Notice of Intent Application

Addendum

August 11, 2021

Project:

Installation of two 30 ft meteorological observation towers on opposite ends of Clarks Cove

Subject Properties:

706 S. Rodney French Blvd, New Bedford, MA, 02744

(map 3 parcel 5; existing SMAST pier)

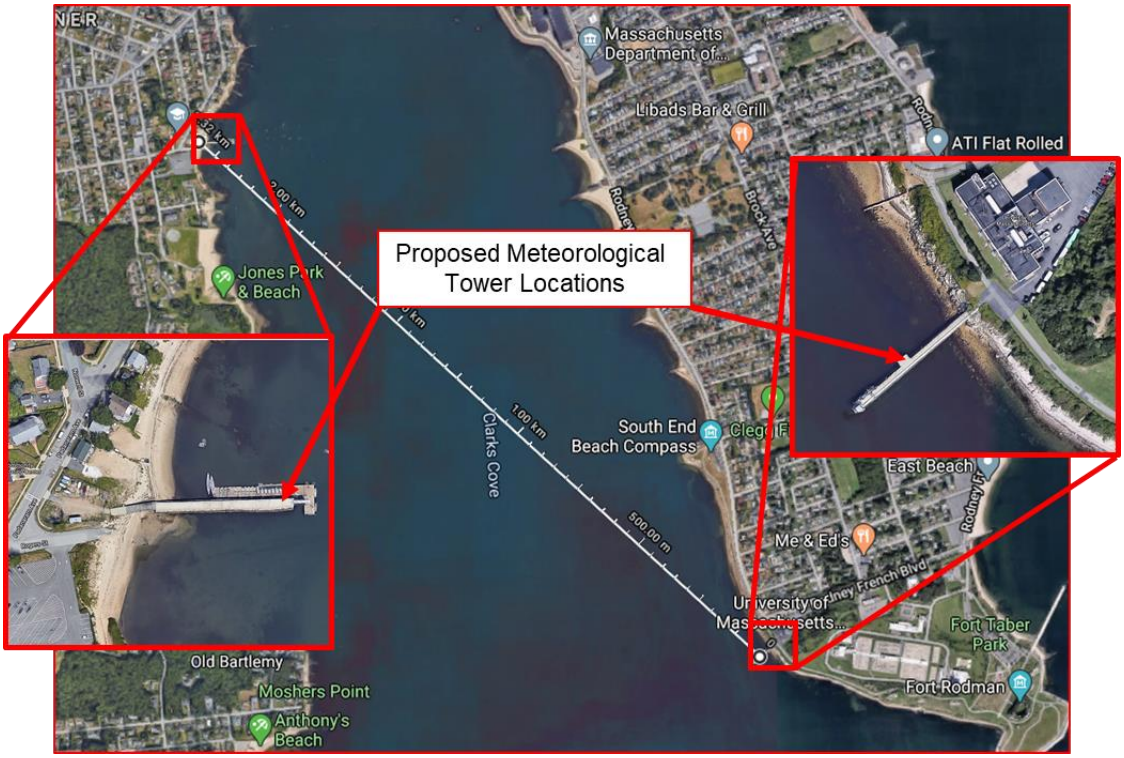
and

1641 and SS Padanaram Ave, New Bedford, MA 02740

(3 parcels sold as one property: map 17A, parcel 1; map 17A, parcel 104; map 17A, parcel 105; existing New Bedford Community Boating Center jetty)

Applicant:

Miles Sundermeyer, Ph.D., Professor
School for Marine Science and Technology, University of Massachusetts Dartmouth
SMAST West, 706 South Rodney French Blvd., New Bedford MA 02744-1221



The New Bedford Conservation Commission met on Tuesday, August 3, 2021 at 6:30 p.m. at the Brooklawn Senior Center, 1997 Acushnet Avenue, New Bedford, MA. Among the agenda items was a Notice of Intent filed by Miles Sundermeyer, Ph.D., for the properties identified as 706 S. Rodney French Blvd (map 3, parcel 5) and 1641 Padanaram Ave. (map 17A, parcels 1, 104, 105). The proposed project is to install two 30' tall meteorological research towers at the two locations for a short-term project.

As part of the discussion of the proposed project, the Conservation Commission requested that the following points (in bold) be addressed relative to the proposed project.

- **At the time of the Aug 3 hearing, the project did not yet have a DEP file number.**

  A DEP file number was subsequently issued on Aug 10, 2021: SE 049-0875 – see attached email from DEP.

- **Provide a construction plan that includes issues such as how to handle stone dust, work over water, no loose materials, etc.**

  The project's licensed P.E. subcontractor, Waterfront Structural Consulting, LLC, has added to the tower installation drawing notes requirements for a Construction Management Plan to include public safety and site security, operation hours, controls to limit noise and vibration, management of air, dust, stormwater and sediment, waste and materials re-use, and traffic management. Additional provisions have also been added for Environmental Management, including use of "Best Management Practices" to prevent any materials from entering the environment and retrieve all waste materials and provide erosion control if needed. Also included in the demolition / construction plan are specific provisions regarding the above points, including preventing any and all demolition materials from entering the water, and collection and removal of any cuttings, tailings, chips of concrete, or drill/coring water from the site. Revised notes are attached on the following pages, and will be incorporated into the final design drawings for installation of the towers at the two proposed locations.

- **Provide a plan for how to secure and/or remove towers during major storm, including how to secure towers once tilted down. Even if the bases of the towers remain anchored, still need 30' end anchored/fastened in some way at both sites. Of particular concern is how the SMAST tower will be secured, either to rail or lying flat on pier.**

  The project's licensed P.E. subcontractor, Waterfront Structural Consulting, LLC, has added to the tower installation drawing notes details regarding a "Heavy Weather Plan." For the SMAST location, this includes prescription of how to lower the tower to a horizontal position by removing a removable section of guard rail on the pier an securing the tower to rail brackets using 1,000 lb ratchet straps. For the Community Boating Center location, the notes including prescription of how to secure the tower using 1,000 lb ratchet straps to a stainless drop-in anchor point on the concrete deck that has been added to the construction design. Revised notes are attached on the following pages, and will be incorporated into the final design drawings for installation of the towers at the two proposed locations. Manufacturer drawings for the prescribed concrete anchor points and screw-eye are also included for reference. Additionally, the final hurricane preparation plan for tower decommissioning will be added to the existing UMassD/SMAST Severe Weather Plan in consultation with the SMAST Assistant Dean for Operations, and SMAST Facilities Manager. Finally, in addition to securing the towers themselves, the severe weather plan will include removing from the tower structures all electronics, batteries and sensors not specifically designed to withstand severe weather.

- **Provide a plan in case of tower failure, e.g., how would we retrieve the tower if it failed and ended up in the water?**

  We have included in this addendum a paragraph detailing procedures to be taken in the event of tower failure, including procedures for how any instrumentation, equipment, and/or tower components would be removed from the site and/or from the water if such a failure should occur. The towers are specifically designed to withstand severe wind and weather loads for the region, consistent with all city, state and federal requirements for wind and weather loading per the American National Standards Institute (ANSI) Telecommunications Industry Association (TIA) Standards for Antennas and the Supporting Structures for Antennas and Small Wind Turbines, ANSI-TIA-222-H, which also include standards for meteorological observation towers. This notwithstanding, the above severe weather plan, and a plan in case of failure are included for completeness as requested.

- **Provide a plan for how to deter birds from nesting on tower. Consult with governing bodies and write up deterrence measures.**

  We have discussed migratory bird deterrence measures with Mass Audubon Society and additionally contacted the Massachusetts Division of Fish and Wildlife (still awaiting replies to email and phone calls) to request guidance on deterrence and/or mitigation of protected migratory bird species attempting to nest on the proposed tower structures. Published guidance by these and other federal and state agencies suggests that there are no fixed industry standards or single "one size fits all" solutions for deterring migratory birds, as every tower and situation are different. However, based on best practices and generally accepted measures to avoid attracting protected migratory birds and to prevent nesting on the proposed meteorological towers, we have included as an additional attachment a proposed migratory bird deterrence plan as part of our proposed tower installation.

Email Conveying DEP File Number

Subject: MassDEP NOI File Number
From: SERO_NOI@MassMail.state.ma.us
Date: 8/10/21, 12:59 PM
To: gary.makuch@mass.gov, msundermeyer@umassd.edu
CC: sero_noi@state.ma.us, chancery.perks@newbedford-ma.gov, sandy.douglas@newbedford-ma.gov, sero_noi@state.ma.us

[EXTERNAL SENDER]

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 508-946-2700

Date: 08/10/2021 Municipality NEW BEDFORD

RE: **NOTIFICATION OF WETLANDS PROTECTION ACT FILE NUMBER**

The Department of Environmental Protection has received a Notice of Intent filed in accordance with the Wetlands Protection Act (M.G.L. c. 131, §40):

Applicant	SCHOOL FOR MARINE SCIENCE & TECHNOLOGY, UMASS DARTMOUTH	
Address	706 S. RODNEY FRENCH BLVD,NEW BEDFORD MA	**Owner Address**
Locus	706 S. RODNEY FRENCH BLVD , NEW BEDFORD MA	

This project has been assigned the following file # : **SE 049-0875**

ISSUANCE OF A FILE NUMBER INDICATES ONLY COMPLETENESS OF SUBMITTAL, NOT APPROVAL OF APPLICATION

Although a file # is being issued, please note the following:

Regards,
for MassDEP,

(508)-946-2807
Gary.Makuch@mass.gov

Revised Drawing Notes for Tower Installation
(To be included in final P.E.-stamped tower installation plans)
Craig D. Sams, P.E., Waterfront Structural Consulting, LLC

GENERAL

1. Design is in accordance with, and construction shall conform to, requirements of the Commonwealth of Massachusetts Building Code, latest edition.
2. This design is limited to the supporting mounting plates and support on existing structures, the tower design and design of the lowering / raising mechanism is by others.
3. The Contractor shall notify the Engineer when unanticipated or apparently dangerous conditions are uncovered during construction or demolition.
4. Contractor shall comply with the Order of Conditions issued by the City of New Bedford Conservation Commission provided with the contract documents.
5. Contractor shall comply with all City, State and Federal regulations as applicable.
6. The contractor shall have sole responsibility for providing all labor, materials, equipment and tools to complete the project. The owner does not provide security services and assumes no responsibility or liability for any materials, equipment or tools stored on their property.

SUBMITTAL PROCEDURE

1. The contractor shall submit shop drawings, product data, mix designs and other information as requested.
2. Each submittal shall have a transmittal sheet that lists the date of the submittal, submittal number, reference to section or drawing note where submittal is requested.
3. Provide submittals for review and approval a minimum of 14 days prior to fabrication or incorporation into the project. Do not fabricate or incorporate any item into the work until its submittal has been approved.
4. Provide submittals for related items as one submittal package.
5. The engineer shall review and approve or disapprove all submittals within 5 days of receipt.
6. The Contractor shall submit the following:
    a. Construction Management plan to include the following topics:
        i. Public safety and site security
        ii. Operating hours
        iii. Controls to limit noise and vibration
        iv. Proper management of air, dust, stormwater, and sediment
        v. Waste and materials re-use
        vi. Traffic management.
    b. Demolition/containment plan
    c. Steel plate certificate of compliance & shop drawing.
    d. Anchor rod certificate of compliance.
    e. Galvanizing certificate of compliance for plate and anchor rod.
    f. Chemical anchor system certificate of compliance and cut sheet.

g. Bearing pad certificate of compliance and cut sheet.

h. Non-shrink grout certificate of compliance and cut sheet.

i. Procedure for setting, plumbing and grouting tower baseplate.

j. Tower operation and maintenance manual.

CONSTRUCTION SEQUENCE

1. The construction shall be completed in two phases. Phase I shall be the installation at the Jetty. Phase II shall be the installation at the SMAST Pier. The Phase I installation shall be 100% complete and accepted by the owner prior to beginning Phase II.

ENVIRONMENTAL

1. Contractor shall use “Best Management Practices “(BMPS) to prevent any materials from entering the environment.
2. Contractor shall use BMPS to contain and retrieve all waste materials generated by the construction. All waste materials shall be collected and disposed of properly off site. Any materials entering the water shall be retrieved immediately and disposed of properly.
3. Contractor shall provide and use BMPs for erosion control if needed.

DEMOLITION

1. Contractor shall submit to the owner for approval a demolition and disposal plan prior to beginning demolition. Plan shall include demolition procedures, method of transportation, and name, location and licensure of disposal site.
2. Contractor shall follow all local state and federal regulations for transportation and disposal of demolished materials.
3. Contractor shall contain and prevent any and all materials generated from the construction process from entering the water. Any cuttings, tailings, chips of concrete, or drill/coring water shall be collected and removed from the site.

STEEL

1. Structural steel is designed in accordance with and work shall conform to the latest editions of "Specifications for Design, Fabrication and Erection of Structural Steel for Buildings" ASIC, "Code of Standard Practice for Steel Buildings and Bridges" ASIC, and "Structural Welding Code - Steel" AWS.
2. Contractor shall submit shop drawings for all fabricated items for approval by owner.
3. All steel components and fittings exposed to weather in their final state shall be hot dipped galvanized (2 oz/sq.ft.) unless noted otherwise. Galvanizing shall be in compliance with ASTM-123, A156, or A386, as applicable. Galvanizer shall furnish to Engineer a certificate of compliance with these specifications.
4. Field cutting or any other field modifications of structural steel shall not be made without approval from Engineer for each specific case.

CHEMICAL ANCHOR

1. Chemical anchor shall be DeWalt PE 1000 system to develop the full strength of the 7/8” anchor rod, or equal.

BEARING PAD

1. Bearing pad shall be plain neoprene AASHTO grade with Durometer Shore A - 60

TOWER INSTALLATION

1. Contractor shall use a concrete scanning instrument to locate and map the reinforcing strands in the concrete prestressed / precast concrete deck plank on the SMAST Pier prior to any drilling of holes for anchor bolts. The position of the base plate and anchor bolt holes shall be adjusted to miss all prestressed strands. Damaging or cutting of strands will not be allowed.
2. The tower and baseplate/raising frame shall be installed according to the tower manufacturers recommendations.
3. The tower base plate shall be installed in a level position such that the tower, when fully erected, is in a plumb position in all directions. The tower must be 100% plumb with no deviation in its final position. Leveling shall be accomplished by using non corrosive shims or leveling nuts. Non-shrink grout shall be in 100% contact with the bearing plate surface.

HEAVY WEATHER PLAN

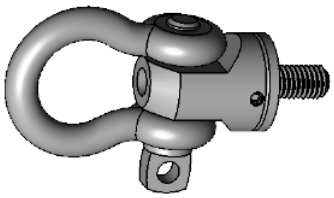
1. When winds are forecast to exceed 100 MPH within 48 hours, the following procedure shall be taken by SMAST to secure the towers.
    a. Lower the tower to horizontal position with winch.
    b. Support tower on timber blocking in a level position.
    c. At the Pier supported tower
        i. Remove guard rail obstructing laydown of tower.
        ii. Secure tower with 1000 lb. rachet straps to the pier structure using the guard rail brackets.
        iii. Store the removed guard rail indoors.
        iv. Provide rope across the removed section of guard rail
    d. At the Jetty supported tower
        i. Secure the tower with 1000 lb. capacity rachet straps to stainless steel drop-in anchor point on concrete deck.

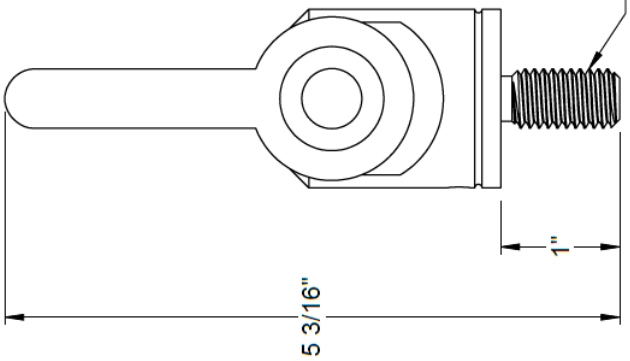
Drop-In Style Anchors

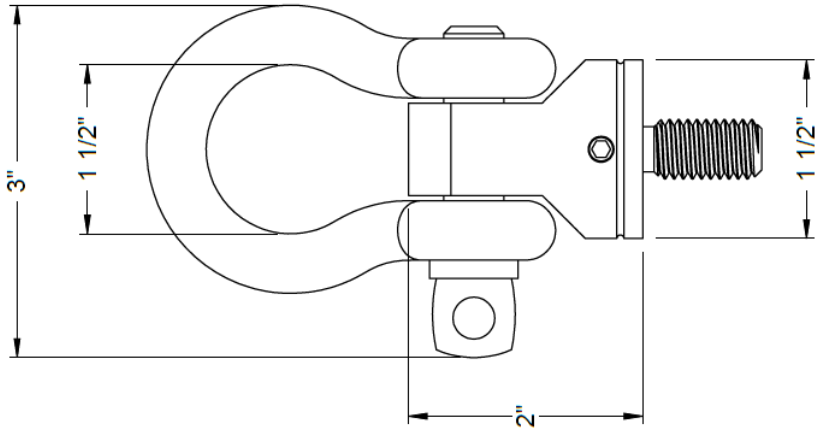
(Internal View)

DROP-IN ANCHORS					FF-S-325 Group VIII, Type 1
Anchor Size/ Bolt Size	Hole Diameter	T Thread Length	Minimum Embedment	Ultimate Tensile (lbs.) 4000 psi. Concrete	Ultimate Shear (lbs.) 4000 psi. Concrete
1/4	3/8	1/2	1	2067	1321
3/8	1/2	5/8	1 9/16	3995	3714
1/2	5/8	3/4 - 1 3/16	2	4110	5854
5/8	7/8	1 - 1 3/16	2 1/2	5750	8754
3/4	1	1 3/16 - 1 1/4	3 3/16	10,807	11,627

Description	A two-piece, internally threaded expansion anchor with four equally-spaced longitudinal slots extending from the bottom end of the outer shield, inside of which sits a pre-assembled dilating plug. The bottom lip of the anchor is tapered. It is permissible for a section of the shield to be knurled, to increase the gripping action of the anchor.	
Applications/ Advantages	Intended for flush mounted, medium to heavy-duty applications in solid materials such as stone and concrete. It can be used in, but are not limited to, overhead assemblies such as duct work and pipe hangers because the internal plug holds its position. Can also be used to anchor handrails and floor-mounted door stops.	
Material	*Steel*	*18-8 Stainless*
	Anchor body: AISI 12L14 cold rolled steel **Expander Plug:** AISI 12L14/1215 cold rolled steel, case-hardened and tempered	**Anchor body:** 303 Stainless steel **Expander Plug:** 303 Stainless steel
Anchor Spacing	Anchors should be installed a minimum of ten anchor diameters between each other and a minimum of five anchor diameters from the edge.	
Depth of Hole	Should be at least equal to the length of the anchor.	
Tensile and Shear Strengths	The suggested safe working load is one-fourth the average proof test loads shown in the above table.	







McMASTER-CARR® CAD	PART NUMBER	3026T11
http://www.mcmaster.com © 2021 McMaster-Carr Supply Company Information in this drawing is provided for reference only.		Shackle Hoist Ring for Lifting

Provisions in the Event of Tower Failure

The proposed meteorological observation towers are specifically designed to withstand severe wind and weather loads for the region, consistent with all city, state and federal requirements for wind and weather loading per the American National Standards Institute (ANSI) Telecommunications Industry Association (TIA) Standards for Antennas and the Supporting Structures for Antennas and Small Wind Turbines, ANSI-TIA-222-H, which also include standards for meteorological observation towers. Additionally, all scientific sensors and related electronics attached to the towers will be secured in a manner so as to withstand expected wind and weather loads on the towers.

In the unlikely event that either the meteorological towers themselves or any of the tower components should fail, any hardware and/or debris will be recovered immediately, or as soon as it is safe to do so. In the unlikely event that any materials or hardware land in the water, as appropriate, SMAST personnel will retrieve such materials in a manner that minimizes impact to surrounding coastal resources, including adjacent beach, dunes, and underwater habitat. For small items landing in the water, swimmers or divers will be deployed from shore to retrieve any materials from the water or sea floor. For large items not readily lifted by individual personnel (e.g., an entire tower or tower base), one or multiple small boats will be deployed with divers (as needed) to lift the towers out of the water onto the boats, or to lift the towers off the sea floor using lift bags, and tow the towers nearby boat launches – South End Beach public boat launch located located approximately 0.69 km north of the SMAST pier, or the North Dartmouth boat launch immediately adjacent to the south of the Community Boating Center jetty. Regarding boat and diver-assisted recovery, the SMAST Coastal Systems program maintains a fleet of ~6 small boats capable deploying necessary equipment and divers per the above plan. Additional, SMAST employs multiple state certified scientific divers with sufficient expertise to conduct any necessary recovery operations as prescribed above.

Provisions for Deterring Protected Migratory Birds

We have discussed deterrence measures with Mass Audubon Society and additionally contacted the Massachusetts Division of Fish and Wildlife to request guidance on deterrence and/or mitigation of protected migratory bird species attempting to nest on the proposed tower structures. There are no clear industry standards or single "one size fits all" solutions, as every tower and situation are different. However, based on best practices and generally accepted measures to avoid attracting protected migratory birds and to prevent nesting, we propose the following measures to minimize interactions of protected species with the proposed towers.

Approaches to minimizing nesting of migratory sea birds, particularly osprey, generally focus on preventing osprey from building nests on top of towers. The preferred deterrence measure is to eliminate where possible any flat surfaces where birds can lay sticks to build a nest. For the proposed towers, the top of the towers will present a triangular structure approximately 24" on each side of the triangle. One option to deter nest building would be to install a short section of semi-circular corrugated HDPE culvert pipe atop the tower structure to create a downward-facing concave surface on the top of the tower, such that any sticks placed on the structure in an effort to build a nest will immediately fall off. An example of such corrugated HDPE pipe installed on a utility pole is shown below (Figure 1). For the current tower design, a roughly 24" length of 18" diameter corrugated pipe (cut lengthwise) would be sufficient to cover the top of the tower and while presenting minimal additional windage to the tower (~1.5 sq ft).

Figure 1. Photo from Falmouth Enterprise (https://www.capenews.net/falmouth/news/wildlife-enthusiasts-eversource-continue-to-wrangle-over-osprey-nesting/article_011d576a-0f2b-5468-a00a-0e9fdd8042af.html) showing corrugated HDPE installed on utility pole to deter osprey nesting.

A second option to deter birds from landing and/or nesting on the tower is to install a "spider" on the top of the structure (Figure 2). As osprey and other raptors are typically rather large birds, they require significant clearance to land and take to flight. The "spider" deters them from landing by making it difficult for them to get a clear footing on the structure without interference from the "legs" of the spider. As with the above corrugated HDPE pipe solution, the bird "spider" does not harm birds, but serves as a deterrent to them landing on a structure.

Figure 2. Photo of 2 ft diameter "Bird-B-Gone" (https://www.birdbgone.com/bird-spider-360) showing base and stainless flexible blunt-ended wires to deter birds from landing.

A final option is a simpler version of the above measures, consisting of crossed concave downward PVC tubing, again to prevent birds from placing sticks on any flat surfaces of the structures, and presenting an obstruction to clear landing on the structure (Figure 3). The cross structure of the PVC makes it difficult for large birds to land on the structure since the PVC obstructs their clear access to the more solid structure. Meanwhile the compliant nature of the PVC makes it unsuitable to land on, since the weight of the birds causes is to deflect significantly, and hence not provide a solid perch.

Figure 3. Photo of "Off-Sprey Raptor Deterrent" (https://offsprey.com/osprey-deterrents-what-deters-and-what-doesnt/) showing compliant crossed PVC tubing mounted atop a utility pole to prevent osprey nesting.

Additional bird deterrents found in the literature include plastic bald eagle effigies (e.g., https://bdtllc.com/deterring-osprey-from-towers/), as well as rotating and/or sonic measures (e.g., https://whirlybirdrepeller.com/). Experience suggests that migratory birds can become accustomed to such devices, such that physical devices that directly prevent accumulation of nesting material are preferred. Regarding the above deterrence solutions, UMassD researchers will try each of the methods described in Figures 1 – 3, and identify which method creates the least interference (e.g., vibration, wind blockage) with the proposed meteorological measurements, and implement that method on both towers.

Finally, in addition to the above menu of prevention measures, UMass Dartmouth staff will conduct regular observations and inspections of the proposed meteorological towers to ensure that all hardware is secure and functioning properly, and also to assess any bird activity on or around the towers. Observations will include reviewing/monitoring security video camera footage at the SMAST pier location, and from a portable webcam footage from a camera to be installed at the Community Boating Center location, as well as observations of any sticks on or around the towers. If any persistent activity is observed, UMass Dartmouth personnel will immediately contact the Massachusetts Division of Fisheries and Wildlife for guidance on how to remove any beginnings of a nest, and how to modify or supplement the above-proposed bird deterrent measures to avoid further nesting attempts. In the event that a nest is established, UMass Dartmouth personnel will consult with Division of Fisheries and Wildlife for guidance on how to remove such nest materials, including following any federal and state regulations and/or permitting procedures regarding removal of nest material during off season when the nest is considered inactive (e.g., see US Fish and Wildlife Service Federal Communications Commission Fact Sheet on Raptor Nesting on Towers, 2016, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiN8_7V9anyAhXRKVkFHVTnAIUQFnoECAUQAQ&url=https%3A%2F%2Fwww.fcc.gov%2Ffile%2F3821%2Fdownload&usg=AOvVaw2GmC1OR3jC4uNM4T9eEWiY; and Migratory Bird Permit Memorandum, 2003, https://www.fws.gov/migratorybirds/pdf/policies-and-regulations/MBPM-2nest.PDF).

Regarding osprey nesting in particular, a common practice is to install alternate nesting platforms in the near vicinity of tower structures where nesting birds are not desired. The Community Boating Center (Site II) location already has an established osprey nest located ~90 m from the proposed location of the Site II meteorological tower. Such a nest in near proximity to our proposed Site II tower may help deter other birds from establishing a nest at our Site II tower location. If advised to do so by the Division of Fisheries and Wildlife, SMAST personnel will also consider constructing an alternate nest location near the SMAST Site I tower location, again per best practices for such nest locations and following all federal and state permitting and construction procedures. Finally, we note that all of the above-proposed measures are specifically designed to not harm or harass protected migratory bird species, merely to deter them from nesting on the proposed tower structures. Additionally, we note that the proposed tower design requires no guy wires that could pose harm to migratory birds, nor do any of the proposed sensors to be mounted on the towers pose a threat to birds (large or small) in terms of high voltages, sharp appendages, or moving parts such as rotors or turbines.

References:

American Tower Corporation (2013) Bird Watch: information you need to know for the nesting season. http://www.americantower.com/Marketing227/1820MK_BirdWatch/index.html (accessed 8/11/2021).

Bird Deterrent Technologies, "How to deter osprey from nesting on your towers", plastic eagle effigies, https://bdtllc.com/deterring-osprey-from-towers/ (accessed 8/11/2021)

New Jersey Department of Fish and Wildlife (2013). Guidelines that support the maintenance of raptor nests at communications towers in New Jersey. http://www.state.nj.us/dep/fgw/ensp/pdf/tower_maint_guidelines.pdf (accessed 8/11/2021).

Off-Sprey, (2021) "Osprey Deterrents: What Deters and What Doesn't", https://offsprey.com/osprey-deterrents-what-deters-and-what-doesnt/ (accessed 8/11/2021)

Poole, A. F., R. O. Bierregaard, and M. S. Martell. 2002. Osprey (Pandion haliaetus). In The Birds of North America, No. 683 (A. Poole and F. Gill, eds.). The Birds of North America Online, Ithaca, New York.

U.S. Fish and Wildlife Service (2003). "Migratory Bird Permit Memorandum" regarding nest destruction, Apr. 15, 2003., https://www.fws.gov/migratorybirds/pdf/policies-and-regulations/MBPM-2nest.PDF (accessed 8/11/2021)

U.S. Fish and Wildlife Service (2007), Bald Eagle Fact Sheet. https://www.fws.gov/midwest/eagle/history/index.html (accessed 8/11/2021).

U.S. Fish and Wildlife Service (2016). "Federal Communications Commission Fact Sheet: Raptor Nesting on Towers, May 12, 2026, https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiN8_7V9anyAhXRKVkFHVTnAIUQFnoECAUQAQ&url=https%3A%2F%2Fwww.fcc.gov%2Ffile%2F3821%2Fdownload&usg=AOvVaw2GmC1OR3jC4uNM4T9eEWiY, (accessed 8/11/2021).

U.S. Nuclear Regulatory Commission / Edison Electric Institute (2006), "Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006", https://www.nrc.gov/docs/ML1224/ML12243A391.pdf, (accessed 8/11/2021).

WhilryBird Repeller, https://whirlybirdrepeller.com/blogs/log-book/ospreys-cell-towers, (accessed 8/11/2021).