



Federal Aviation Administration
 Air Traffic Airspace Branch, ASW-520
 2601 Meacham Blvd.
 Fort Worth, TX 76137-0520

Aeronautical Study No.
 2005-ANE-991-OE

Issued Date: 03/07/2008

Kristen Patneau
 Massachusetts Water Resources Authority
 190 Tafts Avenue
 Winthrop, MA 02152

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine Deer Island Site P2
 Location: Winthrop, MA
 Latitude: 42-20-49.44N NAD 83
 Longitude: 70-57-26.12W
 Heights: 190 feet above ground level (AGL)
 210 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that the enclosed FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

See attachment for additional condition(s) or information.

Any height exceeding 190 feet above ground level (210 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 09/07/2009 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before April 06, 2008. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted in triplicate to the Manager, Airspace and Rules Division - Room 423, Federal Aviation Administration, 800 Independence Ave., Washington, D.C. 20591.

This determination becomes final on April 16, 2008 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Office of Airspace and Rules via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact Donna O'Neill, at (816)329-2525. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2005-ANE-991-OE.

Signature Control No: 439374-101840455

(DNH)

Kevin P. Haggerty

Manager, Obstruction Evaluation Service

Attachment(s)

Additional Information

Map(s)

7460-2 Attached

Additional information for ASN 2005-ANE-991-OE

The proposed construction consists of up to five wind turbines that would be located on Deer Island in Boston Harbor approximately 2.11 to 2.45 nautical miles (NM) from the Airport Reference Point of the General Edward L. Logan International Airport (BOS), Boston, MA. Each turbine was studied separately. Initial analysis at the originally filed height of 394 ft. AGL/414 ft. AMSL showed that there would/could be considerable adverse impacts to BOS; to current instrument procedures, Part 77 obstruction standards, and to the air traffic radar system.

Extensive discussions have been held with the proponent for the project and some additional analysis' performed. The proponent has agreed to use significantly shorter wind turbines with a correspondingly smaller blade diameter, than originally proposed. The 204 ft. reduction in turbine size and smaller blade diameter will reduce potential impacts in all areas of concern. They have also agreed to do a conditionally staged implementation. Only two of the five turbines will initially be constructed. After the first two wind turbines are constructed and operating, each of the remaining determinations would be completed approximately 30 days after the construction and operation of the previous wind turbine and contingent on confirmation of no unforeseen adverse impacts resulting from the actual construction and operation of the previous wind turbines.

In order to facilitate the public comment process all turbines were circularized under Aeronautical Study Number 2005-ANE-990-OE. All comments received from this circularization have been considered in completing the separate determinations for each of the five wind turbines. The Aeronautical Study Numbers and coordinates for the five wind turbines are as follows:

2005-ANE-990-OE 42-20-45.07N 70-57-23.22W 190' AGL/210' AMSL
2005-ANE-991-OE 42-20-49.44N 70-57-26.12W 190' AGL/210' AMSL
2005-ANE-992-OE 42-21-09.04N 70-57-39.12W 190' AGL/210' AMSL
2005-ANE-993-OE 42-21-04.89N 70-57-35.54W 190' AGL/210' AMSL
2005-ANE-994-OE 42-21-14.95N 70-57-28.21W 190' AGL/210' AMSL

The proposed structures, at the reduced height of 190 ft. AGL/210 ft. AMSL, are identified as an obstruction under the standards of 14 CFR, part 77, as applied to the General Edward L. Logan International Airport as follows:

Section 77.23(a)(3): A height that increases a minimum instrument flight altitude within a terminal area (TERPS criteria); would increase the Decision Altitude (DA) for the RNAV (GPS) RWY 27 and RNAV (GPS) RWY 33 approaches from 480 ft. AMSL to 500 ft. AMSL. No other instrument procedures would be affected.

Section 77.23(a)(5): The surface of a takeoff and landing area of an airport or any imaginary surface established under 77.25, 77.28, or 77.29; would exceed the horizontal surface by 40 ft.

The proposal was circularized on January 17, 2008, to all known aviation interests and to non-aeronautical interests that may be affected by the proposal. Two letters of comment were received as a result of the circularization. One of the letters objected to the proposal. It is summarized below.

Comment: Responder objected to the impact on the RNAV (GPS) Runway 33L and 27 approaches and to the cumulative infringement on airspace around BOS especially on the eastern side of the airport .

Response: The FAA does not agree that the impact to the RNAV (GPS) Runway 33L and RNAV (GPS) Runway 27 approaches would constitute a substantial adverse impact on the airport's operation for two

reasons. We agree that it is important that an airport with BOS's level of operations have a viable alternate approach in case the primary approach becomes temporarily unavailable. The change in the Minimum Descent Altitude (MDA) that would be required for both of the impacted approaches is twenty (20) feet. This would not normally cause a significant change in the usability of the approach, although continued cumulative erosion in any approach's MDA over time could become a cause of concern. At this point it is not considered to be significant especially in light of the following. Both of the subject runways have another alternate, non-precision approach (VOR/DME) with the same or lower MDA than the current RNAV approaches that would be available in the event the primary precision approach is unusable.

The FAA does share the responder's concern regarding the cumulative infringement on the airspace surrounding Logan International Airport and agrees that this airport already has a considerable level of airspace infringement. This is one of the principal reasons the FAA has worked so closely with the proponent over the past two years to significantly reduce the height of the proposed wind turbines. At the reduced height of 190 ft. AGL/210 ft. AMSL the proposed wind turbine would no longer exceed any Part 77 obstruction surface as applied to a visual approach runway. This will preserve the critical maneuvering area for aircraft conducting visual operations around the airport.

Aeronautical study disclosed that the proposed structure would have some effect on two existing instrument approach procedures [RNAV (GPS) Runway 33L and RNAV (GPS) Runway 27]. However, this impact is not considered to be significant as explained in an earlier paragraph. It would have no effect on any other existing or proposed arrival, departure, or en route instrument flight rule (IFR) operations or procedures.

Study for possible visual flight rules (VFR) effect disclosed that the proposed structure would have no effect on any existing or proposed arrival or departure VFR operations or procedures. It would not conflict with airspace required to conduct normal VFR traffic pattern operations at BOS or any other known public use or military airports. At 190 ft. AGL, the proposed structure would not have a substantial adverse effect on VFR en route flight operations.

The proposed structure would be appropriately obstruction marked and/or lighted to make it more conspicuous to airmen should circumnavigation be necessary.

The cumulative impact of the proposed structure, when combined with other proposed and existing structures, is not considered to be significant. Study did not disclose any adverse effect on existing or proposed public-use or military airports or navigational facilities, nor would the proposal affect the capacity of any known existing or planned public-use or military airport.

Therefore, it is determined that the proposed construction would not have a substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation providing the conditions specified below and on Page 1 of this determination are met.

Additional Conditions

- 1) Only the two proposed wind turbines studied under 2005-AEA-990-OE and 2005-AEA-991-OE may be built at this time.
- 2) The proponent shall advise this office and the Boston Air Traffic Control Tower (BOS ATCT) three (3) business days prior to initial start-up of the turbine and provide the estimated date and time the turbine will become operational.

Donna O'Neill, Obstruction Evaluation Specialist (OES) (816) 329-2525
Sue Dempsey, OES Alternate (781) 238-7522
Bob Sgroi, BOS ATCT (617) 455-3141

3) Each of the three remaining wind turbine determinations for this project will be completed, one at a time and each approximately 30 days after the construction and operation of the previous wind turbine, and contingent on confirmation that no unforeseen adverse impacts resulting from the actual construction and operation of the previous wind turbines have occurred.

Verified Map for ASN 2005-ANE-991-OE

