○			

Project No. **Client:**

Project:

○ **Source of Sample:** S-7 **Sample Number:** L1913811-05

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-7

Sample Number: L1913811-05

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 68.94
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
68.94	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	3.83	0.00	94.4
		#10	3.56	0.00	89.3
		#40	33.27	0.00	41.0
		#60	14.59	0.00	19.9
		#200	9.87	0.00	5.5

Serial_No:04081917:17

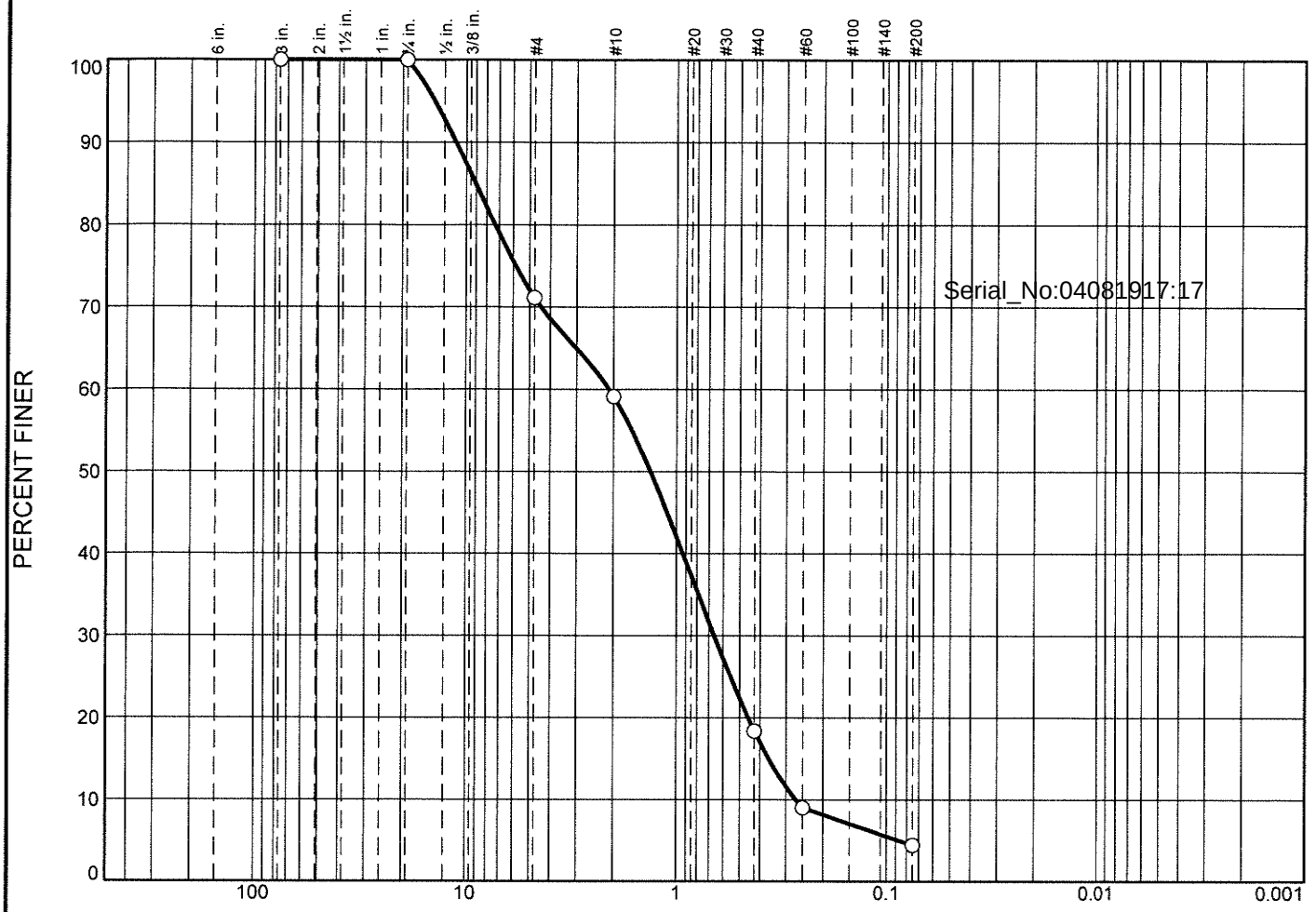
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	5.6	5.6	5.1	48.3	35.5	88.9			5.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.1601	0.2097	0.2511	0.3283	0.4150	0.5265	0.6789	1.2619	1.5625	2.1135	5.5864

Fineness Modulus	C_u	C_c
2.48	4.24	0.99

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	28.9	12.0	40.7	14.0	4.4	

	Colloids	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○				9.0376	2.1021	1.3316	0.6613	0.3630	0.2699	0.77	7.79

	Material Description	USCS	AASHTO
○		SP	

Project No. **Client:**

Project:

○ **Source of Sample:** S-8 **Sample Number:** L1913811-06

Date: ○

Alpha Analytical

Mansfield, MA

Remarks:

Figure

GRAIN SIZE DISTRIBUTION TEST DATA

4/8/2019

Location: S-8

Sample Number: L1913811-06

USCS Classification: SP

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 74.12
Tare Wt. = 0.00
Minus #200 from wash = 0.0%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
74.12	0.00	3	0.00	0.00	100.0
		0.75	0.00	0.00	100.0
		#4	21.39	0.00	71.1
		#10	8.90	0.00	59.1
		#40	30.21	0.00	18.4
		#60	6.95	0.00	9.0
		#200	3.39	0.00	4.4

Serial_No:04081917:17

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	28.9	28.9	12.0	40.7	14.0	66.7			4.4

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0873	0.2699	0.3630	0.4553	0.6613	0.9311	1.3316	2.1021	7.3139	9.0376	11.1852	14.1175

Fineness Modulus	C_u	C_c
3.88	7.79	0.77

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL
World Class Chemistry

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 3/18/19

ALPHA Job #: ~~L1910481~~

Project Information

Project Name: Martha's Vineyard Shipyard

Project Location: Lagoon Pond, Martha's Vineyard

Project #: C19196.00

Project Manager: Charlie Agro

ALPHA Quote #:

Client Information

Client: Coastal Engineering Company Inc.

Address: 260 Cranberry Highway

Orleans, MA 02653

Phone: 508-255-6511

Fax: 508-255-6700

Email: cagro@coastalengineeringcompany.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☐ Standard ☒ Rush (ONLY IF PRE-APPROVED)

5 day Rush by 03/25

Due Date: Time:

Report Information — Data Deliverables

☐ FAX ☒ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed Program: C.W.A.

Criteria: Method 200.7 (Copper 200.8)

Other Project Specific Requirements/Comments/Detection Limits:

Sample 1 03/11/19

Sample 2&3 03/12/19

GSD sizes: (4 sieves) 4, 10, 40, 60, 200

★ Hold all tests (asside from GSD & Moisture content) pending results from GSD. Tests are un-neccessary if sediment is less than 10% fines

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Grain Size Analysis (by wet sieve)	Moisture Content (% moisture)	★ MA DEP EPH	★ PCB, Metals, SAL., Path., TOC	★ VOC High	★ VOC Low							Sample Specific Comments
10481-01	S-1	03/14	10:00		CAA	☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
-01 - 02	S-2	03/14	10:15			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
- 03	S-3	03/14	10:30			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
-02 - 04	S-4	03/14	11:00			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
-03 - 05	S-5	03/14	11:15			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
-04 - 06	S-6	03/14	11:30			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
-05 - 07	S-7	03/14	12:00			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
-06 - 08	S-8	03/14	12:30			☒	☒	☒	☒	☒	☒	☐	☐	☐	☐	☐	☐	
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	

SAMPLE HANDLING

Filtration
☐ Done
☐ Not Needed
☐ Lab to do

Preservation
☐ Lab to do

(Please specify below)

TOTAL # BOTTLES

Container Type	P	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	C	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
Erica Norman	3/18/19 1235		3/18/19 1235
	3/18/19 1705	AAL	3/18/19 1705

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

FILE NO. C19196.00

STORMWATER MANAGEMENT REPORT

For Proposed Martha's Vineyard Shipyard Site Improvements

Martha's Vineyard Shipyard
159 and 173 Beach Road
Tisbury, MA

August 23, 2019

Prepared for:

Martha's Vineyard Shipyard

Prepared by:

COASTAL ENGINEERING CO., INC.
260 Cranberry Highway
Orleans, MA 02653

Tarja L. McGrail, P.E.

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APPENDIX E – HydroCAD Calculations

APPENDIX F – Storm Water Pollution Prevention Plan

STORMWATER MANAGEMENT SYSTEM DESCRIPTION

Martha's Vineyard Shipyard is located at 159 and 173 Beach Road in the community of Vineyard Haven, Town of Tisbury, MA. The Martha's Vineyard Shipyard Facility is comprised of three parcels of land. One parcel is located on the north-west side of Beach Road (that provides direct access to Vineyard Haven) and two parcels located on the south-east side of Beach Road (that provide access to Lagoon Pond). The project site is limited to work proposed on the parcels located on the south-east side of Beach Road. The existing project site is currently developed with 4 warehouse buildings used for seasonal storage of vessels, two concrete boat ramps, a seasonal floating dock, fixed pier, a rip-rap (6-9" stone) armored slope along the shoreline, and dirt/gravel driveways and parking areas. Currently the use of the property is to seasonally launch and haul vessels, provide service (mechanical, cleaning etc.) to vessels, and store vessels during the off-season.

The proposed site redevelopment project includes:

- Removal of two of the four existing warehouse buildings,
- Removal of concrete slabs and areas of compacted dirt/gravel parking,
- Installation of a smaller warehouse building with associated parking areas, and
- Installation of planting beds with native plants to provide a buffer between upland development and Lagoon Pond.

All proposed upland site redevelopment work is located within the footprint of the warehouse buildings, concrete pads, and existing dirt/gravel parking areas to be removed. Overall the proposed redevelopment will result in a reduction in impervious site coverage (i.e., roof, pavement, concrete, compacted dirt and gravel parking areas) by 9,300 s.f.+/-.
The topography of the site where the proposed upland redevelopment work will take place varies in elevation; elevations within the upland project site range from 0 to 4.5 feet. To improve stormwater management of runoff from the re-developed project site, 9,300 square feet+/- of impervious surface will be removed, and runoff from proposed impervious driveway surfaces will be directed toward parking areas constructed from a pervious reinforced gravel pave system (True Grid) with a subsurface stone reservoir that will also function as a stormwater management best management practices (BMP). The reservoir of the True Grid BMP is sized to provide temporary attenuation of runoff and opportunity for infiltration/groundwater recharge onsite. The proposed reduction in impervious surface and installation of True Grid pervious parking spaces will result in a great improvement over the existing runoff conditions which include unmanaged flow via existing surface runoff patterns that direct runoff toward Lagoon Pond. The proposed improvements will provide on-site management, treatment, and recharge of the stormwater runoff generated within the redevelopment site to the maximum extent practicable. In comparison with current site conditions, the proposed site improvements will result in a substantial reduction in the volume and peak flow of runoff contributed to Lagoon Pond.

The Stormwater Management Plan for this facility is based upon the source control of pollutants by the application of Best Management Practices (BMP's) and good housekeeping measures during the day to day operation of the facility.
In accordance with the Massachusetts Stormwater Management System Standards for redevelopment projects, the proposed stormwater management system will be a great improvement over the existing runoff conditions by providing water quality treatment and groundwater recharge for the contributory drainage area to the maximum extent practicable.

Massachusetts Stormwater Management Design Standards

The following is a description of how the proposed project meets the Massachusetts Stormwater Handbook design Standards:

Standard 1: No new untreated discharges
This standard is met since there are no new untreated stormwater discharges proposed.

Standard 2: Maintain Pre-development peak discharge rate
This standard has been met. The overall area of impervious coverage on the project site has been reduce by 9,300 s.f.+/- , and new parking spaces proposed are to be constructed from pervious gravel pave system with 10" deep reservoir. The proposed pervious gravel pave (True Grid) system will provide opportunity for recharge and attenuation of runoff during storm events. As a result of the large reduction in impervious surface coverage and installation of the True Grid stormwater management systems, there is a sizeable reduction in the post development peak discharge rate of runoff from the re-developed site during the 2 year-24 hour, and 10 year-24 hour storm events. Reduction resulting from the redevelopment during the 100 year-24 hour storm event has not been evaluated since the site will be inundated with floodwaters during the 100 year storm event. Table 2.0 summarizes the resulting reduction of peak discharge rates for the pre-development and post-development conditions to Lagoon Pond.

Standard 3: Groundwater Recharge
This standard has been met. The proposed stormwater management systems are sized such that the total recharge volume provided exceeds the minimum groundwater recharge volume specified in the handbook (see Table 3.0 for recharge volume calculation) and the proposed stormwater recharge basins will drawdown within 72 hours of a storm event (see Table 4.0 for drawdown calculation).
In accordance with MASWMS (Chapter 1, p.6), the required recharge volume factor required across the impervious area is 0.60 inches of runoff for hydraulic soil group

A soils, sand soils (assumed). Soil testing will be performed (upon removal of existing warehouse buildings) to confirm soil conditions in area of proposed BMP's prior to installation of drainage systems.
HydroCAD stormwater modeling software was used to size the reservoir of the proposed pervious gravel pave system (True Grid) using the simple dynamic method, the results of this analysis for the 2 year, 10 year, and 25 year - 24 hour storm events are presented in the HydroCAD report included in Appendix E.

Standard 4: Water Quality
This standard has been met. The proposed stormwater management systems are designed to remove 80% of the average annual post construction load of Total Suspended Soilds (TSS). Calculations showing the TSS removal efficiency of each of the proposed stormwater management treatment practices are provided in Appendix B. To achieve the TSS removal efficiencies each of the stormwater management systems is designed such that the storage volume of the reservoir in the gravel pave True Grid system exceeds the minimum required water quality volume to capture and treat the first inch of rainfall.

Standard 5: Land uses with higher pollutant loads
This site is subject to a Stormwater Pollution Prevention Plan. Practices are in place to protect the proposed stormwater management system from introduction of potential pollutants.

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead protection area of a public water supply, and stormwater discharges near or to any critical area
This standard is not applicable.

Standard 7: Redevelopment
This project is a redevelopment project.

Standard 8: Construction Erosion Control Plan
Erosion control measures are shown on the proposed site plan and discussed in the project construction protocol.

Standard 9: Long Term Operation and Maintenance Plan
A long-term operations and maintenance plan has been submitted with this report.

Standard 10: Illicit Discharges
This standard is met since there are no known illicit discharges at this site and no illicit discharges are proposed.

Owner and Responsible Party

The owner and responsible party for Stormwater Management System:

Owner / Operator:

Martha's Vineyard Shipyard
164 Beach Road
Tisbury, MA 02568

Phone: (508) 693-0400

SCHEDULE OF INSPECTION AND MAINTENANCE OF SYSTEM

The stormwater system requires regular attention in order to ensure the effectiveness of the system. It is recommended that the drainage system be inspected annually by a professional engineer in order to ensure that the system is properly maintained. Any deterioration threatening the structural integrity of the system shall be immediately repaired.

1. Periodically, remove sediment that accumulates near the edge of the driveway near the entrance to the rain garden to prevent formation of a "berm" that could impede distribution of runoff toward the rain garden.

2. The rain garden and native plant beds shall be inspected monthly. Inspect the side slopes for signs of erosion and formation of rills and gullies. Remove accumulated trash and debris as needed and at time of inspection. At a minimum, the rain garden shall be maintained annually in the spring and pruned in the spring and fall. Any dead plants shall be removed at time of pruning and be replaced in the spring.

3. The following maintenance procedures should be followed for the pervious True Grid reinforced stone parking/ subsurface drainage areas:

- For gravel fill surfaces, maintain a 0.5 in surcharge of aggregate as a surface wear course. Surface should be inspected from time to time to identify signs of slight cell infill loss. Add joint and/or infill material to replace material that is transported out of place by use of the surface.
- Assess exfiltration capacity at least once a year. When exfiltration capacity is found in decline, address surface clogging by removing and replacing the top layer of stone aggregate and filter fabric.
- Monitor pavement to ensure traffic frequency and loading does not exceed the pavement design.
- When snow removal is required, keep a metal edged plow blade from coming in contact with the surface during plowing operations to avoid causing damage to the units. Use a plow blade a minimum of 1 inch above the surface and with a flexible rubber edge or with skids on the lower outside corners so the plow blade does not come in contact with the units.

4. Landscaped areas within the contributory drainage areas should be adequately maintained and vegetated to prevent the presence of exposed soil/eroded areas. In rain events, exposed soil will lead to a greater amount of sediment that can be transported by runoff to the stormwater management systems. Since the stormwater management system is designed to infiltrate stormwater runoff via the pervious reinforced stone pave system (True Grid), the presence of high loads of sediment in the parking and driveway surfaces will result in an increased frequency for maintenance cleaning of True Grid/pervious pave system.

LONG TERM POLLUTION PREVENTION PLAN

DESCRIPTION OF POLLUTANT SOURCES:

Source Control Best Management Practices

Source Control Best Management Practices

- For gravel fill surfaces, maintain a 0.5 in (13 mm) surcharge of aggregate as a surface wear course. Surface should be inspected from time to time to identify signs of slight cell infill loss.
- Monitor pavement to ensure traffic frequency and loading does not exceed the pavement design.
- When snow removal is required, keep a metal edged plow blade from coming in contact with the surface during plowing operations to avoid causing damage to the units. Use a plow blade a minimum of 1 inch above the surface and with a flexible rubber edge or with skids on the lower outside corners so the plow blade does not come in contact with the units
- Trash receptacles shall be covered. If leaks are found, the receptacle shall be replaced. The trash receptacle area shall be kept clear of debris.
- Good housekeeping measures should be implemented throughout the site in order to keep the parking lot areas clean of debris.
- Immediately clean up any spillage on gravel areas and dispose of the wastes properly.
- Any equipment maintenance performed on site to be done indoors. With all equipment to be inspected for leaks on a daily basis prior to use. If a leak is observed, the equipment is taken out of service and brought in to the marina's shop for servicing. The detected leak is cleaned using the available spill prevention kit. Each employee must be trained on what to do in the event of a spill or leak.
- All hazardous materials to be stored inside and labeled properly.
- Boat maintenance including sanding and painting to occur indoors. Sanding to be done with a dustless (vacuum sander) and paint chips must be collected for proper disposal.
- Activities onsite to be in accordance with SWPPP for marina.

Emergency Spill Cleanup Plans

1. The owner of the facility shall have a designated person with overall responsibility for spill response cleanup.

2. Key personnel shall be trained in the use of this plan and spill containment and cleanup methods. All employees should have basic knowledge of spill control procedures.

3. A summary of this plan shall be written and posted in a prominent location. The summary shall identify the spill cleanup coordinators, location of cleanup kit and phone numbers of regulatory agencies and individuals to be contacted in the event of a spill.

4. In the event of a spill the following shall be notified:

A. Tisbury Fire Department.....(508) 696-4246

(For a gasoline or hazardous material spill).....911

B. Massachusetts Department of Environmental Protection

Emergency Response.....(800) 304-1133

Tisbury Health Department.....(508) 696-4290 ext.293

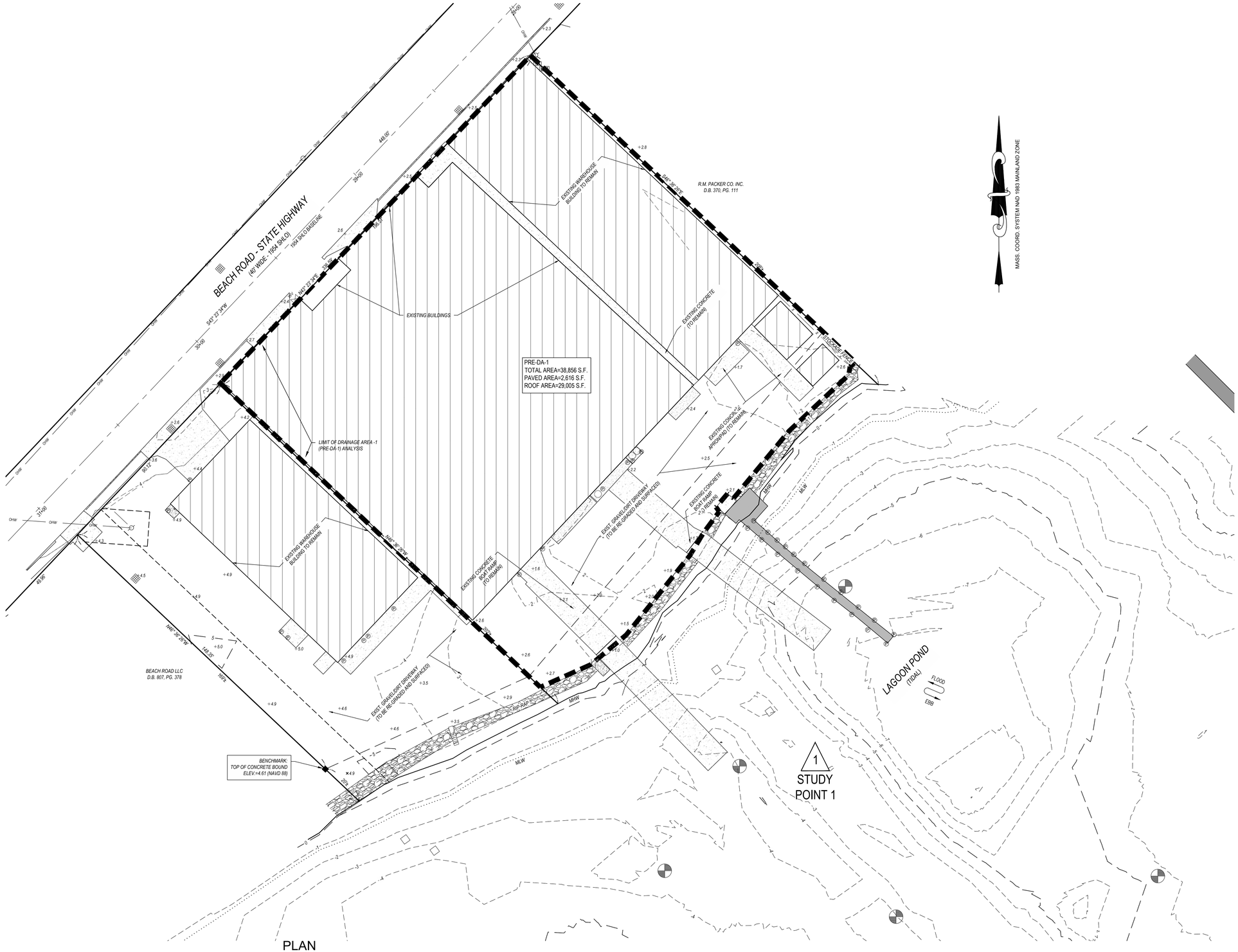
5. Cleanup of spills shall begin immediately.

6. The emergency spill cleanup plan shall be updated regularly.

APPENDIX A

Drainage Areas & Calculations

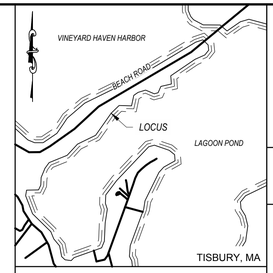
- DA-1 Plan Showing Post-Development Drainage Areas, Sheet 1 of 2
- DA-2 Plan Showing Post-Development Drainage Areas, Sheet 2 of 2
- Table 1.0: Pre-Development and Post Development Drainage Contribution Areas
- Table 2.0: Summary Table Showing Post Development Reduction in Peak Flow Contributed to Study Point 1/ Lagoon Pond
- Table 3.0: Post-Development Water Quality and Recharge Volume Calculations
- Table 4.0: Infiltration Practice – Drawdown Calculation



PLAN

20 10 0 20 60

1 inch = 20 ft.



KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCEL 32 AND 33

FLOOD ZONE:

FLOOD ZONE AE (EL. 10) AS SHOWN
ON FEMA FIRM PANEL #25007C0104J
REVISED JULY 20, 2016

DATUM:

ELEVATIONS SHOWN HEREON ARE
BASED ON THE NORTH AMERICAN
VERTICAL DATUM OF 1988 (NAVD 1988)

LEGEND

EXISTING

- BOUND
- PROPERTY LINE

COASTAL
engineering co.
260 Cranberry Hwy. Orleans, MA 02653
508.255.6511 P 508.255.6700 F

NO.	DATE	REVISION	BY

SEAL

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PLAN SHOWING PRE-DEVELOPMENT
DRAINAGE AREAS

SCALE	1" = 20'
DRAWING FILE	C19196-V
DATE	08-23-2019
DRAWN BY	TLM
CHECKED BY	

DA-1

1 OF 2 SHEETS

PROJECT NO. C19196.01

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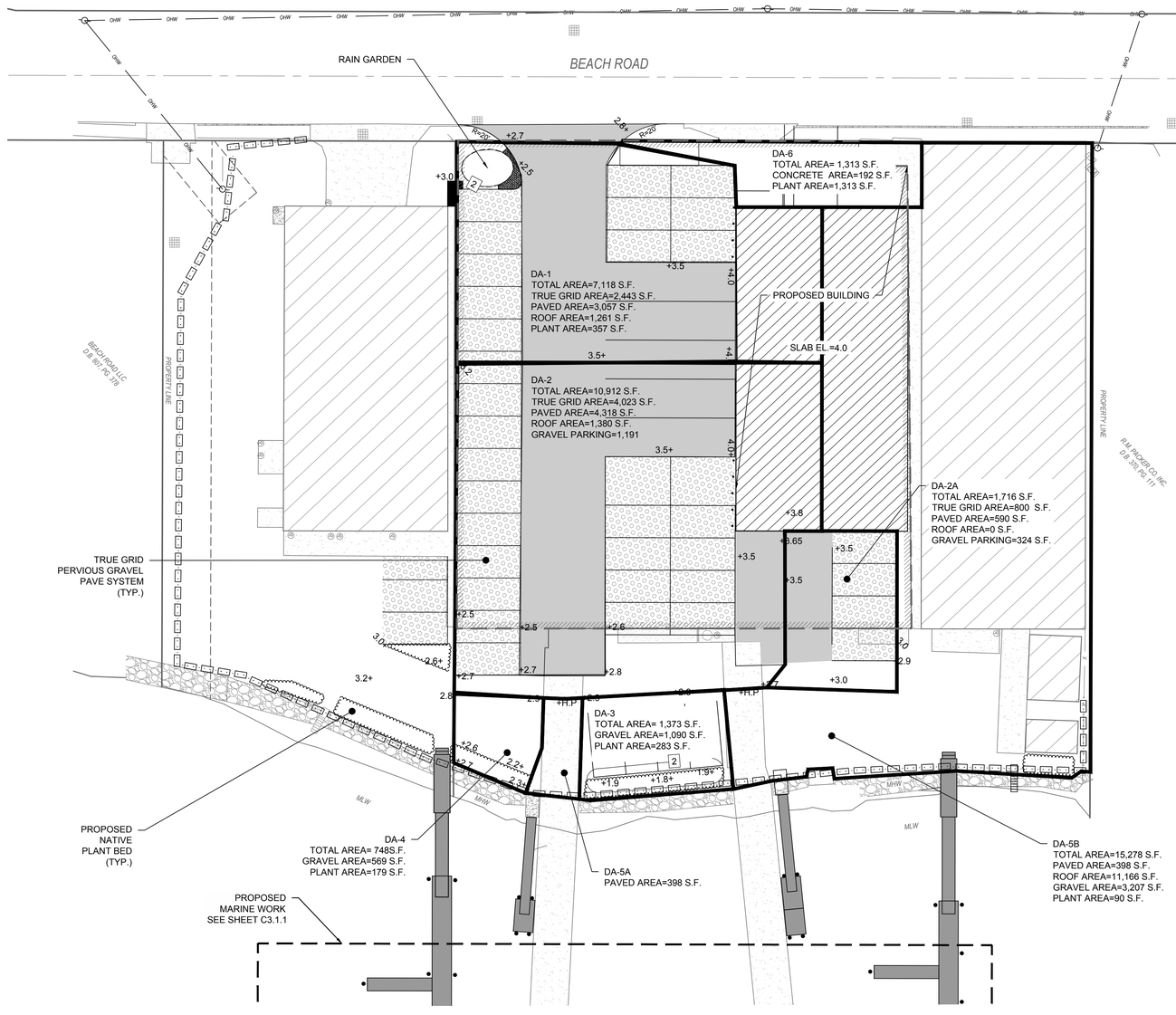
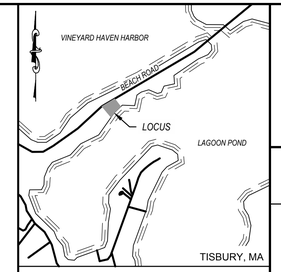


PLAN

20 10 0 20 60

1 inch = 20 ft.

MASS. COORD. SYSTEM NAD 1983 MAINLAND ZONE



KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

FLOOD ZONE AE (EL. 10) AS SHOWN
ON FEMA FIRM PANEL #25007C0104J
REVISED JULY 20, 2016

DATUM:

ELEVATIONS SHOWN HEREON ARE
BASED ON THE NORTH AMERICAN
VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.

LEGEND

EXISTING

- BOUND
- PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- WATER VALVE
- PULL BOX
- ELECTRIC METER
- CATCH BASIN
- OVERHEAD WIRES
- UTILITY POLE
- POST
- MISC. MANHOLE
- FENCE

PROPOSED

- TRAFFIC FLOW

COASTAL engineering co.
260 Cranberry Hwy. Orleans, MA 02653
508.255.6511 P 508.255.6700 F

NO.	DATE	REVISION	BY

SEAL

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PLAN SHOWING POST DEVELOPMENT DRAINAGE AREAS

SCALE: AS NOTED
DRAWING FILE: C19196-MASTER.dwg
DATE: 08-23-2019
DRAWN BY: ELN / TLM
CHECKED BY: TLM

DA-2

2 OF 2 SHEETS

PROJECT NO. C19196.01

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Table 1.0:

Pre-Development and Post Development Drainage Contribution Areas

Pre-Development Drainage Areas

	PAVED AREA (S.F.)	ROOF AREA (S.F.)	PERVIOUS GRAVEL (TRUE GRID) AREA (S.F.)	GRAVEL AREA (S.F.)	PLANT AREA (S.F.)	TOTAL AREA (S.F.)	PEAK FLOW 2yr/24HR Storm	PEAK FLOW 10yr/24HR Storm	PEAK FLOW 25yr/24HR Storm
DA-1 to Study Point 1/ Lagoon Pond	2616	29005	0	7235	0	38856	2.56	3.59	4.31

Post Development Drainage Areas

	PAVED AREA (S.F.)	ROOF AREA (S.F.)	PERVIOUS GRAVEL (TRUE GRID) AREA (S.F.)	GRAVEL AREA (S.F.)	PLANT AREA (S.F.)	TOTAL AREA (S.F.)	PEAK FLOW 2yr/24HR Storm	PEAK FLOW 10yr/24HR Storm	PEAK FLOW 25yr/24HR Storm
DA-1	3057	1261	2443	0	357	7118	0	0	0
DA-2	4318	1380	4023	1191		10912	0	0	0
DA-2A	590		802	324		1716	0	0	0
DA-3	0	0	0	1090	283	1373	0.03	0.06	0.08
DA-4	0	0	0	569	179	748	0.01	0.03	0.04
DA-5A	398	0	0	0	0	398	0.03	0.04	0.05
DA-5B	815	11166	0	3207	90	15278	0.98	1.39	1.67
DA-6	192	0	0	0	1121	1313	0	0.01	0.02
TOTAL	9370	13807	7268	6381	2030	38856	1.05	1.53	1.86

Post development Contribution to Study Point 1/ Lagoon Pond	PEAK FLOW 2yr/24HR Storm	PEAK FLOW 10yr/24HR Storm	PEAK FLOW 25yr/24HR Storm
DA-3, DA-4, DA-5A, DA-5B	1.05	1.52	1.84

Table 2.0:

Summary Table Showing Post Development Reduction in Peak Flow Contributed to Study Pt 1/ Lagoon Pond

	PEAK FLOW 2yr/24HR Storm	PEAK FLOW 10yr/24HR Storm	PEAK FLOW 25yr/24HR Storm
Study Pt 1	1.51	2.07	2.47

Table 3.0:

Post-Development Water Quality and Recharge Volume Calculations

DRAINAGE AREA	Impervious Area (S.F.)	Impervious Area (Pavement) (Ac.)	Roof Area (S.F.)	Roof Area (Ac.)	WQ_v (C.F.)*	Impervious Pavement & Roof Area (Ac.)	Re_v (C.F.)**	BMP	BMP Storage Volume (C.F.)
DA-1	3,057	0.07	1261	0.03	245	0.10	216	80'L x 20'Wx0.83'D	640
DA-2	5,509	0.13	1380	0.03	441	0.16	344	120'L x 20'Wx0.83'D	960
DA-2A	914	0.02	0	0.00	73	0.02	46	40'L x 20'Wx0.83'D	320
DA-3	1,090	0.03	0	0.00	87	0.03	55		
DA-4	569	0.01	0	0.00	46	0.01	28		
DA-5A	398	0.01	0	0.00	32	0.01	20		
DA-5B	4,022	0.09	11166	0.26	322	0.35	759		
DA-6	192	0.00	0	0.00	15	0.00	10		
Total					1260		1478		1920

***WQ_v = Required Water Quality Volume**

$WQ_v = D_{wq}$/ 12 inches/ foot)*(A_{imp}*43,560 s.f. per acre)

D_{wq} = 1.0 inch

A_{imp}=Impervious Area (Ac.)

****Re_v= Required recharge volume**

Re_v= F x impervious area

F = Target Depth Factor ; 0.6-inch (assumed for NRCS HSG A soils present on site)

Table 4.0:

Infiltration Practice - Drawdown Calculations

Time $_{drawdown}$ = (Rv) / (K)x(Surface Area); must be <72 hours				
	Surface Area (S.F.)	**(R_v) Storage Volume (C.F.)**	**(K) Sat. Hydraulic Conductivity Rate (inches/hour)**	**Drawdown Time (hours)**
DA-1 True Grid	1,600	640	8.27	0.58
DA-2 True Grid	2400	960	8.27	0.58
DA-2A True Grid	800	320	8.27	0.58

APPENDIX B

TSS Removal Calculation

- TSS Removal Calculation Worksheet

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: DA-1, DA-2, DA-2A

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Porous Pavement	**0.80**	**1.00**	**0.80**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**
	0.00	**0.20**	**0.00**	**0.20**

Total TSS Removal = **80%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **MV Shipyard/ C19196.01**

Prepared By: **tlm**

Date: **8/15/2019**

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

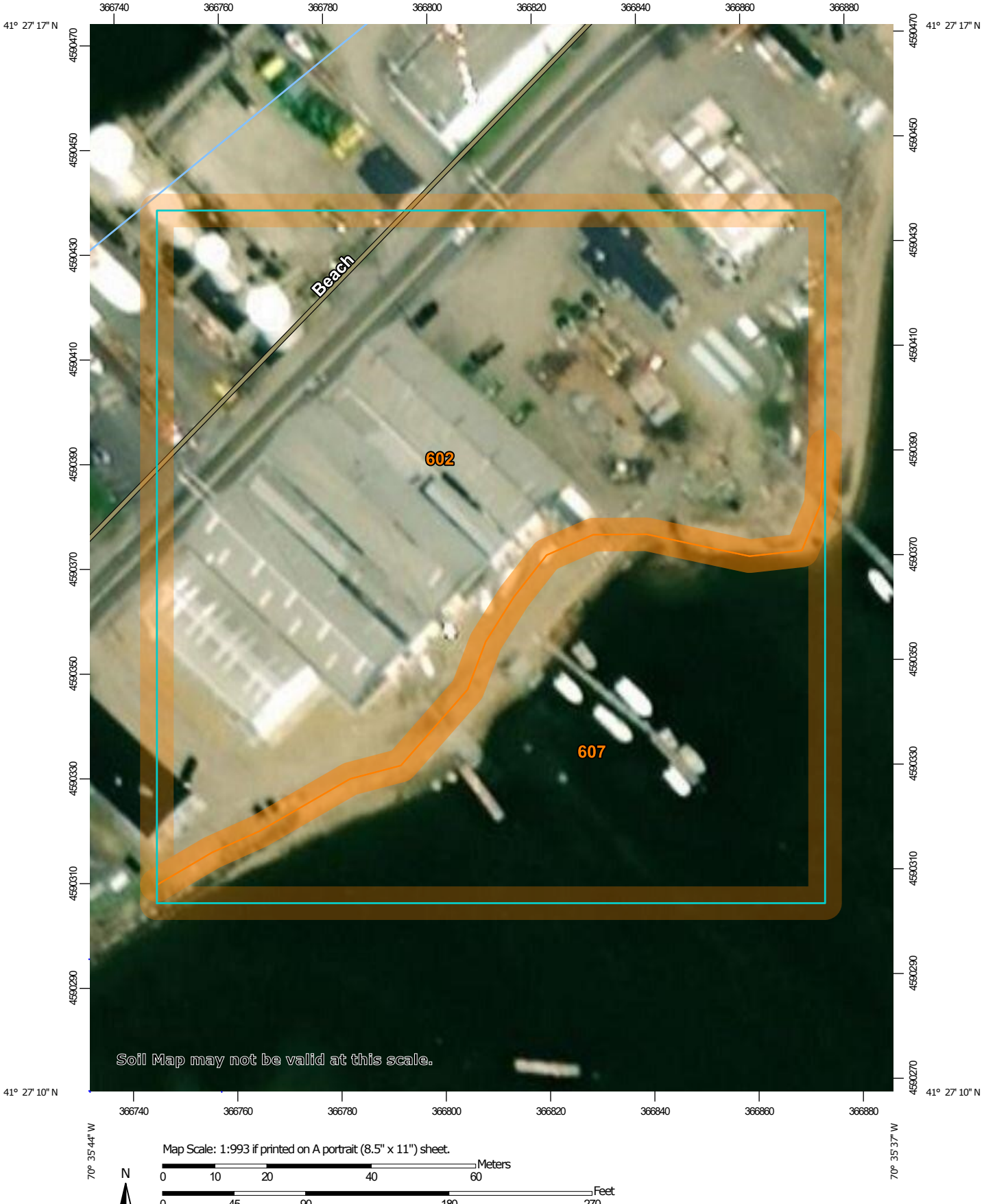
1. From MassDEP Stormwater Handbook Vol. 1

APPENDIX C

Soil Information

- NRCS Soil Report

Soil Map—Dukes County, Massachusetts
(MV Shipyard)



Map Scale: 1:993 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 10 20 40 60

Feet
0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Dukes County, Massachusetts
Survey Area Data: Version 15, Sep 5, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Dec 31, 2009—Nov 5, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
602	Urban land	2.8	66.4%
607	Water, saline	1.4	33.6%
Totals for Area of Interest		**4.2**	**100.0%**

APPENDIX D

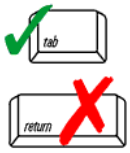
MassDEP Checklist for Stormwater Report

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☒ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☒ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☐ Other (describe): _____

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation – N/A Redevelopment

☒ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☐ Soil Analysis provided. NRCS Report

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☒ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☒ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☒ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☒ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☒ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☒ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☒ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☐ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

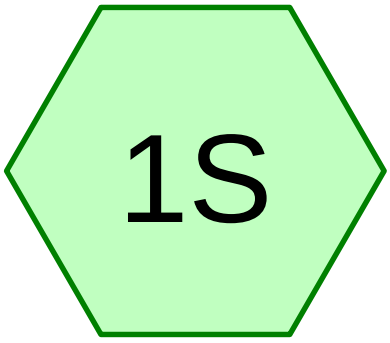
☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

APPENDIX E

Hydro-CAD CALCULATIONS

Pre-Development -Drainage Contribution to Lagoon Pond



PRE-DA1

Subcat Reach Pond Link

Routing Diagram for C19196_DRAINAGE
Prepared by Coastal Engineering Co., Inc., Printed 8/15/2019

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.166	76	Gravel roads, HSG A (1S)
0.060	98	Paved parking, HSG A (1S)
0.666	98	Roofs, HSG A (1S)

Summary for Subcatchment 1S: PRE-DA1

Runoff = 2.56 cfs @ 12.14 hrs, Volume= 0.206 af, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

Area (sf)	CN	Description
7,235	76	Gravel roads, HSG A
0	39	>75% Grass cover, Good, HSG A
29,005	98	Roofs, HSG A
2,616	98	Paved parking, HSG A
38,856	94	Weighted Average
7,235		18.62% Pervious Area
31,621		81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 1S: PRE-DA1

Runoff = 3.59 cfs @ 12.13 hrs, Volume= 0.297 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

Area (sf)	CN	Description
7,235	76	Gravel roads, HSG A
0	39	>75% Grass cover, Good, HSG A
29,005	98	Roofs, HSG A
2,616	98	Paved parking, HSG A
38,856	94	Weighted Average
7,235		18.62% Pervious Area
31,621		81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 1S: PRE-DA1

Runoff = 4.31 cfs @ 12.13 hrs, Volume= 0.360 af, Depth> 4.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

Area (sf)	CN	Description
7,235	76	Gravel roads, HSG A
0	39	>75% Grass cover, Good, HSG A
29,005	98	Roofs, HSG A
2,616	98	Paved parking, HSG A
38,856	94	Weighted Average
7,235		18.62% Pervious Area
31,621		81.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Post Development

Routing Diagram for C19196_DRAINAGE
Prepared by Coastal Engineering Co., Inc., Printed 8/15/2019

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.038	39	>75% Grass cover, Good, HSG A (18S, 19S, 21S, 22S)
0.148	76	Gravel roads, HSG A (2, 15S, 18S, 19S, 21S)
0.215	98	Paved parking, HSG A (1, 2, 15S, 20S, 21S, 22S)
0.167	98	Pervious Gravel Pave (True Grid) (13S, 14S, 15S)
0.317	98	Roofs, HSG A (1, 2, 21S)

Summary for Subcatchment 1: DA-1

Runoff = 0.30 cfs @ 12.13 hrs, Volume= 0.026 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

	Area (sf)	CN	Description
	3,057	98	Paved parking, HSG A
*	0	98	Pervious Gravel Pave (True Grid)
	1,261	98	Roofs, HSG A
	4,318	98	Weighted Average
	4,318		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 2: DA-2

Runoff = 0.46 cfs @ 12.14 hrs, Volume= 0.037 af, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

	Area (sf)	CN	Description
	4,318	98	Paved parking, HSG A
*	0	98	Pervious Gravel Pave (True Grid)
	1,380	98	Roofs, HSG A
	1,271	76	Gravel roads, HSG A
	6,969	94	Weighted Average
	1,271		18.24% Pervious Area
	5,698		81.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 13S: DA-2

Runoff = 0.25 cfs @ 12.19 hrs, Volume= 0.025 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

	Area (sf)	CN	Description
	0	98	Paved parking, HSG A
*	4,023	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	0	76	Gravel roads, HSG A
	4,023	98	Weighted Average
	4,023		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel through true grid**

Summary for Subcatchment 14S: DA-1

Runoff = 0.15 cfs @ 12.19 hrs, Volume= 0.015 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

	Area (sf)	CN	Description
	0	98	Paved parking, HSG A
*	2,443	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	2,443	98	Weighted Average
	2,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel thru true grid**

Summary for Subcatchment 15S: DA-2A

Runoff = 0.10 cfs @ 12.20 hrs, Volume= 0.009 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

	Area (sf)	CN	Description
	590	98	Paved parking, HSG A
*	802	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	324	76	Gravel roads, HSG A
	1,716	94	Weighted Average
	324		18.88% Pervious Area
	1,392		81.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel through true grid**

Summary for Subcatchment 18S: DA-3

Runoff = 0.03 cfs @ 12.15 hrs, Volume= 0.002 af, Depth> 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

Area (sf)	CN	Description
1,090	76	Gravel roads, HSG A
283	39	>75% Grass cover, Good, HSG A
1,373	68	Weighted Average
1,373		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 19S: DA-4

Runoff = 0.01 cfs @ 12.16 hrs, Volume= 0.001 af, Depth> 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

Area (sf)	CN	Description
569	76	Gravel roads, HSG A
179	39	>75% Grass cover, Good, HSG A
748	67	Weighted Average
748		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 20S: DA-5A

Runoff = 0.03 cfs @ 12.13 hrs, Volume= 0.002 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

Area (sf)	CN	Description
0	76	Gravel roads, HSG A
0	39	>75% Grass cover, Good, HSG A
398	98	Paved parking, HSG A
398	98	Weighted Average
398		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 21S: DA-5B

Runoff = 0.98 cfs @ 12.14 hrs, Volume= 0.078 af, Depth> 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

Area (sf)	CN	Description
3,207	76	Gravel roads, HSG A
90	39	>75% Grass cover, Good, HSG A
815	98	Paved parking, HSG A
11,166	98	Roofs, HSG A
15,278	93	Weighted Average
3,297		21.58% Pervious Area
11,981		78.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 22S: DA-6

Runoff = 0.00 cfs @ 12.50 hrs, Volume= 0.000 af, Depth> 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Rainfall=3.60"

Area (sf)	CN	Description
0	76	Gravel roads, HSG A
1,121	39	>75% Grass cover, Good, HSG A
192	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,313	48	Weighted Average
1,121		85.38% Pervious Area
192		14.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Pond 5P: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.252 ac, 88.44% Impervious, Inflow Depth > 2.93" for 2 event
Inflow = 0.69 cfs @ 12.15 hrs, Volume= 0.062 af
Outflow = 0.46 cfs @ 12.05 hrs, Volume= 0.062 af, Atten= 33%, Lag= 0.0 min
Discarded = 0.46 cfs @ 12.05 hrs, Volume= 0.062 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.31' @ 12.30 hrs Surf.Area= 2,400 sf Storage= 134 cf

Plug-Flow detention time= 1.2 min calculated for 0.062 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (748.8 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	960 cf	**20.00'W x 120.00'L x 1.00'H Prismatoid** 2,400 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.46 cfs @ 12.05 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.46 cfs)

Summary for Pond 16P: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.039 ac, 81.12% Impervious, Inflow Depth > 2.77" for 2 event
Inflow = 0.10 cfs @ 12.20 hrs, Volume= 0.009 af
Outflow = 0.10 cfs @ 12.20 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.4 min
Discarded = 0.10 cfs @ 12.20 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.18' @ 12.20 hrs Surf.Area= 800 sf Storage= 2 cf

Plug-Flow detention time= 0.3 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (761.3 - 761.0)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	320 cf	**20.00'W x 40.00'L x 1.00'H Prismatoid** 800 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.15 cfs @ 12.20 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.15 cfs)

Summary for Pond LRB-2: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.155 ac,100.00% Impervious, Inflow Depth > 3.20" for 2 event
Inflow = 0.44 cfs @ 12.15 hrs, Volume= 0.041 af
Outflow = 0.31 cfs @ 12.06 hrs, Volume= 0.041 af, Atten= 31%, Lag= 0.0 min
Discarded = 0.31 cfs @ 12.06 hrs, Volume= 0.041 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.29' @ 12.29 hrs Surf.Area= 1,600 sf Storage= 77 cf

Plug-Flow detention time= 1.0 min calculated for 0.041 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (732.0 - 731.1)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	640 cf	**20.00'W x 80.00'L x 1.00'H Prismatoid** 1,600 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.31 cfs @ 12.06 hrs HW=2.18' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Summary for Subcatchment 1: DA-1

Runoff = 0.42 cfs @ 12.13 hrs, Volume= 0.037 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

	Area (sf)	CN	Description
	3,057	98	Paved parking, HSG A
*	0	98	Pervious Gravel Pave (True Grid)
	1,261	98	Roofs, HSG A
	4,318	98	Weighted Average
	4,318		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 2: DA-2

Runoff = 0.64 cfs @ 12.13 hrs, Volume= 0.053 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

	Area (sf)	CN	Description
	4,318	98	Paved parking, HSG A
*	0	98	Pervious Gravel Pave (True Grid)
	1,380	98	Roofs, HSG A
	1,271	76	Gravel roads, HSG A
	6,969	94	Weighted Average
	1,271		18.24% Pervious Area
	5,698		81.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 13S: DA-2

Runoff = 0.34 cfs @ 12.19 hrs, Volume= 0.034 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

	Area (sf)	CN	Description
	0	98	Paved parking, HSG A
*	4,023	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	0	76	Gravel roads, HSG A
	4,023	98	Weighted Average
	4,023		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel through true grid**

Summary for Subcatchment 14S: DA-1

Runoff = 0.21 cfs @ 12.19 hrs, Volume= 0.021 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

	Area (sf)	CN	Description
	0	98	Paved parking, HSG A
*	2,443	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	2,443	98	Weighted Average
	2,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel thru true grid**

Summary for Subcatchment 15S: DA-2A

Runoff = 0.14 cfs @ 12.20 hrs, Volume= 0.013 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

	Area (sf)	CN	Description
	590	98	Paved parking, HSG A
*	802	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	324	76	Gravel roads, HSG A
	1,716	94	Weighted Average
	324		18.88% Pervious Area
	1,392		81.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel through true grid**

Summary for Subcatchment 18S: DA-3

Runoff = 0.06 cfs @ 12.15 hrs, Volume= 0.004 af, Depth> 1.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

Area (sf)	CN	Description
1,090	76	Gravel roads, HSG A
283	39	>75% Grass cover, Good, HSG A
1,373	68	Weighted Average
1,373		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 19S: DA-4

Runoff = 0.03 cfs @ 12.15 hrs, Volume= 0.002 af, Depth> 1.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

Area (sf)	CN	Description
569	76	Gravel roads, HSG A
179	39	>75% Grass cover, Good, HSG A
748	67	Weighted Average
748		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 20S: DA-5A

Runoff = 0.04 cfs @ 12.13 hrs, Volume= 0.003 af, Depth> 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

Area (sf)	CN	Description
0	76	Gravel roads, HSG A
0	39	>75% Grass cover, Good, HSG A
398	98	Paved parking, HSG A
398	98	Weighted Average
398		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 21S: DA-5B

Runoff = 1.39 cfs @ 12.13 hrs, Volume= 0.114 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

Area (sf)	CN	Description
3,207	76	Gravel roads, HSG A
90	39	>75% Grass cover, Good, HSG A
815	98	Paved parking, HSG A
11,166	98	Roofs, HSG A
15,278	93	Weighted Average
3,297		21.58% Pervious Area
11,981		78.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 22S: DA-6

Runoff = 0.01 cfs @ 12.24 hrs, Volume= 0.001 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Rainfall=4.90"

Area (sf)	CN	Description
0	76	Gravel roads, HSG A
1,121	39	>75% Grass cover, Good, HSG A
192	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,313	48	Weighted Average
1,121		85.38% Pervious Area
192		14.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Pond 5P: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.252 ac, 88.44% Impervious, Inflow Depth > 4.16" for 10 event
Inflow = 0.96 cfs @ 12.15 hrs, Volume= 0.087 af
Outflow = 0.46 cfs @ 11.99 hrs, Volume= 0.087 af, Atten= 52%, Lag= 0.0 min
Discarded = 0.46 cfs @ 11.99 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.59' @ 12.41 hrs Surf.Area= 2,400 sf Storage= 403 cf

Plug-Flow detention time= 3.7 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 3.7 min (744.2 - 740.6)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	960 cf	**20.00'W x 120.00'L x 1.00'H Prismatoid** 2,400 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.46 cfs @ 11.99 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.46 cfs)

Summary for Pond 16P: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.039 ac, 81.12% Impervious, Inflow Depth > 3.99" for 10 event
Inflow = 0.14 cfs @ 12.20 hrs, Volume= 0.013 af
Outflow = 0.14 cfs @ 12.20 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.4 min
Discarded = 0.14 cfs @ 12.20 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.18' @ 12.20 hrs Surf.Area= 800 sf Storage= 3 cf

Plug-Flow detention time= 0.3 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (752.9 - 752.6)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	320 cf	**20.00'W x 40.00'L x 1.00'H Prismatoid** 800 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.15 cfs @ 12.20 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.15 cfs)

Summary for Pond LRB-2: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.155 ac,100.00% Impervious, Inflow Depth > 4.44" for 10 event
Inflow = 0.61 cfs @ 12.15 hrs, Volume= 0.057 af
Outflow = 0.31 cfs @ 12.00 hrs, Volume= 0.057 af, Atten= 49%, Lag= 0.0 min
Discarded = 0.31 cfs @ 12.00 hrs, Volume= 0.057 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.53' @ 12.39 hrs Surf.Area= 1,600 sf Storage= 231 cf

Plug-Flow detention time= 3.0 min calculated for 0.057 af (100% of inflow)
Center-of-Mass det. time= 3.0 min (728.6 - 725.6)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	640 cf	**20.00'W x 80.00'L x 1.00'H Prismatoid** 1,600 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.31 cfs @ 12.00 hrs HW=2.18' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.31 cfs)

Summary for Subcatchment 1: DA-1

Runoff = 0.49 cfs @ 12.13 hrs, Volume= 0.044 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
	3,057	98	Paved parking, HSG A
*	0	98	Pervious Gravel Pave (True Grid)
	1,261	98	Roofs, HSG A
	4,318	98	Weighted Average
	4,318		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 2: DA-2

Runoff = 0.77 cfs @ 12.13 hrs, Volume= 0.065 af, Depth> 4.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
	4,318	98	Paved parking, HSG A
*	0	98	Pervious Gravel Pave (True Grid)
	1,380	98	Roofs, HSG A
	1,271	76	Gravel roads, HSG A
	6,969	94	Weighted Average
	1,271		18.24% Pervious Area
	5,698		81.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 13S: DA-2

Runoff = 0.40 cfs @ 12.19 hrs, Volume= 0.041 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
	0	98	Paved parking, HSG A
*	4,023	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	0	76	Gravel roads, HSG A
	4,023	98	Weighted Average
	4,023		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel through true grid**

Summary for Subcatchment 14S: DA-1

Runoff = 0.24 cfs @ 12.19 hrs, Volume= 0.025 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
	0	98	Paved parking, HSG A
*	2,443	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	2,443	98	Weighted Average
	2,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel thru true grid**

Summary for Subcatchment 15S: DA-2A

Runoff = 0.17 cfs @ 12.20 hrs, Volume= 0.016 af, Depth> 4.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

	Area (sf)	CN	Description
	590	98	Paved parking, HSG A
*	802	98	Pervious Gravel Pave (True Grid)
	0	98	Roofs, HSG A
	324	76	Gravel roads, HSG A
	1,716	94	Weighted Average
	324		18.88% Pervious Area
	1,392		81.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					**Direct Entry, travel through true grid**

Summary for Subcatchment 18S: DA-3

Runoff = 0.08 cfs @ 12.14 hrs, Volume= 0.006 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

Area (sf)	CN	Description
1,090	76	Gravel roads, HSG A
283	39	>75% Grass cover, Good, HSG A
1,373	68	Weighted Average
1,373		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 19S: DA-4

Runoff = 0.04 cfs @ 12.14 hrs, Volume= 0.003 af, Depth> 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

Area (sf)	CN	Description
569	76	Gravel roads, HSG A
179	39	>75% Grass cover, Good, HSG A
748	67	Weighted Average
748		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 20S: DA-5A

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 0.004 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

Area (sf)	CN	Description
0	76	Gravel roads, HSG A
0	39	>75% Grass cover, Good, HSG A
398	98	Paved parking, HSG A
398	98	Weighted Average
398		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 21S: DA-5B

Runoff = 1.67 cfs @ 12.13 hrs, Volume= 0.138 af, Depth> 4.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

Area (sf)	CN	Description
3,207	76	Gravel roads, HSG A
90	39	>75% Grass cover, Good, HSG A
815	98	Paved parking, HSG A
11,166	98	Roofs, HSG A
15,278	93	Weighted Average
3,297		21.58% Pervious Area
11,981		78.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Subcatchment 22S: DA-6

Runoff = 0.02 cfs @ 12.18 hrs, Volume= 0.002 af, Depth> 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 Rainfall=5.80"

Area (sf)	CN	Description
0	76	Gravel roads, HSG A
1,121	39	>75% Grass cover, Good, HSG A
192	98	Paved parking, HSG A
0	98	Roofs, HSG A
1,313	48	Weighted Average
1,121		85.38% Pervious Area
192		14.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Direct**
6.0	0	Total, Increased to minimum Tc = 10.0 min			

Summary for Pond 5P: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.252 ac, 88.44% Impervious, Inflow Depth > 5.01" for 25 event
Inflow = 1.14 cfs @ 12.15 hrs, Volume= 0.105 af
Outflow = 0.46 cfs @ 11.93 hrs, Volume= 0.105 af, Atten= 60%, Lag= 0.0 min
Discarded = 0.46 cfs @ 11.93 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.83' @ 12.47 hrs Surf.Area= 2,400 sf Storage= 637 cf

Plug-Flow detention time= 6.1 min calculated for 0.105 af (100% of inflow)
Center-of-Mass det. time= 6.0 min (743.0 - 737.0)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	960 cf	**20.00'W x 120.00'L x 1.00'H Prismatoid** 2,400 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.46 cfs @ 11.93 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.46 cfs)

Summary for Pond 16P: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.039 ac, 81.12% Impervious, Inflow Depth > 4.83" for 25 event
Inflow = 0.17 cfs @ 12.20 hrs, Volume= 0.016 af
Outflow = 0.15 cfs @ 12.15 hrs, Volume= 0.016 af, Atten= 7%, Lag= 0.0 min
Discarded = 0.15 cfs @ 12.15 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.19' @ 12.26 hrs Surf.Area= 800 sf Storage= 6 cf

Plug-Flow detention time= 0.4 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (748.6 - 748.3)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	320 cf	**20.00'W x 40.00'L x 1.00'H Prismatoid** 800 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.15 cfs @ 12.15 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.15 cfs)

Summary for Pond LRB-2: True Grid Pervious Gravel system with 10" reservoir

Inflow Area = 0.155 ac,100.00% Impervious, Inflow Depth > 5.30" for 25 event
Inflow = 0.72 cfs @ 12.15 hrs, Volume= 0.069 af
Outflow = 0.31 cfs @ 11.94 hrs, Volume= 0.069 af, Atten= 57%, Lag= 0.0 min
Discarded = 0.31 cfs @ 11.94 hrs, Volume= 0.069 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.01 hrs
Peak Elev= 2.74' @ 12.45 hrs Surf.Area= 1,600 sf Storage= 366 cf

Plug-Flow detention time= 5.0 min calculated for 0.069 af (100% of inflow)
Center-of-Mass det. time= 4.9 min (727.9 - 723.0)

Volume	Invert	Avail.Storage	Storage Description
#1	2.17'	640 cf	**20.00'W x 80.00'L x 1.00'H Prismatoid** 1,600 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.17'	**8.270 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.31 cfs @ 11.94 hrs HW=2.18' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.31 cfs)

APPENDIX F

Storm Water Pollution Prevention Plan

Storm Water

Pollution Prevention Plan

MARTHA'S VINEYARD SHIPYARD

MARTHA'S VINEYARD SHIPYARD
164 Beach Road, P. O. Box 1119
Vineyard Haven, MA 02568-1119
508-693-0400

SIC Code 3732

EPA ID# MAD001026574

December 2017

REVISIONS TO THE
STORM WATER POLLUTION PREVENTION PLAN

Date	Description of Revision	Authorized Signature
12/31/08	Revised Stormwater Pollution Prevention Plan to meet the requirements of the 2008 MSGP.	
8/2015	Revise and update SWPPP to meet the 2015 MSGP.	

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CERTIFICATIONS & SIGNATURES
MARTHA'S VINEYARD SHIPYARD

Part 5.2.7 of the EPA Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity requires that the plan be signed by a "responsible corporate officer" or a duly authorized representative for the above named facility must be identified and must sign the following certification statement:

OPERATOR'S SIGNATORY CERTIFICATION

Certification Statement:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that the qualified personnel properly gathered and evaluated the information contained therein. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information contained is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

NAME: Philip P. Hale TITLE: President

SIGNATURE: [signature] DATE: 9/24/15

NON-STORM WATER DISCHARGES

Part 2.1.2.9 and 5.2.3.4 of the EPA Multi-Sector General Permit requires that the plan includes the following certification with respect to non-storm water discharges.

Certification Statement:
"I certify to the best of my abilities that the discharge from the areas of the site involved in industrial activities consists only of stormwater. This certification is based on my knowledge of the facility, discussions with facility personnel and my personal inspection of the site, including my evaluation of the storm water discharge at the site."

NAME: Philip P. Hale TITLE: President

SIGNATURE: [signature] EVALUATION DATE: 9/24/15

MARTHA'S VINEYARD SHIPYARD

164 Beach Road, P. O. Box 1119
Vineyard Haven, MA 02568-1119
Tel. 508-693-0400

I. GENERAL INFORMATION

A. PURPOSE OF STORM WATER POLLUTION PREVENTION PLAN

The purpose of the storm water pollution prevention plan (SWPPP) is to identify potential sources of pollution or contamination that originate at Martha's Vineyard Shipyard, and to select and implement actions which prevent or minimize the release of pollutants into the storm water. The storm water management controls included in this SWPPP focus on providing adequate control of pollutant discharges with practical approaches that utilize readily available techniques, expertise, material and equipment.

This SWPPP is intended to be a flexible, active operations plan to allow incorporation of changes and management practices. As this plan is implemented and methods to improve the plan are found, or as regulations change, this plan must be revised. Revisions to this plan must be approved by management and recorded in all copies of this plan in order to keep up to date and meet the requirements of the Storm Water Permit. A table summarizing the revisions is located in the front of this document. The revision form has a place for the authorized signature.

B. PROCEDURAL REQUIREMENTS

The operator must comply with the following requirements of the Multi-sector General Permit:

a. A signed copy of the SWPPP must be retained at the facility.

b. The operator must conduct inspections of the facility to assure compliance with this storm water pollution prevention plan. Based on inspection results, the pollution prevention control techniques may be modified as necessary to assure that storm water or the authorized and identified non-storm water discharges are the only discharges leaving the facility.

c. This SWPPP will be updated whenever there is a change in design, construction, operation or maintenance, which has an effect on the potential for pollutants to enter the storm water discharge. Modifications

to this plan must be made within 14 days if notified that the plan does not meet the minimum requirements.

d. Any corrective action warranting repairs or modifications at the facility will be added to the plan if needed. Corrective actions are to be documented immediately and within a 14 day response period. This information is to be kept with the plan and also summarized in the annual report.

e. This SWPPP and inspection reports must be retained for at least three years from the date that the permit expires.

C. FACILITY OWNER / OPERATOR / SITE INFORMATION

Martha's Vineyard Shipyard is in the business of boat building and repair, engine repair, fuel sales, storage and dockage. In connection with this activity, the operations conducted at this facility are: fiberglass fabrication and repair, sandblasting, welding, painting, engine and pump winterizing, engine repair and lubrication, pressure washing, launching and dockage of boats, and the hauling in of boats. In addition the facility also has hazardous waste storage areas, materials unloading area (from trucks), and employee parking areas.

The operator:

Martha's Vineyard Shipyard
164 Beach Road
Vineyard Haven, MA 02568-1119
Tel. 508-693-0400

The owner is:

Martha's Vineyard Shipyard
164 Beach Road, P. O. Box 1119
Vineyard Haven, MA 02568-1119
Tel. 508-693-0400

Facility SIC Code: 3732

EPA ID # MAD001026574

Location: Latitude: N 41° 27.2"
Longitude: W 70° 35.5"

Receiving Water Body: Vineyard Haven Harbor *(Impaired with Pathogens)*

Martha's Vineyard Shipyard sits on approximately two (2.0) acres of land.

There are three buildings on the property.

The buildings total approx. 46,528 sq. ft. of roof coverage.

All the buildings have gutters.

There is 380' of water frontage.

The paved area covers approximately 8,000 sq. ft.

The sewer lines are hooked into the town's system.

II. POLLUTION PREVENTION TEAM

The Pollution Prevention Team is responsible for assisting the facility or yard manager in the implementation, maintenance, and revision of the storm water pollution prevention plan.

The Pollution Prevention Team for Martha's Vineyard Shipyard includes:

Team Leader
Philip P. Hale, President
508-693-4296
Supervise and direct team during season. Perform any duties relating to improvements in BMP practices at the yard. Also overseeing monitoring, controlling, sampling, inspections and problem solving. Implement, check and enforce BMP's and make reports.

Team Members
James Hale
[redacted]
Assist in the absence of Team Leader. Responsible for the implementation of plan and revisions. Responsible for preventative maintenance, monitoring and sampling.

Jack Brewer
[redacted]
Coordination of equipment, inspections, and disposal.

III. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

A. Drainage

The storm water discharges from this facility to the outfalls are as delineated on the facility site map (see **Attachment 1**). The site map shows information on drainage areas, structural controls, surface water bodies and material exposure locations of the facility.

There are two (2) outfalls that are located on the property. The two outfalls are from the two storm drains situated near the roadway going through the property. One is near the roadway in front of the office. The other is near the roadway in front of the Boat Storage Building.

The drainage area is 25% impervious. (concrete)

The estimated runoff coefficient is .3 for this location.

The industrial activity within the drainage area includes:

Near the railways – sandblasting; painting; welding
Near the travel lift – bottom washing
Fueling areas – fueling of yard equipment and vessels (6 gal. Fuel container only)

The types of pollutants with a reasonable potential for discharge occurring in storm water in significant amounts include:

Type of Pollutant	Location in Facility	Direction of Flow
Lubricating Fluids	Main Yard, Parts Dept., Mechanic Shop	Southeast
Diesel Fuel	Yard Equipment & Boats	Southeast
Unleaded Gasoline	Vehicle and Yard Equip.	Southeast
Paint	Main Yard, Railways, Work & Paint Shops	Southeast
Fiberglass Dust	"	Southeast
Polyester Resins	"	Southeast
Acetone	"	Southeast
Toluene	"	Southeast
Xylene	"	Southeast
Sulfuric Acid (Batteries)	" , Battery Storage Area, Parts Dept., Boats	Southeast
Mineral Spirits	" , Mechanic Shop	Southeast
Metals Steel, Tin, Lead, Aluminum, Copper, Zinc	Main Yard, Railways, Mechanic Shop	Southeast

B. Inventory of Exposed Materials

An inventory of the types of materials handled at the site that potentially may be exposed to precipitation are located in **Attachment 2**. This inventory includes a description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water within the last three years. It also includes the method and location of on-site storage or disposal and

materials management practices employed to minimize contact of materials with storm water runoff within the last three years.

C. Spills and Leaks

There have been no spills or significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at Martha's Vineyard Shipyard within the last three years as shown in **Attachment 3**. This list shall be updated as appropriate during the term of the permit.

D. Risk Identification

A narrative description of the potential pollutant sources from various activities conducted at Martha's Vineyard Shipyard is found in **Attachment 5**. The description specifically lists any significant potential source of pollutants at the site and for each potential source, any pollutant or pollutant parameter (e.g., biochemical oxygen demand, etc.) of concern is identified.

IV. MEASURES AND CONTROLS

A. Good Housekeeping

Good housekeeping practices are utilized at Martha's Vineyard Shipyard . These practices include maintaining a clean and orderly work environment. All storage and work areas are kept in a clean and well-organized manner.

1. Waste Oil: Waste oil will be stored in a non-leaking container clearly marked "waste oil" on an impermeable surface, and covered in a manner that will prevent rain water from entering the container. Oil spills will be prevented from leaving the area by means of a berm or retaining structure. Waste oil will be removed from the site by a licensed waste oil transporter, if not burnt on site.

2. Waste Anti-freeze, Gasoline, Diesel, Kerosene and Mineral Spirits: These will be stored in a clearly marked, non-leaking containers, and on an impermeable surface, and covered in a manner that will prevent rain water from entering the container.

3. New oil: New oil will be kept in non-leaking containers on an impervious surface covered in a manner that will prevent rainwater from entering the container.

4. Sanding: Sanding dust will be contained or swept up daily, and disposed of or recycled properly and not intentionally discharged into a storm drain or onto surface waters.

5. Engine Parts Washing: Parts washing will not be done over open water or uncovered land.

6. Engine and Parts Storage: Engines and engine parts will be stored on a covered, impervious surface.

7. Solid Waste: Leak proof containers will be provided for solid waste and garbage.

8. Oil Spills on Land: Spilled fluids will be placed in the waste containers and residual will be collected with absorbent materials. To be disposed of as a hazardous waste.

9. Oil, Diesel, and Gasoline Filters: These waste filters will be drained into the appropriate waste container and held in non-leaking containers for pick-up by a licensed waste hauler.

10. Used Lead-Acid Batteries: These will be stored on a non-conductive impervious surface, under cover for disposal by a recycler.

For a list of Best Management Practices (BMP) for industrial activities conducted at Boat Building and Repair Facilities, see **Attachment 6**.

B. Preventive Maintenance

A preventive maintenance program will involve timely inspection and maintenance of storm water management devices as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems. For a preventive maintenance schedule, see **Attachment 7**.

C. Spill Prevention and Response Procedures

All applicable personnel - including members of the pollution prevention team - are familiar with emergency response provisions.

All applicable workers and supervisors shall be trained in hazard recognition and response procedures (HAZWOPER First Responder Operations Level).

In case of an incident, absorbent materials (pads, booms, socks, plugs, plastic, etc.) are stored in the main work shop.

Team Members shall be trained in HAZWOPER, First Responder Operations Level, emergency response for this industry.

D. Non-Storm Water Discharges

This facility was evaluated for non-storm water discharges by visually observing the outfalls and finding no indications of dry weather discharges.

An inventory of authorized non-storm water discharges is located in **Attachment 10**.

E. Sediment and Erosion Prevention

Attachment 11 contains a control log that identifies areas, which, due to topography, activities, or other factors, have a high potential for significant sediment runoff, and identifies structural, vegetative, and/or stabilization measures to be used to limit future sediment runoff or erosion.

F. Dust Generation and Vehicle Tracking of Materials

Facilities are required to control the generation of dust and off-site tracking of materials to minimize pollutant discharges.

Dust control practices can reduce activities and air movement that cause dust to be generated. Control measures that help minimize the generation of dust include:

Vegetative cover, mulch, wind breaks (barriers either natural or constructed), Stone, and spray-on chemical soil treatments (palliatives).

Vehicle tracking of materials can be controlled by management of traffic patterns within our yard. Keep work areas, stored materials or materials that could be spilled away from all roads within our site.

G. Management of Runoff

Storm water management practices to limit the contact between significant materials, storm water, and precipitation include: berms and crushed stone (and Best Management Practices). In addition:

Do not plow or dump snow into the harbor.

Maintain steel structures with paint to prevent rusting (boat stands, moorings, anchors, propane tanks, metal doors, dumpsters, and all yard equipment, etc.).

Utilize tarp under boats when doing prep work and painting.

Utilize filter media for the storm drains, and inspect and replace periodically.

Contain and properly dispose of debris from boat washing. Do not discharge wash water, utilize recycle system.

Parking lots and paved areas will be swept and kept clean to prevent materials / contaminants from draining to any storm drains or discharging to any surface waters.

V. SCHEDULES AND PROCEDURES

A. Monitoring / Sampling Data

It is required that we do benchmark monitoring/sampling once each quarter, during the first year of the permit. Sampling must be analyzed by a certified lab. These lab results will be sent to the EPA after each quarter during each permit year. The same Pollution Team Member will do the sampling each time throughout the duration of this permit, if at all possible.

Sampling will commence following either October 1, 2015 or your date of discharge authorization, whichever date comes later.

The sampling will be for the following parameters:

Parameter	***Benchmark Monitoring Concentration***
Total Recoverable Aluminum	0.75 mg/L
Total Recoverable Iron	1.0 mg/L
Total Recoverable Lead	0.21 mg/L
Total Recoverable Copper	0.0048

Samples must be analyzed consistent with 40 CFR Part 136 analytical methods and using test prcedures with quantitation limits at or below benchmark values for all benchmark parameters for which sampling is required. With the first sampling analytical report to EPA a hardness value should be included.

All samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The sample shall be taken during the first 30 minutes of the discharge. If the

collection of a sample during the first 30 minutes is impracticable, a sample can be taken during the first hour of the discharge, and the discharger must submit with the monitoring report a description of why a sample during the first 30 minutes was impracticable.

After collection of 4 quarterly samples, if the values for any parameter does not exceed the benchmark, our monitoring requirements have been fulfilled for that parameter for the term of the permit. The State of Massachusetts requirements for this sampling requirement are different. If our results go over the benchmark for even one quarter, we have to keep sampling for that parameter till we get four samples in a row that do not exceed. And there are reporting requirements to Massachusetts also when we have had exceedances.

Conversely if any parameter exceeds the benchmark, control measures have to be reviewed to determine any necessary modifications. Then an additional 4 quarters of sampling has to be done for that parameter until the value is at or below the benchmark.

Natural background pollutant levels should also be considered whenever there is an exceedance of the benchmark.

In addition, because **Vineyard Haven Harbor (Segment ID# MA97-09_2012) is considered Impaired Waters**, once a year we are to sample for the impairment, Pathogens. It has been determined the Pathogen to test for is fecal coliform (there is no EPA TMDL at this time).

A summary of existing discharge sampling data describing pollutants in storm water discharges from Martha's Vineyard Shipyard can be found in **Attachment 4**. Also included will be all sampling data collected during the term of this permit.

Sampling results must be submitted to EPA no later than 30 days after receiving laboratory results for each quarter that benchmark samples are required to be collected. For any of monitored outfalls that did not have a discharge within the reporting period, we must report using NetDMR that there was "no data" for that outfall no later than 30 days after the end of the reporting period.

B. Inspections

Routine Inspections: These should be done at least quarterly, and can be more frequently (monthly). Qualified facility personnel shall be identified to do routine inspections of designated equipment and areas of the facility (with at least one member of our SWPPP Team). Material handling, material storage, pressure washing, blasting/sanding, painting, engine repair and maintenance, dry dock and general yard areas must be inspected for evidence of, or the potential for, pollutants entering the drainage system. Each discharge point (outfall)

should be inspected. A set of tracking or follow up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained on site for a minimum of (5) years. **Attachment 8** contains a chart of designated equipment / areas that will be inspected as well as an inspection report. At least one inspection should be done during a storm event.

Quarterly Visual Examinations: Visual examinations must also be conducted on a **discharge sample**. All grab samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The sample shall be taken during the first 30 minutes of the discharge. If the collection of a sample during the first 30 minutes is impracticable, a sample can be taken during the first hour of the discharge, and the discharger should note on his report a description of why a sample during the first 30 minutes was impracticable. The examination shall include any observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, or other obvious indications of storm water pollution. The same member of the SWPPP Team will do these QVE's each time.

Copies of the Visual Examination Reports will be kept with this plan. See **Attachment 8** for copy of report.

The same Pollution Prevention Team Member will do the collection and examination of discharges for the entire permit term, if possible.

Annual Report (Part 7.5): In the 2015 MSGP, EPA is retaining the requirement to submit electronically an annual report. The annual report must include a summary of the routine site inspection and visual assessment findings, corrective action documentation and any noncompliance observed and, when applicable, the rationale for why it is believed that no further pollutant reductions are achievable when a four-quarter average benchmark is exceeded. Annual reports must be submitted electronically by January 30th for each year of permit coverage. See **Attachment 8** for copy of report.

C. Employee Training

Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan. And anyone otherwise responsible for storm water management, at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training will address such topics as spill prevention and response, good housekeeping practices, material management practices, used oil management, spent solvent management, disposal of spent abrasives, disposal of vessel waste waters, fueling procedures, painting and sanding procedures, and used battery

management. These trainings are to be held at a minimum annually, and at any time a change in operations may affect the Storm Water Permit. A list of all trained personnel is found in **Attachment 9**.

D. Record Keeping and Internal Reporting Procedures

A description of incidents, such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges shall be included in the pollution prevention plan. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.

E. Corrective Actions

A corrective action is any action taken, or required to be taken, to (1) repair, modify, or replace any stormwater control used at the site; (2) clean up and dispose of spills, releases, or other deposits found on the site; and (3) remedy a permit violation. There are a variety of issues that can trigger the needing of a corrective action, some of those include, but are not limited to:

An unauthorized release or discharge;
Control measures not being affective, never installed, installed incorrectly;
Visual assessment shows evidence of stormwater pollution;
Construction or design change that affects the nature of the pollutants discharged in the stormwater;
The average of our four quarterly sampling results exceeds the applicable Benchmark. This is considered a benchmark exceedance and triggers this review.

When any of these conditions exist that trigger a corrective action, we must take immediate action (immediate means same day) to minimize or prevent pollutant discharges until a permanent solution is implemented. A permanent solution must be put in place no later than 14 days, or if for some reason the time framework is not feasible the corrective action should be completed as soon as practicable after the 14 days.

If the event requiring the corrective action is a permit violation, completing the corrective action does not eliminate the permit violation. In addition, failing to complete a corrective action is a violation of the permit.

Documentation of the Corrective Action is required. A report documenting the basic information describing the triggering event and our response to that event is required. Date of the event and of the corrective action, and any follow up to the event is to be listed. This information is to be kept with the plan and in some cases included in the reports provided to EPA. See **Attachment 8** for

report.

VI. ELIGIBILITY CONSIDERATIONS

A. Endangered Species or Critical Habitat Located Within Discharge Area

There are endangered or threatened species on or in the immediate vicinity of Martha's Vineyard Shipyard property. This was confirmed by requesting an environmental review of the most current information available with USFWS and NMFS. See **Attachment 12** as documentation of this.

The following listed rare species have been found in the vicinity of our site:

ESA –

Northern long-eared Bat, threatened (No critical habitat listed for these)
Red Knot, threatened (No critical habitat listed for these)
Roseate Tern, endangered (No critical habitat listed for these)

Aquatic species -

Shortnose & Atlantic Sturgeon
Atlantic Large Whales
Sea Turtles

Presently there are no projects or activities at our site that would cause any concern for harm to the above listed rare species.

Therefore we qualify under Criterion C. See **Attachment 12** as documentation of this.

B. Historic Properties Located Within Discharge Area

The property is not located on or near any Historic Properties. This was confirmed by reviewing the Massachusetts Register of Historic Places.

Therefore we qualify under Criterion A.

SITE PLANS

Attachment 1

Attachment 1A

FOR ADDITIONAL INFORMATION

REGARDING SITE PLAN

CONTACT FACILITY DIRECTLY

INVENTORY OF EXPOSED MATERIALS

Attachment 2

The following chart includes the current and *previous three years* management practices for handling, treating, storing, and disposal of significant materials at the facility site.

INVENTORY OF EXPOSED MATERIALS

Exposed Materials	Location	Method of Storage/Disposal	Material Management Practice
Paints, Solvents, All Metals, Fiberglass Dust	Railways, Main Yard	Dumpster, Drums	Tarps, Curtains
Paints, Solvents, All Metals, Fiberglass Dust	Paint Shop, Workshop	Dumpster, Drums	Sweeping Daily
Metals	Mechanic Shop	Dumpster, Drums	Sweeping Daily
Fuel, Engine Oil, Hydraulic Oil, Solvents	Mechanic Shop Unload Area	Dumpster, Drums	Dispose of Greasy Rags, Oil, Antifreeze, Filters, Air Filters, Batteries, Used Oil
Antifreeze, Metals	Mechanic Shop Unload Area	Holding Tanks	Dispose of Greasy Rags, Oil, Antifreeze, Filters, Air Filters, Batteries, Used Oil
Diesel, Gasoline	Fueling Areas	Diesel (6 Gal. Containers only) Gasoline (6 Gal. Containers only)	Do not top off tanks, clean up spills with absorbents
All Material	Shipboard Process, Water Handling	Drums, Absorbents	Keep Process Water, Cooling Water, Sanitary Wastes, Fuels, Solvent, Paint Separate

RECORD OF SIGNIFICANT SPILLS AND LEAKS

Attachment 3

No spill of toxics or hazardous pollutants has occurred in an appreciable amount and none has been discharged to the waters of the U.S. within the last three years, unless it is listed below.

RECORD OF SIGNIFICANT SPILLS OR LEAKS

Date	Location of Spill	Material Involved	Quantity of Material Spilled	Source of Spill	Cause of Spill	Cleanup Response

SAMPLING DATA

Attachment 4

NPDES FORM 6100-29	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 MSGP INDUSTRIAL DISCHARGE MONITORING REPORT (DMR) FORM	Form Approved. OMB No. 2040-0004

A. Approval to Use Paper DMR Form

1. Have you been granted a waiver from electronic reporting from the EPA Regional Office*? ☐ YES ☐ NO

If yes, check which waiver you have been granted, the name of the EPA Regional Office staff person who granted the waiver, and the date of approval:

Waiver granted:
- ☐ The owner/operator's headquarters is physically located in a geographic area (i.e., ZIP code or census tract) that is identified as under-served for broadband Internet access in the most recent report from the Federal Communications Commission.
- ☐ The owner/operator has issues regarding available computer access or computer capability.

Name of EPA staff person that granted the waiver:

Date approval obtained: / /

*** Note: You are required to obtain approval from the applicable EPA Regional Office prior to using this paper DMR form. If you have not obtained a waiver, you must file this form electronically using the NetDMR at http://www.epa.gov/netdmr/**

B. Permit Information

1. NPDES ID:

2. Reason(s) for Submission (Check all that apply):

- ☐ Submitting monitoring data (Fill in all Sections).
- ☐ Reporting no discharge for all outfalls for this monitoring period (Fill in Sections A, B, C, D, E.1, and G).
- ☐ Reporting that your site status has changed to inactive and unstaffed (Fill in Sections A, B, C, D, and F and include date of status change in comment field in Section F.4).
- ☐ Reporting that your site status has changed to active (Fill in all Sections and include date of status change in comment field in Section F.4).
- ☐ Reporting that no further pollutant reductions are achievable for all outffalls and for all pollutants via Part 6.2.1.2 of the MSGP (Fill in Sections A, B, C, D, and G).

C. Facility Operator Information

1. Operator Information

Operator Name:

Mailing Address:

Street:

City: State: ZIP Code: -

Phone: - - Ext.

E-mail:

2. DMR Preparer (Complete if DMR was prepared by someone other than the certifier):

First Name, Middle Initial, Last Name:

Organization:

Phone: - - Ext.

E-mail:

D. Facility Information

1. Facility Name:

2. Facility Address:

Street/Location:

City: State: ZIP Code: -

County or Similar Government Subdivision:

E. Discharge Information

1. Identify monitoring period:

☐ Check here if proposing alternative monitoring periods due to irregular stormwater runoff. Identify alternative monitoring schedule and indicate for which alternative monitoring period you are reporting monitoring data:

☐ Quarter 1 (January 1 – March 31) ☐ Quarter 1: From / To /

☐ Quarter 2 (April 1 – June 30) ☐ Quarter 2: From / To /

☐ Quarter 3 (July 1 – September 30) ☐ Quarter 3: From / To /

☐ Quarter 4 (October 1 – December 31) ☐ Quarter 4: From / To /

2. Are you required to monitor for cadmium, copper, chromium, lead, nickel, silver, or zinc in freshwater? ☐ Yes (Skip to 3) ☐ No (Skip to 4)

3. What is the hardness level of the receiving water? (mg/L)

4. Does your facility discharge into any saltwater receiving waters? ☐ Yes ☐ No

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460
MSGP INDUSTRIAL DISCHARGE MONITORING REPORT (DMR)

EPA

Form Approved. OMB No. 2040-0004

F. Monitoring Information **Note: Make additional copies of this form as necessary.**

1. Nature of Discharge: ☐ Rainfall (Complete line items 2.a., 2.b., & 2.c.) ☐ Snowmelt

2.a. Duration of the rainfall event (hours): ☐☐ 2.b. Rainfall amount (inches): ☐☐.☐ 2.c. Time since previous measurable storm event (days): ☐☐☐

3.a. Outfall ID (list the same 3-digit outfalls identified on the NOI form)	3.b. Check if Any Outfalls are Substantially Identical to Other Outfalls Listed	3.c. Check if No Discharge	3.d. Monitoring Type QBM, ELG, S/T, I, O*	3.e. Parameter	3.f. Quality or Concentration	3.g. Units	3.h. Results Description	3.i. Collection Date	3.j. Exceedance due to natural background pollutant levels	3.k. No further pollutant reductions achievable?
		☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐
	☐ Substantially identical to outfall:_______	☐							☐	☐

* (QBM) - Quarterly benchmark monitoring; (ELG) - Annual effluent limitations guidelines monitoring; (S/T) - State- or tribal-specific monitoring; (I) - Impaired waters monitoring; (O) -Other monitoring as required by EPA

4. Comment and/or Explanation of Any Violations (Reference all attachments here)

G. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

First Name, Middle Initial, Last Name:

Title:

Signature: _____ Date: / /

E-mail:

Instructions for Completing EPA Form 6100-29

Discharge Monitoring Report (DMR) for Stormwater Discharges Associated with Industrial Activity Under the NPDES Multi-Sector General Permit

NPDES Form Date (06/15) Form Approved OMB No. 2040-0004

Who Must Submit A Discharge Monitoring Report to EPA?

Facilities covered under the Multi-Sector General Permit (MSGP or permit) that are required to monitor pursuant to Parts 6.2 and 8 of the permit must submit Discharge Monitoring Reports (DMRs) consistent with the reporting requirements specified in Part 7.1 of the permit.

Completing the Form

Obtain and read a copy of the 2015 MSGP, viewable at http://water.epa.gov/polwaste/npdes/stormwater/EPA-Multi-Sector-General-Permit-MSGP.cfm. To complete this form, type or print, using uppercase letters, in the appropriate areas only. Please place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use only one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response. Please submit original document with signature in ink - do not send a photocopied signature. **Photocopy your DMR form for your records before you send the completed original form to the appropriate address.**

Section A. Approval to Use Paper DMR Form

You must indicate whether you have been granted a waiver from electronic reporting from the EPA Regional Office. Note that you are not authorized to use this paper DMR form unless the EPA Regional Office has approved its use. Where you have obtained approval to use this form, indicate the waiver that you have been granted, the name of the EPA staff person who granted the waiver, and the date that approval was provided. See http://water.epa.gov/polwaste/npdes/stormwater/EPA-Multi-Sector-General-Permit-MSGP.cfm for a list of EPA Regional Office contacts.

Section B. Permit Information

Provide the NPDES ID (i.e., NOI tracking number) assigned to the facility for which this DMR is being submitted.

Indicate your reason(s) for submitting this DMR by checking all boxes that apply. The reasons for submission are defined as follows:

- *Submitting monitoring data*: For each storm sampled, submit one DMR form with data for all outfalls sampled. Select this reason even if you only have monitoring data for some of your outfalls (i.e., some outfalls did not discharge). If you select this reason you are required to complete all Sections of the form.
- *Reporting no discharge for all outfalls for this monitoring period*: Indicates that there were no discharges from all outfalls during this monitoring period. If you select this reason you are only required to complete Sections A, B, C, D, E.1, and G.
- *Reporting that your site status has changed to inactive and unstaffed*: Indicates that your facility is currently inactive and unstaffed (See Part 6.2.1.3 of the permit for more information). If you select this reason you are only required to complete Sections A, B, C, D, and F and include date of status change in comment field in Section F.4
- *Reporting that your site status has changed from inactive to active*: Indicates that your facility is currently active (See Part 6.2.1.3 of the permit for more information). If you select this reason you are required to complete all Sections of the form and include date of status change in the comment field in Section F.4.
- *Reporting that no further reductions are achievable for all outfalls and for all pollutants via Part 6.2.1.2 of the permit*: Indicates that you have determined that no further pollutant reductions are technologically and economically practicable in light of best industry practice to meet the technology-based effluent limits or are necessary to meet the water-quality-based effluent limitations in Parts 2 of the permit (See Part 6.2.1.2 of the permit for more information). If you select this reason you are required to complete Sections A, B, C, D and G. However, if you can make this finding for some outfalls and pollutants, but not for others, you cannot select this reason; you will instead be able to identify which outfalls and which pollutants you can make this finding for in Section F.

Section C. Facility Operator Information.

Provide the legal name of the person, firm, public organization, or any other entity that operates the facility for which this DMR is being submitted. An operator of a facility is the legal entity that controls the operation of the facility. Refer to Appendix A of the permit for the definition of "operator". Provide the operator's mailing address, phone number, and e-mail. The operator information in this Section should match the operator information provided on your NOI form.

Provide the name, organization, phone number, an email address for the person who prepared this DMR form.

Section D. Facility Information

Enter the official or legal name and complete street address, including city, state, ZIP code, and county or similar government subdivision of the facility. If the facility lacks a street address, indicate the general location of the facility (e.g., Intersection of State Highways 61 and 34). Complete facility information must be provided for permit coverage to be granted. The facility information in this Section should match the facility information provided on your NOI form.

Section E. Discharge Information.

Indicate the appropriate monitoring period (Quarter 1, 2, 3, or 4) covered by the DMR. "Alternative" monitoring periods can apply to facilities located in arid and semi-arid climates, or in areas subject to snow or prolonged freezing. To use alternative monitoring periods, you must provide a revised monitoring schedule here. If using alternative monitoring periods, identify the first day of the monitoring period through the last day of the monitoring period for each of the four periods. The dates should be displayed as month (Mo) / day (Day). See Parts 6.1.6 and 6.1.7 of the permit for more information.

If you are submitting benchmark monitoring data, identify if your facility is required to collect benchmark samples for one or more hardness-dependent metals (i.e., cadmium, copper, lead, nickel, silver, and zinc). If you select "yes" to this question provide the hardness level of the receiving water (in mg/L)). If you select "no" to this question, you must identify if your facility discharges into any saltwater receiving waters.

F. Monitoring Information

For the reported monitoring event indicate whether the discharge was from a rainfall or snowmelt event. If you select "rainfall" then indicate the duration (in hours) of the rainfall event, rainfall total (in inches) for that rainfall event, and time (in days) since the previous measurable storm event in line items 2.a-c. For both rainfall and snowmelt monitoring, you must identify the date of collection for the monitoring event in column 3.i. of the table. If the discharge occurs during a period of both rainfall and snowmelt, check both the rainfall and snowmelt boxes and report the appropriate rainfall information in item 2.a-c. To report multiple monitoring events in the same reporting period, copy this form and enter each monitoring event separately with data for all outfalls sampled.

Identify all the outfalls from your facility that discharge stormwater. Each outfall must be assigned a unique 3-digit number (e.g., 001, 002, 003), and should match the outfalls identified on your NOI form.

If any outfalls are substantially identical, check the box in 3.b and identify the outfall that the outfall in 3.a is substantially identical to. In 3.d – k, you only need to provide benchmark monitoring data for one of the outfalls.

For any outfall for which there was no discharge during the monitoring period, check the box in 3.

In 3.d, identify the type of monitoring using the specified codes, in parentheses, below:

- (QBM) – Quarterly benchmark monitoring
- (ELG) – Annual effluent limitations guidelines monitoring;
- (S/T) – State- or Tribal-specific monitoring;
- (I) – Impaired waters monitoring; or
- (O) – Other monitoring as required by EPA.

In 3.e, enter each "parameter" (or "pollutant") monitored. For QBM and ELG monitoring, use the same parameter name as in Part 8 of the permit.

In 3.f., enter a sample measurement value for each parameter analyzed and required to be reported. Enter "ND" (i.e., not detected) for any sample results below the method detection limit or "BQL" (i.e., below quantitation limit) for sample results above the detection limit but below the quantitation limit.

In 3.g., enter the units for sample measurement values (i.e., "mg/L" for milligrams per liter) for each parameter analyzed and required to be reported. For monitoring results reported as ND or BQL this space will be left blank and the units will be reported in Column 3.f.

3.h. must be completed for any monitoring results reported as ND or BQL in the "Quality or Concentration" column. For ND, report the laboratory detection level and units in this column. For BQL, report the laboratory quantitation limit and units in this column.

In 3.i. identify the sampling date for each parameter monitoring result reported on this form.

3.h. *Exceedance due to natural background pollutant levels:* Check box if following the first 4 quarters of benchmark monitoring (or sooner if the exceedance is triggered by less than 4 quarters of data) you have determined that the exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background for that outfall and any substantially identical outfalls, or for impaired waters monitoring, the presence of the pollutant is caused solely by natural background. See Part 6.2.1.2 and 6.2.4.1 of the permit for more information.

In 3.j .check the box if after collection of 4 quarterly samples (or sooner if the exceedance is triggered by less than 4 quarters of data), the average of the 4 monitoring values for any parameter exceeds the benchmark and you have made the determination that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice to meet the technology-based effluent limits or are necessary to meet the water-quality-based effluent

Where violations of the permit requirements are reported, include a brief explanation to describe the cause and corrective actions taken, and reference each violation by date. Also, this section should include any additional comments such as are required when changing site status from inactive and unstaffed to active or vice versa. Attach additional pages if you need more space.

Attach additional copies of Section F as necessary to address all outfalls and parameters.

Section G. Certification Information

DMRs must be signed by a person described below, or by a duly authorized representative of that person.

For a corporation: By a responsible corporate officer. For the purpose of this Section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this Part, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA). Include the name and title of the person signing the form and the date of signing.

Instructions for Completing EPA Form 6100-29

Discharge Monitoring Report (DMR) for Stormwater Discharges Associated with Industrial Activity Under the NPDES Multi-Sector General Permit

NPDES Form Date (06/15) Form Approved OMB No. 2040-0004

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above;

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and

3. The written authorization is submitted to the Director.

An unsigned or undated DMR form be considered incomplete.

Paperwork Reduction Act Notice

Public reporting burden for this form is estimated to average 7.25 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number of this form on any correspondence. Do not send the completed DMR form to this address.

Submitting Your Form

If you have been granted a waiver from your Regional Office to submit a paper DMR form, you must send your DMR form by mail to one of the following addresses:

Region 1
MSGP Discharge Monitoring Reports (OES4-SMR)
EPA New England, Region 1
5 Post Office Square - Suite 100
Boston, MA 02109-3912

Region 2
MSGP Discharge Monitoring Reports
290 Broadway
DECA/CAPBS/DMT
21st Floor
New York, NY, 10007-1866

Region 3
Nancy Ford
U.S. EPA Region 3
1650 Arch Street
Mail Code #3WP60
Philadelphia, PA 19103

Region 5
U.S. Environmental Protection Agency Region 5
77 West Jackson Boulevard (WN-16J)
Chicago, Illinois 60604
Attn: Brian Bell - Storm Water Coordinator

Region 6
U.S. EPA, Region 6 MSGP DMRs
Water Enforcement Branch (6EN-WC)
1445 Ross Avenue
Dallas, TX 75202

Region 7
Neal Gilbert
U.S. Environmental Protection Agency, Region 7
Enforcement Coordination Office
11201 Renner Blvd
Lenexa, KS 66219

Region 8
U.S. EPA, Region 8 (ENF-PJ)
Attention: DMR Coordinator
1595 Wynkoop Street
Denver, CO 80202-1129

Region 9
Sandra Chew
U.S. EPA Region 9
Information Management Section, ENF-4-1
75 Hawthorne Street
San Francisco, CA 94105

Region 10
U.S. EPA Region 10
Attn: NPDES Data Manager, OCE-101
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

Visit this website for instructions on how to submit electronically:
http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-eNOI-System-for-EPAs-MultiSector-General-Permit.cfm

RISK IDENTIFICATION

Attachment 5

RISK IDENTIFICATION

This Boat Building and Repair facility includes the following activities or operations: Fiberglass repairs, sandblasting, welding, painting, engine repair and lubrication. In addition the facility does have a paint and hazardous waste storage area. Also, materials unloading area (from trucks) and employee parking area.

Sandblasting is done in the main yard (concrete surface) and swept daily. It is also done in the railway area. The materials are periodically, as well as on completion, removed from the area, tested, containerized and disposed of as required under Federal and State laws.

Pressure washing is done in the travel lift area. (Concrete surface) Water is contained and recycled.

Metal fabrications are done in the Mechanic Shop.

Welding and torch cutting is done on board vessels, and main yard.

The paint application is done by brush, roller and spraying. Most of which is done in the Paint Spray Building. Some is done in the main yard.

The facility has paint and solvent storage containment areas inside of buildings.

The facility has a hazardous waste storage containment area (see site map).

Fueling is done to yard equipment and vessels by portable containers.

RISK IDENTIFICATION CHART

Activities	Significant Source of Pollutants	Pollutant Parameters
A. Pressure Washing	Wash Water	Paints solids, heavy metals, suspended solids
B. Surface Preparation Paint Removal Sanding	Sanding; mechanical grinding; abrasive blasting; paint stripping.	Spent abrasives, paint solids, heavy metals, solvents, dust
C. Painting	Paint and paint thinner spills; spray painting; paint stripping; sanding; paint cleanup	Paint solids, spent solvents, heavy metals, dust
D. Engine Maintenance and Repairs	Parts cleaning; waste disposal of greasy rags, used fluids, and batteries; use of cleaners & degreasers; fluid leaks; fluid replacement.	Spent solvents, oil, heavy metals, ethylene glycol, acid/alkaline wastes, detergents, diesel, and gasoline.
E. Material Handling: Transfer, Storage, Disposal	Fueling; spills, leaks; and hosing area..... Liquid Storage in Portable Containers: spills and overfills; external corrosion; failure of piping systems. Waste Material Storage and Disposal: paint solids; solvents; trash; spent abrasives, petroleum products	Fuel, oil, heavy metals Fuel, oil, heavy metals, material being stored. Paint solids, heavy metals, spent solvents, oil.
F. Shipboard Processes improperly discharged to storm sewer or into receiving water.	Process & cooling water; sanitary waste; bilge & ballast water.	Biochemical oxygen demand (BOD), bacteria, suspended solids, oil, fuel.

BEST MANAGEMENT PRACTICES

Attachment 6

ACTIVITY	BEST MANAGEMENT PRACTICES
Pressure Washing	Collect discharge water or recycle water. Have all collected water and filter media tested before disposal. Perform pressure washing only in designated areas where wash water containment can be effectively achieved. Use no detergents or additives in the pressure wash water. Direct deck drainage to a collection system sump for settling and/or additional treatment. Use solid decking, gutters, and sumps at lift platforms to contain and collect wash water for reuse.
Surface preparation, sanding, and paint removal	Enclose, cover, or contain blasting and sanding activities to prevent abrasives, dust, and paint chips from reaching storm sewers or receiving water. Cover drains, trenches, and drainage channels to prevent entry of blasting debris. Prohibit uncontained blasting or sanding activities performed over open water. Prohibit blasting or sanding activities performed during windy conditions which render containment ineffective. Inspect and clean sediment traps to ensure the interception and retention of solids prior to entering the drainage system. Collect spent abrasives routinely and store under a cover to await proper disposal.

Material Handling: Bulk liquid storage and containment	Store permanent tanks on an impervious surface surrounded by a dike system which provides sufficient containment for the larger of either 10 percent of the volume of all containers or 110 percent of the volume of the largest tank. Maintain good integrity of all storage tanks. Inspect storage tanks to detect potential leaks and perform preventive maintenance. Inspect piping systems (pipes, pumps, flanges, couplings, hoses, valves) for failures or leaks. Train employees on proper filling and transfer procedures.
Painting	Enclose, cover, or contain painting activities to the maximum extent practical to prevent over spray from reaching the receiving water. Prohibit uncontained spray painting activities over open water. Use low pressure spray guns. Brush or roll paint whenever possible. Use low VOC products. Clean and empty all paint, solvent and spray cans before disposal. Mix paints and solvents in designated areas away from drains, ditches, piers, and surface waters, preferably indoors or under cover. Have absorbent and other cleanup items readily available for immediate cleanup of spills. Keep paint and paint thinner away from traffic areas to avoid spills. Recycle paint, paint thinner, and solvents.

	Train employees on proper painting and spraying techniques, and use effective spray equipment that delivers more paint to the target and less over spray.
Engine maintenance and repairs	Maintain an organized inventory of materials used in the maintenance shop. Dispose of greasy rags, oil filters, air filters, fuel filters batteries, spent coolant, and degreasers properly. Label and track the recycling of waste material (i.e., used oil, spent solvents, batteries, waste water, antifeeze). Punch and drain oil filters before disposal or recycling. Store cracked batteries in a non leaking secondary container. Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. Do not pour liquid waste down floor drains, sinks, or outdoor storm drain inlets. Plug floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Inspect the maintenance area regularly for proper implementation of control measures. Train employees on proper waste control and disposal procedures.
Fiberglass	Collect all floor covering, masking paper, air filters, rags, rollers and brushes to be tested to determine disposal method.

Material Handling: Containerized material storage

Store containerized materials (fuels, paints, solvents, etc.) in a protected, secure location and away from drains.

Store reactive, ignitable, or flammable liquids in compliance with all fire codes.

Identify potentially hazardous materials, their characteristics, and use.

Control excessive purchasing, storage, and handling of potentially hazardous materials.

Keep records to identify quantity, receipt date, service life, and disposal routes.

Secure and carefully monitor hazardous materials to prevent theft, vandalism, and misuse of materials.

Provide sufficient containment for outdoor storage areas for the larger of either 10 percent of the volume of all containers or 110 percent of the volume of the largest tank.

Use temporary containment where required by portable drip pans.

Use spill troughs for drums with taps.

Train employees on proper storage, use, cleanup, and disposal of materials.

Designated material mixing areas

If spills occur,

- Contain the liquid until cleanup is complete
- Stop the source of the spill immediately
- Deploy oil containment booms if the spill may reach the water
- Cover the spill with absorbent material
- Keep the area well ventilated
- Dispose of cleanup materials properly
- Do not use emulsifier or dispersant

Nondrydock containment	Hang tarpaulin from the boat, fixed, or floating platforms to prevent pollutants transported by wind. Haul vessels beyond the high tide zone before work commences or halt work during high tide. Place plastic sheeting or tarpaulin underneath boats to contain and collect waste and spent materials and clean and sweep regularly to remove debris. Use fixed or floating platforms with appropriate plastic or tarpaulin barriers as work surfaces and for containment when work is performed on a vessel in the water to prevent blast material or paint over spray from contacting storm water or the receiving water. Sweep, rather than hose, debris present on the dock.
Shipboard process water handling	Keep process and cooling water used aboard ships separate from sanitary wastes to minimize disposal costs for the sanitary wastes. Keep process and cooling water from contact with spent abrasives and paint to avoid discharging these pollutants. Inspect connecting hoses for leaks.
Onboard sanitary waste disposal	Use appropriate material transfer procedures, including spill prevention and containment activities. Discharge sanitary wastes from the ship being repaired to the yard's sanitary system or dispose of by a commerical waste disposal company.
Bilge and Ballast water	Collect and dispose of bilge and ballast waters which contain oils, solvents, detergents, or other additives to a licensed waste disposal company.

Incoming Boats	Inspection upon arrival at the yard. Boats scheduled for maintenance or storage must be inspected for leaks and drips. Fluids from leaking boats must be drained immediately. If not possible, leaks must be addressed by using drip pans or some other containment method.
Equipment	Inspect all equipment for fuel and hydraulic leaks.
Dust Management	Minimize the generation of dust practices include: Vegetative cover, mulch, wind breaks (barriers either natural or constructed), Stone, and spray-on chemical soil treatments (palliatives).
Vehicle Tracking	Tracking of materials throughout the yard can be controlled by management of traffic patterns within our yard. Keep work areas, stored materials or materials that could be spilled away from all roads within our site.
Miscellaneous	Keep all trash containers and dumpster covered. Keep all metal structures, equipment and boat stands painted to prevent rusting or oxidation of metals. Keep all chains, anchors or other metal items covered. Do not throw nuts, bolts, nails, zinc anodes, lead ballast or other metal items on the ground or in water ways. Do not cut, grind or weld metal outside on the ground.

PREVENTIVE MAINTENANCE SCHEDULE

Attachment 7

The preventive maintenance program is aimed at preventing leaks of fluids from outdoor mechanical equipment. The preventative maintenance inspection will be performed with the inspections identified in Section V.B. This inspection will document the need for maintenance on the following form and the work will be scheduled accordingly.

PREVENTIVE MAINTENANCE SCHEDULE

Schedule Date	Location or Equipment	Conducted by	Comments and Observations	Follow up	Complete Date

INSPECTIONS

Attachment 8

In addition to the preventive maintenance program, and as part of the routine inspections in Section V.B., qualified facility personnel will inspect designated equipment and areas of the facility at intervals specified. The Inspection Report (next page) is filed with this SWPPP.

Equipment/Area to Inspect	Type of Inspection	Frequency	Designated Personnel
Gasoline (6 Gal. Containers)	Visual Inspection	Daily	
Diesel (6 Gal. Containers)	Visual Inspection	Daily	
All Yard Equipment Trucks	Visual Inspection Fuel Tanks & Lines	Daily	
Travel Lift Fork Lifts	Hydraulic Lines & Cylinders	Daily	

Any required maintenance, repairs, or modifications will be reported to the maintenance supervisor on the forms provided immediately if it is a problem requiring immediate action.

INSPECTION REPORT

Date of Inspection: _____

Area Inspected: _____

Inspection Findings:

_____

_____

_____

_____

_____

_____

_____

Follow Up Action Required

_____

_____

_____

_____

_____

_____

Completed By: _____

Title: _____

Date: _____

At least once each calendar year, this inspection must be conducted during a period when a stormwater discharge is occurring.

VISUAL EXAMINATION QUARTERLY REPORT

(Refer to Section 3.2.1 of Permit for visual examination requirements)

Date of Visual Examination: _____

Collection and Examination performed by: _____

Discharge Area: _____

Storm Data:

Rain Start Time - _____ Time Sample Taken: _____

Note – The sample should be taken during the first 30 minutes of the discharge. If impracticable, the sample can be taken during the first hour noting the reason why a sample could not be taken during the first 30 minutes.

Reason: _____

Inspection Findings:

Color: _____

Odor: _____

Clarity: _____

Floating Solids: _____

Settled Solids: _____

Suspended Solids: _____

Foam: _____

Oil Sheen: _____

Other: _____

_____

NPDES FORM 6100-28	EPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, DC 20460 ANNUAL REPORT FOR STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY UNDER THE NPDES THE NPDES MULTI-SECTOR GENERAL PERMIT	Form Approved. OMB No. 2040-0004

A. Approval to Use Paper Annual Report Form

1. Have you been granted a waiver from electronic reporting from the EPA Regional Office*? ☐ YES ☐ NO

If yes, check which waiver you have been granted, the name of the EPA Regional Office staff person who granted the waiver, and the date of approval:

Waiver granted:
- ☐ The owner/operator's headquarters is physically located in a geographic area (i.e., ZIP code or census tract) that is identified as under-served for broadband Internet access in the most recent report from the Federal Communications Commission.
- ☐ The owner/operator has issues regarding available computer access or computer capability.

Name of EPA staff person that granted the waiver:

Date approval obtained: / /

*** Note: You are required to obtain approval from the applicable EPA Regional Office prior to using this paper annual report form. If you have not obtained a waiver, you must file this form electronically using the NPDES eReporting Tool (NeT) at http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-eNOI-System-for-EPAs-MultiSector-General-Permit.cfm**

B. Permit Information

1. NPDES ID:

C. Facility Information

1. Facility Name:

2. Facility Phone: - - Ext.

3. Facility Mailing Address:

Street:

City: State: ZIP Code: -

County or Similar Government Subdivision:

4. Point of Contact:

First Name, Middle Initial, Last Name:

D. General Findings

1. Provide a summary of your past year's routine facility inspection documentation (see Part 3.1.2 of the permit). In addition, if you are an operator of an airport facility (Sector S) that is subject to the airport effluent limitations guidelines, and are complying with the MSGP Part 8.S.8.1 effluent limitation through the use of non-urea-containing deicers, provide a statement certifying that you do not use pavement deicers containing urea (e.g., "Urea was not used at [name of airport] for pavement deicing in the past year and will also not be used in 2015." (Note: Operators of airport facilities that are complying with Part 8.S.8.1 by meeting the numeric effluent limitation for ammonia do not need to include this statement.)

2. Provide a summary of your past year's quarterly visual assessment documentation (see Part 3.2.2 of the permit).

3. For any four-sample (minimum) average benchmark monitoring exceedance, if after reviewing the selection, design, installation, and implementation of your control measures and considering whether any modifications are necessary to meet the effluent limits in the permit, you determine that no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice, provide your rationale for why you believe no further reductions are achievable (see Part 6.2.1.2 of the permit). Enter "NA" if not applicable.

4. Provide a summary of your past year's corrective action documentation (See Part 4.4 of the permit). (Note: If corrective action is not yet completed at the time of submission of this annual report, you must describe the status of any outstanding corrective action(s).) Also describe any incidents of noncompliance in the past year or currently ongoing, or if none, provide a statement that you are in compliance with the permit.

E. Certification Information

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

First Name, Middle Initial, Last Name: _____ _____

Title: _____

Signature: _____ Date: ___/___/_____

E-mail: _____

Instructions for Completing the Annual Report Form

Annual Report for Stormwater Discharges Associated with Industrial Activity Under an NPDES General Permit

Who Must File an Annual Report

Operators must submit an Annual Report to EPA electronically, per Part 7.5, by January 30th for each year of permit coverage containing information generated from the past calendar year.

Completing the Form

To complete this form, type or print, using uppercase letters, in the appropriate areas only. Please place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use only one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response. Please submit original document with signature in ink - do not send a photocopied signature.

Section A. Approval to Use Paper Annual Report Form

You must indicate whether you have been granted a waiver from electronic reporting from the EPA Regional Office. Note that you are not authorized to use this paper form unless the EPA Regional Office has approved its use. Where you have obtained approval to use this form, indicate the waiver that you have been granted, the name of the EPA staff person who granted the waiver, and the date that approval was provided. See http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Contacts.cfm for a list of EPA Regional Office contacts.

Section B. Permit Information

Provide the NPDES ID (i.e., NOI tracking number) assigned to your facility.

Section C. Facility Information

Enter the official or legal name, phone number, and complete street address, including city, state, ZIP code, and county or similar government subdivision, for the facility that is covered by the NPDES ID identified in Section B. If the facility lacks a street address, indicate the general location of the facility (e.g., Intersection of State Highways 61 and 34). Also provide a point of contact name for the facility.

Section D. General Findings

To complete this section you must provide the following information in your annual report:

1. A summary of your past year's routine facility inspection documentation required by Part 3.1.2 of the permit.
2. A summary of your past year's quarterly visual assessment documentation required by Part 3.2.2 of the permit.
3. If, after finding the average of your four monitoring values for any pollutant exceeds the benchmark, you decide no further pollutant reductions are technologically available and economically practicable and achievable in light of best industry practice, your rationale for why you believe no further reductions are achievable.
4. Information copied or summarized from the corrective action documentation required per Part 4.4 (if applicable). If corrective action is not yet completed at the time of submission of this Annual Report, you must describe the status of any outstanding corrective action(s). You must also describe any incidents of noncompliance in the past year or currently ongoing, or if none, provide a statement that you are in compliance with the permit.

Section E. Certification Information

The Annual Report must be signed by a person described below, or by a duly authorized representative of that person.

For a corporation: By a responsible corporate officer. For the purpose of this Section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

For a partnership or sole proprietorship: By a general partner or the proprietor, respectively; or

For a municipality, state, federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this Part, a principal executive officer of a federal agency includes (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrator of EPA). Include the name and title of the person signing the form and the date of signing.

A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above;

2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company, (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) and

3. The written authorization is submitted to the Director.

An unsigned or undated Annual Report form be considered incomplete.

Paperwork Reduction Act Notice

Public reporting burden for this form is estimated to average 2.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number of this form on any correspondence. Do not send the completed Annual Report form to this address.

Instructions for Completing the Annual Report Form

Annual Report for Stormwater Discharges Associated with Industrial Activity Under an NPDES General Permit

Submitting Your Form

If you have been granted a waiver from your Regional Office to submit a paper Annual Report form, you must send your Annual Report form by mail to one of the following addresses:

For Regular U.S. Mail Delivery:

Stormwater Notice Processing Center
Mail Code 4203M, ATTN: 2015 MSGP Reports
U.S. EPA
1200 Pennsylvania Avenue, NW
Washington, DC 20460

For Overnight/Express Mail Delivery:

Stormwater Notice Processing Center
William Jefferson Clinton East Building - Room 7420
ATTN: 2015 MSGP Reports
U.S. EPA
1201 Constitution Avenue, NW
Washington, DC 20004

Visit this website for instructions on how to submit electronically:
http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-eNOI-System-for-EPAs-MultiSector-General-Permit.cfm

Corrective Action Documentation

You must document the existence of any of the conditions listed in Parts 4.1 or 4.2 of the Permit within 24 hours of becoming aware of such condition.

You are not required to submit your corrective action documentation to EPA, unless specifically requested to do so. However, you must summarize your findings in the annual report per Part 7.5.

Include the following information in your documentation:

- Description of the condition triggering the need for corrective action review. For any spills or leaks, include the following information: a description of the Page 28 Multi-Sector General Permit (MSGP) incident including material, date/time, amount, location, and reason for spill, and any leaks, spills or other releases that resulted in discharges of pollutants to waters of U.S., through stormwater or otherwise;
- Date the condition was identified;
- Description of immediate actions taken pursuant to Part 4.3.1 to minimize or prevent the discharge of pollutants. For any spills or leaks, include response actions, the date/time clean-up completed, notifications made, and staff involved. Also include any measures taken to prevent the reoccurrence of such releases (see Part 2.1.2.4); and
- A statement, signed and certified in accordance with Appendix B, Subsection 11.

You must also document the corrective actions taken or to be taken as a result of the conditions listed in Part 4.1 or 4.2 (or, for triggering events in Part 4.2 where you determine that corrective action is not necessary, the basis for this determination) within 14 days from the time of discovery of any of those conditions. Provide the dates when each corrective action was initiated and completed (or is expected to be completed). If applicable, document why it is infeasible to complete the necessary installations or repairs within the 14-day timeframe and document your schedule for installing the controls and making them operational as soon as practicable after the 14-day timeframe.

If you notified EPA regarding an extension of the 45 day timeframe, you must document your rationale for an extension. 4.5 Effect of Corrective Action.

If the event triggering the review is a permit violation (e.g., non-compliance with an effluent limit), correcting it does not remove the original violation.

Additionally, failing to take corrective action in accordance with this section is an additional permit violation. EPA will consider the appropriateness and promptness of corrective action in determining enforcement responses to permit violations.

EMPLOYEE TRAINING

Attachment 9

EMPLOYEE TRAINING SCHEDULE

Training Topic	Instructor	Dates of Training	Personnel Attending
Review 2008 MSGP, BMP's, Sampling, Inspections, and NOI filing.	J. Cormier J. Furrh D. Gray, EPA	12/16/08	Philip Hale
Review of Pollution Prevention Plan, 2015 Permit Requirements, BMP's, and electronic filing of DMR's & Annual Reports.	J. F. Cormier J. W. Furrh C. Silva D. Lonczak	12/12/2015	James Hale Philip Hale

NON-STORM WATER DISCHARGES

Attachment 10

AUTHORIZED NON-STORM WATER DISCHARGES

uthorized by Regulation:	Outfalls:
Discharges from firefighting activities	
Fire hydrant flushing	
Potable water sources, including water line flushing	
Irrigation drainage	
Lawn watering	
Routine external building wash down which does not use detergents or other compounds	
Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used.	
Air conditioning condensate	
Springs	
Uncontained ground water	
Foundation or footing drains where flows are not contaminated with processed materials such as solvents	

****

Non-Industrial Discharges*:	Outfalls:

*See statement on the Certification.

SEDIMENT AND EROSION CONTROL

Attachment 11

Facility Related Sediment and Erosion Control Log

Outfall	Location Within Site	Factors Contributing to Erosion	Best Management Practices Applicable for Area	Follow Up Action	Date Completed

ENDANGERED SPECIES

Attachment 12

Criterion C Eligibility Form

Instructions:

In order to be eligible for coverage under criterion C, you must complete the following form and you must submit it to EPA following the instructions in Section VII a **minimum of 30 days prior to filing your NOI for permit coverage.** After you submit your form, you may be contacted by EPA with additional measures (e.g., additional stormwater controls or modifications to your discharge-related activities) that you must implement in order to ensure your eligibility under criterion C.

If after completing this worksheet you cannot make a determination that your discharges and discharge-related activities are not likely to adversely affect listed threatened or endangered species or designated critical habitat, you must submit this completed worksheet to EPA, and you may not file your NOI for permit coverage until you receive a determination from EPA that your discharges and/or discharge-related activities are not likely to adversely affect listed species and critical habitat.

Note: Much of the information needed for this form can be obtained from your draft SWPPP which will be needed when you file your NOI.

SECTION I. OPERATOR, FACILITY, AND SITE LOCATION INFORMATION.

1) **Operator Information**

a) **Operator Name:** Martha's Vineyard Shipyard Inc.

b) **Point of Contact**

First Name: Philip **Last Name:** Hale

Phone Number: 508-693-0400

E-mail: hale@mvshipyard.com

2) **Facility Information**

a) **Facility Name:** Martha's Vineyard Shipyard

b) **Check which of the following applies:**

☐ I am seeking coverage under the MSGP as a new discharger or as a new source

☐ I am seeking coverage under the MSGP as an existing discharger and my facility has modifications to its discharge characteristics (e.g., changes in discharge flow or area drained, different pollutants) and/or discharge-related activities (e.g., stormwater controls)

Indicate the number of years the facility has been in operation: _____ years

Provide your NPDES ID (i.e., permit tracking number) from your previous MSGP coverage: _____

☒ I am seeking coverage under the MSGP as an existing discharger and there are no modifications to my facility.

Indicate the number of year the facility has been in operation: 30+ years

Provide your NPDES ID (i.e., permit tracking number) from your previous MSGP coverage: MAR05CW05

c) Facility Address:

Address 1: 164 Beach Road

Address 2: _____

City: Vineyard Haven State: MA Zip Code: 02568

d) Identify the primary industrial sector to be covered under the 2015 MSGP:

SIC Code 3731 or Primary Activity Code _____

Sector R and Subsector _____

e) Identify the sectors of any co-located activities to be covered under the 2015 MSGP:

Sector _____ Subsector _____

Sector _____ Subsector _____

Sector _____ Subsector _____

Sector _____ Subsector _____

Sector _____ Subsector _____

Sector _____ Subsector _____

f) Estimated area of industrial activity exposed to stormwater: 1.5 acres

g) Provide a general description of the industrial activities that are taking place at this facility: Boat repair & refurb, hauling, launching & storage. Materials handling & storage.

3) Receiving Waters Information

List all the stormwater outfalls from your facility.				For each outfall, provide the following receiving water information:	
Outfall ID	Design Capacity (if known)	Latitude (decimal degrees)	Longitude (decimal degrees)	Name of the receiving water that receives stormwater from the outfall and/or from the MS4 that the outfall discharges to	Type of Waterbody (e.g., lake, pond, river/stream/creek, estuarine/marine water)
1	—	41.4541	70.5954	Vineyard Haven Harbor	harbor
2	—	41.4539	70.5955	"	
		___.____	___.____		
		___.____	___.____		
		___.____	___.____		

SECTION II. ACTION AREA

Ensure that your action area is described in Attachment 1, as required in Step 2.

SECTION III. LISTED SPECIES AND CRITICAL HABITAT LIST

Ensure that the listed species and critical habitat list is included in Attachment 2, as required in Step 3.

Review your species list in Attachment 2, choose one of the following three statements, and follow the corresponding instructions:

☐ The species list includes only terrestrial species and/or their designated critical habitat. No aquatic or aquatic-dependent species or their critical habitat are present in the action area. **You may skip to Section IV of this form. You are not required to fill out Section V.**

> ***Note:*** For the purposes of this permit, "terrestrial species" would not include animal or plant species that 1) spends any portion of its life cycle in a waterbody or wetland, or 2) if an animal, depends on prey or habitat that occurs in a waterbody or wetland. For example, shorebirds, wading birds, amphibians, and certain reptiles would not be considered terrestrial species under this definition. Please also be aware that some terrestrial animals (e.g., certain insects, amphibians) may have an aquatic egg or larval/juvenile phase.

☐ The species list includes only aquatic and/or aquatic-dependent species and/or their designated critical habitat. No terrestrial species or their critical habitat are present in the action area. **You may skip to Section V of this form and are not required to fill out Section IV.**

☒ The species list includes both terrestrial and aquatic or aquatic-dependent species and/or their designated critical habitat. **You must fill out both Sections IV and V of this form.**

SECTION IV. EVALUATION OF DISCHARGE-RELATED ACTIVITIES EFFECTS

Note: You are only required to fill out this section if your facility's action area contains terrestrial species and/or their designated critical habitat. If your action area only contains aquatic and/or aquatic-dependent species and/or their designated critical habitat, you can skip directly to Section V.

Most of the potential effects related to coverage under the MSGP are assumed to occur to aquatic and/or aquatic-dependent species. However, in some cases, potential effects to terrestrial species and/or their critical habitat should be considered as well from any discharge-related activities that occur during coverage under the MSGP. Examples of discharge-related activities that could have potential effects on listed terrestrial species or their critical habitat include the storage of materials and land disturbances associated with stormwater management-related activities (e.g., the installation or placement of stormwater control measures).

A. Select the applicable statement(s) below and follow the corresponding instructions:

☐ There are no discharge-related activities that are planned to occur during my coverage under the MSGP. You can conclude that your discharge-related activities will have no likely adverse effects, and:

- If there are any aquatic or aquatic-dependent species and/or their critical habitat in your action area, you must skip to Section V, *Evaluation of Discharge Effects*, below.
- If there are no aquatic or aquatic-dependent species you may skip to Section VI and verify that your activities will have no likely adverse effects. You must submit this form to EPA as specified in Section VII of this form. You may select criterion C on your NOI form and may submit your NOI for permit coverage 30 days after you have submitted this *Criterion C Eligibility Form*. You must also provide a description of the basis for the criterion you selected on your NOI form, **including the species and critical habitat list(s) in your action area**, as well as any other documentation supporting your eligibility. You must also include this completed *Criterion C Eligiblity Form* in your SWPPP.

☒ There are discharge-related activities planned as part of the proposal. Describe your discharge-related activities in the following box and continue to (b) below.

Describe discharge-related activities:

Engine + Boat repair
Hauling + Launching
Boat storage
Materials handling & deliveries

B. In order to ensure any discharge-related activities will have no likely adverse effects on listed species and/or their designated critical habitat, you must certify that all the following are true:

☒ Discharge-related activities will occur:

- on previously cleared/developed areas of the site where maintenance and operation of the facility are currently occurring or where existing conditions of the area(s) in which the discharge-related activities will occur precludes its use by listed species (e.g., work on existing impervious surfaces, work occurring inside buildings, area is not used by species), and
- if discharge-related activities will include the establishment of structures (including, but not limited to, infiltration ponds and other controls) or any related disturbances, these structures and/or disturbances will be sited in areas that will not result in isolation or degradation of nesting, breeding, or foraging habitat or other habitat functions for listed animal species (or their designated critical habitat), and will avoid the destruction of native vegetation (including listed plant species).

☒ If vegetation removal (e.g., brush clearing) or other similar activities will occur, no terrestrial listed species that use these areas for habitat would be expected to be present during vegetation removal.

If all the above are true, you can conclude that your discharge-related activities will have no likely adverse effects, and:

- If there are any aquatic or aquatic-dependent species and/or critical habitat in your action area, you must skip to Section V, *Evaluation of Discharge Effects*, below.
- If there are no aquatic or aquatic-dependent species you may skip to Section VI and verify that your activities will have no likely adverse effects. You must submit this form to EPA as specified in Section VII of this form. You may select criterion C on your NOI and may submit your NOI for permit coverage 30 days after you have submitted this completed form. You must also provide a description of the basis for the criterion you selected on your NOI form, **including the species and critical habitat list(s)**, and any other documentation supporting your eligibility. You must also include this completed *Criterion C Eligibility Form* in your SWPPP.
- **If any of the above are not true**, you cannot conclude that your discharge-related activities will have no likely adverse effects. You must complete the rest of this form (if applicable), and must submit the form to EPA for assistance in determining your eligibility for coverage.

SECTION V. EVALUATION OF DISCHARGE EFFECTS

Note: *You are only required to fill out this section if your facility's action area includes aquatic and/or aquatic-dependent species and/or their critical habitat.*

In this section, you will evaluate the likelihood of adverse effects from your facility's discharges. The scope of effects to consider will vary with each facility and species/critical habitat characteristics. The following are examples of discharge effects you should consider:

- *Hydrological Effects.* Stormwater discharges may adversely affect receiving waters from pollutant parameters such as turbidity, temperature, salinity, or pH. These effects will vary with the amount of stormwater discharged and the volume and condition of the receiving water. Where a stormwater discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.
- *Toxicity of Pollutants.* Pollutants in stormwater may have toxic effects on listed species and may adversely affect critical habitat. Exceedances of benchmarks, effluent limitation guidelines, or state or tribal water quality requirements may be indicative of potential adverse effects on listed species or critical habitat. However, some listed species may be adversely affected at pollutant concentrations below benchmarks, effluent limitation guidelines, and state or tribal water quality standards. In addition, stormwater pollutants identified in Part 5.2.3.2 of your SWPPP, but not monitored as benchmarks or effluent limitation guidelines, may also adversely affect listed species and critical habitat.

As these effects are difficult to analyze for listed species, their prey, habitat, and designated critical habitat, this form helps you to analyze your discharges and make a determination of whether your discharges will have likely adverse effects and whether there are any additional controls you can implement to ensure no likely adverse effects.

A. Evaluation of Pollutants and Controls to Avoid Adverse Effects. In this section, you must document all of your pollutant sources and pollutants expected to be discharged in stormwater. You must also document the controls you will implement to avoid adverse effects on listed aquatic and aquatic-dependent species. You must include specific details about the expected effectiveness of the controls in avoiding adverse effects to the listed aquatic and aquatic-dependent species. Attach additional pages if needed.

Potential Pollutant Source	Potential Pollutants	**Controls to Avoid Adverse Effects on Listed Aquatic and Aquatic-Dependent Species.** Include information supporting why the control(s) will ensure no adverse effects, including any data you have about the effectiveness of the control(s) in reducing pollutant concentrations. You may also attach photos of your controls to this form.
e.g., vehicle and equipment fueling	**e.g.,** • **Oil & grease** • **Diesel** • **Gasoline** • **TSS** • **Antifreeze**	**e.g.,** • **Fueling operators (including the transfer of fuel from tank trucks) will be conducted on an impervious or contained pad or under cover** • **Drip pans will be used where leaks or spills of fuel can occur and where making and breaking hose connections** • **Spill kit will be kept on-site in close proximity to potential spill areas** • **Any spills will be cleaned-up immediately using dry clean up methods** • **Stormwater runoff will be diverted around fueling areas using diversion dikes and curbing**

Potential Pollutant Source	Potential Pollutants	Control to Avoid Adverse Effects on Listed Aquatic and Aquatic-dependent Species
Boat Storage Hauling & Launching Materials Storage Boat repair	Aluminum Zinc Copper Iron Lead	Inspect boats to make sure all drain plugs in, no leaks. Inspect trailers for hydraulic leaks regularly. Berm storage area where possible Utilize containment Do repair & refurb inside bldgs. Clean areas of debris & containments so pollutants don't track in to discharge areas. Store vessels beyond high tide zone. Utilize BMP's

☐ Check if you are not able to make a preliminary determination that any of your pollutants will be controlled to a level necessary to avoid adverse effects on aquatic and/or aquatic-dependent listed species and their designated critical habitat. You must check in Section VI that you are unable to make a determination of no likely adverse effects, and must complete the rest of the form. You must submit your completed form to EPA for assistance in determining your eligibility for coverage.

B. Analysis of Effects Based on Past Monitoring Data. Select which of the following applies to your facility:

☐ I have no previous monitoring data for my facility because there are no applicable monitoring requirements for my facility's sector(s).

☐ I have no previous monitoring data for my facility because I am a new discharger or a new source, but I am subject to monitoring under the 2015 MSGP. You must provide information to support a conclusion that your facility's discharges are not expected to result in benchmark or numeric effluent limit exceedances that will adversely affect listed species or their critical habitat:

☐ My facility has not had any exceedances under the 2008 MSGP of any required benchmark(s) or numeric effluent limits.

☒ My facility has had exceedances of one or more benchmark(s) or numeric effluent limits under the 2008 MSGP, but I have addressed them during my coverage under the 2008 MSGP, or in my evaluation of controls to avoid adverse effects in (A) above. Describe all actions (including specific controls) that you will implement to ensure that the pollutants in your discharge(s) will not result in likely adverse effects from future exceedances.

Repair & refurb to be done in buildings,
Vacuum or sweep all impervious surfaces to reduce tracking of contaminants.
Manage traffic patterns within yard to reduce tracking of material.
keep all metal structures, equipment & bent stands painted to prevent rusting or oxidation.

☐ Check if your facility has had exceedances of one or more benchmarks or numeric effluent limits under the 2008 MSGP and you have not been able to address them to avoid adverse effects from future exceedances, or if you are a new discharger or a new source but you are not sure if you can avoid adverse effects from possible exceedances. You must check in Section VI that you are unable to make a determination of no likely adverse effects. You must submit your completed form to EPA for assistance in determining your eligibility for coverage. You may not file your NOI for permit coverage until you are able to make a determination that your discharges will avoid adverse effects on listed species and designated critical habitat.

SECTION VI VERIFICATION OF PRELIMINARY EFFECTS DETERMINATION

Based on Steps I – V of this form, you must verify your preliminary determination of effects on listed species and designated critical habitat from your discharges and/or discharge-related activities :

☒ Following the applicable Steps in I – V above, I have made a preliminary determination that my discharges and/or discharge-related activities are not likely to adversely affect listed species and designated critical habitats.

☐ Following the applicable Steps in I – V above, I am **not** able to make a preliminary determination that my discharges and/or discharge-related activities are not likely to adversely affect listed species and designated critical habitats.

Certification Information

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

First Name, Middle Initial, Last Name: Philip P Hale

Title: President

Signature: Philip P Hale

Date: 06/06/2015

E-mail: hale@mcshipyard.com
hale@MCShipyard.com

SECTION VII CRITERION C ELIGIBILITY FORM SUBMISSION INSTRUCTIONS

You must submit this completed form to EPA at msgpesa@epa.gov, including any attachments and any additional information that demonstrates how you will avoid or eliminate adverse effects to listed species or critical habitat (e.g., specific controls you will implement to avoid or eliminate adverse effects). **Any missing or incomplete information may result in a delay of your coverage under the permit.**

If you have made a preliminary determination that your discharges and/or discharge-related activities are not likely to adversely affect listed species and critical habitat, this form must be submitted a minimum of 30 days prior to submitting your NOI for permit coverage under criterion C. Please note that during either the 30-day *Criterion C Eligibility Form* review period prior to your NOI submission, or within 30 days after your NOI submission and before you have been authorized for permit coverage, EPA may advise you that additional information is needed, or that there are additional measures you must implement to avoid likely adverse effects.

If you are unable to make a preliminary determination that your discharges and/or discharge-related activities are not likely to adversely affect listed species and critical habitat, this worksheet must be submitted to EPA, but you may not file your NOI for permit coverage until you have received a determination from EPA that your discharges and/or discharge-related activities are not likely to adversely affect listed species and critical habitat.

Attachment 1

Include a map **and a written description** of the action area of your facility, as required in Step 2. You may choose to include the map that is generated from the FWS' on-line mapping tool IPaC (the *Information, Planning, and Consultation System*) located at http://ecos.fws.gov/ipac/.

The written description of your action area that accompanies your action area map must explain your rationale for the extant of the action area drawn on your map. For example, your action area written description may look something like this:

> *The action area for the (name of your facility)'s stormwater discharges extends downstream from the outfall(s) in (name of receiving waterbody) (# of meters/feet/kilometers/miles). The downstream limit of the action area reflects the approximate distance at which the discharge waters and any pollutants would be expected to cause potential adverse effects to listed species and/or critical habitat because (insert rationale). The action area does/does not extend to the (name of receiving waterbody)'s confluence with (name of confluence waterbody) because (insert rationale).*

Note that you action area written description will be highly site-specific, depending on the expected effects of your facility's dishcarges and discharge-related activities, receiving waterbody characteristics, etc.

Martha's Vineyard Shipyard will be discharging into the Vineyard Haven Harbor. It is expected that there will be little to no affect on the receiving waterbody due to the proximity of industrial activities on the property. Activities of concern are done in buildings away from the discharge points. Other activities closer to the discharge points do not involve exposing of any pollutant based materials. There are also control measures in place to help prevent pollutants from being discharged.

See following Page for Map

Att 1, Pg. 1 of 2

US Fish & Wildlife Service

IPaC Trust Resource Report

Project Description

NAME

Martha's Vineyard Shipyard

PROJECT CODE

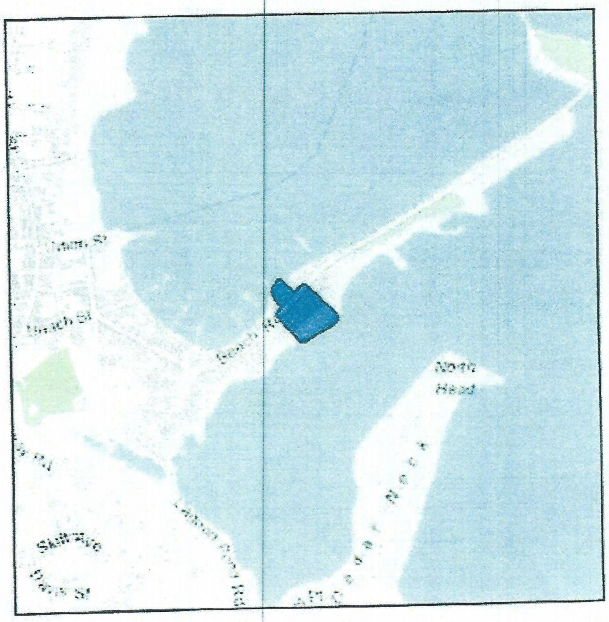
RLSFY-I4XUV-DQFAU-HFLUO-INNR7A

LOCATION

Dukes County, Massachusetts

DESCRIPTION

Ship/Boat repair yard covering approx. 2 acres with 3 buildings. Operations include repair and refurb. Project is applying for MSGP coverage. Timing is immediate.



U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Att 1 Pg 2 of 2

Attachment 2

List or attach the listed species and critical habitat in your action area on this sheet, as required in Step 3. You must include a list for applicable listed NMFS and FWS species and critical habitat. If there are listed species and/or critical habitat for only one Service, you must include a statement confirming there are no listed species and/or critical habitat for the other Service. For FWS species, include the full printout from your IPaC query. *Note: If your Official Species List from the USFWS indicated no species or critical habitat were present in your action area, include the full consultation tracking code at the top of your Official Species List in your NOI submittal in the question "Provide a brief summary of the basis for the criterion selected in Appendix E." If an Official Species List was not available on IPaC, list the contact date and name of the Service staff with whom you corresponded to identify the existence of any USFWS species or critical habitat present in your action area.*

Attached is the paperwork from USWFS and/or NMFS showing the possible terrestrial and aquatic or aquatic-dependent species and/or their critical habitat in our action area.

ESA - Northern long-eared Bat, threatened (No critical habitat listed for these)
Red Knot, threatened (No critical habitat listed for these)
Roseate Tern, endangered (No critical habitat listed for these)

Aquatic species -
Shortnose & Atlantic Sturgeon
Atlantic Large Whales
Sea Turtles

SEE THE FOLLOWING 15 PAGES FOR MORE DETAILED INFORMATION.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
PHONE: (603)223-2541 FAX: (603)223-0104
URL: www.fws.gov/newengland

Consultation Code: 05E1NE00-2015-SLI-1350
Event Code: 05E1NE00-2015-E-01774
Project Name: Martha's Vineyard Shipyard

August 01, 2015

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Att 2, Pg 1 of 25

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: Martha's Vineyard Shipyard

Official Species List

Provided by:

New England Ecological Services Field Office
70 COMMERCIAL STREET, SUITE 300
CONCORD, NH 03301
(603) 223-2541
http://www.fws.gov/newengland

Consultation Code: 05E1NE00-2015-SLI-1350
Event Code: 05E1NE00-2015-E-01774

Project Type: ** OTHER **

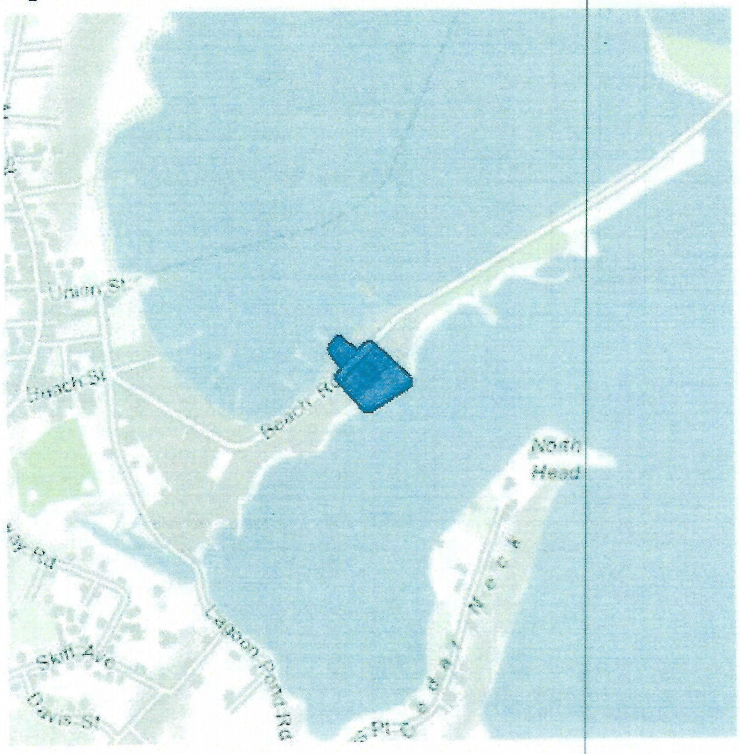
Project Name: Martha's Vineyard Shipyard
Project Description: Ship/Boat repair yard covering approx. 2 acres with 3 buildings. Operations include repair and refurb. Project is applying for MSGP coverage. Timing is immediate.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

United States Department of Interior
Fish and Wildlife Service

Project name: Martha's Vineyard Shipyard

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-70.59575871461698 41.45449988160677, -70.5956844250168 41.45457085345564, -70.59557944254927 41.45456915532168, -70.59521273973681 41.45431866409574, -70.59496549898246 41.454474397639395, -70.59486107853147 41.454472864119886, -70.59396861119431 41.4538649357389, -70.59391152195461 41.45377827573204, -70.59391908709021 41.45369994395806, -70.5939917054255 41.45362581086518, -70.59490365649056 41.4532317928817, -70.59502327858164 41.453237031830184, -70.59568863747836 41.45378003095299, -70.59569511024183 41.45390363872087, -70.59557639855718 41.45400913480739, -70.59584441651505 41.45425344292241, -70.59588914937771 41.454351703332385, -70.59584893719074 41.454451898727434, -70.59575871461698 41.45449988160677)))

Project Counties: Dukes, MA

Att 2, Pg 4 of 15

United States Department of Interior
Fish and Wildlife Service

Project name: Martha's Vineyard Shipyard

Endangered Species Act Species List

There are a total of 3 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Red Knot *(Calidris canutus rufa)*	Threatened		
Roseate tern *(Sterna dougallii dougallii)* Population: northeast U.S. nesting pop.	Endangered		
Mammals			
Northern long-eared Bat *(Myotis septentrionalis)*	Threatened		

United States Department of Interior
Fish and Wildlife Service

Project name: Martha's Vineyard Shipyard

Critical habitats that lie within your project area

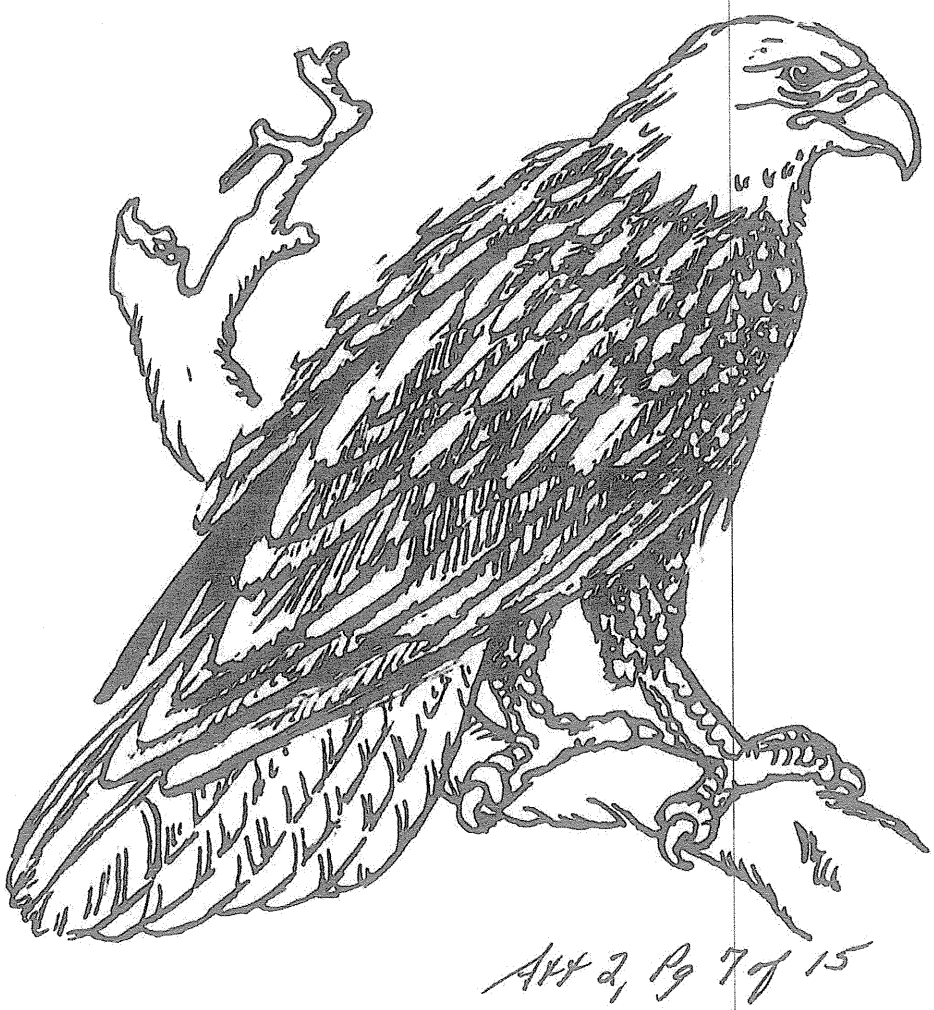
There are no critical habitats within your project area.

U.S. Fish & Wildlife Service

Martha's Vineyard Shipyard

IPaC Trust Resource Report

Generated August 01, 2015 09:52 AM MDT



US Fish & Wildlife Service

IPaC Trust Resource Report

Project Description

NAME

Martha's Vineyard Shipyard

PROJECT CODE

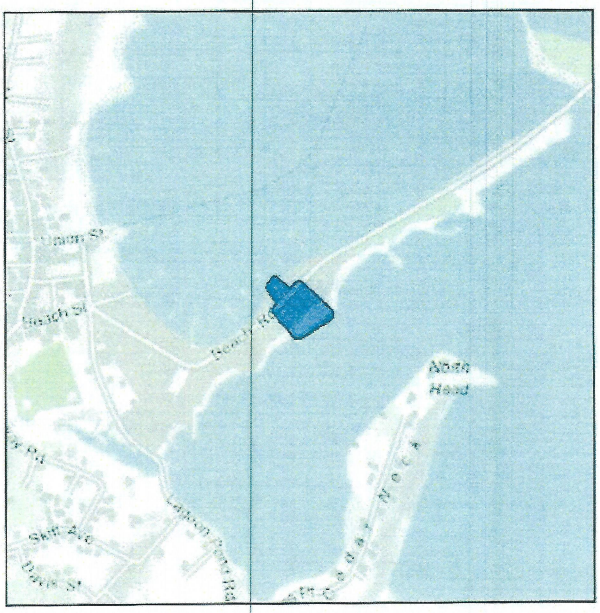
RLSFY-I4XUV-DQFAU-HFLUO-INNR7A

LOCATION

Dukes County, Massachusetts

DESCRIPTION

Ship/Boat repair yard covering approx. 2 acres with 3 buildings. Operations include repair and refurb. Project is applying for MSGP coverage. Timing is immediate.



U.S. Fish & Wildlife Contact Information

Species in this report are managed by:

New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
(603) 223-2541

Att 2, Pg 8 of 15

Endangered Species

Proposed, candidate, threatened, and endangered species that are managed by the Endangered Species Program and should be considered as part of an effect analysis for this project.

This unofficial species list is for informational purposes only and does not fulfill the requirements under Section 7 of the Endangered Species Act, which states that Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action." This requirement applies to projects which are conducted, permitted or licensed by any Federal agency.

A letter from the local office and a species list which fulfills this requirement can be obtained by returning to this project on the IPaC website and requesting an Official Species List from the regulatory documents section.

Birds

Red Knot Calidris canutus rufa

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B0DM

Roseate Tern Sterna dougallii dougallii — **Endangered**

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07O

Mammals

Northern Long-eared Bat Myotis septentrionalis

CRITICAL HABITAT
No critical habitat has been designated for this species.

https://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0JE

Critical Habitats

Potential effects to critical habitat(s) within the project area must be analyzed along with the endangered species themselves.

There is no critical habitat within this project area

Attx 2 Pg 9 of 15

Migratory Birds

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

You are responsible for complying with the appropriate regulations for the protection of birds as part of this project. This involves analyzing potential impacts and implementing appropriate conservation measures for all project activities.

Great Shearwater Puffinus gravis Season: Migrating	Bird of conservation concern
Hudsonian Godwit Limosa haemastica Season: Migrating	Bird of conservation concern
Least Tern Sterna antillarum Season: Breeding	Bird of conservation concern
Purple Sandpiper Calidris maritima Season: Wintering	Bird of conservation concern

Refuges

Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. If your project overlaps or otherwise impacts a Refuge, please contact that Refuge to discuss the authorization process.

There are no refuges within this project area

Wetlands

Impacts to NWI wetlands and other aquatic habitats from your project may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

Project proponents should discuss the relationship of these requirements to their project with the Regulatory Program of the appropriate U.S. Army Corps of Engineers District.

DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

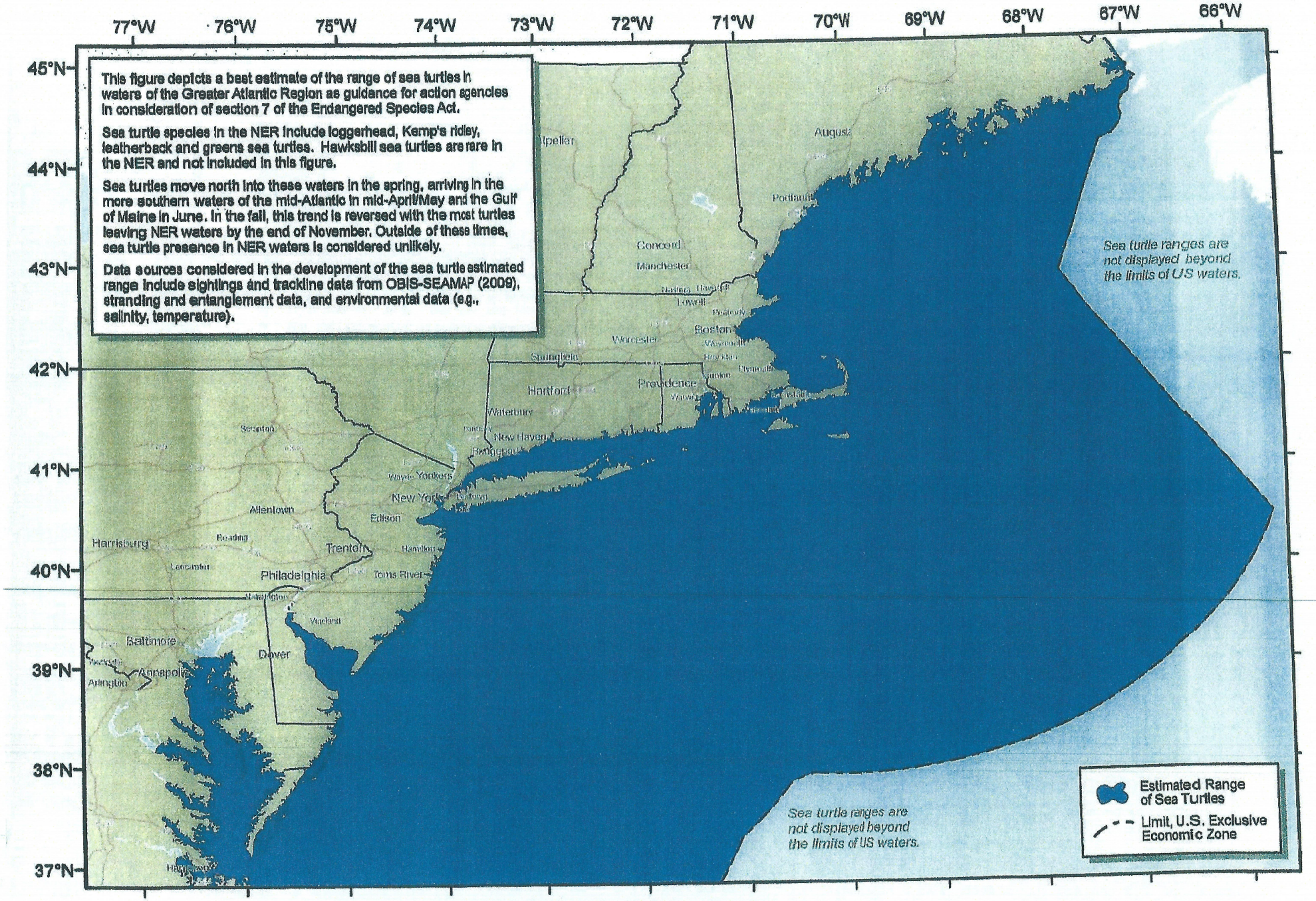
Estuarine And Marine Deepwater

E1UBL

520.0 acres

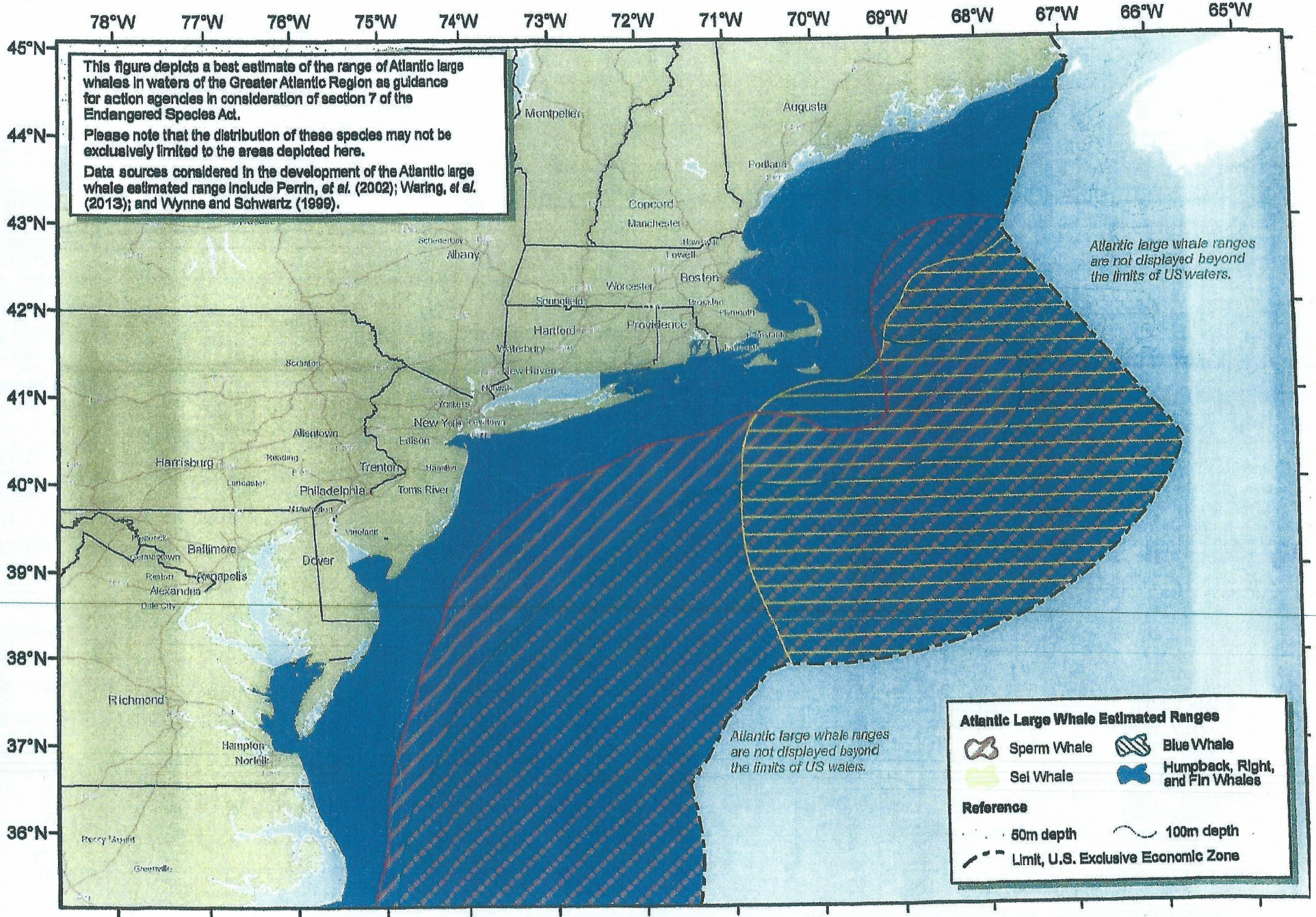
1442, Pg 12 of 15

Estimated Range of Sea Turtles

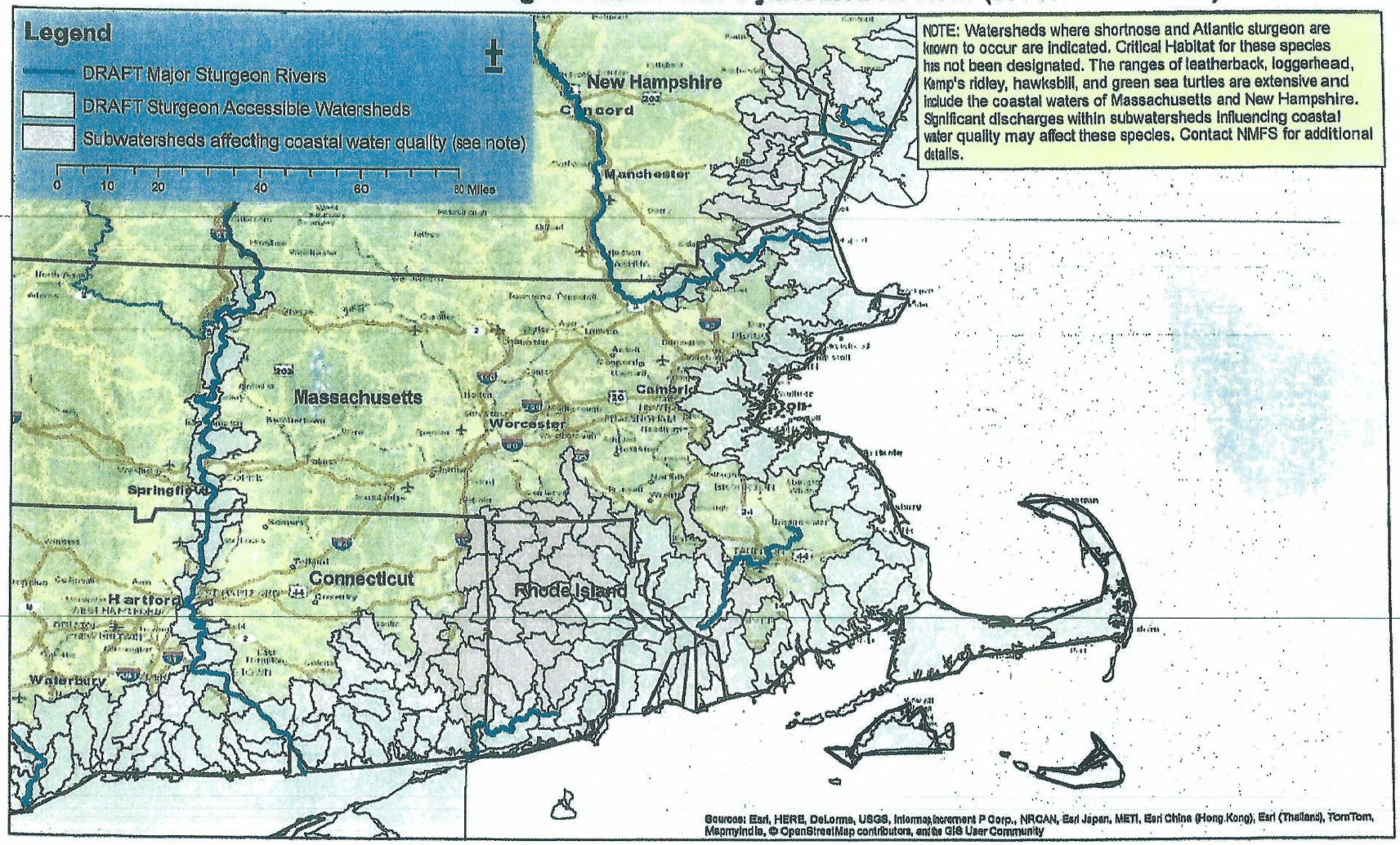


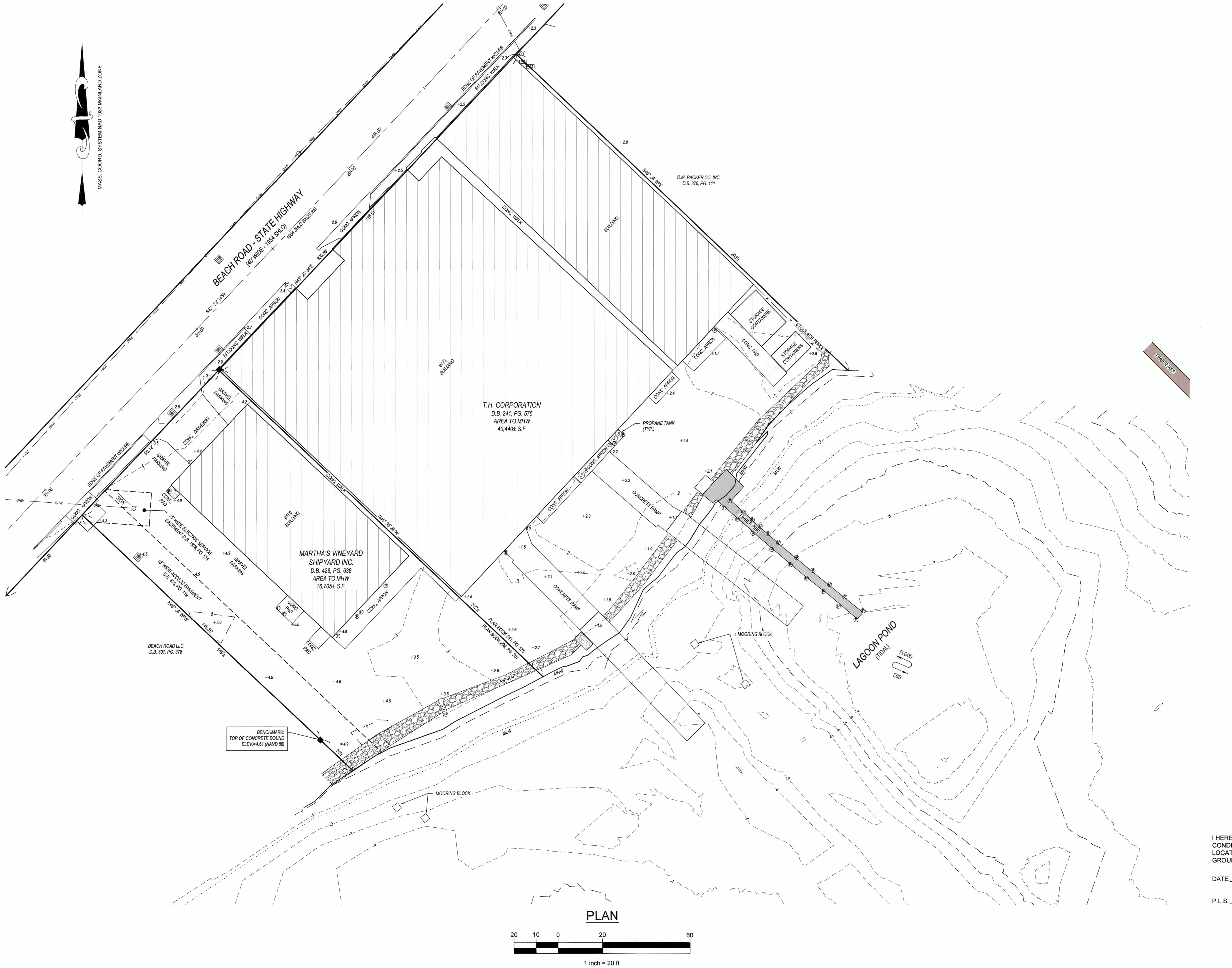
Att 2, Pg 13 of 15

Estimated Range of Atlantic Large Whales



New England Rivers and subwatersheds where ESA-listed shortnose and Atlantic sturgeon under NMFS jurisdiction occur (created 5/26/2015)





PLAN

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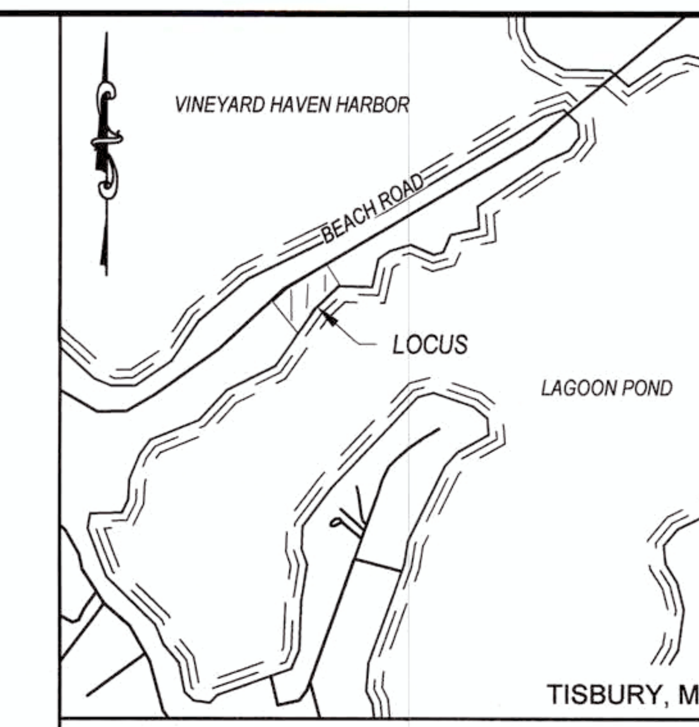
1 inch = 20 ft.



KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

ENTIRE LOT FALLS WITHIN FLOOD ZONE AE (EL. 10) AS SHOWN ON FEMA FIRM PANEL #25007C0103J EFFECTIVE JULY 20, 2016. PLEASE NOTE THAT SITE SPECIFIC FLOODPLAIN BOUNDARIES MAY VARY DUE TO DIFFERENT INTERPRETATIONS OF THESE BOUNDARIES. USERS ARE ADVISED TO VERIFY LOCATION OF THESE BOUNDARIES WITH THE DESIGNATED COMMUNITY FLOODPLAIN MANAGERS PRIOR TO SITING ANY PROPOSED STRUCTURES.

DATUM:

ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.

LEGEND

- BOUND
- MISC. SIGN
- FENCE
- OHW — OVERHEAD UTILITY LINE
- CATCH BASIN
- WATER VALVE
- UTILITY POLE
- EM — ELECTRIC METER
- PB — ELECTRIC PULL BOX
- BOLLARD POST
- 5 — CONTOUR
- X 4.7 — SPOT GRADE

I HEREBY CERTIFY THAT THE CONDITIONS SHOWN HEREON ARE LOCATED AS THEY EXISTED ON THE GROUND AS OF 2-13-19.

DATE Aug. 23, 2019

P.L.S. John McElwee

JOHN McELWEE No. 33602 PROFESSIONAL LAND SURVEYOR

COASTAL engineering co.
260 Cranberry Hwy, Orleans, MA 02653
508.255.6511 P 508.255.6700 F

NO.	DATE	REVISION	BY

SEAL

PROJECT: MARTHA'S VINEYARD SHIPYARD
TISBURY, MA
159 AND 173 BEACH ROAD

SHEET TITLE: PLAN SHOWING EXISTING SITE CONDITIONS

SCALE	1" = 20'
DRAWING FILE	C19196-V
DATE	8-22-2019
DRAWN BY	KES / JLH
CHECKED BY	

C1.2.1

1 OF 1 SHEETS

PROJECT NO. C19196.01

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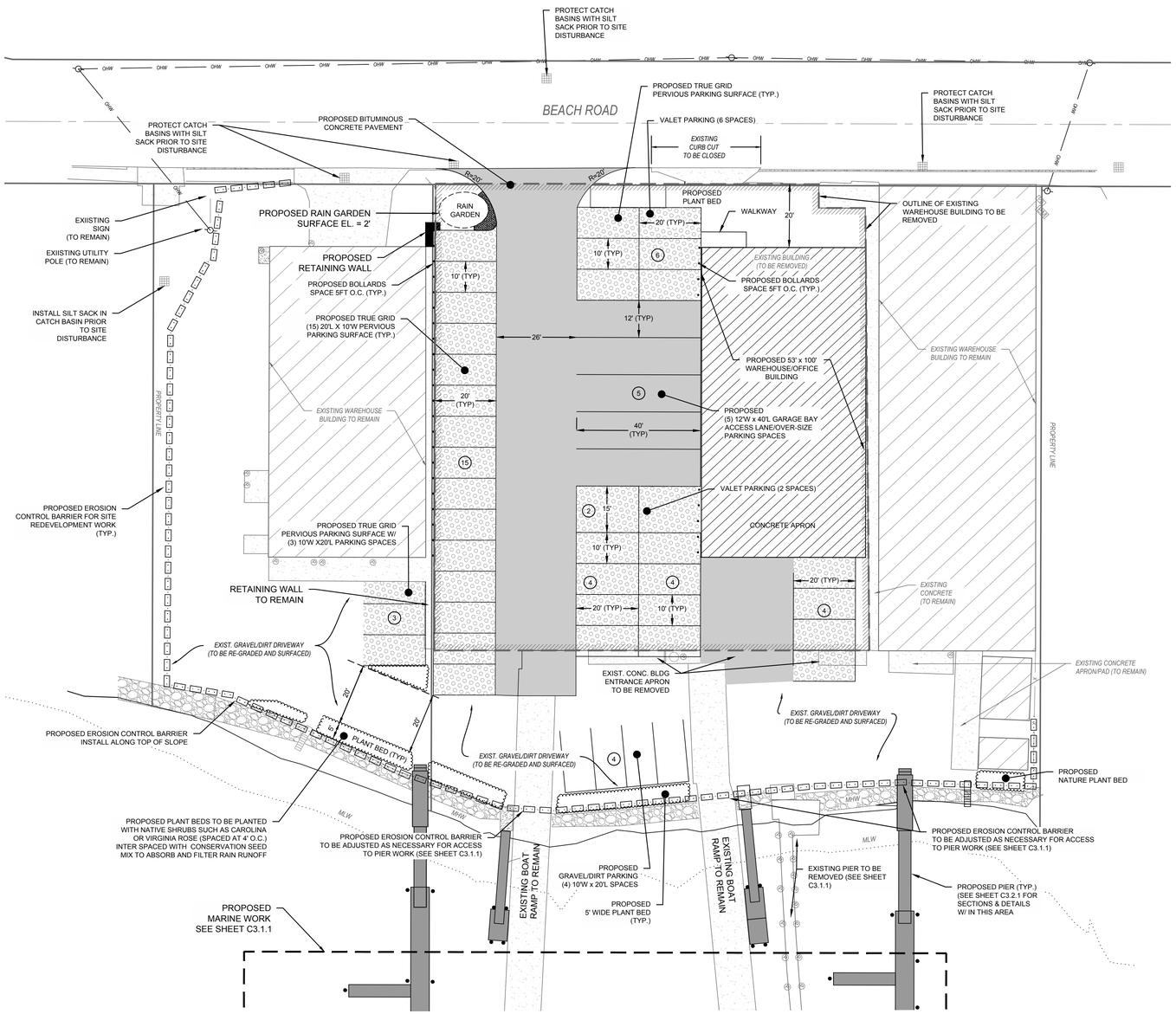

PLAN

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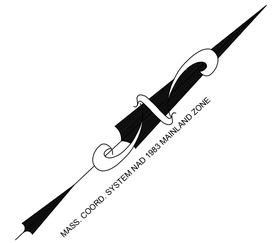
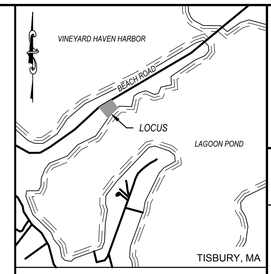
1 inch = 20 ft.





KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

FLOOD ZONE AE (EL. 10) AS SHOWN
ON FEMA FIRM PANEL #25007C0104J
REVISED JULY 20, 2016

DATUM:

ELEVATIONS SHOWN HEREON ARE
BASED ON THE NORTH AMERICAN
VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.

LEGEND

EXISTING

- BOUND
- PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- WATER VALVE
- PULL BOX
- ELECTRIC METER
- CATCH BASIN
- OVERHEAD WIRES
- UTILITY POLE
- POST
- MISC. MANHOLE
- FENCE

PROPOSED

- TRAFFIC FLOW
- EROSION CONTROL BARRIER

COASTAL engineering co.
260 Cranberry Hwy, Orleans, MA 02653
508.255.6511 P 508.255.6700 F

NO.	DATE	REVISION	BY

SEAL

TARJA L. McGRAIL CIVIL No. 47593 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PROPOSED SITE IMPROVEMENTS
LAYOUT AND MATERIALS PLAN

SCALE	AS NOTED
DRAWING FILE	C19196-MASTER.dwg
DATE	08-23-19
DRAWN BY	ELN / TLM
CHECKED BY	TLM

C2.1.1

__ OF __ SHEETS

PROJECT NO. C19196.01

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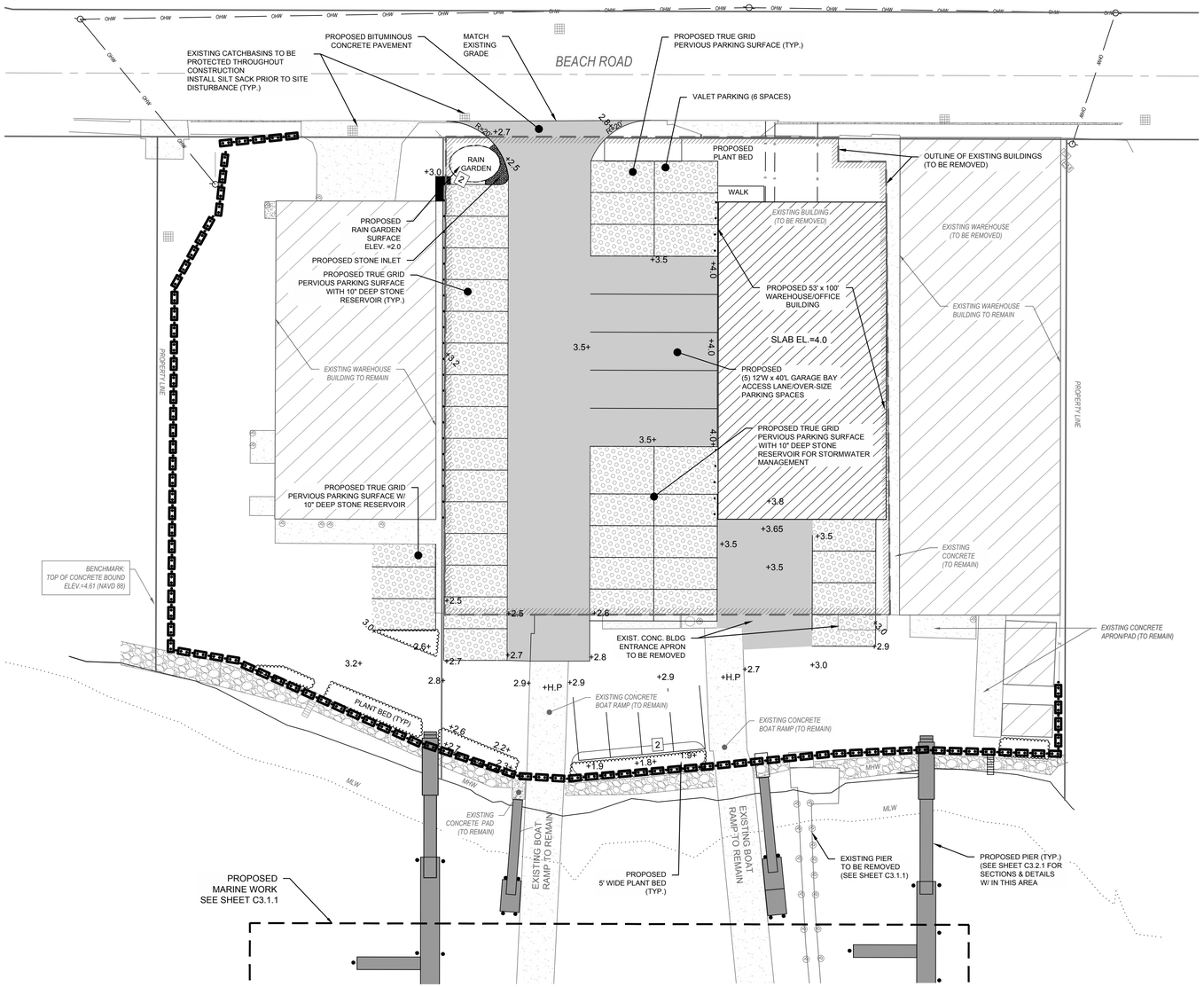

PLAN

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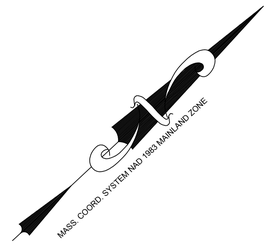
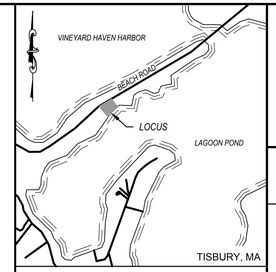
1 inch = 20 ft.





KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

FLOOD ZONE AE (EL. 10) AS SHOWN
ON FEMA FIRM PANEL #25007C0104J
REVISED JULY 20, 2016

DATUM:

ELEVATIONS SHOWN HEREON ARE
BASED ON THE NORTH AMERICAN
VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.

LEGEND

EXISTING

- BOUND
- PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- WATER VALVE
- PULL BOX
- ELECTRIC METER
- CATCH BASIN
- OVERHEAD WIRES
- UTILITY POLE
- POST
- MISC. MANHOLE
- FENCE
- SPOT GRADE

PROPOSED

- TRAFFIC FLOW
- SPOT GRADE
- CONTOUR
- EROSION CONTROL BARRIER
- ELECTRIC SERVICE
- SEWER SERVICE
- WATER SERVICE

COASTAL engineering co.
260 Cranberry Hwy, Orleans, MA 02653
508.255.6511 P 508.255.6700 F

NO.	DATE	REVISION	BY

SEAL

COMMONWEALTH OF MASSACHUSETTS
TARJA L. McGRAIL
CIVIL
No. 47593
REGISTERED PROFESSIONAL ENGINEER

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PROPOSED SITE IMPROVEMENTS
DRAINAGE, GRADING, AND UTILITY PLAN

SCALE	AS NOTED
DRAWING FILE	C19196-MASTER.dwg
DATE	08-23-2019
DRAWN BY	ELN/ TLM
CHECKED BY	TLM

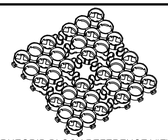
C2.2.1

__ OF __ SHEETS

PROJECT NO. C19196.01

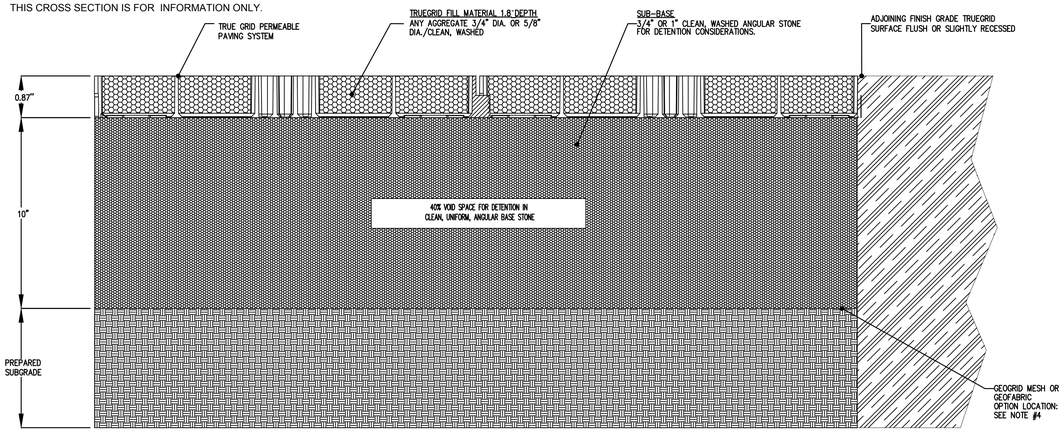
NOTES:

1. SUB-BASE DEPTH AND PREPARATION IS DEPENDENT ON SITE CONDITIONS PLUS LOADING REQUIREMENTS.
2. TRUEGRID PRO PLUS PRODUCTS DESIGNED FOR LOAD CAPACITIES OF 120,000 LBS PER SQ. FT. TRUEGRID PRODUCTS STRENGTHEN WITH FILL MATERIAL.
3. TRUEGRID PRO PLUS PRODUCTS ARE SUFFICIENTLY RATED FOR H-20 /HS-20 LOADING AND GREATER.
4. GEOGRID MESH OR GEOFABRIC MAY BE REQUIRED BETWEEN SUB-GRADE & SUB-BASE FOR CERTAIN SOILS AND SITE SPECIFIC REQUIREMENTS.
5. INCREASE SUB-BASE DEPTH FOR INCREASED STORM WATER DETENTION.
6. NO STAKING NECESSARY WITH TRUEGRID PRO PLUS WHEN SLOPE IS BELOW 10 DEGREES. ASSESS PROJECT, AS NEEDED.
7. FINAL ENGINEERED CROSS SECTION AGGREGATES AND DEPTH SHOULD ALLOW FOR EXPECTED INFILTRATION RATES, STORAGE CAPACITIES, OUTLET FLOW RATES, AND OTHER SITE SPECIFIC CONDITIONS AND LOAD REQUIREMENTS.
8. THIS CROSS SECTION IS FOR INFORMATION ONLY.



TRUEGRID BLOCK REFERENCE VIEW

PREASSEMBLE & DELIVERED IN 4' X 4' SHEET, RECONFIGURED AS NEEDED, NO EXTRA TOOLING OR ACCESSORIES REQUIRED



APPLICATION:

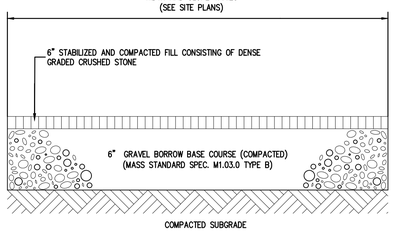
HEAVY LOAD PARKING LOT

GRAVEL FILL HEAVY LOAD TRUEGRID PRO PLUS DETAIL

NOT TO SCALE

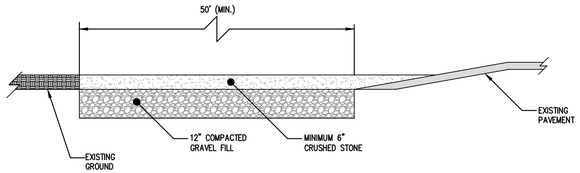
EROSION & SEDIMENTATION CONTROL NOTES:

1. A TEMPORARY CHAN LINK CONSTRUCTION FENCE SHALL BE ERECTED AROUND THE PERIMETER OF THE SITE.
2. DEMOLITION/SITEWORK CONTRACTOR TO ASCERTAIN THE LOCATION OF UNDERGROUND UTILITIES AND CONTACT DIG SAFE PRIOR TO EXCAVATION/DEMOLITION.
3. EROSION AND SEDIMENT CONTROL MEASURES TO BE IN COMPLIANCE WITH TOWN OF TISBURY REGULATIONS.
4. EROSION CONTROL MEASURES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH MANUFACTURE'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES.
5. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION CONTROL AND PROTECTION OF OFF SITE AND ON SITE DRAINAGE STRUCTURES UNTIL COMPLETION OF SITEWORK AND ESTABLISHMENT OF STABILIZED VEGETATIVE GROUND COVER.
6. THE CONTRACTOR SHALL PRACTICE GOOD HOUSEKEEPING MEASURES DURING THE DAY TO DAY OPERATION AT THE SITE. THE SITE SHOULD BE POLICED DAILY TO REMOVE ANY LITTER OR DEBRIS.
7. TEMPORARY SOIL MATERIAL STOCKPILES SHALL BE SURROUNDED WITH SEDIMENT BARRIER ON THE DOWNGRADIENT SIDE TO PREVENT DISCHARGE OF SEDIMENT FROM SITE. MATERIAL STOCKPILES THAT ARE IN PLACE FOR AN EXTENDED PERIOD OF TIME SHALL BE STABILIZED WITH VEGETATION, MULCHING, EROSION CONTROL BLANKETS, AND OTHER MEASURES THAT ARE NECESSARY TO PREVENT THE DISCHARGE OF SEDIMENT FROM THE PROJECT SITE.
8. IF SEDIMENT ESCAPES THE CONSTRUCTION SITE, OFF-SITE ACCUMULATIONS OF SEDIMENT MUST BE REMOVED AT A FREQUENCY SUFFICIENT TO MINIMIZE OFF-SITE IMPACTS.
9. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
10. EXCEPT AS PROVIDED BELOW, STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
    1. WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS, STABILIZATION MEASURES MUST BE INITITIATED AS SOON AS PRACTICABLE.
    2. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.



GRAVEL PARKING SECTION

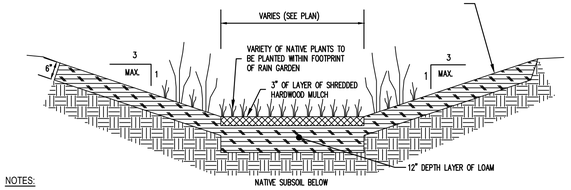
NOT TO SCALE



SECTION VIEW

VEHICLE TRACK PAD DETAIL

NOT TO SCALE

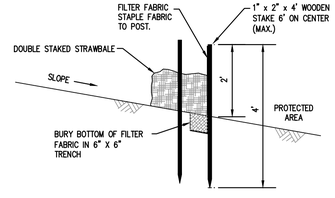


NOTES:

1. TEMPORARY EROSION DESIGN & SEDIMENT CONTROLS SHALL BE UTILIZED DURING CONSTRUCTION, THE RAIN GARDEN SHALL BE KEPT OFF LINE UNTIL THE VEGETATION HAS BEEN ESTABLISHED.
2. SIDE SLOPES SHALL BE SEEDED WITH CONSERVATION SEED MIX (OR APPROVED EQUAL).

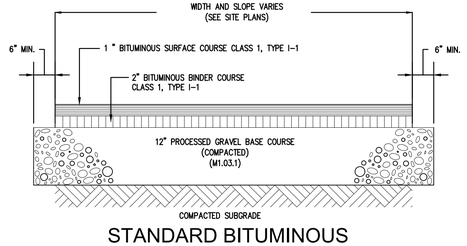
RAIN GARDEN

NOT TO SCALE



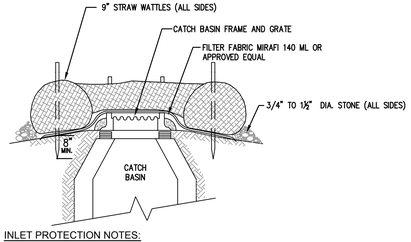
DOUBLE STRAWBALE BARRIER DETAIL

NOT TO SCALE



STANDARD BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE

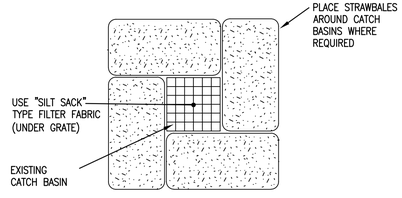


INLET PROTECTION NOTES:

1. WHERE POSSIBLE ENCLOSE STRUCTURE WITH STRAW WATTLES. MAINTAIN UNTIL PAVING BINDER COURSE IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
2. IF GRATE IS AGAINST EXISTING CURB THEN STRAW WATTLES ARE TO BE PLACED AROUND THREE SIDES OF GRATE ONLY.
3. WATTLES SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY IF NEEDED.
4. SILT SACK (OR OTHER APPROVED EQUIVALENT) TO BE PLACED IN EXISTING CATCH BASIN STRUCTURES BELOW THE GRATE. SILT SACK TO BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS. REPAIR, CLEAN, AND REPLACE SILT SACK PROMPTLY, AS NECESSARY.

CATCH BASIN INLET PROTECTION DETAIL

NOT TO SCALE



TEMPORARY SILT PROTECTION FOR DRAINAGE STRUCTURES

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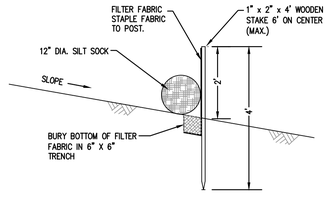

EROSION CONTROL BARRIER DETAIL

NOT TO SCALE

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NO.	DATE	REVISION	BY

SEAL

COMMONWEALTH OF MASSACHUSETTS
TARJA L. McGRAIL
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No. 47593
REGISTERED PROFESSIONAL ENGINEER

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PROPOSED SITE DETAILS

SCALE	AS NOTED
DRAWING FILE	C19196-MASTER.dwg
DATE	08-23-2019
DRAWN BY	ELN / CAA
CHECKED BY	TLM

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PROJECT NO. C19196.01

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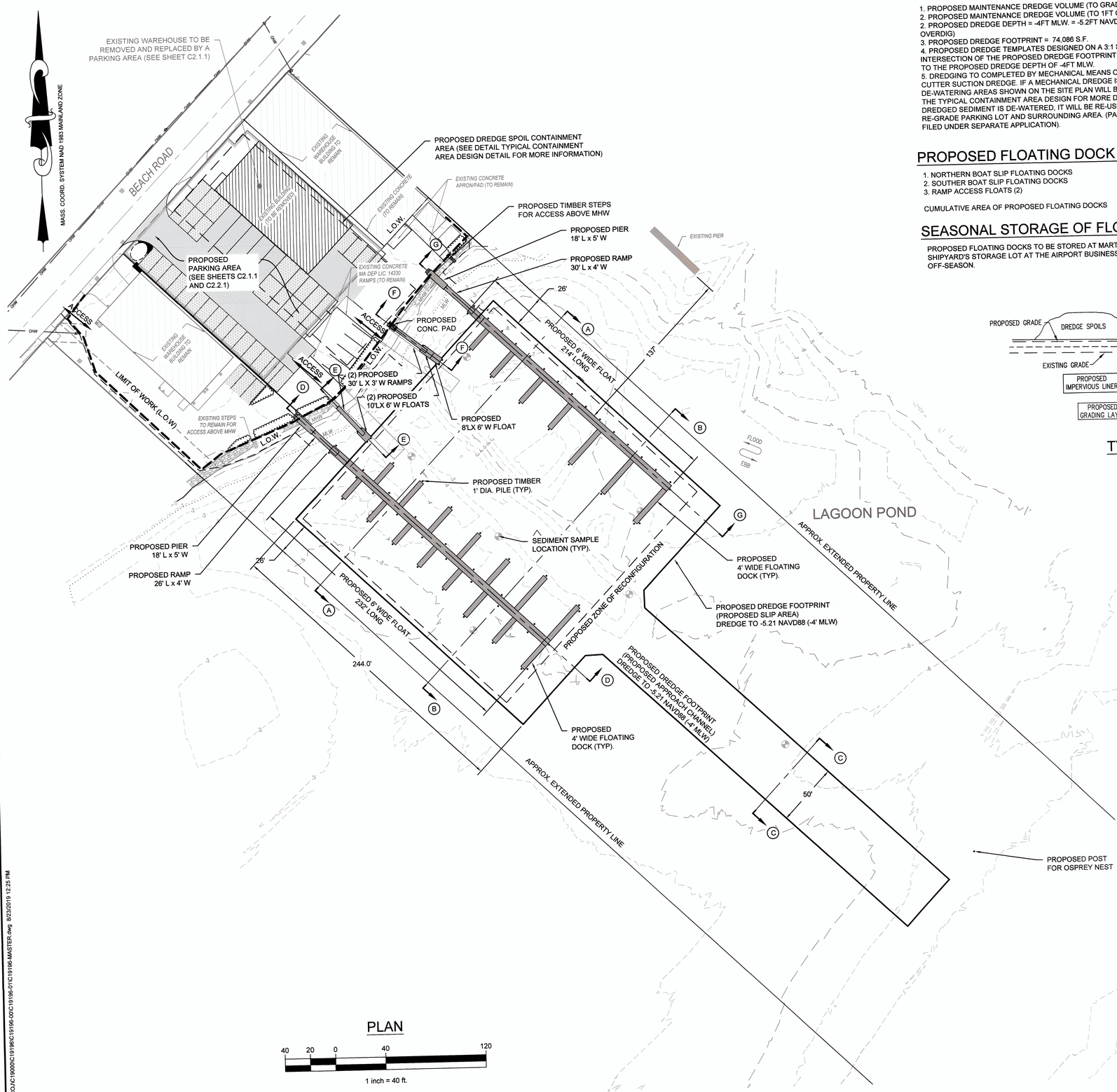


PLAN

40 20 0 40 120

1 inch = 40 ft.

PROPOSED MAINTENANCE DREDGE NOTES:

1. PROPOSED MAINTENANCE DREDGE VOLUME (TO GRADE) = 2,350 C.Y.
2. PROPOSED MAINTENANCE DREDGE VOLUME (TO 1FT OVER-DIG) = 4,700 C.Y.
2. PROPOSED DREDGE DEPTH = -4FT MLW. = -5.2FT NAVD88 (WITH 1FT OVERDIG)
3. PROPOSED DREDGE FOOTPRINT = 74,086 S.F.
4. PROPOSED DREDGE TEMPLATES DESIGNED ON A 3:1 SLOPE FROM THE INTERSECTION OF THE PROPOSED DREDGE FOOTPRINT AND EXISTING GRADE TO THE PROPOSED DREDGE DEPTH OF -4FT MLW.
5. DREDGING TO COMPLETED BY MECHANICAL MEANS OR BY HYDRAULIC CUTTER SUCTION DREDGE. IF A MECHANICAL DREDGE IS USED, THE DE-WATERING AREAS SHOWN ON THE SITE PLAN WILL BE USED. (REFER TO THE TYPICAL CONTAINMENT AREA DESIGN FOR MORE DETAILS). AFTER THE DREDGED SEDIMENT IS DE-WATERED, IT WILL BE RE-USED ON SITE TO RE-GRADE PARKING LOT AND SURROUNDING AREA. (PARKING PLAN TO BE FILED UNDER SEPARATE APPLICATION).

PROPOSED FLOATING DOCK AREAS:

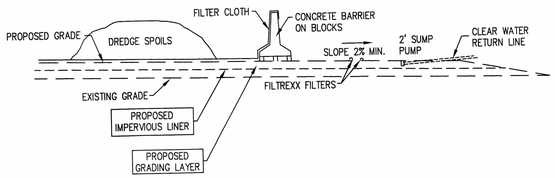
1. NORTHERN BOAT SLIP FLOATING DOCKS	= 2,084 S.F.
2. SOUTHER BOAT SLIP FLOATING DOCKS	= 2,855 S.F.
3. RAMP ACCESS FLOATS (2)	= 168 S.F.
CUMULATIVE AREA OF PROPOSED FLOATING DOCKS	= 5,107 S.F.

SEASONAL STORAGE OF FLOATING DOCK:

PROPOSED FLOATING DOCKS TO BE STORED AT MARTHA'S VINEYARD SHIPYARD'S STORAGE LOT AT THE AIRPORT BUSINESS PARK DURING THE OFF-SEASON.

1.421 HIGH TIDE LINE (OR HIGHEST P
0.71 MEAN HIGHER HIGH WATER
0.35 MEAN HIGH WATER
0.00 NAVD 88
-1.21 MEAN LOW WATER
-1.40 MEAN LOWER LOW WATER

NOAA INTERACTIVE TIDAL DATUM VIEWER
LAGOON POND, MA

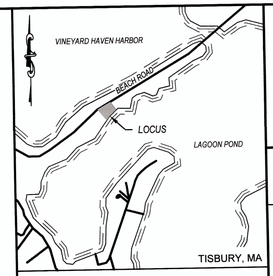


TYPICAL CONTAINMENT AREA DESIGN

NOT TO SCALE

TYPICAL DREDGE PROFILE

NOT TO SCALE



KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

FLOOD ZONE AE (EL. 10) AS SHOWN ON FEMA FIRM PANEL #25007C0104J REVISED JULY 20, 2016

DATUM:

ELEVATIONS SHOWN HEREON ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.

LEGEND

EXISTING

- BOUND
- PROPERTY LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- WATER VALVE
- PULL BOX
- ELECTRIC METER
- CATCH BASIN
- OVERHEAD WIRES
- UTILITY POLE
- POST
- MISC. MANHOLE
- FENCE

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NO.	DATE	REVISION	BY

SEAL

COMMONWEALTH OF MASSACHUSETTS
ROGER PAUL MICHNIEWICZ JR.
CIVIL
No. 39855
REGISTERED PROFESSIONAL ENGINEER
8-22-19

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PROPOSED MARINA

SCALE	AS NOTED
DRAWING FILE	C19196-MASTER.dwg
DATE	08/22/2019
DRAWN BY	CAA
CHECKED BY	RPM

C3.1.1
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PROJECT NO. C19196.01

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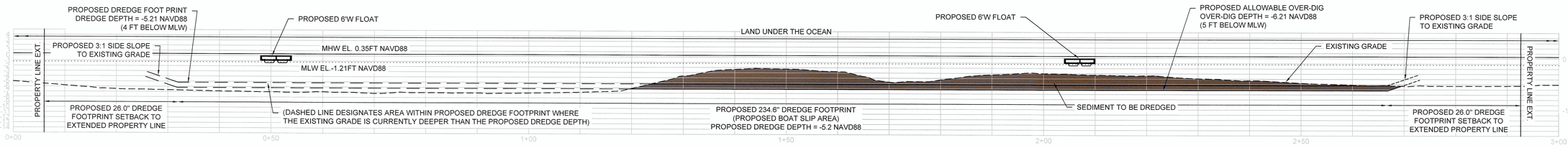
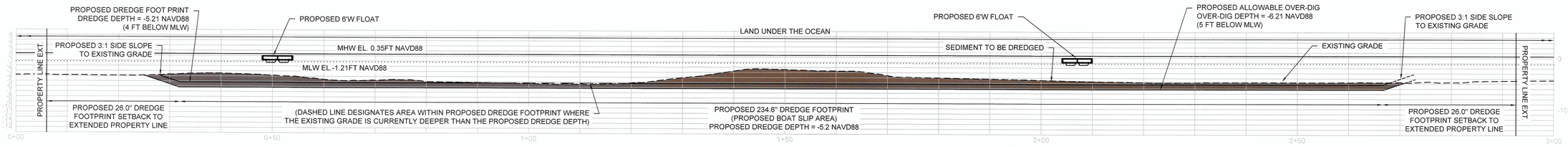


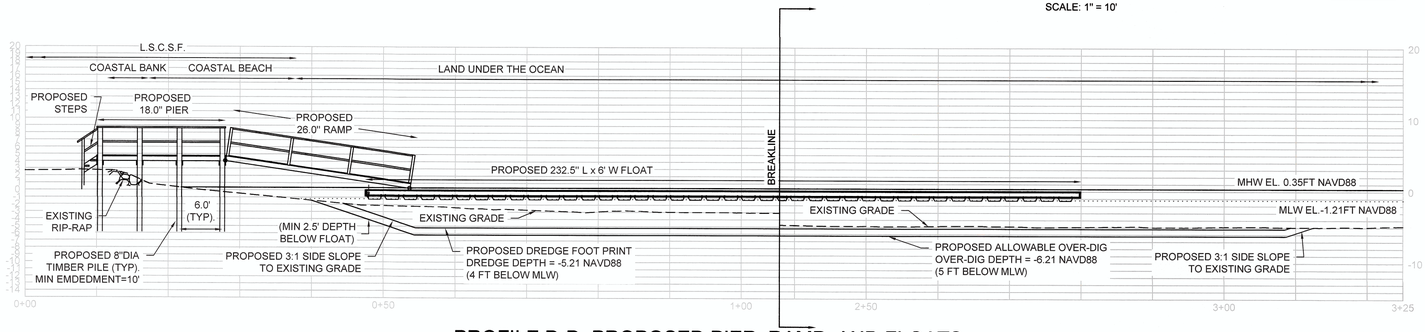
PROFILE A-A: PROPOSED DREDGE FOOTPRINT BOAT SLIP AREA

SCALE: 1" = 10'



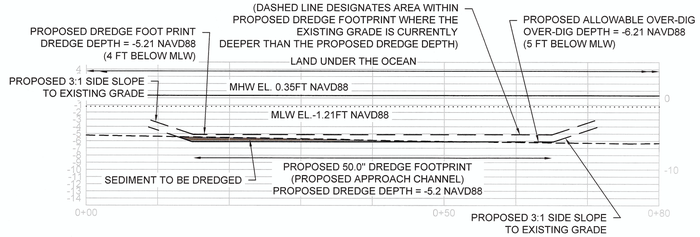
PROFILE B-B: PROPOSED DREDGE FOOTPRINT BOAT SLIP AREA

SCALE: 1" = 10'



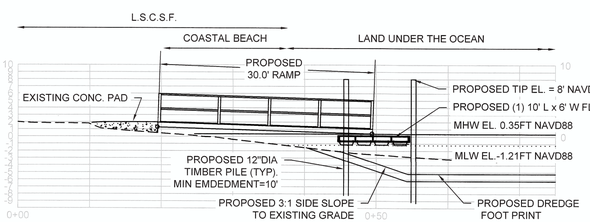
PROFILE D-D: PROPOSED PIER, RAMP, AND FLOATS

SCALE: 1" = 10'



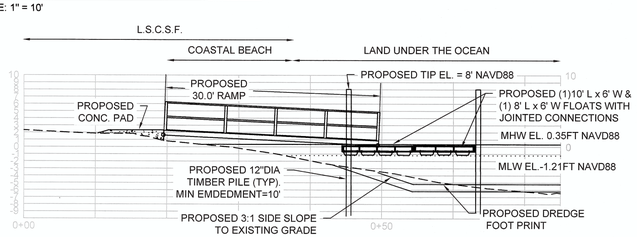
PROFILE C-C: PROPOSED DREDGE FOOTPRINT APPROACH CHANNEL

SCALE: 1" = 10'



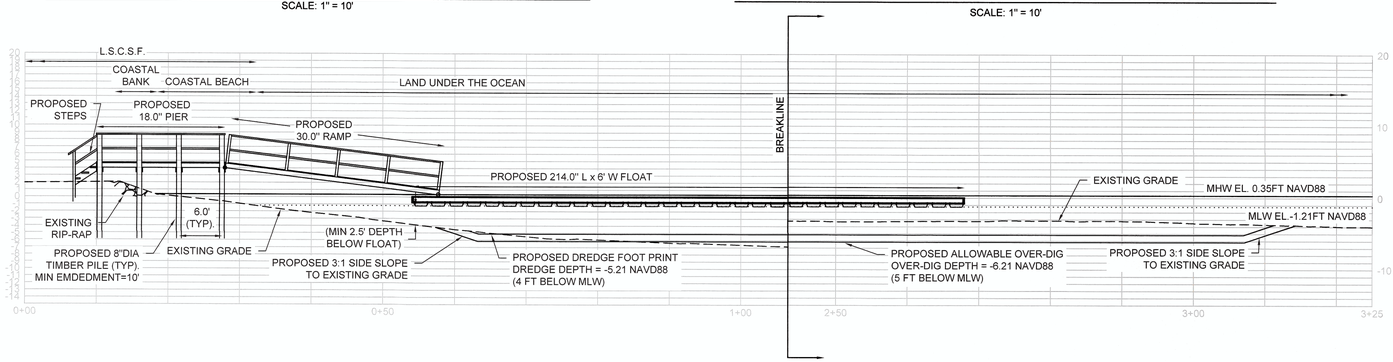
PROFILE E-E: PROPOSED BOAT RAMP ACCESS FLOATS

SCALE: 1" = 10'



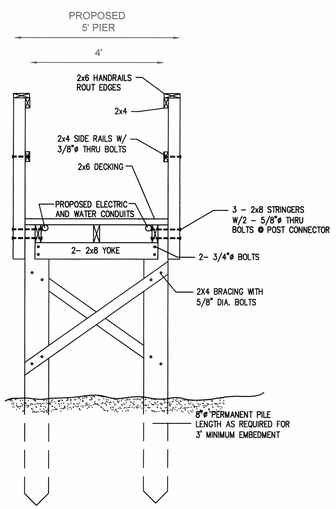
PROFILE F-F: PROPOSED BOAT RAMP ACCESS FLOATS

SCALE: 1" = 10'



PROFILE G-G: PROPOSED PIER, RAMP, AND FLOATS

SCALE: 1" = 10'



PROPOSED PIER DETAIL

SCALE: 1" = 2'

PROPOSED PIER, RAMP, AND FLOAT NOTES

1. SUPPLY ALL MATERIAL, EQUIPMENT AND LABOR FOR CONSTRUCTION OF WALKWAY, RAMP AND FLOAT AS DESCRIBED AND SHOWN ON PLAN AND DETAILS.
2. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND THE ORDER OF CONDITIONS ISSUED BY THE MARTHA'S VINEYARD CONSERVATION COMMISSION.
3. ACCESS TO BE FROM UPLAND OF OWNER'S PROPERTY.
4. METAL TO BE HOT DIPPED GALVANIZED AFTER FABRICATION. TIMBER TO BE PRESSURE TREATED IN ACCORDANCE WITH WOOD PRESERVATIVE INSTITUTE OF AMERICA.
5. CONSTRUCTION DETAILS TO BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
6. THE PIER SHALL BE MAINTAINED OVER ITS USEFUL LIFE. ANY FUTURE MAINTENANCE REQUIRED ON THE WALKWAY SHALL NOT COMMENCE UNTIL THE MARTHA'S VINEYARD CONSERVATION AGENT HAS FIRST BEEN NOTIFIED AS TO THE SCOPE OF THE REPAIRS.
7. OFF-SEASON STORAGE OF RAMP, AND FLOATS TO BE AN APPROVED UPLAND LOCATION. THE RAMP MAY BE STORED ON THE PIER DECK. THE FLOATS WILL BE TOWED TO THE TOWN LANDING AND TRUCKED TO A SUITABLE STORAGE SITE.
8. ALL TIMBER PILES SHALL BE SOUTHERN YELLOW PINE AND SHALL BE PRESSURE TREATED IN ACCORDANCE WITH WOOD PRESERVATIVE INSTITUTE OF AMERICA.
9. PIER PILES SHALL BE DRIVEN TO 10.0' MINIMUM EMBEDMENT.
10. FLOAT PILES SHALL BE DRIVEN TO 10' MINIMUM EMBEDMENT.
11. THE PROPOSED WATER AND ELECTRIC SERVICES TO THE PIER SHALL BE INSTALLED IN COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS.
12. PIER PLANKING TO BE SPACED 1" APART TO ALLOW SUNLIGHT PENETRATION.

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NO.	DATE	REVISION	BY

SEAL

COMMONWEALTH OF MASSACHUSETTS
ROGER PAUL MICHNIEWICZ
CIVIL
No. 30124
REGISTERED PROFESSIONAL ENGINEER
8-22-19

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
PROPOSED MARINE DETAILS

SCALE	AS NOTED
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CHECKED BY	RPM

C3.2.1

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PROJECT NO. C19196.01

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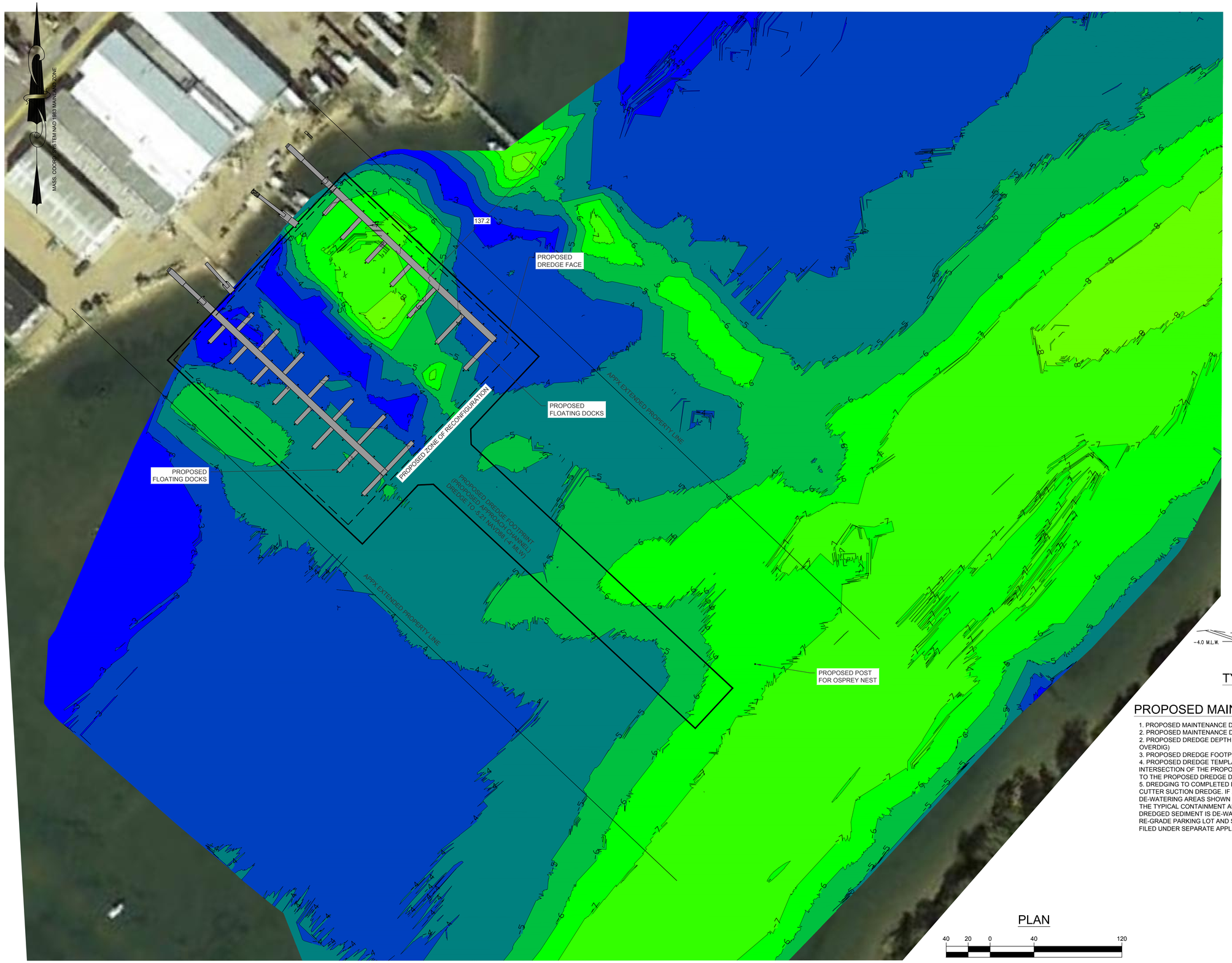
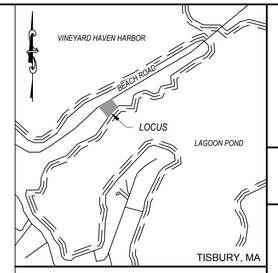


PLAN

40 20 0 40 120

1 inch = 40 ft.



KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

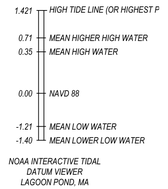
FLOOD ZONE AE (EL. 10) AS SHOWN
ON FEMA FIRM PANEL #25007C0104J
REVISED JULY 20, 2016

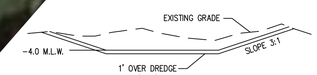
DATUM:

ELEVATIONS SHOWN HEREON ARE
BASED ON THE NORTH AMERICAN
VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.





TYPICAL DREDGE PROFILE
NOT TO SCALE

PROPOSED MAINTENANCE DREDGE NOTES:

1. PROPOSED MAINTENANCE DREDGE VOLUME (TO GRADE) = 2,350 C.Y.
2. PROPOSED MAINTENANCE DREDGE VOLUME (TO 1FT OVER-DIG) = 4,700 C.Y.
2. PROPOSED DREDGE DEPTH = -4FT MLW. = -5.2FT NAVD88 (WITH 1FT OVERDIG)
3. PROPOSED DREDGE FOOTPRINT = 74,086 S.F.
4. PROPOSED DREDGE TEMPLATES DESIGNED ON A 3:1 SLOPE FROM THE INTERSECTION OF THE PROPOSED DREDGE FOOTPRINT AND EXISTING GRADE TO THE PROPOSED DREDGE DEPTH OF -4FT MLW.
5. DREDGING TO COMPLETED BY MECHANICAL MEANS OR BY HYDRAULIC CUTTER SUCTION DREDGE. IF A MECHANICAL DREDGE IS USED, THE DE-WATERING AREAS SHOWN ON THE SITE PLAN WILL BE USED. (REFER TO THE TYPICAL CONTAINMENT AREA DESIGN FOR MORE DETAILS). AFTER THE DREDGED SEDIMENT IS DE-WATERED, IT WILL BE RE-USED ON SITE TO RE-GRADE PARKING LOT AND SURROUNDING AREA. (PARKING PLAN TO BE FILED UNDER SEPARATE APPLICATION).

COASTAL engineering co.
260 Cranberry Hwy, Orleans, MA 02653
508.255.6511 P 508.255.6700 F

NO.	DATE	REVISION	BY

SEAL

PROJECT
MARTHA'S VINEYARD SHIPYARD
159 AND 173 BEACH ROAD
TISBURY, MA

SHEET TITLE
SKETCH PLAN SHOWING
BATHYMETRY FROM HYDRO SURVEY

SCALE: AS NOTED
DRAWING FILE: C19196-MASTER.dwg
DATE: 08-22-2019
DRAWN BY: CAA
CHECKED BY: DKM

SKC-1

— OF — SHEETS

PROJECT NO. C19196.01

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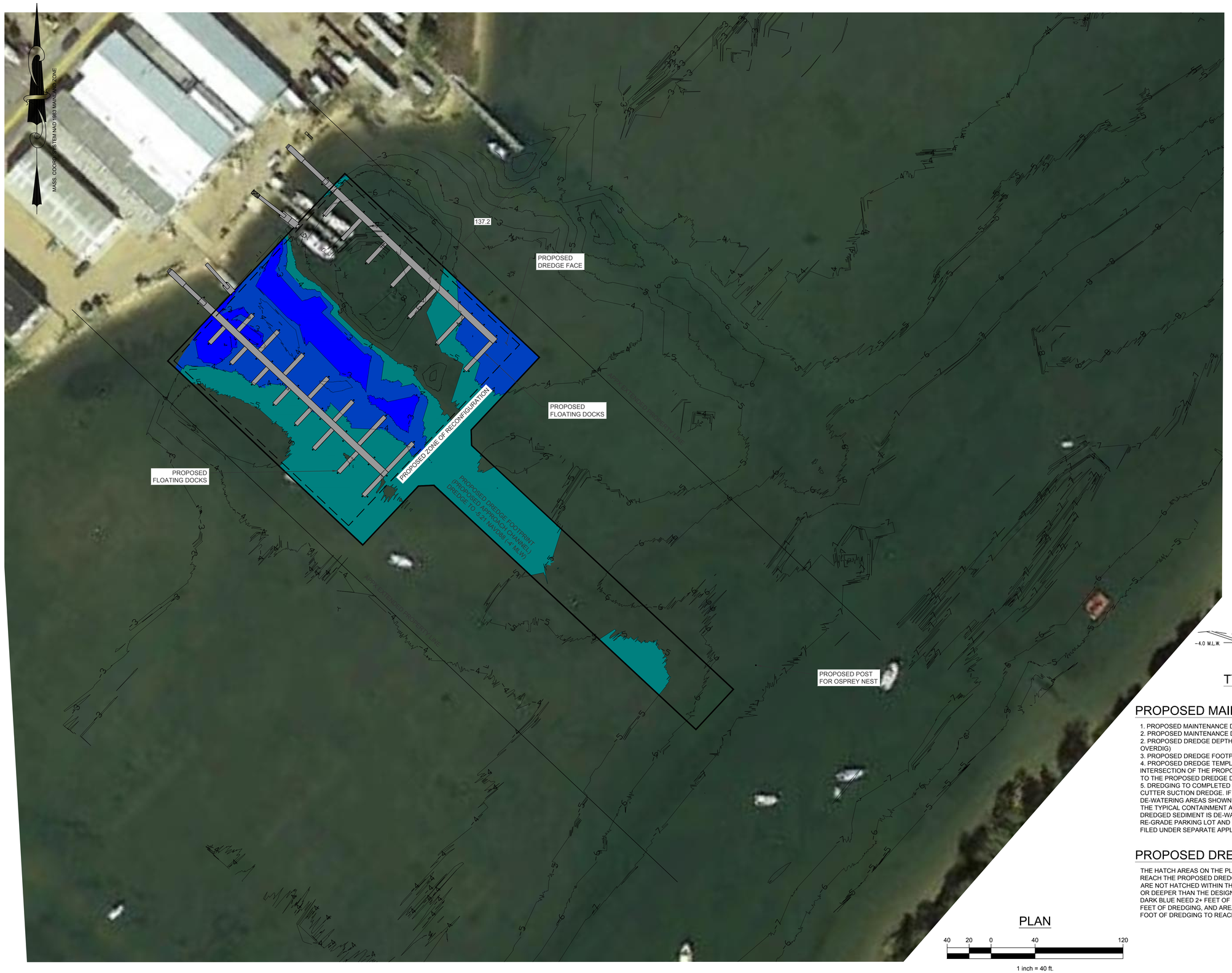
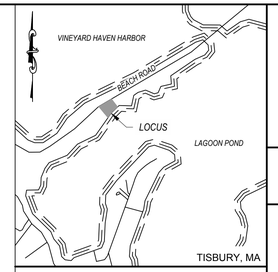


PLAN

40 20 0 40 120

1 inch = 40 ft.



KEY MAP
NO SCALE

REFERENCE:

ASSESSORS MAP 9, PARCELS 32 AND 33

PLAN BOOK 299, PAGE 301
PLAN BOOK 241, PAGE 575

FLOOD ZONE:

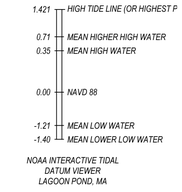
FLOOD ZONE AE (EL. 10) AS SHOWN
ON FEMA FIRM PANEL #25007C0104J
REVISED JULY 20, 2016

DATUM:

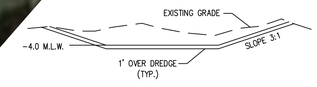
ELEVATIONS SHOWN HEREON ARE
BASED ON THE NORTH AMERICAN
VERTICAL DATUM OF 1988 (NAVD 1988)

HYDROGRAPHIC SURVEY:

1. THE HYDROGRAPHIC SURVEY DATA AS SHOWN ON THIS PLAN WAS COLLECTED ON FEBRUARY 05, 2019 BY COASTAL ENGINEERING COMPANY AND ONLY REPRESENTS THE SEA FLOOR DEPTH AS IT EXISTED DURING THE TIME OF THE SURVEY.



NOAA INTERACTIVE TIDAL
DATUM VIEWER
LAGOON POND, MA



TYPICAL DREDGE PROFILE
NOT TO SCALE

PROPOSED MAINTENANCE DREDGE NOTES:

1. PROPOSED MAINTENANCE DREDGE VOLUME (TO GRADE) = 2,350 C.Y.
2. PROPOSED MAINTENANCE DREDGE VOLUME (TO 1FT OVER-DIG) = 4,700 C.Y.
2. PROPOSED DREDGE DEPTH = -4FT MLW. = -5.2FT NAVD88 (WITH 1FT OVERDIG)
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PROPOSED DREDGE FACE NOTES:

THE HATCH AREAS ON THE PLAN SHOW AREAS THAT NEED TO BE DREDGED TO REACH THE PROPOSED DREDGE DEPTH OF -5.21 FT NAVD 88. THE AREAS THAT ARE NOT HATCHED WITHIN THE DREDGE FOOTPRINT ARE ALREADY AS DEEP OR DEEPER THAN THE DESIGN DREDGE DEPTH. AREAS THAT ARE HATCHED DARK BLUE NEED 2+ FEET OF DREDGING, AREAS THAT ARE BLUE REQUIRE 1-2 FEET OF DREDGING, AND AREAS THAT ARE LIGHT BLUE REQUIRE LESS THAN 1 FOOT OF DREDGING TO REACH THE DESIGN DREDGE DEPTH.

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159 AND 173 BEACH ROAD TISBURY, MA

SHEET TITLE
SKETCH PLAN SHOWING
PROPOSE DREDGE FACE

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SKC-2

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PROJECT NO. C19196.01

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