ENVIRONMENTAL CONSULTING, INC.
Providing Environmental Solutions

Living Shoreline Stabilization Project

April 24, 2025

REFERENCE: Living Shoreline Project
Applicants: Ms. Ruth Hudson
29591 Nor Easter Drive Millsboro, DE 19966
Tax Map Parcel #: 233-1.00-59.01

Dear Mr. Jones or DNREC Representative,

Envirotech Environmental Consulting, Inc. (EECI), is submitting the enclosed Wetlands and Subaqueous Lands Section (WSLS) Permit Application Form and Appendices H (Fill), I (Riprap Sills), J (Vegetation) and M (Activity in State Wetlands). This project will also be submitted as a Nationwide Permit #54- Living Shoreline for federally regulated wetlands.

The proposed project is located at 29591 Nor Easter Drive, Millsboro Delaware 19966, along the Indian River, a tributary to the Indian River Bay. This project purpose is to create a living shoreline to stabilize the existing erosive shoreline in the target area. Severe shoreline erosion is occurring and present due to capillary and fetch wave action on exposed soil. The living shoreline will consist of Delaware native vegetation and a low-profile sill comprised of R-4 riprap stone (57 cubic yards). The low-profile vented sill will traverse approximately (120 linear feet) linear feet along the shoreline and will be installed approximately 5 feet landward of Mean Low Water Level (MLWL). The low-profile sill will be installed above (600 ft^2) of S-300 Geotextile fabric and measure approximately 120 feet in length, 5 feet wide, and 3 feet tall. Three feet wide vents will be installed every 10 feet to allow tidal flow and sediment accumulation for wetland restoration. Additionally, six hundred (600) 2" Saltmarsh Cordgrass (*Sporobolus alterniflora*) plugs and six hundred (600) Saltmarsh Hay (*Sporobolus pumilus*) will be planted in quart pots on one-foot centers behind the proposed low profile vented sill. Additionally, hand-held hedge trimmers and metal-bladed weed eaters will be utilized to remove current vegetation that may restrict material placement and access to the project area.

All appropriate risk avoidance measures will be followed to allow practicable alternatives and consideration of impacts were necessary. The work authorized shall be completed in accordance with the terms and conditions of the applicable United States Army Corps of Engineers Permit (Nationwide Permit #54-Living Shoreline). Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants to surface waters.
Please note: Site Maps and Property Survey are attached

Please contact me with any questions.
Best Regards,

Ld

Mr. Lyle de la Rosa
Environmental Project Manager
Envirotech Environmental Consulting, Inc.
email: lyle@envirotechecinc.com

WETLANDS AND SUBAQUEOUS LANDS SECTION PERMIT APPLICATION FORM

For Subaqueous Lands, Wetlands, Marina and 401 Water Quality Certification Projects

State of Delaware
Department of Natural Resources and Environmental Control
Division of Water

Wetlands and Subaqueous Lands Section

APPLICATION FOR APPROVAL OF
SUBAQUEOUS LANDS, WETLANDS, MARINA
AND WATER QUALITY CERTIFICATION PROJECTS

Last Revised on: March 28, 2017

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

Application Instructions:

1. Complete each section of this basic application and appropriate appendices as thoroughly and accurately as possible. Incomplete or inaccurate applications will be returned.

2. All applications must be accompanied by a scaled plan view and cross-section view plans that show the location and design details for the proposed project. Full construction plans must be submitted for major projects.

3. All applications must have an original signature page and proof of ownership or permitted land use agreement.

4. Submit an original and two (2) additional copies of the application (total of 3) with the appropriate application fee and public notice fee* (prepared in separate checks) to:

Department of Natural Resources and Environmental Control
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901

*Application and public notice fees are non-refundable regardless of the Permit decision or application status.

5. No construction may begin at the project site before written approval has been received from this office.

Helpful Information:

1.	Tax Parcel Information:	New Castle County	(302) 395-5400
		Kent County	(302) 736-2010
		Sussex County	(302) 855-7878
2.	Recorder of Deeds:	New Castle County	(302) 571-7550
		Kent County	(302) 744-2314
		Sussex County	(302) 855-7785

3. A separate application and/or approval may be required through the Army Corps of Engineers. Applicants are strongly encouraged to contact the Corps for a determination of their permitting requirements. For more information, contact the Philadelphia District Regulator of the Day at (215) 656-6728 or visit their website at: http://www.nap.usace.army.mil/Missions/Regulatory.aspx.

4. For questions about this application or the Wetlands and Subaqueous Lands Section, contact us at (302) 739-9943 or visit our website at: http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx. Office hours are Monday through Friday 8:00 AM to 4:30 PM, except on State Holidays.

APPLICANT'S REVIEW BEFORE MAILING

DID YOU COMPLETE THE FOLLOWING?

X	Yes	BASIC APPLICATION
X	Yes	SIGNATURE PAGE (Page 3)
X	Yes	APPLICABLE APPENDICES
X	Yes	SCALED PLAN VIEW
X	Yes	SCALED CROSS-SECTION OR ELEVATION VIEW PLANS
X	Yes	VICINITY MAP
X	Yes	COPY OF THE PROPERTY DEED & SURVEY
X	Yes	THREE (3) COMPLETE COPIES OF THE APPLICATION PACKET
X	Yes	APPROPRIATE APPLICATION FEE & PUBLIC NOTICE FEE (Separate checks made payable to the State of Delaware)

Submit 3 complete copies of the application packet to:

Department of Natural Resources and Environmental Control
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901

Before signing and mailing your application packet, please read the following:

The Department requests that the contractor or party who will perform the construction of your proposed project, if other than the applicant, sign the application signature page along with the applicant in the spaces provided. When the application is signed by the contractor as well as the applicant, the Department will issue the Permit to both parties. For Leases, the contractor will receive a separate construction authorization that will make them subject to all of the terms and conditions of the Lease relating to the construction

Section 1: Applicant Identification

1. Applicant's Name: Ruth & James Hudson
   Mailing Address: 29591 Nor Easter Drive, Millsboro, Delaware 19966
   Telephone #: _____
   Fax #: _____
   E-mail: Rtjlh@aol.com

2. Consultant's Name: Todd Fritchman
   Company Name: Envirotech Environmental Consulting, Inc.
   Mailing Address: 17605 Nassau Commons Boulevard, Unit D
   Lewes, DE 19958
   Telephone #: 302.684.5201
   Fax #: 302.684.5204
   E-mail: todd@envirotecheecinc.com

3. Contractor's Name: _____
   Company Name: _____
   Mailing Address: _____
   Telephone #: _____
   Fax #: _____
   E-mail: _____

Section 2: Project Description

4. Check those that apply:
☒ New Project/addition to existing project? ☐ Repair/Replace existing structure? (If checked, must answer #16)

5. Project Purpose (attach additional sheets as necessary):
Project description attached

6. Check each Appendix that is enclosed with this application:

	A. Boat Docking Facilities		G. Bulkheads		N. Preliminary Marina Checklist
	B. Boat Ramps	x	H. Fill		O. Marinas
	C. Road Crossings	x	I. Rip-Rap Sills and Revetments		P. Stormwater Management
	D. Channel Modifications/Dams	x	J. Vegetative Stabilization		Q. Ponds and Impoundments
	E. Utility Crossings		K. Jetties, Groins, Breakwaters		R. Maintenance Dredging
	F. Intake or Outfall Structures	X	M. Activities in State Wetlands		S. New Dredging

Section 3: Project Location

7. Project Site Address: 29591 Nor Easter Drive, Millsboro, Delaware 19966
   County: ☐ N.C. ☐ Kent ☒ Sussex
   Site owner name (if different from applicant): _____
   Address of site owner: _____

8. Driving Directions: Driving Directions Attached
(Attach a vicinity map identifying road names and the project location)

9. Tax Parcel ID Number: 233-1.00-59.01
   Subdivision Name: _____

WSLS Use Only: **Permit #s:** _____ _____ _____ _____

Type **SP** ☐ **SL** ☐ **SU** ☐ **WE** ☐ **WQ** ☐ **LA** ☐ **SA** ☐ **MP** ☐ **WA** ☐

Corps Permit: SPGP 18 ☐ **20** ☐ **Nationwide Permit #:** _____ **Individual Permit #** _____
Received Date: _____ **Project Scientist:** _____
Fee Received? Yes ☐ **No** ☐ **Amt: $** _____ **Receipt #:** _____
Public Notice #: _____ **Public Notice Dates: ON** _____ **OFF** _____

Section 3: Project Location (Continued)

10. Name of waterbody at Project Location: Indian River waterbody is a tributary to: Indian River Bay

11. Is the waterbody: ☒ Tidal ☐ Non-tidal Waterbody width at mean low or ordinary high water +/- 1,258 Feet

12. Is the project: ☐ On public subaqueous lands? ☐ On private subaqueous lands?*
☐ In State-regulated wetlands? ☐ In Federally-regulated wetlands?

*If the project is on private subaqueous lands, provide the name of the subaqueous lands owner:

(Written permission from the private subaqueous lands owner must be included with this application)

13. Present Zoning: ☐ Agricultural ☒ Residential ☐ Commercial ☐ Industrial ☐ Other

Section 4: Miscellaneous

14. A. List the names and complete mailing addresses of the immediately adjoining property owners on all sides of the project (attach additional sheets as necessary):

1. MDI Investment Group: PO BOX 201 Lewisville, PA 19351 2. Oakes Everett H JR & Susan Marie Oakes: 304 Grace Street, Millsboro, DE 19966
3. Oakes Everett JR & Susan Marie Oakes: 304 Grace Street, Millsboro, DE 19966

B. For wetlands and marina projects, list the names and complete mailing addresses of property owners within a 1,000 foot radius of the project (attach additional sheets as necessary):

Please find attached

15. Provide the names of DNREC and/or Army Corps of Engineers representatives whom you have discussed the project with:

A. Have you had a State Jurisdictional Determination performed on the property? ☐ Yes ☒ No
B. Has the project been reviewed in a monthly Joint Permit Processing Meeting? ☐ Yes ☒ No
*If yes, what was the date of the meeting?

16. Are there existing structures or fill at the project site in subaqueous lands? ☐ Yes ☐ No
*If yes, provide the permit and/or lease number(s):

*If no, were structures and/or fill in place prior to 1969? ☐ Yes ☐ No

17. Have you applied for or obtained a Federal permit from the Army Corps of Engineers?
☐ No ☒ Pending ☐ Issued ☐ Denied Date:

Type of Permit: NWP-54 Federal Permit or ID #:

18. Have you applied for permits from other Sections within DNREC?
☒ No ☐ Pending ☐ Issued ☐ Denied Date: Permit or ID #:

Type of permit (circle all that apply): Septic Well NPDES Storm Water

Other:

Section 5: Signature Page

19. Agent Authorization:

If you choose to complete this section, all future correspondence to the Department may be signed by the duly authorized agent. In addition, the agent will become the primary point of contact for all correspondence from the Department.

I do not wish to authorize an agent to act on my behalf ☐

I wish to authorize an agent as indicated below ☒

I, Ruth Hudson (Name of Applicant), hereby designate and authorize Envirotech Environmental Consulting, Inc. (Name of Agent) to act on my behalf in the processing of this application and to furnish any additional information requested by the Department.

Authorized Agent's Name: Todd Fritchman
Mailing Address: 17605 Nassau Commons Boulevard Unit D Lewes, Delaware 19958
Telephone #: 302.684.5201
Fax #:
E-mail:

20. Agent's Signature:

I hereby certify that the information on this form and on the attached plans are true and accurate to the best of my knowledge. I further understand that the Department may request information in addition to that set forth herein if deemed necessary to appropriately consider this application.

Todd Fritchman
Agent's Signature

December 13, 2024
Date

21. Applicant's Signature:

I hereby certify that the information on this form and on the attached plans are true and accurate to the best of my knowledge and that I am required to inform the Department of any changes or updates to the information provided in this application. I further understand that the Department may request information in addition to that set forth herein if deemed necessary to appropriately consider this application. I grant permission to authorized Department representatives to enter upon the premises for inspection purposes during working hours.

Ruth T. Hudson
Applicant's Signature

12/16/2024
Date

Ruth Hudson
Print Name

22. Contractor's Signature:

I hereby certify that the information on this form and on the attached plans are true and accurate to the best of my knowledge, and that I am required to inform the Department of any changes or updates to the information provided in this application. I further understand that the Department may request information in addition to that set forth herein if deemed necessary to appropriately consider this application.

Contractor's Name

Date

Print Name

FILL

Please make sure answers to all of the questions in this appendix correspond to information on the application drawings.

1. How many linear feet will the fill extend channelward of the:
   a. Tidal waters: mean high water line? +/-50 ft.
      mean low water line? 0 ft.
   b. Non-tidal waters: ordinary high water line? _____ ft.

2. What is the area of fill that will be located:
   a. on subaqueous land (channelward of mean high water) 600 sq. ft.
   b. on vegetated wetlands? 0 sq. ft.

3. What is the source of the fill?
   X Hauled in from upland sources: What is the source company/location/parcel number?
   _____ Obtained from dredged material: Complete Dredging Appendix.

   Michael McCarthy Stone- 35283 Atlantic Avenue, Millville, DE 19967
   Parcel Number: 134-12.00-48.00

4. What is the total volume of fill? 57 cubic yards
   a. What is the total fill per running foot of shoreline? 0.475 cubic yards

5. What method will be used to place the fill?

   Light machinery will be utilized to stage the rip rap material within the project location and will not be opperated within the water. The Rip rap low profile vented will be installed by hand and landward of MLWL to avoid in water work. In water work will be avoided to the best extent possible and light machinery will not be operated near or in the water.

6. State the type and composition percentage of the fill material (e.g. sand 80%, silt 5%, clay 15%, etc.)

   R-4 Rip Rap Stone, and 600 ft2 of S-300 Geotextile Fabric

7. How will the fill be retained? Complete appropriate appendix.

   The r-4 rip rap material will be utilized to create a low-profile sill which will be installed above 600 ft2 of S-300 Geotextile fabric to prevent the material from sinking/moving.

8. What type of vegetation or ground cover will be provided for the filled area(s) to prevent soil erosion and help keep sediment from reaching State waters?

   600 ft2 S-300 Geotextile fabric will be installed underneath the rip rap material to prevent sinking and discharge of surrounding soils. Erosion and sediment control measures will be implemented in accordance with the current Delaware Erosion and Sediment Control Handbook guidelines.

9. Describe the type(s) of structure(s) to be erected on the filled area (if any). Complete appropriate appendix.

   The 57 Cubic yards will be utilized to form a low-profile vented sill measuring 120 linear feet, with a base width of 5', height of 3', and top width of 3'.

Rip-Rap Sills and Revetments

Please respond to each question. Questions left blank may result in the application being returned as incomplete. In addition, the answers to all of the questions in this Appendix must correspond accurately to the information on the plan and section view drawings for the project.

1. Will the project be:
   - X New Construction (un-stabilized shoreline)
   - _____ Repair or Replacement of an Existing Rip-Rap Structure or Rubble
   - _____ Repair or Replacement of an Existing Bulkhead

   (If repair or replacement, submit photographs of the entire existing structure).

2. How many linear feet of shoreline are proposed to be stabilized? 120

3. Is the project a: ___ Standard rip-rap revetment _X_ Free-standing sill

4. Describe the existing shoreline:
   The existing shoreline within the project area consists primarily of exposed, unvegetated silt/mud substrate with minor presesence of sand. Vegetation is present along the shoreline at both ends of the project area and consists primarly of Phragmites and Saltmarsh Cordgrass.

5. What is the total number of cubic yards of rip-rap that will be used? 57

6. What is the number of cubic yards of rip-rap per running foot of shoreline? 0.475
   (See page 4 for a guide to calculating total cubic yards and cubic yards per running foot).

7. What will be the average weight of the stone used for the:
   Armor stone: _____ Core stone: X

   [If material other than stone, such as prefab geo-grid or other similar product is proposed, please describe here and include photographs or a brochure. The Department strongly discourages the use of broken concrete, cinderblocks or other materials that are less dense than stone, more apt to move off site due to currents or wave action, and/or are not aesthetically pleasing or in keeping with the natural environment.]

   Describe:
   Approximately 600ft2 of S-300 Geotextile Fabric will be installed beneath the low-profile sill in order to reduce rip rap sinking and prevent unwanted erosion.

8. For Standard Revetments answer A–F, below: (for Sill projects, skip to Question #9)
   A. How many linear feet will the structure extend channelward of:
   Mean High Water: _____Mean Low Water: _____
   Ordinary High Water: _____ (for non-tidal waters)

   B. How many square feet of the structure will be located:
   Channelward of Mean High Water: _____Channelward of Mean Low Water: _____
   Channelward of Ordinary High Water: _____ (for non-tidal waters)
   On vegetated wetlands: _____

   C. Will the revetment be backfilled? ___ Yes ___ No
   If yes, complete Appendix H and include it in your application.

   D. Will filter cloth be used behind the rip-rap structure? ___ Yes ___ No
   S-300 Geotextile Fabric will be installed beneath the low-profile vented sill.

   E. What is the average slope of the existing bank? _____

   F. What is the proposed slope of the rip-rap revetment? _____
   (See page 3 for a guide to calculating slopes).

9. Sill Projects:
   A. What is the base width of the proposed structure: 5
   B. What is the top width of the proposed structure: 3
   C. How many square feet of the structure will be located:

   Channelward of Mean High Water: 600 Channelward of Mean Low Water: 0
   Channelward of Ordinary High Water: 0 (for non-tidal waters)
   On vegetated wetlands: 0

   D. What will be the average height of the structure: 3'
   E. How much of the structure (in inches) will extend vertically above:

   Mean High Water: 0 Ordinary High Water: _____ (for non-tidal waters)

   F. Are breaks or notches proposed in the sill to allow for greater flushing? X Yes___ No
   G. Will fill material be placed behind the sill? ___ Yes X No If yes, complete appropriate appendix.

   H. Will wetland vegetation be planted behind the sill? X Yes ___ No
   If yes, complete Appendix H and include it in your application.

10. Construction Techniques (Complete for both Revetment and Sill Projects):

A. Will any dredging be required? ___ Yes _X_ No

If yes, please include appropriate dredging Appendix with your application).

B. Please describe the sequence of construction and any techniques that will be utilized to minimize adverse impacts on the aquatic environment, and to preserve existing vegetation (particularly woody vegetation) along the shoreline:

Please find attached project description. Erosion and sediment control measures will be implemented in accordance with the current Delaware Erosion and Sediment Control handbook. State and Federal time of the year restrictions will be followed. Exisiting vegetation will be avoided during the construction process to the best extent possible.

CALCULATIONS

RUN = Base width of the structure (in feet) RISE = Vertical height of the structure (in feet)

I. How to calculate total cubic yards:

0.5 * RUN * RISE * Linear feet of shoreline stabilized/27 = Total Cubic Yards

II. How to calculate cubic yards per running foot of shoreline:

Total # Cubic Yards/ Linear feet of shoreline = Cubic yards per running foot

III. How to calculate slope: Slope = RUN/RISE

EXAMPLE:

If we propose to stabilize 100 linear feet of shoreline with a rip-rap revetment that has a basewidth of 6 feet and a height of 3 feet:

0.5 * 6 * 3 * 100/27 = 33.33 Total Cubic Yards

II. 33.33/ 100= 0.333 Cubic Yards per running foot

III. 6/3= Slope of 2

Vegetative Stabilization

- Please make sure that all answers in this appendix correspond to information on the application drawing

1. Submit a brief description of the proposed activity

   Project description attached

2. Is grading of bank and/or placement of fill part of this project? X Yes No
   If yes complete Appendix H

3. Indicate the area of proposed planting that is channelward of the:
   a. Tidal Waters: mean high water line? ____2,400____ ft^2
      mean low water line? _____0_____ ft^2
   b. Non-tidal waters: ordinary high water line? _____ ft^2

4. What will the water depth of the plantings be relative to the: (provide the range if it varies)
   a. Tidal Waters: mean high water line? ____0- 0.5____ f
      mean low water line? _____0_____ ft
   b. Non-tidal waters: ordinary high water line? _____ ft

5. Provide the list of plant species that will be utilized.

   Saltmarsh Cordgrass (Sporobolus alternifloris)
   Saltmeadow Cordgrass (Sporobolus pumilus)

6. Describe the sequence of construction and planting.

   Please find attached project description.

7. Describe the maintenance and monitoring plan for the vegetation.

   Installed vegetation will be monitored for three (3) years following the project's completion. Monitoring events will be performed two (2) times per year with one (1) event taking place during the autumn season and one (1) event during the spring growing season.

ACTIVITIES IN STATE WETLANDS

Please make sure that all answers in this appendix correspond to information on the application drawings.

1. Project description and explanation of need.

   Project Description and Diagrams Attached

2. What is area of impact for each activity in state wetlands?

   Wetlands Walkways/Other Structures:
   Length N/A ft. Width N/A ft.
   # Piles N/A Height N/A ft. over marsh

3. What is volume of fill or excavated material involved in this project?

   Fill 57 cubic yards (R-4 Rip Rap)
   Excavation N/A cubic yards

4. Map number of state wetland map where project is located: DNR # 121

ENVIRONMENTAL SUMMARY - PLEASE SUBMIT AN EVALUATION OF IMPACT OF THE PROPOSED ACTIVITY (ATTACH ADDITIONAL SHEETS AS NEEDED):

5. State reasons that structures cannot feasibly be located on lands other than wetlands.

   The project location is in an area of wetlands that receives continuous tidal activity and is directly causing shoreline loss and erosion.

6. Detail temporary and permanent changes which would be caused by the proposed project and the impact of these changes on the project area and adjacent areas.

   permanent changes includes removing cumbersome vegetation in order to acces the project area and install project materials and the installation of one (1) 120'x5'x3' Low-Profile Vented Sill.

7. Describe alternatives to the proposed action which would reduce or avoid environmental damage.

   Wetland matts will be temporarily placed within the project to reduce the total surface area impacted by foot traffic and light machinery. The Installation of the Low Profile Vented Sill will be performed during MLWL and machinery will only operate from an upland area in order to prevent the release/displacement of benthic soils.

8. Describe all measures to be taken during and after the completion of the proposed project to reduce detrimental effects.

   Machinery will only operate from an upland area. Living shoreline materials will be handplaced to avoid damaging existing wetland vegetation.

9. Describe all permanent environmental impacts which cannot be avoided.

   The installation of (+/- 57 Cubic Yards) of R-4 Riprap to form a permanent Low-Profile Vented Sill structure and (600 Square Feet) of S-300 Geotextile Fabric underlayment to prevent riprap displacement/sinking. Vents will be installed every 10 linear feet to allow aquatic wildlife to enter/exit the area freely.

10. Submit detailed evaluation of impact of the proposed project on the following:

a. Value of tidal ebb and flow

i. Production Value: carrying organic matter to adjacent estuaries and coastal waters which serve as breeding areas for certain animal species (especially fish and shellfish).
ii. Value as a natural protective system of absorption of storm wave energy, flood waters, and heavy rainfall, thereby decreasing flood and erosion damage.
iii. The prevention of silting in certain harbors and inlets thereby reducing dredging.
iv. Removal and recycling of inorganic nutrients.
v. Effect on the estuarine waters.

The Low-Profile Vented Sill will absorb wave energy and promote sediment accretion by capturing eroded material to reestablish natural wetlands and prevent aquatic sediment discharge within the surrounding watershed. This will ultimately reduce shoreline loss/erosion damage and the effects of silting within the Indian River. Vents will be installed within the sill to allow tidal flushing to naturally occur. The Delaware native vegetation (Sporobolus alterniflora) and (Sporobolus pumilus) installed behind the sill will also absorb/reduce wave energy and sediment loss/erosion.

b. Habitat Value

i. Habitat for resident species of wildlife including furbearers, invertebrates, finfish.
ii. Habitat for migratory wildlife species including waterfowl, wading birds, shorebirds, shorebirds, passerines, finfish, shrimp.
iii. Rearing area, nesting area, breeding grounds for various species.
iv. Habitat for rare or endangered plants.
v. Presence of plants or animals known to be rare generally, or unique to the particular location.
vi. Presence of plants or animals near the limits of their territorial range.
vii. Presence of unique geological or wetland features.

The proposed sill will increase habitat vaule by preventing the loss/degradation of the target area's shoreline and upland areas which allow wildlife to forage, roost, and nest. Furthermore, the sill will benefit aquatic organisms by providing wave action protection and reduced current speeds which promotes an increase in biodiversity and habitat value within the project area. the vented sill will allow tidal flushing and aquatic organisms to enter/exit the area freely with the change of tide.

c. Aesthetic Effect - Consideration of the aesthetic effect may include:

i. Presence of plants or animals of a high visual quality.
ii. The presence of an associated water body.
iii. Wetland type of topographic diversity.

The proposed Low-Profile Vented Sill's aesthetic effect will coincide with the presence of the surrounding water body (Indian River) and the surrounding topography that is occupied with Delaware native wetland vegetation. The proposed project will also prevent the loss/degration of the target area's shorline and aesthetic effect/appeal.

d. Impact of Supporting Facilities

The supporting facilities to be considered include any public or private construction, whether or not the construction occurs in the wetlands, which would be required for construction or operation of the proposed wetlands activity, such as roads, sewage disposal facilities, electric lines, water supply systems, and schools. Effects shall be separately determined for the lands neighboring such facilities.

e. Effect on Neighboring Land Uses
   i. The effects of the proposed wetland activity on neighboring land use are to be considered whether or not the neighboring lands are wetlands.
   ii. The environmental, aesthetic and economic effects of the proposed wetlands activity on land uses neighboring the lands on which supporting facilities will be located may be considered.

N/A

f. Federal, State, Regional, County and Municipal Comprehensive Plans.
   Compliance of the proposed activities with the plans of the jurisdiction in which it is proposed to take place, and its impact on the plans of other affected jurisdictions.

N/A

g. Economic Impact
   Economic Impact shall include a short and long-term evaluation of the following factors to the extent the effect is directly attributable to the proposed activity:
   i. Jobs created or lost and the net income effect of jobs.
   ii. Increases in revenues to or increases in expenditure by State, County and local governments (e.g., increased taxes from an increased tax base and increased expenditure for maintaining supporting facilities).
   iii. Increases or decreases in the value attributable to the wetland as a source of nutrients to finfish, crustacea and shellfish and as habitats of such species or other flora or fauna of significant actual or potential economic value.
   iv. Increases or decreases in the value of the land as a recreational area.
   v. Increases or decreases in the cost of flood control or expected flood damage which might be caused by the effect of the activity on the natural capacity of the wetland to reduce flood damage.
   vi. Increases or decreases the costs of maintaining navigable harbors and waterways which would result from altering the capacity of the wetlands to absorb silt.
   vii. The net economic effect, both public and private, or any contemplated supporting facilities.
   viii. The net economic effect, both public and private, of the proposed activity on neighboring land uses.

The proposed sill and Delaware native vegetation will decrease the cost associated with repairing damages caused by coastal flooding, severe wave/weather action, and erosion. The proposed project will reduce received wave energy and shoreline loss/erosion caused by severe natural events.

Attachment A:

Property Maps & Project Diagrams

Note: This image was obtained through aerial photograph via Google Earth

Envirotech
ENVIRONMENTAL CONSULTING, INC.
Providing Environmental Solutions

Envirotech Environmental Consulting, Inc.
17605 Nassau Commons Boulevard, Unit D
Lewes, DE 19958
Phone: (302) 684-5201 Fax: (302) 684-5204

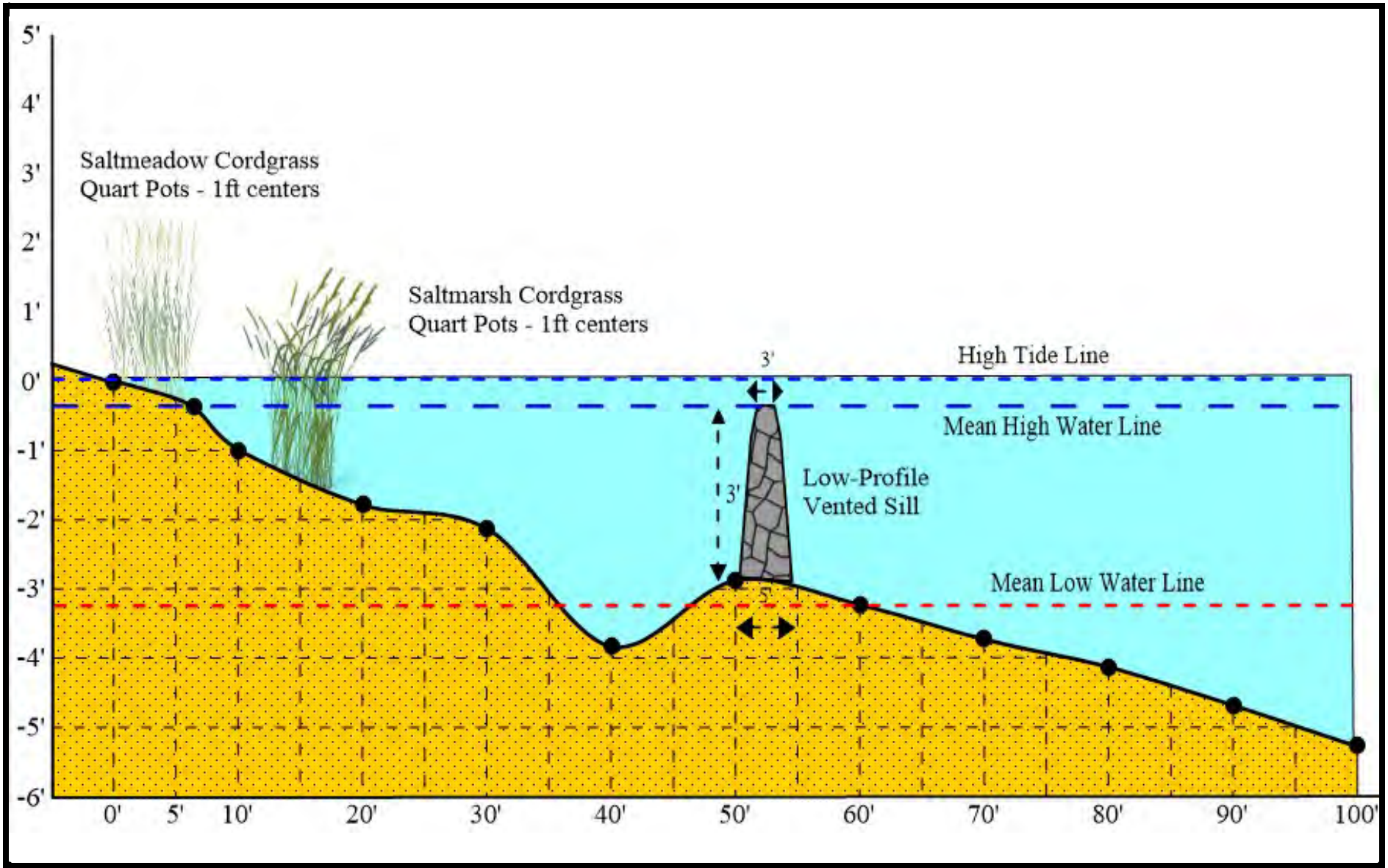
Hudson Living Shoreline Project: Project Design

29591 Nor Easter Drive Millsboro, DE 19966

= +/- 120 linear feet low profile vented sill (+/- 600 square feet)

= Upland planting area (+/- 2,400 square feet)

DATE: 5/2/25	REF NUMBER: 36027
DRAWN BY: LAD	SCALE: 1" : 53'
CHECKED BY: TAF	FIGURE NO: 1
PROJECT: Living Shoreline Stabilization	SHEET 1 OF 2



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ENVIRONMENTAL CONSULTING, INC.
Providing Environmental Solutions

Envirotech Environmental Consulting, Inc. 17605 Nassau Commons Boulevard, Unit D Lewes, DE 19958
Phone: (302) 684-5201 Fax: (302) 684-5204

Hudson Property; Living Shoreline Cross Section:
29591 Nor Easter Drive, Millsboro, Delaware 19966;
Tax Map ID #: 223-1.00-59.01

DATE: 5/2/2025	REF NUMBER: 36027
DRAWN BY: NRW	SCALE: As shown
CHECKED BY: LAd	FIGURE NO: 2
PROJECT: Living Shoreline Project	SHEET 2 OF 2

Sussex County

PIN:	233-1.00-59.01
Owner Name	HUDSON JAMES L RUTH T
Book	0
Mailing Address	29591 N EASTER DR
City	MILLSBORO
State	DE
Description	200' SE OF RT 331A
Description 2	SOUTH SIDE INDIAN
Description 3	RIVER W/IMP.
Land Code	

Tax Parcels

911 Address

Streets

County Boundaries

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

60cm Resolution Metadata

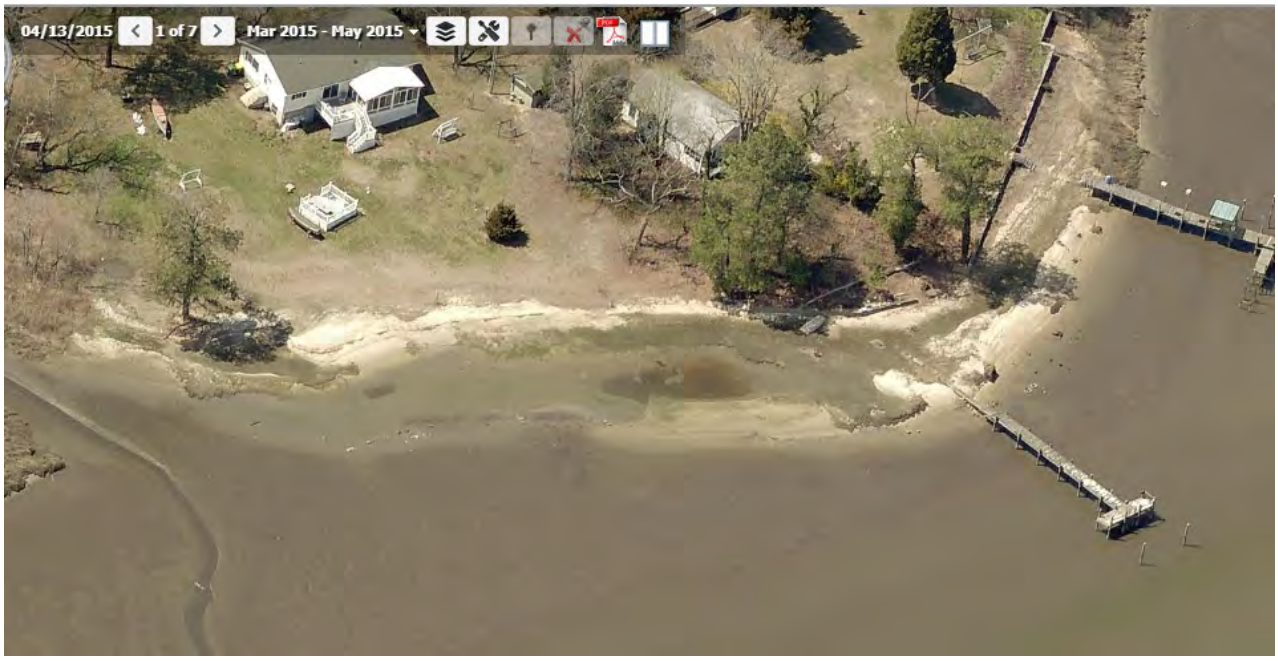
1:2,257

0 0.0275 0.055 0.11 mi

0 0.0425 0.085 0.17 km

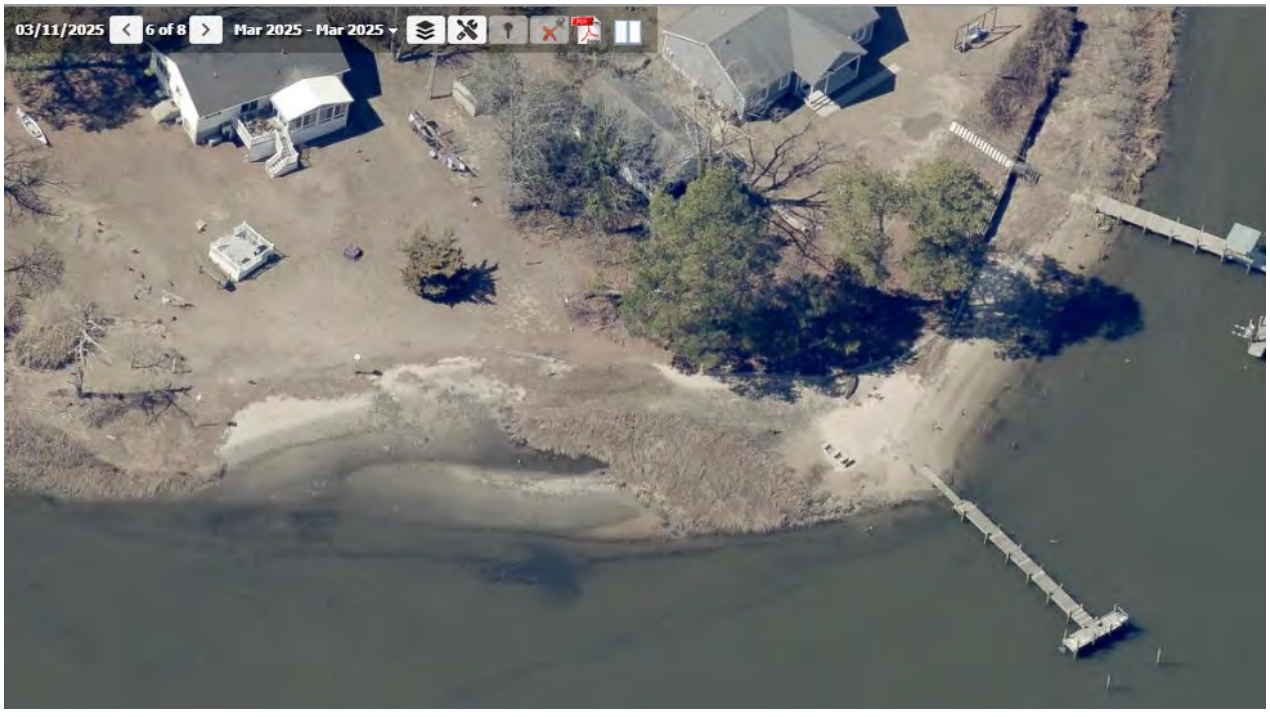
April 21, 2025

2015



2019

2025



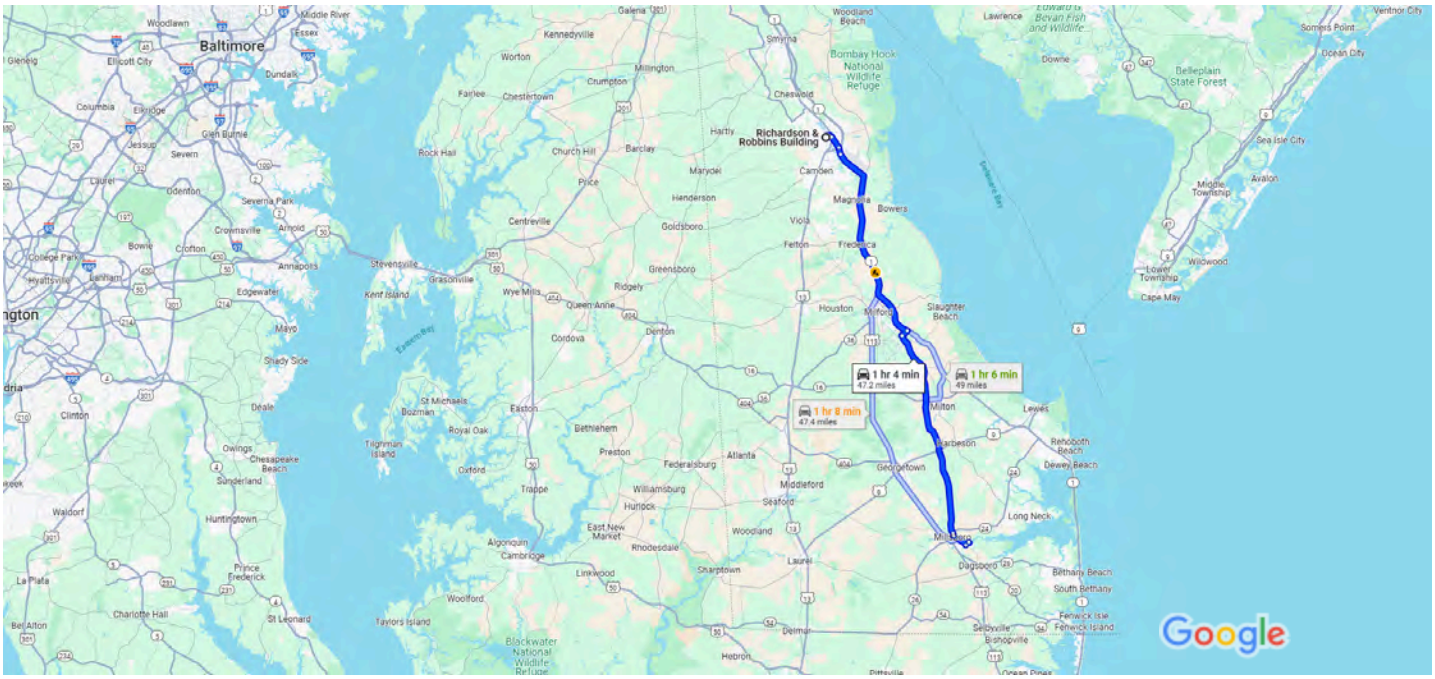
Attachment B:

Driving Directions

Google Maps

Richardson & Robbins Building, 89 Kings Hwy SW, Dover, DE 19901 to 29591 Nor Easter Dr, Millsboro, DE 19966

Drive 47.2 miles, 1 hr 4 min



Map data ©2025 Google 5 mi

Richardson & Robbins Building
89 Kings Hwy SW, Dover, DE 19901

1. Head north on Kings Hwy SW toward American Ave

30 sec (0.2 mi)

Take DE-1 S and DE-30 S to Possum Point Rd in Sussex County

59 min (46.6 mi)

2. Turn right onto E Division St/Kings Hwy NE

0.2 mi

3. Turn right onto Park Dr

0.3 mi

4. Turn left onto E Loockerman St

0.3 mi

5. Turn right onto US-13 S

0.1 mi

6. Use the left 2 lanes to turn slightly left onto S Bay Rd

1.3 mi

7. Use the right 2 lanes to turn slightly right to stay on S Bay Rd

8. Merge onto DE-1 S — 0.7 mi

20.2 mi

9. Turn right onto C R 207/Johnson Rd — 0.7 mi

10. Turn left onto DE-30 S — 4.4 mi

11. Turn right to stay on DE-30 S — 16.6 mi

12. Merge onto DE-24 W — 0.2 mi

13. Turn left onto Dodd St — 0.1 mi

14. Turn right onto N Morris St — 443 ft

15. Turn left onto E State St — 1.5 mi

Follow Possum Point Rd to Nor Easter Dr — 2 min (0.4 mi)

16. Turn left onto Possum Point Rd — 0.4 mi

17. Turn right onto Nor Easter Dr — 200 ft

Destination will be on the left

29591 Nor Easter Dr
Millsboro, DE 19966

Attachment C:

Surrounding Properties
within 1,000 ft radius

29591 Nor Easter Drive Property List: 1,000 Ft Radius

Tax Map ID Number:	Property Owner	Physical Address	Mailing Address	Town	State	Zip Code
233-1.00-15.00	PODOLSKE LEWIS R DONNA M SKIBBE	27857 POSSUM POINT RD	2911 39TH ST NW	WASHINGTON	DC	20016
233-1.00-16.00	CARTER DOMINICK WILLIAM TTEE OF	27885 POSSUM POINT RD	23213 RACCOON DITCH RD	GEORGETOWN	DE	19947
233-1.00-18.00	BRITTINGHAM SHIRLEY	28078 POSSUM POINT RD	28078 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-18.01	BRITTINGHAM JAMES M III	28084 POSSUM POINT RD	28084 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-19.00	BRITTINGHAM WILLIAM LOUIS	28072 POSSUM POINT RD	28072 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-20.00	MORRIS WAYNE A	28064 POSSUM POINT RD	28064 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-21.00	LECATES DANIEL JR & DOROTHY M	28050 POSSUM POINT RD	28030 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-22.00	MEARS ARTHUR L	28044 POSSUM POINT RD	21595 PARADISE RD	GEORGETOWN	DE	19947
233-1.00-23.00	HAYNES KENNETH R SR	28040 POSSUM POINT RD	7828 BROCKLEHURST STREET	PHILADELPHIA	PA	19152
233-1.00-24.00	MILLER RICHARD A & DEBRA R	28036 POSSUM POINT RD	665 S COLDBROOK AVE	CHAMBERSBURG	PA	17201
233-1.00-25.00	LECATES DANIEL JR & DOROTHY M	28030 POSSUM POINT RD	28030 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-26.00	MEYER JOSEPH M JR	28024 POSSUM POINT RD	28024 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-27.00	WARRICK LESLIE W	28018 POSSUM POINT RD	3910 PINE ST	WILMINGTON	DE	19808
233-1.00-28.00	LANDIS PAMELA JO	28016 POSSUM POINT RD	1645 SW THORNBERRY CIR	PALM CITY	FL	34990
233-1.00-29.00	DONATH JULIEANNE	28014 POSSUM POINT RD	28014 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-30.00	PLP ENTERPRISES LLC	28010 POSSUM POINT RD	PO BOX 964	SALISBURY	MD	21808
233-1.00-31.00	MATHES CHERYL L	28008 POSSUM POINT RD	28 RIDGEWOOD CIR	WILMINGTON	DE	19809
233-1.00-32.00	KESKEMETY BRIAN	28004 POSSUM POINT RD	1700 THOMPSONVILLE RD	MILFORD	DE	19963
233-1.00-33.00	TURNER JERI LYNN	28002 POSSUM POINT RD	28002 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-34.00	FARRALL KENNETH J & MARY E	28000 POSSUM POINT RD	15 KELLS AVE	NEWARK	DE	19711
233-1.00-35.00	PETERSON JOHN L & ELEANOR S	27998 POSSUM POINT RD	2 TROTTER LANE	FREDERICKSBURG	VA	22406
233-1.00-36.00	MANNING LISA	27994 POSSUM POINT RD	27968 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-37.00	POWELL WALLACE H TTEE REV TR	27992 POSSUM POINT RD	27992 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-38.00	ARTEMUS PAMELA R	28003 POSSUM POINT RD	2580 JACKSON DITCH RD	HARRINGTON	DE	19952
233-1.00-39.00	BRANNOCK JOHN R JR	28005 POSSUM POINT RD	75 DAISEY RD	CLAYTON	DE	19938
233-1.00-40.00	ROSAS LEO FLORES	28007 POSSUM POINT RD	28007 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-41.00	STREET STEPHEN C	28013 POSSUM POINT RD	825 MARVEL AVE	CLAYMONT	DE	19703
233-1.00-42.00	MERWIN ELIZABETH S	28049 POSSUM POINT RD	420 LOCUST DR	BALTIMORE	MD	21228
233-1.00-42.01	STREET STEPHEN C		825 MARVEL AVE	CLAYMONT	DE	19703
233-1.00-43.00	HAYNES KENNETH R SR	27976 OLD SWIMMING HOLE RD	7828 BROCKLEHURST STREET	PHILADELPHIA	PA	19152
233-1.00-45.00	POWELL WALLACE H TTEE REV TR	28059 POSSUM POINT RD	27992 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-46.00	VELASQUEZ EDGAR & ANTONIA	28069 POSSUM POINT RD	28069 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-47.00	BSBS RENTALS LLC	28079 POSSUM POINT RD	2116 RIVERVIEW PARK RD	POCOMOKE CITY	MD	21851
233-1.00-47.01	POWELL CATHERINE E	27915 POSSUM POINT RD	27915 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-48.00	DUNN JAMES	27927 POSSUM POINT RD	27927 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-49.00	LANGSHAW NORMAN THOMAS & DOLORES C	27939 POSSUM POINT RD	3 W PERIWINKLE LN	NEWARK	DE	19711
233-1.00-50.00	CROCKETT LOIS D REV TR	27965 POSSUM POINT RD	959 UMBRIA LN	LEAGUE CITY	TX	77573
233-1.00-51.00	GOODCHILD PAUL ROBERT	27975 POSSUM POINT RD	18872 SMALL AVE	LINCOLN	DE	19960
233-1.00-52.00	POWELL WALLACE H TTEE REV TR		27992 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-53.00	MENCER DORA V	27980 POSSUM POINT RD	71 CROSSKEYS DR	GARNET VALLEY	PA	19060
233-1.00-54.00	MANNING GEORGE	27968 POSSUM POINT RD	662 BENFIELD RD	SEVERNA PARK	MD	21146
233-1.00-55.00	KBAR HOLDINGS LLC	29569 NOR EASTER DR	500 NORWOOD RD	COLUMBIA	PA	17512
233-1.00-56.00	D'ANGELO MARIE E	29571 NOR EASTER DR	73 BRIGGS CT	SMYRNA	DE	19977
233-1.00-57.00	TROMBETTA ISABELLA TAMASINE RAGOLIA TTEE	29585 NOR EASTER DR	668 CLIFTON DR	BEAR	DE	19701
233-1.00-58.00	OAKES EVERETT H JR FOR LIFE THEN TO	29589 NOR EASTER DR	304 GRACE ST	MILLSBORO	DE	19966
233-1.00-59.00	WHARTON RAY EUGENE GERALDINE	29575 NOR EASTER DR	29575 NOR EASTER DR	MILLSBORO	DE	19966
233-1.00-59.01	HUDSON JAMES L RUTH T	29591 NOR EASTER DR	29591 N EASTER DR	MILLSBORO	DE	19966
233-1.00-59.02	OAKES EVERETT H JR FOR LIFE THEN TO	29599 NOR EASTER DR	304 GRACE ST	MILLSBORO	DE	19966
233-1.00-60.00	JEWELL LUTHER F JR	27952 POSSUM POINT RD	6999 COASTAL HWY	MILFORD	DE	19963
233-1.00-61.00	BARCUS KELLY	27944 POSSUM POINT RD	3140 CONCORD RD	ASTON	PA	19014
233-1.00-62.00	KESKEMETY BRIAN	29621 HAZELNUT HVN	1700 THOMPSONVILLE RD	MILFORD	DE	19963
233-1.00-63.00	WAHL CALVIN F	29634 HAZELNUT HVN	29634 HAZELNUT HVN	MILLSBORO	DE	19966
233-1.00-64.00	GUTIERREZ FERNANDO	29620 HAZELNUT HVN	29300 BAYSIDE DR	NEW CHURCH	VA	23415
233-1.00-65.00	HAZELNUT HAVEN LLC	29612 HAZELNUT HVN	29612 HAZELNUT HAVEN	MILLSBORO	DE	19966
233-1.00-66.00	STEELE CONNIE MARIE	29609 DIRT LN	29609 DIRT LN	MILLSBORO	DE	19966
233-1.00-67.00	STEELE CONNIE MARIE	29621 DIRT LN	29609 DIRT LN	MILLSBORO	DE	19966
233-1.00-68.00	HELDRETH MELISSA		29632 DIRT LN	MILLSBORO	DE	19966
233-1.00-70.00	HELDRETH MELISSA L	29632 DIRT LN	29632 DIRT LN	MILLSBORO	DE	19966
233-1.00-71.00	DUKES DAVID A	29622 DIRT LN	44 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-72.00	JEWELL MEGAN	27920 POSSUM POINT RD	11 WATER ST	LINCOLN	DE	19960
233-1.00-73.00	LYNCH JERRY D	27908 POSSUM POINT RD	27908 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-74.00	HUSSMANN JOHN JR		3410 EDEN ST	PHILADELPHIA	PA	19114
233-1.00-75.00	HUSSMANN JOHN JR	27892 POSSUM POINT RD	3410 EDEN ST	PHILADELPHIA	PA	19114
233-1.00-76.00	LANDA-ORTIZ JESUS	27878 POSSUM POINT RD	27878 POSSUM POINT RD	MILLSBORO	DE	19966
233-1.00-90.00	SOUTHERN DELAWARE COMMUNITIES INC		830 WALKER RD SUITE #12	DOVER	DE	19904
233-5.00-24.00	MDI INVESTMENT GROUP LLC		PO BOX 201	LEWISVILLE	PA	19351
233-5.00-24.05	MUNCIE MARVIN E JR TTEE TR	29931 MOUNTAIN LAUREL DR	6411 4TH PALM POINT ST	SAINT PETERSBURG	FL	33706
233-5.00-24.06	REVELL JEFFREY L TRUSTEE	29955 MOUNTAIN LAUREL DR	30869 HICKORY HILL ROAD	MILLSBORO	DE	19966
233-5.00-24.07	RAMEY THOMAS J	29928 MOUNTAIN LAUREL DR	8270 MORNINGSIDE DR	MANASSAS	VA	20112
233-5.00-24.08	CSIPO DEZSO	29942 MOUNTAIN LAUREL DR	1 MOUNTAIN LAUREL DR LOT C	DAGSBORO	DE	19939
233-5.00-24.09	POLLOCK RICHARD C SR	29936 MOUNTAIN LAUREL DR	29936 MOUNTAIN LAUREL DR	DAGSBORO	DE	19939
233-5.00-24.10	RAMEY THOMAS J	18185 LUPINE ST	29928 MOUNTAIN LAUREL DR	DAGSBORO	DE	19939
233-5.00-24.12	NEWSON DONALD D & KATHLEEN M	29958 MOUNTAIN LAUREL DR	29958 MOUNT LAUREL DR	DAGSBORO	DE	19939
233-5.00-24.13	MDI INVESTMENT GROUP LLC		PO BOX 201	LEWISVILLE	PA	19351
233-5.00-24.14	MDI INVESTMENT GROUP LLC	29921 MOUNTAIN LAUREL DR	PO BOX 201	LEWISVILLE	PA	19351
233-5.00-24.15	RICHARDSON WILLIAM	28214 BLUEBERRY AV	28214 BLUEBERRY AVE	DAGSBORO	DE	19939
233-5.00-24.17	PAPPAS RYAN CONNER	29932 MOUNTAIN LAUREL DR	29932 MOUNTAIN LAUREL DR	DAGSBORO	DE	19939
233-5.00-24.18	SMITH CARL BERNARD JR	28213 BLUEBERRY AV	28213 BLUEBERY AVE	DAGSBORO	DE	19939
233-5.00-24.22	STEVENS SANDRA A	29924 MOUNTAIN LAUREL DR	29924 MOUNTAIN LAUREL DR	DAGSBORO	DE	19939
233-5.00-24.23	TRUEHEART STACIE LEE	29920 MOUNTAIN LAUREL DR	29920 MOUNTAIN LAUREL DR	DAGSBORO	DE	19939
233-5.00-24.25	MDI INVESTMENT GROUP LLC		PO BOX 201	LEWISVILLE	PA	19351
233-5.00-24.26	MDI INVESTMENT GROUP LLC		PO BOX 201	LEWISVILLE	PA	19351
233-5.00-24.32	FINK GREGORY H	28206 BLUEBERRY AV	28206 BLUEBERRY AVE	DAGSBORO	DE	19939
233-5.00-24.38	GREENAWALT TREVOR CRAIG	28195 BLUEBERRY AV	31854 MILL RUN RD	MILLVILLE	DE	19967
233-5.00-24.39	SCHUTTLER ALAN WILLIAM		25414 DURANGO CT	PUNTA GORDA	FL	33955
233-5.00-24.40	SALYER JAMES BRIAN		31249 ANCHOR WATCH LOOP	DAGSBORO	DE	19939
233-5.00-24.42	NORVELL PAUL F SR		35703 CLAMSHELL CIR	SELBYVILLE	DE	19975
233-5.00-25.00	MUNCIE MARVIN E JR TTEE TR	29935 MOUNTAIN LAUREL DR	6411 4TH PALM POINT ST	SAINT PETERSBURG	FL	33706
233-5.00-26.00	LUCAS NICOLE V	29947 MOUNTAIN LAUREL DR	196 SHAWMONT AVE	PHILADELPHIA	PA	19128
233-5.00-27.00	JANSSEN DENNIS	29959 MOUNTAIN LAUREL DR	29959 MOUNTAIN LAUREL DRIVE	DAGSBORO	DE	19939
233-5.00-28.00	RIVER BEND ASSOCIATION INC	142 RIVER BEND DR	115 RIVER BEND DR	DAGSBORO	DE	19939
233-5.00-29.00	PURCELL THOMAS R DIANNE PURCELL		142 RIVER BEND DR	DAGSBORO	DE	19939
233-5.00-30.00	HAZZARD BRITTANY T G	140 RIVER BEND DR	17904 ERWIN ST	ENCINO	CA	91316
233-5.00-50.00	SCHOFIELD RICHARD C TTEE REV TR	133 RIVER BEND DR	133 RIVER BEND DR	DAGSBORO	DE	19939
233-5.00-51.00	LINDAUER STANLEY W	29778 KOSZY LN	29778 KOSZY LN	DAGSBORO	DE	19939

Attachment D:

Property Deed & Survey

This Deed, made this

18258 22nd day of September in the year of our LORD one thousand nine hundred and eighty-nine,

.00 00 TX-EX 9/22/89 6027 333

BETWEEN, JAMES L. HUDSON of 56 Possum Point Road, Millsboro, Sussex County, DE 19966, party of the first part,

-AND-

JAMES L. HUDSON and RUTH T. HUDSON, his wife, (as tenants by the entireties) of 56 Possum Point Road, Millsboro, Sussex County, DE 19966, parties of the second part,

Witnesseth, *That the said part* y *of the first part, for and in consideration the sum of* ----ONE DOLLAR ($1.00)-------------- *lawful money of the United States of America, the receipt whereof is hereby acknowledged, hereby grant* s *and conveys* *unto the said part* ies *of the second part,*

ALL THAT CERTAIN TRACT, Piece and Parcel of land, situate, lying and being on the northwestern shore line of Indian River, Possum Point, Dagsboro Hundred, Sussex County, Delaware, more particularly described as follows, to wit:

BEGINNING at a concrete monument found, being a corner for these lands and lands now or formerly of Philip W. Hudson; thence running North 59 degrees, 40 minutes, 00 seconds East through an iron pipe, by and along a common boundary line for lands now or formerly of Philip W. Hudson and beyond the aforesaid iron pipe, lands now or formerly of Harold Y. Swinthenbank, 301.66 feet to an iron pipe found; thence continuing in the same course and direction approximately 2.0 feet to the shore line of Indian River; thence turning and running along the meanderings of the shore line of Indian River in a southwesterly direction and continuing along the northwestern shore line of Barberry Branch to a point on the shore line of said Barberry Branch, said point being the closest point to a fence post forming a corner for these lands and lands now or formerly of Philip

W. Hudson; thence turning and running from said fence post North 49 degrees, 20 minutes, 18 seconds West 189.20 feet to a fence post; thence turning and running North 58 degrees, 40 minutes, 03 seconds East 28.06 feet to a concrete monument; thence turning and running North 41 degrees, 05 minutes, 19 seconds West 42.06 feet HOME TO THE PLACE OF BEGINNING, and said to contain 1.05 acres of land, be the same more or less, as surveyed by Lowenstein, Soule & Associates, Inc., said survey being dated September, 1988.

BEING the same lands conveyed to James L. Hudson by deed of Philip W. Hudson, etal., dated December 30, 1977, and recorded in the Office of the Recorder of Deeds, in and for Sussex County, at Georgetown, in Deed Book 878 at page 346.

LAW OFFICES OF
MAULL & MAULL, P.A.
EAST MARKET STREET
P.O. BOX 590
GEORGETOWN, DELAWARE 19947-0590
302-856-7393

In Witness Whereof, *The said part y of the first part ha s hereunto set his hand and seal , the day and year aforesaid.*

SIGNED, SEALED, DELIVERED, and Witnessed in the presence of

Denise L. Burnett
Witness

James L. Hudson (Seal)
JAMES L. HUDSON

_____ (Seal)
Witness

_____ (Seal)
Witness

_____ (Seal)
Witness

STATE OF DELAWARE,

S.S.

SUSSEX *COUNTY.*

BE IT REMEMBERED, that on this 22nd *day of* September *in the year of our Lord one thousand nine hundred and* eighty-nine *personally came before me, a Notary Public in and for the State and County aforesaid,*

JAMES L. HUDSON

Part y to this Indenture, known to me personally to be such, and he *acknowledge this Indenture to be* his *Deed.*

GIVEN under my hand and Seal of Office, the day and year aforesaid.

Denise L. Burnett
Notary Public

C. RUSSELL MCCABE
DOC. SURCHARGE PAID

1989 SEP 22 AM 11: 38

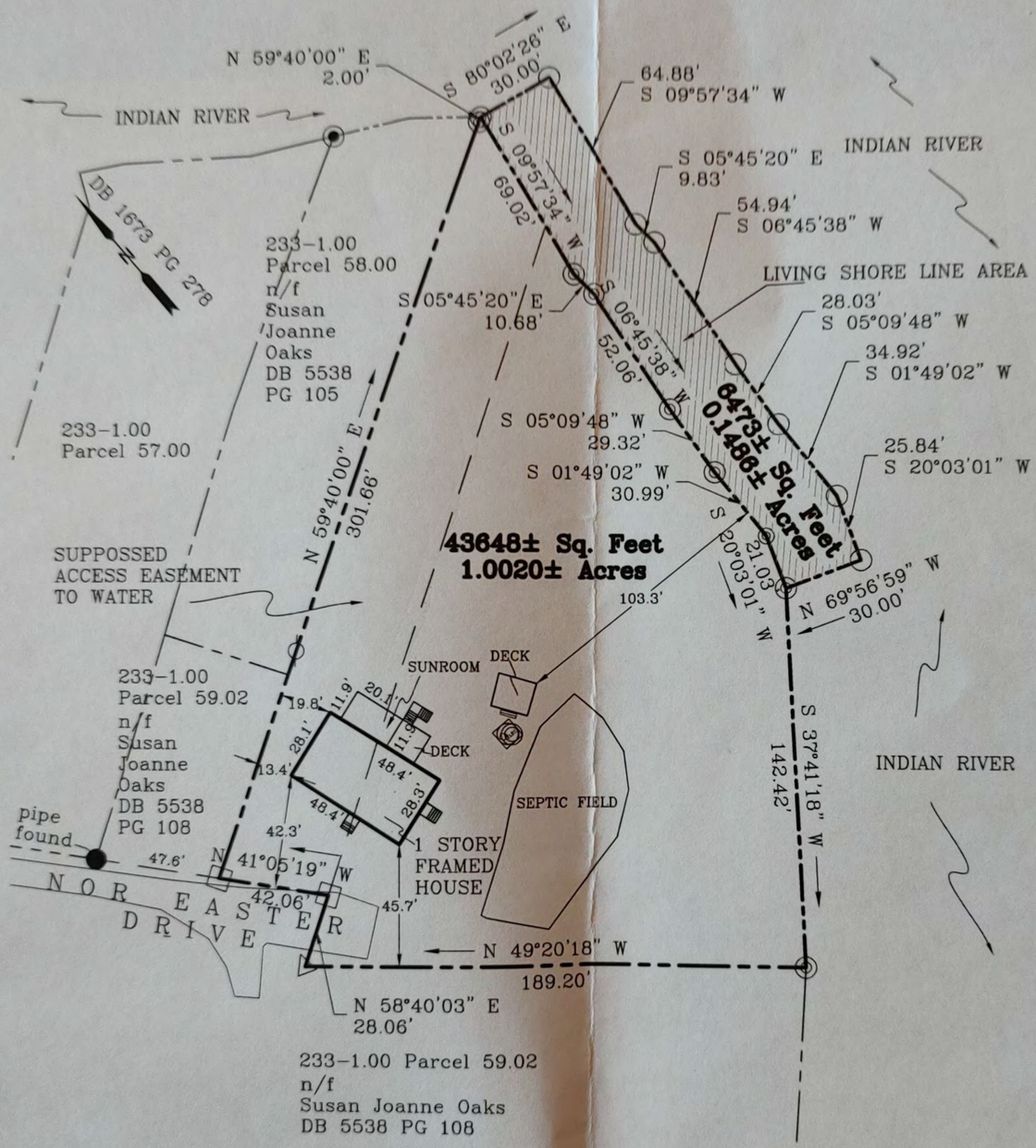
RECORDER OF DEEDS
SUSSEX COUNTY

LAW OFFICES OF
Maull & Maull
8 EAST MARKET STREET
GEORGETOWN, DELAWARE 19947

BOUNDARY SURVEY PLAN

LANDS OF "JAMES L. HUDSON AND RUTH T. HUDSON"

ALSO KNOWN AS: "29591 NOR EASTER DRIVE MILLSBORO DE"
SITUATE IN: "POSSUM POINT–DAGSBORO HUNDRED"
SUSSEX COUNTY * STATE OF DELAWARE
TAX MAP #: 233–1.00–59.01
DEED REFERENCE: DB 1673, PG 278



LEGEND

- CAPPED REBAR SET
- IRON PIPE FOUND
- FENCE POST FOUND
- CAPPED REBAR FOUND
- PROPERTY CORNER
- CONCRETE MONUMENT FOUND
- POWER POLE
- SEWER CLEANOUT
- ELECTRIC
- PROPERTY LINE
- EASEMENT LINE

NOTES

1. THIS SURVEY IS CLASSIFIED AS A "SUBURBAN" SURVEY.
2. UNLESS THIS PLAT HAS A SEAL WITH AN ORIGINAL SIGNATURE OF ENGINEER, IN RED INK, THIS IS NOT AN AUTHORIZED COPY.
3. THE SURVEY DOES NOT VERIFY THE EXISTENCE OF OR NONEXISTENCE OF ANY EASEMENTS OR RIGHT OF WAYS.

PROFESSIONAL ENGINEER

JOHN B. ROACH Engineering LLC
22184 MELSON ROAD
GEORGETOWN, DELAWARE 199
PHONE NO. 302–856–1565

DRAWN BY: JBR	DATE: 08–29–2024
SCALE: 1"=60'	SHEET 1/1

Attachment A:

Property Maps & Project Diagrams

Sussex County

PIN:	233-1.00-59.01
Owner Name	HUDSON JAMES L RUTH T
Book	0
Mailing Address	29591 N EASTER DR
City	MILLSBORO
State	DE
Description	200' SE OF RT 331A
Description 2	SOUTH SIDE INDIAN
Description 3	RIVER W/IMP.
Land Code	

Tax Parcels

911 Address

Streets

County Boundaries

World Imagery

Low Resolution 15m Imagery

High Resolution 60cm Imagery

High Resolution 30cm Imagery

Citations

60cm Resolution Metadata

1:2,257

0 0.0275 0.055 0.11 mi

0 0.0425 0.085 0.17 km

April 21, 2025

U.S. Fish and Wildlife Service
National Wetlands Inventory

Hudson Living Shoreline

February 3, 2025

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

PHOTO # 10-003B

FILENAME - DNR121

300 0 300 600 900 1200 1500 1800 2100 Feet

SCALE 1:3600

State of Delaware Wetlands
SUSSEX COUNTY, DELAWARE

(in Accordance with the Delaware Wetlands Act # 6607)
Approximate Scale (1:3600)

Prepared for: DEPARTMENT OF NATURAL RESOURCES
and ENVIRONMENTAL CONTROL

Produced by: SALISBURY STATE UNIVERSITY
IMAGE PROCESSING & REMOTE SENSING CENTER
SALISBURY, MARYLAND

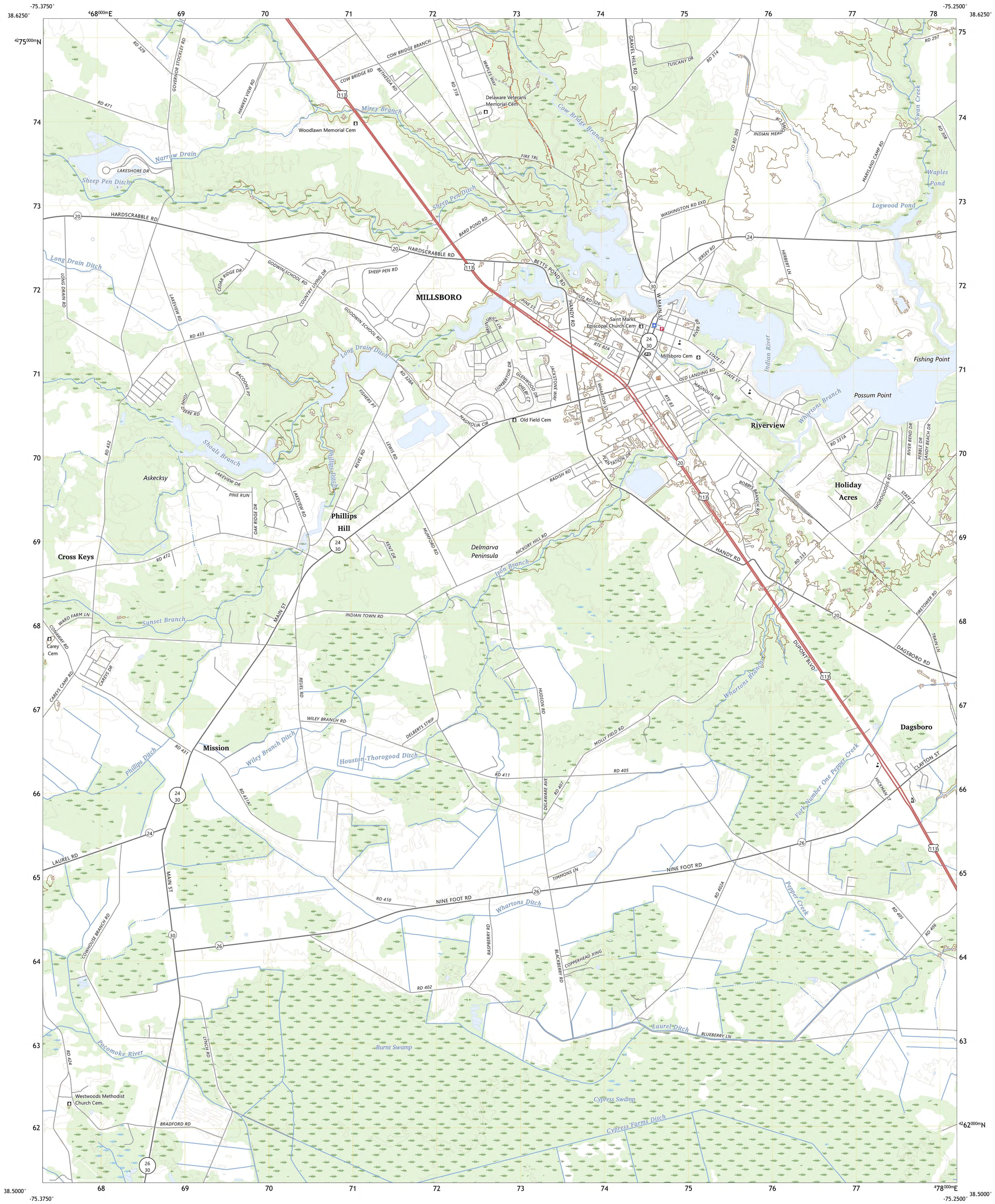
Legend for Delaware Tidal Wetland Delineations:

B - Beach
DF - Disturbed Forested Swamp
DM - Disturbed Marsh (vegetation removed for agricultural activities)
F - Tidal Forested Swamp
IF - Impounded Forested Wetland
ILM - Impounded Low Marsh
IM - Impounded Marsh
IS - Impounded Scrub-Shrub Wetland
IW - Impounded Water
LM - Low Marsh
M - Marsh
MS - Marsh in spoil areas
N - Non-tidal wetlands (400 acres+ , including tidal forested swamps)
O - Other (Upland or Non-tidal wetlands less than 400 acres)
S - Tidal Scrub-Shrub Swamps
SS - Areas flooded by tidal storm surges
SS* - Areas flooded by storm surges at a higher flood plain elevation
T - Tidal Mudflats (in some cases vegetated)/ sand bars
W - Water
WS - Water in a spoil area
/ - complexes among different commmunity types (ex. M/S)

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

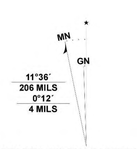
MILLSBORO QUADRANGLE
DELAWARE - SUSSEX COUNTY
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 18S

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery	NAIP, August 2018 - August 2018
Roads	U.S. Census Bureau, 2016 - 2016
Names	GNIS, 1979 - 2023
Hydrography	National Hydrography Dataset, 2004 - 2022
Contours	National Elevation Dataset, 2016
Boundaries	Multiple sources; see metadata file 2021 - 2022
Wetlands	FWS National Wetlands Inventory 2007



UTM GRID AND 2023 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

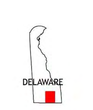
U.S. National Grid
100,000 - m Square ID
VH
Grid Zone Designation
18S

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard.



QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES

1 Georgetown
2 Harbeson
3 Fairmount
4 Trap Pond
5 Frankford
6 Pittsville
7 Whaleyville
8 Selbyville

ROAD CLASSIFICATION

Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

MILLSBORO, DE
2023

NSN 7643016936020209
NGA REF NO. USGSX24K9416

ATTACHMENT B:

State and Federal Agency Letters

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DIVISION OF FISH & WILDLIFE
RICHARDSON & ROBBINS BUILDING
89 KINGS HIGHWAY
DOVER, DELAWARE 19901

DIRECTOR'S OFFICE

PHONE
(302) 739-9910

February 6, 2025

Nick Wright
Envirotech
17605 Nassau Commons Blvd
Lewes, DE 19958

Re: ETECH 2025 Hudson Living Shoreline Project (233-1.00-59.01)

Dear Nick:

Thank you for contacting the Division of Fish and Wildlife (DFW) Species Conservation and Research Program about information on rare, threatened and endangered species, unique natural communities, and other significant natural resources as they relate to the above referenced project.

State Natural Heritage Site
A review of our database indicates that there are currently no records of state-rare or federally listed plants, animals or natural communities at this project site. As a result, at present, this project does not lie within a State Natural Heritage Site, nor does it lie within a Delaware National Estuarine Research Reserve which are two criteria used to identify "Designated Critical Resource Waters" in the U.S. Army Corps of Engineers (USACE) Nationwide Permit General Condition No. 22. A copy of this letter shall be included in any permit application or pre-construction notification submitted to the USACE for activities on this property.

Wildlife entanglement in RECP

For erosion control, we recommend (if feasible) using materials that are biodegradable and that do not include plastic netting or have welded-joint poly-based matting. Wildlife entanglement in rolled erosion control products (RECP), especially those that contain plastic netting, is well documented (references available upon request). These materials (even some marketed as 'biodegradable') are hazardous because of their durability, flexibility and resistance to degradation. Netting is often placed on the ground or over vegetation where wildlife typically traverse or forage. Birds that occur within wetlands such as herons, ducks and geese are susceptible to entanglement and snakes are particularly susceptible due to their twisting escape behavior when caught. Some of these species are already undergoing major declines due to the impact of habitat loss, pollution, collection pressure and other causes.

Wetland Buffer

Buffers are an integral component of aquatic and wetland habitats, reducing the amount of sediments, pollutants, and other non-point source material that may affect the function and integrity of habitat and the condition and survivability of aquatic organisms. Forested buffers serve as habitat for many terrestrial species that are dependent on aquatic and wetlands habitats for a portion of their annual life cycle.

In the interest of water quality and wildlife habitat, we recommend maintaining an upland buffer of at least 100 ft along rivers, streams and wetlands. This recommendation is based on peer reviewed research that suggests that buffer values increase noticeably with widths of 100 ft or more. This buffer should *not* be a maintained lawn area and should *not* contain lot lines or infrastructure. We recommend the buffer area be comprised of the existing vegetation or planted with Delaware native species of trees, shrubs, grasses or wildflowers.

Soil Disturbance and Phragmites

Soil disturbance within the project boundaries will likely result in the establishment of the non-native invasive grass – European reed (***Phragmites australis***), as well as other potentially invasive, non-native plant species. We recommend that, as a condition of the permit, the applicant revegetate the area using native plant species that are indigenous to the state of Delaware and are appropriate for the site. Our staff botanist, Bill McAvoy (William.mcavoy@delaware.gov) can provide guidance in selecting plant material. In addition, we also recommend that the applicant commit to a two-year monitoring and management plan that would include the removal of non-native invasive plants and additional plantings of native species as necessary.

Fisheries

After reviewing the project description, it does not appear that any waterways will be impacted; therefore, there are no fisheries concerns at present.

We are continually updating our records on Delaware's rare, threatened and endangered species, unique natural communities and other significant natural resources. If the start of the project is delayed more than a year past the date of this letter, please contact us again for the latest information.

Please feel free to contact me with any questions or if you require additional information.
Sincerely,

Matthew Young
Environmental Review Coordinator
Phone: (302) 735-8677
Email: matthew.young@delaware.gov
6180 Hay Point Landing Road
Smyrna, DE 19977

HCA
DELAWARE HISTORICAL & CULTURAL AFFAIRS

Delaware Division of Historical & Cultural Affairs
29 N. State St., Dover, Delaware 19901
Tel. (302) 736-7400 | Fax. (302) 739-5660
history.delaware.gov

March 7, 2025

Nickolas Wright
Envirotech, Inc.
17605 Nassau Commons Boulevard, Unit D
Lewes, DE 19958

Subject: **29591 Nor Easter Drive**
SHPO Project No. 2025.02.04.01

Dear Mr. Wright:

We understand from your letter that the applicant is seeking a permit from the US Army Corps of Engineers (USACOE) for the proposed undertaking at 29591 Nor Easter Drive in Millsboro. The applicant is proposing to install a living shoreline to stabilize current erosion. Because of the need for authorization from the USACOE, the project is subject to compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended).

There are no known archaeological sites or historic properties within or immediately adjacent to the area of potential effect (APE). The area has been residentially developed since the 1950s, and historic aerials show patterns of shoreline erosion. Due to this disturbance there is minimal potential for intact archaeological sites. There is limited potential for the proposed undertaking to effect above ground structures or archaeological sites.

Our Office finds there to be No Historic Properties Affected by the proposed undertaking. Please feel free to contact me if you have any questions at (302) 736-7431 or sarah.carr@delaware.gov.

Sincerely,

Sarah Carr, Archaeologist
Environmental Specialist
cc: Gwen Davis, Deputy SHPO

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To: 02/03/2025 20:18:28 UTC
Project Code: 2025-0051024
Project Name: Hudson Living Shoreline Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

PROJECT SUMMARY

Project Code: 2025-0051024

Project Name: Hudson Living Shoreline Project

Project Type: Shoreline Stabilization

Project Description: The proposed project is located at 29591 Nor Easter Drive, Millsboro Delaware 19971, along the Indian River, a tributary to the Indian River Bay. This project purpose is to create a living shoreline to stabilize the existing erosive shoreline in the target area. Severe shoreline erosion is occurring and present due to capillary and fetch wave action on exposed soil. The living shoreline will consist of Delaware native vegetation and a low-profile sill comprised of R-4 riprap stone. The low-profile vented sill will traverse approximately (95) linear feet along the shoreline and will be installed at Mean Low Water Level (MLWL). The low-profile sill will be installed on top of S-300 Geotextile fabric and measure approximately 95 feet in length, 3 feet wide, and 2ft tall. Additionally, six hundred (600) 2” Saltmarsh Cordgrass (Sporobolus alterniflora) plugs and six hundred (600) Saltmarsh Hay (Sporobolus pumilus) will be planted in quart pots on one-foot centers behind the proposed low-profile vented sill.
Additionally, hand-held hedge trimmers, metal-bladed weed eaters, and chainsaws will be utilized to remove current vegetation that may restrict material placement and access to the project area.
All appropriate risk avoidance measures will be followed to allow practicable alternatives and consideration of impacts were necessary. The work authorized shall be completed in accordance with the terms and conditions of the applicable United States Army Corps of Engineers Permit (Nationwide Permit #54-Living Shoreline). Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants to surface waters.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.5823228,-75.2606617692039,14z

Counties: Sussex County, Delaware

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Potential habitat for Black Rail exists in this area. Species profile: https://ecos.fws.gov/ecp/species/10477	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

ESTUARINE AND MARINE DEEPWATER

- E1UBL

ESTUARINE AND MARINE WETLAND

- E2USN
- E2EM1N
- E2USM

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To: 02/03/2025 20:28:35 UTC
Project code: 2025-0051024
Project Name: Hudson Living Shoreline Project

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Technical assistance for 'Hudson Living Shoreline Project'

Dear nick wright:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on February 03, 2025, for “Hudson Living Shoreline Project” (here forward, Project). This project has been assigned Project Code 2025-0051024 and all future correspondence should clearly reference this number.

The Service developed the IPaC system and associated species’ determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. Failure to accurately represent or implement the Project as detailed in IPaC or the Northeast Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative effect(s)), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17). Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no further consultation with, or concurrence from, the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required (except when the Service concurs, in writing, that a

proposed action "is not likely to adversely affect (NLAA)" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13]).

The IPaC results indicated the following species is (are) potentially present in your project area and, based on your responses to the Service's Northeast DKey, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*)	Threatened	NLAA

Conclusion

Coordination with the Service is complete. This letter serves as technical assistance. All conservation measures should be implemented as proposed. Thank you for considering federally listed species during your project planning.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the species identified above. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional consultation with the Service should take place before project implements any changes which are final or commits additional resources.

In addition to the species listed above, the following species and/or critical habitats may also occur in your project area and are not covered by this conclusion:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

Please Note: If the Action may impact bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act (BGEPA) (54 Stat. 250, as amended, 16 U.S.C. 668a-d) by the prospective permittee may be required. Please contact the Migratory Birds Permit Office, (413) 253-8643, or PermitsR5MB@fws.gov, with any questions regarding potential impacts to Eagles.

If you have any questions regarding this letter or need further assistance, please contact the Chesapeake Bay Ecological Services Field Office and reference the Project Code associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Hudson Living Shoreline Project

2. Description

The following description was provided for the project 'Hudson Living Shoreline Project':

> The proposed project is located at 29591 Nor Easter Drive, Millsboro Delaware 19971, along the Indian River, a tributary to the Indian River Bay. This project purpose is to create a living shoreline to stabilize the existing erosive shoreline in the target area. Severe shoreline erosion is occurring and present due to capillary and fetch wave action on exposed soil. The living shoreline will consist of Delaware native vegetation and a low-profile sill comprised of R-4 riprap stone. The low-profile vented sill will traverse approximately (95) linear feet along the shoreline and will be installed at Mean Low Water Level (MLWL). The low-profile sill will be installed on top of S-300 Geotextile fabric and measure approximately 95 feet in length, 3 feet wide, and 2ft tall. Additionally, six hundred (600) 2” Saltmarsh Cordgrass (Sporobolus alterniflora) plugs and six hundred (600) Saltmarsh Hay (Sporobolus pumilus) will be planted in quart pots on one-foot centers behind the proposed low-profile vented sill. Additionally, hand-held hedge trimmers, metal-bladed weed eaters, and chainsaws will be utilized to remove current vegetation that may restrict material placement and access to the project area.
> All appropriate risk avoidance measures will be followed to allow practicable alternatives and consideration of impacts were necessary. The work authorized shall be completed in accordance with the terms and conditions of the applicable United States Army Corps of Engineers Permit (Nationwide Permit #54-Living Shoreline). Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants to surface waters.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.5823228,-75.2606617692039,14z


Possum Point
Dirt Ln
Lupine St

QUALIFICATION INTERVIEW

1. As a representative of this project, do you agree that all items submitted represent the complete scope of the project details and you will answer questions truthfully?

   Yes

2. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed species?

   Note: This question could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered, or proposed species.

   No

3. Is the action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   No

4. Will the proposed project involve the use of herbicide where listed species are present?

   No

5. Are there any caves or anthropogenic features suitable for hibernating or roosting bats within the area expected to be impacted by the project?

   No

6. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **birds** (e.g., plane-based surveys, land-based or offshore wind turbines, communication towers, high voltage transmission lines, any type of towers with or without guy wires)?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

7. Does any component of the project associated with this action include activities or structures that may pose a collision risk to **bats** (e.g., plane-based surveys, land-based or offshore wind turbines)?

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

8. Will the proposed project result in permanent changes to water quantity in a stream or temporary changes that would be sufficient to result in impacts to listed species?

   For example, will the proposed project include any activities that would alter stream flow, such as water withdrawal, hydropower energy production, impoundments, intake structures, diversion structures, and/or turbines? Projects that include temporary and limited water reductions that will not displace listed species or appreciably change water availability for listed species (e.g. listed species will experience no changes to feeding, breeding or sheltering) can answer "No". Note: This question refers only to the amount of water present in a stream, other water quality factors, including sedimentation and turbidity, will be addressed in following questions.

   No

9. Will the proposed project affect wetlands where listed species are present?

   This includes, for example, project activities within wetlands, project activities within 300 feet of wetlands that may have impacts on wetlands, water withdrawals and/or discharge of contaminants (even with a NPDES).

   No

10. Will the proposed project activities (including upland project activities) occur within 0.125 miles of the water's edge of a stream or tributary of a stream where listed species may be present?

    Yes

11. Will the proposed project directly affect a streambed (below ordinary high water mark (OHWM)) of the stream or tributary where listed species may be present?

    No

12. Will the proposed project bore underneath (directional bore or horizontal directional drill) a stream where listed species may be present?

    No

13. Will the proposed project involve a new point source discharge into a stream or change an existing point source discharge (e.g., outfalls; leachate ponds) where listed species may be present?

    No

14. Will the proposed project involve the removal of excess sediment or debris, dredging or in-stream gravel mining where listed species may be present?

    No

15. Will the proposed project involve the creation of a new water-borne contaminant source where listed species may be present?

    Note New water-borne contaminant sources occur through improper storage, usage, or creation of chemicals. For example: leachate ponds and pits containing chemicals that are not NSF/ANSI 60 compliant have contaminated waterways. Sedimentation will be addressed in a separate question.

    No

16. Will the proposed project involve perennial stream loss, in a stream of tributary of a stream where listed species may be present, that would require an individual permit under 404 of the Clean Water Act?

    No

17. Will the proposed project involve blasting where listed species may be present?

    No

18. Will the proposed project include activities that could negatively affect fish movement temporarily or permanently (including fish stocking, harvesting, or creation of barriers to fish passage).

    No

19. Will the proposed project involve earth moving that could cause erosion and sedimentation, and/or contamination along a stream or tributary of a stream where listed species may be present?

    Note: Answer "Yes" to this question if erosion and sediment control measures will be used to protect the stream.

    Yes

20. Will the proposed project impact streams or tributaries of streams where listed species may be present through activities such as, but not limited to, valley fills, large-scale vegetation removal, and/or change in site topography?

    No

21. Will the proposed project involve vegetation removal within 200 feet of a perennial stream bank where aquatic listed species may be present?

    No

22. Will erosion and sedimentation control Best Management Practices (BMPs) associated with applicable state and/or Federal permits, be applied to the project? If BMPs have been provided by and/or coordinated with and approved by the appropriate Ecological Services Field Office, answer "Yes" to this question.

    Yes

23. Is the project being funded, lead, or managed in whole or in part by U.S Fish and Wildlife Restoration and Recovery Program (e.g., Partners, Coastal, Fisheries, Wildlife and Sport Fish Restoration, Refuges)?

    No

24. [Semantic] Does the project intersect the Virginia big-eared bat critical habitat?

    Automatically answered
    No

25. [Semantic] Does the project intersect the Indiana bat critical habitat?

    Automatically answered
    No

26. [Semantic] Does the project intersect the candy darter critical habitat?

    Automatically answered
    No

27. [Semantic] Does the project intersect the diamond darter critical habitat?

    Automatically answered
    No

28. [Semantic] Does the project intersect the Big Sandy crayfish critical habitat?

    Automatically answered
    No

29. [Hidden Semantic] Does the project intersect the Guyandotte River crayfish critical habitat?

    Automatically answered
    No

30. [Hidden Semantic] Does the project intersect the Eastern black rail AOI?

    Automatically answered
    Yes

31. Does the action area include persistent emergent wetlands (salt, brackish, or freshwater)?

    Yes

32. Have black rails or black rail habitat been identified in sufficient detail in available surveys or records from within the last 2 years to assume presence at the site? (If unsure, select "No".)

    No

33. Will the proposed project involve activities conducted in persistent emergent wetlands (salt, brackish or freshwater) that may result in permanent or long-term (greater than 1 month) modifications to hydrology (flood frequency or depth)?

    No

34. Will the proposed project involve activities conducted in persistent emergent wetlands (salt, brackish or freshwater) that may result in permanent or long-term (longer than 1 growing season) modifications to vegetation type?

    No

35. Will the proposed project involve activities conducted in persistent emergent wetlands (salt, brackish or freshwater) that may result in permanent or long-term (longer than 1 growing season) reduction of dense overhead cover of persistent emergent wetland vegetation to less than 50% of habitat, in any given calendar year?

    No

36. Does the proposed project include prescribed burns in marshy or flooded open field habitat?

    No

37. Does the project include mowing, haying, and/or other mechanical treatment activities in marshy or flooded open field habitat?

    No

38. Does the project include grazing activities on public lands containing marshy or flooded open field habitat?

    No

39. Will the project cause long-term or permanent damage, fragmentation, or conversion of eastern black rail habitat?

    No

40. Will the project cause long-term or permanent damage, fragmentation, or conversion of the contiguous wetland-upland transition zone to other habitat types or land uses (e.g., between upland habitat and wetland habitat) for eastern black rail?

    No

41. Will any part of the project take place between March 15 and May 15 OR between July 15 and October 1?

    No

42. Do you have any other documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

1. Approximately how many acres of trees would the proposed project remove?

   0

2. Approximately how many total acres of disturbance are within the disturbance/ construction limits of the proposed project?

   0

3. Briefly describe the habitat within the construction/disturbance limits of the project site.

   Tidally influenced brackish water shoreline

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127

In Reply Refer To: 02/03/2025 20:35:57 UTC
Project code: 2025-0051024
Project Name: Hudson Living Shoreline Project

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Record of project representative's no effect determination for 'Hudson Living Shoreline Project'

Dear nick wright:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on February 03, 2025, for 'Hudson Living Shoreline Project' (here forward, Project). This project has been assigned Project Code 2025-0051024 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination

Tricolored Bat (*Perimyotis subflavus*)	Proposed Endangered	No effect

Federal agencies must consult with U.S. Fish and Wildlife Service under section 7(a)(2) of the Endangered Species Act (ESA) when an action *may affect* a listed species. Tricolored bat is proposed for listing as endangered under the ESA, but not yet listed. For actions that may affect a proposed species, agencies cannot consult, but they can *confer* under the authority of section 7(a)(4) of the ESA. Such conferences can follow the procedures for a consultation and be adopted as such if and when the proposed species is listed. Should the tricolored bat be listed, agencies must review projects that are not yet complete, or projects with ongoing effects within the tricolored bat range that previously received a NE or NLAA determination from the key to confirm that the determination is still accurate.

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* Threatened
- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals

the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the Chesapeake Bay Ecological Services Field Office and reference Project Code 2025-0051024 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Hudson Living Shoreline Project

2. Description

The following description was provided for the project 'Hudson Living Shoreline Project':

> The proposed project is located at 29591 Nor Easter Drive, Millsboro Delaware 19971, along the Indian River, a tributary to the Indian River Bay. This project purpose is to create a living shoreline to stabilize the existing erosive shoreline in the target area. Severe shoreline erosion is occurring and present due to capillary and fetch wave action on exposed soil. The living shoreline will consist of Delaware native vegetation and a low-profile sill comprised of R-4 riprap stone. The low-profile vented sill will traverse approximately (95) linear feet along the shoreline and will be installed at Mean Low Water Level (MLWL). The low-profile sill will be installed on top of S-300 Geotextile fabric and measure approximately 95 feet in length, 3 feet wide, and 2ft tall. Additionally, six hundred (600) 2” Saltmarsh Cordgrass (Sporobolus alterniflora) plugs and six hundred (600) Saltmarsh Hay (Sporobolus pumilus) will be planted in quart pots on one-foot centers behind the proposed low-profile vented sill. Additionally, hand-held hedge trimmers, metal-bladed weed eaters, and chainsaws will be utilized to remove current vegetation that may restrict material placement and access to the project area.
> All appropriate risk avoidance measures will be followed to allow practicable alternatives and consideration of impacts were necessary. The work authorized shall be completed in accordance with the terms and conditions of the applicable United States Army Corps of Engineers Permit (Nationwide Permit #54-Living Shoreline). Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants to surface waters.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@38.5823228,-75.2606617692039,14z


Possum Point
Dirt Ln
Lupine St

DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   Note: For federal actions, answer ‘yes’ if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

9. Will the action result in effects to a culvert or tunnel at any time of year?

   No

10. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

11. Does the action include the intentional exclusion of bats from a building or structure?

    Note: Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

12. Does the action involve removal, modification, or maintenance of a human-made structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

13. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

14. Will the action include or cause any construction or other activity that is reasonably certain to increase average daily traffic permanently or temporarily on one or more existing roads?

    Note: For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

15. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

16. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

17. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

18. Will the action include drilling or blasting?

    No

19. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use)?

    No

20. Will the proposed action involve the use of herbicides or other pesticides other than herbicides (e.g., fungicides, insecticides, or rodenticides)?

    No

21. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

22. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

23. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

24. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

25. Does the action area intersect the tricolored bat species list area?

    Automatically answered
    Yes

26. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

27. Has a presence/probable absence bat survey targeting the tricolored bat and following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

28. Is suitable summer habitat for the tricolored bat present within 1000 feet of project activities?
    (If unsure, answer ""Yes."")

    Note: If there are trees within the action area that may provide potential roosts for tricolored bats (e.g., clusters of leaves in live and dead deciduous trees, Spanish moss (Tillandsia usneoides), clusters of dead pine needles of large live pines) answer ""Yes."" For a complete definition of suitable summer habitat for the tricolored bat, please see Appendix A in the Service's Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines.

    No

29. Do you have any documents that you want to include with this submission?

    No

ATTACHMENT C:

NOAA Fisheries Greater Atlantic Regional Fisheries Office Essential Fish Habitat (EFH) Assessment & Fish and Wildlife Coordination Act (FWCA) Consultation Worksheet

EFH Mapper Report

EFH Data Notice

Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional fishery management councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

Greater Atlantic Regional Office
Atlantic Highly Migratory Species Management Division

Query Results

Degrees, Minutes, Seconds: Latitude = 38º 34' 57" N, Longitude = 76º 44' 20" W
Decimal Degrees: Latitude = 38.582, Longitude = -75.261

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

***** W A R N I N G *****

Please note under "Life Stage(s) Found at Location" the category "ALL" indicates that all life stages of that species share the same map and are designated at the queried location.

EFH

Link	Data Caveats	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
		Atlantic Butterfish	Adult	Mid-Atlantic	Atlantic Mackerel, Squid,& Butterfish Amendment 11
		Black Sea Bass	Juvenile	Mid-Atlantic	Summer Flounder, Scup, Black Sea Bass
		Bluefish	Adult, Juvenile	Mid-Atlantic	Bluefish
		Clearnose Skate	Adult, Juvenile	New England	Amendment 2 to the Northeast Skate Complex FMP

Link	Data Caveats	Species/Management Unit	Lifestage(s) Found at Location	Management Council	FMP
		Little Skate	Adult, Juvenile	New England	Amendment 2 to the Northeast Skate Complex FMP
		Longfin Inshore Squid	Eggs	Mid-Atlantic	Atlantic Mackerel, Squid,& Butterfish Amendment 11
		Spiny Dogfish	Adult Male, Sub-Adult Female	Mid-Atlantic	Amendment 3 to the Spiny Dogfish FMP
		Summer Flounder	Adult, Juvenile, Larvae	Mid-Atlantic	Summer Flounder, Scup, Black Sea Bass
		Windowpane Flounder	Adult, Eggs, Juvenile, Larvae	New England	Amendment 14 to the Northeast Multispecies FMP
		Winter Skate	Adult, Juvenile	New England	Amendment 2 to the Northeast Skate Complex FMP

Pacific Salmon EFH

No Pacific Salmon Essential Fish Habitat (EFH) were identified at the report location.

Atlantic Salmon

No Atlantic Salmon were identified at the report location.

HAPCs

Link	Data Caveats	HAPC Name	Management Council
		Summer Flounder SAV	Mid-Atlantic Fishery Management Council

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

All EFH species have been mapped for the Greater Atlantic region,
Atlantic Highly Migratory Species EFH,
Bigeye Sand Tiger Shark,

Spatial data does not currently exist for all the managed species in this area. The following is a list of species or management units for which there is no spatial data.
****For links to all EFH text descriptions see the complete data inventory: open data inventory -->**

Bigeye Sixgill Shark,
Caribbean Sharpnose Shark,
Galapagos Shark,
Narrowtooth Shark,
Sevengill Shark,
Sixgill Shark,
Smooth Hammerhead Shark,
Smalltail Shark

EFH Assessment Worksheet rev. August 2021

Please read and follow all of the directions provided when filling out this form.

1. General Project Information

Date Submitted:

Project/Application Number:

Project Name: Hudson Living Shoreline Project

Project Sponsor/Applicant: Envirotech Environmental Consulting, Inc.

Federal Action Agency (or state agency if the federal agency has provided written notice delegating the authority[1]): DNREC

Fast-41: Yes ☐ No ☑

Action Agency Contact Name:

Contact Phone: Contact Email:

Address, City/Town, State:

29591 Nor Easter Drive, Millsboro, Delaware 19966

2. Project Description

[2]Latitude: 38.582 Longitude: -75.261

Body of Water (e.g., HUC 6 name): Indian River Tributary of Indian River Bay

Project Purpose:

The project purpose is to create a living shoreline to stabilize the existing erosive shoreline in the target area. Severe shoreline erosion is present due to capillary and fetch wave action on exposed soil.

Project Description:

This project purpose is to create a living shoreline to stabilize the existing erosive shoreline in the target area. Severe shoreline erosion is occurring and present due to capillary and fetch wave action on exposed soil. The living shoreline will consist of Delaware native vegetation and a low-profile sill comprised of R-4 riprap stone. The low-profile vented sill will traverse approximately (120) linear feet along the shoreline and will be installed at Mean Low Water Level (MLWL). The low-profile sill will be installed on top of S-300 Geotextile fabric and measure approximately 95 feet in length, 3 feet wide, and 2ft tall. Additionally, six hundred (600) 2" Saltmarsh Cordgrass (Sporobolus alterniflora) plugs and six hundred (600) Saltmarsh Hay (Sporobolus pumilus) will be planted in quart pots on one-foot centers behind the proposed low-profile vented sill. Additionally, hand-held hedge trimmers, metal-bladed weed eaters, and chainsaws will be utilized to remove current vegetation that may restrict material placement and access to the project area.

Anticipated Duration of In-Water Work including planned Start/End Dates and any seasonal restrictions proposed to be included in the schedule:

Work is planned to begin immediately after permits are acquired. However, all time of year restrictions set forth by the regulatory agencies will be followed.

[1] A federal agency may designate a non-Federal representative to conduct an EFH consultation by giving written notice of such designation to NMFS. If a non-federal representative is used, the Federal action agency remains ultimately responsible for compliance with sections 305(b)(2) and 305(b)(4)(B) of the Magnuson-Stevens Act. [2] Provide the decimal, or the degrees, minutes, seconds values for latitude and longitude using the World Geodetic System 1984 (WGS84) and negative degree values where applicable.

3. Site Description

EFH includes the biological, chemical, and physical components of the habitat. This includes the substrate and associated biological resources (e.g., benthic organisms, submerged aquatic vegetation, shellfish beds, salt marsh wetlands), the water column, and prey species.

Is the project in designated EFH[3]? ☐ Yes ☑ No

Is the project in designated HAPC? ☐ Yes ☑ No

Does the project contain any Special Aquatic Sites[4]? ☐ Yes ☑ No

Is this coordination under FWCA only? ☐ Yes ☑ No

Total area of impact to EFH (indicate sq ft or acres): N/A

Total area of impact to HAPC (indicate sq ft or acres): N/A

Current range of water depths at MLW	Salinity range (PPT):	Water temperature range (°F):
1-3'	1-25	36-78

[3]Use the tables in Sections 5 and 6 to list species within designated EFH or the type of designated HAPC present. See the worksheet instructions to find out where EFH and HAPC designations can be found. [4] Special aquatic sites (SAS) are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. They include sanctuaries and refuges, wetlands, mudflats, vegetated shallows, coral reefs, and riffle and pool complexes (40 CFR Subpart E). If the project area contains SAS (i.e. sanctuaries and refuges, wetlands, mudflats, vegetated shallows/SAV, coral reefs, and/or riffle and pool complexes, describe the SAS, species or habitat present, and area of impact.

4. Habitat Types

In the table below, select the location and type(s) for each habitat your project overlaps. For each habitat type selected, indicate the total area of expected impacts, then what portion of the total is expected to be temporary (less than 12 months) and what portion is expected to be permanent (habitat conversion), and if the portion of temporary impacts will be actively restored to pre- construction conditions by the project proponent or not. A project may overlap with multiple habitat types.

Habitat Location	Habitat Type	Total impacts ($lf/ft^2/ft^3$)	Temporary impacts ($lf/ft^2/ft^3$)	Permanent impacts ($lf/ft^2/ft^3$)	Restored to pre-existing conditions?*
Estuarine	Shore (unconsolidated)	400 ft2			Select one
Estuarine	Substrate (silt/mud)	285 ft2			Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one
Select one	Select One				Select one

*Restored to pre-existing conditions means that as part of the project, the temporary impacts will be actively restored,such as restoring the project elevations to pre-existing conditions and replanting. It does not include natural restoration or compensatory mitigation.

Submerged Aquatic Vegetation (SAV) Present?:

Yes: ☐ No: ☑

If the project area contains SAV, or has historically contained SAV, list SAV species and provide survey results including plans showing its location, years present and densities if available. Refer to Section 12 below to determine if local SAV mapping resources are available for your project area.

All project related activity will occur landward of the Ordinary Water Mark (OWM), therefore no activity will impact SAV

Sediment Characteristics:

The level of detail required is dependent on your project – e.g., a grain size analysis may be necessary for dredging. In addition, if the project area contains rocky/hard bottom habitat [6](pebble, cobble, boulder, bedrock outcrop/ledge) identified as Rocky (coral/rock), Substrate (cobble/gravel), or Substrate (rock) above, describe the composition of the habitat using the following table.

Substrate Type* (grain size)	Present at Site? (Y/N)	Approximate Percentage of Total Substrate on Site
Silt/Mud (<0.063mm)	Yes	85%
Sand (0.063-2mm)	Yes	15%
Rocky: Pebble/Gravel /Cobble(2-256mm)**	Select one	
Rocky: Boulder (256-4096mm)**	Select one	
Rocky: Coral	Select one	
Bedrock**	Select one	

[6]The type(s) of rocky habitat will help you determine if the area is cod HAPC.

* Grain sizes are based on Wentworth grain size classification scale for granules, pebbles, cobbles, and boulders.

** Sediment samples with a content of 10% or more of pebble-gravel-cobble and/or boulder in the top layer (6-12 inches) should be delineated and material with epifauna/macroalgae should be differentiated from bare pebble-gravel-cobble and boulder.

If no grain size analysis has been conducted, please provide a general description of the composition of the sediment. If available please attach images of the substrate.

The shoreline soil consists of a loam and silt sediment with minor presence of sand.

Diadromous Fish (migratory or spawning habitat- identify species under Section 10 below):

Yes: ☐ No: ☑

5. EFH and HAPC Designations

Within the Greater Atlantic Region, EFH has been designated by the New England, Mid-Atlantic, and South Atlantic Fisheries Management Councils and NOAA Fisheries. Use the EFH mapper to determine if EFH may be present in the project area and enter all species and life stages that have designated EFH. Optionally, you may review the EFH text descriptions linked to each species in the EFH mapper and use them to determine if the described habitat is present at your project site. If the habitat characteristics described in the text descriptions do not exist at your site, you may be able to exclude some species or life stages from additional consideration. For example, the water depths at your site are shallower that those described in the text description for a particular species or life stage. We recommend this for larger projects to help you determine what your impacts are.

Species Present	EFH is designated/mapped for:				What is the source of the EFH information included?
	EFH: eggs	EFH: larvae	EFH: juvenile	EFH: adults/ spawning adults	
clearnose skate	☐	☐	☑	☑	EFH Mapper
little skate	☐	☐	☑	☑	EFH Mapper
summer flounder	☐	☐	☑	☑	Text descriptio
windowpane flounder	☑	☑	☑	☑	EFH Mapper
winter skate	☐	☐	☑	☑	Select One
Select One	☐	☐	☐	☐	Select One
Select One	☐	☐	☐	☐	Select One
Select One	☐	☐	☐	☐	Select One
Select One	☐	☐	☐	☐	Select One
Select One	☐	☐	☐	☐	Select One
Select One	☐	☐	☐	☐	Select One

6. Habitat Areas of Particular Concern (HAPCs)

HAPCs are subsets of EFH that are important for long-term productivity of federally managed species. HAPCs merit special consideration based their ecological function (current or historic), sensitivity to human-induced degradation, stresses from development, and/or rarity of the habitat.While many HAPC designations have geographic boundaries, there are also habitat specific HAPC designations for certain species, see note below. Use the EFH mapper to identify HAPCs within your project area. Select all that apply.

☐	Summer flounder: SAV[7]	☐	Alvin & Atlantis Canyons
☐	Sandbar shark	☐	Baltimore Canyon
☐	Sand Tiger Shark (Delaware Bay)	☐	Bear Seamount
☐	Sand Tiger Shark (Plymouth-Duxbury-Kingston Bay)	☐	Heezen Canyon
☐	Inshore 20m Juvenile Cod[8]	☐	Hudson Canyon
☐	Great South Channel Juvenile Cod	☐	Hydrographer Canyon
☐	Northern Edge Juvenile Cod	☐	Jeffreys & Stellwagen
☐	Lydonia Canyon	☐	Lydonia, Gilbert & Oceanographer Canyons
☐	Norfolk Canyon (Mid-Atlantic)	☐	Norfolk Canyon (New England)
☐	Oceanographer Canyon	☐	Retriever Seamount
☐	Veatch Canyon (Mid-Atlantic)	☐	Toms, Middle Toms & Hendrickson Canyons
☐	Veatch Canyon (New England)	☐	Washington Canyon
☐	Cashes Ledge	☐	Wilmington Canyon
☐	Atlantic Salmon		

[7] Summer flounder HAPC is defined as all native species of macroalgae, seagrasses, and freshwater and tidal macrophytes in any size bed, as well as loose aggregations, within adult and juvenile summer flounder EFH. In locations where native species have been eliminated from an area, then exotic species are included. Use local information to determine the locations of HAPC.

[8] The purpose of this HAPC is to recognize the importance of inshore areas to juvenile Atlantic cod. The coastal areas of the Gulf of Maine and Southern New England contain structurally complex rocky-bottom habitat that supports a wide variety of emergent epifauna and benthic invertebrates. Although this habitat type is not rare in the coastal Gulf of Maine, it provides two key ecological functions for juvenile cod: protection from predation, and readily available prey. See EFH mapper for links to text descriptions for HAPCs.

7. Activity Details

Select all that apply	Project Type/Category
☐	Agriculture
☐	Aquaculture - List species here:
☑	Bank/shoreline stabilization (e.g., living shoreline, groin, breakwater, bulkhead)
☐	Beach renourishment
☐	Dredging/excavation
☐	Energy development/use e.g., hydropower, oil and gas, pipeline, transmission line, tidal or wave power, wind
☐	Fill
☐	Forestry
☐	Infrastructure/transportation (e.g., culvert construction, bridge repair, highway, port, railroad)
☐	Intake/outfall
☐	Military (e.g., acoustic testing, training exercises)
☐	Mining (e.g., sand, gravel)
☐	Overboard dredged material placement
☐	Piers, ramps, floats, and other structures
☐	Restoration or fish/wildlife enhancement (e.g., fish passage, wetlands, mitigation bank/ILF creation)
☐	Survey (e.g., geotechnical, geophysical, habitat, fisheries)
☐	Water quality (e.g., storm water drainage, NPDES, TMDL, wastewater, sediment remediation)
☐	Other:

8. Effects Evaluation

Select all that apply	Potential Stressors Caused by the Activity	Select all that apply and if temporary[9] or permanent		Habitat alterations caused by the activity
		Temp	Perm	
☐	Underwater noise			
☑	Water quality/turbidity/ contaminant release	☐	☐	Water depth change
☐	Vessel traffic/barge grounding	☐	☐	Tidal flow change
☐	Impingement/entrainment	☐	☐	Fill
☐	Prevent fish passage/spawning	☐	☐	Habitat type conversion
☐	Benthic community disturbance	☐	☐	Other:
☐	Impacts to prey species	☐	☐	Other:

[9] Temporary in this instance means during construction. [10] Entrainment is the voluntary or involuntary movement of aquatic organisms from a water body into a surface diversion or through, under, or around screens and results in the loss of the organisms from the population. Impingement is the involuntary contact and entrapment of aquatic organisms on the surface of intake screens caused when the approach velocity exceeds the swimming capability of the organism.

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Details - project impacts and mitigation

Briefly describe how the project would impact each of the habitat types selected above and the amount (i.e., acreage or sf) of each habitat impacted. Include temporary and permanent impact descriptions and direct and indirect impacts. For example, dredging has a direct impact on bottom sediments and associated benthic communities. The turbidity generated can result in a temporary impact to water quality which may have an indirect effect on some species and habitats such as winter flounder eggs, SAV or rocky habitats. The level of detail that you provide should be commensurate with the magnitude of impacts associated with the proposed project. Attach supplemental information if necessary.

The equipment utilized for this project has potential to create underwater noise but the equipment will not be positioned near or in the water. Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants to surrounding waters.

What specific measures will be used to avoid and minimize impacts, including project design, turbidity controls, acoustic controls, and time of year restrictions? If impacts cannot be avoided or minimized, why not?

Erosion and sediment control measures shall be implemented in accordance with the specifications and criteria in the current Delaware Erosion and Sediment Control Handbook so as to minimize entry and dispersal of sediment and other contaminants to surrounding waters. Time of Year restrictions will be followed and all activity will take place landward of the ordinary water level.

Is compensatory mitigation proposed? Yes ☐ No ☑

If compensatory mitigation is not proposed, why not? If yes, describe plans for compensatory mitigation (e.g. permittee responsible, mitigation bank, in-lieu fee) and how this will offset impacts to EFH and other aquatic resources. Include a proposed compensatory mitigation and monitoring plan as applicable.

No compensatory mitigation is proposed because no impact to SAV or benthic communities is anticipated.

9. Effects of Climate Change

Effects of climate change should be included in the EFH assessment if the effects of climate change may amplify or exacerbate the adverse effects of the proposed action on EFH. Use the Intergovernmental Panel on Climate Change (IPCC) Representative Concentration Pathways (RCP) 8.5/high greenhouse gas emission scenario (IPCC 2014), at a minimum, to evaluate the future effects of climate change on the proposed projections. For sea level rise effects, use the intermediate-high and extreme scenario projections as defined in Sweet et al. (2017). For more information on climate change effects to species and habitats relative to NMFS trust resources, see Guidance for Integrating Climate Change Information in Greater Atlantic Region Habitat Conservation Division Consultation Processes.

1. Could species or habitats be adversely affected by the proposed action due to projected changes in the climate?If yes, please describe how:

No

2. Is the expected lifespan of the action greater than 10 years? If yes, please describe project lifespan:

No

3. Is climate change currently affecting vulnerable species or habitats, and would the effects of a proposed action be amplified by climate change? If yes, please describe how:

No

4. Do the results of the assessment indicate the effects of the action on habitats and species will be amplified by climate change? If yes, please describe how:

No

5. Can adaptive management strategies (AMS) be integrated into the action to avoid or minimize adverse effects of the proposed action as a result of climate? If yes, please describe how:

No

10. Federal Agency Determination

Federal Action Agency's EFH determination (select one)	
☑	There is no adverse effect[7] on EFH or EFH is not designated at the project site. EFH Consultation is not required. This is a FWCA only request.
☐	The adverse effect[7] on EFH is not substantial. This means that the adverse effects are no more than minimal, temporary, or can be alleviated with minor project modifications or conservation recommendations. This is a request for an abbreviated EFH consultation.
☐	The adverse effect[7] on EFH is substantial. This is a request for an expanded EFH consultation. We will provide more detailed information, including an alternatives analysis and NEPA documents, if applicable.

[7] An adverse effect is any impact that reduces the quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components. Adverse effects to EFH may result from actions occurring within EFH or outside of EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions.

11. Fish and Wildlife Coordination Act

Under the FWCA, federal agencies are required to consult with us if actions that the authorize, fund, or undertake will result in modifications to a natural stream or body of water. Federal agencies are required to consider the effects these modifications may have on fish and wildlife resources, as well as provide for the improvement of those resources. Under this authority, we consider the effects of actions on NOAA-trust resources, such as anadromous fish, shellfish, crustaceans, or their habitats, that are not managed under a federal fisheries management plan. Some examples of other NOAA-trust resources are listed below. Some of these species, including diadromous fishes, serve as prey for a number of federally-managed species and are therefore considered a component of EFH pursuant to the MSA. We will be considering the effects of your project on these species and their habitats as part of the EFH/FWCA consultation process and may make recommendations to avoid, minimize or offset and adverse effects concurrently with our EFH conservation recommendations.

Please contact our Greater Atlantic Regional Fisheries Office, Protected Resources Division regarding potential impacts to marine mammals or species listed under the Endangered Species Act and the appropriate consultation procedures.

ATTACHMENT D:

Adaptive Monitoring and Management Plan

ENVIRONMENTAL CONSULTING, INC.
Providing Environmental Solutions

April 21, 2025

James & Ruth Hudson Property – Living Shoreline Stabilization:
29591 Nor Easter Drive, Millsboro, Delaware 19966
Monitoring Plan

The living shoreline construction will be monitored to ensure completion in accordance with the designed plans specified in US Army Corps of Engineers (USACE) NWP #54 and Delaware Department of Natural Resources and Environmental Control (DNREC). Any deviations or changes to these plans will be checked with USACE and DNREC prior to application. Photographic evidence with proof of buildout will be sent with the project completion documents.

The permit applicant or representative shall monitor the living shoreline at the above-mentioned property and submit a post growing season report to DNREC for a period of three (3) consecutive years following the completion of construction to ensure it meets Project Standards. All of the following Project Standards will be used to determine project success: 1) vegetation will be visually monitored for a deduction of relative survival of installed plugs; 2) if 25% or more of the overall plugs are shown to be deceased, replanting will be considered; 3) if deceased plugs are shown in groupings, a deduction of potential causes will produced and other species may be considered; 4) visual deduction of the bio coconut-coir log and overall living shoreline condition. Monitoring reports shall include the following: 1) estimation of plug survival; 2) deduction of any causes of plug decease; 3) deduction of the projects structural integrity; 4) description of any other problems observed (i.e., pollution, natural disasters, invasion of undesirable species, etc.); 5) photographic documentation of living shoreline and specified report items. The Monitoring reports shall be submitted no later than December 31st of the observed calendar year in which they are completed to: DNREC Wetlands & Waterways Section, 89 Kings Highway, Dover, Delaware 19901 or emailed to the correct DNREC representative.

Please let me know if you have any questions.

Thank you,

Ld

Lyle de la Rosa
Environmental Project Manager
Envirotech Environmental Consulting, Inc.
Phone: 302.684.5201
Fax: 302.684.5204
email: lyle@envirotechecinc.com

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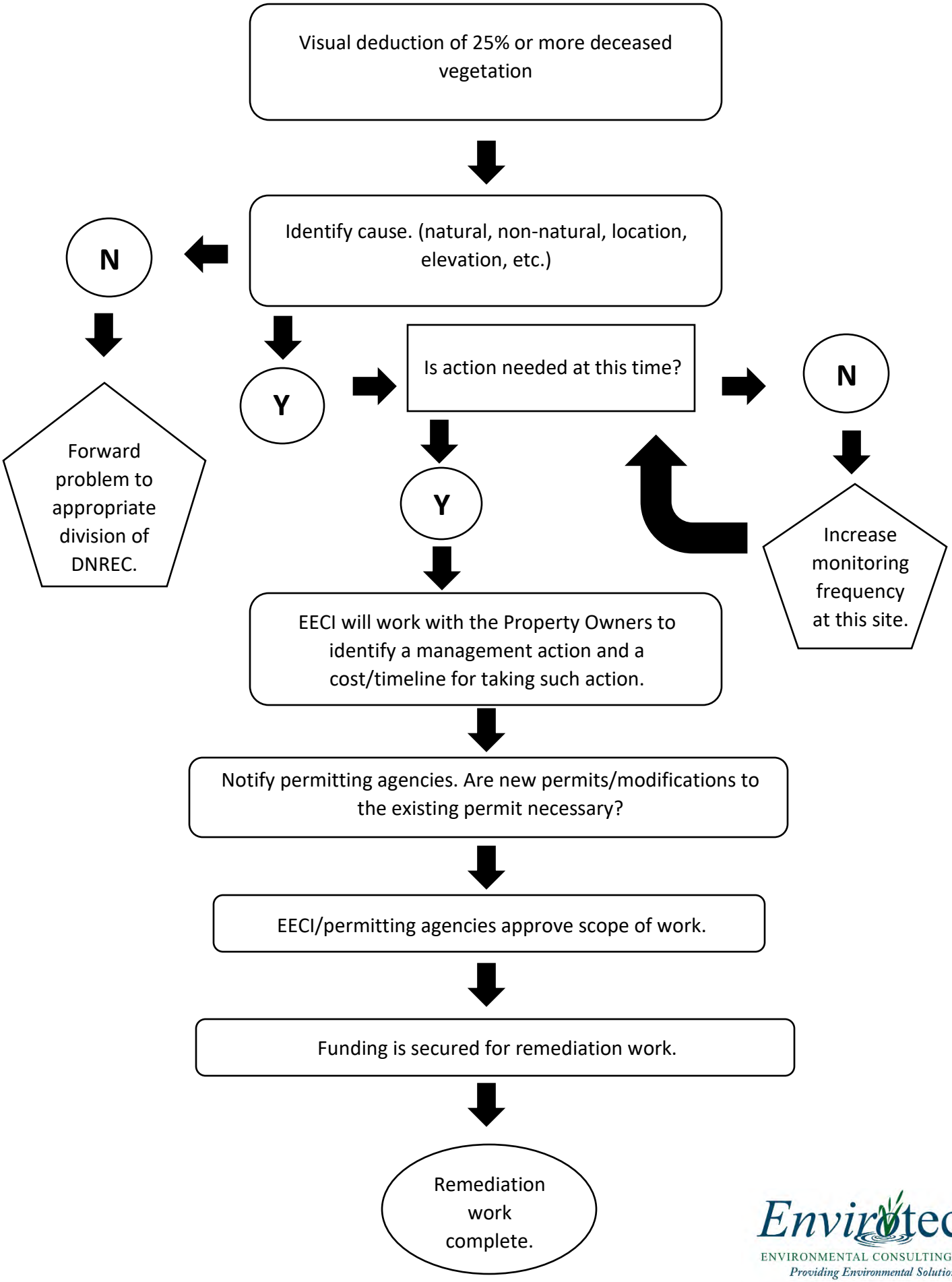

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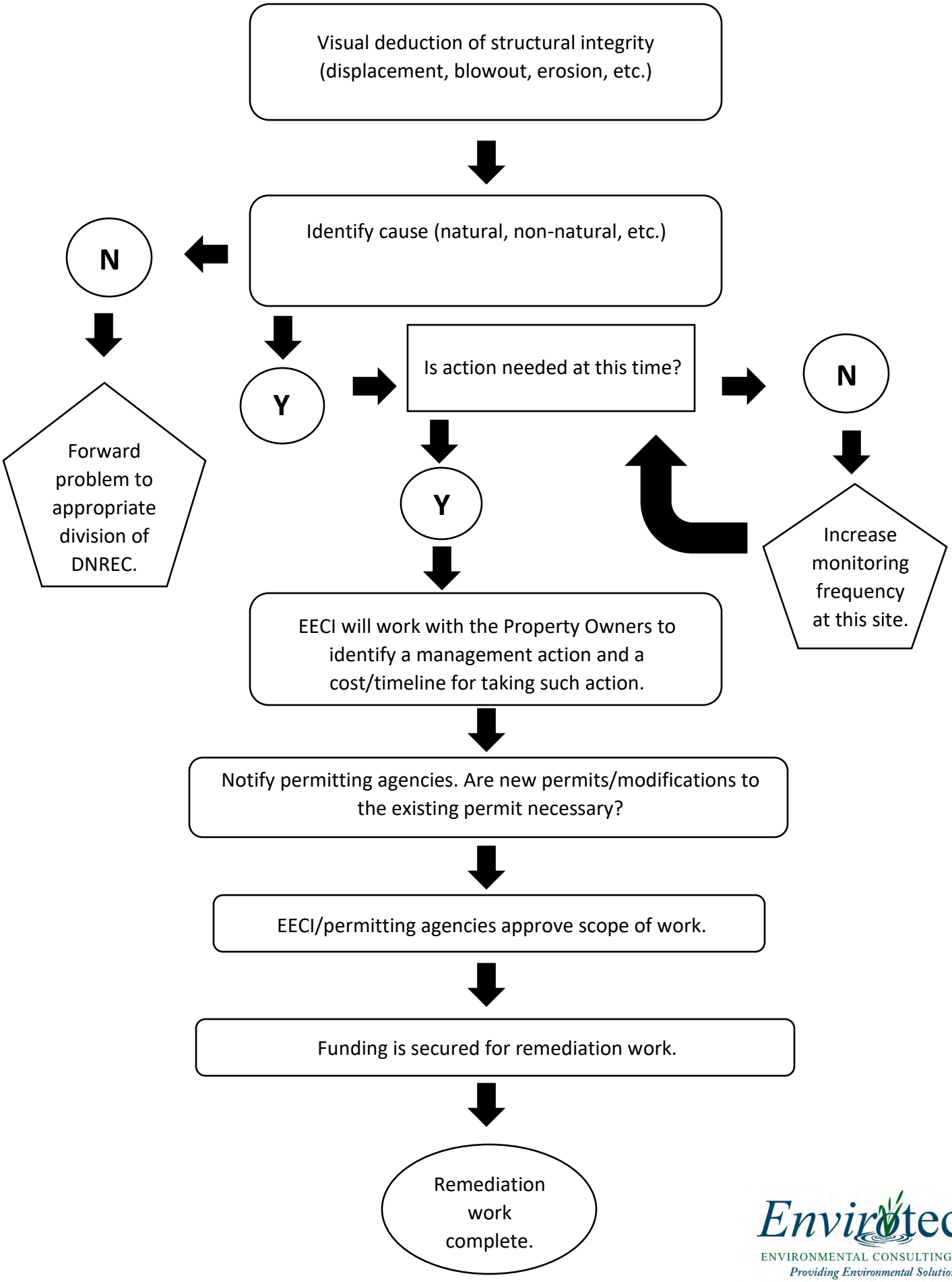

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Management Triggers in Areas of Concern

Category of Concern	Monitoring Methods	Management Trigger	Expected Timeframe for Decision-Making	Potential Management Action
Vegetation	Visual deduction of relative survival of plug. Photographic records.	Visual deduction of 25% or more dying plugs.	1 month from report of 25% or more deceased vegetation.	Replant or change of species in specified area.
Structural	Visual deduction of the Low-Profile Vented Sill and overall living shoreline. Photographic records.	Visual deduction of structural integrity (displacement, blowout, erosion, etc.)	ASAP after notification or report to prevent further structural damage to the shoreline.	Return/replace riprap and plugs that may have been disturbed by natural or non-natural causes.

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