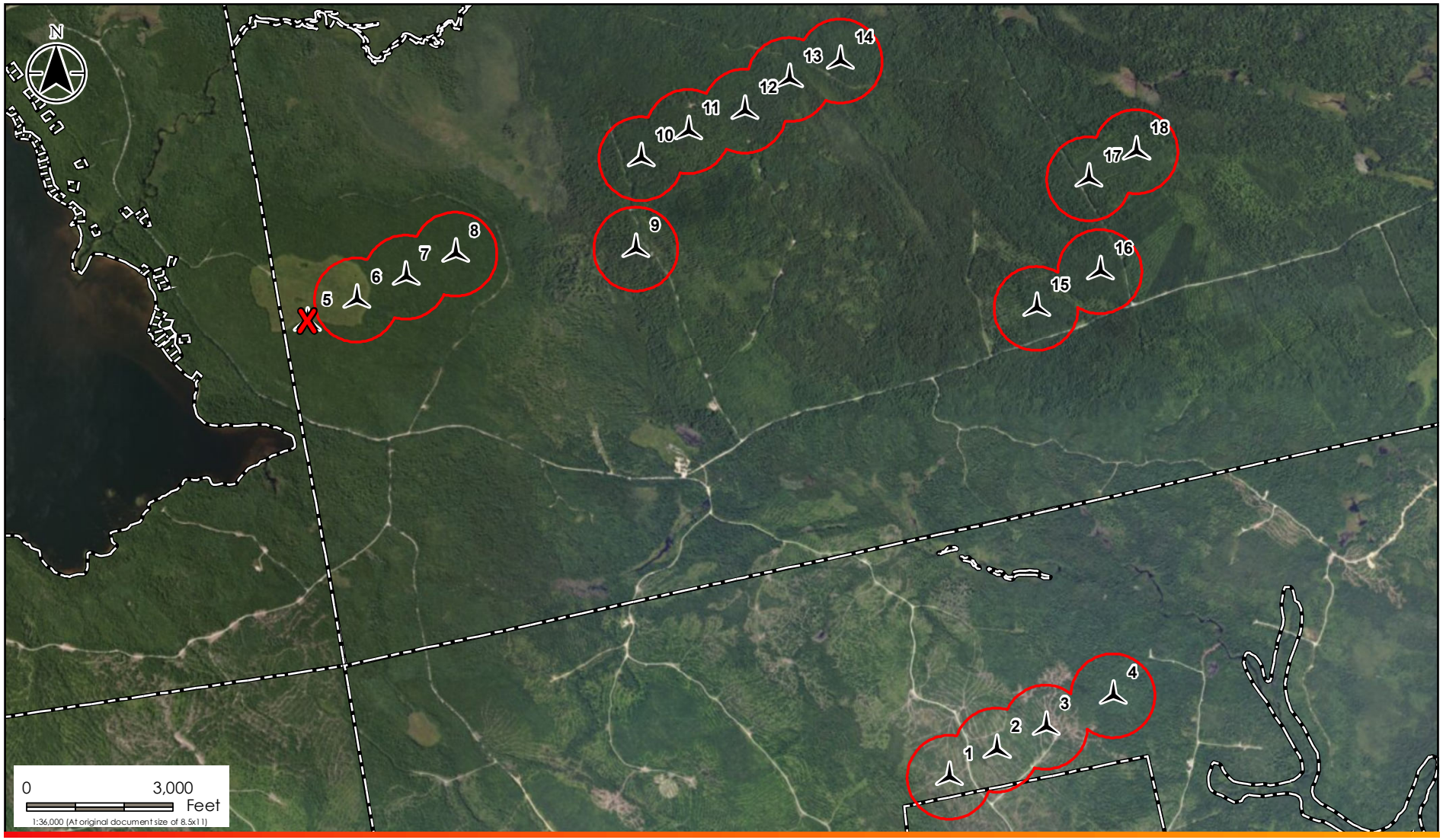

195600763

Stantec

30 Park Drive
Topsham, ME USA 04086
Phone (207) 729-1199

Legend

- Proposed Turbine Layout
- Safety Setback (262.5 meters)
- Parcel Boundary

Client/Project
Hancock Wind, LLC
Hancock Wind Project
T16 MD & T22 MD, Maine

Figure No.
2

Title
Safety Setback from Turbines
6/23/2014

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DET NORSKE VERITAS

TYPE CERTIFICATE

Vestas V117-3.3 MW

TC-230902-A-1 Rev. 1
Type Certificate number

2014-06-12
Date of issue

Manufacturer:
Vestas Wind Systems A/S
Hedeager 44
8200 Aarhus N

Valid until: 2019-06-10

Conformity evaluation has been carried out according to **IEC 61400-22: 2010 "Wind Turbines - Part 22: Conformity Testing and Certification".** This certificate attests compliance with IEC 61400-1 ed. 3: 2005 incl. A1 and IEC 61400-22 concerning the design and manufacture .

Reference documents:

Final Evaluation Report:	PD-2309-18CGY6P-14 Rev. 3a
Design Basis Conformity Statement:	DB-230902-A-2 Rev. 1
Design Evaluation Conformity Statement:	DE-230902-A-2 Rev. 1
Type Test Conformity Statement:	TT-230902-A-1 Rev. 1
Manufacturing Conformity Statement:	MC-230902-A-1 Rev. 1

Wind Turbine specification :
IEC WT class: S (IIA). For further information see Appendix 1 of this Certificate.

Date: 2014-06-12
Christer Eriksson
Management Representative
Det Norske Veritas, Danmark A/S

DANAK
PROD Reg. no. 7031

Date: 2014-06-12
Pia Redanz
Project Manager
Det Norske Veritas, Danmark A/S

DET NORSKE VERITAS, DANMARK A/S

APPENDIX 1 - WIND TURBINE TYPE SPECIFICATION

General:

IEC WT class acc. to IEC 61400-1 ed. 3: 2005 incl. A1:	IEC IIA (except for temperature ranges)
Rotor diameter:	117 m
Rated power:	3300 kW
Rated wind speed V_r:	11.2 m/s
Hub height(s):	91.5, 116.5 m
Operating wind speed range V_{in}-V_{out}:	3 – 25 m/s
Design life time:	20 years

Wind conditions:

V_{ref} (hub height):	42.5 m/s
V_{ave} (hub height):	8.5 m/s
I_{ref}	16 %
Mean flow inclination:	8°

Electrical network conditions:

Normal supply voltage and range:	3 x 650 V 10.5-35 kV ± 10 %
Normal supply frequency and range:	50 or 60 Hz ± 6 %
Voltage imbalance:	IEC 61000-3-6 TR max 2 %
Maximum duration of electrical power network outages:	Two 3 months periods
Number of annual electrical network outages:	Max 52 per year

Other environmental conditions (where taken into account):

Air density:	1.225 kg/m^3	
Standard temperature range:	Normal:	-20 °C to +45 °C
	Extreme:	-40 °C to +50 °C
Low temperature range:	Normal:	-30 °C to +45 °C
	Extreme:	-40 °C to +50 °C
Relative humidity:	100% (max 40% of time) and 90% (rest of life time)	
Solar radiation:	1000 W/m^2	
Salinity:	ISO 9223: Airborne salinity S3	
Description of lightning protection system:	Designed acc. to IEC 61400-24, Protection Level 1 and IEC 61312-1	

Main components:

Blade type:	Airfoil shells bonded to a supporting beam
Gear box type:	Winergy, PZAB 3530.1, i=112.6
Main bearing:	SKF 240/950 CA/C3LW33VQ113
Generator type:	3-phase IG, VND, Siemens (JGWA-560LM-06A)
Transformer type:	10.5-35 kV, SGB and Siemens, 50 and 60 Hz
Yaw gear type:	Bevel gear, Liebherr and Comer
Tower type:	Tubular steel
Service lift:	Avanti Shark or Power Lift Sherpa-SD
Crane:	Star 071/95 Liftket Lifting capacity: 800 kg
Controller:	VMP Global