

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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THE OFFICE OF APPEALS AND DISPUTE RESOLUTION

July 12, 2022

**In the Matter of
Nantucket Islands Land Bank**

**OADR Docket No. WET-2019-005
DEP File No. SE 48-2885
Nantucket, MA**

RECOMMENDED FINAL DECISION

INTRODUCTION

Richard Corey, trustee of Twenty-One Commercial Wharf Nominee Trust (“Corey”), filed this appeal concerning a wetlands permit issued to the Nantucket Island Land Bank (“NILB”) for its proposed project (“the Proposed Project”) to redevelop property it owns in the downtown area of Nantucket located at 17 Commercial Wharf (“the Property”). The wetlands permit, a Superseding Order of Conditions (“SOC”), was issued by the Massachusetts Department of Environmental Protection’s Southeast Regional Office (“MassDEP” or “the Department”) pursuant to the Massachusetts Wetlands Protection Act, G.L. c. 131, § 40 (“MWPA”), and the Wetlands Regulations, 310 CMR 10.00 et seq. (“the Wetlands Regulations”). The SOC affirmed an Order of Conditions (“OOC”) issued to NILB by the Nantucket Conservation Commission (“NCC”) approving the Proposed Project.¹ The Proposed

¹ The NCC approved the project under both the MWPA and the Nantucket wetlands by-law. Corey appealed the by-law approval to Nantucket Superior Court. See Richard Corey, Trustee of Twenty-One Commercial Wharf Nominee Trust v. Nantucket Conservation Commissioner et al, Civil Action no. 1875CV00002. In a decision issued on or

Project involves reconstruction and rehabilitation of a solid fill wharf for the purpose of improving public access to Nantucket Harbor. The Department determined that the Proposed Project as proposed and conditioned adequately protects the interests of the MWPA. Corey appealed the SOC here, to the Department's Office of Appeals and Dispute Resolution.

Corey owns property approximately 60 feet east of the Proposed Project site. He alleged that the Proposed Project fails to meet the performance standards for the wetlands resource areas of Coastal Bank, Land Under the Ocean ("LUO"), and Coastal Beach and fails to protect the interests of the MWPA. Specifically, he claimed: (1) that the Proposed Project's proposed revetment is a new Coastal Engineering Structure ("CES") prohibited on a Coastal Bank; (2) that the proposed dredging in Nantucket Harbor will reduce the ability of Land Under the Ocean to function to prevent storm damage, flooding and coastal erosion, and will directly threaten nearby eelgrass beds; and (3) that increased wave energy caused by the dredging will reflect off the revetment, adversely impacting the Coastal Beach. Corey alleged that the Proposed Project will damage his property through flooding and erosion. He seeks to have the SOC vacated and a new SOC issued denying the Proposed Project.

I conducted a view of the site with the parties and/or their representatives on August 27, 2019 pursuant to 310 CMR 1.01(13)(j).² An evidentiary Adjudicatory Hearing ("Hearing") was

about June 26, 2019, the Superior Court ruled in favor of NILB and the NCC and upheld the OOC. See Memorandum of Decision and Order on Cross-Motions for Judgment on the Pleadings, Ex. A to NILB's Closing Brief.

² 310 CMR 1.02(13)(j) provides that:

"The parties may request and the Presiding Officer may order that a view be taken of a site, property or other places and things that are relevant to an appeal to promote understanding of the evidence that has been or will be presented. Notice and a reasonable opportunity to be present shall be given to all parties. Parties shall not present evidence during the view, but may point out objects or features

scheduled for September 6, 2019 at which witnesses who had filed testimony in advance of the hearing were to be cross-examined. However, primarily because of an impending hurricane, the parties agreed to waive their right to cross-examine witnesses and stipulated in writing that the testimony of those witnesses, together with the exhibits filed as part of their testimony, would be admitted into evidence without objection.

The parties filed post-hearing briefs and at my request, proposed findings of fact and conclusions of law and a proposed decision. To the extent the proposed findings and proposed decisions are consistent with my evaluation of the witnesses' testimony and analysis of the evidence presented, I have incorporated them into this Recommended Final Decision. After reviewing the entire administrative record, I find that a preponderance of the evidence demonstrates that the Proposed Project complies with the applicable performance standards for the wetlands Resource Areas that will be impacted. Therefore, I recommend that the Department's Commissioner issue a Final Decision affirming the SOC.

WITNESSES³

Pre-filed Testimony was presented by the following witnesses:

For the Petitioner:

1. Curtis R. Young, Esq. Mr. Young is President and Senior Consultant of Wetlands Preservation, Inc, where he provides consulting services in the evaluation and mitigation of

that may assist the Presiding Officer in understanding evidence. The Presiding Officer may rely on the Presiding Officer's observations during a view as evidence to the same extent permissible as if observed in the hearing room."

³ Throughout this Recommended Final Decision, the witnesses' Pre-Filed Direct Testimony will be referred to as "[Witness] PFT at ¶" and Pre-Filed Rebuttal Testimony will be referred to as "[Witness] PFR at ¶." Exhibits to testimony are referred to as "[witness] Ex. X".

development on wetland resources. He is a Professional Wetlands Scientist with more than 45 years of environmental consulting experience, including experience delineating coastal wetlands. He has a BS degree in Forestry; BS and MS degrees in Forest Zoology/Botany; and an MS degree in Fisheries Science/Animal Behavior.

2. Daniel G. MacDonald, Ph.D., P.E. Professor MacDonald is a professor in, and chairperson of, the Department of Civil Engineering at UMass/Dartmouth. His expertise is in coastal engineering and physical oceanography, with a specific focus on coastal mixing, turbulence, and wave energy. He holds BS and MS degrees in Civil Engineering and a Ph.D. in Environmental Engineering. He is also a Registered Professional Engineer.

3. Damian J. Raffle, PLS. Mr. Raffle is a licensed Professional Land Surveyor with more than 21 years of experience. He is employed by Feldman Surveyors, where he is a Vice President and Director of Field Operations. He holds a BS Degree in geomatics.

4. Richard G. Corey. Mr. Corey is the trustee of Twenty-One Commercial Wharf Nominee Trust, which owns the property at 21 Commercial Wharf in Nantucket. The Trust has owned the property since 1997.

For the Applicant:

1. Eric Savetsky. Mr. Savetsky was the Executive Director of NILB for more than 22 years until his retirement in 2021. In this role, he oversaw all the daily operations of the organization and negotiated real estate transactions on behalf of the Land Bank Commission. He holds a BS in Industrial and Manufacturing Engineering and an MS in Community Planning.

2. Arthur D. Gasbarro, III, P.E., PLS. Mr. Gasbarro is a licensed Professional Engineer and licensed Land Surveyor. He has owned Nantucket Engineering and Survey, P.C. since 2016 and previously was employed for over 20 years as an engineer and land surveyor with Blackwell

& Associates, Inc. He holds a BS degree in Civil Engineering.

3. John S. Ramsey, P.E. Mr. Ramsey is a co-founder and Principal Coastal Engineer at Applied Coastal Research and Engineering, Inc. He has over 31 years of experience and is a Registered (civil) Engineer in Massachusetts. He holds a BS degree in Civil and Environmental Engineering and a Master of Civil Engineering (Coastal) degree. He has substantial experience as Project Manager and/or Principal Investigator for coastal embayment restoration projects, regional shoreline management plans, beach nourishment and coastal structure designs, estuarine water quality/flushing studies, geotechnical engineering, hydrodynamic and sediment transport evaluations, and environmental studies required for permitting of coastal projects. Mr. Ramsey has also performed numerical modeling studies of waves to evaluate sediment transport, effects of dredging, and dynamic wave forces.

4. Pamela Neubert, PhD. Dr. Neubert is Associate Vice President for Marine Science at AECOM Technical Services, Inc. She has substantial experience in eelgrass and shellfish ecology, studies, and surveys in Massachusetts, having worked previously for several other coastal consulting and research entities, including Woods Hole Oceanographic Institution. Her experience includes projects in Nantucket where eelgrass and shellfish habitats were of concern. She holds BA and MS degrees, and has a PhD in salt marsh ecology and zooplankton diversity.

For the Department:

Daniel Gilmore. Mr. Gilmore has been employed as an Environmental Analyst in the Department's Wetlands and Waterways Program since 1989. His work involves administering and enforcing the Wetlands Protection Act and the Wetlands Regulations, including reviewing Notices of Intent and Orders of Conditions for compliance with the MWPA and Regulation. He holds a BS degree in Marine Biology.

BACKGROUND

The Project Site

The Property where the Proposed Project is proposed is commonly known as “Petrel Landing.” It sits at the southwest end of Commercial Wharf in downtown Nantucket. The Property consists of two parcels of land with a combined area of approximately 8,700 square feet. Gasbarro PFT at ¶ 5. It is bounded by Nantucket Harbor and developed commercial and residential properties. *Id.* The Property is a solid fill wharf extending into Nantucket Harbor; a stone rip rap revetment frames the wharf on the three seaward sides. *See* Savetsky PFT, Ex. ES-5 (photographs); Neubert PFT at ¶ 18; Neubert Ex. B, pp. 5-6. The fill and wharf are subject to Department of Public Works (“DPW”) License No. 1823, dated 1936, to maintain Commercial Wharf.⁴ A 1955 Land Court plan depicts a stone bulkhead at the Property. Gasbarro Ex. AG-5. The surface of the Property consists primarily of dirt, gravel, and low vegetation. NOI, Supplemental Information, October 13, 2017. Photographs of the Property attached to Mr. Young’s PFT also show areas of erosion, scattered bricks, and broken building materials. *See* Young PFT, Ex. B, Photos 3-11. Except for a picnic table the Property is vacant.

Historically, Petrel Landing was used for loading and unloading vessels, and is named for the steamer “Petrel”, which was berthed on the Property. The Petrel operated as a fishing and salvage vessel between 1896 and 1926. Savetsky PFT at ¶ 12. When fishing ceased to be the predominant commerce on Nantucket’s wharves, the Commercial Wharf area became home to a growing community of artists into the 1950s. Savetsky PFT at ¶ 13. By the early 1970s, there

⁴ The DPW License is attached to Mr. Gasbarro’s PFT as Ex. AG-6. The License is referenced in the Transfer Certificate of Title and the deed into NILB, which were attached to the NOI as supporting documentation. Corey disputed that the License includes Petrel Landing but the fact that the licensed is referenced in Land Court documents for the site supports a conclusion that the 1936 license includes Petrel Landing. *See* Memorandum of Law Supporting Petitioner’s Rebuttal Testimony at pp. 4-5.

were plans to rebuild portions of the wharf, which flooded during high tide, by placing large stones around the east and south sections of it and filling it in, and to develop Petrel Landing into a park and a place for small boats and yacht tenders to land. Savetsky PFT at ¶ 14; Savetsky Ex. ES-4. When NILB purchased the Property in 2004 floating docks were attached to the Property by a ramp, and the existing stone revetment, dock and pilings were being used by boaters. Gasbarro PFT at ¶ 22; Gasbarro Ex. AG-5 (photographs); Neubert Ex. C, Figure 2.⁵ NILB removed the docks around 2012/2013 due to their poor condition. Savetsky PFT at ¶ 16. Some pilings remain and are in use. During NILB's ownership, the Property has been used for a variety of recreational and commercial activities, including boat rentals, fund-raising events, birdwatching, dog-walking, and emergency response drills. Savetsky PFT at ¶ 17.

Mr. Corey's property at 21 Commercial Wharf is a single-family residence on approximately 0.03 acres of land on the south side of Commercial Wharf to the east of Petrel Landing. The house is supported by a stone bulkhead behind which there is solid fill. The southern wall of the house is on the stone bulkhead. Corey PFT at ¶¶ 2, 6. The house includes an approximately 8-foot by 50-foot deck supported by piles in Nantucket Harbor. *Id.* at ¶¶ 3-4. Mr. Corey's property does not directly abut Petrel Landing but is separated from it by property owned by Nantucket Boat Basin, LLC. The Mean Low Water ("MLW") line runs along the upland line/seawall of the Corey property. Gasbarro PFT at ¶ 35.

The Proposed Project

⁵ The pilings and floating docks were authorized by a 1976 Army Corps of Engineers Permit and had been in use since prior to 1976. Gasbarro PFT at ¶ 24; Gasbarro Ex. AG-7.

NILB purchased the Property for the purpose of securing permanent public access to the downtown Nantucket waterfront.⁶ Savetsky PFT at ¶ 12. NILB developed the Proposed Project to address additional need for recreational public access to the downtown Nantucket waterfront. Savetsky PFT at ¶ 19. The Nantucket & Madaket Harbors Action Plan, approved by the Secretary of Energy and Environmental Affairs in December 2009, emphasizes the importance of expanding and improving public access and maintaining and cultivating appropriate water-dependent uses within the harbor. *Id.* at ¶ 22; Savetsky Ex. ES-10. As discussed in detail below, the Proposed Project has been revised over time in size and scope and NILB has developed Management Guidelines for Petrel Landing that include details governing use of the proposed floating dock.⁷

The Proposed Project as approved involves several components. The existing sloped revetment and solid fill pier will be repaired and reconstructed, with the existing stones replaced by new ones. A floating dock will be constructed, and a gangway will be installed. Boardwalks

⁶ The NILB was established in 1983 pursuant to the Acts and Resolves of 1983, Chapter 669, as amended (“the Land Bank Act”) “for the purpose of acquiring, holding and managing land and interests in land” in Nantucket. Section 5 of the Land Bank Act authorizes acquisitions as follows:

Land to be acquired and held as part of the land bank, or interests in which are to be so acquired and held, shall be situated in Nantucket county, and may consist of any of the following types of land and interests therein; (-a-) ocean, harbor and pond frontage in the form of beaches, dunes and adjoining backlands; (-b-) barrier beaches; (-c-) fresh and salt water marshes, estuaries and adjoining uplands; (-d-) heathland and moors; (-e-) land providing access to ocean, harbor and pond frontage and land for bicycle paths; (-f-) land for future public recreational facilities and use; (-g-) recreation land to protect existing and future wellfields and aquifer recharge areas; and (-h-) land used or to be used for agricultural purposes.

Savetsky PFT at ¶¶ 10-12 and Ex. ES-1.

⁷ These Guidelines include the following: On the south side of the dock, approximately 110 feet will be reserved for dinghy tie up (up to 13 feet in length) and 30 feet will be for drop off/pick up docking of small boats up to 25 feet. The north side of the dock will be for drop off/pick up docking of small boats up to 25 feet. Drop off/pick up will be limited to no more than 30 minutes, no unattended boats will be allowed, and no overnight dinghy or boat tie up will be permitted. Savetsky Ex. ES-11. (Management Guidelines and plans showing evolution of the proposed Project).

and a brick parking area will be installed on the wharf's surface. Dredging with associated grading, landscaping and utilities will occur within the Coastal Bank, LSCSF, LUO and their associated Buffer Zones.⁸ 20,080 square feet of LUO will be dredged. The height of the reconstructed revetment is based on the existing grades at the northern portion of the site that are consistent with property elevations along Commercial Wharf. The elevation of the reconstructed revetment is limited to the historic elevation of the site, which is +6 MLW⁹ or +4.6 NAV88.¹⁰ Ramsey PFT at ¶ 29. The reconstructed revetment will be returned to its previous elevation which is approximately one foot higher than the crest of the existing revetment. The rough face of the reconstructed revetment is intended to reduce wave reflection below that of the existing revetment. Id.

Procedural Background.

NILB filed its NOI in 2016 but project development began years earlier. Between 2005 and 2016 the Proposed Project underwent several conceptual revisions. Field surveys and

⁸ Corey's appeal alleged a claim as to Coastal Beach but that Resource Area was not identified in the NOI as one that would be impacted and neither the NCC nor MassDEP found that Coastal Beach would be impacted.

⁹ "MLW" (Mean Low Water) is the average of all the low water heights observed over the National Tidal Datum Epoch. The National Tidal Datum Epoch is "[t]he specific 19-year period adopted by the National Ocean Service as the official time segment over which tide observations are taken and reduced to obtain mean values (e.g., mean lower low water, etc.) for tidal datums. It is necessary for standardization because of periodic and apparent secular trends in sea level." https://tidesandcurrents.noaa.gov/datum_options.html

¹⁰ "The North American Vertical Datum of 1988 (NAVD 88) is the vertical control datum established in 1991 by the minimum-constraint adjustment of the Canadian-Mexican-United States leveling observations...it consists of a leveling network on the North American Continent, ranging from Alaska, through Canada, across the United States, affixed to a single origin point on the continent." <https://geodesy.noaa.gov/datums/vertical/north-american-vertical-datum-1988.shtml>

investigations were performed, including eelgrass and shellfish studies in 2007, 2012 and 2015, conducted by Dr. Neubert with Mr. Gasbarro assisting. Gasbarro PFT at ¶¶ 8-9; Neubert PFT at ¶ 19; Gasbarro Ex. AG-2. Several iterations of plans were developed. The studies conducted by Dr. Neubert and Mr. Gasbarro were done to determine existing, baseline conditions over a twelve-year period. Eelgrass studies in 2007, 2012 and 2015 determined that the eelgrass habitat observed over the study period was consistently in the same location and the Proposed Project was designed to avoid that area. Neubert PFT ¶¶ 11, 19; Neubert Ex. B, C, D, and E.

As initially conceived in 2005, the plan included installation of a vertical sheet piling bulkhead around the entire perimeter of the existing revetment. To accommodate dockage of approximately eight boats of up to 30 feet plus dinghy tie ups, an additional 155-foot floating dock with boat slips was included in the plan. Savetsky PFT at ¶19. By 2007 the concept for the Proposed Project had evolved. The steel sheet bulkhead remained, but dockage would be provided by a 190-foot long floating dock with four 32-foot long finger piers and a dredge depth to -5 Mean Low Water (“MLW”). Id.; see also Gasbarro PFT at ¶ 12; Gasbarro Ex. AG-2. The steel sheet bulkhead remained through the next iterations of the concept plan in 2013, 2015 and 2016 but the dock length was reduced to 140 feet, and the finger piers were eliminated. The 2015 plan modified the dredge footprint to be farther away from the cottages and stone bulkhead along Commercial Wharf. Gasbarro PFT at ¶¶ 10-14; Gasbarro Ex. AG-2. These revisions reduced both the number and size of boats that the proposed dock could accommodate. Savetsky PFT at ¶¶ 19-20 and Savetsky Ex. ES-6 (describing and depicting the project plans over time). See also Gasbarro PFT at ¶¶ 10-17 and Ex. AG-2. A driveway was planned over the surface of the wharf running to the edge of the bulkhead. Id.

After plan revisions in 2016, NILB filed the NOI with the NCC. The 2016 site plan submitted with the NOI depicted a vertical steel sheet bulkhead around the perimeter of the existing revetment, a 140-foot floating dock and a dredge depth to -5 MLW. As described in the NOI filing, the plan proposed installing a steel sheet bulkhead around the perimeter of the existing rip-rap revetment; installing a floating pier system to be held in place by driven pilings; filling the area behind the bulkhead using dredge spoils covered with topsoil; and landscaping the filled area with a driveway, perimeter boardwalk, benches and plantings. NOI Narrative, April 15, 2016, at p. 1; Savetsky PFT at ¶ 7.

NILB proposed to dredge the harbor to facilitate navigation within the waterway for access to the pier and floating dock system. A siltation curtain would be installed around the work perimeter. NOI Narrative, April 15, 2016, at p. 1. The proposed alterations would impact 39,000 +/- square feet of LUO, 170 linear feet of Coastal Bank, 39,000 +/- square feet of Land Containing Shellfish, and 7,700 +/- square feet of Land Subject to Coastal Storm Flowage (“LSCSF”)¹¹. NILB submitted the Eelgrass and Shellfish Habitat Assessment report dated October 10, 2015, prepared by Stantec Consulting, Inc. to the NCC.

During the proceedings before the NCC, NILB revised the Proposed Project further and supplemented its NOI materials to address comments from the NCC and the public. See Department’s Basic Documents, Correspondence dated October 13, 2017, and December 15, 2017; Savetsky PFT at ¶¶ 19-20; Gasbarro PFT at ¶¶ 15-19. The driveway configuration running to the edge of the bulkhead was reduced in size to two parking spaces adjacent to Commercial

¹¹ “Land Subject to Coastal Storm Flowage” means “land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater.” 310 CMR 10.04.

Street. See Site Plan of Land, September 2017. The landscape plan was simplified. Id. The steel bulkhead was eliminated, replaced by a granite block revetment and seawall to be constructed within the same footprint as the existing revetment. Specifically, the existing three-foot rip rap that had historically armored the wharf would be removed and a vertical block revetment would be constructed on the westerly and southerly sides of the wharf and would be built on top of the toe of the existing revetment. NOI Supplements, October 13, 2017, and December 15, 2017. A sloped, rough-facing stone revetment would replace the existing rip rap on the easterly side of the wharf. Ramsey PFT at ¶ 13. The surface of the wharf behind the reconstructed revetment would be backfilled with clean compacted fill and the elevation of the wharf would be raised to the historic elevation of the property of approximately +/- 6.0 feet above MLW. NOI Supplements, October 2017, and December 15, 2017 (site plans).

During the NCC's review, NILB further redesigned the Proposed Project to avoid impacts to eelgrass by reducing the amount of dredging to the minimal amount necessary to accommodate dinghies and small transient motorboats. Savetsky PFT at ¶ 7. Consequently, the Proposed Project's impacts to Land Under the Ocean and Land Containing Shellfish were reduced to 20,080 square feet. NILB reduced the volume of dredging from 3,200 cubic yards to 1,200 cubic yards. NILB reduced the dredge depth elevation from -5 MLW to -3 MLW. NOI Supplement, October 2017, correspondence to NCC from Dr. Neubert. At least 20 feet would separate the edge of the Proposed Project from the nearest eelgrass bed. Neubert PFT at ¶ 19. To address concerns raised before the NCC, Mr. Ramsey performed an analysis to assess the magnitude of impacts to waves in the vicinity of Petrel Landing based on the reduced dredging

proposal. He concluded that even in the severe wave conditions studied, resulting changes in wave height at the shoreline would be negligible. Ramsey Ex. JR-6.¹²

The NCC issued the OOC on January 10, 2018. The OOC imposed several Special Conditions specifically designed to protect LUO. These conditions include: (1) adherence to the site and work descriptions in the NOI and plan notes set out on the Plan of Record, provided project narratives, waiver requests and protocols; (2) time of year (“TOY”) restrictions such that any silt-producing or dredging is prohibited between January 15th and May 31st; (3) use of a silt curtain to limit any movement of sediment outside the project area; (4) pre- and post-dredging surveys of all eelgrass and shellfish within the project area and a yearly eelgrass and shellfish survey for three years; and (5) float stops to prevent the floating dock from resting on the harbor bottom. OOC, Special Conditions 18-20 OOC, Findings and Additional Conditions Special Conditions 19-22. Corey appealed the OOC to MassDEP’s Southeast Regional Office, requesting an SOC denying the Proposed Project. After reviewing the Proposed Project, MassDEP issued the SOC affirming the OOC without imposing any additional conditions but correcting an error in the OOC as to the size of the dredging area.¹³ Corey appealed the SOC here, to the Office of Appeals and Dispute Resolution.

ISSUES FOR ADJUDICATION¹⁴

¹² Dr. MacDonald provided a written review of Mr. Ramsey’s study to the NCC during its review of the proposed Project. That review is not part of the administrative record in this appeal, however based on comments in Mr. Ramsey’s materials that are part of the record, it is clear that Dr. MacDonald’s testimony in this appeal mirrors and is consistent with what he provided to the NCC. Mr. Ramsey’s study is discussed in detail below at pp. 52-55.

¹³ The OOC mistakenly stated the dredge area at 39,000 square feet; the SOC clarified that the dredge area was reduced and approved only at the reduced square footage of 20,080.

¹⁴ The issue of whether the proposed Project meets the Performance Standards for Land Containing Shellfish was also raised by Corey in his Notice of Claim. He waived this issue and withdrew his contention that the Proposed Project does not meet the Performance Standards for this Resource Area.

The issues for adjudication were determined in consultation with the parties during the pre-hearing conference conducted shortly after the appeal was filed. The issues on which the witnesses presented testimony are:

1. Whether the Proposed Project meets the Performance Standards for Coastal Bank pursuant to 310 CMR 10.30?

(a) Whether the proposed granite rock revetment is a new coastal engineering structure within the meaning of 310 CMR 10.30(3)?

2. Whether the Proposed Project meets the Performance Standards for Land Under the Ocean pursuant to 310 CMR 10.25?

3. Whether the Proposed Project meets the Performance Standards for Coastal Beach pursuant to 310 CMR 10.27?

STATUTORY & REGULATORY FRAMEWORK

The Massachusetts Wetlands Protection Act and the Wetlands Regulations have as their purpose the protection of wetlands and the regulation of activities affecting wetlands areas in a manner that promotes the following interests:

- (1) protection of public and private water supply;
- (2) protection of ground water supply;
- (3) flood control;
- (4) storm damage prevention;
- (5) prevention of pollution;
- (6) protection of land containing shellfish;
- (7) protection of fisheries; and
- (8) protection of wildlife habitat.

M.G.L. c. 131, § 40; 310 CMR 10.01(2).

The regulations pertaining to coastal wetlands are at 310 CMR 10.21 through 10.37. These regulations are “intended to ensure that development along the coastline is located, designed, built and maintained in a manner that protects the public interests in the coastal resources listed in M.G.L. c. 131, § 40.” 310 CMR 10.21. Three coastal wetland resource areas are at issue in this appeal: Coastal Bank, Coastal Beach and Land Under the Ocean. The specific regulatory provisions at issue are discussed in detail below; with regard to each wetland resource area the Wetlands Regulations Provide as follows:

Coastal Bank. A Coastal Bank is the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland. 310 CMR 10.30(2).

A particular coastal bank may serve both as a sediment source and as a buffer, or it may serve only one role. 310 CMR 10.30(1). Coastal banks are likely to be significant to storm damage prevention and flood control. Coastal banks that supply sediment to coastal beaches, coastal dunes, and barrier beaches are per se significant to storm damage prevention and flood control. 310 CMR 10.30(1)(emphasis added). These banks, composed of unconsolidated sediment and exposed to vigorous wave action, serve as a major continuous source of sediment for beaches, dunes, and barrier beaches (as well as other land forms caused by coastal processes). The supply of sediment is removed from banks by wave action, and this removal takes place in response to beach and sea conditions. It is a naturally occurring process necessary to the continued existence of coastal beaches, coastal dunes and barrier beaches which, in turn,

dissipate storm wave energy, thus protecting structures of coastal wetlands landward of them from storm damage and flooding. 310 CMR 10.30(1).

Coastal banks, because of their height and stability, may act as a buffer or natural wall, which protects upland areas from storm damage and flooding. While erosion caused by wave action is an integral part of shoreline processes and furnishes important sediment to downdrift landforms, erosion of a coastal bank by wind and rain runoff, which plays only a minor role in beach nourishment, should not be increased unnecessarily. Therefore, disturbances to a coastal bank which reduce its natural resistance to wind and rain erosion cause cuts and gullies in the bank, increase the risk of its collapse, increase the danger to structures at the top of the bank and decrease its value as a buffer. 310 CMR 10.30(1).

When a proposed project involves dredging, removing, filling, or altering a coastal bank, the issuing authority shall presume that the area is significant to storm damage prevention and flood control. This presumption may be overcome only upon a clear showing that a coastal bank does not play a role in storm damage prevention or flood control, and if the issuing authority makes a written determination to that effect. 310 CMR 10.30(1).

When the issuing authority determines that a coastal bank is significant to storm damage prevention or flood control because it supplies sediment to coastal beaches, coastal dunes or barrier beaches, the ability of the coastal bank to erode in response to wave action is critical to the protection of that interest(s). 310 CMR 10.30(1).

When the issuing authority determines that a coastal bank is significant to storm damage prevention or flood control because it is a vertical buffer to storm waters, the stability of the bank, i.e., the natural resistance of the bank to erosion caused by wind and rain runoff, is critical to the protection of that interest(s). 310 CMR 10.30(1).

Land Under the Ocean (“LUO”). LUO “means land extending from the mean low water line seaward to the boundary of the municipality’s jurisdiction and includes land under estuaries.”

310 CMR 10.25(2). "Land under the ocean is likely to be significant to the protection of marine fisheries and, where there are shellfish, to protection of land containing shellfish. Nearshore areas of land under the ocean are likely to be significant to storm damage prevention, flood control, and protection of wildlife habitat. Land under the ocean provides feeding areas, spawning and nursery grounds and shelter for many coastal organisms related to marine fisheries. Nearshore areas of land under the ocean help reduce storm damage and flooding by diminishing and buffering the high energy effects of storms. Submerged bars dissipate storm wave energy. Such areas provide a source of sediment for seasonal rebuilding of coastal beaches and dunes. Nearshore areas of land under the ocean also provide important food for birds. For example, waterfowl feed heavily on vegetation (such as eelgrass, widgeon grass, and macrophytic algae) and invertebrates (such as polychaetes and mollusks) found in estuaries and other shallow submerged land under the ocean." 310 CMR 10.25(1).

When nearshore areas of land under the ocean are significant to storm damage prevention or flood control, the bottom topography of such land is critical to the protection of those interests. When nearshore areas or other land under the ocean is significant to the protection of marine fisheries or wildlife habitat, the following "factors are critical to the protection of such interests: (a) water circulation; (b) distribution of sediment grain size; (c) water quality; (d) finfish habitat; and (e) important food for wildlife." 310 CMR 10.25(1).

Coastal Beach. The Coastal Beach consists of “unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats. Coastal beaches extend from the mean low water line landward to the dune

line, coastal bank line, or the seaward edge of existing human-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.” 310 CMR 10.27(2).

Coastal beaches dissipate wave energy by their gentle slope, their permeability and their granular nature, which permit changes in beach form in response to changes in wave conditions. Coastal beaches serve as a sediment source for dunes and subtidal areas. Steep storm waves cause beach sediment to move offshore, resulting in a gentler beach slope and greater energy dissipation. Less steep waves cause an onshore return of beach sediment, where it will be available to provide protection against future storm waves. Id.

A coastal beach at any point serves as a sediment source for coastal areas down drift from that point. The oblique approach of waves moves beach sediment alongshore in the general direction of wave action. Thus, the coastal beach is a body of sediment which is moving along the shore. Id.

Coastal beaches serve the purposes of storm damage prevention and flood control by dissipating wave energy, by reducing the height of storm waves, and by providing sediment to supply other coastal features, including coastal dunes, land under the ocean and other coastal beaches. Interruptions of these natural processes by human-made structures reduce the ability of the coastal beach to perform these functions. 310 CMR 10.27(1).

PETITIONER’S BURDEN OF PROOF AT THE HEARING

In addition to the Adjudicatory Proceeding Rules at 310 CMR 1.01, the Wetlands Permit Appeal Regulations at 310 CMR 10.05(7)(j), and the requirements of the MWPA and the Wetlands Regulations govern resolution of Corey’s appeal of the SOC. Under 310 CMR 10.05(7)(j), Corey had the burden of proof on all Issues for Resolution in the Appeal. See 310

CMR 10.03(2); 310 CMR 10.05(7)(j)2.b.iv; 310 CMR 10.05(7)(j)2.b.v; 310 CMR 10.05(7)(j)3.a; 310 CMR 10.05(7)(j)3.b. My review of the matter is *de novo*.

Corey had the burden to “produce [at the Hearing] at least some credible evidence from a competent source in support of [his] position[.]” See 310 CMR 10.03(2); 310 CMR 10.05(7)(j)2.b.iv; 310 CMR 10.05(7)(j)2.b.v; 310 CMR 10.05(7)(j)3.a; 310 CMR 10.05(7)(j)3.b. Specifically, Corey was required to present “credible evidence from a competent source in support of each claim of factual error [made against the Department], including any relevant expert report(s), plan(s), or photograph(s).” 310 CMR 10.05(7)(j)3.c. “A ‘competent source’ is a witness who has sufficient expertise to render testimony on the technical issues on appeal.” In the Matter of City of Pittsfield Airport Commission, OADR Docket No. 2010-041, Recommended Final Decision (August 11, 2010), 2010 MA ENV LEXIS 89, at 36-37, adopted by Final Decision (August 19, 2010), 2010 MA ENV LEXIS 31. Whether the witness has such expertise depends “[on] whether the witness has sufficient education, training, experience and familiarity with the subject matter of the testimony.” Commonwealth v. Cheromcka, 66 Mass. App. Ct. 771, 786 (2006) (internal quotations omitted).

So long as the initial burden of production or going forward is met, the ultimate resolution of factual disputes depends on where the preponderance of the evidence lies. Matter of Town of Hamilton, DEP Docket Nos. 2003-065 and 068, Recommended Final Decision (January 19, 2006), adopted by Final Decision (March 27, 2006). “A party in a civil case having the burden of proving a particular fact [by a preponderance of the evidence] does not have to establish the existence of that fact as an absolute certainty. . . . [I]t is sufficient if the party having the burden of proving a particular fact establishes the existence of that fact as the greater likelihood, the greater probability.” Massachusetts Jury Instructions, Civil, 1.14(d).

The relevancy, admissibility, and weight of evidence are governed by M.G.L. c. 30A, § 11(2) and 310 CMR 1.01(13)(h)(1). Under G.L. c. 30A, § 11(2):

[u]nless otherwise provided by any law, agencies need not observe the rules of evidence observed by courts, but shall observe the rules of privilege recognized by law. Evidence may be admitted and given probative effect only if it is the kind of evidence on which reasonable persons are accustomed to rely in the conduct of serious affairs. Agencies may exclude unduly repetitious evidence, whether offered on direct examination or cross-examination of witnesses.

Under 310 CMR 1.01(13)(h), “[t]he weight to be attached to any evidence in the record will rest within the sound discretion of the Presiding Officer. . . .”

DISCUSSION

I. THE PROPOSED PROJECT COMPLIES WITH THE COASTAL BANK PERFORMANCE STANDARDS AND THE PROPOSED REVETMENT IS NOT A PROHIBITED NEW COASTAL ENGINEERING STRUCTURE.

The crux of the dispute regarding the Coastal Bank is whether 310 CMR 10.30(3) applies to the Proposed Project. Other sections of the Coastal Bank regulations are not seriously contested. Corey contended that the Coastal Bank: (1) was not properly delineated; (2) is more extensive than was identified by NILB; and (3) is not limited to the existing stone revetment but includes interior portions of the wharf’s surface, i.e., the site contains multiple Coastal Banks. Corey further contended that the Coastal Bank is significant to storm damage prevention and flood control as a sediment source for the adjacent Coastal Beach. Corey contended, therefore, that 310 CMR 10.30(3) applies to prohibit the proposed revetment, which Corey contended is a new CES specifically prohibited by the regulation on a Coastal Bank that is a sediment source. Petitioner’s Memorandum of Law at pp. 7-9.

NILB asserted that the provisions of 310 CMR 10.30(3) do not apply to the Proposed Project. NILB’s Memorandum of Law at p. 6. NILB asserted that the Coastal Bank is limited to

the existing revetment, as that is the seaward edge of the Property, and the top of the Coastal Bank is the crest of the existing revetment along the three seaward sides of Petrel Landing. NILB further asserted that there is no sediment supply from the Coastal Bank to the Coastal Beach and therefore the Coastal Bank is not significant to the interests of storm damage prevention and flood control due to sediment supply. NILB asserted that even if the existing revetment is a sediment source, the proposed revetment is not a prohibited new CES but is a repair and reconstruction of an existing historic revetment. NILB's Memorandum of Law at pp. 11-15.

MassDEP argued that contrary to Corey's contention, the wharf is not a Coastal Bank at all because it is not a natural landform. Rather, it is a man-made solid-filled wharf encased by a CES and even if the existing revetment were treated as the face of a Coastal Bank, it does not act as a sediment source for adjacent downdrift beaches or land subject to tidal action. MassDEP's Closing Brief at pp. 6-7. MassDEP argued that 310 CMR 10.30(3) does not apply to the Proposed Project because the Proposed Project consists of the repair and reconstruction of an existing CES on a wharf that has existed in one form or another for more than 80 years and in its current configuration since the 1970s. Id. at p. 8. MassDEP argued that although the project site does not meet the regulatory definition of Coastal Bank, the Proposed Project nonetheless meets the applicable regulatory standards for this Resource Area. Id.

As discussed in detail below, based on my review and analysis of the administrative record as well as my personal observations at the site,¹⁵ I find by a preponderance of the evidence as follows: (1) the Coastal Bank is limited to the existing stone revetment; (2) the

¹⁵ 310 CMR 1.01(13)(j) provides that "[t]he Presiding Officer may rely on [her] observations during a view as evidence to the same extent permissible as if observed in the hearing room." As noted above at p. 2, I conducted a view of the site with the parties and/or their representatives on August 27, 2019.

existing revetment is not a sediment source; and (3) the proposed revetment is not a new CES.

As a result, I find that the provisions of 310 CMR 10.30(3) do not apply to prohibit the proposed revetment. I also find that the Proposed Project otherwise meets the applicable performance standards for Coastal Bank.

As noted above at pp. 15-16, a Coastal Bank is defined as “the seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland.” 310 CMR 10.30(2). Coastal Banks that supply sediment to coastal beaches, coastal dunes, and barrier beaches are per se significant to storm damage prevention and flood control. 310 CMR 10.30(1). Coastal Banks composed of unconsolidated sediment and exposed to vigorous wave action, serve as a major continuous source of sediment for beaches, dunes, and barrier beaches (as well as other land forms caused by coastal processes). The regulations governing work on these sediment-supplying Coastal Banks are found at 310 CMR 10.30(3)-(5). Subsection (3) provides:

WHEN A COASTAL BANK IS DETERMINED TO BE SIGNIFICANT TO STORM DAMAGE PREVENTION OR FLOOD CONTROL BECAUSE IT SUPPLIES SEDIMENT TO COASTAL BEACHES, COASTAL DUNES OR BARRIER BEACHES, 310 CMR 10.30(3) THROUGH (5) SHALL APPLY:

(3) No new bulkhead, revetment, seawall, groin or other coastal engineering structure shall be permitted on such a coastal bank except that such a coastal engineering structure shall be permitted when required to prevent storm damage to buildings constructed prior to the effective date of 310 CMR 10.21 through 10.37 or constructed pursuant to a Notice of Intent filed prior to the effective date of 310 CMR 10.21 through 10.37 (August 10, 1978), including reconstructions of such buildings subsequent to the effective date of 310 CMR 10.21 through 10.37, provided that the following requirements are met:

(a) a coastal engineering structure or a modification thereto shall be designed and constructed so as to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches due to changes in wave action, and

(b) the applicant demonstrates that no method of protecting the building other than the proposed coastal engineering structure is feasible.

(c) protective planting designed to reduce erosion may be permitted.

One major point of disagreement among the parties is the location of Coastal Bank or Coastal Banks at the project site. The wetlands regulations do not specify how to delineate a Coastal Bank but guidance is provided by two publications, DEP Wetlands Program Policy 92-1, (the “Coastal Banks Policy”) and a manual entitled “Applying the Massachusetts Coastal Wetlands Regulation,” published by MassDEP and the Massachusetts Office of Coastal Zone Management (“MassCZM”)(“the Coastal Manual”). Together these documents provide detailed guidance regarding delineations.¹⁶

The purpose of Coastal Banks Policy is to clarify the definition of “Coastal Bank” contained in the Wetlands Regulations by providing guidance for identifying “top of coastal bank.” The Policy provides that “[t]he phrase ‘top of coastal bank’ is used to establish the landward edge of the coastal bank (310 CMR 10.30). There is no definition for ‘top of coastal bank’ provided in the Act or the Regulations.” Coastal Banks Policy at p. 2. The Coastal Manual provides that “the landward edge (or top) of the coastal bank is generally the top of, or the first major break in, the face of the coastal bank.” Coastal Manual at p. 1-51. The Coastal Banks Policy provides standards that should be used to delineate the “top of coastal bank”, as follows:

- A. The slope of a coastal bank must be greater than or equal to 10:1 (see Figure 1).
- B. For a coastal bank with a slope greater than or equal to 4:1 the “top of coastal bank” is that point above the 100-year flood elevation where the slope becomes less than 4:1. (see Figure 2).
- C. For a coastal bank with a slope greater than or equal to 10:1 but less than 4:1, the top of coastal bank is the 100-year flood elevation. (see Figure 3).

¹⁶ DEP Policy 92-1 is available at <https://www.mass.gov/guides/wetlands-program-policy-92-1-coastal-banks>. It is also available as Appendix D to the Coastal Manual. The Coastal Manual is available at <https://www.mass.gov/service-details/applying-the-massachusetts-coastal-wetlands-regulations>.

- D. A "top of coastal bank" will fall below the 100-year flood elevation and is the point where the slope ceases to be greater than or equal to 10:1. (see Figure 4).
- E. There can be multiple coastal banks within the same site. This can occur where the coastal banks are separated by land subject to coastal storm flowage [an area less than 10:1]. (See Figures 5 and 6).

The Coastal Banks Policy contains graphic figures illustrating various Coastal Bank delineation scenarios. A site may contain multiple coastal banks when they are separated by LSCSF (i.e., an area less than 10:1), but the Coastal Manual advises that delineations should be based on the overall slope of the landform and "not the micro-topography or small incremental breaks in slope." Coastal Manual at p. 1-53.

A. The Coastal Bank Is Limited To The Existing Revetment.

The NOI identified the existing revetment as the Coastal Bank at the Site. See MassDEP Basic Documents, NOI Cover Letter, April 15, 2016 at p. 2; and Dredging and Structural Wave Impacts Analysis, September 27, 2017, Supplemental to NOI ("The existing shore protection fronting the Petrel Landing site is classified as a coastal bank since, by definition, it forms the 'seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland.'").

To prove his contention that the Coastal Bank is not limited to the existing revetment but includes areas on the interior of the wharf, Corey presented evidence from Mr. Raffle and Mr. Young.¹⁷ Mr. Raffle submitted as his testimony surveys of Petrel's Landing conducted in 2019. The first is entitled "Topographic Survey, Petrel's Landing, Nantucket, MA" and is dated April 30, 2019, prepared by Feldman Surveyors." Raffle PFT, Ex. A. It shows "topography of an old wharf located at the intersection of Commercial Street and New Whale Street in Nantucket." The

¹⁷ Dr. MacDonald relied on Mr. Young's testimony in determining the location of the Coastal Bank, MacDonald PFT at ¶ 9. His own observations related to whether the Coastal Bank is a sediment source, as discussed below.

second, entitled “Topography Plan, Petrel’s Landing, Nantucket, Mass.”, is dated June 26, 2019. Raffle PFR, Ex. A. This second survey also shows “topography of an old wharf located at the intersection of Commercial Street and New Whale Street in Nantucket.” Raffle PFR at ¶ 6. The third exhibit is a plan entitled “Exhibit Plan Showing Slope Analysis, Petrel’s Landing, Nantucket, Mass.”, also dated June 26, 2019. Raffle PFR, Ex. B. It shows areas of the wharf which purport to have a slope of greater than or equal to 10:1 and includes delineation of cross-sections of the wharf slopes. Raffle PFR at ¶ 7. Mr. Raffle’s final exhibit is entitled “Exhibit Plan Showing Comparison to Design, Petrel’s Landing, Nantucket, Mass.” It shows the heights of the tops of the existing revetment and the heights of the tops of the proposed revetment. Raffle PFR at ¶ 8, Raffle PFR Ex. C. Mr. Raffle’s PFT did not address the substance of the plans. Rather, Mr. Young analyzed the plans in his rebuttal testimony.

Mr. Young opined that the area of Coastal Bank at the site is larger than what was described in the SOC and that the Resource Area was underestimated due to a lack of information presented to the NCC and MassDEP. He based his opinion on his review of the NOI and a site evaluation he performed on April 22, 2019, to review existing conditions and to determine if any areas of the Wharf included areas with a slope greater than 10:1. See Young PFT, Ex. B, “Evaluation of Coastal Bank Resource Area, 17 Commercial Wharf, Nantucket, Massachusetts 02554, April 25, 2019” at pp. 5-6 (“Coastal Bank Report”).¹⁸ He also reviewed photographs, including historic aerial photographs; videos of the site during flood conditions; and the Basic Documents. Young PFT at ¶ 8. He also relied on the surveys conducted by Mr. Raffle, which, as noted above, he analyzed as part of his PFR testimony.

¹⁸ This evaluation predates Mr. Raffle’s surveys.

Mr. Young opined that the definition of LSCSF in the NOI was incorrect because the NOI stated that LSCSF “encompasses the entire site” within the VE Zone. Mr. Young testified that the entire site is within an AE or VE 100 Year Flood Zone and therefore a “substantial portion of the site was not included within LSCSF”. Young PFT Ex. B, Coastal Bank Report at p. 1. He further testified that “LSCSF does not include Coastal Bank, so the inclusion of portions of the revetment as LSCSF was incorrect as well.” Id. This raised concerns for him about other potential errors in delineation, particularly regarding the Coastal Bank.

To evaluate slope conditions at the Site, Mr. Young used a hand-held clinometer,¹⁹ a fixed height rod and a graduated leveling rod, and traversed the perimeter and interior of the Wharf, locating areas with slopes greater than, equal to or less than 10:1. Young Ex. B, Coastal Bank Report, at p. 3. The results of this evaluation are presented in Figure 1 to Ex. B. This field evaluation “indicated the presence of slopes of from 10:1 to near vertical where active erosion was occurring in portions of the Site above the revetment.” Young Ex. B, Coastal Bank Report, at pp. 3-4. In his opinion, any portion of the wharf with slopes greater than 10:1 would be Coastal Bank when within the 100-year Flood Zone Elevation, which in this case is the entire property. Id. at p. 3. He faulted NILB’s site plans and NOI for not showing the specific locations of either the Top of Bank or the Coastal Bank limits, as well as for failing to include site topography and cross-sections and slope information so an evaluation of slope profile and the presence or absence of Coastal Bank could be made, as required by the Coastal Banks Policy. Id. His evaluation of Coastal Bank and LSCSF indicated that the definition and delineation of these Resource Areas was inconsistent with the Wetlands regulations and the Coastal Banks Policy. Id.

¹⁹ A clinometer is an instrument used for measuring the angle or elevation of slopes.

at p. 5. He concluded that LSCSF extends throughout the wharf where slopes are less than 10:1 and the Coastal Bank at the site includes both the area of the revetment and adjacent areas on the site where slopes are greater than 10:1. Id.; Young PFT at ¶ 12.a.

Based on Mr. Raffle's surveys, Mr. Young opined that Figure 5 in the Coastal Bank Policy is most representative of the Site because it shows a condition where there are multiple Coastal Bank features on a site. Young PFR at ¶ 4. Multiple Coastal Banks occur where there are slopes within the flood plain that are greater than or equal to 10:1 and that are separated by LSCSF. Id. In his opinion, Petrel Landing has been eroded by wave action and in several places the eroded areas have slopes greater than or equal to 10:1. Id. Additionally, he opined that as the water elevation increases during storm conditions the seaward face [of the elevated landform] "migrates vertically and incorporates other areas of the subject lot." Id. at ¶ 5. These areas, in his opinion, represent additional Coastal Bank features on the Site resulting from erosion action over many years. Id.

Mr. Young further testified that the area of what he calls interior Coastal Bank is 914 square feet, and is composed of gravel, sand, building materials, and smaller stones, all of which he considers erodible, particularly during storm conditions. Young PFR at ¶ 6. He described these interior areas as appearing to be the result of tidal, wave, and runoff action and not the result of minor topographic changes, micro-topography, or small incremental breaks in slope. Id. at ¶ 9. He noted that the Coastal Banks Policy contains no statement regarding the size or extent of topographic features to be used for Coastal Bank delineation. Relying on Mr. Raffle's PFR Ex. B, Mr. Young opined that "transects properly oriented on the wharf demonstrate the presence of both Coastal Bank associated with the revetment and Coastal Bank associated with interior portions of the wharf." Id. at ¶ 10.

On behalf of NILB, Mr. Ramsey testified that “the existing armoring that forms the seaward edge of Petrel Landing falls under the definition of Coastal Bank because it represents the ‘seaward face of an elevated landform which lies at the landward edge of a coastal beach, land subject to tidal action or other wetland.’” Ramsey PFT, Ex. JR-3 (Petrel Landing Nantucket – Delineation of Coastal Bank). Relying on the guidance of the Coastal Bank Policy and the Coastal Manual stating that “the landward edge (or top) of the coastal bank is generally the top of, or the first major break in, the face of a coastal bank”, Mr. Ramsey opined that the existing revetment represents the first major break in slope, therefore the landward limit of the existing stones would be the top of the coastal bank. *Id.* Applying the Coastal Bank Policy’s Figure 4 and its criteria for delineating the top of a Coastal Bank, i.e. (1) the slope must be greater than or equal to 10:1 and (2) a “top of coastal bank” will fall below the 100-year flood elevation and is the point where the slope ceases to be greater than or equal to 10:1, and on a cross-section developed from LiDAR from 2016 (Figures 1 & 2 in Ex. JR-3), Mr. Ramsey opined that “the top of the coastal bank is defined as the landward edge of the armor stone, as the eroded area landward of the armor stone is generally flat, with a slope that is substantially more gradual than 10:1.” *Id.* at pp. 1-2. Figure 2 in Ex. JR-3 depicts a LiDAR cross-section across the southern side of Petrel Landing and shows the break in slope, the top of coastal bank and the flat slope of the eroded area on the wharf. Based on the Coastal Banks Policy, specifically Figure 4 therein, in his opinion the Coastal Bank at the site is entirely limited to the seaward face of the existing revetment and the Top of Bank is the crest of the existing revetment. Ramsey PFT at ¶¶ 9, 10; Ex. JR-2 and Ex. JR-3.

To rebut Mr. Young’s testimony that the site may not have been properly delineated in the NOI, Mr. Ramsey opined that Mr. Young’s delineation of LSCSF was incorrect for two

reasons. First, the entire Petrel Landing is within the FEMA Flood Insurance Rate Map (FIRM) area designated as a VE Zone. Ramsey PFT at ¶ 19; Ramsey Ex, JR-7. Mr. Young's Coastal Bank report stated "the entire site is within an AE or VE 100 year Flood Zone. Second, Mr. Young stated that "LSCSF does not include Coastal Bank, so the inclusion of portions of the revetment as LSCSF was incorrect as well." Mr. Ramsey noted that the definition of LSCSF in 310 CMR 10.04 is "land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater." Because the Coastal Bank at the site is below the 100-year flood plain, it is also LSCSF. The NOI stated that the entire site is in the FEMA VE Zone and within LSCSF, including the Coastal Bank. Mr. Ramsey deemed Mr. Young's criticism of the NOI for "potential other errors in delineation" without merit. Ramsey PFT at ¶ 19; see also Gasbarro PFT at ¶¶ 7-8.

Next, Mr. Ramsey criticized as "expanded and illogical" Mr. Young's statement that "any portion of the wharf structure with slopes greater than or equal to 10:1 would represent Coastal Bank when within the 100 Year Flood Zone Elevation, which in this instance, incorporates the entire property as the lot is within both the VE and the AE Zone." In Mr. Ramsey's opinion, using Mr. Young's definition "any minimal (micro) topographic change along any developed waterfront with slopes greater than or equal to 10:1 would be considered Coastal Bank, inclusive of loose rocks, curbs, edge of pavement, and slab foundations for homes." Ramsey PFT at ¶ 21. Mr. Ramsey noted that photographs 3 and 4 attached to Mr. Young's PFT show loose stones and brick with slopes greater than 10:1 and Figure 13 to Mr. Young's PFT shows the adjacent property to the east and an elevated curb across Commercial Street with slopes greater than 10:1. In Mr. Ramsey's opinion, these minor topographic changes would be considered microtopography. Based on the Coastal Manual's guidance, Mr. Ramsey

opined that the proper delineation of the Coastal Bank should be based on the overall slope of the landform and not microtopography or small incremental breaks in slope. Id. In his opinion, the Coastal Bank at the site is limited to the existing stone revetment. Ramsey PFT at ¶ 9.

Mr. Gasbarro also testified on this issue. He prepared the site plans for the Proposed Project, including the Plan of Record dated December 12, 2017 which was approved by the NCC and is attached to the SOC. Based on his evaluation of the on-site features and conditions at the Project site and applying the applicable definitions and guidance documents, Mr. Gasbarro opined that the limit of Coastal Bank is the ridge of the existing revetment where there is a clear break in slope located below the 100-year flood elevation. Gasbarro ¶ 25. Beyond the crest of the revetment the surface slopes do not exceed 10:1 except in what he described as “very limited short-length areas of microtopography due to erosion of the material on the wharf.” Id. Based on Figure 4 of the Coastal Banks Policy, Mr. Gasbarro opined that the crest of the stone revetment is where the slope is no longer greater than 10:1 and is therefore the limit of the Coastal Bank Resource area. Id.

For MassDEP, Mr. Gilmore offered a different take on the site. He testified that the existing Coastal Bank is a man-made, solid-filled, armored wharf, i.e. the whole of Petrel Landing, and its face is the existing stone revetment. Gilmore PFT at ¶¶ 7-8. It is a structure with an existing DPW license issued in 1936, constructed of fill placed many years ago and periodically rebuilt. Id. at ¶¶ 4, 7. Like Mr. Ramsey, Mr. Gilmore disputed Mr. Young’s evaluation of LSCSF and Mr. Young’s statement that LSCSF does not include Coastal Bank, because the Coastal Banks Policy “clearly shows that Coastal Banks can and do exist within [LSCSF]” and four of the figures in the Coastal Banks Policy show Coastal Banks below the 100-year flood elevation or within LSCSF. Gilmore PFR at ¶ 16. Further, the Plan of Record,

prepared by Nantucket Engineering and Survey, P.C. and attached to the SOC, shows the FEMA Flood Zone boundary on Lots 7 and 8, north of the Project site. The velocity zone (VE) extends south onto the Project site and the still water zone (AE) extends north onto Commercial Wharf.

Findings A preponderance of the evidence supports a finding that the Coastal Bank at the Site is limited to the existing stone revetment. This evidence includes: (1) the credible testimony of Mr. Ramsey, Mr. Gasbarro and Mr. Gilmore; (2) the Plan of Record showing the boundaries of the FEMA Flood Zones and the wharf within the VE Zone; (3) the historic documentation confirming the existence of a revetment for decades; (4) the many current and historic photographs in the record; and (5) my own observations of the Project Site. Again, 310 CMR 10.30(2) defines of “Coastal Bank” as the “seaward face or side of any elevated landform, other than a Coastal Dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland.” Here, a preponderance of the evidence supports a finding that the “elevated landform” is the entire Wharf structure, and its seaward face or side is the existing revetment.

The surveys prepared by Mr. Raffle, and Mr. Young’s testimony based on them, are not persuasive because they are inconsistent with the Coastal Manual’s guidance that delineation of Coastal Bank should be based on the overall slope of the landform. Additionally, there is a degree of uncertainty associated with surveys that limits their persuasiveness. See Raffle PFR Ex. B & C (indicating contour intervals of .5 feet, indicating survey accuracy of +/- .5 feet). Because the areas Mr. Raffle surveyed as Coastal Bank are approximately .5 feet in height, the changes in slope shown on the surveys fall within the uncertainty and therefore raise doubts about the accuracy of the purported delineation. The surveys and Mr. Young’s testimony focused on areas which I find are microtopographic changes on the surface of the wharf caused by

erosion. As the Coastal Manual makes clear, the top of a Coastal Bank should be delineated based on the overall slope of the landform and not on areas of microtopography or small incremental breaks in slope. Coastal Manual at p. 1-53; see also Matter of J. John Brennan and Maureen Brennan, Docket No. 2002-069, Recommended Final Decision (May 6, 2003)(alleged break in slope is not a change in the slope of the entire bank sufficient to identify its top under the Department's Coastal Banks Policy). I agree with NILB that Mr. Young's testimony improperly analyzed small sections of the wharf in order to find Coastal Bank where there was any minimal topographic change with slopes greater than 10:1. NILB Closing Brief at p. 9. The Coastal Bank Policy and the Coastal Manual direct that such areas should not be considered as Coastal Bank. That these areas, including the bricks and concrete, are erodible, does not render them Coastal Bank.

Mr. Young's incorrect definition and delineation of LSCSF further undermines the credibility of his testimony. As Mr. Ramsey and Mr. Gilmore testified, LSCSF by definition includes Coastal Bank. I agree that Figure 4 in the Coastal Banks Policy is the correct figure to apply in this case to identify "top of bank" because that is where the "top of bank" falls below the 100-year flood elevation and the slope ceases to be greater than or equal to 10:1. Mr. Young improperly attempted to identify multiple Coastal Banks at the site by identifying the area between the revetment and the interior slope areas as LSCSF but excluding the existing revetment from his definition and delineation of LSCSF. This was incorrect. Therefore, his reliance on Figure 5 was incorrect because the site does not include coastal banks separated by LSCSF. LSCSF at the site includes the existing revetment as well as the entire interior area of the wharf. There is no separation. A preponderance of the credible evidence cited above supports a finding that Coastal Bank at the project site is limited to the existing revetment.

B. The Coastal Bank Is Not Significant As A Sediment Source.

Corey asserted that even if the Coastal Bank is limited to the stone revetment, it is still a sediment source because the voids between the stones in the revetment are conduits for sediment eroding from the wharf to the Coastal Beach. Therefore, he asserted that the provisions of 310 CMR 10.30(3)-(5) apply to the Proposed Project. Therefore, he asserted that the proposed revetment is prohibited because it is a new CES and there is no building on the property which a new CES would protect. Therefore, he asserted that the Proposed Project cannot comply with 310 CMR 10.30(3). Corey Memorandum of Law at pp. 7-13.

NILB and MassDEP disputed that 310 CMR 10.30(3) applies at all to the Proposed Project. They contended that the Coastal Bank, i.e. the stone revetment, does not shed sediment and any sand that moves from the surface of the wharf through the voids in the stones has only a negligible impact on the Coastal Beach. See NILB's Memorandum of Law at pp. 8-9; NILB's Closing Brief at pp. 11-13; MassDEP Memorandum of Law at p. 6; MassDEP Closing Brief at p. 8.²⁰

As previously noted, Coastal Banks that supply sediment to coastal beaches, coastal dunes, and barrier beaches are per se significant to storm damage prevention and flood control. 310 CMR 10.30(1). Coastal Banks composed of unconsolidated sediment and exposed to vigorous wave action serve as a major continuous source of sediment for beaches, dunes, and barrier beaches (as well as other land forms caused by coastal processes). Id. A Coastal Bank is significant to the interests of storm damage prevention or flood control as a sediment source

²⁰ MassDEP asserted that the site does not meet the regulatory definition of Coastal Bank but that the Proposed Project nonetheless complies with the applicable Coastal Bank Performance Standards. See Gilmore PFT at ¶¶ 7-9. Nonetheless, the SOC affirmed the NCC's OOC and the OOC identified 170 feet of Coastal Bank as a Resource Area at the project site.

when it “plays a role” in protecting those interests. 310 CMR 10.23; Matter of James and Lisa McGonigle, Docket No. WET-2015-008, Recommended Final Decision (April 4, 2017), adopted by Final Decision (June 9, 2017).

On behalf of Corey, Dr. MacDonald conducted a site visit to evaluate whether the Coastal Bank on the site contributes sediment to the nearby Coastal Beaches, in particular. MacDonald PFT at ¶ 8. Moderate to heavy rain was falling at the time of his visit. He photographed the conditions he observed, and his photographs are attached to his PFT at Ex. 8. He relied on the testimony of Mr. Young in determining the location of the Coastal Bank. Id. at ¶ 9.

Dr. MacDonald testified that there are voids between the stones in the revetment that are largely free of sediment, indicating erosion over time. He observed that near the north end of the revetment adjacent to the beach area in the corner of Petrel Landing and Commercial Wharf, channelized runoff from hard rain was exiting the voids between the revetment stones. Id. at ¶ 10.a. He noted large voids below concrete mortar that was poured in place on top of the revetment, and observed substantial voids and undercutting, indicating erosion over time. These observations are depicted in MacDonald Ex. D, Photos 7 and 8. On the west revetment wall, he observed unstable stones and concrete block, indicative of long-term erosion. Id. at ¶ 10.b.; MacDonald Ex. D, Photos 9-11. At the south end of the wharf above the revetment “but in an area identified by [Mr.] Young as having greater than 10:1 slope,” Dr. MacDonald observed that “[r]unoff through sandy area toward the southwest corner of the wharf showed channelization and evidence of soil particles in motion (Photo 12). A grassy bank ...to the north of the sandy area...has been undercut by erosion.” Id. at ¶ 10.c. Based on these observations, Dr. MacDonald opined that the Coastal Bank supplies sediment to nearby Coastal Beaches. Id. at ¶¶ 11, 24.

Mr. Young testified for Corey that the Coastal Bank has contributed and continues to contribute sediment to the adjacent Coastal Beach and other resource areas. He made observations of the site and reviewed historic photographs and relied on his opinion that the wharf surface contains areas of Coastal Bank. He observed the following indicators of erosion: (1) undercut and collapsing stones; (2) significant voids behind the wharf stones; (3) wrack lines well into the southern end of the property; (4) vertical and undercut eroding slope edges; (5) areas of wave wash that are barren of vegetation; (6) recent fill placement; and (7) his review of historic photographs. Young PFT, Ex. B, “Evaluation of Coastal Bank Resource Area, 17 Commercial Wharf, Nantucket, MA 02534, April 25, 2019, at p. 6. He testified that “the south end of the wharf is subject to flooding and wave action and this results in water forces sufficient to erode sediment from the Wharf.” Id. at p. 4. In Mr. Young’s opinion, the Coastal Bank is eroding and contributing sediment to the adjacent coastal beaches and other resource areas, including LUO. He testified that the revetment is the conduit for materials eroding from what he opined were surficial Coastal Bank areas and the rest of the wharf structure during storm conditions and during runoff conditions. While he agreed that the revetment stones themselves “[were] not particularly erodible, their collapse renders the revetment a conduit for supplying sediment to the Coastal Beaches.” In his opinion, the Proposed Project does not comply with the Performance Standards for Coastal Banks because the Coastal Banks, which in his opinion include areas on the surface of the wharf, contribute a sediment supply to the adjacent Coastal Beaches. Young PFR. at ¶ 13. He opined that “the sediment supply from the Petrel Landing site to the beach areas in proximity to Petrel Landing has contributed to the stability of the beach areas adjacent to the wharf structure and these Coastal Beaches provide flood control and storm damage prevention functions for the structures landward of the beaches.” Id.

Mr. Ramsey testified on behalf of NILB that since the entire Coastal Bank is the existing stone revetment, the Coastal Bank is not composed of any unconsolidated sediment and it does not supply sediment to downdrift Coastal Beaches, Coastal Dunes or Barrier beaches and therefore, 310 CMR 10.30(3)-(5) do not apply. Ramsey PFT at ¶ 11. In response to Corey's evidence, Mr. Ramsey again noted that Mr. Young had incorrectly delineated the site to include interior portions of the site, whereas the Coastal Bank is correctly limited to the seaward face of the existing revetment. Id. at ¶ 23. In response to Dr. MacDonald, Mr. Ramsey pointed out that Dr. MacDonald acknowledged that his testimony relied on Mr. Young's delineation, and since that delineation was incorrect and the Coastal Bank is limited to the seaward face of the existing revetment, it is limited to armor stone that does not provide sediment to downdrift beaches. Id. at ¶ 25-26. Mr. Ramsey stated that a structure such as the existing revetment constructed without the use of filter fabric will contain voids that allow some fill materials from the area landward of the structure to migrate through the crevices in the structure over a period of decades. He disagreed with Dr. MacDonald's suggestion that any loss of material through an armor stone structure demonstrates that the Coastal Bank, here defined as the armor stone face of the Petrel Landing, provides sediment to nearby Coastal Beaches. Id. at ¶ 26. Mr. Ramsey testified that the opposite is true, "where the existence of the solid fill armored wharf...actually stabilizes the beaches both to the east and west of the Landing by impeding alongshore movement of sediment in this area for the past 100+ years." Id. In his opinion, the amount of sediment derived from fill in Petrel Landing that migrates through the crevices in the revetment is negligible, even over the long term. In his opinion, the revetment does not provide sediment to nearby Coastal Beaches. Id. In response to Dr. MacDonald's testimony regarding channelized runoff from hard rain exiting the voids between the revetment stones, Mr. Ramsey, while disagreeing that the surface

of Petrel Landing has any features that could be classified as Coastal Bank, noted that 310 CMR 10.30(1) identifies erosion caused by wave action as an integral part of shorelines processes, but it should not be increased unnecessarily. In this case, the Proposed Project will ensure that the landform of Petrel Landing will act as an appropriate buffer for storm damage prevention and flood protection by reestablishing Petrel Landing to its historic height and thereby providing the most appropriate buffer for storm protection. Id. at ¶ 27. In Mr. Ramsey's opinion, the Proposed Project will rectify the runoff issue identified by Dr. MacDonald.

In response to Mr. Young's testimony that flooding and wave action at the south end of the wharf results in water forces sufficient to erode sediment from the wharf, Mr. Ramsey testified that all of Petrel Landing as well as all dwellings on or adjacent to Commercial Wharf are located in a V Flood Zone and therefore subject to these same forces. Id. at ¶ 24. Ramsey's Ex. JR-9 (Nantucket NOAA measured tide approx. surface elev. of Commercial Wharf and northern Petrel Landing) illustrates the tide levels in Nantucket Harbor during the first three months of 2018 compared to the elevation of Petrel Landing and Commercial Wharf. The exhibit shows that "these areas were overtopped with storm surge and associated high energy waves approximately 12 times over this 3-month period." In Mr. Ramsey's opinion, "[f]rom the perspective of coastal processes and sediment movement, there is nothing unique about the southern portion of Petrel Landing, as much of Commercial Wharf and the northern portion of Petrel Landing also routinely experience storm conditions that can mobilize some sediment." Id. Mr. Ramsey concluded that it is not relevant under 310 CMR 10.30 that material on the surface of the wharf can be mobilized by waves during significant storms since the surface of the wharf does not contain a Coastal Bank. Id.

On behalf of MassDEP, Mr. Gilmore opined that the Coastal Bank is not acting as a sediment source because it is a granite block wall. Gilmore PFT at ¶ 8. He further opined that based on his review of Mr. Ramsey's September 27, 2017 and December 13, 2017 studies, the Proposed Project would not have an adverse effect due to wave action on the movement of sediment from the Coastal Bank to Coastal Beaches or land subject to tidal action and thus meets the Performance Standards at 310 CMR 10.30(4).²¹

Findings. Corey had the burden of proving by a preponderance of the evidence that the Coastal Bank is significant to storm damage prevention or flood control because it supplies sediment to the adjacent Coastal Beach. As discussed below, he failed to meet his burden. Rather, a preponderance of the evidence supports a finding that the existing stone revetment is not a source of sediment. As determined in Section A above, the Coastal Bank at the project site is limited to the existing stone revetment. Corey's witnesses did not seriously assert that the stone revetment is a sediment source. Rather, they opined that (1) the purported Coastal Bank on the wharf's surface supplies sediment and (2) the existing revetment is a conduit for sediment from the wharf's surface. Dr. MacDonald's reliance on Mr. Young's incorrect delineation of Coastal Bank undermines the credibility of his testimony. Having already rejected Corey's claim that the surface of the wharf contains Coastal Bank, I must reject his claim that erosion of materials from the surface of the wharf renders the stone revetment a sediment source. While there was testimony from Dr. MacDonald that some sediment from the wharf may move through

²¹ The proposed Project's compliance with 310 CMR 10.30(4) is not disputed. Notwithstanding Mr. Gilmore's testimony, I find that this subsection is inapplicable to the Proposed Project because I find that the Coastal Bank is not significant as a sediment source. However, should the Commissioner determine that the Coastal Bank is a sediment source then Mr. Gilmore's testimony supports a finding that the Proposed Project complies with 310 CMR 10.30(4).

the voids in the existing revetment, this does not establish that the stone revetment itself is a source of sediment. That is what could trigger the application of 310 CMR 10.30(3) through (5).

Additionally, Dr. MacDonald's suggestion that the loss of any material through the revetment demonstrates that the Coastal Bank provides sediment to nearby Coastal Beaches was effectively rebutted by Mr. Ramsey's testimony that the existence of the solid fill armored wharf stabilizes the beaches to the east and west by impeding alongshore movement of sediment. Mr. Ramsey, an expert in coastal processes, persuasively testified that any amount of fill on the wharf that migrates through the crevices in the revetment, even over the long-term, is negligible. Corey did not present any persuasive rebuttal to Mr. Ramsey's testimony on these points. A preponderance of the evidence supports a finding that the Coastal Bank does not supply sediment to the adjacent coastal beach and therefore does not play a role in storm damage prevention and flood control as a sediment source. As a result, I find by a preponderance of the evidence that the provisions of 310 CMR 10.30(3) through (5) do not apply to the Proposed Project.

C. The Proposed Project Does Not Include A New CES.

Based on the findings above: (1) that the Coastal Bank is limited to the existing stone revetment; (2) that the revetment is not significant to the statutory interests of storm damage prevention and flood control as a sediment source; and (3) that the provisions of 310 CMR 10.30(3) through (5) do not apply to Proposed Project, it is not necessary to address Corey's claim that the Proposed Project includes a new CES prohibited by the regulations. The claim is without merit. Nonetheless I address it to clarify that the Proposed Project does not fall within the scope of this regulation, even assuming only for the sake of argument that the Coastal Bank at the project site is significant as a sediment source.

The basis of Corey's claim is that the proposed revetment is impermissible because: (1) the proposed work will alter a Coastal Bank that supplies sediment to a Coastal Beach; (2) the Proposed Project requires a new CES; and (3) the new CES will not have any building to protect. Mr. Young testified that he evaluated the proposed reconstruction of the revetment and concluded that it cannot be considered a reconstruction because it will result in "an increase in wharf surface area and an increase in wharf height" and he concluded that the Proposed Project would result in a new CES. Young PFR at ¶ 18. Corey asserted that the proposed revetment is a new CES that is prohibited by 310 CMR 10.30(3) because it is, to quote Black's Law Dictionary (10th ed. 2014), "newly coming into being...changed from the former state...." Corey's Memorandum of Law at p. 10; Corey's Closing Brief at p. 18. Corey asserted that the Proposed Project is not simply a repair or reconstruction of the existing revetment. Noting that the wetlands regulations do not define "repair" or "reconstruct", Corey looked to the Waterways regulations at 310 CMR 9.22 where the regulations discuss maintenance and repair actions which fall under the jurisdiction of an existing license and therefore do not require a new license. Corey's Memorandum of Law at p. 10. That regulation, specifically 310 CMR 9.22(1)(a), defines maintenance and repair as, among other things, "...replacement of old pilings, decking, or rip rap, all with material of the same dimensions and quality and in the same locations and elevations as that authorized in the license." In Corey's view, the "analogous" Waterways regulation defines the concept of repair and reconstruction as restoring an existing structure to its original state. Id. Corey asserted that "[b]y removing the historic riprap and then building a larger stone revetment in its place [NILB] is clearly intending to build a new Coastal Engineering Structure." Id. at p. 11. Corey asserted that the Proposed Project will not restore the site to its previous state but will actively expand it by creating a new CES.

Next, Corey asserted that the proposed revetment is prohibited because there is no building on the wharf for the revetment to protect. Corey's Memorandum of Law at pp. 11-15; Young PFT at ¶ 13. According to Corey, the Wetlands regulations prohibit a new CES on protected Coastal Banks unless it is required to prevent storm damage to a building built before August 10, 1978, citing 310 CMR 10.30(3). Because there is no building on Petrel Landing to protect, the proposed revetment is not permitted. Id.

NILB argued that even if the Coastal Bank is a sediment source, 310 CMR 10.30(3)-(5) do not apply to the Proposed Project because they are not proposing a new CES. Rather, they are proposing to repair and reconstruct an existing CES. Mr. Savetsky testified that stone riprap frames the wharf on three sides. Savetsky PFT, Ex. ES-5. A 1955 Land Court plan depicts a stone bulkhead at the site. Gasbarro PFT, Ex. AG-5. NILB further argued that the revetment has been in existence and in use since approximately 1896 and is licensed by Chapter 91 Waterways License No. 1823 issued in 1936. NILB's Memorandum of Law at p. 11. NILB argued that much of the existing revetment has been in place for over 100 years without evidence of major repairs. The proposed revetment is based on the existing grades on the northern portion of the site that are consistent with the property elevations along Commercial Wharf. The proposed revetment will be within the same footprint as the existing revetment, and along the side facing Corey's property it will be the same as it is now. The elevation of the proposed revetment is limited to the historic elevation of the site, Ramsey PFT at ¶ 29. and will be returned to its previous elevation, approximately one foot higher than the crest of the existing revetment. NILB's Closing Brief at pp. 14-16. In sum, NILB argued that they are replacing a damaged granite revetment with an in-kind revetment, and this is a repair/reconstruction. Id. at p. 17. As for Corey's assertion that the proposed revetment is prohibited because there is no building to protect, NILB argued that the

argument makes no sense because the historic revetment was in place for over 100 years to protect the ongoing uses of Petrel Landing, including open space. Id. at p. 18.

MassDEP also disputed Corey’s assertion that the proposed revetment is a new CES or is prohibited. MassDEP’s Closing Brief at p. 2. Mr. Gilmore testified that, based on his 30 years of experience administering the Wetlands Protection Act and its regulations, the proposed revetment is not a new CES within the meaning of 310 CMR 10.30(3) because the regulation applies to coastal engineering structures that are proposed on undeveloped coastlines, not previously armored shorefronts. Gilmore PFT at ¶ 4. He further testified that the wharf is a solid-filled structure and is part of an existing CES licensed in 1936. Id. “The current proposal is to renovate the exterior armor stones to facilitate the repair of the Petrel Landing wharf structure. The proposal does not involves constructing a new [CES] on a virgin coastline.” Id.

When a Coastal Bank is a sediment source, 310 CMR 10.30(3) prohibits any “new bulkhead, revetment, seawall, groin or other coastal engineering structure” on a Coastal Bank that is “significant to storm damage prevention or flood control because it supplies sediment to Coastal Beaches, Coastal Dunes or Barrier Beaches.” The regulation states that a new CES shall be permitted “when required to prevent storm damage to buildings constructed prior to [August 10, 1978]”, the effective date of the MWPA, provided the following requirements are met. First, the CES “shall be designed and constructed so as to minimize, using best available measures, adverse effects on adjacent or nearby coastal beaches due to changes in wave action.” Next, the regulation requires that the applicant demonstrates that no method of protecting the building other than the proposed CES is feasible. MassDEP has consistently applied this regulation to prohibit property owners from armoring coastal banks to protect buildings built after August 10, 1978. See Matter of James and Lisa McGonigle, Docket No. WET-2015-008, Recommended

Final Decision (April 4, 2017), adopted by Final Decision (June 9, 2017)(new CES on post-1978 house prohibited); Matter of Plymouth (M.J. Kiley), Docket No. 86-015, Final Decision (April 16, 1987))(new CES on post-1978 house prohibited); Matter of Scott Glass, Trustee of Hill and Dale Nominee Trust, Docket No. WET-2009-040, Recommended Final Decision, (April 1, 2011)(new CES proposed on house found not to need protection). What the cases have in common is that proposals to construct a new CES to protect a structure, usually a residential structure, where no CES existed, were denied. They do not stand for the proposition that a CES can only be built if a building exists on a property.

Based on the testimony of Messrs. Savestky, Ramsey, and Gilmore, I find that the Proposed Project is not prohibited by 310 CMR 10.30(3) because it does not propose a “new bulkhead, revetment, seawall, groin or other Coastal Engineering Structure.” The evidence is substantial that the wharf has been armored for many decades and remains armored today. See above at pp. 6-7. The testimony and photographs provided by the various witnesses do not undermine this evidence because at best they demonstrate that the wharf has, at times, deteriorated and then been rebuilt. The photographs also support the NILB’s and MassDEP’s positions that the wharf has been armored for a long time, effectively rebutting Corey’s argument that the revetment is a new CES. The sides of the wharf are not pristine coastline, unprotected from the forces of the sea. NILB’s Proposed Project would replace the existing armoring, not construct a new CES where none exists. Removing and replacing the existing stones does not render the proposed revetment “new” within the meaning of the regulation, because, as Mr. Gilmore testified, MassDEP has regularly and consistently applied this provision to undeveloped coastlines and not previously armored shorefronts. I credit this testimony based on Mr. Gilmore’s extensive experience interpreting and applying the coastal wetlands regulations. I find

that the proposed revetment is not a new CES within the meaning of 310 CMR 10.30(3), and therefore, even if the Coastal Bank were a sediment source, under the circumstances of this case the Proposed Project would not be prohibited.

D. The Proposed Project Complies With Provisions Of 310 CMR 10.30(6)-(8).

If a Coastal Bank is determined to be significant to the statutory interests of storm damage prevention and flood control because it is a vertical buffer, the provisions 310 CMR 10.30(6) and 10.30(7) apply to the Proposed Project. Subsection (6) provides that any project on a coastal bank “shall have no adverse effects on the stability of the coastal bank.” Subsection (7) affords the Department discretion in permitting by providing that “bulkheads, revetments, seawalls, groins or other coastal engineering structures may be permitted on such a coastal bank...” (emphasis added) but does not provide any additional performance standards. The plain meaning of these subsections read together is that a project such as the proposed revetment may be permitted if it shall have no adverse effect on the stability of the bank. Corey did not present evidence to support any claim that the Proposed Project does not comply with these subsections, and therefore, to the extent he asserted such a claim, I deem it waived. Mr. Gilmore testified that the Proposed Project meets the Performance Standards in these regulatory sections. He opined that the Proposed Project will not have an adverse effect on the stability of the bank because it proposes to reconstruct and repair the stone revetment around the perimeter of the wharf.

Gilmore PFT at ¶ 9. Because the Coastal Bank is not significant to the statutory interests of storm damage prevention and flood control as a sediment source, the proposed revetment may be permitted under subsection (7). Subsection (8) is inapplicable because the Proposed Project is not located within rare species habitat. Id. Mr. Ramsey testified that “the existing shore protection

along the face of the solid fill structure is in need of repair and reconstruction of the revetment and seawall and utilizing the proposed design is the more appropriate method for stabilizing the shoreline of the existing wharf.” Ramsey PFT at ¶ 12.

Based on the testimony of Messrs. Gilmore and Ramsey, I find that the Proposed Project complies with the Performance Standards in 310 CMR 10.30(6) and (7). In sum, based on the foregoing, I find that the Proposed Project complies with the applicable Performance Standards for Coastal Bank.

II. THE PROPOSED PROJECT MEETS THE PERFORMANCE STANDARDS FOR LAND UNDER THE OCEAN at 310 CMR 10.25.

As noted above at pp. 12-13, the Proposed Project involves 1,200 cubic yards of dredging over an approximately 20,080 square foot area in Nantucket Harbor as improvement dredging for navigational purposes and construction of a floating dock in LUO. NOI Narrative, April 2016; NOI Supplement, October 13, 2017. The Proposed Project is designed to allow boats of up to 25 feet to access the wharf. Id. The dredge depth elevation is proposed as -3 MLW. An eelgrass bed is located to the east of the proposed dredge area. Neubert Ex. D.

Corey claimed that the Proposed Project does not meet the Performance Standards for LUO because it does not use “best available measures” to “minimize” impacts. First, he argued that the dredging will increase wave energy and prevent the LUO from performing its storm damage, flood control and erosion prevention functions and will damage his property. He claimed that the Proposed Project was not designed using the best available measures to minimize adverse effects caused by changes in bottom topography, as required by 310 CMR 10.25(3). Second, he claimed that the eelgrass would be threatened by impacts from increased

boat traffic over and near its location, due to increased prop-wash and discharge of marine pollutants. Corey's Memorandum of Law at pp. 16-18.

NILB disagreed, asserting that the Proposed Project complies with the applicable Performance Standards because the dredging was designed using the best available measures to minimize adverse impacts to the interests of LUO and will not adversely affect the height or velocity of waves, sediment transport, or water circulation. NILB Memorandum of Law at p. 15. NILB asserted that the Proposed Project was designed to avoid the eelgrass beds and will employ best management practices to protect sensitive areas during dredging by using siltation curtains. NILB Memorandum of Law at p. 19. MassDEP concurred with NILB that the Proposed Project was designed using the best available measures to minimize adverse impacts, based on the revisions made to the Proposed Project during the permitting process, and concurred that the Proposed Project as conditioned will not adversely impact eelgrass. Department's Closing Brief at pp. 3-5. As discussed below, based on a preponderance of the evidence presented, I find that the Proposed Project complies with the applicable Performance Standards for LUO.

A. The Proposed Dredging Will Not Adversely Affect the Interests of Storm Damage Prevention and Flood Control By Increasing Flooding or Erosion Caused By An Increase in Wave Height or Velocity.

As discussed at pp. 17-18, when nearshore areas of land under the ocean are significant to storm damage prevention or flood control, the bottom topography of such land is critical to the protection of those interests. 310 CMR 10.25(1). The Proposed Project includes improvement dredging for navigational purposes and construction of a floating pier in LUO. "Improvement dredging" is defined as "any dredging under a license in an area which has not previously been dredged or which extends the original dredged width, depth, length or otherwise alters the original boundaries of a previously dredged area." 310 CMR 10.23.

310 CMR 10.25(3) requires that “improvement dredging for navigational purposes affecting [LUO] shall be designed and carried out using the best available measures” that “minimize” adverse effects on the interests of the protection of marine fisheries, protection of wildlife habitat, storm damage prevention or flood control caused by changes in: (a) bottom topography which will result in increased flooding or erosion caused by an increase in the height or velocity of waves impacting the shore; (b) sediment transport processes which will increase flood or erosion hazards by affecting the natural replenishment of beaches; (c) water circulation which will result in an adverse change in flushing rate, temperature, or turbidity levels; and (d) marine productivity which will result from the suspension or transport of pollutants, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of marine fisheries habitat or wildlife habitat.

“Minimize” means “to achieve the least amount of adverse effect that can be attained using best available measures”. 310 CMR 10.23. “Best available measures” means “the most up-to-date technology or the best designs, measures or engineering practices that have been developed and that are commercially available.” *Id.* The scope of impact minimization with best available measures is dictated by the project purpose. Matter of Steven R. Karp and Jill Karp, Remand Decision, 8 DEPR 46 (2001).

As described by Mr. Savetsky, NILB acquired the Petrel Landing property in order to secure permanent public access to the downtown Nantucket waterfront, and the purpose of the Proposed Project is to address the need for additional recreational public water access in downtown Nantucket. Savetsky PFT at ¶¶ 12, 18.

1. The Proposed Project Uses Best Available Measures to Minimize Adverse Effects.

Mr. Corey presented the testimony of Dr. MacDonald to establish that the proposed dredging does not comply with 310 CMR 10.25(3). Dr. MacDonald is an expert in coastal engineering and physical oceanography with a specific focus that includes wave energy. MacDonald PFT at ¶ 2. He testified that in general, increasing depths within the dredge area will limit the interaction of the incoming waves with the ocean bottom. This interaction can reduce wave energy. He evaluated the potential wave and flooding effects that will “likely occur as a result” of the Proposed Project. Id. at ¶ 12. He noted that waves and flooding effects are difficult to predict because several factors are involved, including tide cycle, depth of water, wind direction and local bathymetry. Id. He noted that the existing bathymetry along the project site is relatively shallow. Id. at ¶ 13. Further noting that the Corey Property is in the VE Zone (Coastal High Hazard Zone), Dr. MacDonald testified that waves will primarily be generated through the action of wind on the water surface in Nantucket Harbor. Winds out of the northeast quadrant, which are most likely during severe winter storms, will result in a setup of the mean water surface elevation at the southwest end of the harbor, and will generate wind driven waves along a fetch length consistent with the approximately six-mile length of the harbor. These waves are likely to impinge on the shoreline at the southwest edge of the harbor and break, releasing their energy into random turbulent motion which will mobilize sediment and result in erosion. Id. at ¶ 14-15. Dr. MacDonald testified that the dredging area adjacent to Corey’s property is approximately 125 feet wide, and in this area depth will be increased to approximately 3 feet below mean low water. Id. at ¶ 16. Dr. MacDonald identified three main pathways by which the project may impact wave activity, erosion, and flooding at and near Corey’s property: (1) impacts due to deepening of the adjacent harbor; (2) impacts due to the increased height of the revetment on the east face of Petrel Wharf; and (3) impacts due to altered bathymetric slopes and

reflection/refraction. Id. at ¶ 15. “General deepening of the harbor may impact wave activity by facilitating the propagation of wave energy toward the Corey Property.” Id. at ¶ 18. In Dr. MacDonald’s opinion, the proposed dredging would reduce the frictional and depth limiting effects of incoming waves, which would increase their magnitude at Corey’s property. Id. at ¶ 18. In his opinion, some waves that now break in the shallow area near the proposed floating dock will continue to propagate following construction, will reflect off the heightened Petrel Landing shoreline, and increase the wave energy at Corey’s property. Id. ¶ 19. As well, the increased height of the proposed sloped revetment “will limit the potential for waves breaking over the wall and thus will increase the energy of waves reflecting off the shoreline and impacting the Corey Property.” Id. ¶ 20.

Because of the lifespan of the Proposed Project, and recent observed increases in storm intensity and larger storms and climate change considerations, Dr. MacDonald believed the modeling done by Mr. Ramsey (discussed below at pp. 52-54) using a 10-year wind model and a 10-year storm model were insufficient to accurately measure potential impacts to Commercial Wharf. Id. at ¶¶ 22-23. In his opinion, the model should have used 50- and 100-year wind and storm events to evaluate potential wind and wave impacts, especially during low tide. Dr. MacDonald noted that the 10-year wind speed in Figure 3 in Ramsey’s study (Ramsey PFT Ex. JR-5) is approximately 43 knots, while the 50-year wind speed is approximately 51 knots, a difference in wind speed that will, in his opinion, further impact waves coming from the east or east-south-east directions, and those waves will fail to break where they do now, due to the deepened channel, resulting in damage to the project site and Corey’s property. MacDonald PFR at ¶¶ 4-5.

In Dr. MacDonald's opinion, the Proposed Project will result in an increase in wave energy at Corey's property and will increase erosion and could compromise the structural integrity of the foundation wall. MacDonald PFT at ¶ 24.b In his opinion, the dredging has not been designed using best available measures to minimize adverse effects caused by changes to bottom topography which will result in increased flooding or erosion caused by an increase in the height and velocity of waves impacting Corey's property. MacDonald PFT at ¶ 24.d. In his opinion, best available measures would reduce the depth of dredging, limit the height of the proposed revetment to its original height, and shorten the floating dock and reduce the dredge footprint to the southeast of the floating dock. *Id.* at ¶ 24.e.

Mr. Ramsey testified for NILB as to how the project complies with 310 CMR 10.25(3). He disagreed with most of Dr. MacDonald's opinions. A good portion of his testimony, and several exhibits, focused on a quantitative analysis of the local wave climate which was submitted to the NCC with the NOI Supplement in October 2017, and which is attached to Mr. Ramsey's pre-filed direct testimony. *See* Ramsey PFT at ¶ 14; Ramsey PFT Ex. JR-5 ("Dredging and Structure Wave Impacts Analysis").²² The analysis was based on the reduced dredging proposal submitted after the Proposed Project was reduced in size and scope. This quantitative analysis utilized the "2D SWAN" wave model and a computational mesh that included the whole of Nantucket Harbor.²³ The fine mesh of the model (1.0 meter cells) allowed for detailed model output along the shoreline between Commercial Wharf and the Town's boat dock. Mr. Ramsey

²² The study was submitted to the NCC and is also included in MassDEP's Basic Documents in this appeal.

²³ SWAN is the acronym for Simulating Waves Nearshore. The model was developed at the DELFT University of technology in the Netherlands. The SWAN model is able to simulate wave refraction and shoaling induced by changes in bathymetry and by wave interactions with currents. Ramsey Ex. JR-5, Petrel Landing Dredging and Wave Impacts Analysis at p. 5.

developed the model inputs of wind speed and wave height using an extremal analysis of available data records. He used a data set from the National Data Buoy Center's ("NDBC")²⁴ Coastal-Marine Automated Network ("C-MAN") station at the entrance to Buzzard's Bay, rather than data from Nantucket Airport, because (1) the NDBC C-MAN station yields slightly higher extremal winds than those computed at the airport; (2) it represents a nearby over-water data set; (3) the wind record is longer; and (4) the results are conservative. Ramsey PFT Ex. JR-5. Ramsey modeled 10-year wave conditions and determined that the maximum difference in wave heights in the study area pre- and post-dredging would be less than 2 inches in all locations. He concluded that even in the severe wave conditions studied, resulting changes in wave height at the shoreline would be negligible. Ramsey PFT at ¶ 14; Ramsey PFT Ex. JR-5.

Mr. Ramsey testified that the modeled 10-year wave conditions produce a maximum wave height of approximately three feet in Nantucket Harbor. He stated that the 10-year winds that generate waves in the harbor are nearly identical to the 50 and 100-year storms, where only the duration is different. The 10-year conditions were input to a steady-state wave model and represent a fully-developed sea-state, rather than a time varying condition which would yield lower wave heights. Ramsey PFT at ¶ 14. The model represents severe 10-year storm wave conditions and presents them in the "most conservative fashion possible." Ramsey PFT at ¶ 14. Mr. Ramsey noted that the model results represent the "worst possible case" conditions at and adjacent to Petrel Landing for a 10-year storm. While Dr. MacDonald opined that model outputs for 50-year and 100-year storms, which are more severe, should have been modeled, Mr. Ramsey

²⁴ The NDBC is part of the National Oceanographic and Atmospheric Administration ("NOAA") and its mission is "to provide quality observations in the marine environment in a safe and sustainable manner to support the understanding of and predictions to changes in weather, climate, oceans and coast." <https://www.ndbc.noaa.gov/ndbc.shtml>

responded that these conditions were deemed inappropriate for evaluation because for these storm events Petrel Landing would be submerged and the submergence of Petrel Landing “causes the influence of the landing on wave climate to become negligible.” Ramsey PFT at ¶ 14. In his opinion, the 10-year event provided the appropriate information to ascertain the influence of the dredging on the wave climate during significant and/or severe storms and provided an appropriate basis for quantifying the potential worst-case impacts associated with the dredging. Ramsey PFT at ¶ 14; Ramsey PFT Ex. JR-5. While Dr. MacDonald noted that the alterations to the storm wave field he calculated caused a significant percentage increase in wave energy, Mr. Ramsey responded that a large percentage of a small value is still a small value, and the largest wave height Dr. MacDonald calculated was 1.2 inches, which Mr. Ramsey considered negligible in the context of the Performance Standards for Land Under the Ocean (“LUO”). Ramsey PFT at ¶ 14; Ramsey PFT Ex. JR-6 at p. 2. In Mr. Ramsey’s opinion, “resulting changes in wave height at the shoreline to the west of Petrel Landing are negligible as a result of the dredging” and “there is no change in wave heights at the Corey Property, which is located on Commercial Wharf over 50 feet east of Petrel Landing.” Ramsey PFT at ¶ 14; Ramsey PFT Ex. JR-6. In response to Dr. MacDonald’s opinion that the increased height of the proposed sloped revetment facing the Corey property “will limit the potential for waves breaking over the wall and thus will increase the energy of waves reflecting off the shoreline and impacting the Corey Property”, Mr. Ramsey stated that the rough-faced construction of the revetment will reduce any reflection “well below that of the existing revetment.” Ramsey PFT at ¶ 29. Based on his analysis, Mr. Ramsey determined that “the incident wave heights during the 10-year storm event do not increase along the Corey Property, as stated by Dr. MacDonald.” Ramsey PFT at ¶ 29; Ramsey Ex. JR-6, Figure 5 (showing slight increases in wave height along the east face of Petrel

Landing but no increases along the face of Commercial Wharf).²⁵ In Mr. Ramsey’s opinion, “based on information developed from the detailed wave modeling regarding the effect of the proposed dredging on wave heights, as well as incorporating ‘best practices’ regarding revetment construction techniques, there will be no increase in wave heights at the Corey property/bulkhead/Coastal Bank.” Ramsey PFT at ¶ 30. As a result, he concluded that the Proposed Project complies with 310 CMR10.25(3)(a) “as the proposed dredging will not result in increased flooding or erosion caused by an increase in the height or velocity of waves impacting the shore.” *Id.* He considered Dr. MacDonald’s suggestion that there will be an increase in wave energy at the Corey property to be unfounded.

Regarding compliance with 10.25(3)(b), Mr. Ramsey testified that the beach to the south and west of Petrel Landing has not had a natural longshore sediment supply for at least 100 years because of the construction of solid fill wharves in the Nantucket Harbor, which “essentially eliminated the natural migration of sediment along the developed portion of the downtown Nantucket shoreline.” Ramsey PFT at ¶ 15. Based on the wave study and observations of the beach to the south and west of Petrel Landing, Mr. Ramsey opined that the proposed dredging will not have an adverse impact on the wave climate or the associated sediment transport along the shoreline “[because] the alteration to the wave climate is negligible in extreme conditions and the beach has remained stable over the long-term even without a sediment supply....” *Id.*

Mr. Ramsey further testified that the proposed dredging has been minimized to the minimum depth necessary to allow access by a 24-foot motorboat, i.e. -3 ft MLW for the project area. Ramsey PFT at ¶ 16. The dredging depth will “daylight” to deeper water depths to the east

²⁵ Mr. Ramsey incorrectly refers to this exhibit as JR-9

and allow unimpeded circulation of water to and from Nantucket Harbor's main basin. The average increase in water depth within the dredge footprint will be only 1.5 feet greater than the existing water depth, and the dredged footprint area was reduced by almost 50% from what NILB originally proposed with the volume of dredging reduced from 3,200 cy to 1,200 cy. It was Mr. Ramsey's opinion that the "minimal amount of dredging" proposed "will cause no adverse impacts to tidal circulation within the sub-basin south of Commercial Wharf or any associated impacts such as flushing rate, water temperature changes, or turbidity levels." *Id.* He concluded that the project therefore complies with 310 CMR 10.25(3)(c).

On behalf of MassDEP, Mr. Gilmore testified that in his opinion, there will be minimal dredging taking place within 4,000 square feet of the dredge area, and in the remaining approximately 16,000 square feet of dredge area the dredging is proposed to be between 1 to 2.5 feet, which demonstrates a minimization of dredging and associated impacts. Gilmore PFT at ¶ 5. In response to Dr. MacDonald's testimony that the dredging depth in a 125 foot wide area will be increased to approximately 3 feet below mean low water, Mr. Gilmore testified that the existing spot elevations in that area range from -3.3 to -3.5 roughly 25 feet off Corey property. Gilmore at ¶ 10. Mr. Gilmore concurred with Mr. Ramsey's findings regarding the Proposed Project's compliance with 310 CMR 10.25(3)(a), (b) and (c), based on Mr. Ramsey's detailed analysis. Mr. Gilmore noted that the Plan of Record referenced in the SOC shows a "Proposed Sediment Curtain During Dredge Activity/Limit of Work" that is intended to contain any potential silt laden water in order to meet the Performance Standard at 310 CMR 10.25(3)(d). Relying on Mr. Ramsey's statements regarding the depth of dredging, he reiterated that the minimal amount of dredging will not cause adverse impacts and in Mr. Gilmore's opinion, the Proposed Project complies with 310 CMR 10.25(6)(a). Gilmore PFT at ¶ 5. Mr. Gilmore also

noted that Dr. MacDonald failed to consider that the floating dock may act a wave attenuator dampening any wave energy that passes through it, contrary to Dr. MacDonald's opinion that dredging in the area of the dock will allow waves to continue to propagate and reflect off the revetment and increase wave energy at Mr. Corey's property. Gilmore PFR at ¶. 11.

In rebuttal, Dr. MacDonald disputed Mr. Ramsey's testimony that there will be no adverse impacts to the Corey property. He faulted Mr. Ramsey's analysis as incomplete and not robust enough because it was limited to winds coming from the northeast. In his opinion, "a more robust model, which includes simulations with winds from the East or East-Southeast, despite their being driven by slightly lower 10-, 50- and 100-year wind speeds, would more directly demonstrate the effects from winds blowing directly at the Corey Property." MacDonald PFR at ¶ 3. He faulted Mr. Ramsey for not modeling winds from the direction "most likely to have an effect on the Corey Property." *Id.* Dr. MacDonald also disagreed with Mr. Ramsey's conclusions about winds speeds and waves generated by 50- and 100-year storms and believes the increase in wind energy from a 50-year storm would result in a 40% increase in wave energy. In his opinion, "[t]hese waves...[would] likely fail to break where they do now...and [would] propagate until they break against or near the project site and the Corey Property." *Id.* at ¶¶ 4-5. He further faulted Mr. Ramsey's analysis for ignoring the tidal stage when Mr. Ramsey concluded that Petrel Landing would be submerged under 50- and 100-year storm conditions. Dr. MacDonald believes that Mr. Ramsey's analysis was correct for high tide conditions, but he disagreed that the wharf will be submerged during these storms at low tide. Under these conditions Dr. MacDonald believed that the tops of both Petrel Landing and Commercial Wharf will be exposed and that will increase the wave energy striking commercial wharf. *Id.* at ¶ 6. "The potential for wave breaking will be further enhanced by the proposed dredging, which will

increase the energy of waves striking Commercial Wharf. Such waves breaking over the top of the wharf could be particularly destructive.” Id. Dr. MacDonald did not provide any rebuttal to Mr. Gilmore’s testimony.

Findings. Based on the foregoing, I find that a preponderance of the evidence supports a conclusion that the Proposed Project complies with 310 CMR 10.25(3) because it has been designed using Best Available Measures to minimize adverse effects. Mr. Ramsey persuasively testified that the 10-year storms are most representative of the conditions that occur at the site, and that the effects of 50- and 100-years storms would present only negligible differences. I give more weight to his testimony because his conclusions are supported by substantial data from studies conducted specific to this project and project location. The studies demonstrate that the change in bottom topography resulting from dredging will not result in increased flooding or erosion caused by an increase in the height or velocity of waves impacting the shore because the height and energy of waves may experience only a minimal increase. As noted above, Mr. Ramsey performed a detailed “Dredging and Structure Wave Impact Analysis” to evaluate potential adverse impacts from the Proposed Project. See Ramsey PFT, Ex. JR-5. The study is replete with details about how the study was developed and conducted, and the reasons certain inputs were used. Id. at pp. 2-7 (determination of wind and wave boundary conditions; wave model grid development). The study results were presented in graphic detail with detailed explanations. See, Ramsey PFT, Ex. JR-5, Figures 7 through 12 at pp. 8-11. His analysis provided a detailed explanation of how the Proposed Project complies with the Performance Standards for LUO contained in 310 CMR 10.25(3) for improvement dredging for navigational purposes.

Dr. MacDonald's testimony, by contrast, was more suggestive and speculative than persuasive. It lacked reference to comparable modeling studies and data that refute Mr. Ramsey's conclusions or that provide the additional data he opined are needed. Nor did he conduct a study, as he recommended in his testimony, that employed "a more robust model, which includes simulations with winds from the East or East-Southeast, despite their being driven by slightly lower 10-, 50- and 100-year wind speeds, [that] would more directly demonstrate the effects from winds blowing directly at the Corey Property." He acknowledged that wave and flooding effects are difficult to predict and presented his opinions in mostly general terms without specific reference to the applicable regulations. Absent evidence that the 10-year storms are not most representative of the conditions that occur at the site, and that the effects of 50- and 100-years storms would not present only negligible differences, the most persuasive evidence in the record is Mr. Ramsey's analysis and explanation. Mr. Ramsey provided a reasonable and persuasive explanation for why it was not appropriate to model 50- and 100-year storms – to wit – the whole of Petrel Landing is submerged during those storms and as a result the influence of the landing on wave climate is negligible. While Dr. MacDonald opined that the landing is not submerged during these storms at low tide, MacDonald PFR at ¶ 4, there is no factual evidence in the record to support this opinion. In sum, to prove his claim that the proposed dredging was not in compliance with 310 CMR 10.25(3) and would adversely affect LUO, Mr. Corey was required to submit credible and sufficient evidence demonstrating that it would. He did not.

Based on the evidence discussed above, I find that the Proposed Project complies with 310 CMR 10.25(3) because it has been designed using the best available measures in order to minimize adverse impacts to LUO caused by changes in:

- (a) bottom topography which will result in increased flooding or erosion caused by an increase in the height or velocity of waves impacting the shore;
- (b) sediment transport processes which will increase flood or erosion hazards by affecting the natural replenishment of beaches; or
- (c) water circulation which will result in an adverse change in flushing rate, temperature, or turbidity levels.

B. The Proposed Project Will Not Adversely Impact Marine Productivity and Eelgrass Beds.

Corey alleged that the Proposed Project directly threatens the eelgrass beds in the harbor, rather than protecting or avoiding them. NOC at ¶ 8. He contended that the Proposed Project would adversely impact the eelgrass beds in violation of 310 CMR 10.25 because of the effects of increased boat traffic in the harbor. Corey's Memorandum of Law at p. 18. He disputed that the Proposed Project was designed using best available measures to minimize impacts. Id. From his perspective, best available measures would include reducing or eliminating the dredging to avoid introducing prop-wash and pollutants and reducing the size of the pier and redesigning it for smaller boats. Id.

NILB argued that the Proposed Project is fully compliant with the applicable provisions of 310 CMR 10.25 and that the reduced dredging footprint and dredge volumes will not cause physical impacts to the existing eelgrass habitat. NILB argued that siltation curtains are a best management practice commonly employed for dredging projects to control resuspension of sediment, and the float stops on the proposed dock will prevent the structure from resting on the sea floor and causing resuspension of sediment during tide changes. NILB Closing Brief at p. 22-23. MassDEP concurred with NILB's arguments. MassDEP Memo of Law at p. 4.

As discussed above at p. 9, the Proposed Project includes dredging in the harbor and construction of a floating dock. Since the inception of the project and in response to comments from the NCC and the public, NILB revised the Proposed Project to reduce its impact to LUO.

Specifically, the size of the proposed dredge area was reduced by almost 50%, from 39,000 square feet to 20,080 square feet and the size of the dock was reduced to accommodate fewer and small boats than as originally proposed.

As described at pp. 17-18 and 48, when nearshore areas or other land under the ocean is significant to the protection of marine fisheries or wildlife habitat, the following factors are critical to the protection of such interests: (a) water circulation; (b) distribution of sediment grain size; (c) water quality; (d) finfish habitat; and (e) important food for wildlife. 310 CMR 10.25(1). In addition to the Performance Standards of 310 CMR 10.25(3), 310 CMR 10.25(6) provides that water-dependent projects must “be designed and constructed, using “best available measures”, so as to “minimize” adverse effects ... on marine fisheries or wildlife habitat caused by ... (b) destruction of eelgrass ... beds.” 310 CMR 10.25(6).

310 CMR 10.25(3)(d) provides for the protection of eelgrass habitat from improvement dredging for navigational purposes. The regulation requires that dredging “shall be designed and carried out using the best available measures so as to minimize adverse effects...caused by changes in marine productivity which will result from the suspension or transport of pollutants, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of marine fisheries habitat or wildlife habitat.”

310 CMR 10.25(4)²⁶ provides for the protection of eelgrass habitat from maintenance dredging for navigational purposes. The regulation requires that dredging “shall be designed and

²⁶ Dr. Neubert testified regarding the proposed Project’s compliance with 310 CMR 10.25(4) which applies to projects involving “maintenance dredging for navigational purposes affecting land under the ocean”. “Maintenance Dredging” is defined as “dredging under a license in any previously dredged area which does not extend the originally-dredged depth, width, or length but does not mean improvement dredging or backfilling.” 310 CMR 10.23. There is no record evidence to support a finding that the Proposed Project includes “maintenance dredging.”

carried out using the best available measures so as to minimize adverse effects...caused by changes in marine productivity which will result from the suspension or transport of pollutants, increases in turbidity, the smothering of bottom organisms, the accumulation of pollutants by organisms, or the destruction of marine fisheries habitat or wildlife habitat.”

310 CMR 10.25(6) requires that water-dependent projects [that do not involve improvement dredging for navigational purposes] affecting LUO “shall be designed and constructed, using best available measures, so as to minimize adverse effects... on marine fisheries habitat or wildlife habitat caused by (a) alterations in water circulation; (b) destruction of eelgrass (*Zostera marina*) or widgeon grass (*Ruppia maritima*) beds; (c) alterations in the distribution of sediment grain size; (d) changes in water quality, including, but not limited to, other than natural fluctuations in the level of dissolved oxygen, temperature or turbidity, or the addition of pollutants; or (e) alterations of shallow submerged lands with high densities of polychaetes, mollusks or macrophytic algae.”

In Matter of Karp, the Administrative Law Judge (“ALJ”) discussed the performance standard in 310 CMR 10.25(6) and stated:

though not stated explicitly in the performance standards for work in land under the ocean, an applicant's project purpose plays a role in determining what constitutes the best available measure to minimize the project's adverse effects. When the Regulations require that a project be 'designed and constructed using best available measures' to minimize eelgrass destruction, they necessarily mean that different construction or design options that would achieve the applicant's basic purpose must be reviewed to see if any of them would have less effect on eelgrass. In order to determine what options should be considered in this review, the applicant's project purpose should be conceived of broadly so as to maximize the number (and value) of options considered under the best available measures standard.

Nonetheless, out of an abundance of caution I have included her testimony and made findings regarding the Proposed Project’s compliance with this regulation.

In Matter of Karp, the ALJ defined the applicant's "general project purpose [a]s to have a dock that extends into deeper water. The issue then is what is the best available measure to achieve that purpose and minimize the destruction of eelgrass." Karp, supra; see also Matter of Kevin Dwan, Recommended Final Decision, 2020 MA ENV LEXIS 41 (April 9, 2020), adopted by Final Decision (May 11, 2020). The plain language of the regulations requires an applicant to employ "best available measures" to minimize adverse effects. The regulations do not require that adverse effects be completely avoided.

Although he had the burden of proof on the issue, Corey did not present testimony on it in his direct case. Rather, he presented argument and attached a report entitled "Nantucket Eelgrass Mapping Project" to his Memorandum of Law as Ex. B. The report was prepared by Charles T. Costello on April 8, 2016, for a project he conducted in Summer 2015. Mr. Costello did not testify at the hearing and no information about him or his expertise was provided with the report. The report was "designed and conducted to provide Nantucket resource managers with quantitative eelgrass data that has been extensively field-checked and evaluated." It does not address the Proposed Project's compliance with the applicable Performance Standards or mention the Proposed Project at all. I find that Corey failed to sustain his burden of going forward on his claim that the Proposed Project does not comply with the regulations specific to protection of eelgrass. In contrast, NILB submitted the testimony of eelgrass expert Dr. Neubert which was supported by three detailed eelgrass and shellfish studies performed to assess eelgrass and shellfish in the LUO at the project site in 2007, 2012 and 2015 (hereafter "eelgrass studies").

The studies are attached to her PFT as Neubert Exhibits B, C and D.²⁷ Nonetheless, Corey submitted rebuttal testimony by Mr. Young, despite his lack of stated expertise related to eelgrass. His testimony is discussed below, after the discussion of Dr. Neubert's testimony.

Dr. Neubert's testimony on behalf of NILB was the only expert testimony presented regarding eelgrass. As of the date of her testimony, she had been working on the Proposed Project for twelve years. Neubert PFT at ¶ 20. Based on her study of the project area and her knowledge of the Proposed Project, Dr. Neubert's testimony persuasively demonstrated that the Proposed Project complies with the applicable performance standards of 310 CMR 10.25. Each eelgrass study's report details the methodology employed and demonstrates that the assessments were comprehensive and thorough. For instance, transects were established at ten-foot intervals parallel and perpendicular to Petrel Landing to form a grid in the survey area. The study was conducted as follows:

All transect lines were assessed for presence or absence of eelgrass... In areas where eelgrass was found to be present, an assessment of percent coverage was determined and entered into electronic field datasheets and a siting was taken on the location. Eelgrass percent coverage estimates were made by two divers utilizing a hand-held 0.25 m² quadrat and was placed at the transect center crossing point adjacent to each other four times to equal an area of 1m². Estimates were conservative and final assessment values were rounded up to the nearest factor of 5 except for values below 5% cover... A total of 41 transects running approximately in the north/south direction and 14 transects running approximately in the east/west direction were assessed within the proposed project area... Only percent coverage of living, rooted eelgrass was recorded. Because much of the area had no eelgrass present in 2007 and 2012 the divers visually assessed between transects to determine if eelgrass was present in areas that were not aligned with established transect lines in 2015 and, thus, the entire survey area was assessed by divers for the presence of eelgrass.

²⁷ The three studies are entitled as follows: Ex. B: "Eelgrass Habitat Assessment Report for Proposed Dock and Pier Project Adjacent to Commercial Street, Nantucket Harbor, Nantucket, MA, October 19, 2007"; Ex. C: "Eelgrass and Shellfish Habitat Assessment Report, Petrel Landing, Nantucket Island Land Bank, November 28, 2012"; and Ex. D: "Eelgrass and Shellfish Habitat Assessment Report, Petrel Landing, Nantucket Island Land Bank, October 10, 2015".

Neubert Ex. D at p. 6, Section 3.0 (2015 Eelgrass Study). The results of the assessment showed that most of the Proposed Project's dredge area was devoid of eelgrass during the study periods and consisted of black, organically enriched silt and sand with one area containing sediment with a strong sulfur dioxide odor, indicative of seafloor hypoxia or anoxia.²⁸ Neubert PFT at ¶ 25(g); Neubert Ex. D at p. 9, Section 4.0.

Dr. Neubert testified that in her opinion the Proposed Project complies with 310 CMR 10.25(3) and the eelgrass will not be negatively affected. Neubert PFT at ¶ 26. In Dr. Neubert's opinion, the Proposed Project has been designed using the best available measures and has minimized the dredging footprint to the smallest area practicable to allow the proposed use of accommodating dinghies. Neubert PFT at ¶ 25. She testified that the Proposed Project was redesigned to avoid eelgrass habitat, with the dredging area and volume reduced. Neubert PFT at ¶ 25(f). The use of a system of siltation curtains to control resuspension of sediment will further protect the eelgrass. Neubert PFT at ¶ 25(h). Use of siltation curtains is a best management practice for aquatic dredging. *Id.* To avoid impacts from the weights that hold the siltation curtains in place, the siltation curtains will not be placed within eelgrass habitat. *Id.* Because the proposed dock is designed with float stops to prevent it from resting on the seafloor, no siltation will occur from the dock contacting the seafloor and resuspending sediment as it rises from low to high tide. Neubert PFT at ¶ 26. In her opinion, the Proposed Project complies with 310 CMR 10.25(3) because there will be no significant negative effect to marine communities, essential fish habitat, water quality or marine productivity from removing what she describes as a "small

²⁸ "Anoxia is a condition where there is no oxygen in the sediment to support organisms that would utilize this for respiration and is considered ecologically detrimental to benthic marine organisms." Neubert PFT at ¶ 25(g).

amount of sediment.” In her opinion, removal of this sediment may improve water and sediment quality and improve the habitat and may provide suitable habitat for marine algae and eelgrass recolonization which currently does not exist. Neubert PFT at ¶ 25(g).

Mr. Young provided rebuttal testimony that mirrored the arguments asserted by Corey in his Memorandum of Law. He did not challenge any portion of Dr. Neubert’s three studies or dispute their findings. The crux of Mr. Young’s testimony was that increased boat traffic in a small, confined area of the harbor directly over the eelgrass beds will have an impact on the eelgrass. Young PFR at ¶ 28. In his opinion, the impacts will result from increased prop-wash and possible contact during low tides, as well as potential resuspension of sediment within the channel which would lead to a decline in water quality and further harm the eelgrass. Young PFR at ¶¶ 31-32. Mr. Young faulted Dr. Neubert for failing to account for, and produce data related to, increased boat traffic in the harbor. Young PFR at ¶ 33

Dr. Neubert deftly addressed this testimony in her response to Corey’s arguments in his Memorandum of Law. She noted that the eelgrass habitat she has observed in an already-busy harbor has been consistently located in the same area and has been of the same size for twelve years, despite the boat traffic and the nearby presence of the Nantucket Boat Basin.²⁹ She noted that the water depth will prevent issues from prop-wash. She noted that Nantucket Harbor is designated as a no-discharge zone and as such, marine fuel and other pollutants will not affect the area of the Proposed Project. Neubert PFT at ¶ 32. As was noted in her 2015 eelgrass study, the “presence of eelgrass over the past 9 years in the same location indicates that boating and eelgrass habitat can coexist.” Neubert Ex. D at page 9, Section 4.0.

²⁹ The Nantucket Boat Basin is a full-service marina with 240 boat slips located to the east of Petrel Landing on Commercial Wharf.

Findings. I find that a preponderance of the evidence supports a finding that the Proposed Project complies with the provisions of 310 CMR 10.25 applicable to eelgrass. I give significantly more weight to Dr. Neubert's testimony for the following reasons. First, she has significant expertise regarding eelgrass, with many years of professional experience related to marine ecosystems. Neubert PFT at ¶¶ 10-11. More specifically, she has "performed no fewer than twenty (20) eelgrass and shellfish surveys within the Town of Nantucket..." Neubert PFT at ¶ 12. Mr. Young has no comparable expertise. Second, Dr. Neubert has spent significant time studying the environment in the waters of Nantucket. Her opinions are supported by several substantial studies. See Neubert PFT at ¶ 19; Neubert Ex. B, C and D. Mr. Young has no comparable experience. His observations in this area of Nantucket were limited compared to Dr. Neubert's. Third, Mr. Young's testimony about expected boat traffic was speculative and ignored the fact that this is already a busy harbor. While he faulted Dr. Neubert for failing to account for, and produce data related to, increased boat traffic in the harbor, neither did he produce any such data. Dr. Neubert credibly testified that over the course of the 12 years she studied the eelgrass in the Project area she had not seen any adverse effects from boat traffic.

The overwhelming preponderance of the evidence supports a finding that the Proposed Project has been designed and will be carried out and constructed using the best available measures to minimize adverse impacts to the eelgrass. Specifically: (1) the Proposed Project has been designed to avoid areas of eelgrass, being at least 20 feet from the nearest eelgrass bed; (2) it has been reduced in size to accommodate fewer and smaller boats; (3) the dredging area and volume have been reduced; (4) siltation curtains will be employed to control resuspension of sediment, thus preventing adverse impacts to water circulation; (5) the dock will include float stops to prevent it from resting on the sea floor; and (6) TOY restrictions are included in the

SOC. Keeping in mind the purpose of the Proposed Project to provide more and better access to the waters of Nantucket Harbor, I find that the dredging has been minimized as much as possible to enable the proposed use while minimizing adverse impacts to the eelgrass. In addition, the SOC includes a Special Condition requiring pre- and post-dredging eelgrass surveys. NILB indicated that should eelgrass habitat loss be determined after the second study year then “discussion of mitigation planning will be undertaken...” Neubert Ex. E at p. 2. In sum, I find that the Proposed Project complies with the requirements of 310 CMR 10.25(3) and (6).

C. The Proposed Project Has Been Designed and Will be Carried Out Using the Best Available Measures to Minimize Adverse Impacts to LUO.

As the testimony discussed above makes clear, a preponderance of the evidence supports a finding that the Proposed Project has been designed using best available measures to minimize impacts. Specifically, NILB reduced the dredge footprint to be the minimum amount necessary to accommodate dinghies and small transient boats, with both the area and depth of dredging reduced. Ramsey PFT at ¶¶ 5-6, 16. This is consistent with the Proposed Project’s purpose of providing additional needed access to the downtown Nantucket waterfront. The revetment on the east side of Petrel Landing was changed from a vertical granite wall to a sloped revetment to address Corey’s concerns about wave reflection. Ramsey PFT at ¶ 6. A preponderance of the evidence demonstrates that the dredging will not increase the height or velocity of waves impacting the shore. Additionally, the reduced dredging will avoid eelgrass habitat. Neubert PFT at ¶ 27. A system of siltation curtains will be used to control resuspension of sediment during dredging to protect eelgrass, and these are considered a best management practice for dredging. Neubert PFT at ¶ 25(h). The use of float stops on the floating dock will prevent the dock from resting on the seafloor and will, therefore, prevent siltation from occurring as the dock rises with

the tide. Neubert PFT at ¶ 26. In sum, based on the foregoing, I find that the Proposed Project complies with the Performance Standards for LUO.

III. THE PROPOSED PROJECT MEETS THE PERFORMANCE STANDARDS FOR COASTAL BEACH AT 310 CMR 10.27.

Corey alleged that the Proposed Project does not comply with the Performance Standards for Coastal Beach at 310 CMR 10.27(3) because increased wave energy caused by the dredging will reflect off the granite revetment and cause scouring of the adjacent beach, thereby changing its form and volume. Notice of Claim at p. 6, Section IV.A.11. He further asserted that the increased wave energy reflecting off the revetment will impact his adjacent property. Corey's Memorandum of Law at p. 19.

NILB disputed that the Proposed Project would adversely affect the Coastal Beach. NILB contended that (1) the slope of the proposed revetment will prevent an increase in wave reflection in a similar manner as the existing revetment; (2) detailed numerical wave modeling of storm conditions indicated only a negligible change in wave heights along the beach, demonstrating that the proposed dredging will not alter the form of the beach; and (3) the potential change in average wave conditions that is typically responsible for long-term sediment transport processes would be negligible. NILB Pre-hearing Statement at pp. 4-5; NILB Closing Brief at 26. MassDEP concurred with NILB's position and argued that Corey's witnesses offered no data related to the erosion rate or fate of any material eroding from the wharf, or its significance in supplying sediment to adjacent beaches. MassDEP Closing Brief at pp. 5-6.

Coastal Beaches are significant to storm damage prevention, flood control and the protection of wildlife habitat. 310 CMR 10.27(1). They "dissipate wave energy by their gentle slope, their permeability and their granular nature, which permit changes in beach form in

response to changes in wave conditions.” Id. Coastal Beach consists of “unconsolidated sediment subject to wave, tidal and coastal storm action which forms the gently sloping shore of a body of salt water and includes tidal flats.” 310 CMR 10.27(2). “Coastal beaches extend from the mean low water line landward to the dune line, coastal bankline or the seaward edge of existing human-made structures, when these structures replace one of the above lines, whichever is closest to the ocean.” Id. 310 CMR 10.27(3), applicable here, provides:

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

As discussed above, the parties disputed whether the Proposed Project complies with this Performance Standard.

Dr. MacDonald testified regarding his evaluation of potential wave and flooding effects that are likely to occur as a result of the Proposed Project. He noted that these effects are hard to predict because they depend on numerous factors, including tide cycle, depth of water, wind direction and local bathymetry. MacDonald PFT at ¶ 12. In the VE Zone, which includes Corey’s property, waves will be generated through the action of wind on the water surface in the harbor. Winds out of the northeast quadrant, most likely during severe storms, will result in a setup of mean surface water elevation at the southwest end of the harbor and will generate waves along a fetch length consistent with the approximately six mile length of the harbor. Id. at ¶¶ 14-15. In his opinion, these waves are likely to impinge on the shoreline at the southwest edge of the harbor and break, releasing their energy into random turbulent motion, which will mobilize sediment and result in erosion. Id. at ¶ 15. Dr. MacDonald opined about the impact this will have

on Corey's property, but he offered no testimony specific to Coastal Beach and compliance with the Performance Standards.

Mr. Ramsey testified that the Proposed Project as redesigned will prevent an increase in wave reflection, as the milder slope of the armor stone revetment on the eastern shoreline will reduce wave reflection Ramsey PFT at ¶ 17. In his opinion, the proposed reconstruction of the existing revetment along the face of Petrel landing will not cause scour or increase erosion of the adjacent beach. Id. Additionally, the numerical wave modeling, discussed above, indicated a negligible change of less than a maximum of two inches in wave heights along the beach, which demonstrated that the influence of the proposed dredging also will not alter the form of the existing Coastal Beach. Id. at ¶ 18; Ramsey PFT, Ex. JR-5 and JR-6. Mr. Ramsey further testified that "as the change in storm wave heights is negligible as a result of the proposed dredging, the potential change in average wave conditions that typically is responsible for long-term sediment transport processes would also be negligible." Id. at ¶ 18. He concluded, therefore, that the Proposed Project will not have an adverse effect by increasing erosion, decreasing the volume, or changing the form of the adjacent Coastal Beach. Id. Mr. Gasbarro testified that because no portion of the Coastal Bank that is not currently a CES and armored is proposed to be converted to a CES, the Proposed Project will not have an adverse impact on adjacent Coastal Beaches. Gasbarro PFT at ¶ 29.

On behalf of MassDEP, Mr. Gilmore testified that in his opinion, the Proposed Project will not have an adverse effect on the Coastal Beach or adjacent or downdrift Coastal Beach because the Proposed Project proposes to replace a vertical stone-faced granite wall along the eastern side of the wharf with a sloped stone revetment.

Findings. The weight of the evidence supports a finding that the Proposed Project complies with the Performance Standards for Coastal Beach at 310 CMR 10.27(3). Mr. Gilmore and Mr. Ramsey concurred that the Proposed Project meets the Performance Standards for Coastal Beach and stated so specifically. Mr. Ramsey also persuasively demonstrated through his detailed wave modeling that the waves that would be generated by the 10-year storm conditions (those are the most common) would not be sufficient to generate wave-induced currents that would alter the form of the beach. He also effectively rebutted Dr. MacDonald's criticism of his modeling³⁰ for not including 50-year and 100-year storms by explaining that the change in wave height from such storms would be negligible within the context of the Performance Standards as the increase in wave height would only be 1.2 inches. Dr. MacDonald did not actually offer an opinion regarding the Proposed Project's compliance with 310 CMR 10.27. As a result, I find that Corey failed to sustain his burden of proof on this issue.

CONCLUSION

The preponderance of the credible evidence discussed above supports a finding that the Proposed Project as approved and conditioned complies with each of the applicable Performance Standards. I recommend that MassDEP's Commissioner issue a Final Decision affirming the SOC as a Final Order of Conditions approving the Proposed Project.

Date: 7/12/2022



Jane A Rothchild
Presiding Officer

³⁰ See Testimony of Dr. MacDonald discussed above relating to LUO.

NOTICE- RECOMMENDED FINAL DECISION

This decision is a Recommended Final Decision of the Presiding Officer. It has been transmitted to the Commissioner for his Final Decision in this matter. This decision is therefore not a Final Decision subject to reconsideration under 310 CMR 1.01(14)(d), and may not be appealed to Superior Court pursuant to M.G.L. c. 30A. The Commissioner's Final Decision is subject to rights of reconsideration and court appeal and will contain a notice to that effect.

Because this matter has now been transmitted to the Commissioner, no party shall file a motion to renew or reargue this Recommended Final Decision or any part of it, and no party shall communicate with the Commissioner's office regarding this decision unless the Commissioner, in his sole discretion, directs otherwise.

SERVICE LIST

IN THE MATTER OF:

NANTUCKET ISLANDS LAND BANK

Docket No. WET-2019-005

Nantucket

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