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MEMORANDUM

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From: Christopher Menge

Subject: Noise and Wind data from Falmouth Measurements

Reference: HMMH No. 304390

Date: August 11, 2010

This memo is intended to accompany two noise and wind data Excel workbooks prepared by Harris Miller Miller & Hanson Inc. (HMMH) for the Falmouth wind turbine noise study.

The two workbooks are named

“Falmouth_Noise_&_Wind_Data_Summary_2010_08_11.xls” and

“GP_Ref1_Noise_Wind_Summary_2010_08_11.xls.” A “Notes” page in each workbook

briefly explains the data included or function of in each page in the workbook. These

workbooks form the basis of our analysis and conclusions about the existing noise and wind conditions in the study area. While these data are being shared widely, this memo and the Notes pages are not sufficient to communicate a full understanding of the functioning of the workbooks. HMMH’s forthcoming noise study report will provide the context for much of the data in these workbooks.

A graphic showing the noise measurement locations on an aerial photograph is also included in the transmittal package.

The “Falmouth_Noise...” workbook contains the noise data collected at the residential community measurement sites and all of the wind speed data used for our assessment. A total of 6 sites were chosen for measurements; their locations are shown on the graphic. At two long-term (“LT”) sites, measurements were conducted continuously for 10 days, from June 18 to 28. At four short-term (“ST”) sites, measurements were conducted for up to 30-minute intervals periodically throughout the 10-day measurement period. Two of the short-term sites, ST-1 and ST-4 were moved slightly for some of the measurements. The noise and wind data reported in the spreadsheets are based on 10-minute intervals, and over 1400 10-minute interval periods were sampled at the long-term sites. The instrument at LT-2 malfunctioned for about a two-day period between June 23 and 25, so no noise data at that site are available during that period. Wind speed data (as 10-minute averages) from four anemometers are given in the workbook, these include the turbine hub at 80m, a met tower at 10m, and anemometers near the microphone locations at LT-1 and LT-2, each at 1.5m height.

The “GP_Ref1...” workbook contains the noise and wind data associated with reference measurements HMMH conducted near the Wind1 turbine during two one-hour periods when



it was operating. These were conducted with a so-called “ground-plane microphone,” where the microphone is placed on a hard reflecting board placed on the ground. The purpose is to minimize wind-induced noise at the microphone and to get predictable reflected sound from the ground. The measurements were conducted in as much compliance as possible with the IEC 61400 standard for wind turbine reference noise measurements, as a check on the noise emissions of the particular Vestas V82 1.65 MW turbine installed at the Falmouth Wind1 site. The workbook for these reference measurements also contains the one-second samples of sound levels in addition to the 10-minute intervals, since some of the data reduction was performed using time intervals shorter than 10 minutes. Wind data from three anemometers are included, the turbine hub, the met tower and a 1.5m height anemometer near the met tower, called “Ref1_Wind” in the figure.