

January 28, 2021

Aercoustics Project #: 17283.03 & 17283.04

North Kent Wind 1 LP

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ATTN: Robert Campbell, Robert.Campbell@patternenergy.com

CC: Joshua Vaidhyan, Samsung
Paul Ahn, Samsung
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Allan Munro, Aercoustics

Subject: North Kent Wind Power Project
NAAP Verification Audit MECP Responses 2
REA #5272-A9FHRL

Aercoustics Engineering Limited (Aercoustics) has been retained by North Kent Wind 1 LP to complete the emission audit (E-audit) and immission audit (I-audit) requirements requested by the Ministry of the Environment, Conservation and Parks (MECP) for the North Kent 1 Wind Power Project (NKWPP). NKWPP operates under REA #5272-A9FHRL.

The following letter presents responses to the comments provided by the MECP Approvals Branch in an email dated 21st, 2021. These comments and responses are related to the following documents:

- **Aercoustics E-Audit Report for T03**, “North Kent Wind 1 LP / Turbine T03 – IEC 61400-11 Edition 3.0 Measurement Report”, dated January 13th, 2021.
- **Aercoustics E-Audit Report for T04**, “North Kent Wind 1 LP / Turbine T04 – IEC 61400-11 Edition 3.0 Measurement Report”, dated January 13th, 2021.

The MECP comments have been copied below, with responses immediately following each item. The following supporting documents have been included with the submission of this memo:

Package	Document	File Name	File Type
Exhibit A	Report	Aerc023 RP3 – 17283.03.T3.RP3 IEC 61400-11 Test Report	PDF
	Data Package: Report Tables in Excel	Aerc023a RP3 – 17283.03.T3.RP3 IEC 61400-11 Report Tables in Excel	Excel
	Data Package: Narrowband Spectra	Aerc023b RP3 – 17283.03.T3.RP3 IEC 61400-11 Narrowband Summary	Excel
Exhibit B	Report	Aerc024 RP3 – 17283.03.T4.RP3 IEC 61400-11 Test Report	PDF
	Data Package: Report Tables in Excel	Aerc024a RP3 – 17283.03.T4.RP3 IEC 61400-11 Report Tables in Excel	Excel
	Data Package: Narrowband Spectra	Aerc024b RP3 – 17283.03.T4.RP3 IEC 61400-11 Narrowband Summary	Excel

Comments Specific to T03

2) Insertion loss of secondary windscreen: *Figure C.16 includes a plot of secondary windscreen influence. A table for insertion loss is not in the report. A sample calculation was not provided. The Excel sheet was not corrected for sound pressure levels before windscreen (include a column for overall sound pressure levels before windscreen, the overall sound level before the applicable insertion loss effect). Please provide a sample calculation and revise the report.*

The secondary windscreen insertion loss spectrum measured per Annex E of IEC 61400-11 Edition 3.0, has been added to the report in Table C.05. Table E.01 and Table E.02 have been revised to show both the overall measured sound pressure level, as well as the corrected overall sound pressure level with influence of the secondary windscreen removed.

Table C.05, Table E.01, Table E.02, and a sample calculation are included in the revised Report Tables in Excel data package included in Exhibit A.

5) Microphone Location: *Please clarify as to how microphone for data collection was positioned and provide a picture for Microphone setting #3 (i.e. reference yaw angle 283°). The canal is not included in the Figure A.02 of the report. Please confirm if the*

picture represent the T03 wind turbine (as the water canal is not in the picture). What are the other topography constraints in the area (it seems that the area is flat)?

Provide a clear picture of the canal and microphone position. Add this information in the report and provide the professional judgement and rationale for selecting the location. Include 3 microphone positions in the provided aerial map and add it in the report.

It seems that the acceptable measurement area should be rotated a little clockwise to be aligned with yaw position listed in report. Why the microphone was not positioned in the downwind direction of prevailing wind direction to avoid the water canal and at a distance of $R_0=156$ metres?

The microphone positions used during measurements are included in Figure A.03 of the updated report, included in Exhibit A. The figure indicates the three microphone positions used during measurements, as well as the location of the canal which restricted microphone placement.

It can be noted from Figure A.03 that the location of microphone position #1 prescribed in IEC 61400-11 Edition 3.0 (reference yaw of 283° , $R_0 = 156$ m) cannot practically be used as the position is within the water canal. As such, the measurement distance used for microphone position #1 (reference yaw of 283°) was intentionally reduced to $R = 134$ m, as allowed in IEC 61400-11 Edition 3.0 and Edition 3.1. Figure A.02 shows microphone position #1 (reference yaw of 283°) with the canal located behind the viewer.

The measurement distance was maintained for consistency throughout measurements at microphone positions #2 (reference yaw of 262°) and #3 (reference yaw of 244°).

Comments Specific to T04

10) Insertion loss of secondary windscreen: *Figure C.16 includes a plot of secondary windscreen influence. A table for insertion loss is not in the report. A sample calculation was not provided. The Excel sheet was not corrected for sound pressure levels before windscreen (include a column for overall sound pressure levels before windscreen, the overall sound level before the applicable insertion loss effect). Please provide a sample calculation and revise the report.*

The secondary windscreen insertion loss spectrum measured per Annex E of IEC 61400-11 Edition 3.0, has been added to the report in Table C.05. Table E.01 and Table E.02 have been revised to show both the overall measured sound pressure level,

as well as the corrected overall sound pressure level with influence of the secondary windscreen removed.

Table C.05, Table E.01, Table E.02, and a sample calculation are included in the revised Report Tables in Excel data package included in Exhibit B.

Closure

Please do not hesitate to contact us should you have any questions or require anything further.

Sincerely,

AERCOUSTICS ENGINEERING LIMITED



Christopher Bosyj, M.A.Sc., P.Eng.



Payam Ashtiani, B.A.Sc., P.Eng.