



# ***American Pro Wind, LLC***

*Today's Vision for Tomorrow's Well-Being*



*American Pro Wind, LLC*



## *About the Company*

- ❖ Formed with the goal of entering and becoming a leader in the field of Renewable Energy production
- ❖ Focused on clean energy produced by wind
- ❖ American Pro Wind LLC is a proud member of the American Wind Energy Association
- ❖ APW has demonstrated strong commitment to achieve it's goals by assembling a top-notch team of experts in the areas of wind energy, environmental science, engineering, legal, site and business development



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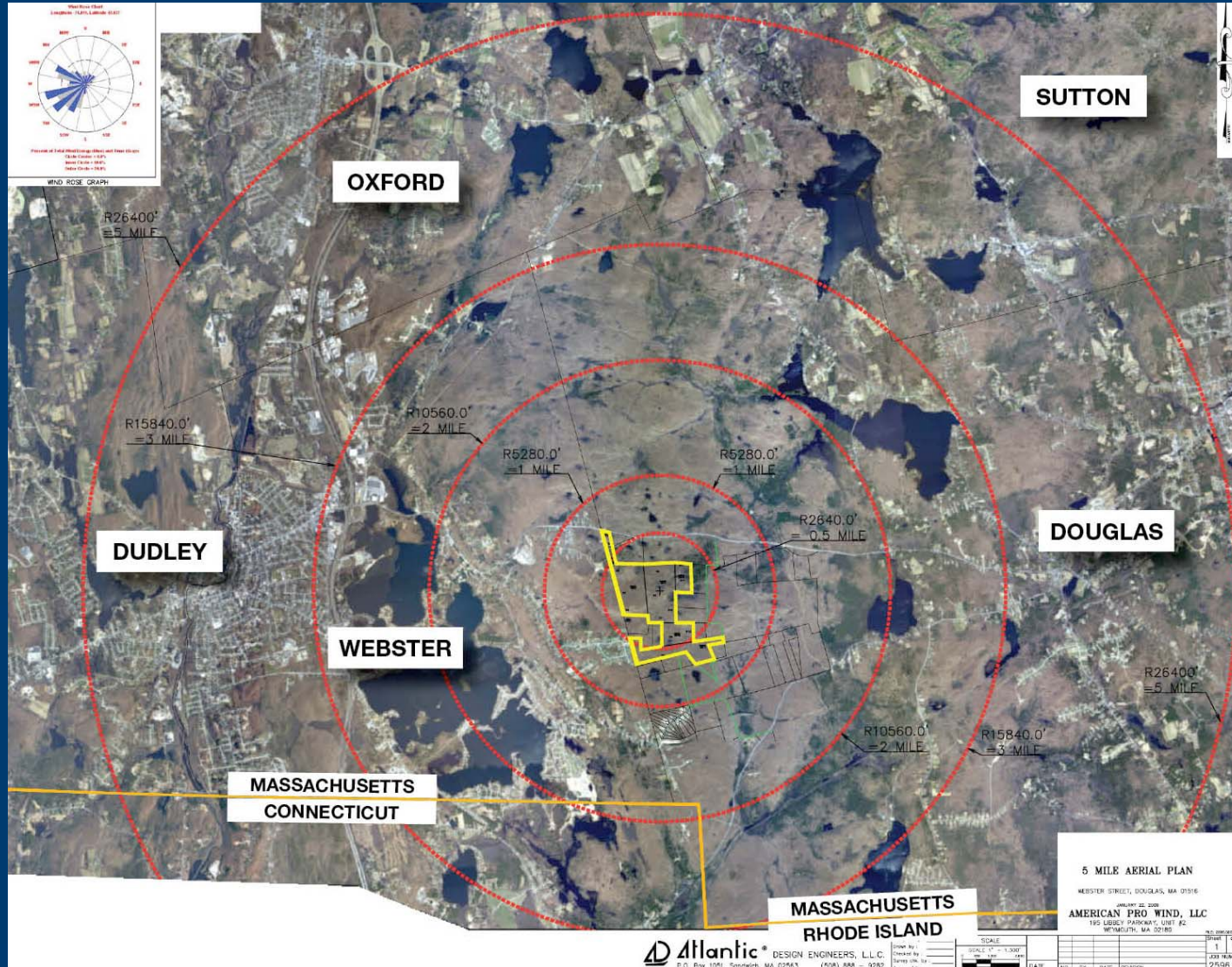


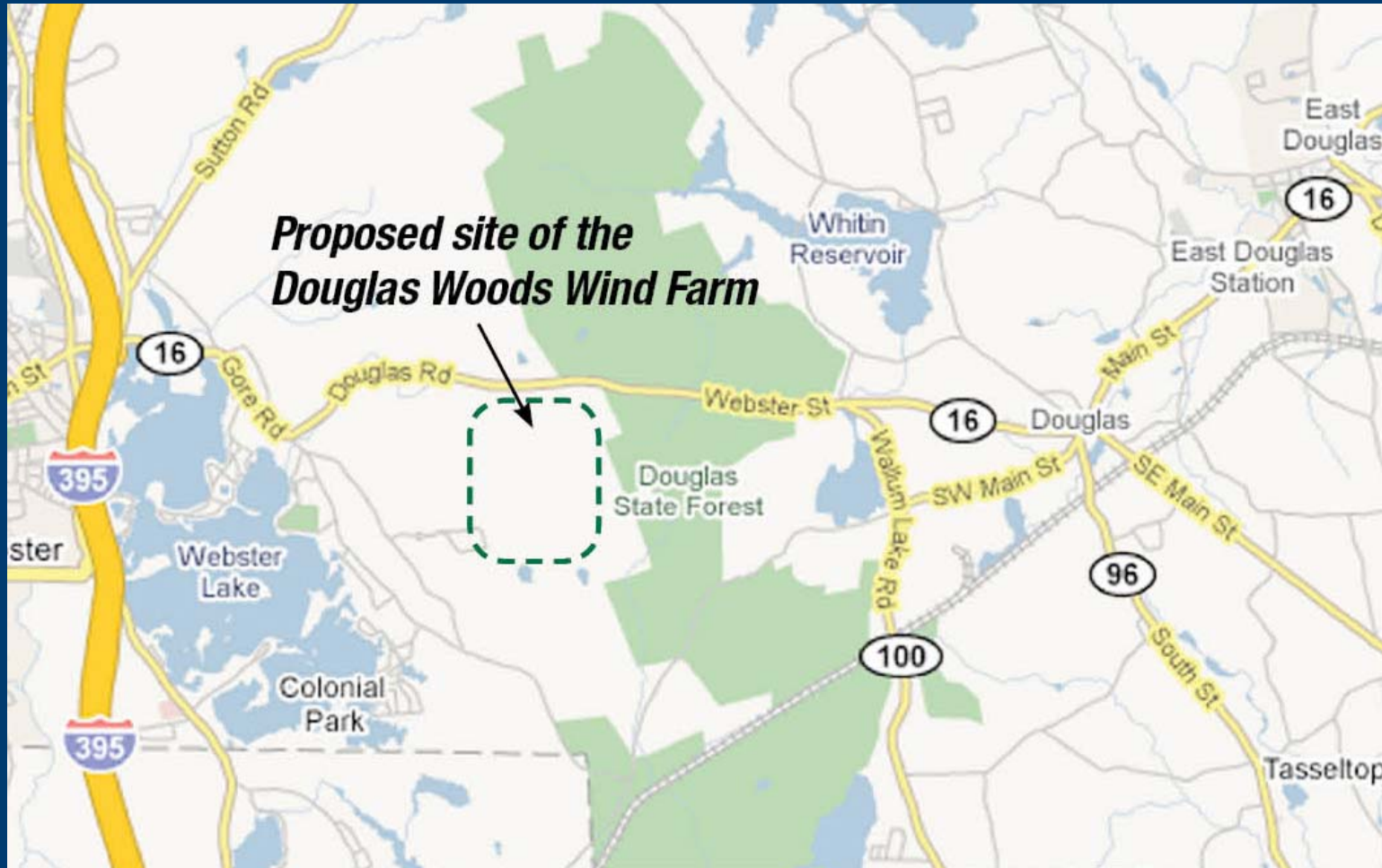
# *Douglas Woods* **WIND**





# 5 Mile Aerial Plan







## *Property Information – Site Selection*



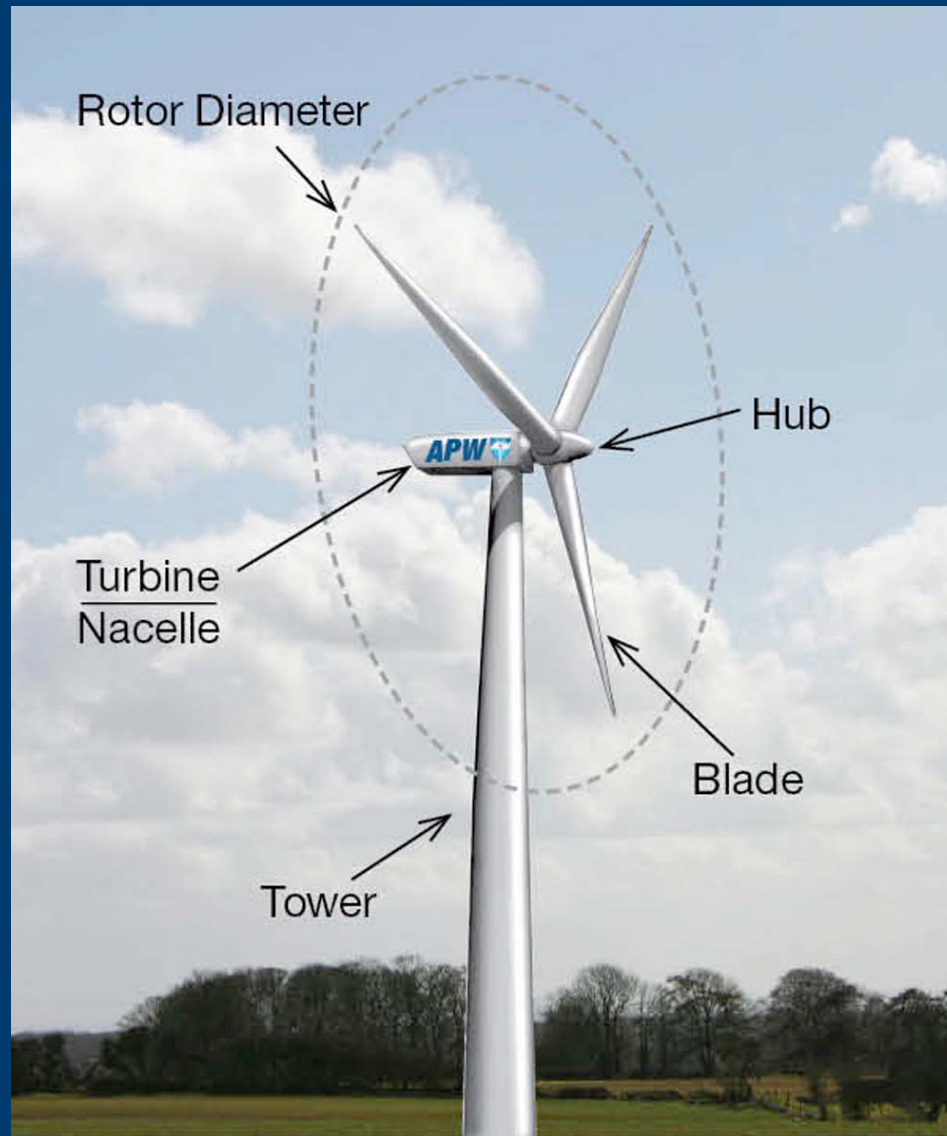
- ❖ The property consists of 275 acres of Industrial zoned land within an Economic Development District.
- ❖ The site is mostly surrounded by ‘undevelopable’ land (the Douglas State Forest, land-locked parcels, wetlands, etc.) which offers a natural screening for sound, shadow and visibility. These site characteristics minimize the impacts to the community and make this an ideal site for the development of a Wind Farm.
- ❖ The site has one of the highest elevations within a 20 mile radius which was a very important factor in APW’s decision to select this property for its first proposed development.



## *Tower Characteristics*



- ❖ The proposed turbines will be placed on top of 100 meter (328 feet) towers. The abutting radio tower in Webster is 660 feet high.
- ❖ The length of the blades will be between 40 and 50 meters (131 to 164 feet).
- ❖ The proposed height is necessary to obtain a wind regime that would make the project financially feasible.







## *Photo Simulation*

Location: Point Breeze Marina,  
Webster, Massachusetts



## *Project Summary*

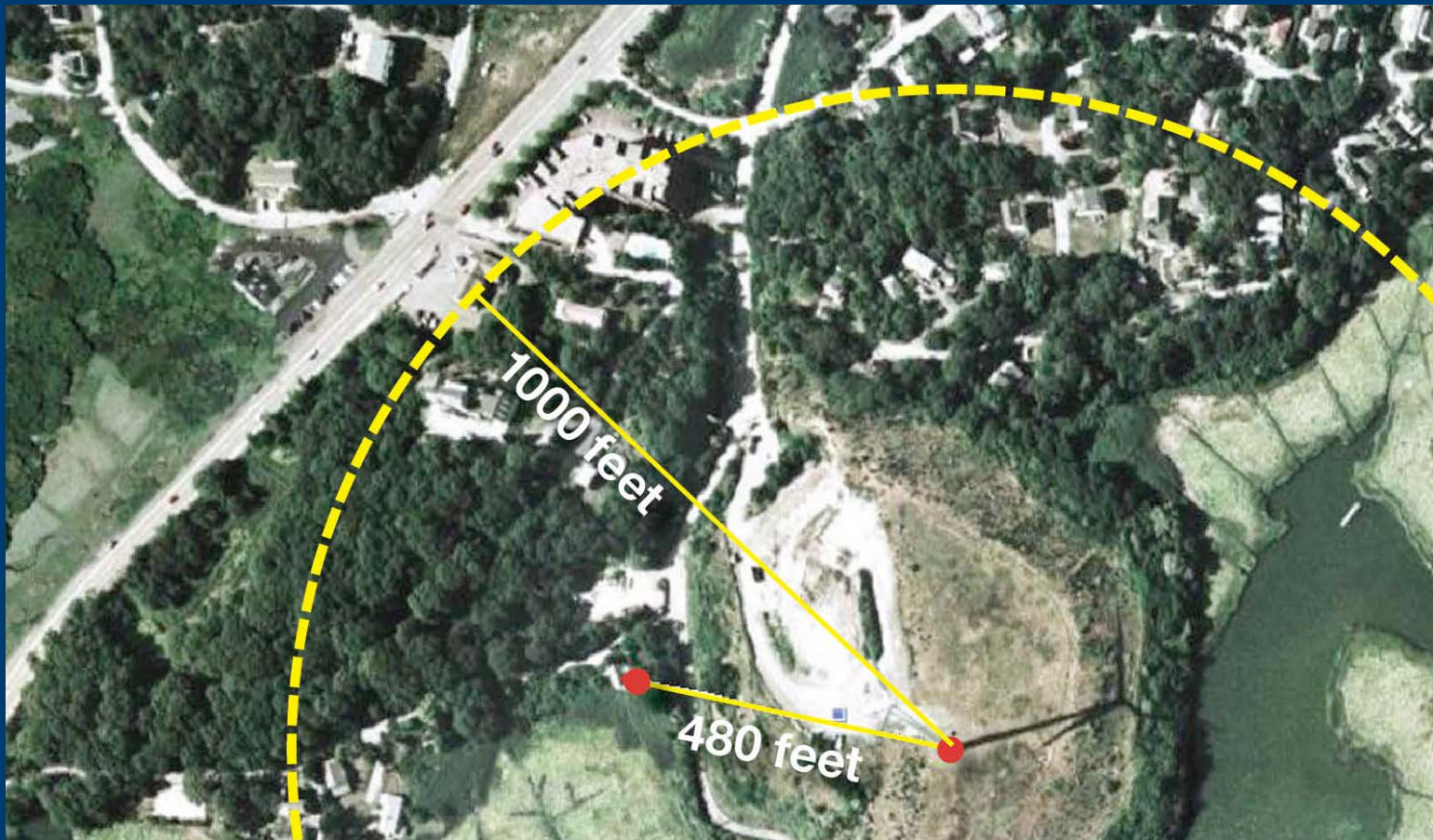


- ❖ Douglas Woods Wind is a proposed 13 turbine Wind Farm with an estimated 26 to 30 MWh capacity. This is one of the largest on-land proposed projects in Mass.
- ❖ The estimated annual energy production is projected to be from 58 to 64 million kilowatts.
- ❖ Douglas Woods Wind will provide sufficient energy to power 8,500 to 10,000 homes
- ❖ The closest proposed turbine will be placed at a minimum distance of 1,000 feet from any existing dwellings.

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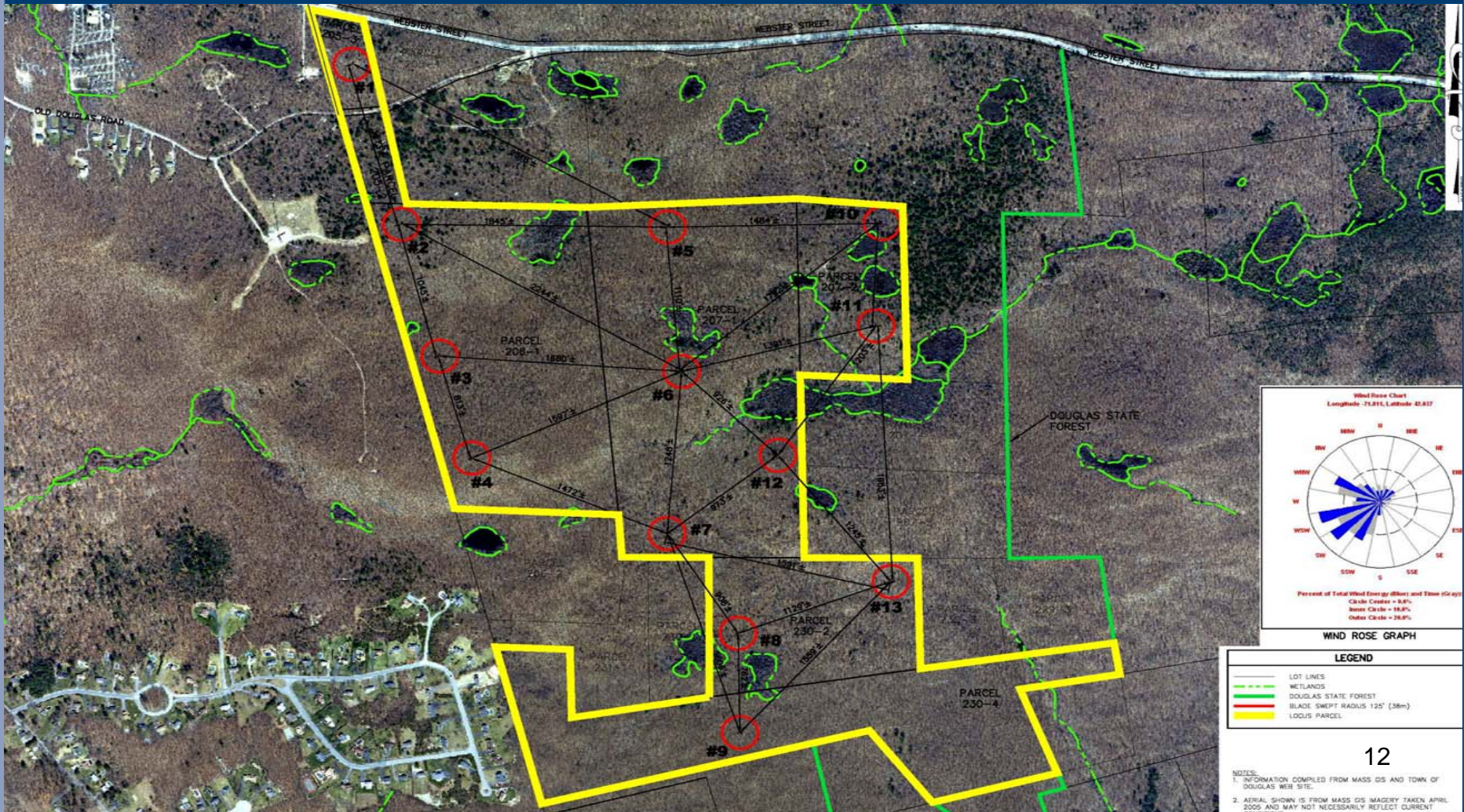


## *Turbine Distance example – Hull, MA*





# Conceptual Turbine Siting Plan





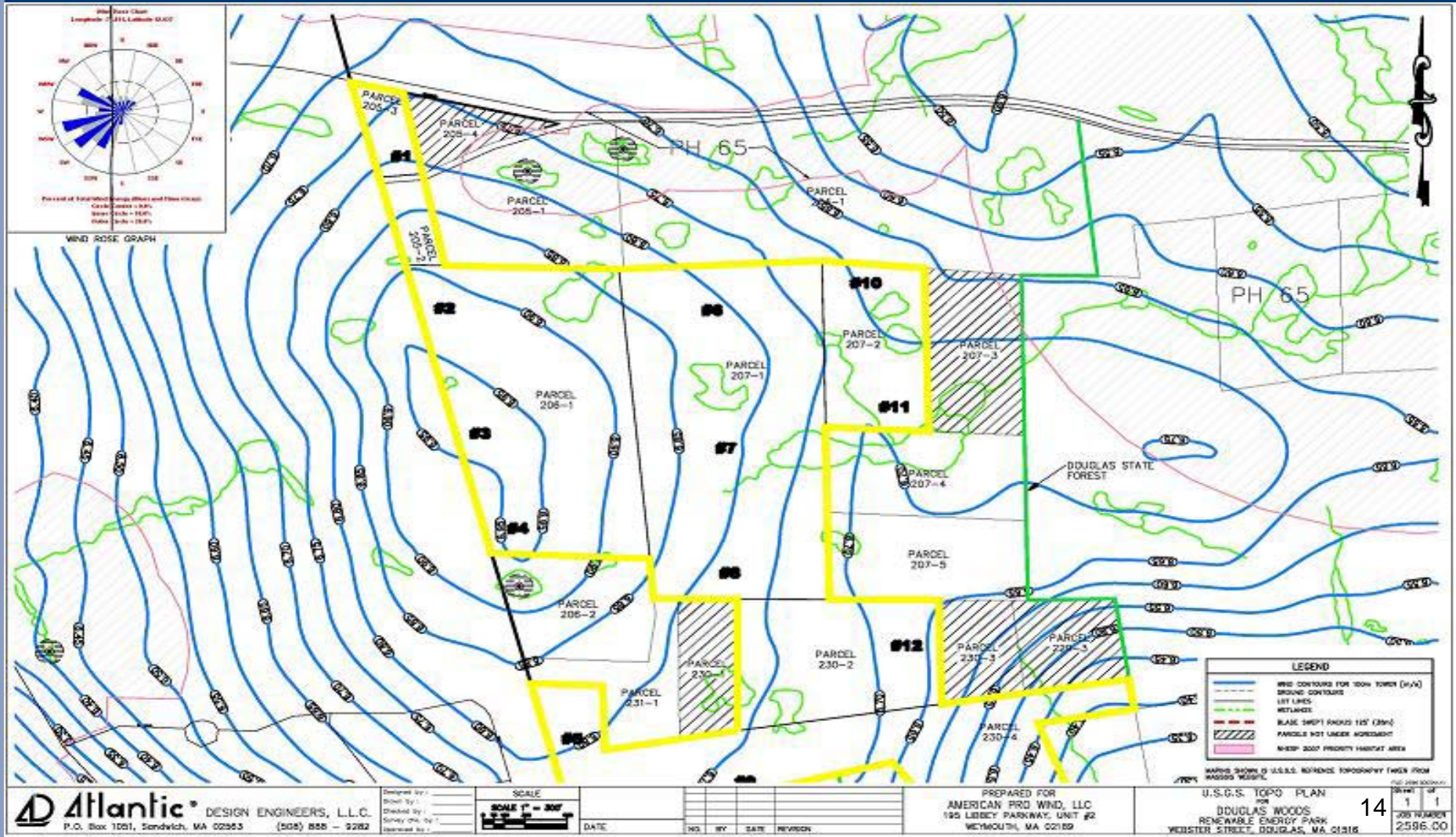
## *Project Summary*



- ❖ The site is not within an Aquifer Protection Zone. The proposed development will not negatively impact the existing water wells in the Webster/Douglas area.
- ❖ The property is not mapped as Priority or Estimated Habitat for state-listed species.
- ❖ Post construction drainage will be contained on site with absolutely no impact to the Webster Lake area.
- ❖ The proposed development will not be a burden to the area's existing infrastructures for water, sewage or gas.



# Wind Contour Plan





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## *Permitting*

*APW has applied for the following preliminary permits from the Town of Douglas:*

- ❖ Use and height variance from the Douglas Zoning Board of Appeals (ZBA) to allow the installation of a 60 meter (197 feet) temporary meteorological tower. The purpose of the met tower is to collect actual Wind Data at the site for a minimum of 12 months.
- ❖ Use and height variance from the Douglas Zoning Board of Appeals to allow the construction of 13 turbines/towers.

The next hearing is scheduled for March 19, 2009.

- ❖ In the event that this variance is granted, APW will then apply for a 'Site Plan Approval' from the ZBA and a 'Determination of Wetlands' from the Conservation Commission.

*(continues)*





## *Permitting (continued)*

- ❖ Numerous permits/approvals will also be required by the State such as Mass. Aviation Commission, Dept. of Energy, Dept. of Public Utilities, Dept. of Transportation, Environmental and Energy Affairs and possibly MEPA.
- ❖ Various Federal permits/approvals will also be required by the Federal Aviation Administration (FAA), Federal Energy Regulatory Commission (FERC), etc.
- ❖ Interconnection Agreement from Independent Service Operators, New England (ISO-NE)
- ❖ Power Purchase Agreement from ISO-NE and/or National Grid.



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## *Electric Infrastructure*



- ❖ The existing electrical infrastructure is in desperate need of improvements
- ❖ The Webster/Douglas area has a tremendous need for additional power.
- ❖ APW is committed to working with National Grid and ISO-New England to ensure that all the necessary improvements to the area's infrastructure are implemented.
- ❖ Douglas Woods WIND will provide the much needed additional energy for the area.



## *Tasks completed to date*

- ❖ '21E' Environmental Study completed with no recognizable environmental conditions identified.
- ❖ Preliminary Wind Resource Assessment is completed.
- ❖ Conceptual Turbine Site Plan approved by meteorologist.
- ❖ Approval by Natural Heritage and Endangered Species Program.
- ❖ The project has received unanimous endorsement from the Douglas Economic Development Commission on December 8, 2009.
- ❖ A variance for the installation of a meteorological tower was granted by the Town of Douglas Zoning Board of Appeals.



## *Tasks completed to date*

- ❖ APW has had several meetings with numerous State officials (DOER, DPU, EOEEA, EOHCD, RET, MTC, etc.). The project has received enthusiastic response and support as it reflects the big push at both the State and Federal levels to increase power generation from clean renewable sources.
- ❖ Approval received by the Massachusetts Aviation Commission
- ❖ Noise impact assessment study: completed
- ❖ Shadow Flicker analysis and impact: completed
- ❖ Photo simulations report addressing visibility impact: completed.



## *Benefits to the community*

- ❖ Major improvements to the existing electric infrastructure will provide the Webster/Douglas area residents with a more reliable electric system.
- ❖ APW proposes to sell energy to National Grid (or ISO NE) based on a long term contract (10 to 15 years) which should result in more stable prices for the residents for the life of the contract.
- ❖ Hundreds of jobs during construction.



## *Benefits to the community*

- ❖ The proposed use is far less intrusive than many other uses allowed by the existing zoning.
- ❖ Community Pride; helping the Webster/Douglas area become one of the first communities in the USA to use locally produced **Clean Energy** for close to 100% of the total consumption.



## *Benefits to the environment*



*Douglas Woods Wind's estimated energy production would offset conventional energy emission as follows:*

Per Year

Life of Project (25 years)

**44,080 tons  
of carbon dioxide**

**1,102,000 tons  
of carbon dioxide**

**142 tons  
of nitrogen oxide**

**2,552 tons  
of nitrogen oxide**

*Source: American Wind Energy Association (AWEA)*





## *Benefits to the environment*

*Comparison of estimated energy produced by Douglas Woods WIND versus the same amount of energy produced from burning oil:*



### Per Year

**34,118 barrels of oil**

**1,876,490 gallons of oil**

### Life of Project (25 years)

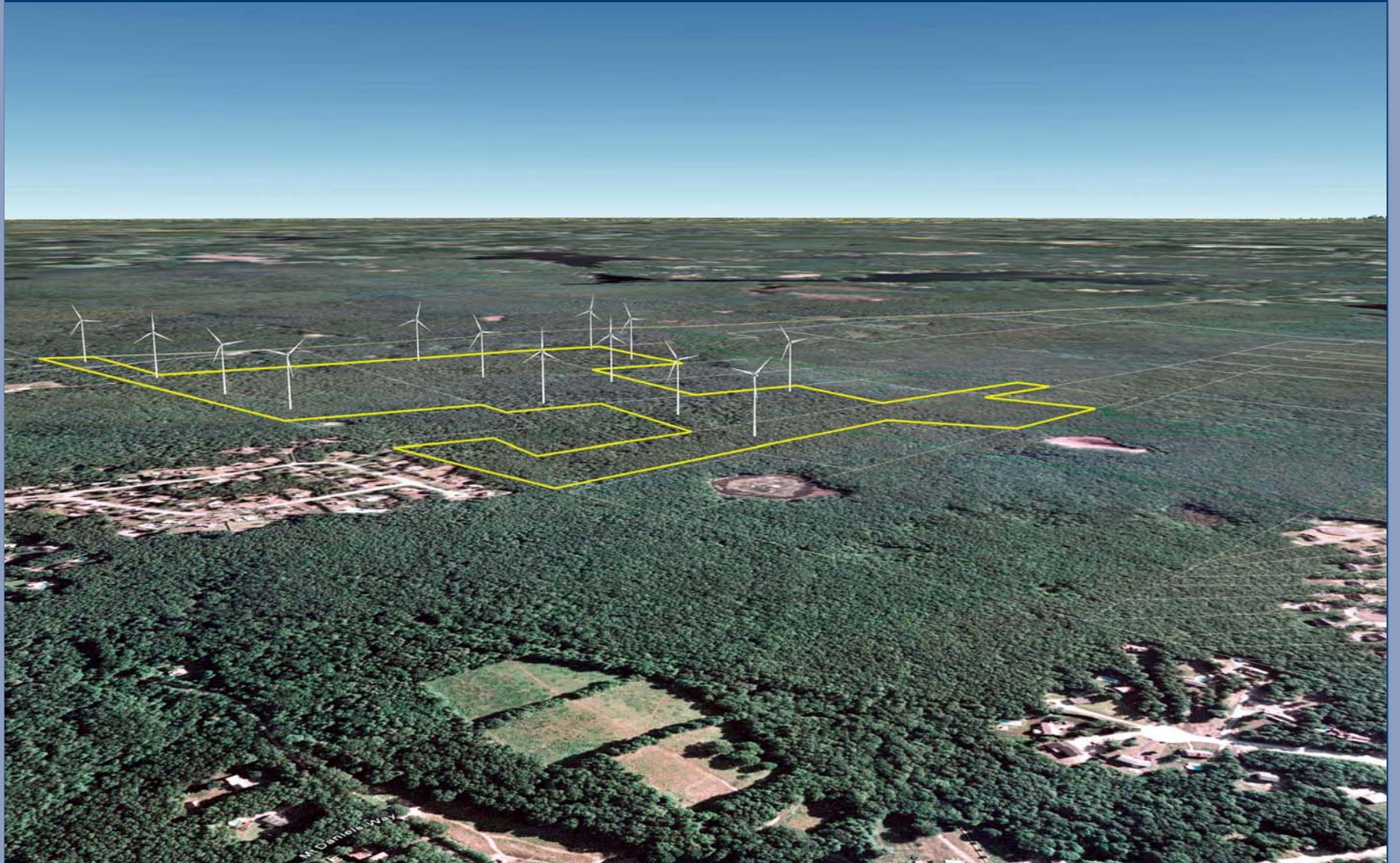
**852,950 barrels of oil**

**46,912,250 gallons of oil**

*Source: EV World Library*

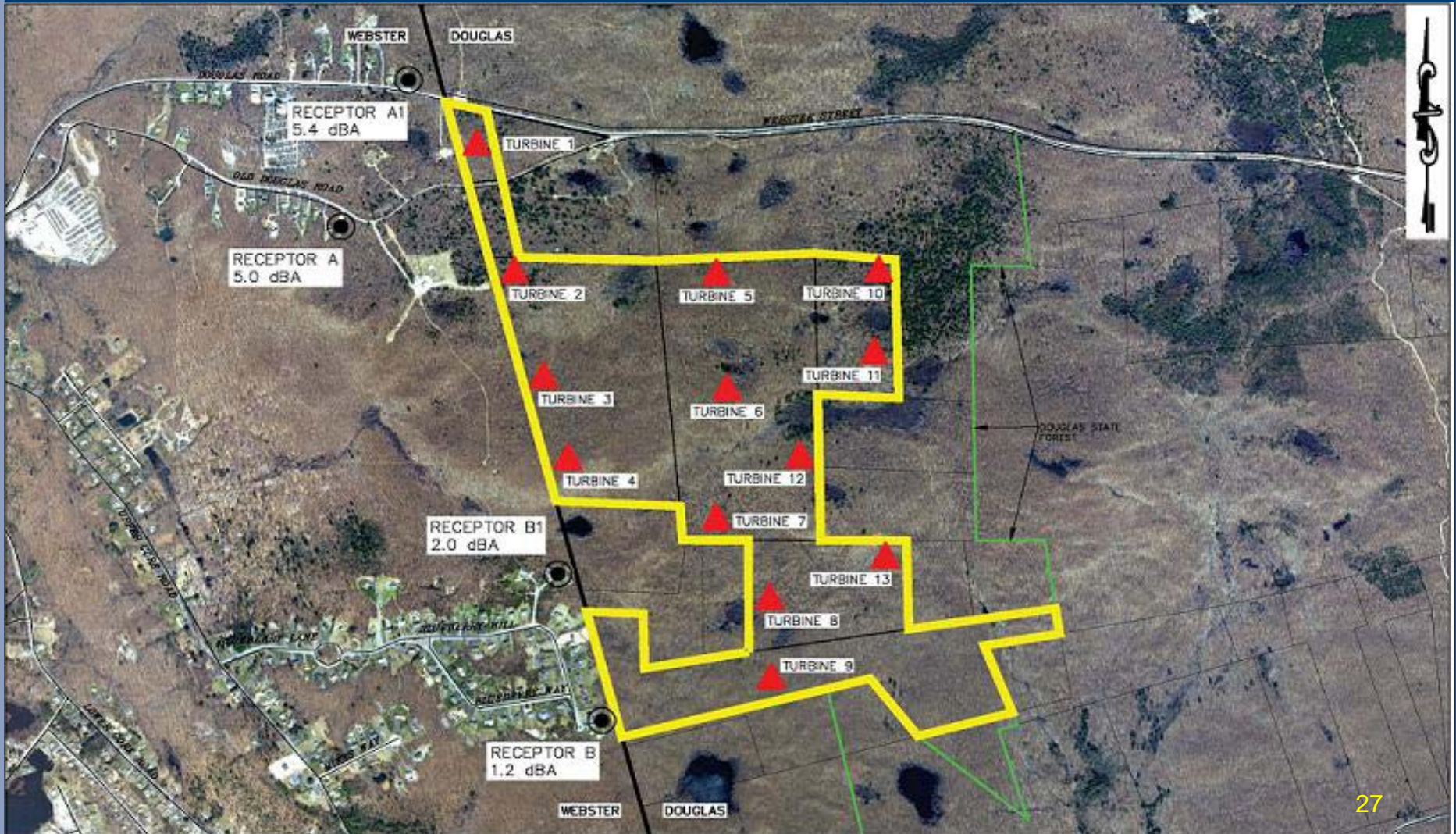


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# Noise Impact Plan





## *Design Wind Operating Conditions*

<b>Location</b>	<b>Ambient L90 Level (dBA)</b>	<b>Wind Turbine Sound (dBA)</b>	<b>Combined Sound Level (dBA)</b>	<b>Net Increase (dBA)</b>
A	38.1	41.5	43.1	5.0
A1	38.1	42.0	43.5	5.4
B	47.9	42.9	49.1	1.2
B1	47.9	45.6	49.9	2.0

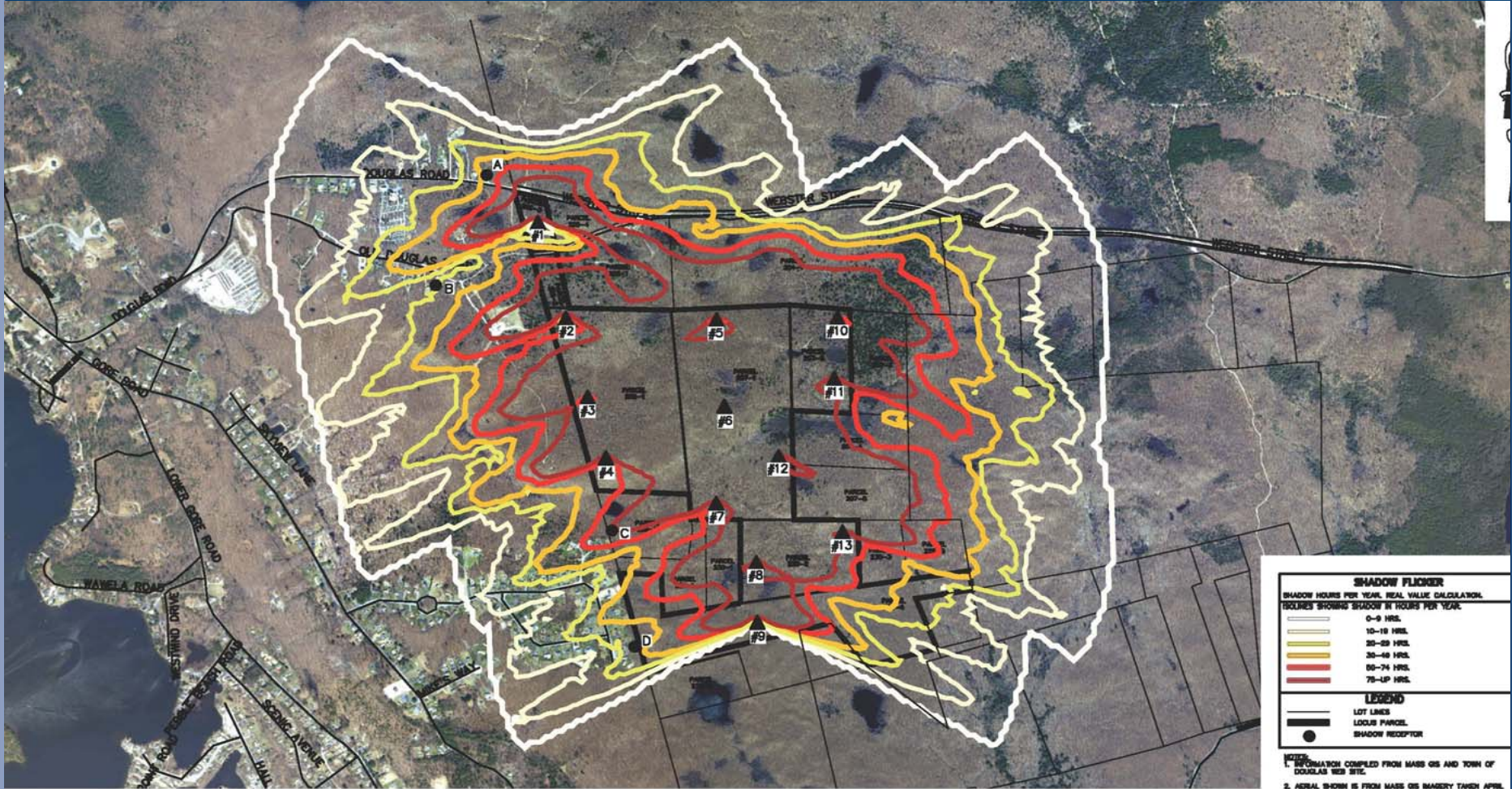
### **CONCLUSIONS**

The study's conclusions are as follows:

- The Douglas Woods Wind Farm complies with the Massachusetts Department of Environmental Protection Noise Policy by not increasing noise levels at the nearby residential properties more than 10 decibels. The turbine is expected to increase the ambient L90 sound level by a range of 1.2 dBA to 5.4 dBA at nearby residential properties, well below the DEP allowable. In addition, the Nordex N100 Wind Turbines are not anticipated to produce any audible "pure tones". Sound emissions from modern wind turbines are mostly comprised of broadband tones.



# Shadow Flicker Impact Plan



SHADOW FLICKER	
SHADOW HOURS FOR YEAR. REAL VALUE CALCULATION. BOUNDARIES SHOWING SHADOW IN HOURS PER YEAR.	
[White line]	0-9 HRS.
[Light yellow line]	10-19 HRS.
[Yellow line]	20-29 HRS.
[Orange line]	30-49 HRS.
[Red line]	50-74 HRS.
[Dark red line]	75+ HRS.
LEGEND	
[Thin black line]	LOT LINES
[Thick black line]	LOCAL PARCEL
[Black dot]	SHADOW RECEIVER

NOTES:  
 1. INFORMATION COMPILED FROM MASS GIS AND TOWN OF DOUGLAS WEB SITE.  
 2. AERIAL SHOWN IS FROM MASS GIS BARELY TAKEN APRIL 2008 AND MAY NOT NECESSARILY REFLECT CURRENT CONDITIONS.  
 FILE : 2596.F

**Atlantic** DESIGN ENGINEERS, L.L.C.  
 P.O. Box 1051, Sandwich, MA 02563 (508) 888 - 9282

Designed by : \_\_\_\_\_  
 Drawn by : \_\_\_\_\_  
 Checked by : \_\_\_\_\_  
 Survey chg. by : \_\_\_\_\_  
 Approved by : \_\_\_\_\_

SCALE  
 SCALE 1" = 1,200'  
 0 600 1,200

PREPARED FOR  
 AMERICAN PRO WIND, LLC  
 159 LIBBEY PARKWAY, UNIT #2  
 WEYMOUTH, MA 02189

SHADOW FLICKER IMPACT PLAN  
 FOR  
 DOUGLAS WOODS RENEWABLE ENERGY PARK  
 WEBSTER STREET, DOUGLAS, MA 01516  
 FEBRUARY 19, 2009

Sheet 1  
 JOB NUM 2596



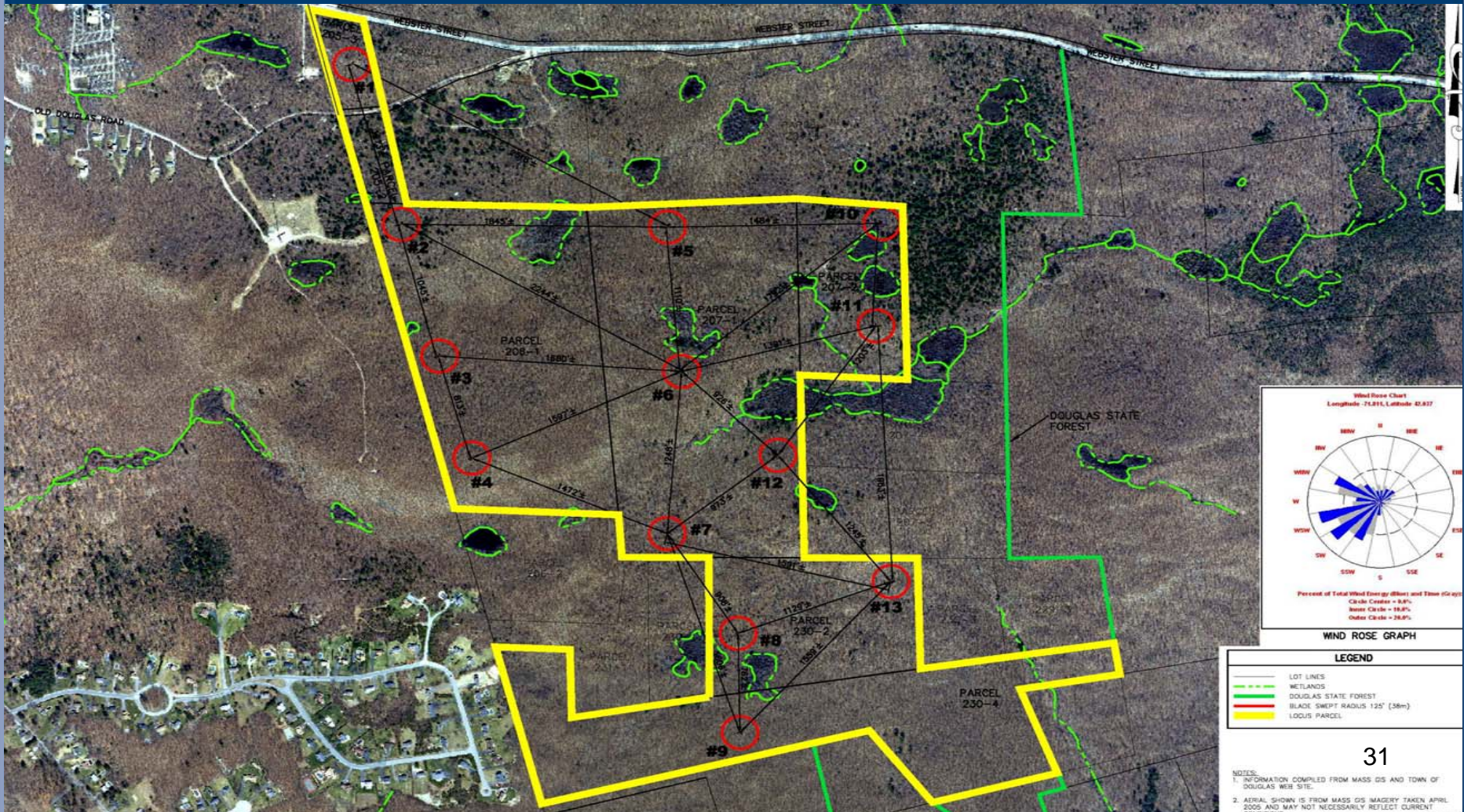
## *Estimated Shadow Flicker*

SHADOW RECEPTOR	ESTIMATED SHADOW FLICKER	
Receptor Name	Not Considering Obstructions	Considering Obstructions
A.- Neighbor A – 135 Douglas Road	37:42 hours/year	9 hours/year (75% reduction)
B.- Neighbor B – 76 Old Douglas Road	20:16 hours/year	5 hours/year (75% reduction)
C.- Neighbor C – 1 Dream Street	72:03 hours/year	50 hours/year (30% reduction)
D.- Neighbor D – 63 Blueberry Hill	23:34 hours/year	16 hours/year (30% reduction)

In regard to Neighbor C at 1 Dream Street, where estimated shadow flicker still exceeds 30 hours/year, the developer is committed to installing a sensor at Turbine #7 that will shut down the turbine during critical shadow flicker times in order to reduce the flicker below 30 hours/year. Considering this, the project is not anticipated to generate shadow flicker in excess of the accepted standard of 30 hours/year at any of the receptor locations.



# Conceptual Turbine Siting Plan





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