Moon Island Wind Project

Project Update

February 1, 2012

Weston&Sampson

Introduction and Background

- June 2004: UMASS toured several possible sites in city, funded by Mass. Renewable Energy Trust; preliminary assessment for about 9 sites
- “Boston Harbor Islands Renewables Planning Guide,” May 2005, UMASS
- **2006-2008 – Quarry Hills & DPW**
- Anemometers placed on West Quincy cell phone tower and tower above police station used in preliminary assessment
- Data collected for over a year and analyzed by both UMASS & KEMA
- City of Boston hired Weston & Sampson to update feasibility study and economic impact of the 2008 Green Communities Act
- Applied for design and construction grant May 2010, Commonwealth Wind Incentive Program: Community Scale Solicitation No. 2010-CWIPCS-02 - Block 3

Review Process Since April 2010

05/24/10 – Quincy Community Meeting (Squantum Elementary)
08/27/10 – Submitted for Quincy Special Permit – Wind Facilities
10/13/10 – MESA filing
03/10/11 – Quincy community meeting (Quincy City Hall)
04/06/11 – Quincy Planning Board Meeting (Project presentation)
05/11/11 – Advisory opinion from EOEA on MEPA thresholds
05/26/11 – Resubmitted Quincy special permit – Wind Facilities
07/21/11 – National Grid interconnection study commissioned
07/28/11 – Quincy follow-up comments on special permit
11/07/11 – FAA determination of no hazard letter issued
12/01/11 – Intensive archeological survey of site by PAL
12/13/11 – Beals + Thomas peer reviewer report issued
12/14/11 – Quincy Planning Board (Business meeting agenda)
12/14/11 – Mass Historic Commission – letter of no significant findings
01/09/12 – MESA / NHESP determined not within rare wildlife / priority habitat
01/11/12 – Quincy Planning Board (Beals + Thomas peer reviewer presentation)
02/08/12 – Quincy Planning Board (Public hearing)

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Project Benefits

- Nameplate Rating 1.65 MW
- Annual Energy Production 4,097 MWh
- Estimated Capacity Factor 31.5%
- Benefit to Cost Ratio 1.81 – 2.04
- Simple Payback (years) 6.8 – 7.9

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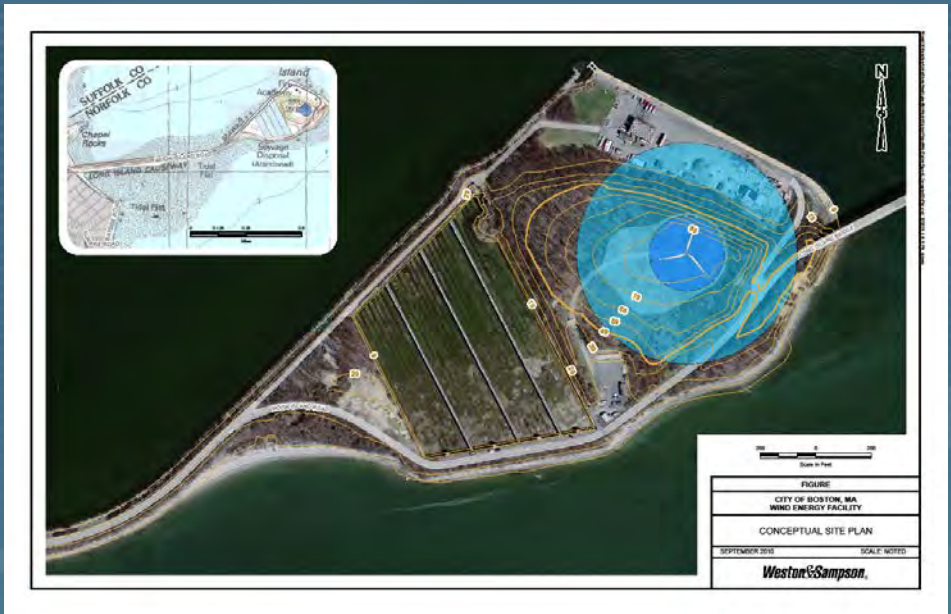
Location on Moon Island

- Hill behind Fire Department Training Academy on north side of island
- Furthest (and highest) point on Moon from Squantum neighborhood
- Nearest residence 4850 feet



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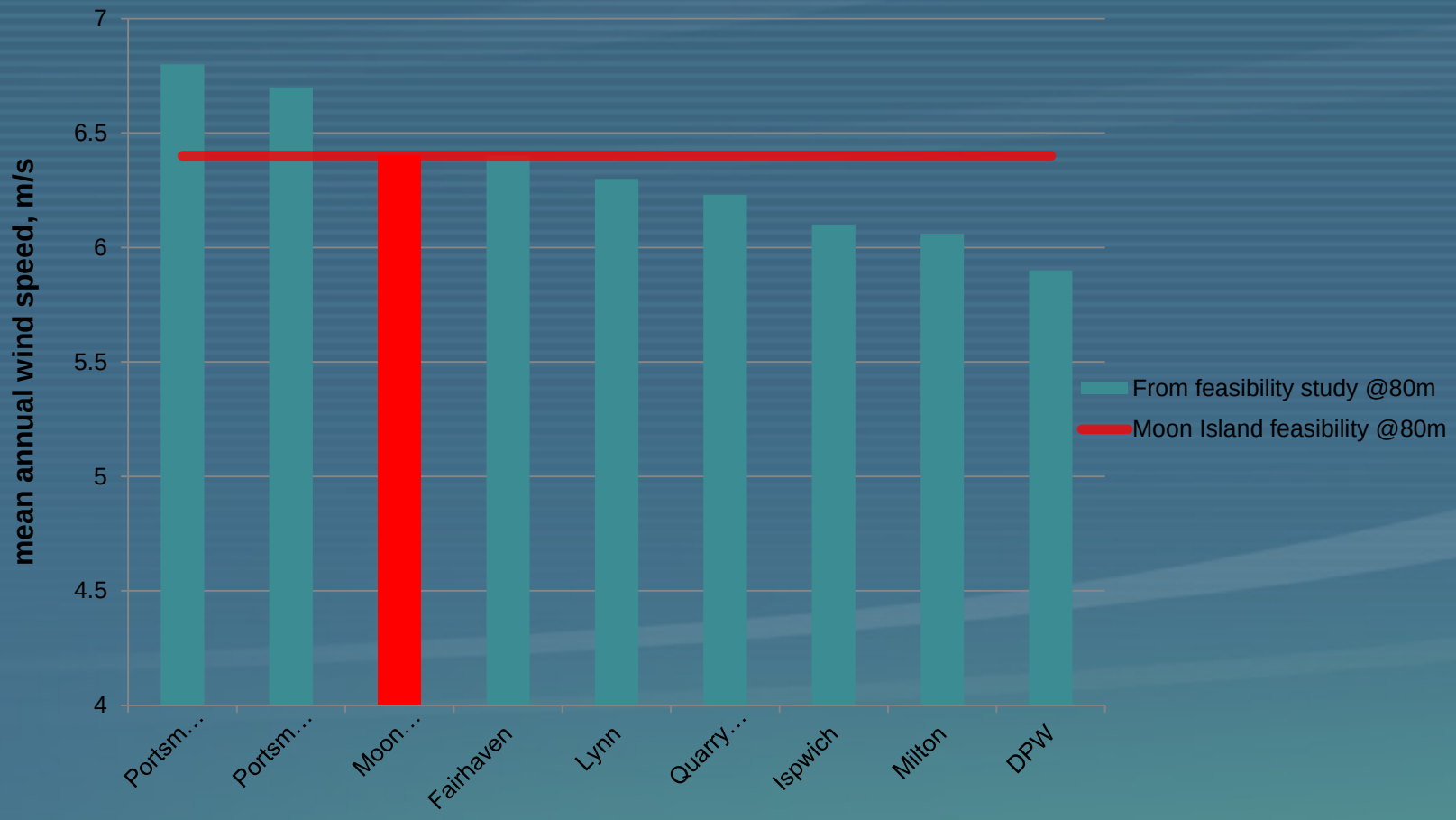
Comparative Wind Speeds



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Environmental Review

"Development of a single wind turbine is not expected to result in unacceptable negative impacts to wildlife or other sensitive receptors on Moon Island"

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Visual Impacts

Location Number	Location Description	Camera Distance to WTG (Feet)
1	Bellevue Road - in front of Star of the Sea Church	6,179
2	Bayside Road - Corner of Bayberry Road	5,467
3	Bayside Road - Corner of Brunswick Street	5,149
4	Sonoma Road - Near corner of Bellevue Road	6,876
5	Sycamore Road - Near the water line	5,693
6	Marina Bay - Boardwalk area	11,457
7	Quincy Shore Drive - Wollaston Beach	12,027
8	Shelton Road - Looking across Quincy Bay	15,054

- Simulated GE 1.6 XLE
- 80 meter height to hub
- Blades 82 meters in diameter
- Overall structure height 398 feet

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978-977-0100 (fax)
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Photo Simulation of Moon Island Wind Energy Project

About the Project:

Owner: City of Boston, MA.
Project Site: Moon Island, Boston Harbor, MA.
Turbine(s): GE Energy 1.6xle, 1.6 MW, one turbine
Rotor Diameter: 82.5m (271 ft.)
Hub Height: 80m (262 ft.)
Structure Height: 121.25m (398 ft.)
Location: 42°18.36'N, 70°59.35'W

About the Photo:

Viewpoint Number: 1
Viewpoint Description: Bellevue Road - Star of the Sea Church
Angle of View: 69°
Location: 42°17.93'N, 71°0.60'W
Distance to Nearest Turbine: 1.17 miles (6,179 ft.)

Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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About the Project:
Owner: **City of Boston, MA.**
Project Site: **Moon Island, Boston Harbor, MA.**
Turbine(s): **GE Energy 1.6xle, 1.6 MW, one turbine**
Rotor Diameter: **82.5m (271 ft.)**
Hub Height: **80m (262 ft.)**
Structure Height: **121.25m (398 ft.)**
Location: **42°18.36'N, 70°59.36'W**

About the Photo:
Viewpoint Number: **2**
Viewpoint Description: **Bayside Rd. - Corner of Bayberry Rd.**
Angle of View: **58°**
Location: **42°18.05'N, 71°0.49'W**
Distance to Nearest Turbine: **1.04 miles (5,467 ft.)**
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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Project Site: **Moon Island, Boston Harbor, MA.**
Turbine(s): **GE Energy 1.6xle, 1.6 MW, one turbine**
Rotor Diameter: **82.5m (271 ft.)**
Hub Height: **80m (262 ft.)**
Structure Height: **121.25m (398 ft.)**
Location: **42°18.36'N, 70°59.36'W**

About the Photo:
Viewpoint Number: **3**
Viewpoint Description: **Bayside Rd. - Corner of Brunswick St.**
Angle of View: **61°**
Location: **42°17.94'N, 71°0.35'W**
Distance to Nearest Turbine: **0.98 miles (5,149 ft.)**
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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Project Site: Moon Island, Boston Harbor, MA.
Turbine(s): GE Energy 1.6xle, 1.6 MW, one turbine
Rotor Diameter: 82.5m (271 ft.)
Hub Height: 80m (262 ft.)
Structure Height: 121.25m (398 ft.)
Location: 42°18.36'N, 70°59.36'W

About the Photo:
Viewpoint Number: 4
Viewpoint Description: Sonoma Rd. - Near corner of Bellevue Rd.
Angle of View: 67°
Location: 42°17.64'N, 71°0.53'W
Distance to Nearest Turbine: 1.30 miles (6,876 ft.)
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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Project Site: **Moon Island, Boston Harbor, MA.**
Turbine(s): **GE Energy 1.6xle, 1.6 MW, one turbine**
Rotor Diameter: **82.5m (271 ft.)**
Hub Height: **80m (262 ft.)**
Structure Height: **121.25m (398 ft.)**
Location: **42°18.36'N, 70°59.36'W**

About the Photo:
Viewpoint Number: **5**
Viewpoint Description: **Sycamore Rd. - Near the water line**
Angle of View: **43°**
Location: **42°17.77'N, 71°0.34'W**
Distance to Nearest Turbine: **1.08 miles (5,693 ft.)**
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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Project Site: **Moon Island, Boston Harbor, MA.**
Turbine(s): **GE Energy 1.6xle, 1.6 MW, one turbine**
Rotor Diameter: **82.5m (271 ft.)**
Hub Height: **80m (262 ft.)**
Structure Height: **121.25m (398 ft.)**
Location: **42°18.36'N, 70°59.36'W**

About the Photo:
Viewpoint Number: **6**
Viewpoint Description: **Marina Bay - Boardwalk area**
Angle of View: **83°**
Location: **42°17.96'N, 71°1.85'W**
Distance to Nearest Turbine: **2.17 miles (11,457 ft.)**
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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Project Site: **Moon Island, Boston Harbor, MA.**
Turbine(s): **GE Energy 1.6xle, 1.6 MW, one turbine**
Rotor Diameter: **82.5m (271 ft.)**
Hub Height: **80m (262 ft.)**
Structure Height: **121.25m (398 ft.)**
Location: **42°18.36'N, 70°59.36'W**

About the Photo:
Viewpoint Number: **7**
Viewpoint Description: **Quincy Shore Drive - Wollaston Beach**
Angle of View: **35°**
Location: **42°16.81'N, 71°1.01'W**
Distance to Nearest Turbine: **2.28 miles (12,027 ft.)**
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

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Turbine(s): **GE Energy 1.6xle, 1.6 MW, one turbine**
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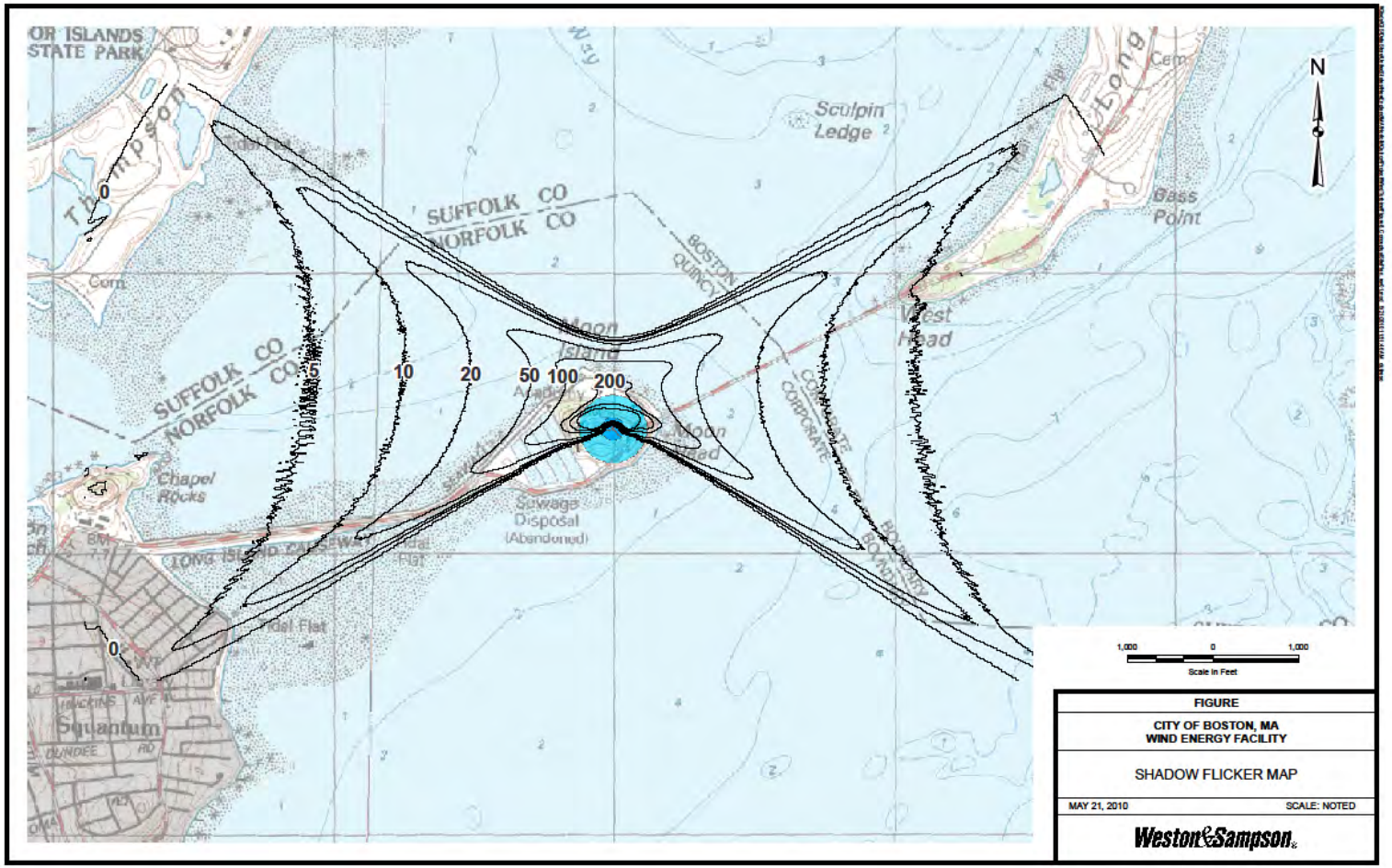
Hub Height: **80m (262 ft.)**
Structure Height: **121.25m (398 ft.)**
Location: **42°18.36'N, 70°59.36'W**

About the Photo:
Viewpoint Number: **8**
Viewpoint Description: **Shelton Rd. - Looking across Quincy Bay**
Angle of View: **345°**
Location: **42°15.91'N, 70°58.87'W**
Distance to Nearest Turbine: **2.85 miles (15,054 ft.)**
Apparent size and location of this turbine from this viewpoint is determined geometrically using EMD WindPro Software

Shadow Flicker



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Sound Assessment

- MA DEP noise regulation (310 CMR 7.10) and City of Quincy Noise Ordinance
- Site Specific Background Sound Study Conducted by Parsons Brinkerhoff, September 2010
- The results of the assessment predict full compliance with both MA DEP and the City of Quincy noise criteria.
- 33 dBA at Nearest Buildings and Residences

Sound Assessment

Moon Island Wind Turbine Noise Assessment

Prepared for:
Boston Environmental Department

Prepared by:
Parsons Brinckerhoff, Inc.

23 September 2010

PB 125 YEARS

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Sound Assessment

Figure 1

Ambient Noise Monitoring Sites
Moon Island Wind Turbine Project

PB 125 YEARS

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Sound Assessment

Noise Monitoring Receptor Site R-1

Photo 1

As shown in Photo 1, the long-term noise monitoring receptor at site R-1 was a residence located at 95 Bayside Road in Squantum. This receptor is about 1 mile from the proposed wind turbine site and represents other residences along Squantum's eastern shore line.

As can be seen in Figure 2, hourly ambient noise levels ranged from 41 – 48 dBA L90 and the average Ldn was 55 dBA. The quietest hour was from 2 – 3 AM while the loudest hour was from 4 – 5 PM. Audible noise sources included wind in trees; waves; birds; passing boats; distant horns; distant gunfire from the Moon Island shooting range; neighbors; local traffic; trucks on the causeway to Moon Island; jet and helicopter overpasses; insects, and crickets at night.

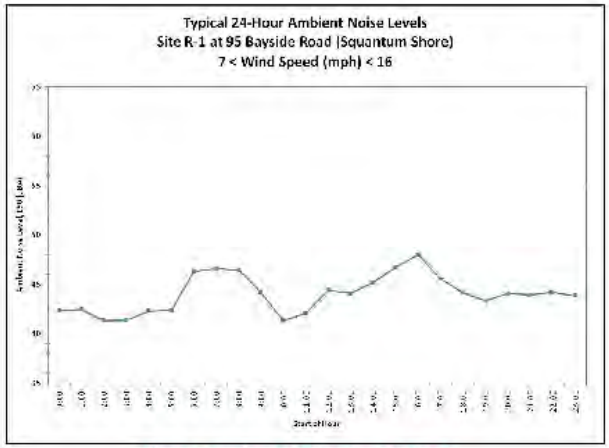

Figure 2: Ambient L90 Noise Levels at Site R-1

Figure 8: Evaluation of Predicted Noise Levels Relative to Criteria

Receptor R-1: Residence at 95 Bayside Road, Squantum							
MA DEP Policy Relative Increase above Existing Ambient	Predicted Wind Turbine Noise Leq (dBA)		Quietest Existing Ambient L90 Level (dBA)	Total Turbine + Existing Ambient (dBA)	Increase above Existing Ambient (dBA)	Noise Criteria	Compliance or Exceedance
	33		41	42	1	Project noise shall not increase existing ambient by more than 10 dBA	Complies
MA DEP Policy Tonal Noise	Octave Band Center (Hz)	Predicted Wind Turbine Noise Leq (dB)	Quietest Existing Ambient L90 Level (dB)	Total Turbine + Existing Ambient (dB)	Difference from Adjacent Octave Bands (dB)	Noise Criteria	Compliance or Exceedance
					Lower / Higher		
	32	55	48	56	N/A / 7	An octave band level shall not be 3 dB or more greater than both its adjacent octave band levels	Complies
	63	42	48	49	-7 / 4		Complies
	125	38	44	45	-4 / 5		Complies
	250	36	37	40	-5 / 6		Complies
	500	32	30	34	-6 / 8		Complies
	1000	25	22	26	-8 / -2		Complies
	2000	14	28	28	2 / 4		Complies
	4000	-11	24	24	-4 / 9		Complies
	8000	-85	15	15	-9 / 1		Complies
	16000	-85	14	14	-1 / N/A		Complies
City of Quincy Noise Ordinance	Predicted Wind Turbine Noise Leq (dBA)			Noise Criteria		Compliance or Exceedance	
	33			Project Noise < 65 dBA		Complies	

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Sound Assessment

Noise Monitoring Receptor Site R-2

Photo 2

As shown in Photo 2, the long-term noise monitoring receptor at site R-2 was the Squantum Elementary School located at 50 Huckins Street in Squantum. This receptor is 1.2 miles from the proposed wind turbine site and is representative of residences in the central Squantum area.

As can be seen in Figure 3, hourly ambient noise levels ranged from 43 – 48 dBA L90 and the average Ldn was 60 dBA. The quietest hour was from 3 – 4 AM while the loudest hour was from 3 – 4 PM. Audible noise sources included local traffic on Huckins Avenue; wind in trees; birds; pedestrians; jet and prop plane overpasses; distant lawn machinery; window AC units; distant traffic; distant MBTA Red Line trains; insects, and crickets at night.

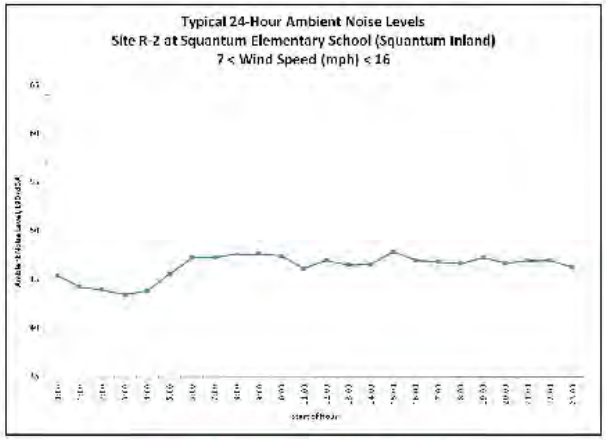

Figure 3: Ambient L90 Noise Levels at Site R-2

Figure 8 (cont.): Evaluation of Predicted Noise Levels Relative to Criteria

Receptor R-2: Squantum Elementary School at 50 Huckins Street, Squantum								
MA DEP Policy Relative Increase above Existing Ambient	Predicted Wind Turbine Noise Leq (dBA)		Quietest Existing Ambient L90 Level (dBA)	Total Turbine + Existing Ambient (dBA)	Increase above Existing Ambient (dBA)		Noise Criteria	Compliance or Exceedance
	24		43	43	0		Project noise shall not increase existing ambient by more than 10 dBA	Complies
MA DEP Policy Tonal Noise	Octave Band Center (Hz)	Predicted Wind Turbine Noise Leq (dB)	Quietest Existing Ambient L90 Level (dB)	Total Turbine + Existing Ambient (dB)	Difference from Adjacent Octave Bands (dB)		Noise Criteria	Compliance or Exceedance
					Lower	Higher		
	32	48	49	52	N/A	1	An octave band level shall not be 3 dB or more greater than both its adjacent octave band levels	Complies
	63	35	51	51	-1	3		Complies
	125	31	48	48	-3	5		Complies
	250	29	43	43	-5	3		Complies
	500	23	40	40	-3	3		Complies
	1000	15	37	37	-3	3		Complies
	2000	3	34	34	-3	5		Complies
	4000	-30	29	29	-5	6		Complies
	8000	-85	23	23	-6	7		Complies
	16000	-85	16	16	-7	N/A		Complies
City of Quincy Noise Ordinance	Predicted Wind Turbine Noise Leq (dBA)			Noise Criteria			Compliance or Exceedance	
	24			Project Noise < 65 dBA			Complies	

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Sound Assessment

Noise Monitoring Receptor Site R-3

Photo 3

As shown in Photo 3, the long-term noise monitoring receptor at site R-3 was the Atlantic Middle School located at 86 Hollis Avenue in Quincy. This receptor is 2.7 miles from the proposed wind turbine site and is representative of residences located inland in Quincy.

As can be seen in Figure 4, hourly ambient noise levels ranged from 41 – 50 dBA L90 and the average Ldn was 57 dBA. The quietest hour was from 12 – 1 PM while the loudest hour was from 12 – 1 AM. Audible noise sources included local traffic on Hollis Street; distant construction; wind in trees; birds; soccer players; kids playing; window AC units; distant MBTA Red Line trains; distant whistle; jet, helicopter, and prop plane overpasses. There was also significant noise from insects and crickets during the nighttime hours.

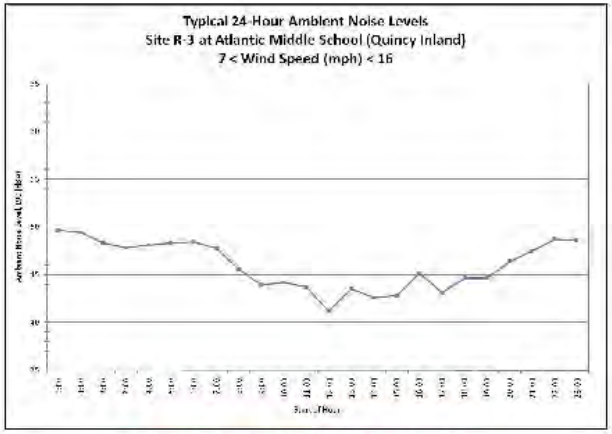

Figure 4: Ambient L90 Noise Levels at Site R-3

Figure 8 (cont.): Evaluation of Predicted Noise Levels Relative to Criteria

Receptor R-3: Atlantic Middle School at 86 Hollis Avenue, Quincy								
MA DEP Policy Relative Increase above Existing Ambient	Predicted Wind Turbine Noise Leq (dBA)		Quietest Existing Ambient L90 Level (dBA)	Total Turbine + Existing Ambient (dBA)	Increase above Existing Ambient (dBA)		Noise Criteria	Compliance or Exceedance
	20		41	41	0		Project noise shall not increase existing ambient by more than 10 dBA	Complies
MA DEP Policy Tonal Noise	Octave Band Center (Hz)	Predicted Wind Turbine Noise Leq (dB)	Quietest Existing Ambient L90 Level (dB)	Total Turbine + Existing Ambient (dB)	Difference from Adjacent Octave Bands (dB)		Noise Criteria	Compliance or Exceedance
					Lower	Higher		
	32	48	46	50	N/A	1	An octave band level shall not be 3 dB or more greater than both its adjacent octave band levels	Complies
	63	34	49	49	-1	3		Complies
	125	29	46	46	-3	6		Complies
	250	25	40	40	-6	3		Complies
	500	15	37	37	-3	0		Complies
	1000	3	37	37	0	5		Complies
	2000	-19	32	32	-5	6		Complies
	4000	-85	26	26	-6	7		Complies
	8000	-85	19	19	-7	4		Complies
	16000	-85	15	15	-4	N/A		Complies
City of Quincy Noise Ordinance	Predicted Wind Turbine Noise Leq (dBA)			Noise Criteria			Compliance or Exceedance	
	20			Project Noise < 65 dBA			Complies	

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Sound Assessment

Noise Monitoring Receptor Site R-4

Photo 4

As shown in Photo 4, the long-term noise monitoring receptor at site R-4 was a residence located at 571 Quincy Shore Drive in Quincy. This receptor is 2.3 miles from the proposed wind turbine site and is representative of first row residences along Quincy Shore Drive with a direct view of Moon Island.

As can be seen in Figure 5, hourly ambient noise levels ranged from 43 – 62 dBA L90 and the average Ldn was 72 dBA. The quietest hour was from 3 – 4 AM while the loudest hour was from 3 – 4 PM. Audible noise sources included traffic on Quincy Shore Drive; wind in trees; local contractor activity; distant music; distant AC units; car horns; jet overpasses; pedestrians; and insects.

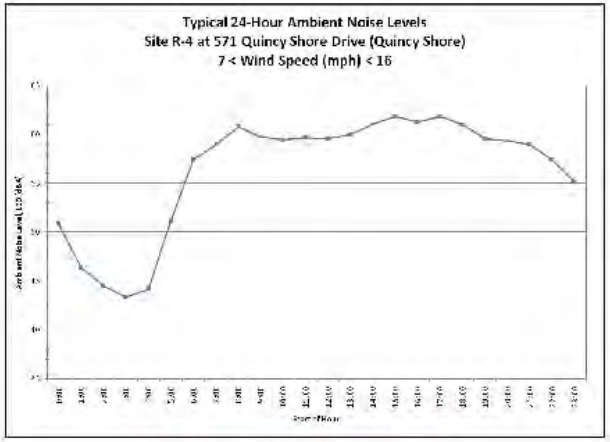

Figure 5: Ambient L90 Noise Levels at Site R-4

Figure 8 (cont.): Evaluation of Predicted Noise Levels Relative to Criteria

Receptor R-4: Residence at 571 Quincy Shore Drive, Quincy								
MA DEP Policy Relative Increase above Existing Ambient	Predicted Wind Turbine Noise Leq (dBA)		Quietest Existing Ambient L90 Level (dBA)	Total Turbine + Existing Ambient (dBA)	Increase above Existing Ambient (dBA)		Noise Criteria	Compliance or Exceedance
	22		43	43	0		Project noise shall not increase existing ambient by more than 10 dBA	Complies
MA DEP Policy Tonal Noise	Octave Band Center (Hz)	Predicted Wind Turbine Noise Leq (dB)	Quietest Existing Ambient L90 Level (dB)	Total Turbine + Existing Ambient (dB)	Difference from Adjacent Octave Bands (dB)		Noise Criteria	Compliance or Exceedance
					Lower	Higher		
	32	49	51	53	N/A	-1	An octave band level shall not be 3 dB or more greater than both its adjacent octave band levels	Complies
	63	35	54	54	1	6		Complies
	125	31	48	48	-6	7		Complies
	250	27	41	41	-7	2		Complies
	500	19	39	39	-2	3		Complies
	1000	8	36	36	-3	5		Complies
	2000	-11	31	31	-5	5		Complies
	4000	-67	26	26	-5	7		Complies
	8000	-85	19	19	-7	5		Complies
	16000	-85	14	14	-5	N/A		Complies
City of Quincy Noise Ordinance	Predicted Wind Turbine Noise Leq (dBA)			Noise Criteria			Compliance or Exceedance	
	22			Project Noise < 65 dBA			Complies	

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Sound Assessment

Noise Monitoring Receptor Site R-5

Photo 5

As shown in Photo 5, the long-term noise monitoring receptor at site R-5 was a residence located at 9 Brigantine Lane in the Marina Bay neighborhood. This receptor is 1.9 miles from the proposed wind turbine site and is representative of other residences in Marina Bay.

As can be seen in Figure 6, hourly ambient noise levels ranged from 44 – 56 dBA L90 and the average Ldn was 61 dBA. The quietest hour was from 10 – 11 AM while the loudest hour was from 8 – 9 PM. Audible noise sources included distant traffic; distant yard maintenance; central AC units; local contractor activity; jet and prop plane overpasses; distant sirens; and distant MBTA Red Line trains. There was also significant noise from insects and crickets during the nighttime hours.

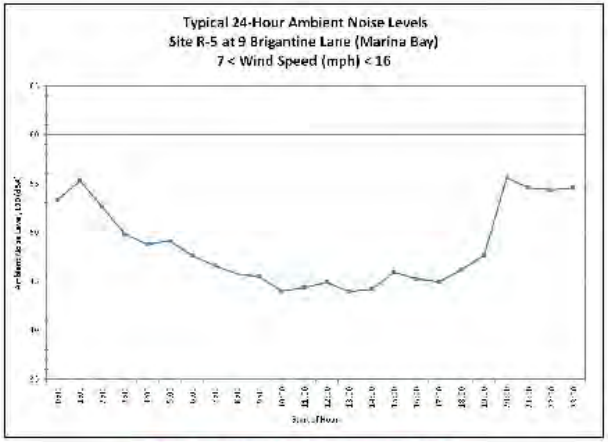

Figure 6: Ambient L90 Noise Levels at Site R-5

Figure 8 (cont.): Evaluation of Predicted Noise Levels Relative to Criteria

Receptor R-5: Residence at 9 Brigantine Lane, Marina Bay								
MA DEP Policy Relative Increase above Existing Ambient	Predicted Wind Turbine Noise Leq (dBA)		Quietest Existing Ambient L90 Level (dBA)	Total Turbine + Existing Ambient (dBA)	Increase above Existing Ambient (dBA)		Noise Criteria	Compliance or Exceedance
	24		44	44	0		Project noise shall not increase existing ambient by more than 10 dBA	Complies
MA DEP Policy Tonal Noise	Octave Band Center (Hz)	Predicted Wind Turbine Noise Leq (dB)	Quietest Existing Ambient L90 Level (dB)	Total Turbine + Existing Ambient (dB)	Difference from Adjacent Octave Bands (dB)		Noise Criteria	Compliance or Exceedance
					Lower	Higher		
	32	50	51	53	N/A	-1	An octave band level shall not be 3 dB or more greater than both its adjacent octave band levels	Complies
	63	36	54	54	1	6		Complies
	125	32	48	48	-6	7		Complies
	250	29	41	41	-7	3		Complies
	500	22	38	38	-3	0		Complies
	1000	12	38	38	0	4		Complies
	2000	-5	34	34	-4	4		Complies
	4000	-51	30	30	-4	4		Complies
	8000	-85	26	26	-4	11		Complies
	16000	-85	15	15	-11	N/A		Complies
City of Quincy Noise Ordinance	Predicted Wind Turbine Noise Leq (dBA)			Noise Criteria			Compliance or Exceedance	
	24			Project Noise < 65 dBA			Complies	

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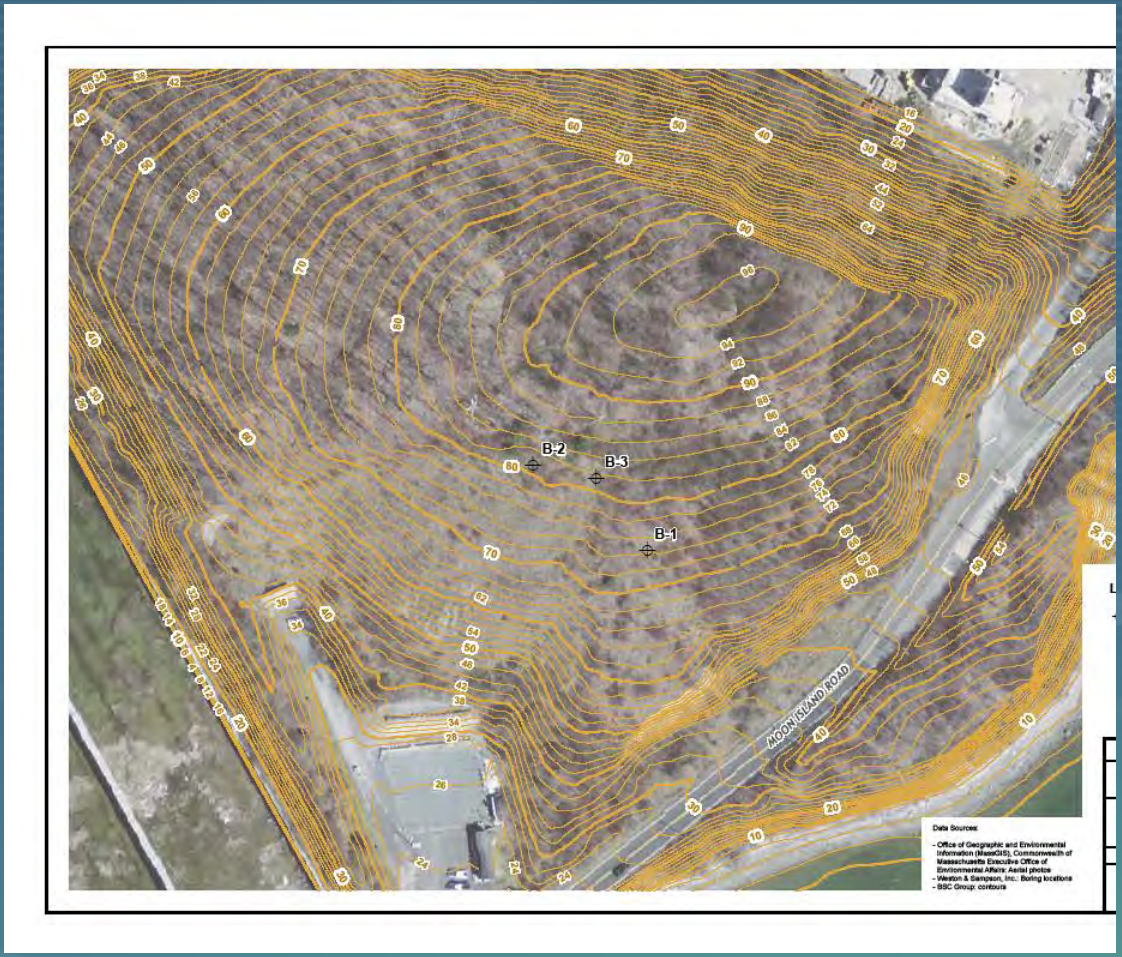
Sound Assessment

Table 3: Quietest Existing Ambient Noise Levels

Site	L90 Ambient Noise Level (dB)									
	Broadband (dBA)	Octave Band Center Frequency (Hz)								
		32	63	125	250	500	1000	2000	4000	8000	16000
R-1	41 at 2 AM	48	48	44	37	30	22	28	24	15	14
R-2	43 at 3 AM	49	51	48	43	40	37	34	29	23	16
R-3	41 at 12 PM	46	49	46	40	37	37	32	26	19	15
R-4	43 at 3 AM	51	54	48	41	39	36	31	26	19	14
R-5	44 at 10 AM	51	54	48	41	38	38	34	30	26	15

Geotechnical Investigation



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Geotechnical Investigation

Weston & Sampson
ENGINEERS, INC.

PROJECT		REPORT OF BORING No.	B-1
Moon Island Wind Energy Project		SHEET	1 OF 1
		Project No.	2100250.C
		CHKD BY	Christopher Palmer, PE

BORING Co. Geo-Logic Earth Exploration, Inc.
FOREMAN Charlie O'Donnell
WSE GEOLOGIST: Matthew Spadi

BORING LOCATION See attached plan
GROUND SURFACE ELEV. EL. 74.4± DATUM NAVD88
DATE START 9/3/2010 DATE END 9/3/2010

SAMPLER: SAMPLER CONSISTS OF 24" by 1 3/8" I.D. SPLIT SPOON DRIVEN USING A 140 lb. HAMMER FALLING 30 in. (SAFETY HAMMER)
CASING: 4-INCH CASING DRIVEN USING A 300 LB. SAFETY HAMMER FALLING 24 IN. DRIVE-AND-WASH DRILLING METHODS
CASING SIZE: 4-inch steel casing OTHER:

GROUNDWATER READINGS

DATE	TIME	WATER AT	CASING AT	STABILIZATION TIME
-	-	Not Observed	-	-

DEPTH (feet)	CASING (lb/ft)	SAMPLE No.	SAMPLE PEN/REC (in)	SAMPLE DEPTH (ft)	SAMPLE BLOWS/6"	PID (ppm)	SAMPLE DESCRIPTION Burmister Classification	NOTES	STRATUM DESCRIPTION
		S-1	24/10	0-2	5-5-6-6	N/A	Medium dense, brown, silty coarse to fine SAND with trace gravel and organics.	1	4 in. +/- TOPSOIL
5	43 70 92	S-2	24/16	4-6	37-30-32-21	N/A	Hard, brown, SILT with little fine gravel and occasional weathered rock fragments.	2	
10		S-3	24/24	9-11	24-85-75-37	N/A	Hard, brown, SILT with some fine gravel and trace coarse to fine sand.		
15		S-4	24/24	14-16	34-40-43-25	N/A	Hard, brown, SILT with trace fine gravel and coarse to fine sand.		- GLACIAL TILL -
20		S-5	24/24	19-21	29-39-62-65	N/A	Hard, gray-brown, SILT with trace fine gravel and coarse to fine sand.		
25		S-6	24/24	24-26	18-29-40-35	N/A	Hard, gray-brown, SILT with trace fine gravel and coarse to fine sand.		
30		S-7	24/24	29-31	29-34-45-40	N/A	Hard, gray-brown, SILT with trace fine gravel and coarse to fine sand.		
		S-8	18/18	34-35.5	30-34-100	N/A	Hard, gray-brown, SILT with trace fine gravel and coarse to fine sand.	3 4	35.5 ft - End of boring

GRANULAR SOILS	
BLOWS/FT	DENSITY
0-4	V. LOOSE
4-10	LOOSE
10-30	M. DENSE
30-50	DENSE
> 50	V. DENSE

COHESIVE SOILS	
BLOWS/FT	DENSITY
0-2	V. SOFT
2-4	SOFT
4-8	M. STIFF
8-15	STIFF
15-30	V. STIFF
> 30	HARD

NOTES:
1. Casing pushed from 0 to 2 ft.
2. Open-hole drilling methods used below 5.0 feet.
3. Sampling refusal at 35.5 ft. Possible cobble.
4. Boring backfilled with cuttings.

NOTES:
1) THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES. TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE IN THE DRILL HOLES AT TIMES AND UNDER CONDITIONS STATED ON THIS BORING LOG. FLUCTUATIONS IN THE LEVEL OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS ARE MADE.

BORING No. B-1

O:\Boston MA\Moon Island Wind Study\Geotechnical\Borings\[Soil Boring Logs B-1 through B-3.XLS]B-3

Weston&Sampson

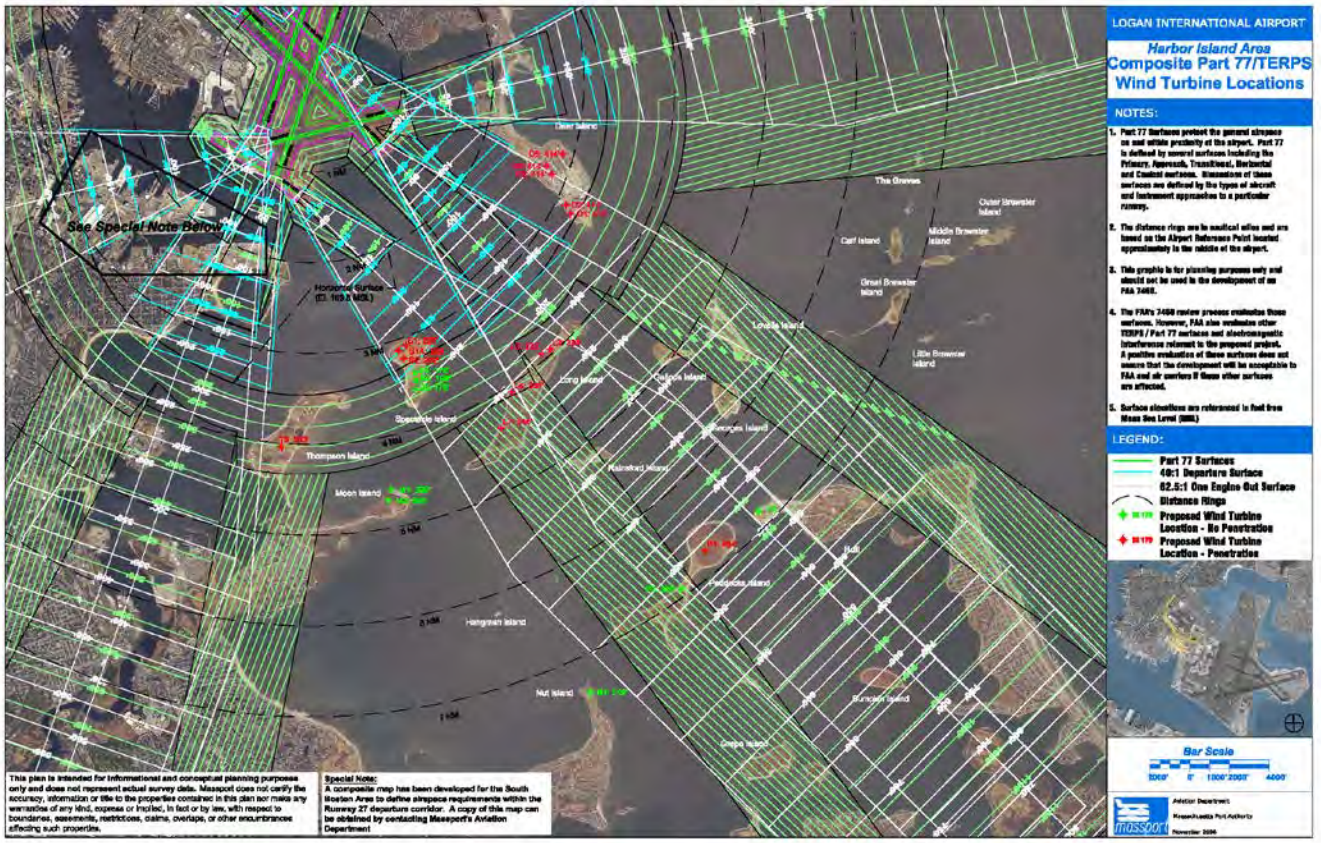
Traffic Impacts

- The option of delivering equipment by barge will be investigated
- Traffic impacts are expected to be minimal

Permitting Plan

- Local Agencies
  - City of Quincy Conservation Commission
  - City of Quincy Planning and Zoning Permit
  - City of Quincy Building Permit
- State Agencies
  - Massachusetts Environmental Policy Act (MEPA)
  - Massachusetts Highway Department (MHD)
  - Massachusetts Historical Commission (MHC)
  - Natural Heritage and Endangered Species Program (NHESP)
  - Department of Environmental Protection (DEP)
- Federal Agencies
  - NPDES Permit from Environmental Protection Agency (EPA)
  - Federal Aviation Administration (FAA)

Federal Aviation Administration



- Complex flight procedures into and out of BOS Logan
- Determination of No Hazard received in October, 2009
- Determination extension received November , 2011

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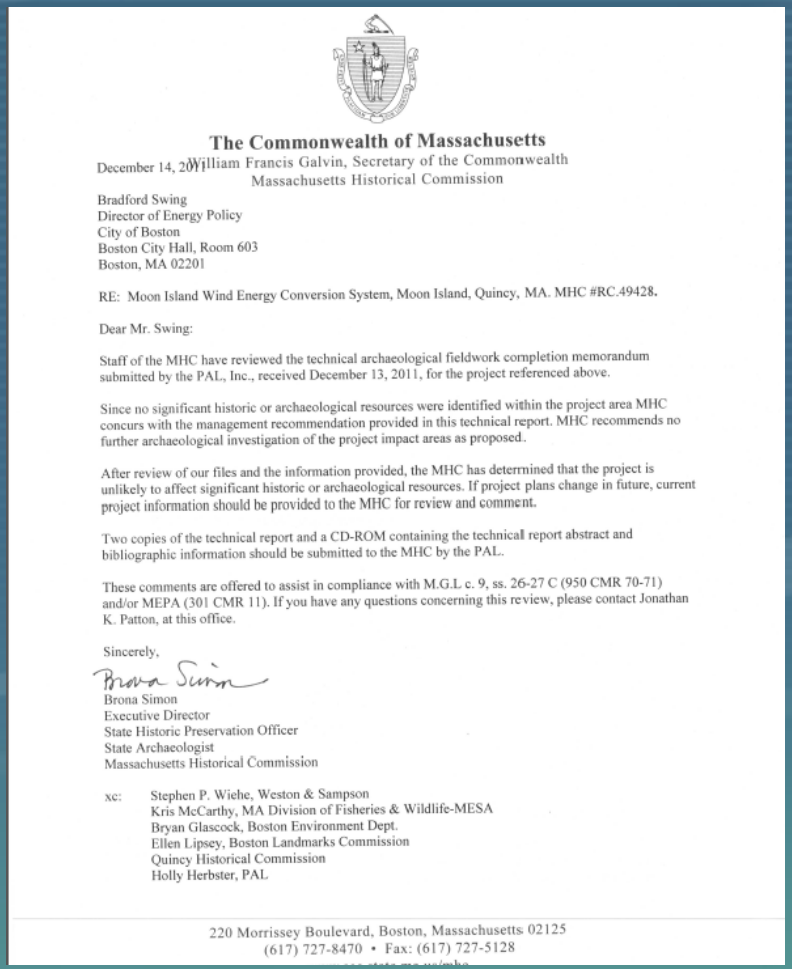
Electrical Interconnection

- Electrical interconnection application filed October, 2010
- Detailed system impact study application filed with Nstar in July, 2011

Mass Historical Commission

- Intensive archeological survey at site – 12/01/11
- MHC letter of No Significant Findings – 12/14/11



The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

December 14, 2011

Bradford Swing
Director of Energy Policy
City of Boston
Boston City Hall, Room 603
Boston, MA 02201

RE: Moon Island Wind Energy Conversion System, Moon Island, Quincy, MA. MHC #RC.49428.

Dear Mr. Swing:

Staff of the MHC have reviewed the technical archaeological fieldwork completion memorandum submitted by the PAL, Inc., received December 13, 2011, for the project referenced above.

Since no significant historic or archaeological resources were identified within the project area MHC concurs with the management recommendation provided in this technical report. MHC recommends no further archaeological investigation of the project impact areas as proposed.

After review of our files and the information provided, the MHC has determined that the project is unlikely to affect significant historic or archaeological resources. If project plans change in future, current project information should be provided to the MHC for review and comment.

Two copies of the technical report and a CD-ROM containing the technical report abstract and bibliographic information should be submitted to the MHC by the PAL.

These comments are offered to assist in compliance with M.G.L c. 9, ss. 26-27 C (950 CMR 70-71) and/or MEPA (301 CMR 11). If you have any questions concerning this review, please contact Jonathan K. Patton, at this office.

Sincerely,

Brona Simon
Executive Director
State Historic Preservation Officer
State Archaeologist
Massachusetts Historical Commission

xc: Stephen P. Wiehe, Weston & Sampson
Kris McCarthy, MA Division of Fisheries & Wildlife-MESA
Bryan Glascock, Boston Environment Dept.
Ellen Lipsey, Boston Landmarks Commission
Quincy Historical Commission
Holly Herbster, PAL

220 Morrissey Boulevard, Boston, Massachusetts 02125
(617) 727-8470 • Fax: (617) 727-5128

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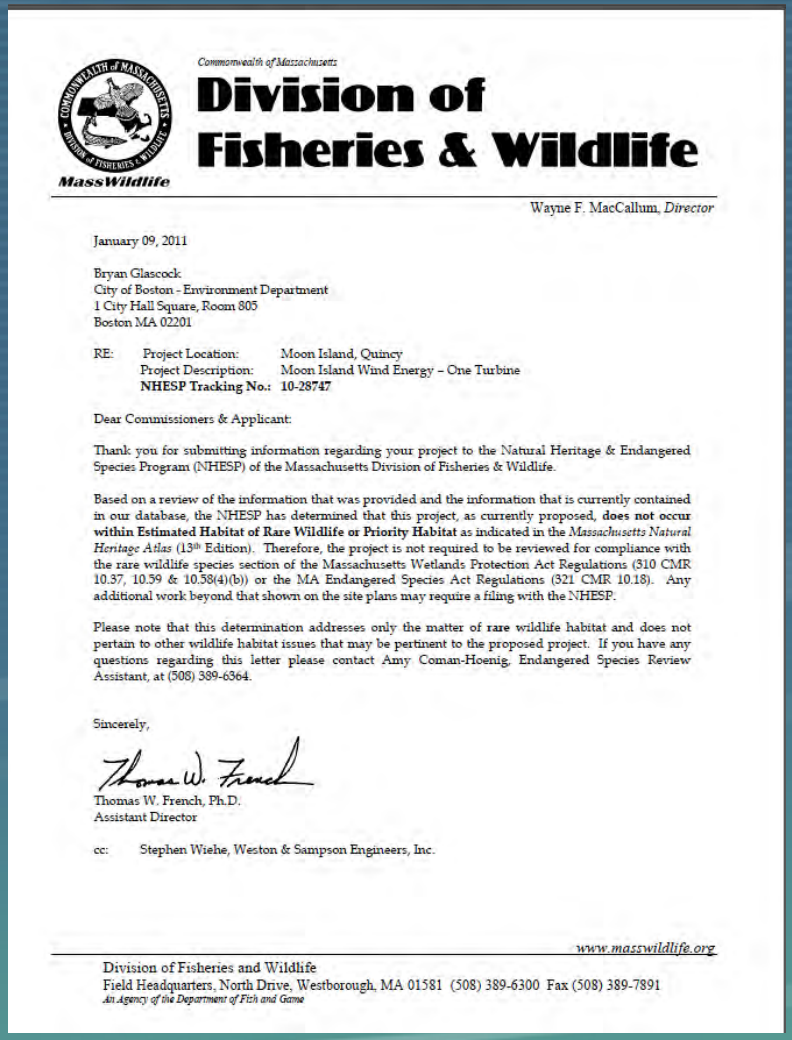
Mass Endangered Species Act

- Project Review Checklist complete
- 1/9/12 - NHESP has determined the project does not occur within Estimated Habitat of Rare Wildlife or Priority Habitat



Commonwealth of Massachusetts
Division of Fisheries & Wildlife
MassWildlife

Wayne F. MacCallum, *Director*

January 09, 2011

Bryan Glascock
City of Boston - Environment Department
1 City Hall Square, Room 805
Boston MA 02201

RE: Project Location: Moon Island, Quincy
Project Description: Moon Island Wind Energy – One Turbine
NHESP Tracking No.: 10-28747

Dear Commissioners & Applicant:

Thank you for submitting information regarding your project to the Natural Heritage & Endangered Species Program (NHESP) of the Massachusetts Division of Fisheries & Wildlife.

Based on a review of the information that was provided and the information that is currently contained in our database, the NHESP has determined that this project, as currently proposed, **does not occur within Estimated Habitat of Rare Wildlife or Priority Habitat** as indicated in the *Massachusetts Natural Heritage Atlas* (13th Edition). Therefore, the project is not required to be reviewed for compliance with the rare wildlife species section of the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.37, 10.59 & 10.58(4)(b)) or the MA Endangered Species Act Regulations (321 CMR 10.18). Any additional work beyond that shown on the site plans may require a filing with the NHESP.

Please note that this determination addresses only the matter of **rare** wildlife habitat and does not pertain to other wildlife habitat issues that may be pertinent to the proposed project. If you have any questions regarding this letter please contact Amy Coman-Hoenig, Endangered Species Review Assistant, at (508) 389-6364.

Sincerely,

Thomas W. French, Ph.D.
Assistant Director

cc: Stephen Wiehe, Weston & Sampson Engineers, Inc.

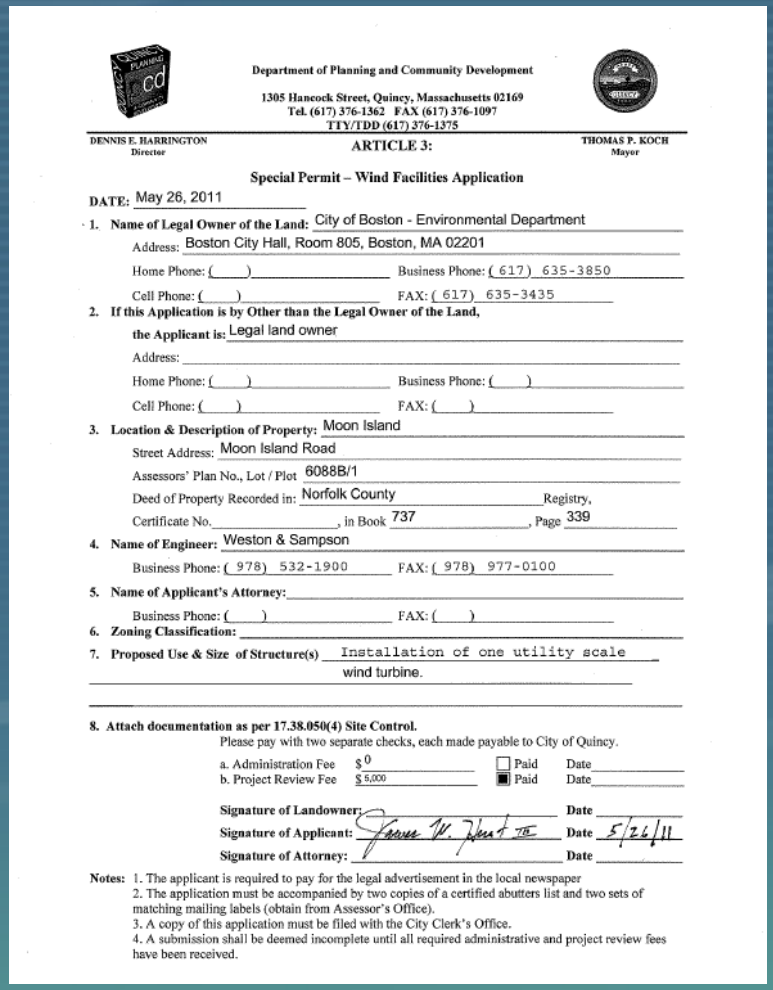
www.masswildlife.org

Division of Fisheries and Wildlife
Field Headquarters, North Drive, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7891
An Agency of the Department of Fish and Game

Weston&Sampson

City of Quincy Special Permit

- Application – 8/27/10 and resubmitted on 5/27/11
- Initial Comments from Quincy - 7/28/11



Department of Planning and Community Development
1305 Hancock Street, Quincy, Massachusetts 02169
Tel. (617) 376-1362 FAX (617) 376-1097
TTY/TDD (617) 376-1375

DENNIS E. HARRINGTON, Director — ARTICLE 3: — THOMAS P. KOCH, Mayor

Special Permit – Wind Facilities Application

DATE: May 26, 2011

1. **Name of Legal Owner of the Land:** City of Boston - Environmental Department
   Address: Boston City Hall, Room 805, Boston, MA 02201
   Home Phone: ( ) Business Phone: (617) 635-3850
   Cell Phone: ( ) FAX: (617) 635-3435
2. **If this Application is by Other than the Legal Owner of the Land, the Applicant is:** Legal land owner
   Address:
   Home Phone: ( ) Business Phone: ( )
   Cell Phone: ( ) FAX: ( )
3. **Location & Description of Property:** Moon Island
   Street Address: Moon Island Road
   Assessors' Plan No., Lot / Plot 6088B/1
   Deed of Property Recorded in: Norfolk County Registry,
   Certificate No. , in Book 737, Page 339
4. **Name of Engineer:** Weston & Sampson
   Business Phone: (978) 532-1900 FAX: (978) 977-0100
5. **Name of Applicant's Attorney:**
   Business Phone: ( ) FAX: ( )
6. **Zoning Classification:**
7. **Proposed Use & Size of Structure(s)** Installation of one utility scale wind turbine.
8. **Attach documentation as per 17.38.050(4) Site Control.**
   Please pay with two separate checks, each made payable to City of Quincy.
   a. Administration Fee $ 0 ☐ Paid Date
   b. Project Review Fee $ 5,000 ☑ Paid Date

Signature of Landowner: Date
Signature of Applicant: James W. Hunt III Date 5/26/11
Signature of Attorney: Date

Notes: 1. The applicant is required to pay for the legal advertisement in the local newspaper
2. The application must be accompanied by two copies of a certified abutters list and two sets of matching mailing labels (obtain from Assessor's Office).
3. A copy of this application must be filed with the City Clerk's Office.
4. A submission shall be deemed incomplete until all required administrative and project review fees have been received.

Weston&Sampson

Tree Survey

- Visual survey indicates 100 mature trees, mostly invasive species, however a few Paper Birch, Scots Pine, Sycamore Maples and American Sycamore will need to be removed to develop the project (2-3 acres required).

Weston&Sampson