

Horsley Witten Group

Sustainable Environmental Solutions

90 Route 6A, Unit 1 • Sandwich, MA • 02563

Phone - 508-833-6600 • Fax - 508-833-3150 • www.horsleywitten.com



NOTICE OF INTENT

Rock Harbor Harbormaster Building and Site Revitalization

Eastham, Massachusetts

September 2020; revised April 2021



Prepared for:
Town of Eastham
2500 State Highway
Eastham, MA 02642

Prepared by:
Horsley Witten Group, Inc.

In conjunction with
Kuth Ranieri Architects
Landworks Studio
Mott MacDonald



April 5, 2021

Eastham Conservation Commission
c/o Mr. Charles Katuska, Conservation Agent
2500 State Highway
Eastham, MA 02642

Re: Revised Notice of Intent – Rock Harbor Harbormaster Building and Site Revitalization
631 Dyer Prince Road, Eastham, Massachusetts
MassDEP File No. SE-019-1796; NHESP Tracking No. 3-32126

Dear Members of the Eastham Conservation Commission:

On behalf of the Applicant, the Town of Eastham, the Horsley Witten Group, Inc. (HW) is submitting the enclosed revised Notice of Intent (NOI) and supporting documentation for the proposed Rock Harbor Harbormaster Building and Site Revitalization project at the referenced property in Eastham, Massachusetts.

Since the initial NOI submittal in September 2020 and based upon feedback from abutters and the Town, the proposed project has undergone design changes to further align the project purpose with protection of resource areas and the interests of the Massachusetts *Wetlands Protection Act* (M.G.L. Ch. 131 § 40). The plan revisions include adjustments to the location of the proposed Harbor Master Building, and subsequently to the wastewater system design, stormwater design, parking surface material and configuration, and site landscaping and amenities.

Enclosed please find three copies of the NOI materials, which include the following revised documents to reflect these design changes:

- WPA Form 3 (updated coastal resource area calculations only);
- Project Narrative;
- Project Plans; and
- Stormwater Management Report.

Seven copies of an abbreviated revised submission that includes just the revised narrative, locus maps, and revised plans) are provided for the Commissioners, as requested. A fully compiled, updated and complete NOI application package has been sent to the Commission electronically. Copies of all submittal materials will be forwarded to the Massachusetts Department of Environmental Protection (MassDEP), Southeast Regional Office and to the Massachusetts Natural Heritage and Endangered Species Program (NHESP).

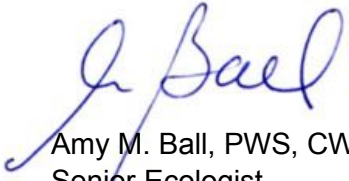
Thank you for your consideration of this updated and revised project. If you have any questions and/or require additional information pertaining to this submittal, please do not hesitate to

Eastham Conservation Commission
April 5, 2021
Page 2 of 2

contact HW at (508) 833-6600. We look forward to meeting with you to discuss this Town-sponsored project later this month.

Sincerely,

Horsley Witten Group, Inc.



Amy M. Ball, PWS, CWS
Senior Ecologist

Enclosure(s)

cc: MassDEP, Southeast Regional Office
Emily Holt, MA NHESP
Shana Brogan, Rock Harbor Capital Projects Committee
Scott Richards, Harbormaster
Rob Marcalow, AIA, NCARB, Kuth Ranieri Architects



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

EASTHAM

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):

<u>631 Dyer Prince Road</u>	<u>Eastham</u>	<u>02642</u>
a. Street Address	b. City/Town	c. Zip Code
Latitude and Longitude:		
<u>19</u>	<u>41.801088</u>	<u>-70.006584</u>
f. Assessors Map/Plat Number	d. Latitude	e. Longitude
	<u>120</u>	
	g. Parcel /Lot Number	

2. Applicant:

<u>Jacqueline</u>	<u>Beebe, Town Administrator</u>	
a. First Name	b. Last Name	
<u>Town of Eastham</u>		
c. Organization		
<u>2500 State Highway</u>		
d. Street Address		
<u>Eastham</u>	<u>MA</u>	<u>02642</u>
e. City/Town	f. State	g. Zip Code
<u>508-240-5900</u>	<u>administration@eastham-ma.gov</u>	
h. Phone Number	i. Fax Number	j. Email Address

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

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

4. Representative (if any):

<u>Amy</u>	<u>Ball</u>	
a. First Name	b. Last Name	
<u>Horsley Witten Group, Inc.</u>		
c. Company		
<u>90 Route 6A, Unit 1</u>		
d. Street Address		
<u>Sandwich</u>	<u>MA</u>	<u>02563</u>
e. City/Town	f. State	g. Zip Code
<u>508-833-6600</u>	<u>508-833-3150</u>	<u>aball@horsleywitten.com</u>
h. Phone Number	i. Fax Number	j. Email address

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

<u>Fee Exempt</u>	<u></u>	<u></u>
a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid



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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

EASTHAM

City/Town

A. General Information (continued)

6. General Project Description:

The proposed project consists of a new harbormaster building on a wood pile foundation with associated parking, stormwater management, on-site wastewater management, pedestrian pathways, and other site amenities, landscaping, invasive species removal, and habitat restoration.

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

- | | |
|---|---|
| 1. <input type="checkbox"/> Single Family Home | 2. <input type="checkbox"/> Residential Subdivision |
| 3. <input type="checkbox"/> Commercial/Industrial | 4. <input type="checkbox"/> Dock/Pier |
| 5. <input type="checkbox"/> Utilities | 6. <input type="checkbox"/> Coastal engineering Structure |
| 7. <input type="checkbox"/> Agriculture (e.g., cranberries, forestry) | 8. <input type="checkbox"/> Transportation |
| 9. <input checked="" type="checkbox"/> 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:

Barnstable

a. County

19

c. Book

24690

b. Certificate # (if registered land)

120

d. Page Number

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

- 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.
- 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.



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	
EASTHAM	
City/Town	

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. <input type="checkbox"/> Bank	1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> 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. <input type="checkbox"/> Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input type="checkbox"/> Riverfront Area	Rock Harbor Creek - coastal	

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: 83,625 (78.8% degraded)

4. Proposed alteration of the Riverfront Area:

<u>4,334</u>	<u>1,065</u>	<u>2,669</u>
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.



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

EASTHAM

City/Town

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.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	_____	
	1. square feet	

	2. cubic yards dredged	
c. <input checked="" type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	_____	_____
	1. square feet	2. cubic yards beach nourishment
e. <input checked="" type="checkbox"/> Coastal Dunes	<u>9,441 temp (5,598 restoration)</u>	_____
	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	_____	
	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	_____	
	1. square feet	
h. <input type="checkbox"/> Salt Marshes	_____	_____
	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	_____	
	1. square feet	

	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	_____	
	1. square feet	
k. <input type="checkbox"/> 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. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	<u>30,454 (redevelopment)</u>	
	1. square feet	

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



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

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MassDEP File Number

Document Transaction Number

EASTHAM

City/Town

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

August 1, 2017

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	19.7% (5,896 SF/0.14 ac)
	percentage/acreage
(b) outside Resource Area	19.7% (5,896 SF/0.14 ac)
	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

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/endangered-species-act-mesa-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.



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

EASTHAM

City/Town

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

(c) MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).
 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, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; 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. 13-32126
a. NHESP Tracking # 9/4/2020
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:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
 Southeast Marine Fisheries Station
 Attn: Environmental Reviewer
 836 South Rodney French Blvd.
 New Bedford, MA 02744
 Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
 North Shore Office
 Attn: Environmental Reviewer
 30 Emerson Avenue
 Gloucester, MA 01930
 Email: dmf.envreview-north@mass.gov

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.

- c. Is this an aquaculture project? d. Yes No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



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
EASTHAM
City/Town

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

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

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.



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

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EASTHAM
City/Town

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.

Rock Harbor Harbormaster Building and Site Revitalization

a. Plan Title

Kuth Ranieri Architects, Horsley Witten
Group, Inc., and Landworks Studio

Richard A. Claytor, Jr., PE

c. Signed and Stamped by

March 30, 2021

1" = 20' (varies)

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

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:

2. Municipal Check Number

3. Check date

4. State Check Number

5. Check date

6. Payor name on check: First Name

7. Payor name on check: Last Name



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

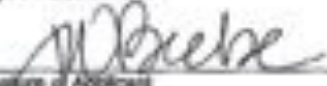
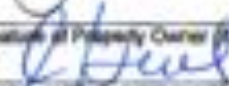

EASTHAM

City/Town

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	9-4-20 2. Date
 3. Signature of Property Owner (if different)	4. Date
 5. Signature of Representative (if any)	4 September 2020 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.



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:

631 Dyer Prince Road Eastham
 a. Street Address b. City/Town
 Fee Exempt
 c. Check number d. Fee amount

2. Applicant Mailing Address:

Jacqueline Beebe
 a. First Name b. Last Name
 Town of Eastham
 c. Organization
 2500 State Highway
 d. Mailing Address
 Eastham MA 02642
 e. City/Town f. State g. Zip Code
 508-240-5900 administration@eastham-ma.gov
 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

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

B. Fees

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
Fee Exempt			

Step 5/Total Project Fee: _____

Step 6/Fee Payments:

Total Project Fee: Fee Exempt
 a. Total Fee from Step 5

State share of filing Fee: b. 1/2 Total Fee less \$12.50

City/Town share of filing Fee: 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.)

Copy of NHESP Check

THE HORSLEY WITTEN GROUP, INC.

80 ROUTE 6A, UNIT 1
SANDWICH, MA 02563
508-833-6600

**CAPE
COD 5**

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Orleans, MA 02653
capecodfive.com

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19168

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AMOUNT

PAY TO THE ORDER OF
Three Hundred and 00/100 Dollars

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\$300.00

Commonwealth of MA-NHESP
Mass Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

Tracy Arnold

Pay to the Order of

⑆0⑆19⑆168⑆ ⑆2⑆1⑆13⑆7⑆10⑆78⑆ ⑆86⑆400⑆78⑆??⑆

Security Features Inside or Back



TOWN OF EASTHAM, MA
 BOARD OF ASSESSORS
 2500 State Highway

Abutters List Within 100 feet of Parcel 19/120/0



Key	Parcel ID	Owner	Location	Mailing Street	Mailing City	ST. Zip/Cd/Country
1918	19-45-L-E	EASTHAM TOWN OF	280 DYER PRINCE RD	2500 STATE HWY	EASTHAM	MA 02542
8800	19-118-0-8	SCHICKNER FAMILY TRUST KATHLEEN MARIE SCHICKNER TRUST	631 DYER PRINCE RD	24 CONSTITUTION DR	SOUTHBOROUGH	MA 01772
8800	19-120-0-0	EASTHAM TOWN OF ROCK HARBOR BEACH	631 DYER PRINCE RD	2500 STATE HIGHWAY	EASTHAM	MA 02542

19-43-L-E

EASTHAM TOWN OF
2500 STATE HWY
EASTHAM, MA 02642

19-118-O-R

SCHOENER FAMILY IRREV TRUST
KATHLEENKAREN SCHOENER TTEES
28 CONSTITUTION DR
SOUTHBOROUGH, MA 01772

19-120-S-E

EASTHAM TOWN OF
ROCK HARBOR BEACH
2500 STATE HIGHWAY
EASTHAM, MA 02642

**Notification to Abutters Under the
Massachusetts Wetlands Protection Act**

In accordance with the second paragraph of Massachusetts General Laws Chapter 131, Section 40, you are hereby notified of the following:

A. The name of the applicant is: Town of Eastham, c/o Rock Harbor Captial Projects Committee

B. The applicant has filed a Notice of Intent with the Conservation Commission for the municipality of: **Eastham** seeking permission to remove, fill, dredge or alter an Area Subject to Protection Under the Wetlands Protection Act (General Laws Chapter 131, Section 40).

Proposed Activity: Construction of a new harbormaster building on wooden pilings with associated permeable parking, stormwater management, on-site wastewater management, pedestrian pathways, a modular pavilion, and other amenities, landscaping, invasive species removal, and habitat restoration.

C. The address of the lot where the activity is proposed is: 631 Dyer Prince Road, Eastham, MA

D. Copies of the Notice of Intent may be examined at:
DPW/NRO Building, 555 Old Orchard Road, Eastham MA 02642

Between the hours of 8 AM and 4 PM on the following days of the week:

Monday through Friday

For more information, call: (508) 240-5971

Check One: This is the applicant , representative , or other (specify):

The Eastham Conservation Commission

E. Copies of the Notice of Intent may be obtained from either (check one) the applicant , or the applicant's representative , by calling this telephone number **(508) 240-5971** between the hours of 8 AM and 4 PM on the following days of the week:

Monday through Friday

For more information regarding the date, time and place of the public hearing may be obtained from: **The Eastham Conservation Commission** By calling this telephone number **(508) 240-5971** between the hours of 8 AM and 4 PM on the following days of the week:

Monday through Friday

Check One: This is the applicant , representative , or other (specify):

The Eastham Conservation Commission

Note: Notice of the public hearing, including its date, time and place, will be published at least five (5) days in advance in the

The Cape Codder
(Name of Newspaper)

Note: Notice of the public hearing, including its date, time and place will be posted in the City or Town Hall not less than forty-eight (48) hours in advance.

Note: You may also contact your local Conservation Commission of the nearest Department of Environmental Protection Regional Office for more information about this application of the Wetlands Protection Act. To contact DEP call:

Central Region: 508-792-7650

Northeast Region: 617-935-2160

Southeast Region: 508-946-2700

Western Region: 413-784-1100

AFFIDAVIT OF SERVICE

Under the Massachusetts Wetlands Protection Act.

(To be submitted to the Mass. Department of Environmental Protection and the Conservation Commission when filing a Notice of Intent)

I, Amy M. Ball, Senior Ecologist, Horsley Witten Group, Inc., hereby certify under the pains and penalties of perjury that on September 4, 2020 I gave
(Date)
notification to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, sec. 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent filed under the Mass. Wetlands Protection Act by
Town of Eastham with the Eastham Conservation Commission on
(Name of Applicant)
September 4, 2020 for property located at 633 Dyer Prince Road, Eastham, MA
(Address of land

where work is proposed)

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

Name [Signature]

Date 4 September 2020

Project Narrative

Rock Harbor Harbormaster Building and Site Revitalization
Eastham, Massachusetts

Table of Contents

SUMMARY 1

1.0 INTRODUCTION AND BACKGROUND 2

 1.1 Public Access Facility 2

 1.2 Purpose and Need 3

2.0 GENERAL SITE DESCRIPTION 4

 2.1 FEMA Designation 4

 2.2 State-listed Rare Species Habitat 5

 2.3 Wetland Resource Areas 5

3.0 PROPOSED PROJECT 10

 3.1 Design Considerations and Alternatives Analysis 10

 3.2 Project Details 12

 3.3 Estimated Construction Sequencing and Timing 17

 3.4 Affected Jurisdictional Areas 19

4.0 PROTECTION OF RESOURCE AREA INTERESTS 20

 4.1 Performance Standards 20

 4.2 Rare Species Habitat 27

 4.3 Erosion and Sedimentation Control 28

 4.4 Stormwater Management 28

5.0 MITIGATION 28

 5.1 Invasive Species Management 29

 5.2 Mitigation Plantings 32

6.0 REFERENCES 33

Table of Contents (cont.)

ATTACHMENTS

ATTACHMENT A – LOCUS MAPS

Figure 1 – USGS Topographic Map

Figure 2 – Aerial Photograph

Figure 3 – FEMA Flood Zones and National Flood Insurance Program, Flood Insurance Rate Maps

Figure 4 – Environmental Constraints

Figure 5 – NRCS Soils Map

ATTACHMENT B – NHESP Fact Sheet and Correspondence

ATTACHMENT C – PROJECT PLANS

ATTACHMENT D– STORMWATER REPORT

Rock Harbor Harbormaster Building and Site Revitalization

Eastham, Massachusetts

September 2020; revised April 2021

SUMMARY

The Town of Eastham Rock Harbor Capital Projects Committee proposes the Harbormaster Building and Site Revitalization Project at Rock Harbor, 631 Dyer Prince Road, Eastham, Massachusetts. Proposed work will occur on a portion of the Rock Harbor parcel (Assessor's Map 19, Parcel 120) and within a portion the adjacent right-of-way along Dyer Prince Road in Eastham, Massachusetts.

The project involves the construction of a small office building to serve as the harbormaster house to allow for on-site oversight of harbor activities, along with associated parking for a boat trailer and three Town vehicles. Proposed amenities include formalized parking for slip holders, walking paths, viewing and picnic areas, a rinse station for bathers, bike racks, and an information kiosk, to provide amenities for boaters and harbor visitors.

The project addresses the strategic objectives and goals outlined in the Town's Draft Harbor & Waterways Management Plan (January 2020), including the objective of creating new opportunities to promote and support commercial and recreational uses of the harbor, shoreline, and waterways. The Project is also consistent with the Town's draft Municipal Vulnerability Plan and Local Comprehensive Plan.

The proposed redevelopment project will involve work within coastal resource areas including barrier beach (coastal dune), degraded portions of Riverfront Area, and within Land Subject to Coastal Storm Flowage, as well as within the 100-foot buffer zone to salt marsh, jurisdiction areas under the Massachusetts Wetlands Protection Act and the Eastham Wetlands Protection Bylaw. Portions of the proposed project will also occur within Priority Habitat and Estimated Habitat and will require additional review under the Massachusetts Endangered Species Act by the Massachusetts Natural Heritage and Endangered Species Program.

The project design is intended to blend with the natural surroundings with considerations for future climate change and storm risks, and to incorporate vegetation improvements to enhance the ecological integrity of the area. Green infrastructure, low impact stormwater management will be incorporated to treat water quality from existing and proposed impervious surfaces, and the Town will implement an erosion and sedimentation control program during and immediately after construction to protect downgradient resource areas. Invasive species management will allow the Town to restore portions of degraded habitat and improve the ability of the resource areas to serve the interests under the Massachusetts Wetlands Protection Act and the local Wetlands Protection Bylaw.

1.0 INTRODUCTION AND BACKGROUND

The Town of Eastham, guided by the Rock Harbor Capital Projects Committee, proposes the Rock Harbor Harbormaster Building and Site Revitalization Project at Rock Harbor, 631 Dyer Prince Road, Eastham, Massachusetts.

Rock Harbor is located at the southern extremity of the Town and is jointly used with the Town of Orleans as a tidal port for recreational and commercial fishing vessels. Rock Harbor is the Town's only boat launch with access to Cape Cod Bay. The landing is utilized by recreational and commercial users with smaller vessels and supports a paved parking lot and concrete boat ramp.

1.1 Public Access Facility

The 9.9-acre property is owned by the Town of Eastham, but the paved parking and boat ramp are managed by the Public Access Board of the Commonwealth of Massachusetts. The parking lot is leased from the Town by the Massachusetts Department of Fish and Game (DFG), Office of Fishing and Boating Access (FBA). The FBA is tasked with providing and maintaining access to over 290 coastal and inland boat and canoe launch and fishing areas across the Commonwealth, giving residents and visitors opportunities to enjoy fishing, canoeing, sailing, water skiing, and recreational boating statewide. Designated as a Public Access Facility, the parking area and boat ramp are reserved for the "boating public" for the sole purposes of allowing access to boat launching ramps, car-top boat access areas, parking areas, sportfishing piers and shore fishing areas. In accordance with the state regulations at 320 CMR 2.04, "*use of any parking area for a purpose other than the parking of vehicles used to launch and retrieve watercraft, or in conjunction with the intended use of the public access facility*" are prohibited."

In the Spring of 2020, DFG began a project to improve the public access facility on the Eastham side of Rock Harbor, including upgrades to the Boat Ramp and Parking Lot to accommodate public use by boaters. The paved parking lot has at least 53 trailer parking spaces and some additional spaces available for vehicles.

The Town maintains approximately 45 slips for dockage of boats. A gravel roadway loops from the northerly end of the State parking lot to the southerly end and provides additional parking and access for slip holders at the Town pier (see image below). The Town's pier and float systems were recently replaced in 2019. These provide slips along the northerly docking area. The Town also maintains a southerly pier and courtesy dock to improve the efficiency of the adjacent boat ramp.



1.2 Purpose and Need

Currently there is no useable building on the property other than a small storage shed located in the northern part of the site, and a small structure located immediately north of the launch ramp that is owned by the U.S. Coast Guard Auxiliary.



Photo 1. Existing wooden structures at the site. Existing storage shed and (temporarily stored) seasonal guard shed (left) and existing Coast Guard shed in the southern portion of the site (right).

In the fall of 2019, the Town received a grant from the Massachusetts Seaport Economic Council to support the design, permitting, and public process for improvements to Rock Harbor, including constructing a new harbormaster building on site, as well as adding pedestrian and user amenities.

The Town proposes to construct a small office building to serve as the harbormaster house to be situated in a location that allows for observation of parking, pedestrian, and boating activity at Rock Harbor. The small harbormaster building would also be used to store seasonal boating equipment such as buoys, signs, tools, and safety equipment.

Site revitalization will provide site amenities, including formalized parking for slip holders, walking paths, viewing and picnic areas, a rinse station for bathers, bike racks, an information kiosk, and other amenities for boaters and harbor visitors.

The project addresses the strategic objectives and goals outlined in the Town's Draft Harbor & Waterways Management Plan (January 2020), including the objective of creating new opportunities to promote and support commercial and recreational uses of the harbor, shoreline, and waterways.

The Project is also discussed in the Town's draft Municipal Vulnerability Plan (MVP) and will adhere to recommendations to provide an elevated harbormaster building that will address existing and projected Sea Level Rise (SLR) conditions by meeting all applicable state and federal flood zone construction standards.

The project design is intended to blend with the natural surroundings with considerations for future climate change and storm risks, and to incorporate vegetation improvements to enhance the ecological integrity of the area.

2.0 GENERAL SITE DESCRIPTION

Rock Harbor, also known as the Keegan Beach Parking Lot, is located at the end of Dyer Prince Road at the southwestern corner of Eastham, MA. Rock Harbor Creek, a tidal river, creates the southern and eastern border of the site, the centerline of which constitutes the boundary between the Towns of Eastham and Orleans to the south (**Attachment A**, Figures 1 and 2). The 9.9-acre parcel supports a large, paved parking lot that is leased and operated by the State to provide public access to the coastal waters. Both the parking lot and the boat ramp were reconstructed in the spring/summer 2020. The site also supports three small wooden structures (see Photo 1). The existing shed in the northern part of the site provides limited storage of seasonal boating equipment and also houses the valves and controls for the water infrastructure at the site.

In addition to the facilities at Rock Harbor, there is a small dirt parking area within the road right-of-way that provides access to Dyer Prince Beach.

2.1 FEMA Designation

According to the FEMA *Flood Insurance Rate Maps* (Community Panel No. 25001C0417J, dated July 16, 2014), the Site is located within Zone AE *Special Flood Hazard Areas* with Base

Flood Elevation (BFE) 14 feet above sea level; portions of the parcel to the west of the site are located within Zone VE, *Special Flood Hazard Areas* with wave velocity (elevation 14 feet) (**Attachment A**, Figures 3 and 3A).

2.2 State-listed Rare Species Habitat

According to the most recent version of the *Massachusetts Natural Heritage Atlas* (14th Edition, August 1, 2017), portions of the project site fall within areas of *Estimated Habitat of Rare Wildlife and Certified Vernal Pools* and/or *Priority Habitat of Rare Species* as designated by the Massachusetts Natural Heritage and Endangered Species Program (NHESP)(Figure 4).

It is our understanding that this area is mapped as habitat for the Northern Diamond-backed Terrapin (*Malaclemys terrapin*), a state-listed Threatened species.

The Northern Diamond-backed Terrapin is a medium-sized turtle that primarily inhabits salt marshes that are located along the perimeters of lower-energy salt or brackish tidal waters, but can also be found in mud flats, shallow bays, coves, and tidal estuaries. For nesting, they require adjacent sandy, upland areas with an open canopy. The NHESP Fact Sheet for this species is provided in **Attachment B**; additional discussion regarding the protection of this species and its habitat is provided below in Section 4.2.

2.3 Wetland Resource Areas

The project site supports several jurisdictional resource areas under the Massachusetts *Wetlands Protection Act* (M.G.L. Ch. 131 § 40), its implementing Regulations (310 CMR 10.00), and the Town of Eastham Wetlands Protection Bylaw and associated Regulations of the Conservation Commission. These include Barrier Beach, Salt Marsh, Tidal Flats (Coastal Beach), Riverfront Area, and Land Subject to Coastal Storm Flowage (LSCSF) (see **Attachment A**, Figures 3, 3A and 4). A brief description of each resource area is provided below.

2.3.1 Barrier Beach

Barrier Beach is defined at 310 CMR 10.29(2) as “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.”

The entire site is located within mapped barrier beach, separating Cape Cod Bay from the backwaters and salt marsh system associated with Rock Harbor Creek. Here, the barrier beach consists of the landward secondary dunes, but is also occupied by the existing paved parking lot and informal gravel parking areas. Undeveloped portions of the barrier beach as it relates to this site are largely well-vegetated coastal dune communities. Vegetation within the barrier beach consists of American beach grass (*Ammophila breviligulata*) with clusters of eastern red cedar (*Juniperus virginiana*), patches of rugosa rose (*Rosa rugosa*) and poison ivy (*Toxicodendron radicans*), occasional hyssop-leaved boneset (*Eupatorium hyssopifolium*), northern bayberry (*Morella pensylvanica*), beach plum (*Prunus maritima*), and raspberry (*Rubus sp.*). North of the parking lot, the vegetation community within the barrier beach (coastal dune) is dominated by

the non-native Japanese knotweed (*Fallopia japonica*), poison ivy, and clumps of bayberry with occasional seedling black locust (*Robinia pseudoacacia*) and a small patch of spotted knapweed (*Centaurea stoebe*) and areas of trampled grass and weeds (Photo 2).

HW marked the landward edge of a narrow strip of coastal dune along the eastern side of the gravel parking area (CD1 – CD14). The landward boundary follows the edge of the pavement in all other locations around the parking area other than the southeast corner of the parking area, where the boat ramp is located.



Photo 2. Residual narrow strip of coastal dune as part of the Barrier Beach system located upgradient of the salt marsh along the edge of the gravel drive aisle (left); area of coastal dune (barrier beach) located north of paved parking lot that is more densely vegetated with non-native Japanese knotweed (right).

2.3.2 Salt Marsh

Salt Marsh is defined at 310 CMR 10.32(2) as “*a coastal wetland that extends landward up to the highest high tide line, that is, the highest spring tide of the year, and is characterized by plants that are well adapted to or prefer living in, saline soils. Dominant plants within salt marshes are salt meadow cord grass (*Spartina patens*) and/or saltmarsh cordgrass (*Spartina alterniflora*). A salt marsh may contain tidal creeks, ditches and pools.*”

The salt marsh at this site generally exists as a narrow strip along the western side of Rock Harbor Creek, extending southerly from the existing, recently refurbished town pier at the northeast corner of the property and following along with the creek as it bends around towards Cape Cod Bay. Given the extensive tidal range (9-10 feet), the salt marsh transitions to a tidal flat (coastal beach) at lower elevations. The Salt Marsh is bisected south of the existing coast guard auxiliary shed by the boat ramp. Vegetation within the marsh consists of saltmarsh cordgrass (*Spartina alterniflora*), common glasswort (*Salicornia depressa*), salt marsh hay (*Spartina patens*), saltgrass (*Distichlis spicata*), and sea myrtle (*Baccharis halimifolia*). There are also a couple of dense stands of common reed (*Phragmites australis*) south of the Town pier in the upper reaches of the salt marsh. HW marked the landward boundary of the salt marsh using sequentially numbered, pink surveyor flagging (SM1 – SM17). Flag 17 is the

shared transition where Salt Marsh ends and transitions entirely to tidal flat (coastal beach) north of the Town pier. The flagging is marked as 'SM/TF 17'.



Photo 3. View of salt marsh facing north under low tide conditions. Downgradient of the salt marsh are tidal flats. A patch of *Phragmites* can be seen just south of the Town pier.

2.3.3 Coastal Beach

Coastal Beach is defined at 310 CMR 10.27(2) as “*unconsolidated sediment subject to wave, tidal and coastal storm action which forms the 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 bankline or the seaward edge of existing man-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.*”

Tidal Flat means “*any nearly 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.*”

Tidal Flat occurs landward of the mean low water line along Rock Harbor Creek. The Tidal Flat is bound on the landward side by coastal dune and filled tidelands (Chapter 91 jurisdiction) at

the northeast corner of the property (north and south of the existing dock) and by salt marsh for the remaining southern extent. The tidal flat consists of more coarse, unconsolidated material (sand and rock) at the northern section (where salt marsh is absent) and a finer, consolidated sediment (silt and sand) to the south. HW has marked the landward boundary of the Tidal Flat north of the existing salt marsh using sequentially numbered, pink surveyor flagging (TF17 – TF22). As noted, Flag 17 is the shared transition where Salt Marsh ends and transitions entirely to Tidal Flat.



Photo 4. View of tidal flat north of existing Town pier facing south.

2.3.4 Riverfront Area

Riverfront Area is defined at 310 CMR 10.58(2)(a)3 as “*the area of land between a river’s mean annual high-water line measured horizontally outward from the river and a parallel line located 200 feet away, (...)*.” The “*Mean Annual High-water Line of a river is the line that is apparent from visible markings or changes in the character of soils or vegetation due to the prolonged presence of water and that distinguishes between predominantly aquatic and predominantly terrestrial land. Field indicators of bankfull conditions shall be used to determine the mean annual high-water line. Bankfull field indicators include but are not limited to: changes in slope, changes in vegetation, stain lines, top of pointbars, changes in bank materials, or bank undercuts. (...)*”

c. In tidal rivers, the mean annual high-water line is coincident with the mean high water line determined under 310 CMR 10.23” [310 CMR 10.58(2)(a)2.c].

The Massachusetts Department of Environmental Protection (MassDEP) Mouth of Coastal River Maps for the Town of Eastham (Match 1, 2005) indicate that the mouth of Rock Harbor Creek is located downstream of this site, therefore conferring Riverfront Area at this site.



Riverfront Area at this site extends 200 feet landward from the mean high-water line (approximated the salt marsh boundary) of Rock Harbor Creek and encompasses nearly the entirety of the project site. Riverfront Area overlaps with the 100-foot buffer to the salt marsh, and includes the barrier beach, filled tidelands, gravel parking area and drive aisle, and the majority of the recently repaved State parking lot.

2.3.5 Land Subject to Coastal Storm Flowage

Land Subject to Coastal Storm Flowage (LSCSF) is defined at 310 CMR 10.04 as “*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, which ever is greater.*”

As noted above, the project site is located entirely within the coastal flood zone.

3.0 PROPOSED PROJECT

The proposed project consists of several interrelated elements, including the harbormaster building, associated parking, pervious walking footpaths, and additional recreational features such as picnic tables, bike racks, and a rinse station for bathers. Stormwater management, native and restoration landscaping, and resource area improvements through invasive species management are also included with this project, as well as formalizing the nearby beach parking lot with bumper stops. A description of these project elements is provided below.

Additional details are provided on the project Plans entitled, “Rock Harbor Harbormaster Building and Site Revitalization” and prepared by Kuth Ranieri Architects, Horsley Witten Group, Inc., and Landworks Studio, dated August 4, 2020, and revised through April 5, 2021 (**Attachment C**).

3.1 Design Considerations and Alternatives Analysis

The Applicant explored several alternatives to the proposed design and taking into account the design considerations discussed above. These include the No Action alternative, alternative designs, and the preferred alternative (the proposed project and Preferred Alternative).

3.1.1 No Build Alternative

The No-Build Alternative, while not resulting in impacts to resource areas or the buffer zone or within state mapped rare species habitat, would not meet the project purpose of addressing the strategic objectives and goals outlined in Town’s draft Harbor & Waterways Management Plan. The harbormaster operations would continue to be maintained in a remote location, where continual monitoring of harbor operations and safety conditions will be impractical. Slip holders and site visitors who are not permitted to utilize the State-controlled parking lot will continue to park in an unconsolidated and haphazard way within potential for additional incremental encroachment within sensitive coastal resource areas and necessitating the need for regular regrading of the gravel areas. Consolidation and formalizing of these parking patterns allows for areas closer to the salt marsh and river to be restored as part of the overall project and allows the site amenities to blend in with the surrounding natural landscape. Finally, opportunities for

further habitat restoration of areas overtaken by non-native vegetation would be overlooked. For these reasons, this alternative was dismissed.

3.1.2 Alternative Project Designs

During the course of project planning, the Town explored options for the proposed project in order to maximize the site usability, avoid and minimize impacts within regulated resource areas while still meeting the primary project purpose. Several iterations of the harbormaster building and approach ramps, including proposed locations of the building were considered by the Town committee. Proposed parking options were considered, including overlap with the existing paved parking lot and adding additional parking elsewhere at the site, which was dismissed due to the potential for alterations within otherwise undisturbed areas of coastal dune and rare species habitat, and allowing parking and traffic patterns on the paved lot to continue as existing. By replacing the unconsolidated and informal parking patterns within the gravel parking areas, and formalizing the parking, the Town is able to provide management of stormwater runoff from the proposed parking areas, improving water quality within the downgradient resource areas, and to restore some of the existing gravel area with native plantings as part of the site and habitat restoration efforts.

3.1.3 Preferred Alternative

The proposed project and preferred alternative avoids and minimizes resource area impacts in undisturbed areas, and while occurring within Riverfront Area (redevelopment), disturbed portions of coastal dune within a barrier beach system, within the coastal flood zone (LSCSF) and within the locally regulated 100-foot buffer zone, the project is largely confined to existing disturbed areas. Due to site constraints, complete avoidance of work within the resource areas and within the buffer zone to the salt marsh is unfeasible.

The proposed harbormaster building has been sited at the far northern portion of the site to maximize oversight of harbor operations and loading and unloading activities. The structure will be elevated on wooden pilings above the floodzone elevation in accordance with building regulations and FEMA regulations. The proposed parking for slip holders will be pulled further back from the edge of salt marsh and Rock Harbor Creek and will be formalized to allow for stormwater management of compacted or impervious surfaces where none currently exists.

The proposed bioretention area cells are designed to treat the first one inch of stormwater runoff from new impervious surfaces, and to meet the Massachusetts Stormwater Management Standards to the maximum extent practicable as required for a redevelopment project such as this one. Other stormwater practices were considered, but this type of BMP best fits the site constraints while providing the greatest water quality treatment. The bioretention areas as well as the surrounding proposed landscaping will be planted with native plantings that are suited to the site's coastal conditions and are consistent with the Conservation Commission's Acceptable Plantings for Buffer Zone to Resource Areas. Finally, the proposed site amenities will address the strategic objectives and goals outlined in the Town's draft Harbor & Waterways Management Plan and will be integrated with the landscape to allow for restoration of previously degraded areas. For these reasons, the proposed project is the Preferred Alternative.

3.2 Project Details

The proposed project will involve several components within the project site.

3.2.1 Harbormaster Building Design and Programming

The proposed Harbormaster Building is a small, 600 SF wood-framed structure (24 x 30) that will be supported by eight 12-inch pilings (piers). The first floor of the building is located above the FEMA-designated base flood elevation for the site; the first floor is planned to be at approximately 9 feet above grade (i.e., at elevation 17 feet above sea level) in accordance with FEMA flood regulations. The building form is a gabled rectangular structure with a 5-foot overhang on the south gable over an observation deck (5 feet x 24 feet) to provide the Harbormaster with views of the harbor, bay, and surroundings.

A ramp and stairs provide an accessible approach to the building. The 4-foot wide ramp is approximately 145 feet long (including landings and one switchback), and is also supported by pilings. A set of stairs placed at the northeast corner of the building will provide direct access to the building. The switchback and landing at the eastern end of the ramp is also accessed by stairs at one end.

Program

The harbormaster building will be a year-round office use. Anticipated staff is three full-time employees. The building spaces will include a reception area for visitors, open office space for three, a restroom (for staff use only), a kitchenette, and a coat closet. Exterior spaces include an observation deck for the harbormaster to survey the harbor and grounds and a landing at the head of the stair and ramp.

Foundation Considerations

The foundation of the building is proposed to be constructed of pressure-treated timber piles. The design team considered several options for the pilings, including pressure-treated southern yellow pine piles, and greenheart piles – a tropical hardwood from the Amazon and the most common wood alternative for pile foundations.

In weighing options for the pile system, we considered the impact of each choice on not just a local but a global scale. Greenheart wood is a durable tropical hardwood found only in the Amazonian rainforests of Guyana. While there are FSC-certified greenheart wood suppliers, the overall stock of this wood is in decline from over-harvesting. The global stock is estimated to have declined by more than 20% in the last three decades. Greenheart was listed on the International Union for Conservation of Nature and Natural Resources (IUCN) Red List as vulnerable until 1998 when the Guyana Forestry Association petitioned to have it removed. It is currently noted as “data deficient,” indicating that there is no current conservation data for the species. The IUCN Red List page notes that

“Regeneration in natural [greenheart] stands is very slow and poor germination success inhibits the establishment of plantations. According to work done by TROPENBOS (in litt.)

the low growth rates are sufficient to maintain viable populations of the species in undisturbed forests, however, this life strategy is at odds with logging.”¹

All greenheart wood is harvested from old-growth Amazonian rainforest. In addition, this timber product must then be transported over 2500 miles by sea to the Rock Harbor site, greatly increasing its embodied carbon footprint.

Pressure treated southern yellow pine does not share many of these environmental drawbacks. It is grown in forestry stands throughout the American south with a seed to harvest rate of approximately 40 years. Most pressure-treated pile suppliers offer FSC-certified piles. The pile preservation process typically utilizes chromate copper arsenate (CCA), a preservative approved by the EPA for use in a variety of industrial conditions, including use in pile foundation systems. The preservative concentrations used for foundation-application pilings are about half that required for water uses. The Treated Wood Council and the Western Wood Preservers Institute have investigated the localized effects of CCA-treated pile foundations in marine environments and found that “no adverse effects were documented in association with the use of (...) CCA-C.”²³

Considered on a global life cycle analysis scale, the design team has determined that a standard pressure-treated pile is the most appropriate and environmentally justifiable option for the construction of the pile foundation for this project.

Building Structure

Above the pile foundation, the building is proposed to be assembled using standard light frame construction. All framing below the base flood elevation will be pressure-treated wood. Aside from the proposed pile foundations, pressure treated wood will not contact the ground.

Building Ramps and Decks and Building Exterior

The building ramps and decks are proposed to be constructed with FSC-certified natural hardwood. The proposed species is black locust, an American hardwood that grows in the Northeast and mid-West. Black locust has excellent durability and rot resistance. It will be finished with a low/no-VOC exterior sealer. Guardrails and handrails will be stainless steel for durability. The building will be insulated at or above code minimum and sealed using the QII standard. The building will be clad in a pre-stained, FSC-certified cedar shingle. The roof will be architectural asphalt shingle.

¹ Red List Standards & Petitions Working Group. 2007. *Chlorocardium rodiei*. *The IUCN Red List of Threatened Species* 2007: e.T34688A9878638. <https://dx.doi.org/10.2305/IUCN.UK.2007.RLTS.T34688A9878638.en>. Downloaded on 26 August 2020.

² Western Wood Preservers Institute. 2012. *Treated Wood in Aquatic Environments*. https://woodpreservation.ca/wp-content/uploads/2020/03/aquatic_guide.pdf. Downloaded on August 28, 2020.

³ Treated Wood Council. 2012. *Conclusions and Summary Report Environmental Life Cycle Assessment of Marine Pilings*. ISO 14044 Compliant. https://preservedwood.org/portals/0/documents/LCA_MarinePiling.pdf. Downloaded on August 28, 2020.

Mechanical and Electrical Systems

The building will be heated and cooled using an electric wall-mounted heat pump unit. Ventilation will be provided using a Heat Recovery Ventilator (HRV). The exterior of the building will be minimally lit for safety and evening use. The interior will be lit according to office illumination standards.

A backup generator will be provided, mounted on a separate 6-foot x 5-foot prefabricated, perforated metal equipment deck that is elevated six feet above grade (to clear base flood elevation) and supported by four 6-inch x 6-inch greenheart piles. The generator will be screened from view such that it will be less obtrusive among the landscaping.

3.2.2 Parking, Site Amenities, and Landscape Design

The site design provides organization for parking and pedestrian circulation, while protecting and mitigating habitat degradation.

Under existing conditions, parking for slip users is somewhat *ad hoc* within the existing gravel/compacted dirt areas, which continues to erode the area east of the State parking lot, compromising vegetation and resulting in an expanding compacted sand/gravel area. The proposed design will formalize this parking and will be aligned with and adjacent to the recently repaved State parking lot. This configuration will allow access from the existing lot, limiting the total area used for new parking by incorporating existing drive aisles from the paved lot. The Town is coordinating directly with the State in the completion of pavement markings within the newly re-paved parking lot to allow for this overlap in use.

Proposed parking spaces (30) will be paved with standard bituminous asphalt, which deviates from the originally proposed shell surface, which over time can become compacted and function like an impervious surface. This will also result in a considerable cost-savings to the Town. Porous pavement was also briefly considered; however, the open coastal setting with wind bourn sands is not well-suited to porous surfaces which can become clogged over time without constant maintenance. The change to traditional asphalt did not change the design or sizing of the stormwater practices.

Delineation of the spaces will be through the use of parking wheel stops and standard pavement striping. Areas of no-parking and three ADA accessible parking spaces will be marked with signage and painted striping. One oversized parking space will be provided for the Harbormaster's boat trailer adjacent to the boat ramp.

Proposed walking surfaces will be pervious, comprising a structural geogrid system with crushed shell infill that will provide accessibility and enhanced drainage.

The primary walkway will extend from the public beach parking located at the end of Dyer Prince Road, to the State Parking Lot, around the north and western perimeters of the site to the boat ramp. Following the existing road to the north piers, an extension of the primary walk will allow access to the pier. This walkway will be amply wide to allow for vehicular drop-off of boating needs. From the approximate mid-point of the pier walkway, a third path will follow

along the back of coastal dune and towards the boat ramp, with intermittent connections to the path adjacent to the parking. This path provides opportunity for viewing of the piers, harbor, and salt marsh as well as expanding to accommodate open-air public functions. All pathway and boardwalk pad construction will comply with current ADA guidelines.

Benches, bicycle racks, and a rinse station will be provided. Whether boat users or casual beach visitors, these simple amenities make it convenient to travel to and enjoy time at Rock Harbor. To preserve the natural night-time environment of the site, there will be no site lighting beyond that on the building for safety and evening use. Lighting will take into account the adjacent sensitive habitats, the harbor, and the surrounding neighborhood as well as typical “dark sky” good practices.

The native plants observed within the coastal dune and salt marsh and/or native species typically associated with these communities provided the species guide for mitigation planting. The primary tree species is eastern red cedar. Closer to the northern site limit and adjacent to the drainage area, serviceberry (*Amelanchier arborea*) and sweet pepperbush (*Clethra alnifolia*) are proposed. Shrubs will include northern bayberry, beach plum (*Prunus maritima*), and Virginia rose (*Rosa virginiana*). Groundcover and grasses include seaside goldenrod (*Solidago sempervirens*), bearberry (*Arctostaphylos uva-ursi*), American beachgrass, and beach pea (*Lathyrus japonicus*).

Per the landscape plans (Sheet L1.1), native species will be planted in zones, according to the landscape programming (see also Table 1 below). Of note, is the proposed restoration area where a dense population of Japanese knotweed (*Fallopia japonica*) is currently growing. This area of coastal dune will be initially planted just with American beachgrass following initial treatment of the invasive species to help establish a native plant community during the initial growing seasons of on-going knotweed management. This area will later be supplemented with additional species to increase habitat diversity once the knotweed population has been managed as indicated. Please see Section 5.0 below for additional discussion on proposed invasive species management efforts.

Table 1. Proposed landscape plantings (borrowed from Sheet L1.1 of the landscaping plans prepared by Landworks Studio).

PLANTING LEGEND AT CONSTRUCTION					
GROUND COVER PLANTING					
HATCH	LATIN NAME	COMMON NAME	QTY	SIZE	NOTE
	ARCTOSTAPHYLOS UVA-URESI	BEARBERRY	750 sf	2" PLUGS	MIX AT 24" O.C.
	SOLIDAGO SEMPERVIRENS	SEASIDE GOLDENROD	750 sf	2" PLUGS	MIX AT 24" O.C.
	LATHYRUS JAPONICUS	BEACH PEA	750 sf	2" PLUGS	MIX AT 24" O.C.
	AMBOPHILA BREVLIGULATA	AMERICAN BEACHORASS	5500 sf	WHIPS	24" O.C.
	FESCUE SP.	LONG TURF	1000 sf	500	light wear
					
TREE AND SHRUB PLANTING					
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	8	3-4 hl	container grown
NS	NOSSA SYLVATICA	BLACK GUM	4	3" caliper	field grown
AA	AMELANCHIER ARGOREA	SERVICEBERRY	5	5 gallon	container grown
MP	MYRICA PENNSYLVANICA	SAYBERRY	26	5 gallon	container grown
PM	PRUNUS MARITIMA	BEACH PLUM	23	2 gallon	container grown
CA	CLETHRA ALNIFOLIA	CLETHRA	39	2 gallon	container grown
RV	ROSA VIRGINIANA	VIRGINIA ROSE	23	2 gallon	container grown

3.2.3 Stormwater Management

The proposed stormwater management system consists of three bioretention cells designed to treat the first one inch of stormwater runoff from new impervious surfaces and to meet the Massachusetts Stormwater Management Standards to the maximum extent practicable. The proposed stormwater management system will contribute to improved water quality within the downgradient receiving waters.

The bioretention areas will be planted with native plantings that are suited to the site's coastal conditions and are consistent with the Conservation Commission's Acceptable Plantings for Buffer Zone to Resource Areas.

Details of the proposed stormwater design are provided in the Stormwater Management Report (**Attachment D**).



Photo 5. Example of bioretention area designed within a coastal dune. Sandy Neck Beach, Barnstable, MA, August 2012. (Photo credit Horsley Witten Group.)

3.2.4 Wastewater Design

As noted, the proposed harbormaster building will support a staff restroom and small kitchenette. The proposed wastewater design will consist of an Advanced and Innovative (I/A) onsite wastewater treatment system designed to reduce nitrogen discharged into the environment. The treated effluent will be disposed of onsite in a wastewater leach field located in the northern portion of the site and outside of the Board of Health (BOH) setbacks. This system will be composed of a precast concrete septic tank, I/A treatment system components housed in precast concrete tanks and an effluent disposal leaching field.

The wastewater treatment system will be subject to reviewed and approval by the Eastham BOH; a copy of the application will be provided to the Conservation Commission once submitted.

3.3 Estimated Construction Sequencing and Timing

The following estimated construction sequence is intended to be used as a general guideline. The selected construction contractor will coordinate with the Town, architects, engineers, and landscape architects, and will submit a proposed construction sequence for review and approval prior to construction.

1. Survey and stake the proposed limit of disturbance and limit of sedimentation barriers.
2. Place sedimentation barriers as indicated on drawings and staked out in the field. Under no circumstances is the limit of work to extend beyond the sedimentation barriers/limit of disturbance as indicated on drawings as approved by the Conservation Commission and/or MassDEP.
3. Install temporary construction entrance in location indicated on drawings. No other entrances are to be used to gain access to the site by any construction or delivery vehicles.
4. Begin clearing the site as required, including implementation of invasive species management efforts.
5. Survey and stake centerline of the proposed structure, ramps, parking, stormwater management areas, and drainage lines.
6. Install pilings for building; begin building construction, including access stairs.
7. Excavate and rough-grade the proposed stormwater management areas and any additional temporary basins necessary to control site runoff and sediments. Temporarily stabilize/seed permanent stormwater management areas as necessary to reduce side slope erosion and sediment accumulation.
8. Begin clearing the areas of parking and stormwater management areas.
9. Install temporary conveyance devices (swales, check dams, pipes, etc.) as necessary to convey runoff to treatment areas.
10. Begin rough grading areas for parking, walkways, and buildings. Bring rough grading to proper elevations as soon as practicable. Coordinate work to minimize time soils are un-stabilized.
11. Begin utility construction. The contractor is free to install the utilities in the sequence he/she chooses. Immediately repair, replace, and stabilize any erosion control devices disturbed during the underground utility construction. Modify temporary conveyance devices, as necessary, to convey runoff to treatment areas.
12. Install drainage pipes, drainage manholes, and any underground drainage structures. Begin work at the stormwater management areas and progress up-gradient. Protect discharge outlets with rip-rap aprons. The stormwater management area(s) and drainage network are to be protected from sedimentation until all un-stabilized areas are stabilized with vegetation. Install sediment barriers at all points of entry into the drainage network. Take particular care to protect the underground structures from sediment.
13. Permanently seed all disturbed areas outside of the area to be paved or graveled.
14. Upon completion of underground utilities installation, place compacted gravel foundation and rough grade the parking/walkway areas in accordance with the site plans and in accordance with applicable state and local regulations as soon as possible.

15. Begin parking and walkway construction per site plans and in accordance with applicable state and local regulations. Parking areas are not to be paved until the entire permanent drainage system has been installed and all pipe connections complete.
16. Finish permanent stabilization. Complete permanent stormwater management area seeding and planting after the contributing area to the basin has reached a minimum of 80% stabilization and is no longer required as a construction sedimentation basin.
17. Complete all remaining planting and seeding.
18. Sweep the roadway to remove all sediments. Repair drainage outlets and basins as required. Clean and flush the drainage structures and pipes at the end of construction and remove all accumulated sediments in the stormwater management areas. Contractor must inspect the drainage network and repair any damage immediately.
19. Engineer to approve the removal of all temporary soil erosion and sedimentation control measures following vegetative establishment of all disturbed areas and determine when the contributing area has reached a minimum of 80% stabilization.

The proposed project is anticipated to commence in November 2021 and continue through the winter months and into April 2022. Prior to November 1, the existing buildings on site are to be relocated/removed by Town. As noted above, initial installation of site protection measures and installation of construction fencing, followed by actual construction. It is anticipated that the project construction and landscaping will be complete by the end of April 2022*.

**Note: This project is anticipated to be subject to time-of-year restrictions, as the project is located in a Priority Habitat of Rare Species for the diamondback terrapin. As such, construction start and end dates are subject to approval by NHESP. Final construction scheduling will be performed by the Contractor.*

The Applicant will also work with the Town and the Conservation Commission to ensure appropriate timing of invasive species management prior to proposed landscaping within areas where Japanese knotweed is proposed to be removed.

3.4 Affected Jurisdictional Areas

The proposed project is largely a redevelopment project with project elements sited over previously disturbed gravel parking areas and within an altered strip of vegetation adjacent to the existing recently repaved State parking lot. Proposed project elements also include work within a portion of coastal dune/barrier beach where non-native Japanese knotweed has become established as a near monoculture, and restoration of the native plant community is proposed as mitigation for this project. Table 2 below provides a summary of temporary and permanent impacts to jurisdictional areas.

The total limit of work is 30,454 SF (0.70 ac) and consists of redevelopment and new development related to the proposed site improvements and revitalization efforts. As this is largely a redevelopment project, Table 2 does not account for alteration of existing gravel or otherwise degraded areas. Temporary alterations are confined to the proposed efforts to revegetate existing gravel areas and efforts to manage the population of Japanese knotweed located to the north of the existing paved and gravel parking areas with the goal of re-establishing a native dune community.

Resource areas overlap considerably at the site, therefore work within Barrier Beach/Coastal Dune may also occur within Riverfront Area and within the 100-foot buffer to salt marsh (i.e., also approximated as the inner 0-100 foot Riverfront Area). The entire limit of work falls within the coastal flood zone (LSCSF).

Table 2. Summary of Resource Area Impacts

Resource Area	Impacts	
	Temporary	Permanent
Barrier Beach/Coastal Dune	9,441 SF	3,643 SF
Land Subject to Coastal Storm Flowage (LSCSF)	30,454 SF	
Buffer Zone to Salt Marsh (restoration)		4,100 SF
Riverfront Area		
Total Riverfront Area on site	(83,625 SF)*	
Total Degraded Riverfront Area	(65,861 SF – 78.8%)	
Proposed new work within 0 to 100-foot Riverfront Area		1,065 SF
Proposed new work within 100 to 200-foot Riverfront Area		2,669 SF
Proposed new total degraded Riverfront Area		69,595 SF (83.2%)

Please note that the coastal resource areas overlap at this site and are not additive.

*Accounts for existing impervious surfaces associated with adjacent State parking lot

4.0 PROTECTION OF RESOURCE AREA INTERESTS

Proposed work will occur within previously disturbed areas of coastal dune that is part of a barrier beach system, within previously degraded Riverfront Area, and within the 25-foot and 100-foot buffer zone to salt marsh as locally regulated. All proposed activities will also occur within LSCSF. No work will occur within salt marsh or along the tidal flats (i.e., below mean high water). A discussion of how the project is designed to meet the performance standards is provided in the sections below.

4.1 Performance Standards

4.1.1 Barrier Beach (Coastal Dune)

The performance standards for work within a barrier beach are broken into work within coastal beaches and coastal dunes. As noted, no work will occur within coastal beach (tidal flats). Proposed work within coastal dunes falls into two categories. Areas of the existing gravel parking lot and weedy area adjacent to the State parking lot are identified in MassGIS as part of the Barrier Beach System (see Attachment A, Figure 4) , and proposed work will “redevelop” these degraded areas as well as provide for opportunities to restore native dune habitat closer to the salt marsh and river (approximately 4,100 SF). The second area of coast dune alteration involves the eleven proposed parking spaces and shell walking path that will occur in an area of coastal dune to the north of the existing State parking lot, where a near monoculture of Japanese knotweed has become established, diminishing the ability of the coastal dune to provide its natural functions and values of storm damage prevention and wildlife habitat. As part of this project, the Town proposes to manage the population of Japanese knotweed that extends beyond the proposed parking and footpath and proposed bioretention area

(approximately 3,715 SF) by removing the knotweed and restoring the area with native coastal plants, for a total of 7,815 SF of dune habitat restoration.

The regulations at 310 CMR 10.29 state:

(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.

310 CMR 10.27(3) through (6) (coastal beaches)

(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 proposed project will not occur within coastal beach (tidal flats). Upgradient restoration of adjacent existing disturbed portions of coastal dune, proposed retreat of unconsolidated parking, and proposed stormwater management (not previously provided for the existing informal, compacted gravel and dirt parking areas) will allow for greater protection of the downgradient resource areas.

(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:

- (a) It shall be the minimum length and height demonstrated to be necessary to maintain beach form and volume. In evaluating necessity, coastal engineering, physical oceanographic and/or coastal geologic information shall be considered.*
- (b) Immediately after construction any groin shall be filled to entrapment capacity in height and length with sediment of grain size compatible with that of the adjacent beach.*
- (c) Jetties trapping littoral drift material shall contain a sand by-pass system to transfer sediments to the downdrift side of the inlet or shall be periodically redredged to provide beach nourishment to ensure that downdrift or adjacent beaches are not starved of sediments.*

Not applicable. The proposed project does not involve the construction of a groin, jetty, solid pier or other such solid fill structure.

(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.

Not applicable. The proposed project does not involve beach nourishment.

10.28(3) through (5) (coastal dunes)

(3) Any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:

(a) affecting the ability of waves to remove sand from the dune;

The project site is not subject to regular wave action, as it is on the backside of the primary dune system and will not affect the ability of waves to remove sand from the dune.

(b) disturbing the vegetative cover so as to destabilize the dune;

The proposed disturbance of existing vegetation is concentrated in an area of coastal dune that has been overtaken by Japanese knotweed. The presence of this invasive species diminishes the ability of the coastal dune to stabilize the dune sediments as compared to native vegetation such as beachgrass. Restoration of the areas beyond the proposed parking and extending these restoration efforts along the entrance to the site along Dyer Prince Road will restore native habitat and improve the ability of the resource area to protect the interests under the Massachusetts Wetlands Protection Act and the local Eastham Wetlands Protection Bylaw.

(c) causing any modification of the dune form that would increase the potential for storm or flood damage;

The proposed parking and footpath will be at grade and will not appreciably modify the dune form such that it would increase the potential for storm or flood damage.

(d) interfering with the landward or lateral movement of the dune;

The existing dune is densely vegetated and thereby less vulnerable to lateral or landward movement of the dune. Proposed restoration of areas overtaken by Japanese knotweed by replating beachgrass will help to restore this natural function.

(e) causing removal of sand from the dune artificially; or

The existing dune is densely vegetated and thereby less vulnerable to lateral or landward movement of the dune. Proposed parking and footpaths are at grade. Restoration of the portion of the dune dominated by invasive species using native coastal plant species will improve the ability of the dune to stabilize sediments.

(f) interfering with mapped or otherwise identified bird nesting habitat.

The area is not mapped as bird nesting habitat. Further, the area of dune to be altered is dominated by non-native invasive species that make this area less like to provide suitable bird nesting habitat.

Proposed activities within the coastal dune are two-fold. Within existing previously disturbed portions of the coastal dune (i.e., within the existing gravel parking lot and weedy area adjacent to the State parking lot), proposed work will “redevelop” these degraded areas by relocating and formalizing the existing parking further from the salt marsh and river. Restoration of Japanese knotweed infested areas with native beachgrass will improve wildlife habitat at this site.

(4) Notwithstanding the provisions of 310 CMR 10.28(3), when a building already exists upon a coastal dune, a project accessory to the existing building may be permitted, provided

that such work, using the best commercially available measures, minimizes the adverse effect on the coastal dune caused by the impacts listed in 310 CMR 10.28(3)(b) through (e). Such an accessory project may include, but is not limited to, a small shed or a small parking area for residences. It shall not include coastal engineering structures.

Not applicable.

(5): The following projects may be permitted, provided that they adhere to the provisions of 310 CMR 10.28(3):

- (a) pedestrian walkways, designed to minimize the disturbance to the vegetative cover and traditional bird nesting habitat;*
- (b) fencing and other devices designed to increase dune development; and*
- (c) plantings compatible with the natural vegetative cover.*

The proposed pedestrian walkways that are located with the dune areas are focused in an area north of the State parking lot where a near monoculture of Japanese knotweed has become established, undermining the ability of this area to naturally stabilize the dune sediments. The walking path will be at grade, and mitigation in the form of dune habitat restoration across the site is proposed at an approximately 2.4:1 ratio.

(6) Notwithstanding the provisions of 310 CMR 10.28(3) through (5), no project may be permitted which will have any adverse effect on specified habitat sites of Rare Species, as identified by procedures established under 310 CMR 10.37.

The proposed project, while occurring within mapped habitat for rare species, is largely a redevelopment project with minor impacts to undisturbed coastal resource areas (a small amount of coastal dune near the proposed harbor master house where the proposed structure will be elevated on pilings, and in the northern portion of the site where alterations will occur within an area overtaken by non-native invasive species. Proposed habitat restoration will improve the ability of the coastal dune (barrier beach) to provide suitable habitat for native wildlife, including and state-listed rare species.

The Applicant understands that NHESP will provide additional review and comment of the project and its potential impacts to rare species habitat. Based on information from the Town, it is anticipated that there may be time of year restrictions for construction of the project.

NHESP provided a letter dated October 13, 2020 (NHESP No. 13-32126) indicating that the proposed project “as currently proposed, will not result in a prohibited Take of state-listed rare species.” And further, the letter indicated that as currently proposed, will not result in a prohibited Take of state-listed rare species” under Massachusetts Endangered Species Act (MESA). A copy of the revised project plans has been sent to NHESP for confirmation of these determinations.

4.1.2 Riverfront Area

As noted, Riverfront Area encompasses the majority of the project site with the exception of a portion of the shell parking area and walkway, and the formalizing of the beach parking lot

parking spaces that are located to the far northwest of the project site. The project meets the definition of redevelopment under the regulations at 310 CMR 10.58(5). A discussion of the performance standards follows.

(5) Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation. Notwithstanding the provisions of 310 CMR 10.58(4)(c) and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds. Work to redevelop previously developed riverfront areas shall conform to the following criteria:

(a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.

The proposed project will result in a net improvement over existing conditions by formalizing formerly unconsolidated parking and providing for stormwater management to improve water quality of runoff discharging from the site. Under existing conditions, parking for slip holders is *ad hoc*, and often results in parking along the periphery of the existing gravel areas necessitating regrading of the area on a regular basis. Non-native vegetation has begun to overtake and spread throughout the native plant community, reducing its ability to provide suitable habitat for native wildlife. The proposed project will improve the ability of this area to provide wildlife habitat through native habitat restoration.

(b) Stormwater management is provided according to standards established by the Department.

Notwithstanding the recent efforts installed to address stormwater runoff from the State controlled paved parking area, under existing conditions, stormwater runoff from unconsolidated gravel areas flows unchecked into the downgradient receiving waters. The project proposes a series of three interconnected bioretention cells that will treat the first one inch of stormwater runoff and will contribute overall to an improvement in water quality within Rock Harbor Creek and its associated coastal resource areas. Details and a discussion of the proposed stormwater management system are provided in **Attachment D**.

(c) Within 200 foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25 foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

Nearly the entirety of the project site is within the 0 to 100-foot Riverfront Area. Under existing conditions, gravel parking areas are located nearly to the salt marsh edge or else along the

narrow band of residual coastal dune just upgradient. There is also an existing structure (coast guard shack) that is located partially within the saltmarsh itself. While the Coast Guard structure will remain, as it is not part of this project, the parking areas will be pulled further landward from the edge of the resource areas, consolidated and formalized adjacent to the existing paved parking lot that is controlled by the State. The Town proposes to revegetate and restore native plant communities within remaining degraded areas as integrated into the modular platforms and walkways.

(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).

The proposed harbormaster building, originally sited closer to the river, has been relocated under the revised plans. The structure will be elevated on wooden pilings in accordance with applicable building codes, and areas beneath and adjacent to the ADA ramp system will be planted with native vegetation. Roof runoff will be infiltrated through a perimeter stone drip edge.

(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).

Under existing conditions, approximately 78.8% of the Riverfront Area within the project site meets the definition of degraded (impervious surfaces/lacking in topsoil). The proposed project will result in a slight increase in work within Riverfront Area to accommodate a portion of the formalized parking and walkway connector from the beach parking area, as well as a small bioretention area, that will occur north of the State parking lot in a portion of coastal dune (barrier beach system/Riverfront Area) that is currently dominated by Japanese knotweed. As part of the project, the Town proposes to manage this non-native invasive species in the immediate surrounding area north of the proposed project activities and extending around the access driveway to the main parking area within the right of way of Dyer Prince Road (approximately 3,715 SF). This effort, coupled with other habitat restoration efforts in the Riverfront Area will result in a net improvement of native habitat both within the Riverfront Area as well as within adjacent resource areas (Coastal dune/barrier beach) beyond the 200-foot Riverfront Area in accordance with 310 CMR 10.58(5)(f), below. A total of 7,815 SF of restoration is proposed.

(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:

- 1. removal of all debris, but retaining any trees or other mature vegetation;*
- 2. grading to a topography which reduces runoff and increases infiltration;*
- 3. coverage by topsoil at a depth consistent with natural conditions at the site; and*

4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;

Proposed habitat restoration totaling approximately 7,750 SF will result in a restoration effort of degraded and otherwise compromised Riverfront Area at an approximately 1:1 ratio. Management of non-native invasive plants and restoration with native plantings (see landscape plans and details in the project planset (**Attachment C**). Additional details of the restoration efforts will be submitted under separate cover.

(g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 through 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Energy and Environmental Affairs.

Not applicable. Proposed restoration will occur on site.

(h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.

The Applicant understands that the Order of Conditions (OOC) and future Certificate of Compliance (COC) will prohibit further alteration within the restored areas of the Riverfront Area. According to the local regulations, this area will be managed and monitored for a period of three growing seasons.

4.1.3 Locally Regulated Buffer Zone

In accordance with the local wetlands bylaw,

No permit shall be issued for any activity in the buffer zone, unless the applicant, in addition to meeting the otherwise applicable requirements of this Bylaw, has proved by a preponderance of the evidence that:

- 1) there is no technically demonstrated feasible alternative to the project with less adverse effects; and*
- 2) that such activities, including proposed mitigation measures, will have no significant adverse impact on the areas or values protected by this Bylaw.*

As discussed in Section 3.1, above, the Town explored alternative designs and locations for the proposed and determined that the proposed project (the preferred alternative) is the alternative that best meets the project purpose while remaining sensitive to the project purpose and need.

Under existing conditions, nearly the entire buffer zone to the salt marsh and residual coastal dune parallel to the State parking lot and Rock Harbor Creek is disturbed and or degraded as impervious surfaces and non-native invasive or weedy plant communities. The proposed project will consolidate the *ad hoc* parking area used by slip holders, provide stormwater management to treat runoff from impervious surfaces that will improve the water quality within downgradient resource areas, while also resulting in improved amenities for site users. New work (covered areas) within the 0-100 foot buffer zone amounts to approximately 3,734 SF. The bioretention areas will also be vegetated with native plant species compatible with the surrounding natural landscape.

Upon implementation of the proposed restoration plan for degraded areas of the buffer zone closer to the salt marsh as well as implementation of the management plan to treat and manage Japanese knotweed (and other non-native species) in the outer Riverfront Area and coastal dune, the project will result in overall improved wildlife habitat within the buffer zone at an approximately 2.4:1 ratio when accounting for the resource area and buffer zone restoration efforts.

4.2 **Rare Species Habitat**

As noted, the Applicant understands that this site has been mapped for the Northern Diamond-backed Terrapin, a medium sized salt marsh turtle that is listed as a Massachusetts Threatened species. The proposed project will avoid direct impacts to salt marsh and will result in improved conditions immediately adjacent to the undisturbed areas of coastal dune at this site where proposed native landscaping will be integrated into the project elements.

The NHESP fact sheet notes cite threats to this species and a loss or reduction in salt marsh habitat and loss of sandy nesting habitat or destruction of dune areas. As noted, the project will respect the narrow strip of dune immediately adjacent to the salt marsh and will improve the dune habitat by restoration native dune vegetation in areas of existing compacted gravel where former *ad hoc* parking occurred. The proposed project will also contribute to water quality

improvements of stormwater runoff that is currently discharging, untreated, into the downgradient salt marsh.

As part of their review of this project under both Massachusetts Wetlands Protection Act and MESA, NHESP will review the project for potential impacts to this species and its habitat. As noted above, NHESP has provided a letter indicating that the proposed project will not result in adverse impacts to this species. A copy of this revised project design has been forwarded to NHESP for confirmation.

Based upon experience with other projects, it is anticipated that NHESP may impose time of year restrictions to accommodate the nesting periods of this species (early June and July, depending on NHESP records for this site, and the Town will adhere to any restrictions placed on construction.

4.3 Erosion and Sedimentation Control

The Town proposes to protect adjacent resource areas beyond the limit of work by implementing a sedimentation and erosion control program for the project. A sediment and erosion control barrier consisting of siltation sock (also referred to as mulch sock or silt sock) will be placed at the limit of work. Erosion control barriers will remain in place and will be maintained in good condition until all work is complete and all soils have been stabilized.

4.4 Stormwater Management

With the exception of the newly constructed bioretention area designed to address stormwater runoff of the recently repaved parking lot (summer 2020), there are no stormwater management facilities at Rock Harbor to address other areas of impervious or compacted surfaces. The proposed project will incorporate three bioretention cells to treat some portions of existing and all proposed redeveloped impervious surfaces for the project. The proposed system will help to improve water quality in the downgradient resource areas and within Rock Harbor Creek, which is identified as a Category 4 water under the most recent MassDEP 303(d) –Integrated List of Waters (MA96-16; EPA TMDL No.36772) and is listed as impaired for fecal coliform.

The proposed stormwater management system consists of three bioretention cells designed to treat the first one inch of stormwater runoff and to meet the Massachusetts Stormwater Management Standards to the maximum extent practicable. The bioretention areas will be planted with native plantings that are suited to the site's coastal conditions and are consistent with the Conservation Commission's Acceptable Plantings for Buffer Zone to Resource Areas.

Details of the proposed stormwater design are provided in the Stormwater Management Report (see **Attachment D**).

5.0 MITIGATION

Proposed mitigation measures, in addition to the proposed stormwater management and construction related erosion and sedimentation control, the Applicant proposes restoration of

degraded areas of former and existing coastal dune (part of a barrier beach complex) and in Riverfront Area as well as within the buffer zone to salt marsh.

5.1 Invasive Species Management

In compliance with the Conservation Commission policy for specifically addressing the spread of Japanese knotweed, the Applicant proposes to implement an invasive species management plan to specifically target this species. Specifically, in the northern portion of the site, a dense swath of this non-native plant has become established, displacing native vegetation and degrading wildlife habitat. The Applicant proposes to manage this non-native species with a combination of mechanical and chemical methods to drastically reduce the presence of this species within the resource areas. The following provides the anticipated methodology for addressing this non-native species. Additional species to be targeted include a small population of spotted knapweed (*Centaurea stoebe*) and some seedling Black locust (*Robinia pseudoacacia*) located in the northeastern portion of the site (Photo 6).



Photo 6. Close up view of existing population of Japanese knotweed that currently occupies a portion of otherwise undisturbed coastal dune. A small patch of spotted knapweed is visible in the foreground (pale pink/purple flowers).

5.1.1 Japanese Knotweed

Japanese knotweed is an upright, herbaceous, shrub-like perennial native to eastern Asia. Its stems are hollow, smooth, and swollen at the joints. The alternate leaves are broad and oval, triangular, or heart-shaped with a pointed tip and may become six inches long and three to four inches wide. It has greenish white flowers and can spread by seed as well as via rhizomes, runners, and stems (vegetative growth). Damaged stem segments are able to re-grow if the buds at the nodes are viable. Once a population of knotweed becomes established, it spreads primarily by growth along its large rhizomes, which can become up to 30 feet long. Japanese knotweed flowers in August and September, with seeds emerging two weeks following flowering. Japanese knotweed requires high amounts of sunlight and normally does not establish within forest understory.

Japanese knotweed is one of the most prevalent invasive species at this site and within the Riverfront Area. It occurs in a strip of near monotypic stands along the edge of the existing degraded dunes and north of the existing paved parking lot and extending along the entrance drive from Dyer Prince Road. Because of the density of Japanese knotweed and in consideration of the practicality and logistics and access for long-term management at this site, the recommended management method is a combination of cutting and herbicide application. It is generally acknowledged by land managers that the use of herbicides is necessary to control this particular invasive species, and a combination of cutting and herbicides is even more effective for the control of this species.

Based upon the location and land use, a combination of herbicide use and mechanical methods are the recommended means of control of Japanese knotweed. In all cases where Japanese knotweed has created a near monoculture, once these areas are effectively managed, they will require revegetation with native plant species. Control of this species may require multiple years of management (e.g., three to five years of repeated treatment before the Japanese knotweed population is effectively controlled. Quickly establishing native plant vegetation in the treated area will help to discourage the reestablishment of this species invasive.

- Mechanical removal of early growth is proposed early in the growing season (mid-May), where new growth of knotweed canes will be flush cut with the ground and all cut vegetation is bagged, removed from the site, and disposed of properly. At this time, older, dead growth of Japanese knotweed should also be removed, bagged, and disposed of similarly to allow for growth of understory to continue with fewer impediments. Cutting is repeated later in the growing season (August), and cut growth is again disposed of in a similar manner. Once regrowth of Japanese knotweed develops leaves, it may be effectively treated with herbicides by a Massachusetts Licensed Pesticide Applicator.
- Chemical Techniques. As there are nearby, non-target (native) species growing in close proximity to the knotweed, application of an herbicide solution (2% glyphosate) should be applied with the use of a “weed glove” to avoid herbicide application on non-target plants and to reduce the potential for herbicides within the aquatic environment. Dead stalks should be cut, removed, bagged, and disposed of properly. Alternatively, and should this method be allowed, foliar spraying is an effective control strategy for dense, monotypic populations of Japanese knotweed. Glyphosate (2% solution) and triclopyr (3-4% solution)

are most commonly used in foliar spraying. A low-pressure sprayer and coarse spray pattern should be used when foliar spraying. The spray mechanism should be fitted with a spray nozzle that allows for the user to control the direction and range of the herbicide. Foliar spraying of the monotypic knotweed patches should occur no closer than 10 feet from the edge of water. Foliage should be sprayed generously until wet without dripping. Foliar spraying should be conducted when knotweed shoots are one to two meters (3-6 feet) tall during non-windy conditions when the two-to three-day extended weather forecast does not call for precipitation. If larger plants exist, they must be cut to a height of approximately 1.5 meters (about 5 feet) prior to applying foliar herbicide. All cut plant parts must be bagged and sealed and disposed of properly to prevent spread and to reduce the potential for resprouting from cut fragments.

5.1.2 Spotted Knapweed Control

Spotted knapweed is a perennial herb with a strong taproot and grows aggressively in full sun and well-drained soils, conditions found within many coastal dunes. Established populations are especially troublesome in coastal dunes since the root system of this species, unlike native dune species such as American beachgrass, has poor soil binding abilities. Management of spotted knapweed is recommended when there is evidence that this species has established and is expanding in population size. The most cost-effective strategy is to prevent the spread of this plant to non-infested areas. As with other invasive species, potential management techniques for spotted knapweed include both mechanical and chemical measures. Research has shown that areas that have experienced infestations by spotted knapweed and have been treated by these measures eventually recovered and returned to the original native groundcover.

- Mechanical Techniques. Small populations of spotted knapweed may be controlled through persistent hand-pulling prior to seed set. With hand pulling, the entire crown and taproot of the plant must also be removed. Digging is a control technique that has proven to be very effective in areas with densities of less than 10 plants per square meter, as is the case at this site. Proper disposal of the excavated plants is essential. Mowing of large, dense populations of spotted knapweed during the months of April and May, preceding germination, reduces the plant populations' ability to successfully produce a seed crop. Special care would need to be taken to ensure that plant fragments and seeds are not spread by the mower. However, due to the location of the knapweed populations within coastal dune areas at the Airport, mowing may not be appropriate. In addition, mowing often results in the plants merely re-flowering at lower heights. Reseeding and/or planting with a native grass species (i.e., American beachgrass) is recommended following removal of the knapweed to allow for native succession.
- Chemical Techniques. Should mechanical removal prove unsuccessful, consideration for use of chemical controls may be recommended for further consideration by the Conservation Commission. Studies and previous control efforts reference two herbicides that have been used with varying degrees of success for managing spotted knapweed. These include Picloram and 2,4-D chemicals. Picloram, while successful in preventing germination of seeds within the soil, remains active in the soil for a period of up to four years. Its effects on other native species are unknown. Use of picloram near water or in

porous substrata overlying groundwater that is less than ten feet from the surface is discouraged, as it leaches into groundwater and has been documented to adversely affect trees and shrubs. The herbicide known as 2,4-D is considered only a temporary method of control, since it does not prevent germination of the seeds already in the soil. Triclopyr application (3% solution, water soluble formulation) at a rate of three to four times per year for two years has been documented to control plants from growing in the seed bank. Triclopyr should be sprayed on the entire plant except the flower, sparing it for native fauna. In addition, triclopyr does not affect grasses.

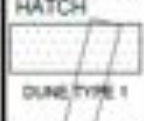


However, proposed management of this species is mechanical only at this site at this time.

5.2 Mitigation Plantings

As noted, the Applicant proposes restoration plantings of native trees, shrubs, and herbaceous species designed to revegetate degraded bare areas of the site, enhance sparsely vegetated areas where foot traffic has degraded the natural areas. Landscape and restoration plantings are designed to fit in seamlessly with the surrounding undisturbed portions of the resource areas at the site and will be allowed to grow in naturally to enhance and improved that habitat values of the resource areas and their ability to serve the interests under the Massachusetts Wetlands Protection Act and the local Wetlands Bylaw.

Additional plantings are proposed in areas managed for Japanese knotweed in the northern portion of the site, but on a staggered schedule. Initial plantings of American beachgrass will serve to stabilize the dune area while the knotweed is treated. Following two to three years of invasives management and monitoring, the Town proposes to supplement the beachgrass community with similar species planted in other restoration areas, in accordance with Table 3.

Table 3. Supplemental plantings for invasive species management area (borrowed from Sheet L1.1 of the landscaping plans prepared by Landworks Studio).

PLANTING BY OWNERS (AFTER 3 YEARS OF INVASIVE REMEDIATION)					
GROUNDCOVER PLANTING					
HATCH	LATIN NAME	COMMON NAME	QTY.	SIZE	NOTE
 DUNE TYPE 1	ARCTOSTAPHYLOS UVA-URSI SOLIDAGO SEMPERVIRENS LATHYRUS JAPONICUS	BEARBERRY SEASIDE GOLDENROD BEACH PEA	0 sf 0 sf 0 sf	2" PLUGS 2" PLUGS 2" PLUGS	
 DUNE TYPE 2	AMMOPHILA BREVIUGULATA	AMERICAN BEACHGRASS	0 sf	WHIPS	
 DUNE TYPE 3	FESCUE SP.	LONG TUB	0 sf	SOD	
TREE AND SHRUB PLANTING					
JV	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	5	3'-4' ht.	container grown
NS	NISSA SYLVATICA	BLACK GUM	0	3" caliper	field grown
AA	AMELANCHIER ARBOREA	SERVICEBERRY	3	5 gallon	container grown
MP	MYRICA PENNSYLVANICA	BAYBERRY	0	5 gallon	container grown
PM	PRUNUS MARITIMA	BEACH PLUM	9	2 gallon	container grown
CA	CLETHRA ALNIFOLIA	CLETHRA	13	2 gallon	container grown
RV	ROSA VIRGINIANA	VIRGINIA ROSE	22	2 gallon	container grown

6.0 REFERENCES

Fact Sheet for Northern Diamond-backed Terrapin (*Malaclemys terrapin*) updated 2019, Massachusetts Division of Fisheries & Wildlife, Natural Heritage and Endangered Species Program

Massachusetts Department of Environmental Protection, MassDEP Massachusetts Year 2016 Integrated List of Waters: Final Listing of the Condition of Massachusetts' Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act, Prepared by Massachusetts Division of Watershed Management, Watershed Planning Program (CN: 470.1), December 2019.

Swain, P.C. 2020. Classification of the Natural Communities of Massachusetts. Version 2.0. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife. Westborough, MA.

Town of Eastham Harbor & Waterways Management Plan January 2020 (Draft) prepared by the Urban Harbors Institute, University of Massachusetts, Boston and Woods Hole Group <https://www.eastham->

[ma.gov/sites/g/files/vyhlf4371/f/uploads/draft_eastham_harbor_and_waterways_plan_for_public_review_jan_2020.pdf](https://www.eastham-ma.gov/sites/g/files/vyhlf4371/f/uploads/draft_eastham_harbor_and_waterways_plan_for_public_review_jan_2020.pdf)

Town of Eastham Local Comprehensive Plan Third Edition 2012 (Draft). https://www.eastham-ma.gov/sites/g/files/vyhlf4371/f/uploads/lcp_final_draft_06-13-12.pdf

Town of Eastham Municipal Vulnerability Preparedness & Hazard Mitigation Planning: Draft Hazard Mitigation Plan 2020 (currently out for public comment)
<https://easthammvp.weebly.com/>

Attachment A – Locus Maps



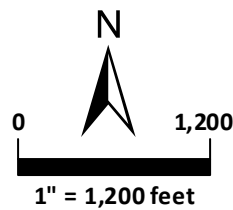
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Legend

 Site

*Orleans and Orlens. OE W Topographic Quadrangles

Horsley Witten Group
 Sustainable Environmental Solutions
 93 Toulon Dr • Unit 1 • Warwick, MA 02823
 508-833-5500 • horsleywitten.com

USGS Locus
 Rock Harbor
 Eastham, MA




Date: 8/17/2020

Figure 1



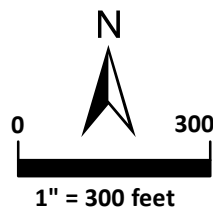
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Legend

-  Site
-  Parcels, Eastham MA
-  Parcels, Orleans MA

*Esri Clarity World Imagery

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 Sustainable Environmental Solutions
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 508-833-6600 • horsleywitten.com

Aerial Photograph
 Rock Harbor
 Eastham, MA

Date: 9/4/2020

Figure 2






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Legend

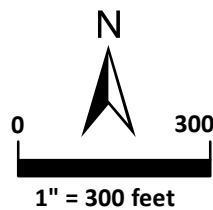
 Site

Flood Zone

-  AE - 1% Annual Chance Flood Hazard
-  VE - 1% Annual Chance Flood Hazard
-  X - 0.2 % Annual Chance Flood Hazard

*ESRI Clarity World Imagery

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FEMA's National Flood
 Hazard Layer
 Rock Harbor
 Eastham, MA

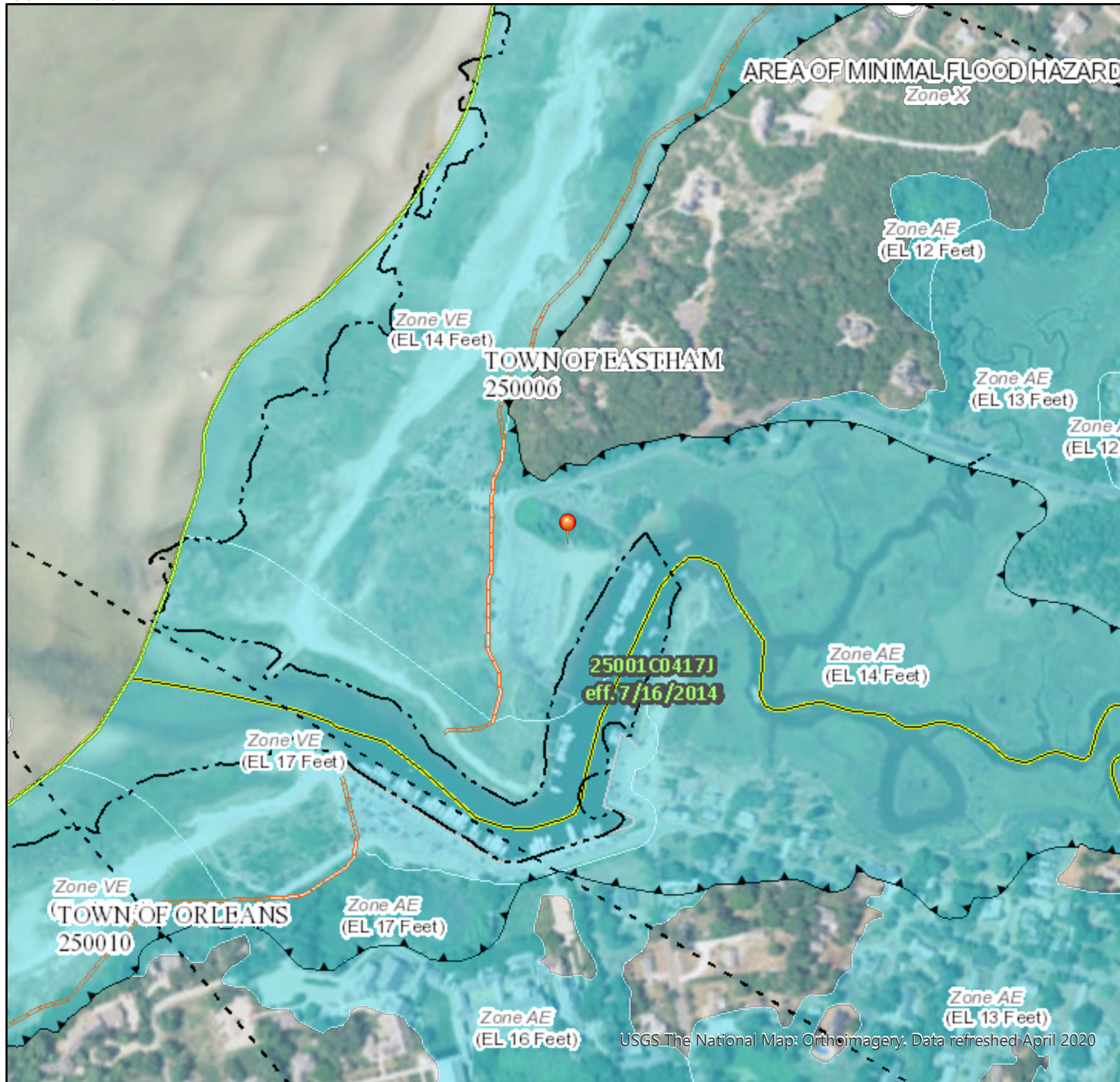
Date: 9/4/2020

Figure 3

National Flood Hazard Layer FIRMMette



70°0'42"W 41°48'19"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
MAP PANELS		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **8/12/2020 at 11:04 AM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.
















USGS The National Map: Orthoimagery. Data refreshed April 2020
70°0'4"W 41°47'52"N




Figure 3A



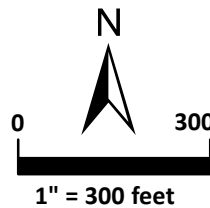
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Legend

-  BARRIER BEACH SYSTEM
-  BARRIER BEACH-COASTAL BEACH
-  BARRIER BEACH-COASTAL DUNE
-  COASTAL BANK BLUFF OR SEA CLIFF
-  COASTAL BEACH
-  COASTAL DUNE
-  DEEP MARSH
-  OPEN WATER
-  SALT MARSH
-  SHALLOW MARSH MEADOW OR FEN
-  SHRUB SWAMP
-  TIDAL FLAT
-  WOODED SWAMP DECIDUOUS

-  NHESP Priority Habitats of Rare Species
-  NHESP Estimated Habitats of Rare Wildlife
-  Site

*ESRI Clarity World Imagery



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**Wetlands and NHESP
 Priority and Estimated Habitats
 Rock Harbor
 Eastham, MA**

Date: 9/4/2020

Figure 4



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Legend



Site

Hydrologic Soil Group

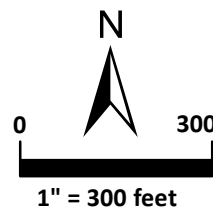


A



D

*ESRI Clarity World Imagery



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Soils
Rock Harbor
Eastham, MA

Date: 9/4/2020

Figure 5

Attachment B – NHESP Fact Sheet and Correspondence



Natural Heritage & Endangered Species Program

www.mass.gov/nhesp

Massachusetts Division of Fisheries & Wildlife

Northern Diamond-backed Terrapin *Malaclemys terrapin*

State Status: **Threatened**

Federal Status: **None**

DESCRIPTION: The Northern Diamond-backed Terrapin is a medium-sized salt marsh turtle. It has a wedge-shaped carapace (top shell), variably colored in ash grays, light browns, greens and blacks. It has concentric ring patterns on the carapace and a pronounced ridged or bumpy mid-line keel. Both sexes have grayish to black skin, spotted with dark green flecks, and light-colored upper and lower jaws. This turtle has very large, paddle-like hind feet that are strongly webbed. Sexual size dimorphism is prominent in this species. Adult females are considerably larger than males ranging from 15-23 cm (6-9 in.) in length, while males are 10-15 cm (4-6 in.). Hatchlings look like adults and are about 2.6 cm (1 in.) long.

SIMILAR SPECIES: There are no other brackish water turtle species in Massachusetts. This is the most distinctive turtle in both appearance and its habitat use. It is not likely to be confused with any other turtle species resident within the Commonwealth. Occasionally casual observers may report Northern Diamond-backed Terrapins as “sea turtle” sightings.

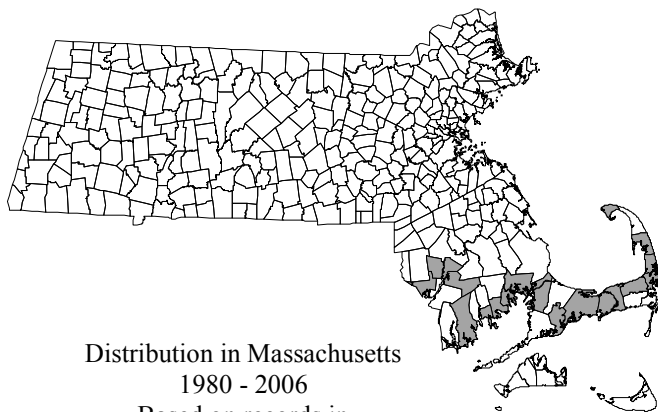


Photo by Bill Byrne, MassWildlife

HABITAT IN MASSACHUSETTS: Northern Diamond-backed Terrapins inhabit marshes which border quiet salt or brackish tidal waters. They can also be found in mud flats, shallow bays, coves, and tidal estuaries. Adjacent sandy, dry, open-canopy, upland areas are required for nesting.

RANGE: The Northern Diamond-backed Terrapin (*Malaclemys terrapin terrapin*) is found along the Atlantic coast from Massachusetts south to Florida and along the Gulf coast from the Carolinas to Texas.

LIFE CYCLE & BEHAVIOR: Northern Diamond-backed Terrapins overwinter in the bottom of estuaries, creeks and salt marsh channels. In late spring, males and females gather to create mating aggregations in small, quiet coves along the coast. Salt marshes are critical wintering, foraging, and nursery areas. Egg-carrying females will make the journey upland and sometimes inland as much as a 0.4 km (1/4 mile) to lay eggs. Except when basking, males spend their time in water; females venture onto land normally twice a year for nesting, once in early June and once in July. Females



Distribution in Massachusetts
1980 - 2006
Based on records in
Natural Heritage Database

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Massachusetts Division of Fisheries & Wildlife

1 Rabbit Hill Rd., Westborough, MA; tel: 508-389-6300; fax: 508-389-7890; www.mass.gov/dfw

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for ‘endangered wildlife conservation’ on your state income tax form, as these donations comprise a significant portion of our operating budget.

www.mass.gov/nhesp

travel from water's edge to nesting habitat usually at high tide to reach sites above the high water line. Hatchlings and juveniles are thought to hide among the grasses in brackish water marshes.

The Northern Diamond-backed Terrapin is polygamous (each individual may breed with several others) and mates in the water. Females are capable of retaining viable spermatozoa for up to 4 years without subsequent matings. Females become sexually mature at 8 to 10 years of age (males mature earlier) and are known to live to 40, but this is likely to be an underestimation of longevity. A single female may lay 1-3 nests per year. The female digs a nest about 10-20 cm (4-8 in.) deep and then deposits a clutch of approximately 12 eggs. Most females exhibit nest site fidelity, where they return to the same nesting location year after year.

On Cape Cod, Northern Diamond-backed Terrapins have been observed nesting during both day and night and on both vegetated and unvegetated uplands; in contrast, southern populations have reported nesting only during the day and only on vegetated dunes. Eggs laid in unvegetated areas, although more susceptible to wind erosion, receive more heat, thereby decreasing incubation time. Northern Diamond-backed Terrapins have temperature-dependent sex determination; eggs will develop into males if temperatures are below 28° C (82° F). At temperatures above 30°C (86°F), females will develop. At temperatures ranging from 28-30 °C (82-86°F), there will be a mixture of males and females.

Incubation of eggs in Massachusetts lasts between 59 and 116 days depending on temperature. It may take from 2 to 11 days after the eggs hatch for the young turtles to emerge and start the hazardous trip from the nest to the water. Part of this time may be spent rotating towards the sun in what is thought to be an orientation behavior. When the climate is unseasonably cold, some hatchlings may overwinter in their nests waiting until the following May to erupt from the sand.

Northern Diamond-backed Terrapins feed on crabs, mollusks, crustaceans, insects, fish, and carrion. They forage in the water.

THREATS: Northern Diamond-backed Terrapin population declines have been documented in many areas with a number of factors contributing to these declines. This species was nearly wiped out by gourmet

consumption around the turn of the 20th century. Today, the harvest of Northern Diamond-backed Terrapins is illegal in Massachusetts. However, other human activities continue to threaten this species.

Reduction of salt marsh habitat and alteration of water composition due to ditching, dredging and channelization, loss of sandy nesting habitats, and destruction of dune areas continue to contribute to the decline of the Northern Diamond-backed Terrapin in Massachusetts. "Armoring" and sea-walling coasts thwart Northern Diamond-backed Terrapin access to upland nesting areas. Sea level rise and climate change are also potential threats to terrapins and their salt marsh habitat.

One of the Northern Diamond-backed Terrapin's healthiest populations in Massachusetts is located on Cape Cod. Today, this area is also heavily used for recreational activities. Human activity may disrupt nesting turtles and hatchlings. Off-road vehicles increase the chances of disturbing, injuring or killing nesting females, crushing nests, and killing migrating hatchlings. When interrupted, females will abort nesting attempts which may have taken hours.

Additional causes of mortality are pollution and roads, as well as predation of eggs and hatchlings by predators whose unnaturally high populations are encouraged by high human densities. As air breathers, Northern Diamond-backed Terrapins get trapped and drown in improperly discarded "ghost" netting, as well as by-catch in estuarine crab traps. Nesting females often must cross roads to get to appropriate nesting habitat.

MANAGEMENT RECOMMENDATIONS:

Northern Diamond-backed Terrapin habitat needs to be targeted for protection and management. NHESP records can be used to assess and prioritize areas based on the extent, quality, and juxtaposition of habitats and their predicted ability to support self-sustaining populations of Northern Diamond-backed Terrapins. Given limited conservation funds, alternatives to outright purchase of conservation land for nesting habitat is an important component to the conservation strategy. These can include Conservation Restrictions (CRs) and Agricultural Preservation Restrictions (APRs). Another method of protecting large blocks of land is allowing the building of small or clustered roadside developments in

A Species of Greatest Conservation Need in the Massachusetts State Wildlife Action Plan

Please allow the Natural Heritage & Endangered Species Program to continue to conserve the biodiversity of Massachusetts with a contribution for 'endangered wildlife conservation' on your state income tax form, as these donations comprise a significant portion of our operating budget.

conjunction with protecting large areas of unimpacted land.

Habitat management and restoration guidelines should be developed and implemented in order to create and/or maintain consistent access to nesting habitat at key sites. This is most practical on state-owned conservation lands (i.e., DFW, DCR). However, educational materials should be made available to guide private land-owners on the best management practices for Northern Diamond-backed Terrapin habitat.

Alternative wildlife corridor structures should be considered at strategic sites on existing roads. In particular, appropriate wildlife corridor structures should be considered for bridge and culvert upgrade and road-widening projects within Northern Diamond-backed Terrapin habitat. Efforts should be made to inform Mass Highways of key locations where these measures would be most effective for turtle conservation.

Educational materials need to be developed and distributed to the general public in reference to the detrimental effects of keeping native Northern Diamond-backed Terrapins as pets, which is illegal in Massachusetts. Of equal concern is the release of pet store turtles (which could spread disease), leaving cats and dogs outdoors unattended (particularly during the nesting season), mowing of fields and shrubby areas, feeding suburban wildlife (which increases the numbers of natural predators to turtles), and driving ATVs in nesting areas from June-October. People can be encouraged, when safe to do so, to help Northern Diamond-backed Terrapins cross roads (always in the direction the animal was heading); however, turtles should never be transported to “better” locations. They will naturally want to return to their original habitat and likely need to traverse roads to do so.

Increased law enforcement is needed to protect our wild turtles, particularly during the nesting season when poaching is most frequent and ATV use is common and most damaging.

Northern Diamond-backed Terrapins are an extremely elusive, non-migratory species. They can be easily extirpated by the unintended consequences of human activities before they are even identified as being present. Coastal residents are often surprised to learn their abutting estuary hosts a Northern Diamond-backed Terrapin population.

Active Period

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

REFERENCES:

Brennessel, B. 2007. The Northern Diamond-backed Terrapin Habitat, Management and Conservation. Wheaton College, Norton, MA.
 Lewis, D. 2002. Diamond-backed Terrapin Summary for Outer Cape Cod. Report to NHESP. Westborough, MA.

Updated 2019

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DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

October 13, 2020

Eastham Conservation Commission
555 Old Orchard Road
Eastham MA 02642

Jacqueline Beebe
Town of Eastham
2500 State Highway
Eastham MA 02642

RE: Applicant: Jacqueline Beebe, Town of Eastham
 Project Location: 631 Dyer Prince Road
 Project Description: Construction of new Harbormaster Building, Parking
 DEP Wetlands File No.: 019-1796
 NHESP File No.: 13-32126

Dear Commissioners & Applicant:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") received a Notice of Intent with site plans (dated September 4, 2020) in compliance with the rare wildlife species section of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.37, 10.58(4)(b)). The Division also received the MESA Review Checklist and supporting documentation for review pursuant to the MA Endangered Species Act Regulations (321 CMR 10.18).

WETLANDS PROTECTION ACT (WPA)

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not adversely affect** the actual Resource Area Habitat of state-protected rare wildlife species. Therefore, it is our opinion that this project meets the state-listed species performance standard for the issuance of an Order of Conditions.

Please note that this determination addresses only the matter of **rare** wildlife habitat and does not pertain to other wildlife habitat issues that may be pertinent to the proposed project.

MASSACHUSETTS ENDANGERED SPECIES ACT (MESA)

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not result in a prohibited Take** of state-listed rare species. This determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division

MASSWILDLIFE

pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Emily Holt, Endangered Species Review Assistant, at (508) 389-6385.

Sincerely,

A handwritten signature in black ink, reading "Everose Schlüter". The signature is written in a cursive, flowing style.

Everose Schlüter, Ph.D.
Assistant Director

cc: Amy Ball, Horsley Witten Group, Inc
MA DEP Southeast Region

Attachment C – Project Plans

Rock Harbor Harbormaster Building and Site Revitalization – Permitting Set
Eastham, MA
prepared by Kuth Ranieri Architects,
Horsley Witten Group, Inc., and
Landworks Studio

September 4, 2020; revised April 2021

Attachment D – Stormwater Management Report

prepared by Horsley Witten Group, Inc.

[bound separately]