

What will work at my site?

Encouraging living shoreline erosion management
in coastal New Hampshire



By Kirsten Howard | Resilience Coordinator
NH Department of Environmental Services Coastal Program
ME & NH Beaches Conference | June 14, 2019

WAGON HILL FARM



A NEW LOOK FOR THE SHORELINE



IN ORDER TO GET THERE...



IN ORDER TO GET THERE...

Memo

To: David Burdick, UNH
James Hall
Durham, NH 03824

From: Amy Lamb, NH Nat
Date: 11/8/2016 (valid for
Re: Review by NH Nat
NHB File ID: NH
Description: The
salt

As requested, I have searched out

Comments: There are record
species may be present within



NH NATURAL HERITAGE BUREAU
NHB DATACHECK RESULTS LETTER

DHR Comment/Finding Recommendation *This Space for Division of Historical Resources Use Only*

- Insufficient information to initiate review. Additional information is needed in order to complete review.
 No Potential to cause Effects No Hist

Comments: *CONCURE WITH RESULTS OF
FURTHER STUDY. UNHART/STATE
PROTECTED DURING CONSTRUCT.
DNR SHOULD BE CONSULTED I.*

*If plans change or resources are discovered in
Resources as required by federal law and regu*

Authorized Signature: *[Signature]*



REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-PEC
Permit Number: NAE-2016-4

Town of Durham
Attn: Michael Lynch
8 Newmarket Road
Durham, New Hampshire 03

Dear Applicant:

This is to inform you
described on the attached NH

Based on the informa
determined that your project,
waters or wetlands, will have
waters of the United States, in
General Permit No. 10 of the
General Permits for the State

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
686 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

May 13, 2019



The State of New Hampshire
Department of Environmental Services

Robert R. Scott, Commissioner



WETLANDS AND NON-SITE SPECIFIC PERMIT 2019-00405

NOTE CONDITIONS

PERMITTEE: TOWN OF DURHAM
C/O MICHAEL LYNCH
8 NEWMARKET RD
DURHAM NH 03824

PROJECT LOCATION: WAGON HILL FARM RTE 4, DURHAM
TAX MAP #11, LOT #8-2
WATERBODY: OYSTER RIVER

APPROVAL DATE: FEBRUARY 22, 2019

EXPIRATION DATE: FEBRUARY 22, 2024



PARTNERSHIP EFFORTS & STATE OF THE PRACTICE



University of New Hampshire



**Living Shorelines in New England:
State of the Practice**

Prepared For:
The Nature Conservancy

Prepared By:
Woods Hole Group, Inc.

July 2017

Increasing Resilience and Reducing Risk through Successful Application of Nature-based Coastal Infrastructure Practices in New England

Project Location
Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut

Project Partners

- Brunswick – Topsham Land Trust
- Brunswick, Maine
- Casco Bay Estuary Partnership
- Connecticut Institute for Resilience and Climate Adaptation
- East Providence, Rhode Island
- Great Bay National Estuarine Research Reserve
- Maine Coast Heritage Trust
- Maine Coastal Program
- Maine Department of Marine Resources
- Maine Department of Transportation
- Maine Geological Survey
- Massachusetts Office of Coastal Zone Management
- National Oceanic and Atmospheric Administration
- New Hampshire Department of Environmental Services Coastal Program
- Northeast Regional Ocean Council
- Rhode Island Coastal Resources Management Council
- Sacred Heart University- Coastal and Marine Science
- The Nature Conservancy
- University of New Hampshire – School of Marine Science and Ocean Engineering

Project Funding
This project is funded by the National Oceanic and Atmospheric Administration (NOAA), FY2017 Coastal Resilience Grant. Federal Funding Opportunity Award Number: NA17N05473014L, with support from project partners.

Project Period
October 2017 to September 2020

Issue Overview

Coastal storm events can result in loss of life and significant damage to homes, businesses, infrastructure, and natural resources in New England coastal communities. Accelerating sea level rise and storms of greater intensity and frequency will exacerbate these threats in the future. Yet development pressure in coastal areas continues to increase, and requests for new and replacement shoreline stabilization structures (e.g., seawalls and revetments) to protect properties from coastal erosion and flooding continue.

Encouraging natural approaches to shoreline management is more urgent than ever. If the current trend of shoreline destabilization continues, New England communities will lose additional coastal resources that support economically important recreation areas, fisheries economies, natural storm damage protection, and other critical habitats. Nature-based alternatives must address public health and safety issues while also preserving and restoring coastal ecosystems that are vital to New England's coastal economy.

In suitable locations, nature-based coastal infrastructure practices like living shorelines may reduce risk to people, infrastructure, and habitats from coastal erosion and flooding while also increasing community resilience and maintaining or enhancing coastal ecosystem function. However, vital data and information about the performance of these practices in New England's coastal environment is needed to inform the appropriate siting, design, permitting, construction, and maintenance of these projects.

Download the report: <https://bit.ly/2w71NM5>

WHAT IS ALLOWED?







ENV-WT 600

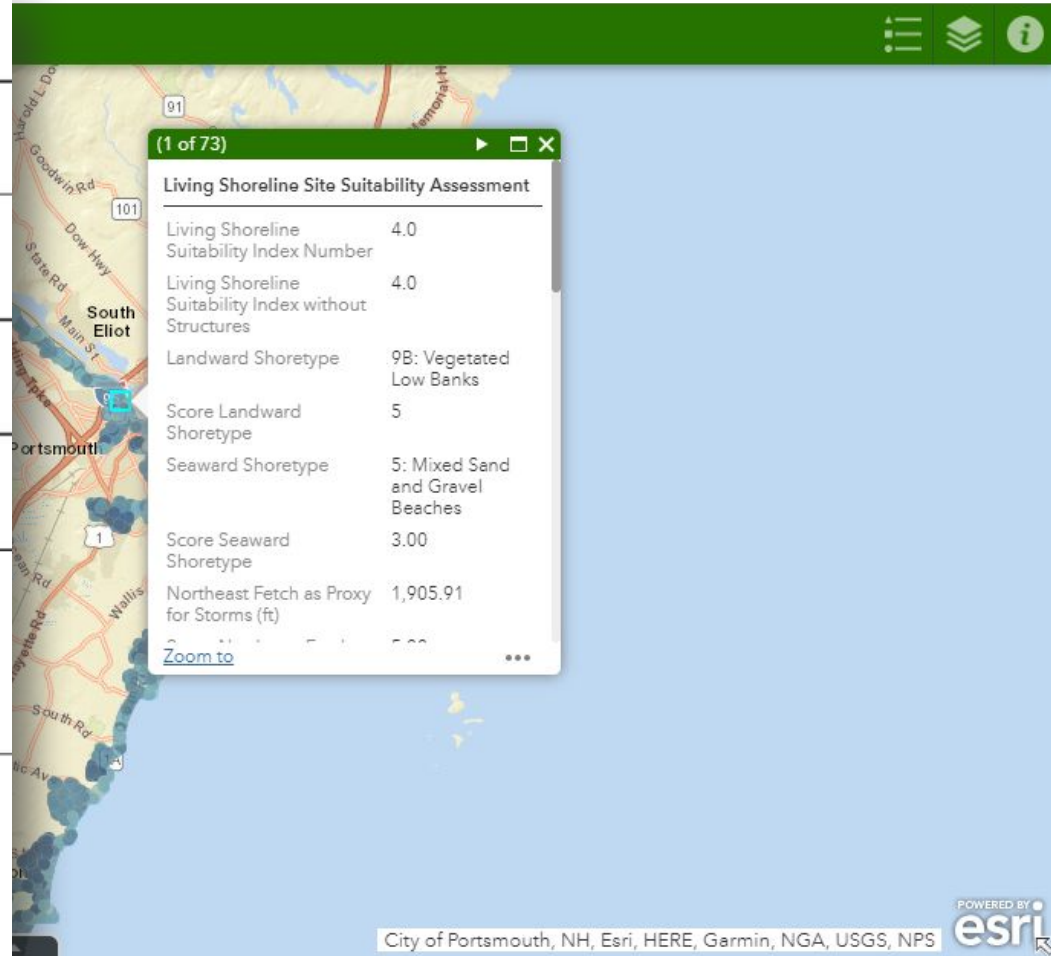
(effective December 15, 2019)

Living shoreline means a management practice that provides erosion control benefits, protects, restores, or enhances natural shoreline habitat, and maintains coastal processes through the strategic placement of plants, stone, sand fill, and other structural organic materials, maintaining the continuity of the natural land-water interface while providing habitat value and protecting against coastal hazards.

A living shoreline of specified size will qualify for minimum impact project type, \$200 permit fee, and allow fill below highest observable tide line

WHAT WORKS AT MY SITE?

Score	Living Shoreline suitability	Structural components	Visualization
6	Highly suitable for living shorelines	None	
5	Suitable for living shorelines	None/minimal	
4	Suitable for living shoreline hybrid solutions	Minimal	
3	Suitable for living shoreline hybrid solutions	Moderate	
2	May be suitable for living shorelines with hybrid components and/or significant site alteration	Significant	
1	May be suitable for living shorelines with more hybrid components and/or significant site alteration	Increased	



Link to mapper: <https://bit.ly/2HQp0qs>

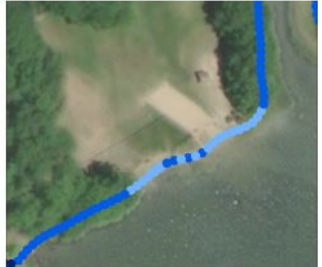
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1	May be suitable for living shorelines with more hybrid components and/or significant site alteration	Increased	

Order a Living Shoreline Property Profile by sending the site address to kirsten.howard@des.nh.gov

LIVING SHORELINE SUITABILITY PROPERTY PROFILE

WAGON
HILL FARM

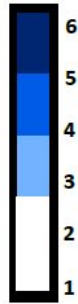


3.6

This property has a median living shoreline suitability index number of 3.6 out of 6.


This property may be suitable for a hybrid living shoreline approach with some structural components.

LIVING SHORELINE SUITABILITY SCALE



- 6** Highly suitable for living shorelines, no structural components, no site modification
- 5** Suitable for living shorelines, none to minimal structural components
- 4** Suitable for living shoreline hybrid solutions, minimal structural components
- 3** Suitable for living shoreline hybrid solutions, moderate structural components
- 2** May be suitable for living shorelines with significant hybrid components and/or site alteration
- 1** May be suitable for living shorelines with very significant hybrid components and/or site alteration

CONSIDERATIONS FOR APPROACH



Consult with your Conservation Commission, the NHDES Wetlands Bureau, and potential consultants. First consider the option to do nothing or move back from the shoreline. If those options are unacceptable, consider living shoreline approaches such as bank regrading, vegetated buffer enhancement, and a built salt marsh with a structural sill of wood or rock. Avoid plastic-based geotextiles.

SHORELINE TYPE | vegetated low banks & sheltered tidal flats

SUN EXPOSURE | favorable

FETCH | low


BOAT WAKES | moderate

SLOPE | steep bank nearby and moderate seaward slope






SOIL ERODIBILITY | moderate

SALT MARSH | migration potential

NEARBY STRUCTURES | rip rap



NH Smart Shorelines
Protecting our coast for People + Nature

This information is derived from the New Hampshire Living Shoreline Site Suitability Assessment (L3SA). Data and recommendations are based on multiple datasets of different resolutions and should be supplemented by a site assessment prior to moving forward with any approach. Additional results and information from the L3SA are available. Contact NHDES Coastal Program | Kirsten Howard | kirsten.howard@des.nh.gov

LIMITATIONS FOR THE LOW-LYING

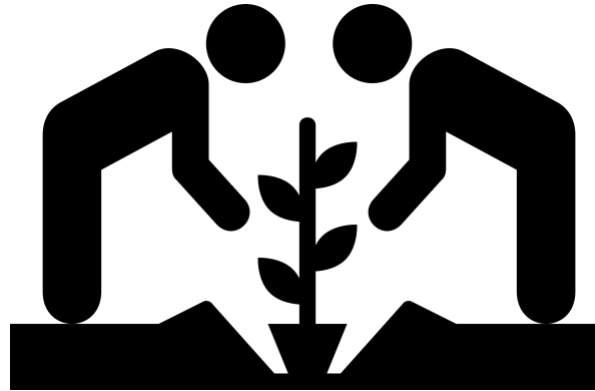


Photo Credit: Will Brown

WHAT'S NEXT FOR LIVING SHORELINES?



**PROFESSIONALS
NETWORK**



**PROJECT ADVANCEMENT &
MONITORING**



**LANDOWNER
ASSISTANCE
PROGRAM**

Join the network by leaving your business card or emailing kirsten.howard@des.nh.gov