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FAIRHAVEN WIND's AMENDED MITIGATION PLAN

December 12, 2013

This Amended Mitigation Plan¹ ("Mitigation Plan") is being submitted by Fairhaven Wind LLC ("Fairhaven Wind") to the Fairhaven Board of Selectmen ("Selectmen") and the Fairhaven Board of Health ("BoH") as a follow-up to our settlement discussions² during the summer of 2013³, the Amended Order for Abatement of Nuisance issued by the BoH on July 30, 2013 (the "Amended Order")⁴, and comments received from the Selectmen, the BoH and MassDEP on the Updated Mitigation Plan dated November 11, 2013, (the "Prior Mitigation Plan"), which comments were discussed at the working session among representatives of the Selectmen, the BoH, MassDEP, MassCEC, MassDOER and Fairhaven Wind on December 9, 2013. Fairhaven Wind acknowledges the collaborative stance that the Town of Fairhaven has taken with regard to working with Fairhaven Wind, MassDEP, MassCEC and MassDOER to resolve noise concerns related to the wind turbines.

This Mitigation Plan reflects Fairhaven Wind's understanding of the discussions to date. Notwithstanding the submission and the potential approval of this Mitigation Plan by the Selectmen and the BoH, as well as its acceptance by MassDEP, Fairhaven Wind believes that any Mitigation Plan is not static but can evolve as more information and new technology become available. As such, Fairhaven Wind reserves its rights to submit proposed modifications to this Mitigation Plan over time for consideration by the relevant parties.

¹ Neither this plan nor any settlement plan nor any settlement discussions presented by Fairhaven Wind can be construed as an admission by Fairhaven Wind that it has in any way violated any laws or regulations with respect to noise or that Fairhaven Wind has exceeded the Noise Policy of the Massachusetts Department of Environmental Protection ("MassDEP") for reasons previously provided to the Town of Fairhaven ("Town") and MassDEP. Nor can they be construed as an admission that Fairhaven Wind's operation is a nuisance or a health hazard or otherwise in violation of any local, state or federal regulation or bylaw. Further, this Mitigation Plan is only being presented as a settlement document with respect to possible actions which the Town may seek to take against Fairhaven Wind and is not a waiver of any claims that Fairhaven Wind may have against the Town and/or any of its Boards for actions taken by the Town and/or any of its Boards which may be in breach of the Town's contractual obligations with Fairhaven Wind or in excess of that Board's authority.

² Including meetings separately or together with the BoH and the Selectmen and working group sessions on June 21, July 10, and July 17, 2013.

³ Most of the meetings to date were also attended by representatives of MassDEP, the Massachusetts Clean Energy Center ("MassCEC") and the Massachusetts Department of Environmental Resources ("MassDOER"). Fairhaven Wind is grateful for the continuing involvement and commitment of MassDEP, MassCEC and MassDOER for this settlement process.

⁴ On July 1, 2013, Fairhaven Wind submitted a DRAFT Mitigation Plan to the Town as Exhibit C to Fairhaven Wind's letter to the Selectmen in response to the Selectmen's notice of default dated June 14, 2013. While submitted as a draft for discussion, the Amended Order issued by the BoH effectively adopted the July 1 DRAFT Mitigation Plan, deeming that compliance with said plan would be deemed sufficient. However, the BoH also requested that Fairhaven Wind submit "a final mitigation plan" to the BoH. This submission is a further step toward that final mitigation plan.

The Mitigation Plan outlined in this document minimizes the economic impact to the Town of Fairhaven⁵ while proposing what Fairhaven Wind believes is a conservative approach to ensuring that the combined acoustic measurements of the two wind turbines complies with the current MassDEP Noise Policy⁶ as set forth in, and measured by, the MassDEP Wind Turbine Noise Study Protocol for Fairhaven which was presented to the BoH in July 2013⁷ and which is today's standard being used by MassDEP.

Background

On May 21, 2013, MassDEP issued a report, entitled *Interim Report/Preliminary Results Attended Sampling of Sound from Fairhaven North Wind Turbine and South Wind Turbine*, in which MassDEP referred to five separate instances where MassDEP alleged that the turbines exceeded the 10 dBA MassDEP Noise Policy during specific wind conditions and at specific locations (Peirce's Point, Little Bay Road, and Teal Circle) using MassDEP's testing protocol.⁸ MassDEP issued a subsequent letter report to the Town of Fairhaven on August 8, 2013, which reported on three more tests on June 3, 2013, and which alleged a noise violation of 0.2 dBA over the sound limit at one location (Peirce's Point).⁹ The May 21st report and the August 8th letter are collectively referred to herein as the "Interim Report."

A table showing all of the readings from the Interim Report and containing other data and comparisons is included as Exhibit A. As shown in Exhibit A, there are no exceedances when comparing comparable metrics (L_{90} to L_{90} , L_{max} to L_{max} , L_{eq} to L_{eq}); however, that is not how MassDEP currently defines an "exceedance" for wind, despite MassDEP using comparable metrics for other sound sources (see footnote 6).

A summary of the "exceedances" from the Interim Report is provided in Table 1 below:

Table 1 – Summary of "Exceedances" Reported by MassDEP

Wind Direction	Wind Speed (m/s)	Impacted Site	Date of Test	Amount Over 10 dBA	Direction from Turbines ¹⁰
NNW	7-9	12 Little Bay Road	11/9/2012 ¹¹	0.7	Crosswind

⁵ At the request of the Selectmen, Fairhaven Wind completed an economic analysis of the Prior Mitigation Plan, which analysis was submitted to the Selectmen on December 9, 2013, which showed that, to the extent there was any negative economic impact on the Town, it was minor – estimated to be around \$830 over the next 18.5 years – given the structure of the agreements between the Town and Fairhaven Wind.

⁶ Fairhaven Wind acknowledges the MassDEP is re-evaluating its existing noise policy, especially as it relates to wind turbines, with the initial step being convening the Wind Noise Technical Advisory Group ("WNTAG") which is evaluating different metrics and alternate means of setting standards. Currently, WNTAG is scheduled to have meetings through the end of January 2014. It is uncertain if WNTAG will be producing a consensus report.

⁷ See minutes of BoH meeting at http://fairhaven-ma.gov/Pages/FairhavenMA_HealthMin/2012/07-23-2012-BOH-Minutes.pdf

⁸ Although not an objective of the MassDEP testing, MassDEP also found no indications that the wind turbines were exceeding the 60 dBA noise limits in the Town of Fairhaven's Wind Energy Facilities Bylaw as applicable at the time the turbines were constructed.

⁹ "[T]he wind turbines slightly exceeded our 10 dBA noise threshold."

¹⁰ For a testing location to be considered downwind, the wind turbines would be directly between the wind direction and the site. For a crosswind location, the site is perpendicular to the wind direction. For a combination location, the site is either between crosswind and downwind or may be downwind of one turbine and crosswind from the other.

Wind Direction	Wind Speed (m/s)	Impacted Site	Date of Test	Amount Over 10 dBA	Direction from Turbines ¹⁰
WNW	4-5	7 Peirce's Point	3/20/2013	1.4	Combination
WNW	5-7	12 Little Bay Road	4/2/2013	2.9	Crosswind
ENE	3-5	12 Little Bay Road	4/12/2013	1.0	Crosswind
NE	3-5	Teal Circle	4/12/2013	1.5	Combination
SSW	7	7 Peirce's Point	6/3/2013 ¹²	0.2	Crosswind

In addition to the above test results for potential compliance, MassDEP, alongside Fairhaven Wind, conducted sound level impact tests on June 26, 2013, to determine the effectiveness of potential sound reduction options.¹³ MassDEP's report to the Town on this testing is in a Memorandum from MassDEP to the Town of Fairhaven dated July 1, 2013, with the subject matter listed as Fairhaven Wind LLC: Sound Mitigation Study Inspection Report : 26 June 2013 (the "Sound Mitigation Study"). The two options tested and reported on by MassDEP included feathering the blades¹⁴ and shutting one turbine down completely. In both scenarios, the closest turbine to the testing location was "curtailed" during the sound monitoring. The evening of the test reflected the period of concern identified by MassDEP (midnight to 4 am and low wind conditions). All noise sampling was conducted at a distance of 900 feet from the closest turbine to represent the distance to the closest residence.¹⁵ Again, no "exceedances" were reported. The results of those tests as reported by MassDEP in the Sound Mitigation Study are summarized in Tables 2 and 3 below:

Table 2 – Acoustic Measurements Downwind of Wind Turbines (Test Site #1) – June 26, 2013						
Operating Condition	L ₉₀ (dBA)	L _{max} (dBA)	L _{eq} (dBA)	L _{max} - L ₉₀ (dBA)	Range (dBA)	dBA Impact of Mitigation
Ambient (both turbines off)	36.4				34.9-42.8	
Both Turbines Operating Full		44.5	43.1	8.1	41.4-44.6	
Closest Turbine Off/Other Turbine Operating Full		42.7	41.1	6.3	38.8-42.9	-1.8
Closest Turbine Blades Feather 12.5%/Other Turbine Operating Full		44.2	42.9	7.8	41.3-44.3	-0.3

¹¹ MassDEP did not initially report this test as an "exceedance" given the low amount over the 10 dBA limit and some questions about the results from the testing: "The first time this exceedance was recorded (November 2012) was viewed as a potential anomaly because of high levels of wind sound in the tress. MassDEP did not, therefore consider this an exceedance ..." (pg. 11 of May 21 report)

¹² Fairhaven Wind questions whether this was an "exceedance" caused by the wind turbine or major changes in the background. As shown in Exhibit A, the background readings fluctuated as much as 11.5 dBA. The L_{max} background was 10 dBA over the L₉₀ background level and the maximum sound from the turbines was only 0.2 dBA over the maximum background sound.

¹³ To maximize the effectiveness of the testing, these test locations "were chosen so there would be no masking influence from trees or other structures." This differs from the actual sampling sites where "there are trees between the wind turbines and all three sampling sites where exceedances were found during compliance testing."

¹⁴ Feathering the blades refers to pitching the blades to reduce their speed.

¹⁵ Since the objective of the testing was to measure the decrease in sound output from the turbines during low wind conditions for locations both downwind and crosswind, the actual wind direction did not need to comply with the directions of concern.

Table 3 – Acoustic Measurements Crosswind of Wind Turbines (Test Site #2) – June 26, 2013						
Operating Condition	L ₉₀ (dBA)	L _{max} (dBA)	L _{eq} (dBA)	L _{max} - L ₉₀ (dBA)	Range (dBA)	dBA Impact of Mitigation
Ambient (both turbines off)	33.7				32.6-40.6	
Both Turbines Operating Full		42.5	41.1	8.8	39.4-42.7	
Closest Turbine Off/Other Turbine Operating Full		38.9	36.6	5.2	35.1-39.7	-3.6
Closest Turbine Blades Feather 12.5%/Other Turbine Operating Full		42.4	40.8	9.2	38.6-42.8	-0.1

Including the Sound Mitigation Study, MassDEP has conducted a total of 29 separate acoustic tests of the wind turbines in Fairhaven.¹⁶ With the exception of the tests for the Sound Mitigation Study, MassDEP purposely “defined the locations and conditions under which sound impacts were perceived to be the greatest”¹⁷ according to the complaint log provided to MassDEP by the BoH. Yet, in only 6 instances, did MassDEP report any finding of an “exceedance” of the MassDEP Noise Policy and in only 3 instances were the “exceedances” greater than 1 dBA.¹⁸ In addition, no “exceedances” were reported when background was above 40.3 dBA and no “exceedances” were reported outside of the midnight to 4 am timeframe

MassDEP has not issued a final report¹⁹ and MassDEP has issued no notice of violation against Fairhaven Wind nor has it commenced any enforcement action.

As summarized in MassDEP’s letter regarding the Sound Mitigation Study reported in Tables 2 and 3 above:

In order to draw some conclusions on how the results from this testing might be applied to mitigation of the specific exceedances in MassDEP’s Interim report, the position of the properties where the exceedances were found should be considered. On March 20, 2013, the Peirce’s Point sampling site with an exceedance of 11.4 was downwind²⁰ of the wind turbines in a similar wind speed (4-5 m/s). On April 12, 2013 and under similar wind

¹⁶ MassDEP still intends to complete additional testing. As testing has been ongoing for over a year, the remaining wind condition appears to be rare. Fairhaven Wind believes that the proposed Mitigation Plan may be easily updated if necessary to include this wind condition should MassDEP find an “exceedance.” See also footnote 19 below.

¹⁷ Pg. 2 of MassDEP Interim Report dated May 21, 2013.

¹⁸ MassDEP Noise Policy considers both broadband (reported in the tables above) and pure tone. According to MassDEP (pg. 11 of May 21 report) “[o]peration of the two wind turbines was found to not contribute to a pure tone under the conditions tested.”

¹⁹ MassDEP has not issued a final report as it is waiting for a dry NE wind condition. In the 12/09/13 meeting, MassDEP reported that it may give up on testing for this condition since it has only happened once in the 16 months that MassDEP has been trying to capture it.

²⁰ In the Interim Report, Peirce’s Point was receiving wind from the “WNW” and was considered “downwind and right” of the turbines.

conditions (3-5 m/s), the Little Bay Road sampling site was also in the downwind position²¹ with an exceedance of 11.0 dBA and the Teal Circle sampling site was halfway between downwind and crosswind (exceedance of 11.5 dBA).²²

Proposed Mitigation Plan

The above testing results from MassDEP, including its mitigation testing, are used as the basis for this proposed Mitigation Plan.

Findings:

1. All of the reported “exceedances” occurred between the hours of midnight and 4 am.
2. With the exception of the 0.2 dBA “exceedance” reported as occurring on June 3, 2013, which “exceedance” would not be discernable to the human ear and is questioned by Fairhaven Wind as discussed herein (see footnote 12 and 25), all “exceedances” occurred in the winter when leaves are off the trees and the insect and other animal noises are the lowest.
3. No “exceedances” were reported when background in the neighborhood was 40.3 dBA or higher.
4. All of the “exceedances” were at locations closest to the South Turbine.
5. All of the “exceedances” were reported when wind speeds during the background measurements²³ were generally at or below 7 meters/second.
6. The highest reported “exceedance” (2.9 dBA at Little Bay Road) occurred during light crosswind conditions. The MassDEP Sound Mitigation Study showed that shutting off one turbine during crosswind conditions would reduce the noise level by 3.6 dBA, which is more than any “exceedance” reported by MassDEP.
7. The next highest reported “exceedance” (1.5 dBA at Teal Circle) occurred during combination wind conditions, and also during an exceptionally quiet²⁴ background noise period. The MassDEP Sound Mitigation Study showed that shutting off one turbine during downwind conditions would reduce the sound level by 1.8 dBA, which again is more than any “exceedance” level reported by MassDEP for combination wind conditions.
8. As reported by MassDEP in its May 21 report (pg. 11), “preliminary results show that the sound impact at 12 Little Bay Road, Teal Circle and 7 Pierces [sic] Point Road in ... northwesterly and/or easterly wind conditions exceed the MassDEP 10 dB(A) above ambient limit ... using the methodology adopted for this report.”

²¹ In the Interim Report, Little Bay Road was reported to receive wind from the “ENE” and it was “downwind and left” of the turbines.

²² MassDEP reported 11.0, 11.4 and 11.5 as “exceedances” but in reality the amount of the “exceedance” is the amount over 10 dBA; hence each of the “exceedance” levels should be reduced by 10 dBA.

²³ In almost all reported cases of “exceedances,” the wind speed during MassDEP testing of the turbine sound was at or above the wind speed during testing of the background noise. This increase in wind speed alone could result in higher wind noise which is attributable to the turbines under MassDEP’s protocol and also brings some of the testing protocol into question.

²⁴ MassDEP’s technician reported it as “eerily quiet.”

9. Further, in MassDEP's August 8th update, MassDEP said that a SSW wind (6.5-7.3 meters/second) on June 3 caused a minor "exceedance" at Peirce's Point.²⁵

Notwithstanding Fairhaven Wind's questions about the testing methodology and some of MassDEP's data, in the interest of working with the Town of Fairhaven, Fairhaven Wind proposes to implement the following curtailment strategy to address the Town's concerns about the turbines operating in compliance with the MassDEP Noise Policy²⁶:

From the period of November 15 to April 30, Fairhaven Wind will shut down one wind turbine²⁷ if the following conditions (collectively, the "Mitigation Conditions") occur (or are forecast to occur) between the hours of midnight and 4 am:

- (a) Wind is (or is forecast to be) blowing from a wind direction which is within 11.25 degrees of the Northwest (315 degrees on the compass), Northeast (45 degrees) or South-Southwest (205 degrees);
- (b) Wind is below 7 meters/second (15.7 miles per hour) at the nacelle (or is forecast to be at or below 3 meters/second at the surface);²⁸ and
- (c) There is less than a 50% chance of precipitation forecast during the time period.

The above Mitigation Conditions (a) and (b) currently include the parenthetical statement "is forecast to be" because the wind turbines are not yet programmed to accomplish these tasks. Fairhaven Wind has initiated discussions with the turbine supplier to provide the required programmatic changes to the wind turbine and is hopeful that the changes can be programmed and implemented within a month of the Town's acceptance of this Mitigation Plan.

More specifically, until such time as the programming is complete and Fairhaven Wind has some comfort that it is working properly, Fairhaven Wind will be reviewing nightly forecasts from the National Weather Service ("NWS") of the National Oceanographic and Atmospheric Administration ("NOAA")²⁹ to make a decision each evening regarding whether the Mitigation Conditions will require one turbine to be shut down between midnight and 4 am. A copy of a NWS forecast for Fairhaven is attached as Exhibit B. Fairhaven Wind will use good faith efforts

²⁵ Fairhaven Wind questions these June 3, 2013 sampling results for the reasons stated previously about wide fluctuations in the background readings. Further as WSW, SSW, and SW directions had all been tested at various wind speeds with no exceedances, the 0.2 dBA exceedance in June is an outlier among the collected data.

²⁶ As reported in footnote 8, there was no finding of any exceedance of Fairhaven's Wind Energy Facilities Bylaw as applicable at the times the turbines were constructed. The 60 dBA limit has now been removed from the Town's Bylaw and wind turbines are required to operate in accordance with the MassDEP Noise Policy.

²⁷ Generally, Fairhaven Wind will plan to curtail the South Turbine as it is closest to residences. If subsequent testing by Fairhaven Wind demonstrates that shutting down the North Turbine will have comparable reductions in noise levels in the affected neighborhoods, then if the North Turbine is not running due to maintenance or other issues at the time, the South Turbine may be allowed to run.

²⁸ The conversion from 80 meter nacelle height to 10 meter surface wind uses the following website with an assumption of surface roughness of 1.8 which is consistent with the engineers' assessment for the WindPro report of the forecast for production from the two turbines: <http://wind-data.ch/tools/profile.php?h=80&v=7&z0=1.8&abfrage=Refresh>

²⁹ After consultation with MassDEP, it was determined that Fairhaven Wind would use the following link: <http://forecast.weather.gov/MapClick.php?w3=sfcwind&w3u=3&w5=pop&w7=thunder&w8=rain&w9=snow&w10=fzg&w11=sleet&AheadHour=0&Submit=Submit&FcstType=graphical&textField1=41.60826&textField2=-70.85838&site=all&unit=0&dd=0&bw=0>

to consult this forecast between 4 pm and 6 pm each evening, but it may be earlier or later depending on scheduling issues for the person assigned to the task. A copy of each night's forecasts and the instructions with respect to the operation will be forwarded to the BoH. If the Mitigation Conditions are forecast to occur during any portion of the midnight to 4 am time period, one turbine will be shutdown. If in doubt or no forecast is made for the evening, the default procedure is that one turbine will be shut down during those hours. At the end of each calendar month, Fairhaven Wind will provide the BoH with a list of the dates during the month that a turbine was shut down at night due to the forecasts.

Once the programming is completed, Fairhaven Wind will plan to use the programming to run this protocol automatically for conditions (a) and (b). Assuming the programming allows it, Fairhaven Wind will have the option to override the programming based on a forecast of a greater than 50% chance of precipitation during the whole midnight to 4 am time period. Fairhaven Wind anticipates that the programming changes will control for wind speed by changing the "cut-in" speed for the wind turbine; i.e., when the turbine sensors determine that the average wind speed has been above 7 m/s for a long enough time (e.g., 10 minutes), the turbine will commence production of power. If the average wind speed then drops below 6 m/s, the turbine will cease operation. Similarly the turbine will be programmed to cease operations using the ± 11.25 degrees set forth above depending on the direction of the nacelle which rotates into the wind based on the average wind direction. The duration of time that the turbine operates at certain wind speed or wind direction will be set by the turbine manufacturer based on its determination of safety and wear and tear on the machine. Since the wind speed and direction may not be a Mitigation Condition at midnight but might occur sometime during the midnight to 4 am time period, or the Mitigation Conditions may cease during the midnight to 4 am time period, it is possible that the turbine will be operating during some portion of the time period as opposed to the forecast period when the turbine will be shut down for the full period to be conservative.

Once programmed, the daily emails to the BoH will stop except in instances, if any, whereby Fairhaven Wind overrides the programming that would otherwise have shut down the turbine due to (a) the NWS forecast of greater than a 50% chance of precipitation for the whole midnight to 4 am time period, or (b) the North Turbine is shut down for any reason (provided that Fairhaven Wind has made a good faith finding with respect to shutting down the North Turbine as set forth in footnote 27). Fairhaven Wind will ask that the system be programmed so that a message will be sent from the turbine's SCADA system to Fairhaven Wind each time the turbine is curtailed due to the programming. Provided that is possible, Fairhaven Wind will then forward that message to the BoH for its files as well as continue to compile a monthly log of the dates when the shutdowns occurred.

Testing of Mitigation Plan

To demonstrate to the BoH that the Mitigation Plan is working as anticipated, during this first year of operation, Fairhaven Wind will contract with a qualified acoustical firm to test that the plan is working for each Mitigation Condition (i.e., once for each wind direction). Testing will be according to a protocol comparable to the protocol used by MassDEP. Prior to testing, the

selected acoustical firm will draft and submit its plan through Fairhaven Wind to the MassDEP for review and approval. Once approved, Fairhaven Wind will work with the selected acoustical firm to identify nights when the projected Mitigation Conditions will be in effect. While the goal is to try to identify such nights a couple of days ahead of time, the actual night for testing will be confirmed on the day prior to midnight of the day of the test. The BoH will be notified ahead of time when such testing will occur in case it wishes to send an observer and also for the record.³⁰

Upon completion of each test, the results will be compiled and reported to MassDEP for review and approval. Once MassDEP has reviewed and approved the test results, they will be presented to the BoH.

If the Mitigation Plan is not found through this testing to be effective for the specific Mitigation Condition being tested, Fairhaven Wind will recommend an alternate Mitigation Plan for the specific Mitigation Condition to the BoH and MassDEP. Until such time as the BoH and MassDEP have concurred with the revised Mitigation Plan for the specific Mitigation Condition, Fairhaven Wind expects that both turbines will be shut down during that specific Mitigation Condition.

At the request of a Selectman, Exhibit C attached hereto contains a list of all the documents referenced in this Mitigation Plan.

Future Efforts

Based on research done by Fairhaven Wind and certain contacts that have been made, additional technology may be developed and be available for testing in the near future which might more accurately track and predict issues for compliance. If Fairhaven Wind determines that an alternative technology or approach is better suited for mitigation, it may propose such alternative technology or approach to the BoH. In addition, changes by MassDEP in its Noise Policy as it may apply to existing wind turbines could also result in proposals for alternative approaches for mitigation. Fairhaven Wind will not implement any alternative technology or approach without the consent of the BoH and after allowing for consultation with MassDEP. Fairhaven Wind hopes to continue its cooperative relationship with the Town, MassDEP, MassCEC and MassDOER to address concerns about noise and the testing of any such technology or approach as may be recommended by Fairhaven Wind.

Conclusion

Fairhaven Wind appreciates the collaborative effort the Town has engaged in to work with Fairhaven Wind. We are particularly grateful to MassDEP, MassCEC and MassDOER for their input and participation. Fairhaven Wind believes the Mitigation Plan as presented is fair and balanced and we look forward to working with the Town, MassDEP, MassCEC and MassDOER to implement it.

³⁰ Testing on these nights may also include testing for a North Turbine shutdown as per footnote 27. In addition, the testing of the SSW wind condition would help to determine if the SSW wind is of concern as per the June 3 testing and footnotes in this Mitigation Plan related thereto.

EXHIBIT A -- Compilation of MassDEP Data -- Sorted by Neighborhood

		Background								Impact							Equal Comparisons			MASS DEP COMPARISONS	
Date	Location	L90	Lmax	Lmax - L90	dBA Range	Leq (Note 1)	Wind Speed	Wind Direction	Percent Voided	L90	Lmax	Lmax - L90	Leq (Note 1)	Wind Speed	Wind Direction	Percent Voided	L90 Comps	Lmax Comps	Leq Comps	Lmax- L90 (dBA) (note 2)	Leq-L90 (dBA) (note 3)
9-Aug-12	Little Bay Road	46.2	47.0	0.8	1.3	46.4	3.4	SW	0%	46.5	47.4	0.9	46.9	3.3	SW	0%	0.3	0.5	0.5	1.2	0.7
26-Sep-12	Little Bay Road	46.0	48.5	2.5	3.3	47.0	7.9	SW	8%	49.9	52.3	2.4	50.7	9.5	SW	20%	3.9	3.8	3.7	6.3	4.7
10-Oct-12	Little Bay Road	38.8	42.1	3.3	5.4	40.0	5.4	NE	11%	42.2	44.8	2.6	43.4	5.0	NE	27%	3.4	2.8	3.3	6.0	4.6
9-Nov-12	Little Bay Road	40.3	45.6	5.3	6.7	41.9	7.8	NNW	13%	47.6	51.0	3.2	49.0	8.9	NNW	39%	7.3	5.4	7.1	10.7	8.7
2-Apr-13	Little Bay Road	32.9	37.4	4.5	7.7	34.6	5.6	NW	0%	42.7	45.8	3.1	43.9	6.2	NW	14%	9.8	8.5	9.3	12.9	11.0
12-Apr-13	Little Bay Road	29.9	34.8	4.9	6.2	31.8	3.4	ENE	4%	38.5	40.9	2.4	39.5	3.4	ENE	11%	8.6	6.2	7.6	11.0	9.6
9-Aug-12	Mill Road	38.9	40.9	2.0	2.7	39.5	3.2	SSW	20%	40.5	42.4	1.9	41.1	3.3	SSW	17%	1.6	1.5	1.6	3.5	2.2
26-Sep-12	Mill Road	45.4	49.8	4.4	6.2	47.5	6.5	SW	21%	45.4	48.0	2.6	46.4	7.3	SW	38%	0.0	-1.8	-1.1	2.6	1.0
10-Oct-12	Mill Road	31.1	33.6	2.5	3.8	31.7	3.2	NE	12%	34.7	36.6	1.9	35.5	3.3	NE	3%	3.6	2.9	3.8	5.5	4.4
12-Apr-13	Mill Road	33.8	35.5	1.7	3.1	34.4	4.0	NE	16%	35.3	37.6	2.3	36.0	4.4	NE	19%	1.5	2.1	1.6	3.8	2.2
3-Jun-13	Mill Road	37.1	50.2	13.1	13.9	41.0	5.3	SSW	0%	40.7	43.5	2.8	43.5	6.1	SSW	27%	3.6	-6.7	2.5	6.4	6.4
9-Aug-12	Peirce's Point	44.1	45.0	0.9	1.5	44.5	3.3	South	16%	45.0	46.2	1.2	45.3	3.5	South	14%	0.9	1.2	0.8	2.1	1.2
26-Sep-12	Peirce's Point	44.8	50.6	5.8	8.5	46.9	9.7	SSW	18%	49.1	53.3	4.2	50.8	10.7	SSW	41%	4.3	2.8	3.8	8.5	6.0
15-Oct-12	Peirce's Point	42.1	46.1	4.0	9.5	43.4	8.9	SW	19%	49.6	51.5	1.9	50.5	7.4	SW	37%	7.5	5.4	7.1	9.4	8.4
9-Nov-12	Peirce's Point	40.3	45.6	5.3	6.7	41.9	7.8	NW	13%	44.9	49.9	5.0	47.1	7.8	NW	31%	4.6	4.3	5.2	9.6	6.8
20-Mar-13	Peirce's Point	34.4	39.7	5.3	6.5	36.1	4.7	WNW	6%	41.9	45.8	3.9	43.5	4.7	WNW	20%	7.5	6.2	7.5	11.4	9.1
3-Jun-13	Peirce's Point	37.1	47.1	10.0	11.5	39.5	6.9	SSW	0%	44.2	47.3	3.1	46.2	7.3	SSW	39%	7.1	0.2	6.7	10.2	9.1
26-Sep-12	Shawmut	42.9	48.1	5.2	6.4	44.7	nd*	nd*	18%	46.2	49.1	2.9	47.2	nd*	nd*	28%	3.3	1.0	2.5	6.2	4.3
3-Jun-13	Shawmut	36.6	48.9	12.3	14.1	40.9	5.5	SSW	0%	42.5	45.2	2.7	43.7	7.3	SSW	33%	5.9	-3.7	2.8	8.6	7.1
9-Aug-12	Shawmut Deck	43.8	46.0	2.2	3.5	44.3	3.4	SSW	0%	45.3	46.8	1.5	45.8	3.4	SSW	7%	1.5	0.8	1.5	3.0	2.0
31-Aug-12	Shawmut Deck	47.8	48.9	1.1	1.6	48.2	6.7	WSW	10%	46.7	48.3	1.6	47.3	4.6	WSW	3%	-1.1	-0.6	-0.9	0.5	-0.5
31-Aug-12	Shawmut Ground	47.6	49.6	2.0	3.0	48.4	6.5	WSW	33%	46.4	48.5	2.1	47.7	7.2	WSW	24%	-1.2	-1.1	-0.7	0.9	0.1
31-Aug-12	Teal Circle	44.4	45.8	1.4	2.7	44.8	6.3	WSW	7%	45.0	46.1	1.1	45.4	6.0	WSW	9%	0.6	0.2	0.6	1.7	1.0
26-Sep-12	Teal Circle	43.3	46.0	2.7	3.6	44.1	7.2	SW	21%	46.2	49.2	3.0	47.4	8.7	SW	21%	2.9	3.2	3.3	5.9	4.1
10-Oct-12	Teal Circle	33.9	36.6	2.7	4.0	34.9	4.5	NE	16%	38.7	42.4	3.7	39.9	3.7	NE	3%	4.8	5.8	5.0	8.5	6.0
9-Nov-12	Teal Circle	38.1	44.5	6.4	7.7	40.5	7.8	NW	8%	41.9	45.8	3.9	43.8	7.7	NW	29%	3.8	1.4	3.3	7.7	5.7
2-Apr-13	Teal Circle	34.9	41.6	6.7	10.3	37.3	5.6	WNW	26%	38.0	44.7	6.7	41.3	6.7	WNW	9%	3.1	3.1	4.0	9.8	6.4
12-Apr-13	Teal Circle	27.7	33.0	5.3	7.8	29.8	3.2	NE	3%	37.2	39.2	2.0	38.0	3.4	NE	31%	9.5	6.3	8.2	11.5	10.3

No exceedances were observed by MassDEP in Mill Street or Shawmut Neighborhoods.

Little Bay Road Exceedances occurred during winter (November thru April) when background was low
Background L90 appears to correlate well with wind speed during the winter conditions
Low winter wind speed likely to cause exceedance.

Peirce's Point Exceedances occurred during low wind speed, winter condition which also produced lowest background L90.

Teal Circle Exceedance occurred during low wind speed, winter conditions.
Higher wind speed (over 5 mps) which produced higher background in November and early April did not cause exceedance.
April 2nd readings show 10.3 dBA range of background noise but turbine Lmax is only 9.8 dBA over L90 background.

NOTES

- 1 Leq is the average sound of the good readings
- 2 MassDEP Nuisance Noise assessment calls for comparison of Lmax attributable to the sound source to the L90 with the sound source turned off
- 3 MassDEP says "Leq - L90 is provided to compare to the predicted modelling results" but TE says modeling is L90 to L90 like permits
- nd* * SCADA data provided by Fairhaven Wind LLC did not cover the time period of this sampling event

EXHIBIT B

Sample of NWS Forecast



EXHIBIT C

List of Documents Referenced in Mitigation Plan

Amended Order for Abatement of Nuisance issued by the Fairhaven Board of Health on July 30, 2013 (the “Amended Order”)

Selectmen’s notice of default to Fairhaven Wind dated June 14, 2013

Fairhaven Wind submitted a DRAFT Mitigation Plan submitted to the Town on July 1, 2013, as Exhibit C to Fairhaven Wind’s letter to the Selectmen in response to the Selectmen’s notice of default to Fairhaven Wind dated June 14, 2013

Updated Mitigation Plan from Fairhaven Wind dated November 11, 2013 (the “Prior Mitigation Plan”)

Noise Policy of the Massachusetts Department of Environmental Protection (“MassDEP Noise Policy”)

Noise Study Protocol for Fairhaven presented to the Fairhaven Board of Health on July 23, 2013

Minutes of the Fairhaven Board of Health Meeting on July 23, 2013

MassDEP’s report entitled *Interim Report/Preliminary Results Attended Sampling of Sound from Fairhaven North Wind Turbine and South Wind Turbine* dated May 21, 2013

MassDEP’s letter report to the Town of Fairhaven dated August 8, 2013 (collectively with the May 21, 2013, report, the “Interim Report”)

Memorandum from MassDEP to the Town of Fairhaven dated July 1, 2013, with the subject matter listed as Fairhaven Wind LLC: Sound Mitigation Study Inspection Report : 26 June 2013 (the “Sound Mitigation Study”)

Fairhaven Wind’s Letter to the Selectmen dated December 9, 2013, responding to a request for an economic analysis of the Prior Mitigation Plan