

**Waiver Request**  
**Site Specific Soil Mapping**

1509.03 (a) (4)

The New Hampshire Code of Administrative Rules, Chapter Env-Wq 1500 “Alteration of Terrain”, Part Env-Wq 1504 “Plans and Calculations”, Section Env-Wq 1504.09 (b) (2)b requires that a site-specific soil map be prepared in accordance with the Society of Soil Scientists of Northern New England (SSSNNE) Special Publication No. 3, Site-Specific Soil Mapping Standards for New Hampshire and Vermont, December 2006, for all proposed areas of disturbance.

1509.03 (a) (5)

The applicant is requesting a waiver of this rule as a result of a conversation with NHDES staff during the Alteration of Terrain (AoT) permit pre-application meeting. This waiver has been granted in the past for similar projects. According to the document referenced above, “Site specific soil mapping is conducted for very intensive land uses requiring very detailed information about soils, generally in small areas. ... The information can be used in planning individual building sites, experimental agricultural plots, and other uses requiring detailed and precise knowledge of the soils and their variability.”

The proposed project is linear in nature, essentially a four (4) mile long crushed stone roadway that will connect ten (10) wind turbine generator sites. The project site lies predominantly along the top of a ridge, and straddles four (4) expansive, largely undeveloped watersheds. An examination of the Natural Resources Conservation Service (NRCS) Medium Intensity Soil Survey of Hillsborough County, NH indicates that the majority of the project will be built on Hydrologic Soil Group C soils. A relatively short length of road will be built on HSG D soils, through an area of ledge and outcrop. No infiltration BMPs are proposed for the stormwater management system. In addition, sensitive areas such as streams, wetlands and vernal pools have been mapped and are shown on the site plans. This is not the type of project for which a site-specific soil map is intended, nor would the information produced by such a study provide any real benefit. That level of detail is not required.

1509.03 (a) (6)

The waiver will not be temporary.

1509.03 (a) (7)

As an alternative to a site-specific soil map, the site plans have been prepared using delineations from the NRCS Medium Intensity Soil Survey obtained from the Web Soil Survey website.

1509.03 (a) (8)

The applicant believes that having the waiver granted will meet the criteria in Env-Wq 1509.04 for the following reasons:

1. *“Granting the request will not result in an adverse impact on the environment, public health, public safety, or abutting properties that is more significant than that which would result from complying with the rule.”*

Environmentally sensitive areas such as streams, wetlands and vernal pools have already been mapped in the project area, so no adverse impacts to the environment are anticipated as a result of the waiver. Due to the nature of the project, the waiver will have no bearing on public health and safety. The impact on abutting properties as a result of the proposed land use will not change as a result of the intensity of the soil study.

2. *“One or more of the following are satisfied:*
  - a. *Granting the request is consistent with the intent and purpose of the rule being waived; or*
  - b. *Strict compliance with the rule will provide no benefit to the public or the environment.”*

The applicant believes that both conditions are satisfied. In particular, strict compliance with the rule will provide no benefit to the public or the environment. The purpose of the waiver request is to allow the project to be based on a less intensive soil study, not to waive the requirement completely. NRCS soil surveys are commonly used as a basis for projects of this nature. In addition, sensitive areas such as streams, wetlands and vernal pools have already been mapped in the vicinity of the project. Therefore, a site-specific soil survey will not provide any additional benefit to the public or the environment.



## **Spill Prevention, Control, Countermeasure (SPCC) Plan**

### **Project Name – Eolian-Antrim Wind Power Project**

#### **1.0 Purpose**

To have procedures and resources available to eliminate or mitigate spills in a timely and efficient manner during construction.

#### **2.0 Fuel, Oil, and Lubricant Storage**

During construction Reed & Reed and its subcontractors will have cranes, trucks, and other equipment on-site to perform the work. Multiple 500 gallon skid tanks will be used for on-road and off-road diesel fuel. Safety cans of diesel fuel and gasoline will be properly stored in cages which are properly labeled as detailed in our site specific safety plan.

Other lubricants such as oils and grease will be stored in 5 gallon pails in a dedicated connex box on shelving units. Contractors will utilize 2-3 connex boxes each with oil and lubricants and have them spaced throughout the project and will periodically move fuel and lubricants from turbine work pad site to turbine work pad site as the work requires. The maximum quantities of oil and lubricants in each connex box will be 25 gallons. The maximum quantity of waste oil per connex storage box will be 15 gallons. Waste oil will be removed from site within 5 days of initial accumulation. Contractors will have no hazardous waste onsite.

#### **3.0 Spill Prevention**

To ensure spills are kept to a minimum and are processed correctly and quickly Reed & Reed implements procedures and uses equipment that provides for effective protection for the environment. The skid tanks are double walled tanks and these tanks will be separated and surrounded by jersey barriers. Also accompanying the skid tanks will be (2) 55 gallon spill packs and a 20 pound fire extinguisher. All portable fuel tanks will be properly marked and stored. In addition each supervisor and crew's vehicles are equipped with 5 gallon spill packs.

##### **3.1 Spill Procedure**

If a spill occurs the site supervisor as well as the site safety manager will be contacted. Reed's supervisor will report the spill to the NH DEP. Reed & Reed will also contact its spill clean-up contractor which is detailed below.

##### **3.2 Spill Clean-up**

Reed's spill and clean-up and prevention contractor EPI (Environmental Projects, Inc.) will mobilize and perform appropriate spill remediation. EPI will monitor, clean-up and legally dispose of any spill on the project as well as give advice on how to prevent future spills from occurring.

#### **4.0 Contact List**

New Hampshire DES: 603-271-3899  
Fire Department: 911  
Reed & Reed Superintendent: TBA  
Reed & Reed Safety Manager: TBA  
Environmental Projects Inc.: 207-786-7390

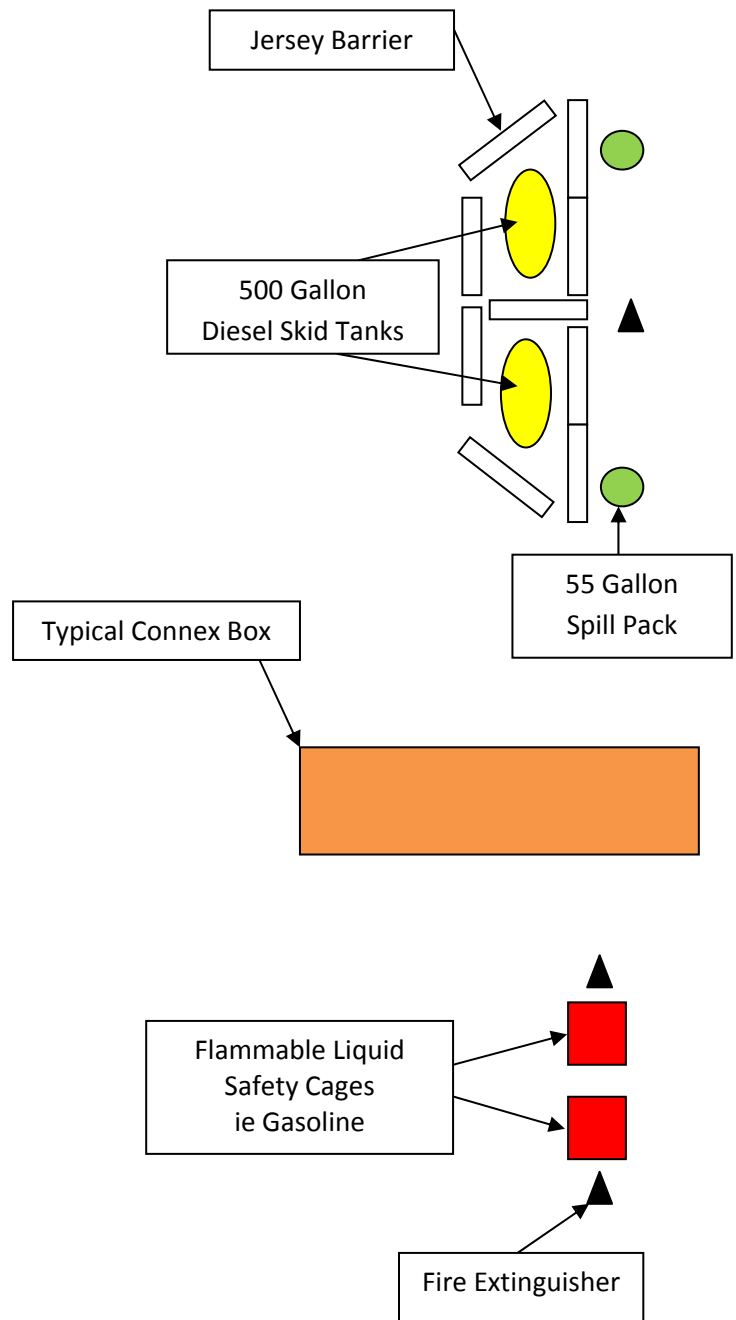


Spill Prevention, Control, Countermeasure (SPCC) Plan  
Project Name – Eolian-Antrim Wind Power Project




5.0 Typical Storage and Containment Drawing


Crane Path


Laydown Area





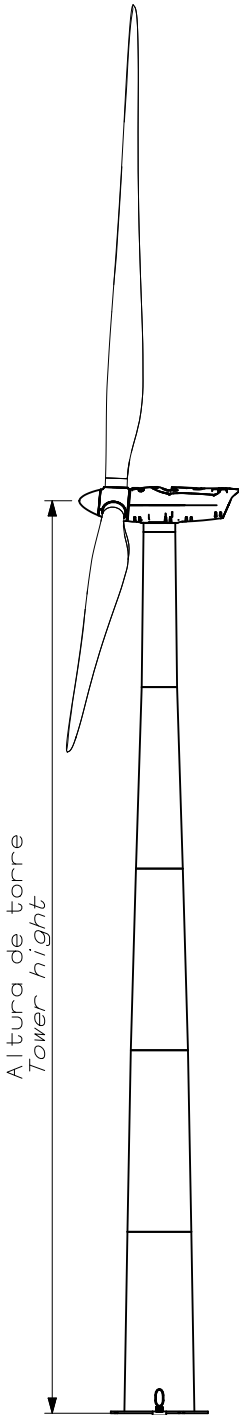
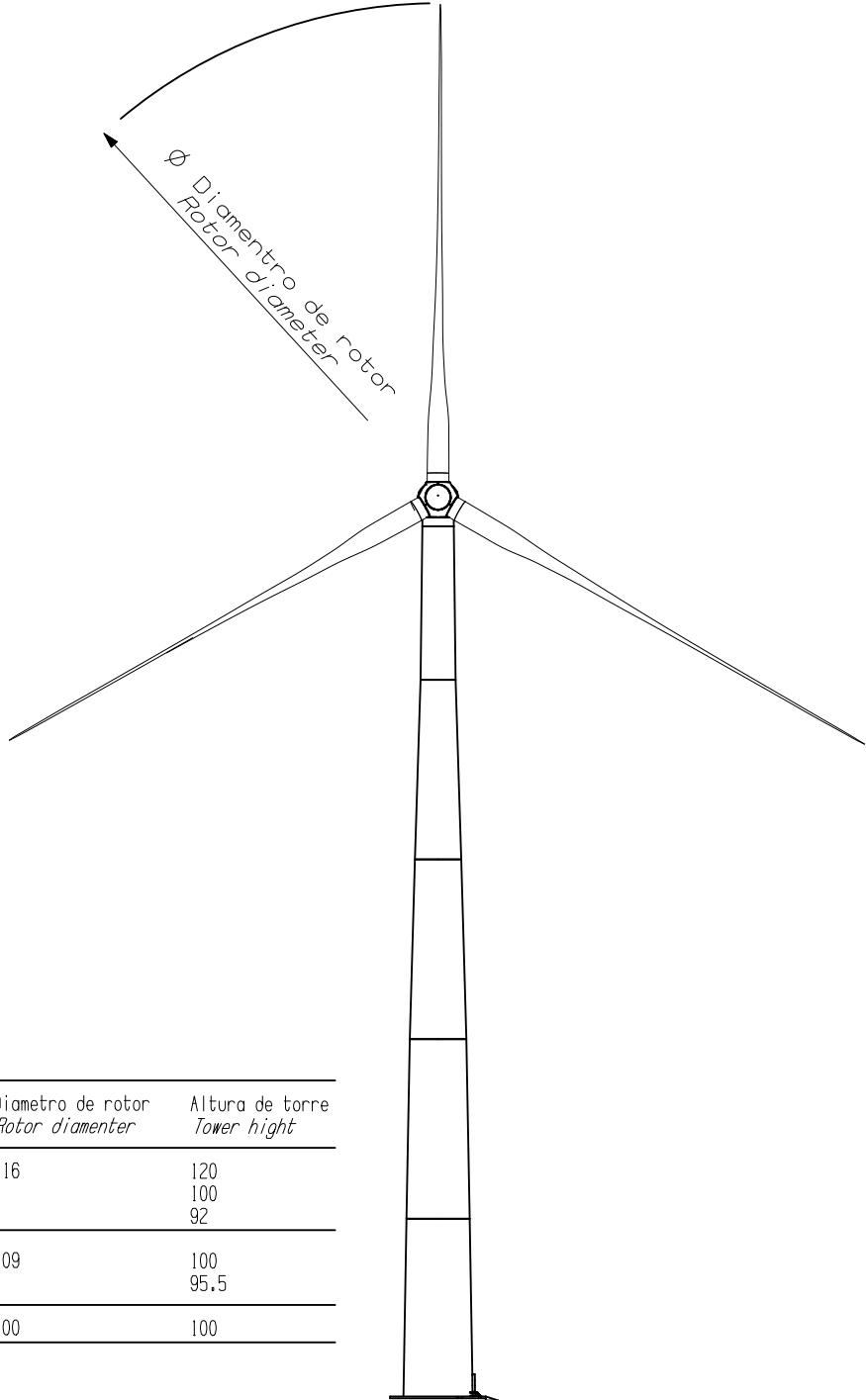
Rev	Fecha Date	Descripción de la revisión Description of the revision	
"A"	30/06/11	Elaboración / Elaborated	
"B"			
"C"			
"D"			
"E"			
Realizado / Done		Revisado / Reviewed	Aprobado / Approved
 30-06-2011		 30-06-2011	 30-06-2011

	<b>ESPECIFICACIONES TÉCNICAS</b>  <b>TECHNICAL SPECIFICATIONS</b>	Doc.: TS0028
		Rev.: A
AW 116/3000 IEC IIA T92 60 HZ LT WIND TURBINE		P. 2 / 3

	<b>TECHNICAL SPECIFICATION</b>	DATE: 30/06/11
		REVISION: A
	<b>AW 116/3000 CLASS IEC Ila T 92 m 60 Hz LT WIND TURBINE</b>	AUTHOR: EGM
		CHECKED: EAL
		APPROVED: MNP

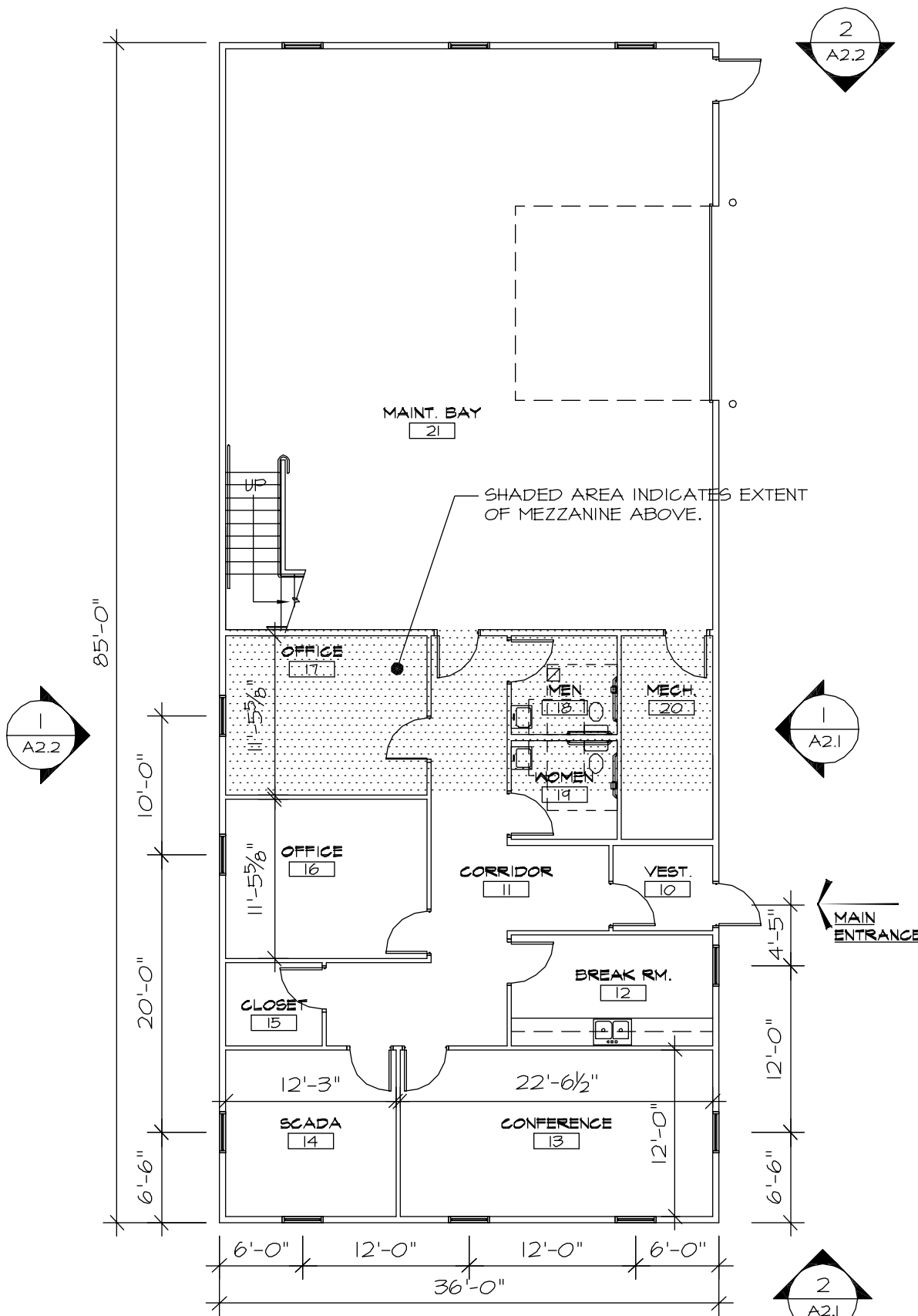
<b>ROTOR</b>	Number of blades	3
	Orientation	Upwind
	Diameter	116 m
	Swept area	10568 m <sup>2</sup>
	Rotational direction	Clockwise
	Rotational speed	Variable - 10.1 ... 15.5 rpm
	Hub height	92 m
	Power regulation	Full span blade pitch
	Overspeed control	Full span blade pitch
	Rotor shaft tilt angle	5°
	Nominal tip speed	80.3 m/s
	Cone angle	5°
<b>BLADES</b>	Material	GRE
	Total length	56.7 m
	Weight range	14 T / blade
	Pitch	Full span
	Aerodynamic Brake	Full feathering
<b>HUB</b>	Hub type	Rigid
	Material	Cast iron GJS 400 18U LT
	Protection	Epoxy
<b>PITCH SYSTEM</b>	Pitch bearings	Double row four point contact bearing
	Actuation	Hydraulic
	Linkage	Through hydraulic cylinders
	Failsafes	Accumulators on hub
<b>DRIVE TRAIN</b>	Gearbox	3 stages, 2 planetary / 1 paralel
	Gearbox nominal power	3300 kW
	Gearbox ratio	1:100
	Input speed	Variable - 10.1 ... 15.5 rpm
	Output speed	Variable - 920 ... 1560 rpm
	Lubrication	Pressure and splash with oil cooler / oil filter
<b>ROTOR SHAFT</b>	Type	Forged hollow shaft
	Material	34 Cr Ni Mo 6
	Supporting	2 bearings
<b>DRIVETRAIN BEARINGS</b>	Type	Double spherical roller bearings
<b>PARKING BRAKE</b>	Type	Single disk
	Location	High speed shaft
<b>YAW SYSTEM</b>	Type	Double row four point contact bearing
	Slewing gear	external
	Slewing gear / yaw drive pinion ratio	11.2:1
	Braking system	Hydraulic Callipers
	Number of yaw drives	6

<b>YAW GEARS AND MOTORS</b>	Type	Planetary 4-5 stages
	Ratio	1:1430
	Yaw rate	0.09 rpm
	Motor types	Asynchronous 4 poles
	Voltage / Frequency	230/400 V - 60 Hz.
	Power rating	2.2 kW
<b>HYDRAULIC POWER UNIT</b>	Oil pump capacity	90 l/min
	Motor type	37 kW
	Voltage/frequency	380 V / 60 Hz
	Blade accumulator	2 x 20 l
	Principal accumulator	20 l
<b>GENERATOR</b>	Type	6 poles, double feeding
	Insulation Classes (stator/rotor)	H / H
	Rated Power	3000 kW
	Degree of protection	IP 54
	Frequency	60 Hz
	Voltage	12000 V
	Power factor (shortcircuited rotor)	0.93
	Speed range	920 - 1560 rpm
<b>CONTROL SYSTEM</b>	Power control	Converter Control Unit
	Master processor	Programmable Logical Controller
	Interface	Scada
	Power factor correction	Programmable by software
<b>TOWER</b>	Type	Turbular Steel
	Tower height	90.2 m
	Material	S355 K2
	Access to the tower	Door with lock system
	Access to nacelle cabin	Ladder or elevator
	Weight	262 T
	Foundation connection	Two stud races embedded in concrete
<b>OPERATING DATA</b>	Cut-in wind speed	3 m/s
	Nominal power wind speed	10.2 m/s
	Cut-out wind speed	25 m/s
	Nominal power	3000 kW

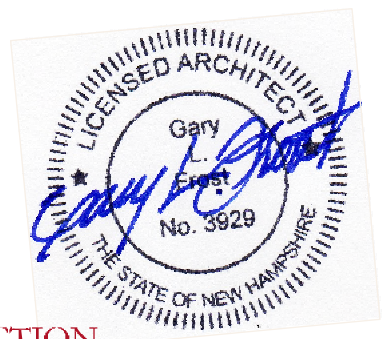
																	
		<table border="1" style="margin: auto;"> <thead> <tr> <th>Diámetro de rotor <i>Rotor diameter</i></th> <th>Altura de torre <i>Tower height</i></th> </tr> </thead> <tbody> <tr> <td>116</td> <td>120</td> </tr> <tr> <td></td> <td>100</td> </tr> <tr> <td></td> <td>92</td> </tr> <tr> <td>109</td> <td>100</td> </tr> <tr> <td></td> <td>95,5</td> </tr> <tr> <td>100</td> <td>100</td> </tr> </tbody> </table>		Diámetro de rotor <i>Rotor diameter</i>	Altura de torre <i>Tower height</i>	116	120		100		92	109	100		95,5	100	100
Diámetro de rotor <i>Rotor diameter</i>	Altura de torre <i>Tower height</i>																
116	120																
	100																
	92																
109	100																
	95,5																
100	100																
A	14-06-2011	ARO	CREACION DEL PLANO / <i>DRAWING CREATION</i>														
IDENTIF./IDENTIF	FECHA/DATE	REALIZADO/CREATED	MODIFICACION/MODIFICATION														
MATERIAL/MATERIAL		TOLERANCIAS GENERALES/GENERAL TOLERANCES	PESO/WEIGHT														
NOMBRE/NAME	DIBUJADO/DRAWN	COMPROB./REVISED	APROB./APPROVED														
FECHA/DATE	22-06-2011	27-06-2011	27-06-2011														
ESCALA/SCALE		DENOMINACION															
		Plano general aerogenerador 3MW															
		NAME															
		General arrangement of the AW3000 wind turbine															
		FORMATO/FORMAT															
		A4															
<p>Este plano es propiedad exclusiva de <b>acciona windpower</b> y su reproducción total o parcial esta totalmente prohibida y queda amparada bajo la legislación vigente. Los contraventores serán perseguidos legalmente tanto en España como en el extranjero. El uso, copia o venta de esta publicación, solo podrá realizarse con autorización expresa y por escrito de <b>acciona windpower</b>.</p> <p>This drawing is the exclusive property of <b>acciona windpower</b> and is covered by current legislation. Full or partial reproduction is prohibited. Anyone who does so will be prosecuted, whether in Spain or abroad. This publication may be used, copied or sold only with the express written authorization of <b>acciona windpower</b>.</p>																	



Activity ID	Activity Name	Orig. Dur.	Float	%	Start	Finish	2013							2014												2015					
							Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
Eolian-Antrim Wind Power Project- Construction Schedule		340	0		01-Feb-13 A	30-Sep-14																									
Preconstruction Phase		150	190		01-Feb-13 A	07-Jan-14																									
MOB-00-03	Full Contract Execution	0	340	0%	12-Jun-13		◆ Full Contract Execution																								
RFP & Preconstruction		0	340		12-Jun-13	12-Jun-13	▼																								
Owner Design & Engineering		0			01-Feb-13 A	01-Feb-13 A																									
Procurement		150	190		12-Jun-13	07-Jan-14																									
Civil Materials		0	340		12-Jun-13	12-Jun-13	▼																								
Switchyard Materials		150	170		12-Jun-13	07-Jan-14																									
Collector Substation Materials		150	190		12-Jun-13	07-Jan-14																									
Collector System		110	216		12-Jun-13	12-Nov-13																									
WTG Foundations		60	280		12-Jun-13	03-Sep-13																									
Construction Phase		322	18		12-Jun-13	04-Sep-14																									
MOB-00-02	Full Notice to Proceed	0	94	0%	12-Jun-13		◆ Full Notice to Proceed																								
Mobilize		18	94		14-Jun-13	09-Jul-13	▼																								
CRP-01-22	Clear & Construct Laydown Area	5	95	0%	14-Jun-13	20-Jun-13	■ Clear & Construct Laydown Area																								
MOB-01-00	Mobilize Site	15	94	0%	19-Jun-13	09-Jul-13	■ Mobilize Site																								
Winter Shutdown		95	0		17-Dec-13	28-Apr-14																									
CRP-01-12	Earthwork Shutdown	95	0	0%	17-Dec-13*	28-Apr-14	Earthwork Shutdown																								
Clearing & Development of Access Road		35	180		26-Jun-13	13-Aug-13	▼																								
Clearing & Development of Crane Path & WTG Pads		258	44		05-Aug-13	30-Jul-14																									
WTG Transportation		40	3		01-Jul-14	26-Aug-14																									
TRN-01-11	Delivery of Turbines to Port or Rail head	0	0	0%		01-Jul-14*	◆ Delivery of Turbines to Port or Rail head																								
TRN-02-01	Receive Tower Components @ Site	30	3	0%	16-Jul-14	26-Aug-14	■ Receive Tower Components @ Site																								
WTG Construction		85	18		09-May-14	04-Sep-14																									
WTG 1		62	41		09-May-14	04-Aug-14																									
WTG 2		63	39		12-May-14	06-Aug-14																									
WTG 3		64	37		13-May-14	08-Aug-14																									
WTG 4		65	35		14-May-14	12-Aug-14																									
WTG 5		66	33		15-May-14	14-Aug-14																									
WTG 6		67	31		16-May-14	18-Aug-14																									
WTG 7		52	29		10-Jun-14	20-Aug-14																									
WTG 8		52	27		12-Jun-14	22-Aug-14																									
WTG 9		38	25		04-Jul-14	26-Aug-14																									
WTG 10		26	18		31-Jul-14	04-Sep-14																									
Collector & Substation		283	17		07-Aug-13	05-Sep-14																									
Ridgeline OH Collector		115	180		14-Aug-13	21-Jan-14																									
Underground Collector		258	17		11-Sep-13	05-Sep-14																									
Substation		163	137		07-Aug-13	21-Mar-14																									
Switchyard		161	139		07-Aug-13	19-Mar-14																									
O&M Building		209	91		07-Aug-13	26-May-14																									
Project Completion & Turnover		18	0		04-Sep-14	30-Sep-14																									
COM-01-02	Energize Circuit - WTG's 1-10	0	0	0%		04-Sep-14	◆ Energize Circuit - WTG's 1-10																								
COM-00-05	Testing & Commissioning - WTG's 1-10	15	0	0%	08-Sep-14	26-Sep-14	■ Testing & Commissioning- WTG's 1-10																								
COM-01-04	Substantial Completion	0	1	0%		08-Sep-14	◆ Substantial Completion																								
COM-01-05	Final Turnover Packages & As-Builts	15	1	0%	09-Sep-14	29-Sep-14	■ Final Turnover Packages & As-Builts																								
COM-00-16	Final Commissioning	2	0	0%	29-Sep-14	30-Sep-14	■ Final Commissioning																								
COM-01-06	Final Completion	0	0	0%		30-Sep-14	◆ Final Completion																								
COM-01-16	Project COD	0	0	0%		30-Sep-14	◆ Project COD																								

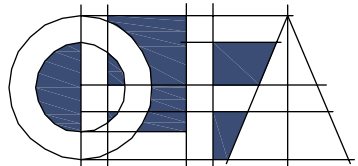


FLOOR PLAN  
1  
3/32" = 1'-0"



FOR REVIEW - NOT FOR CONSTRUCTION

**G. L. FROST**



**ARCHITECTURE**

40 Boutelle Road  
Bangor, Maine 04401  
ph. 207.942.3550  
www.frostarch.com

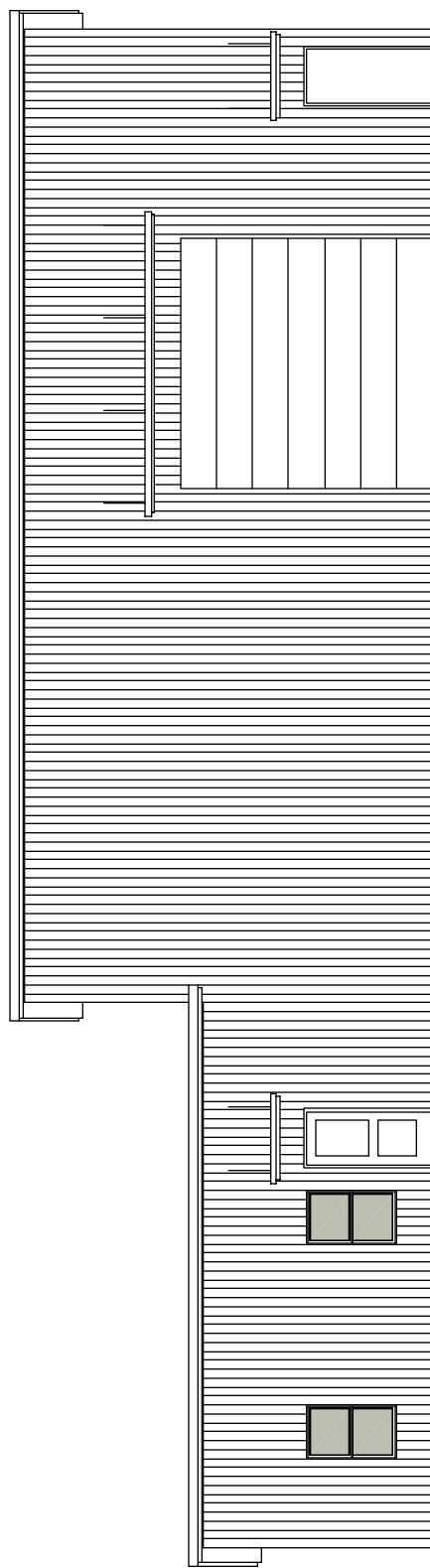
**OPERATIONS & MAINTENANCE  
BUILDING  
ANTRIM WIND PARK  
ANTRIM WIND ENERGY, LLC**

Keene Road - Route 9  
Antrim, New Hampshire

**BUILDING PLAN**

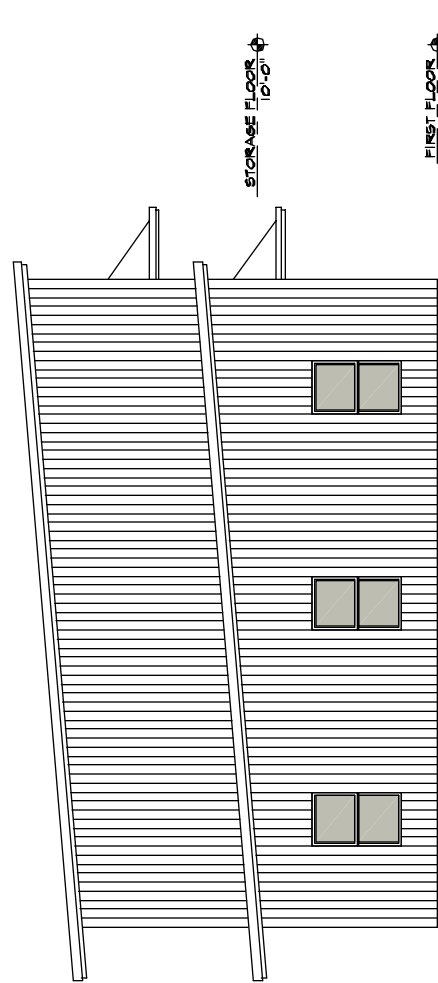
SHEET TITLE:			
SCALE:	DRAWN:	CHECKED:	DATE:
1/2" = 1'-0"	G.L.F.	G.L.F.	23 January 2012
GRAPHIC SCALE:			
0' 1'			
DRAWING No.			
<b>A1.1</b>			

© COPYRIGHT 2012 G.L. FROST ARCHITECTURE



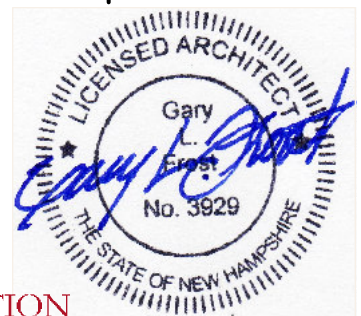
1 SOUTHEAST ELEVATION

$\frac{3}{32}'' = 1'-0''$



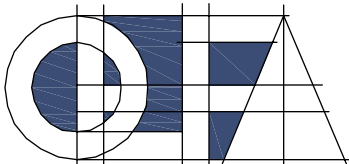
2 SOUTHWEST ELEVATION

$\frac{3}{32}'' = 1'-0''$



FOR REVIEW - NOT FOR CONSTRUCTION

G. L. FROST



ARCHITECTURE

40 Boutelle Road  
Bangor, Maine 04401  
ph. 207.942.3550  
www.frostarch.com

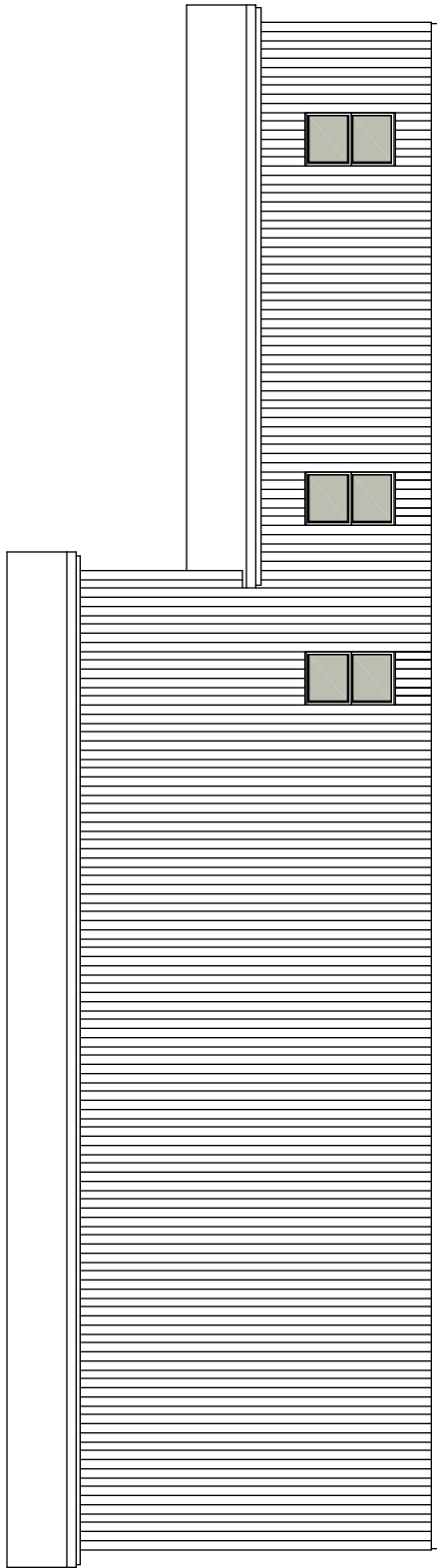
OPERATIONS & MAINTENANCE  
BUILDING  
ANTRIM WIND PARK  
ANTRIM WIND ENERGY, LLC

Keene Road - Route 9  
Antrim, New Hampshire

BUILDING  
ELEVATIONS

SHEET TITLE:		DATE:	23 January 2012
DRAWN:	G.L.F.	GRAPHIC SCALE:	1" = 1'
CHECKED:	G.L.F.		
DESIGN:	G.L.F.		
PROJECT NO.	12198		
SCALE:	U.S. STANDARD		
DRAWING No.	<b>A2.1</b>		

© COPYRIGHT 2012 G.L. FROST ARCHITECTURE



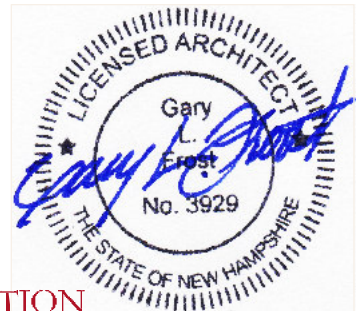
1 NORTHWEST ELEVATION

3/32" = 1'-0"



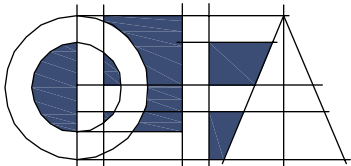
2 NORTHEAST ELEVATION

3/32" = 1'-0"



FOR REVIEW - NOT FOR CONSTRUCTION

G. L. FROST



ARCHITECTURE

40 Boutelle Road  
Bangor, Maine 04401  
ph. 207.942.3550  
www.frostarch.com

OPERATIONS & MAINTENANCE  
BUILDING  
ANTRIM WIND PARK  
ANTRIM WIND ENERGY, LLC

Keene Road - Route 9  
Antrim, New Hampshire

BUILDING  
ELEVATIONS

SHEET TITLE:		DATE: 23 January 2012	
SCALE: U.S. STANDARD	DRAWN: G.L.F.	CHECKED: G.L.F.	DESIGNED: G.L.F.
PROJECT NO. 12198		GRAPHIC SCALE: 1" = 1'	
		DRAWING NO. <b>A2.2</b>	

© COPYRIGHT 2012 G.L. FROST ARCHITECTURE