Planning Services, Adur District Council

Civic Centre,
Ham Road,
Shoreham-by-Sea,
West Sussex,
BN43 6PR

Tel : (01273) 263222 (calls may be recorded)
website : www.adur.gov.uk
e-mail : developmentcontrol@adur.gov.uk

ADUR
DISTRICT COUNCIL

Application for Planning Permission.
Town and Country Planning Act 1990

Publication of planning applications on council web sites
Please note that with the exception of applicant contact details and Certificates of Ownership, the information provided on this application form and in supporting documents may be published on the council's website.
If any other information that is provided as part of the application which falls within the definition of personal data under the Data Protection Act and is not to be published on the council's website, please contact the council's planning department.

1. Applicant Name, Address and Contact Details

Title: First name: Surname:

Company name: Tesco Plc

Street address: c/o agent

Town/City

County:

Country:

Postcode:

	Country Code	National Number	Extension Number
Telephone number:			
Mobile number:			
Fax number:			

Email address:

Are you an agent acting on behalf of the applicant? (●) Yes ( ) No

2. Agent Name, Address and Contact Details

Title: Mrs First Name: Rachel Surname: Allum

Company name: TNEI Services Ltd

Street address: Milburn House
Dean Street

Town/City: Newcastle upon Tyne

County: Tyne and Wear

Country:

Postcode: NE1 1YE

	Country Code	National Number	Extension Number
Telephone number:		0191 211 1402	
Mobile number:			
Fax number:			

Email address: rachel.allum@tnei.co.uk

3. Description of the Proposal

Please describe the proposed development including any change of use:
Erection of two Micro Wind Turbines and associated works for a period of 15 years

Has the building, work or change of use already started? ( ) Yes (●) No

4. Site Address Details

Full postal address of the site (including full postcode where available)

House: 0 Suffix:

House name: Tesco Shoreham Extra

Street address: Holmbush Centre

Upper Shoreham Road

Town/City: SHOREHAM-BY-SEA

County: West Sussex

Postcode: BN43 6TD

Description of location or a grid reference
(must be completed if postcode is not known):

Easting: 523411

Northing: 106540

Description:

5. Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application? ○ Yes ◉ No

6. Pedestrian and Vehicle Access, Roads and Rights of Way

Is a new or altered vehicle access proposed to or from the public highway? ○ Yes ◉ No

Is a new or altered pedestrian access proposed to or from the public highway? ○ Yes ◉ No

Are there any new public roads to be provided within the site? ○ Yes ◉ No

Are there any new public rights of way to be provided within or adjacent to the site? ○ Yes ◉ No

Do the proposals require any diversions/extinguishments and/or creation of rights of way? ○ Yes ◉ No

7. Waste Storage and Collection

Do the plans incorporate areas to store and aid the collection of waste? ○ Yes ◉ No

Have arrangements been made for the separate storage and collection of recyclable waste? ○ Yes ◉ No

8. Neighbour and Community Consultation

Have you consulted your neighbours or the local community about the proposal? ○ Yes ◉ No

9. Council Employee / Member

Is the applicant or agent related to any member of staff or elected member of the council? ○ Yes ◉ No

10. Materials

Please state what materials (including type, colour and name) are to be used externally (if applicable):

Others - description:

Type of other material: wind turbine

Description of *existing* materials and finishes:

none

Description of *proposed* materials and finishes:

steel tower and aluminium blades colour coated white (RAL 9016)

Are you supplying additional information on submitted plan(s)/drawing(s)/design and access statement? ◉ Yes ○ No

If Yes, please state references for the plan(s)/drawing(s)/design and access statement:

Design and Access Statement
Supporting Statement
Technical Specification
Turbine Elevation P/Elevation/A
Noise Data
Turbine photographs

11. Vehicle Parking

Please provide information on the existing and proposed number of on-site parking spaces:

Type of vehicle	Existing number of spaces	Total proposed (including spaces retained)	Difference in spaces

12. Foul Sewage

Please state how foul sewage is to be disposed of:

Mains sewer ☐ Package treatment plant ☐ Unknown ☐

Septic tank ☐ Cess pit ☐

Other

n/a

Are you proposing to connect to the existing drainage system? ○ Yes ◉ No ○ Unknown

13. Assessment of Flood Risk

Is the site within an area at risk of flooding? Refer to the Environment Agency's Flood Map showing flood zones 2 and 3 and consult Environment Agency standing advice and your local planning authority requirements for information as necessary. ○ Yes ◉ No

If Yes, you will need to submit an appropriate flood risk assessment to consider the risk to the proposed site.

Is your proposal within 20 metres of a watercourse (e.g. river, stream or beck)? ○ Yes ◉ No

Will the proposal increase the flood risk elsewhere? ○ Yes ◉ No

How will surface water be disposed of?

☐ Sustainable drainage system ☒ Main sewer ☐ Pond/lake

☐ Soakaway ☐ Existing watercourse

14. Biodiversity and Geological Conservation

Is there a reasonable likelihood of the following being affected adversely or conserved and enhanced within the application site, OR on land adjacent to or near the application site:

a) Protected and priority species

○ Yes, on the development site ○ Yes, on land adjacent to or near the proposed development ◉ No

b) Designated sites, important habitats or other biodiversity features

○ Yes, on the development site ○ Yes, on land adjacent to or near the proposed development ◉ No

c) Features of geological conservation importance

○ Yes, on the development site ○ Yes, on land adjacent to or near the proposed development ◉ No

15. Existing Use

Please describe the current use of the site:

car park

Is the site currently vacant? ○ Yes ◉ No

Does the proposal involve any of the following:

Land which is known to be contaminated? ○ Yes ◉ No

Land where contamination is suspected for all or part of the site? ○ Yes ◉ No

A proposed use that would be particularly vulnerable to the presence of contamination? ○ Yes ◉ No

Application advice

If you have said Yes to any of the above, you will need to submit an appropriate contamination assessment.

16. Trees and Hedges

Are there trees or hedges on the proposed development site? ○ Yes ◉ No

And/or: Are there trees or hedges on land adjacent to the proposed development site that could influence the development or might be important as part of the local landscape character? ○ Yes ◉ No

If Yes to either or both of the above, you will need to provide a full Tree Survey with accompanying plan before your application can be determined. Your Local Planning Authority should make clear on its website what the survey should contain, in accordance with the current 'BS5837: Trees in relation to construction - Recommendations'

17. Trade Effluent

Does the proposal involve the need to dispose of trade effluents or waste? ○ Yes ◉ No

18. Residential Units

Does your proposal include the gain or loss of residential units? ○ Yes ◉ No

19. All Types of Development: Non-residential Floorspace

Does your proposal involve the loss or gain of non-residential floorspace? ○ Yes ◉ No

20. Employment

If known, please complete the following information regarding employees:

	Full-time	Part-time	Equivalent number of full-time
Existing employees	0	0	0
Proposed employees	0	0	0

21. Hours of Opening

If known, please state the hours of opening for each non-residential use proposed:

Use	Monday to Friday Start Time	Monday to Friday End Time	Saturday Start Time	Saturday End Time	Sunday and Bank Holidays Start Time	Sunday and Bank Holidays End Time	Not Known

22. Site Area

What is the site area? 00.10 hectares

23. Industrial or Commercial Processes and Machinery

Please describe the activities and processes which would be carried out on the site and the end products including plant, ventilation or air conditioning. Please include the type of machinery which may be installed on site:

n/a

Is the proposal for a waste management development? ○ Yes ◉ No

24. Hazardous Substances

Is any hazardous waste involved in the proposal? ○ Yes ◉ No

25. Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land? ◉ Yes ○ No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact? (Please select only one)

◉ The agent ○ The applicant ○ Other person

26. Certificates (Certificate A)

Certificate of Ownership - Certificate A

Town and Country Planning (General Development Procedure) Order 1995 Certificate under Article 7

I certify/The applicant certifies that on the day 21 days before the date of this application nobody except myself/ the applicant was the owner (owner is a person with a freehold interest or leasehold interest with at least 7 years left to run) of any part of the land or building to which the application relates.

Title: Mrs First name: Rachel Surname: Allum

Person role: Agent Declaration date: 30/10/2008 ☒ Declaration made

26. Certificates (Agricultural Holdings Certificate)

Agricultural Holding Certificate

Town and Country Planning (General Development Procedure) Order 1995 Certificate under Article 7

Agricultural Land Declaration - You Must Select Either A or B

(A) None of the land to which the application relates is, or is part of an agricultural holding. ◉

(B) I have/The applicant has given the requisite notice to every person other than myself/the applicant who, on the day 21 days before the date of this application, was a tenant of an agricultural holding on all or part of the land to which this application relates, as listed below: ○

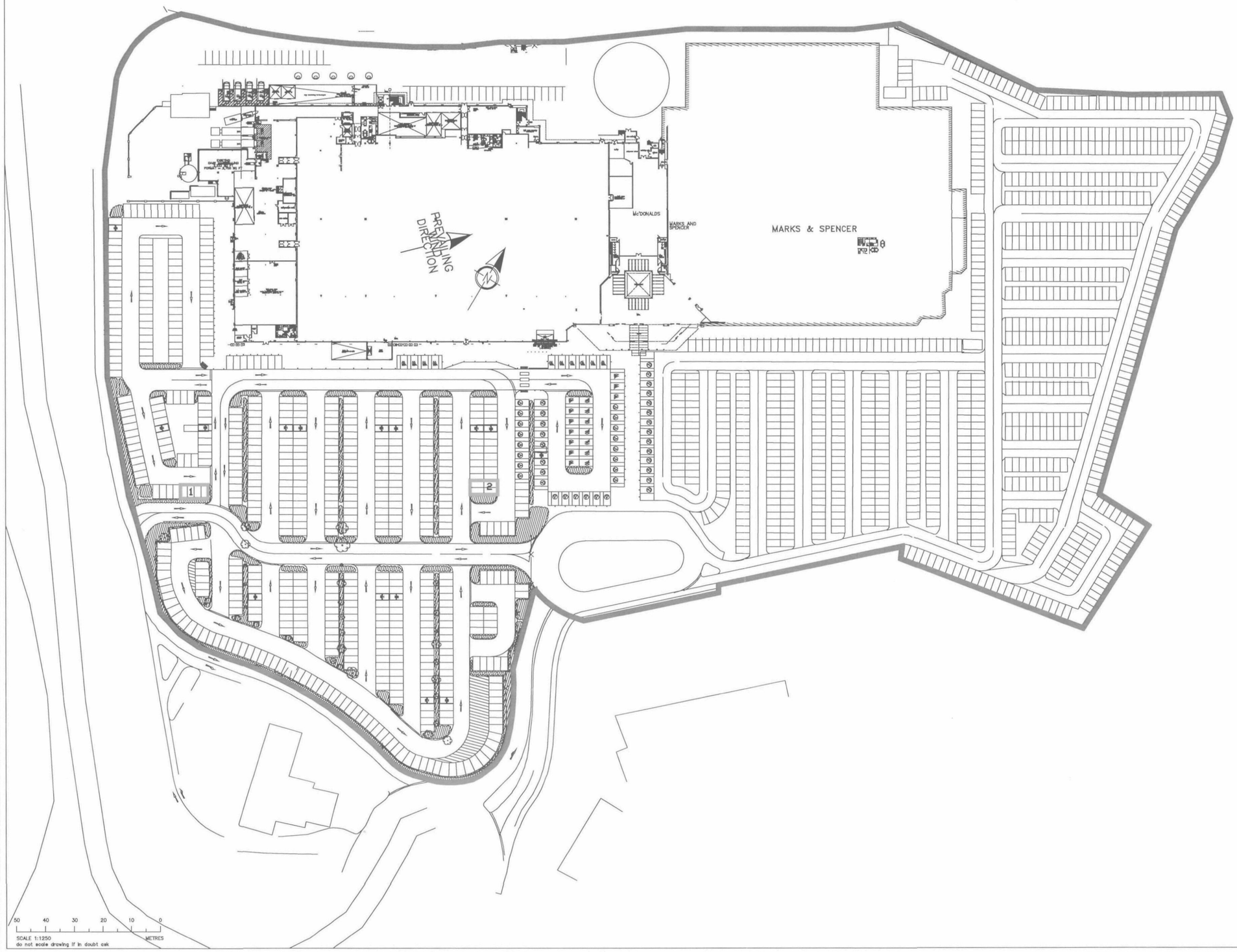
Title: Mrs First Name: Rachel Surname: Allum

Person role: Agent Declaration date: 30/10/2008 ☒ Declaration Made

27. Declaration

I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information. ☒

Date 30/10/2008



REV.	AMENDMENTS	DATE

Acc 1052408

03 NOV 2008

TESCO DEMISE (INDICATIVE)

DEVELOPMENT BOUNDARY

PROJECT
3178
SHOREHAM + F80

DESCRIPTION
WIND HARVESTING
LOCATION PLAN

DRAWING NO. 3178P1#

PHASE ISSUE E

SYSTEM ID. No.

SCALE 1:1250@A3 DATE 25.09.08

PLANNER MIKE REGAN

DRAWN SL

CHECKED MH

ARCH DRAWING No.
5655-3178 PL(90)001

hlnarchitects

TESCO

IMPLEMENTATION STORE PLANNING

TESCO STORES LIMITED
STORE PLANNING DEPARTMENT
PROPERTY SERVICES
P.O. BOX 400, CIRRUS BUILDING, SHIRE PARK
WELWYN GARDEN CITY, HERTS. AL7 1AB
TELEPHONE : 01707 395150

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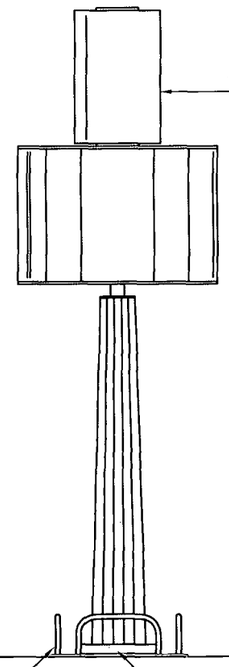


Proposed 10.6m high Ropatec 6kW micro wind turbine on 3.3m x 2.3m x 1m deep concrete base. Turbine Blades to be painted RAL 9016 Matt White

0.00m GL

Proposed Hoop Barriers

Proposed precast concrete kerb, type HB2

SITE ELEVATION

(Scale 1:100)

50mm

20mm

ORIGINAL SIZE - A3

GENERAL NOTES

This drawing is the Copyright of GallifordTry and must not be reissued, loaned or copied without written consent.
Use written dimensions only, do not scale.

03 NOV 2008

Issue	Date	Description	Drw	App
A	19.08.08	First issue for planning	DJF	DJ

GallifordTry
WOLVEY - HINCKLEY - LEICESTERSHIRE - LE10 3JF
Tel: +44 (0)1455 222792 Fax: +44 (0)1455 222758

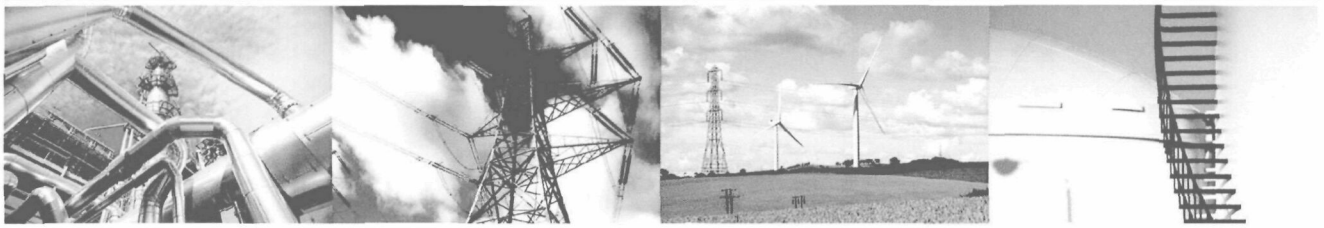
Project Title:
TNEI, Tesco
1 No 10.6m Micro Wind Turbine Installation

Site Address:
Tesco

Drawing Title:
SITE ELEVATION

Date: 19.08.08	Drawn: D Fieldhouse
Scale: As shown	Checked: D Leonard
Purpose: PLANNING	Approved: D James

Drawing Number:
P/ELEVATION/A



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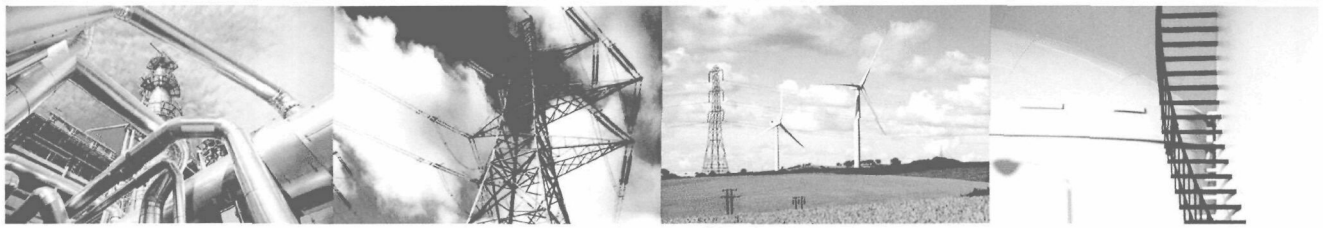
6kw Ropatec Turbine Installed at Tesco Nottingham Top Valley



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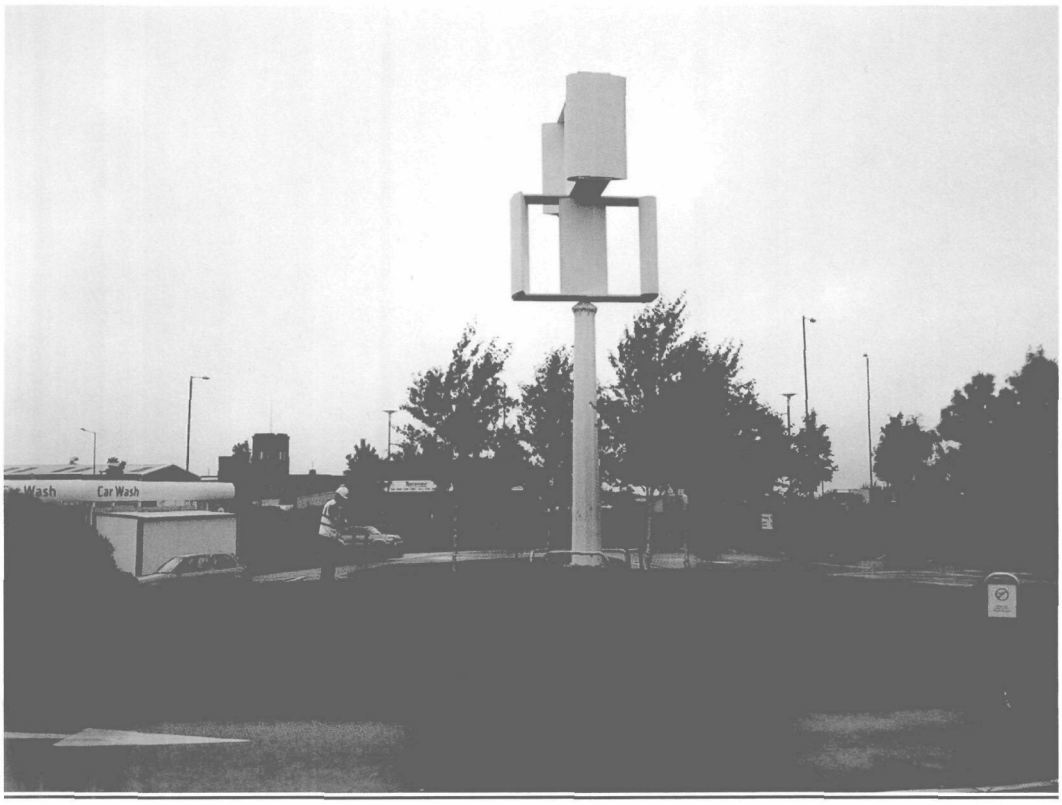
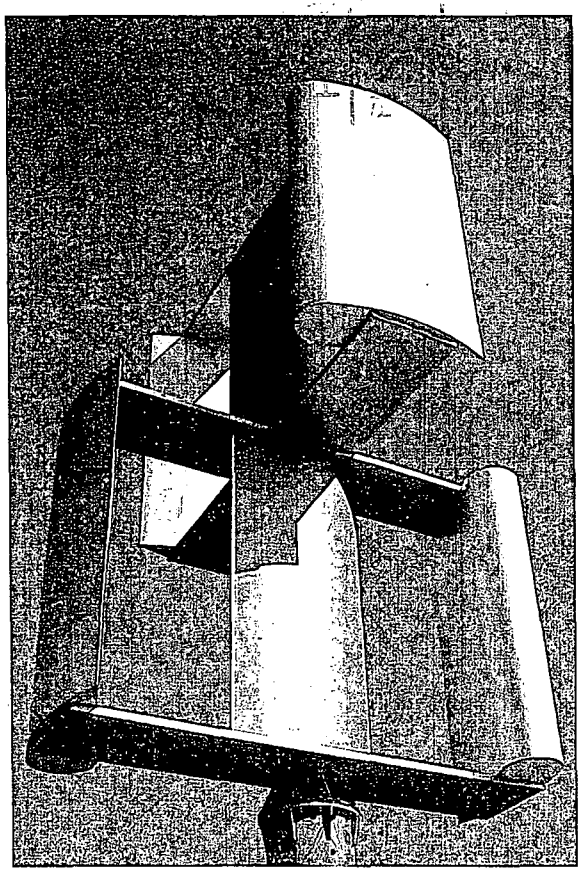


6kw Ropatec Turbine installed at Tesco Oldham Chadderton

WindRotor – Technical Details



WindRotor – WRE.060 "Double Vertical"

General
The Ropatec WindRotor is a vertically driven wind rotor which demonstrates special product characteristics through its unique construction. The system could be described as a hybrid solution, building upon the Savonius and Darrieus principles.
The WindRotor Double Vertical can be delivered with the MSP-Controller, an innovative CPU controlled charge regulator (48V) with incorporated SMD DC/AC inverter with 4500VA continuous output, or the Aurora on-grid inverter.



Independence: from the direction of the wind.

High wind forces: robust construction for extreme wind speeds.

Automatic start-up: Even at a wind speed of only 2 m/s.

Noise-free: The WindRotor is not audible!

Multifunctional: charging batteries, heating water or air, grid connection

Turbine

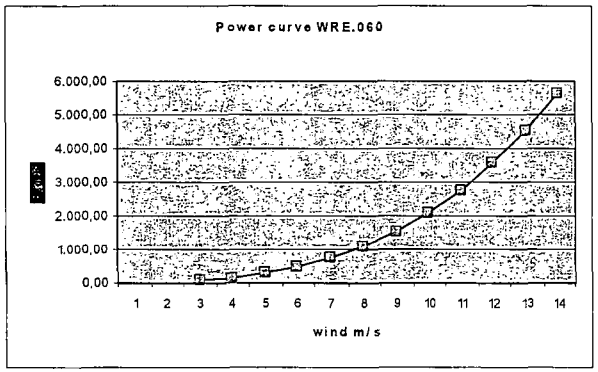
Rated output 10m/s	app. 2000 W
Rated output 14m/s	app. 5000 W
Cut-in wind speed	2 m/s
Rated wind speed	14 m/s
Over speed control	Not required
Cut-off wind speed	none
Rotor weight	750 kg
Rotor blade type	Vertical Axis Wind Turbine
Rotor diameter	3,3 m
Swept area	14,52 m² (3,3 m x 4,4 m)
Gear box type	No gear box – direct driven
Brake system	Not required

Alternator

Type	6Kw -permanent / multi-pole
Energy transmission	Brush less
Voltage*	~220VAC* (at 14 m/s)
Poles	32

*) depending on RPM / on sea level

The usable energy production depends on the configuration of the system. A typical situation is the WindRotor with a battery charger and batteries.
Due to losses in wiring, battery charger and batteries the efficiency can differ from 65% to 80%.



ROPATEC S.r.l / GmbH
http://www.ropatec.com

All data subject to change without notice.
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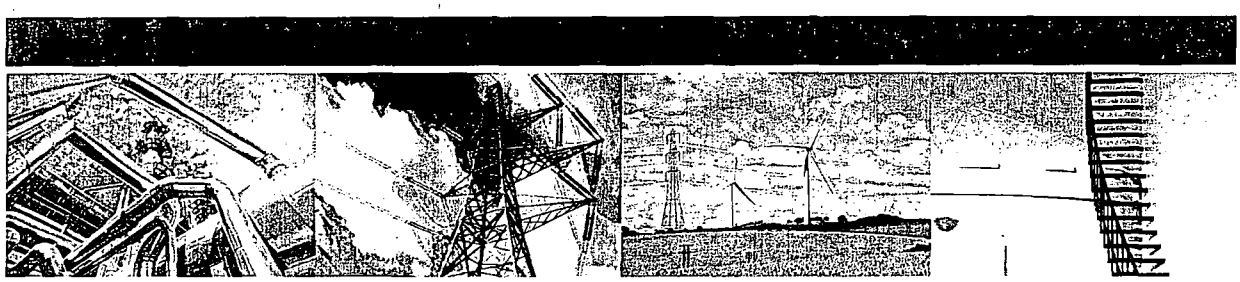

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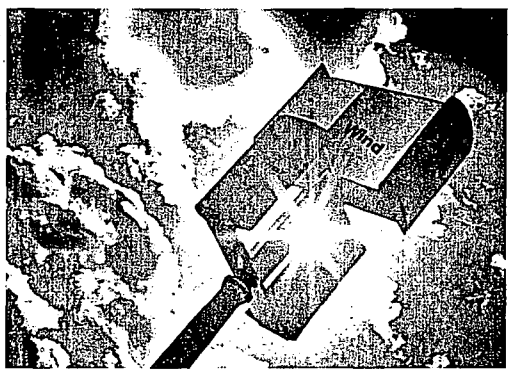
WindRotor

PLAN No. 0 3 NOV 2008

Supporting Statement:

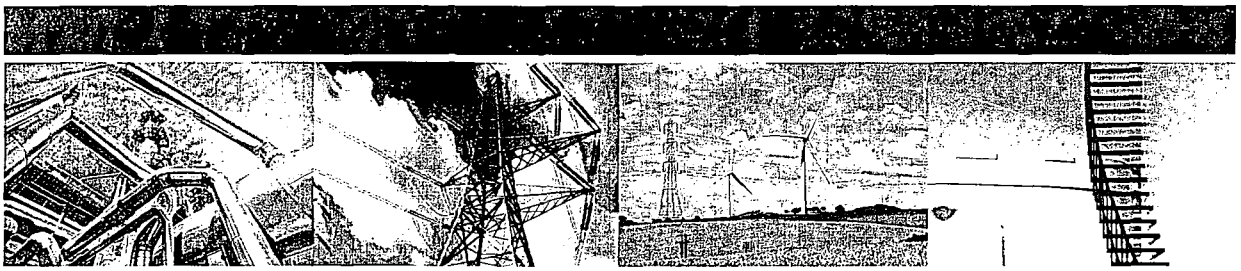
Summary

The Ropatec WindRotor is a vertically driven micro wind turbine with a capacity of 6 kiloWatts. Unlike more conventional horizontal axis wind turbines that usually have a two or three blade rotor superficially resembling an aircraft's propeller, the WindRotor rotates vertically and has a compact rotor assembly consisting of six vertical aerofoils.



This Supporting Statement describes the characteristics of the WindRotor and has been produced to accompany the planning application for the turbines at the Tesco Extra store, Shoreham.

It is envisaged that TNEI Services Ltd on behalf of Tesco will submit several planning applications for the turbines during 2008. WindRotors are to be installed in appropriate locations within the curtilage of existing Tesco stores and depots throughout the UK and the renewable electricity they produce will be fed directly into the stores in question,



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reducing their consumption of conventionally produced electricity and, therefore, their carbon footprint[1].

Specification

The WindRotor is a compact micro wind turbine with an 'Installed Capacity' of 6 kW, which is manufactured by Ropatec[2] of Bolzano in Italy.

Through it's innovative design and construction the WindRotor has no need for either a gearbox or a braking system which reduces the weight of the turbine. Importantly, the design also means that turbine noise levels are low as discussed in more detail in the noise section of this report. The direct drive nature of the turbine also significantly increases its efficiency and the small scale and compact design of the rotor enables it to operate in all wind conditions above a cut-in wind speed of around two metres per second.

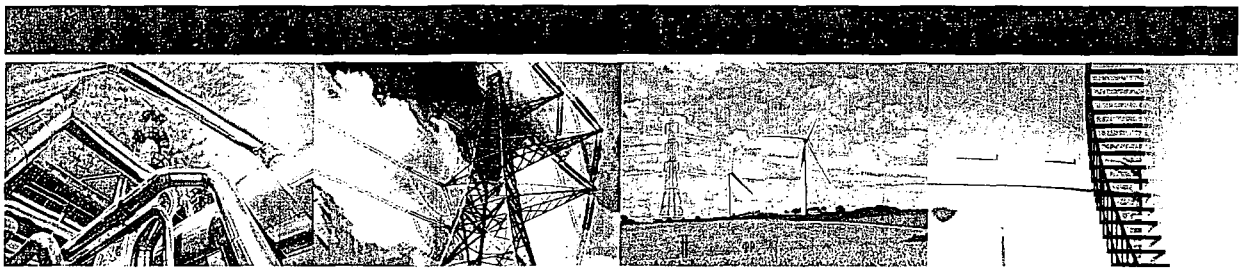
The turbines are constructed of a steel tower and frame with aluminium blades and will be colour coated white (RAL9016).

Noise

Noise from wind energy developments is controlled through the use of appropriate noise limits. These are imposed to protect the amenity of neighbouring properties without unduly restricting the wind development. The relevant guidance for wind farm noise is provided in the DTI (now the Department for Business, Enterprise and Regulatory Reform (BERR))

[1] http://en.wikipedia.org/wiki/Carbon_footprint

[2] www.ropatec.com



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document ETSU-R-97 *The Assessment and Rating of Noise from Wind Farms* (1996).

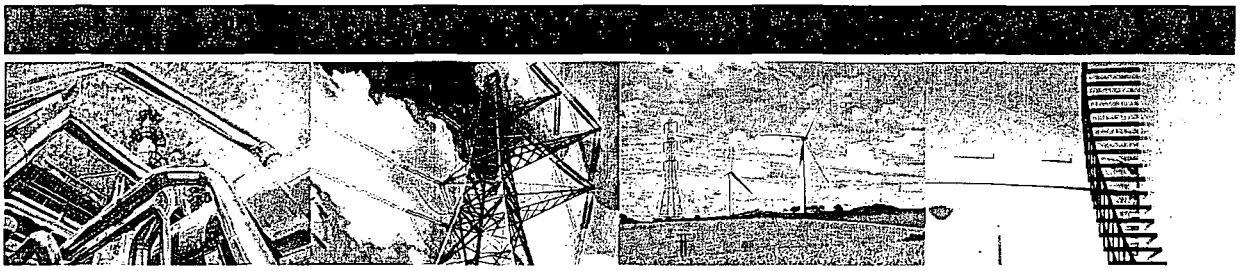
This document describes the findings of the Working Group on Noise from Wind Turbines, the aim of which was to provide information and advice to developers and planners on the assessment of operational noise from wind turbines. The use of this document is recommended by Planning Policy Statement (PPS) 22 Renewable Energy. The full document is available online from the BERR website[3].

Ropatec have provided noise data for the turbine[4] which indicates a sound power level of 78dB(A), Appendix 1. It is worth noting that this figure was calculated using the measured turbine data without correction for existing background noise levels, because the measurement company could not differentiate between noise levels with and without the turbine running. This is a common issue for quiet turbines as finding a really quiet test site is very difficult. As a result the calculated sound power level can be considered to be worst case.

The noise for the proposal complies with ETSU-R-97 *The Assessment and Rating of Noise from Wind Farms*. ETSU-R-97 states:
"For single turbines or wind farms with very large separation distances between the turbines and the nearest properties, a simplified noise condition may be suitable. If the noise is limited to an L_{A90},10min of

[3] http://www.berr.gov.uk/energy/sources/renewables/explained/wind/onshore-offshore/page21743.html

[4] Windtest Noise Report (in German) with an English translation.



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35dB(A) up to wind speeds of 10m/s at 10m height, then this condition alone would offer sufficient protection of amenity, and background noise surveys would be unnecessary."

The closest noise sensitive receptor to the turbines is a dwelling located to the south west of the Tesco store on Bay Tree Close at which point the nearest turbine would be approximately 80m away. Turbine noise at the receptor can be calculated as follows:

$L_P = L_W - 20\text{Log}(r) - 11 + 3 - (0.003*r) - 2$

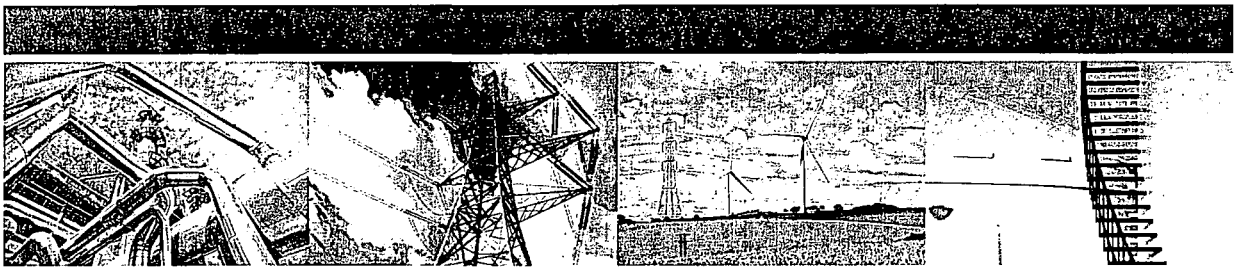
Where r is the distance to the receptor, 0.003 is air absorption and -2 is the conversion to LA90 as specified in ETSU-R-97.

This calculation shows that the cumulative noise from the turbines would be 30.5 dB(A) L_{A90} at the closest noise sensitive receptor and the proposal therefore satisfies the simplified ETSU criterion as stated above.

Performance

Given the intermittent nature of the wind it is generally assumed that wind turbines in the UK will have a capacity factor of around 30%, meaning that they will, on average, generate power equivalent to around a third of this 'Installed Capacity'.

A 6 kW wind turbine will, at its maximum, generate sufficient electrical power to supply the equivalent of around four average UK households, and would prevent, on an annual basis, the emission to atmosphere of 13.6



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tonnes of carbon dioxide per year. Clearly given the number of Tesco sites throughout the country there would be a significant cumulative benefit.

Dimensions

As set out in the Summary, and illustrated in the figures, the WindRotor is a vertical axis turbine comprising a compact rotor, consisting of six vertical aerofoils, mounted on a steel column.

The maximum height of each turbine to the top of the rotor is 10.6 m, and the rotor itself is 4.4 m high and 3.3 m wide (equivalent to the diameter). One of these turbines, including the rotor, would fit inside the tower of a large modern commercial wind turbine.

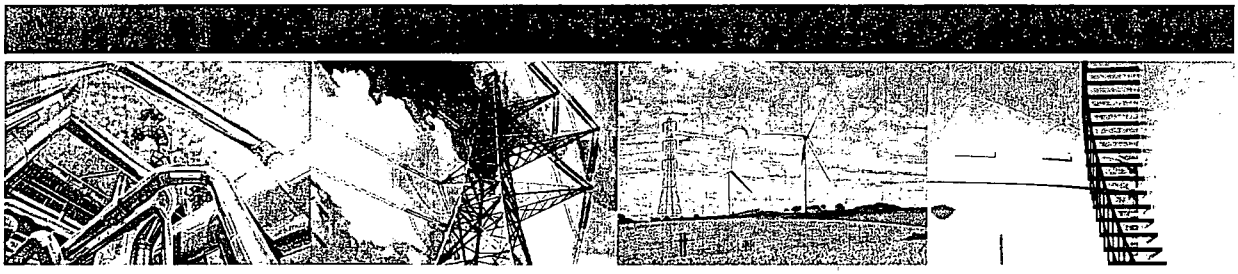
A suitable barrier, i.e. knee rail, is to be installed around the foundation edge to help protect each turbine from errant vehicles.

Connection

The proposed WindRotor turbines would be connected directly into the on-site electrical network of the host site. This would be via underground cabling, meaning that there would be no need for any overhead lines.

Construction

A concrete foundation will be required to support each WindRotor and will measure approximately 2.3m x 3.3m by 1.0m deep. In some cases, depending on ground conditions, the foundation pad would be supported by piles. The foundation would be entirely underground and could therefore



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be easily incorporated into any existing concrete or tarmac hardstanding, or buried beneath topsoil. It is anticipated that each turbine would be located in two car parking bays although each application site consists of 4 parking spaces to allow for any on site micro-siting. The construction and subsequent curing of a concrete foundation would take around five - six weeks.

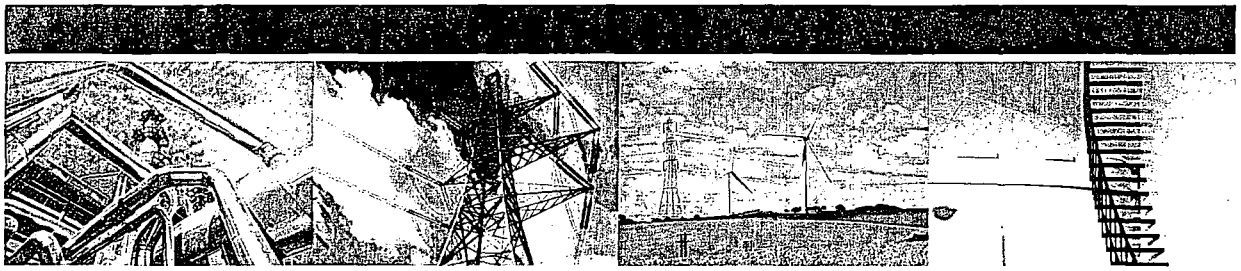
The turbine components themselves would be delivered by no more than two HGVs, and the turbines would be assembled and erected in a single day using a single 20-30 m mobile crane. Ongoing maintenance of the turbines would be undertaken by a light van.

Siting considerations

Although the WindRotor is a micro wind turbine, and at a height below 15 m would be exempt from any requirement for formal Environmental Assessment, the locations selected for installation have been assessed carefully including the proximity of the turbines to any ecological or cultural heritage designations.

Any turbine would be located more than 10.6 m (equivalent to the turbine height plus 10%) from any adopted road, and at least 50 m from any residential property (to ensure compliance with ETSU-R-97).

In addition the turbines would also be located at similar distances from mature trees, wherever possible, to minimise the 'wind shading' effects such trees could have on their operation. Turbines would be located so as



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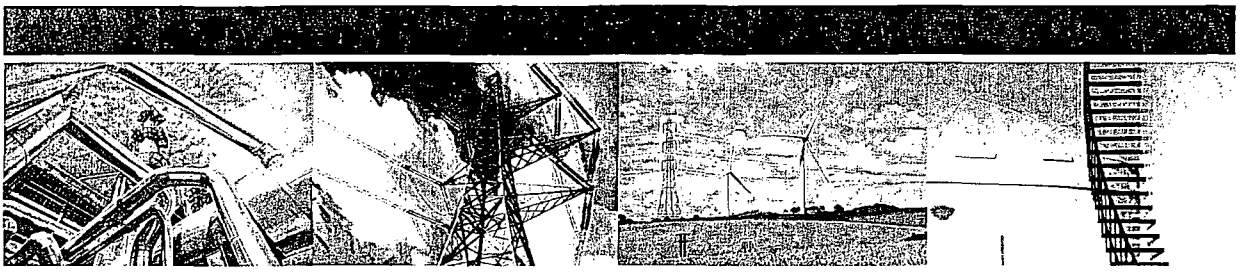
to maximise their exposure to the prevailing wind direction which, in the UK, is predominantly from the south-west.

Turbine locations balance the desire to avoid unacceptable detrimental visual impact, the need to access a viable wind resource and the benefits of increasing awareness of renewable energy issues and improving the area's legibility by introducing a new prominent structure into the streetscape.

As can be seen in the accompanying photographs of the turbines installed at the Tesco stores in Nottingham and Oldham the overall scale of the turbines are well suited to urban locations. In these examples the turbines are well related to their surroundings in terms of scale, context and form particularly given surrounding street furniture and landscaping.

Although it is acknowledged that the proposed turbines would be visible it is considered that given their height, scale and colour treatment it would not have any significant detrimental impact to adjacent uses / buildings or on the surrounding landscape character. Whilst the Store is located in Area of Outstanding Natural Beauty it is considered that given scale of the turbines in the car park and location within this large commercial development this should not be a constraint to the development. It is also noted that Adur Estuary is approximately to the 2.5km west of the site, which is a Site of Special Scientific Interest and Royal Society for the Protection of Birds reserve. It is considered that the proposed development would not have a detrimental impact due to distance of this designation from the site, its scale and urban nature of site.



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Lifespan

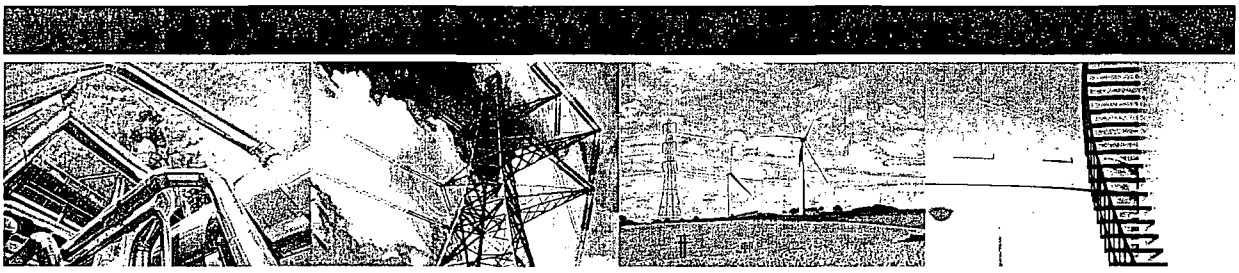
Each WindRotor turbine has an anticipated lifespan of at least 15 years. Should any turbine cease to operate either before or after this period for a length of time in excess of two months, the turbine would be removed and the site reinstated in accordance with normal wind industry practices.

Planning Policy

Planning Policy Statement 22 (PPS22) and the associated Companion Guide outline the Government's planning policy framework for renewable energy. The Companion Guide provides practical advice and good practice guidance on the preparation and implementation of policy, and includes details on particular technologies. Together, PPS22 and its Companion Guide provide an up to date framework, which will guide the anticipated rapid growth in the development of renewable energy.

PPS22 emphasises the need for the UK to meet national and international targets for the reduction of greenhouse gas emissions, including the target of reducing UK carbon dioxide emissions by 60 per cent by 2050, with real progress towards this target by 2020. It includes the requirement for local planning authorities to specifically encourage small scale renewable energy development.

Of particular note is paragraph 6.17 of the Companion Guide which states that small and medium scale wind projects, such as the proposed development, can be included within industrial developments and on some urban sites, particularly in cases where the power can be dedicated to on-



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site use. It recognises that '*local planning authorities can take a proactive approach to encouraging this form of urban wind development*'.

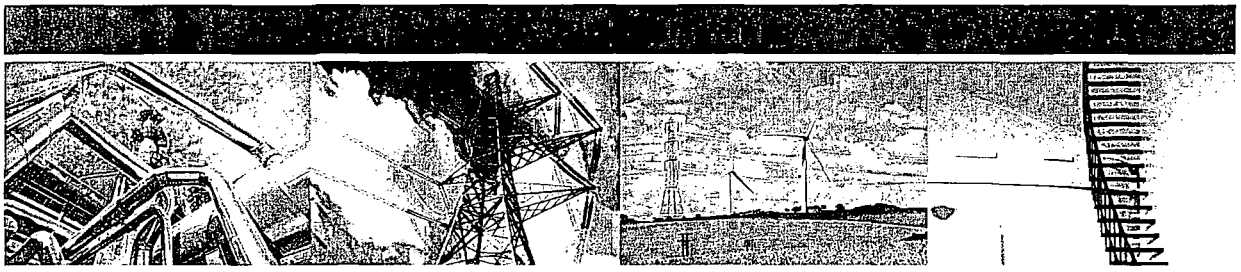
The draft Regional Spatial Strategy for the South East, 'The South East Plan', was submitted in March 2006 setting out the framework for the development of the region.

The plan is supportive of renewable energy development. Section D5 paragraph 11.4 recognises that the deployment of renewable energy technologies throughout the region is essential to maintain reliability and security of energy supply.

Policy EN3 sets out regional targets of producing 620 MW of electricity from renewable sources by 2010 and 1,130 MW by 2020. Sub-regional targets are set out in policy EN4 including targets for East Sussex and West Sussex of 57 MW by 2010 and 68 MW by 2016.

This proposal will make an important local contribution towards meeting the sub-regional and regional renewable electricity targets, and will also contribute to the reduction of carbon dioxide emissions. PPS22 makes it clear that such benefits, whatever their scale, are material considerations that should be given significant weight in determining planning applications.

The West Sussex Structure Plan contains Policy ERA6 which states:



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Policy ERA6 - Energy Generation and Supply

(a) Development of economically viable energy generation and supply should be permitted provided that it will contribute to the diversity, security and sustainability of energy supply and the reduced emission of pollutants and that the impact on the environment is acceptable.
(b) Local plans will include policies to:
(1) enable the efficient generation and supply of energy including, where necessary, the allocation of land for energy generation; and
(2) secure the provision of economically viable and environmentally acceptable energy generation in development proposals.

In terms of local plan policy the Council has been preparing a new Development Plan for Adur which will replace the 1996 Adur District Local Plan. The Core Strategy is the first document and contains the following policy which is of relevance to this proposal.

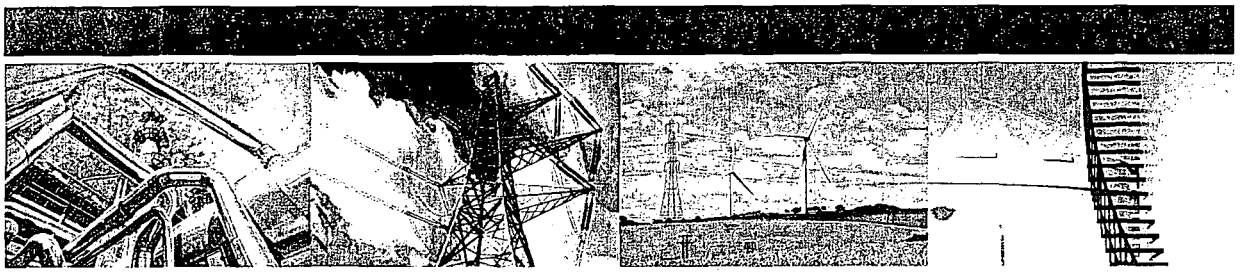
ENV2 Sustainable Energy Generation

Sustainable energy generation including solar power, wind power, biomass, ground source heat pumps and combined heat and power (CHP) will be promoted and encouraged.

Small scale renewable energy generation on existing developments will be permitted providing there are no harmful impacts on townscape and residential amenity.

All non-residential or mixed use developments (new build, conversion or renovation) above a threshold of 1000m2, and all residential developments (new build, conversion or renovation) of 10 or more units, will be expected to provide a minimum of 10% of their energy requirements from on-site renewable energy generation unless:

- *It is demonstrated that this would render the scheme economically unviable; or*
- *This would have significant adverse impacts on townscape, landscape or biodiversity.*



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In this case the proposal is in accordance with the above Policies in terms of its scale and location, proximity to residential properties (minimum of 50m) and distance from ecological designations.

This proposal also conforms to national and regional policy and will provide tangible community and environmental benefits by raising awareness of environmental issues and reducing reliance on traditional carbon based energy production. Erection of the turbines in the car park of the store will result in no loss of green space. Turbine height and paint finish which is in-keeping with existing street furniture allows them to fit into the streetscape while increasing legibility.

Further Information

More info from here:

www.ropatec.com

www.tnei.co.uk

Contact details:

TNEI Services Ltd
Milburn House
Dean Street
Newcastle upon Tyne
NE1 1LE

WindTest
Kaiser-Wilhelm-Koog GmbH

PLAN NO. A2d052408
DATE 03 NOV 2008

Dear Mr Niederkofler

Order number: 4250 06 03441 64
Statement regarding measurement dated 2006-09-04

Following your instructions, measurements were carried out on your wind power plant (WEA) Ropatec 6kW near Delmenhorst on 2006-09-04. We would like to update you on this as follows:

For various reasons, no complete report can be issued according to the FGW guideline on the basis of the measured values. The following aspects do not allow conformity with the standards:

- Due to the power rating of the plant and the low sound power, a correction of extraneous noise cannot be made, all values therefore constitute the worst case and include the extraneous noise completely.
- As a result of a converter error, the plant was not run under load; on the one hand this means that the plant revolutions were higher than during normal operation, on the other hand, the power cannot be measured, as it should be according to requirements.
- To date there is no power curve in hand according to IEC 61400-12-1, which would be required to determine the wind speed. The aforementioned power curve cannot be anticipated for the future either, due to the power rating plant. A reverse calculation for the wind speed is therefore not possible.

Statement

These were the weather conditions on the day of measuring:

Wind direction:	W
Air pressure:	1011 hPa
Air temperature:	19° C
Weather situation:	overcast, dry

Geometry of measuring construction:

Height of centre of WEA 9.1 m area of wind speed 3.5 – 6 [m/s]

in minutes

Rotor diameter	2.2 m
Distance of measuring	10.3 m

On the day of measuring a wind direction prevailed bywhich the wind stream of the plant was influenced above a projected solar panel. As a result, the intensity of the turbulence increases. However, no noteworthy sound influence because of this was detectable.

Summary and estimate of the sound power level

Due to missing extraneous sounds values, an exact calculation of the sound power level cannot be carried out. The plant was also operated without load on the day of measuring, so that the values given here only provide reference values.

It should be noted that the sound power level remained without correction of any extraneous sounds in the measured range ofwind speed from 3 to 6 m/s always below 78 dB(A).

Without correction of extraneous sounds means that the extraneous sound (surrounding sound) would still have to be subtracted with regard to energy from the total noise measured. That would continue to lower the sound power level by 0.3 to 1.3 dB(A), depending on the signal to noise ratio.

There is no measured data for wind speeds above 6 m/s.

The stated sound power level indicates the sound energy of a source, and is the most important dimension for evaluating a sound source. With increasing distance to the source, the following sound pressure levels result in a simplified way at the appropriate distance to the WEA:

Distance (m)	1	2	5	10	20	40	80	160	320	640	1280
Level drop (dB)	11	17	25	31	37	43	49	55	61	67	73

With a sound power of 78 dB(A), for instance, and a distance of 20 m, an immission level of approx. 41 dB(A) plus a ground reflection of 3 dB would result by calculation when measured on a tripod, disregarding air and ground absorption as well as meteorological deadening. Consequently, the

evaluation level, determined by measurement according to TA-noise in front of the open window, would probably be approx. 44 dB(A) at this distance.

Please do not hesitate to contact us if you have any further queries.

Yours sincerely

Windtest Kaiser-Wilhelm-Koog GmbH

WINDTEST
Kaiser-Wilhelm-Koog GmbH

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info@windtest.de
www.windtest.de

Unsere Zeichen our sign	Bearbeiter person in charge	Tel.-/Fax-Durchwahl direct tel / fax number	email	Datum date
je	Arne Jensen Acoustics Group	-35 / -99	arne.jensen@wtk.windtest.com	2006-09-08

Auftragsnummer: 4250 06 03441 64
Stellungnahme zur Messung vom 2006-09-04

Sehr geehrter Herr Niederkofler,

am 2006-09-04 wurden, wie von Ihnen beauftragt, Messungen an Ihrer Windenergieanlage (WEA) Ropatec 6kW in der Nähe von Delmenhorst durchgeführt. Dazu möchten wir Ihnen im folgenden gern den aktuellen Stand mitteilen.

Auf Basis der gemessenen Werte kann aus verschiedenen Gründen kein nach der FGW-Richtlinie vollständiger Bericht angefertig werden. Folgende Aspekte erlauben keine Normkonformität:

- Aufgrund der Leistungsklasse der Anlage und der geringen Schallleistung kann keine Fremdgeräuschkorrektur erfolgen, alle Werte stellen daher den worst case dar und beinhalten vollständig das Fremdgeräusch.
- Wegen eines Umrichterfehlers wurde die Anlage während der Messung nicht belastet betrieben; dies bedingt einerseits, dass die Anlagendrehzahl höher als im Normalberieb vorlag, andererseits kann keine Leistungsmessung erfolgen, wie es nach Vorgabe sein sollte.
- Bis dato liegt keine nach IEC 61400-12-1 vermessene Leistungskurve vor, die zur Bestimmung der Windgeschwindigkeit notwendig wäre, besagte Leistungskurve ist auf Grund der Leistungsklasse Anlage auch für die Zukunft nicht zu erwarten. Daher kann keine Rückrechnung auf die Windgeschwindigkeit erfolgen.

Stellungnahme

Am Messtag herrschten folgende Wetterbedingungen:

Windrichtung	W
Luftdruck	1011 hPa
Lufttemperatur	19 °C
Wetterlage	bedeckt, trocken

Geschäftsführer / Managing Director:
Dipl.-Ing. Volker Köhne
Handelsregister / Commercial register:
Amtsgericht Pinneberg HRB 636 ME
Ust-IdNr. / VAT.No.: DE 118 606 038
Steuer-Nr. / Tax-ID: 18 293 09693

Durch das DAP Deutsches Akkreditierungssystem Prüfwesen nach DIN EN ISO/IEC 17025 akkreditiertes Prüflaboratorium. Die Akkreditierung gilt für die in der Urkunde aufgeführten Prüfverfahren.
Deutscher Akkreditierungs Rat
DAP-PL-1556.00

Bankverbindung / Bank account:
Sparkasse Westholstein, Marne
(BLZ 222 500 20) Konto-Nr. 9660
IBAN DE 23 222 50020 000 000 9660
BIC: HSHN DE H1 IZH

Geometrie des Messaufbaus:

Nabenhöhe der WEA	9,1m	**Windgeschwindigkeitsbereich im Minutenmittel**	3,5 – 6 [m/s]
Rotordurchmesser	2,2 m		
Messentfernung	10,3 m		

Am Messtag lag eine Windrichtung vor, bei der die Windanströmung der Anlage über ein vorgelagertes Solarpanel beeinflusst wurde. Dadurch erhöht sich die Turbulenzintensität, eine nennenswerte Geräuschbeeinflussung dadurch war jedoch nicht feststellbar.

Zusammenfasssung und Abschätzung des Schallleistungspegels

Eine genau Schallleistungspegelberechnung kann aufgrund fehlender Fremdgeräuschwerte nicht durchgeführt werden. Weiterhin wurde die Anlage am Messtag ohne Belastung betrieben, sodass die hier angegebenen Werte nur Anhaltswerte liefern.

Festzuhalten ist, dass der Schallleistungspegel ohne Fremdgeräuschkorrekur im vermessenen Windgeschwindigkeitsbereich von 3 bis 6 m/s stets unterhalb von 78 dB(A) blieb.

Ohne Fremdgeräuschkorrektur heißt, dass vom gemessenen Gesamtgeräusch noch das Fremdgeräusch (Umgebungsgeräusch) energetisch subtrahiert werden müsste. Dadurch würde sich je nach Störabstand der Schallleistungspegel um 0,3 bis 1,3 dB(A) weiter senken.

Für Windgeschwindigkeiten oberhalb von 6 m/s liegen keine Messdaten vor.

Der angegebene Schallleistungspegel gibt die Schallenergie einer Quelle an und ist die wichtigste Größe zur Bewertung einer Schallquelle. Mit steigendem Abstand zur Quelle ergeben sich vereinfacht folgende Schalldruckpegel bei der entsprechenden Entfernung zur WEA:

Entfernung [m]	1	2	5	10	20	40	80	160	320	640	1280
Pegelabfall [dB]	11	17	25	31	37	43	49	55	61	67	73

Bei einer Schallleistung von beispielsweise 78 dB(A) und einer Entfernung von 20 m ergäbe sich somit bei Vernachlässigung von Luft- und Bodenabsorption sowie meteorologischer Dämpfung rein rechnerisch ein Immissionspegel von ca. 41 dB(A) zuzüglich einer Bodenreflexion von 3 dB bei Messung auf Stativ. Folglich läge der nach TA-Lärm vor dem geöffneten Fenster messtechnisch ermittelte Beurteilungspegel in dieser Entfernung voraussichtlich bei ca. 44 dB(A).

Sollten Sie noch Fragen haben, stehen wir Ihnen jederzeit gerne zur Verfügung.

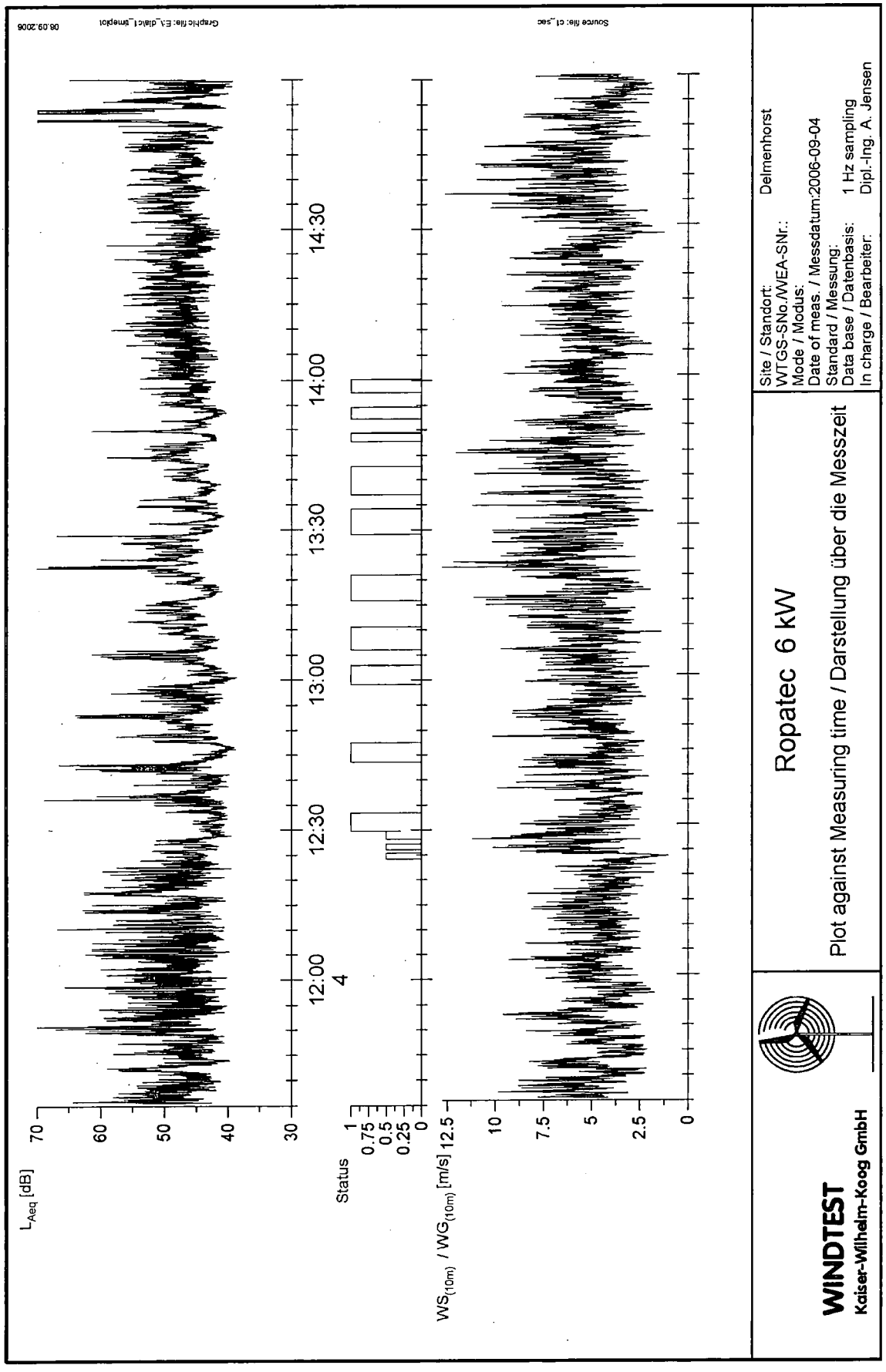
Mit freundlichen Grüßen

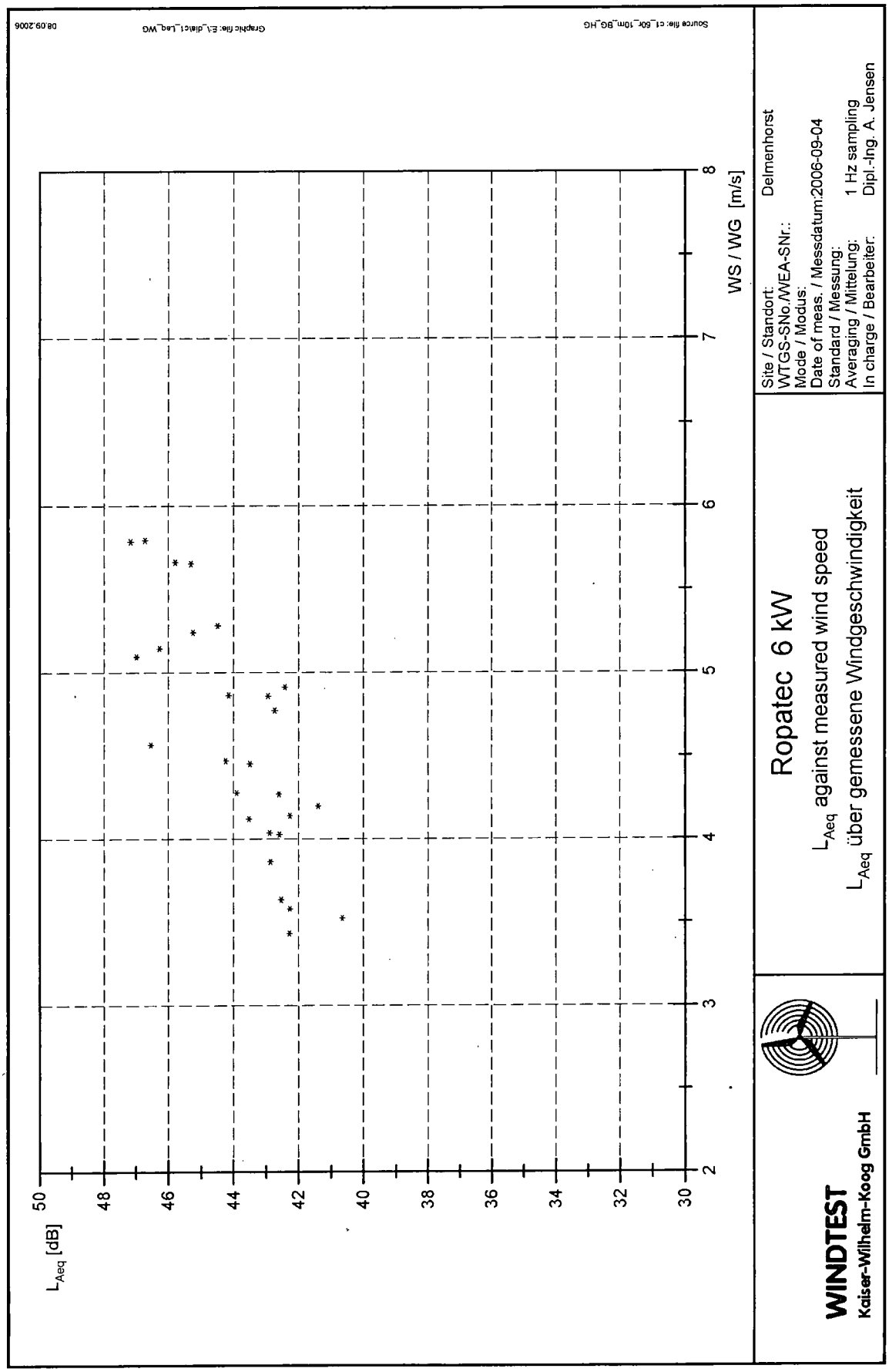
WINDTEST Kaiser-Wilhelm-Koog GmbH

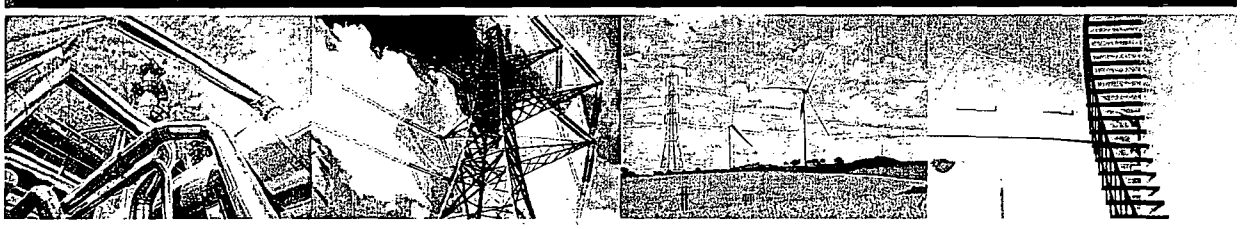
i. V. Dipl.-Ing. J. Neubert
Leiter Gruppe Akustik

i. A. Dipl.-Ing. A. Jensen

Auftragsnummer: 4250 06 03441 64
Stellungnahme zur Messung




Source file: c:_60r_10m_BG_HG
Graphic file: E:_dia\c1_Leq_WG
08.09.2006
WS / WG [m/s]
L_{Aeq} [dB]
Ropatec 6 kW
L_{Aeq} against measured wind speed
L_{Aeq} über gemessene Windgeschwindigkeit
Site / Standort: Delmenhorst
WTGS-SNo./WEA-SNr.:
Mode / Modus:
Date of meas. / Messdatum:2006-09-04
Standard / Messung:
Averaging / Mittelung: 1 Hz sampling
In charge / Bearbeiter: Dipl.-Ing. A. Jensen
WINDTEST
Kaiser-Wilhelm-Koog GmbH



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Design & Access Statement

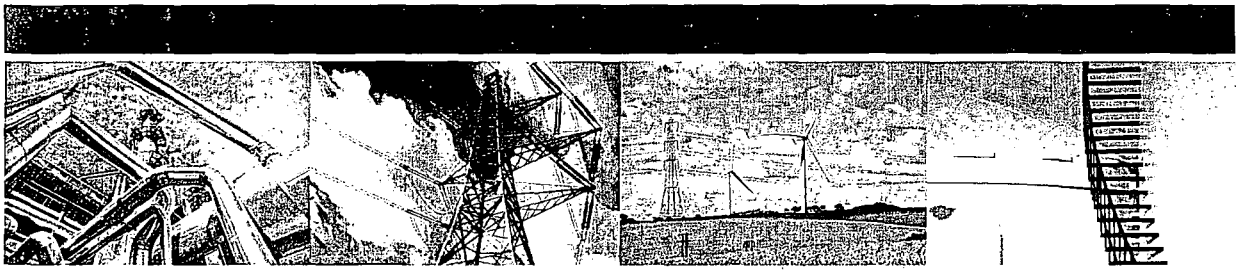
03 NOV 2008

Introduction

PPS1 sets out the overarching planning policies on the delivery of sustainable development through the planning system. PPS1 'Delivering Sustainable Development states:

"Good design ensures attractive, usable, durable and adaptable places and is a key element in achieving sustainable development. Good design is indivisible from good planning. Planning authorities should plan positively for the achievement of high quality and inclusive design for all development, including individual buildings, public and private spaces and wider area development schemes. Good design should contribute positively to making places better for people. Design which is inappropriate in its context, or which fails to take the opportunities available for improving the character and quality of an area and the way it functions, should not be accepted."

The Planning and Compulsory Purchase Act 2004, Section 42, introduced the need for Design and Access Statements and which substituted Section 62 of the Town and Country Planning Act 1990. Circular 01/06 'Guidance on Changes to the Development Control System' effective from the 10th August 2006, sets out in more detail when a Design and Access statement is required and offers guidance on its content.



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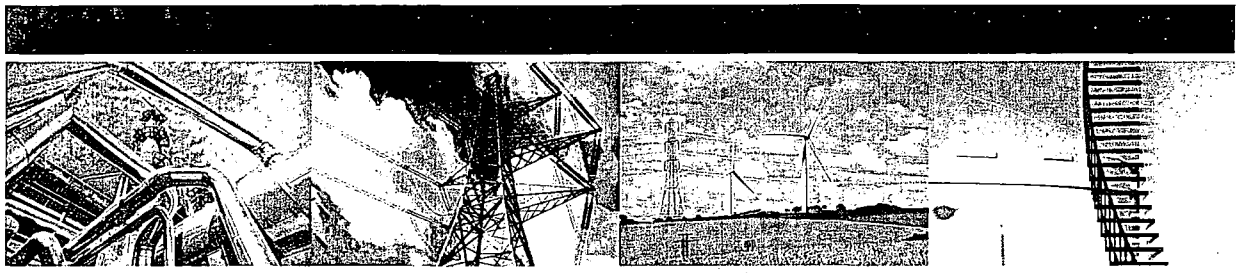
The Commission for Architecture and the Built Environment (CABE) in its publication 'Design and Access Statements - How to write, read and use them' reflects the Government Guidance and provides further guidance by considering seven areas that should be addressed within the statement. They are as follows:

- Use;
- Amount;
- Layout;
- Scale;
- Landscaping;
- Appearance; and
- Access.

This Design and Access Statement will consider the seven areas highlighted by the CABE guidance. Some of these topic areas may not be applicable to this proposal such as issues linked to building design, but other issues have been addressed.

Assessment

The proposed location of the turbines was chosen to benefit from the on site wind resource, the availability of space on site and as there is an adequate separation distance from public roads. Given the overall scale of the turbines (10.6 metres in height with a rotor diameter of 3.3m) they are ideally suited to urban locations.



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In addition given their location within the existing car park with all its associated street furniture and set against the backdrop of the store they have a minimal impact on residential amenity of surrounding properties or on the street scene.

Physical

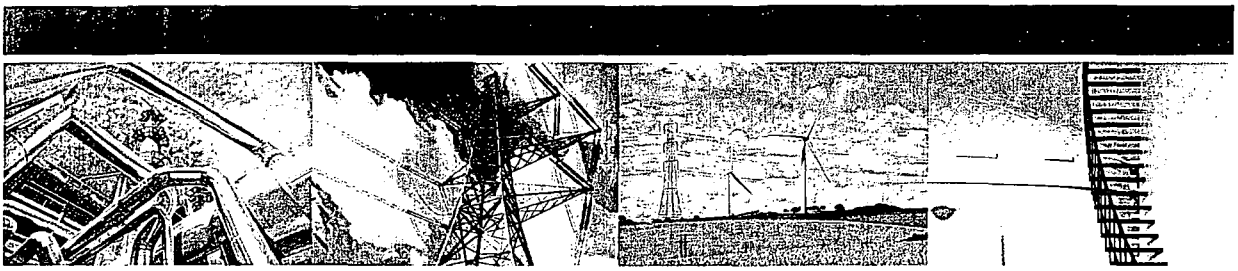
The planning application is for two 6 kilowatt wind turbines.

Social

The proposal will provide on-site energy from a renewable source. It will also act as a landmark for the area and will encourage people to think about green-issues such as renewable energy, recycling and energy saving measures.

Economic

The proposal is of benefit to the environment whilst simultaneously reducing energy costs for Tesco. Although the turbines will provide a small contribution to climate change and renewable targets, PPS22 makes it clear that such benefits, whatever their scale, are material considerations that should be given significant weight in determining planning applications.



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Planning Policy

An assessment of planning policy is covered in the accompanying supporting statement.

Involvement

Due to the scale of the development it was not considered necessary to consult with statutory consultees.

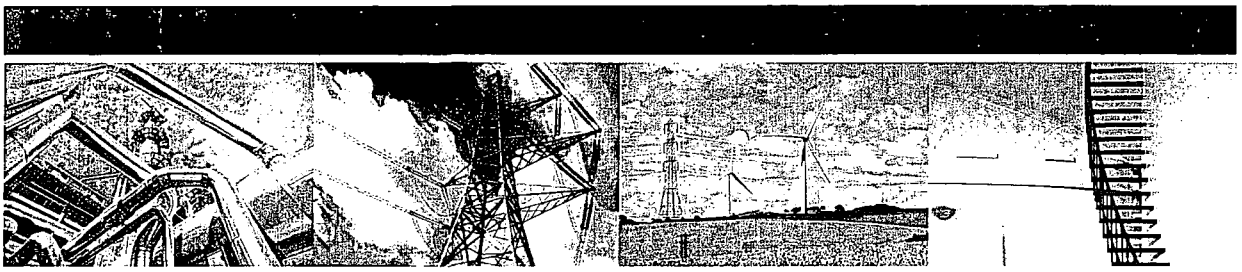
Evaluation

At the time of submission no constraints to development have been identified. The development and turbine selection has been specifically designed so as to minimise any visual impact. Consultations have been carried out with Ofcom and individual link operators to ensure there are no detrimental impacts on communication links.

Use

- *What the buildings and spaces would be used for and where different uses will be placed on the site.*
- *How will the development contribute to the character and image of the development.*
- *How different uses in the development will work together.*

The proposal is for two turbines with a maximum installed capacity of upto 12kW with the proposed location chosen to benefit from south westerly winds, distance from residential properties, many of which benefit from screening in the form of soft landscaping, and the adjacent adopted highways.



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The site currently forms part of the existing Tesco car park with the turbines being located in a predominantly commercial locality.

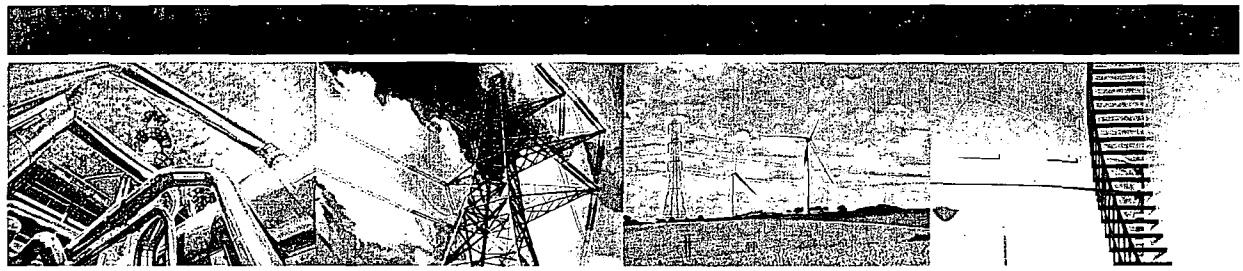
The proposed development reflects the surrounding uses and would not have an unacceptable impact on residential amenity in terms of noise or visual amenity. The proposed development would have a positive contribution to the image of the existing development and surrounding locale by promoting the provision of energy from wind, a renewable source. It will also act as a landmark for the area and will encourage people to think about green-issues such as renewable energy, recycling, and energy saving measures.

In addition to the environmental benefits, the wind turbines would provide a small reduction to the stores operating costs although given the number of stores and depots throughout the UK the cumulative impacts of such renewable energy developments at each site would be significant.

Amount

- *The statement should explain and justify the amount of development planned. The statement needs to explain why this is an appropriate amount.*
- *Is the density appropriate?*

Two turbines were deemed suitable for the site; the turbines will have a maximum installed capacity of up to 12 kW. Such turbines were selected taking into account best practice when designing the site layout of the turbine development with the turbines sited at an appropriate separation distance from residential properties.



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It is best practice to site turbines tip height + 10% from adopted highways. It is also best practice to keep the rotor-swept area within the site boundary.

The effects of climate change are now being experienced at all levels- global, national, regional and local with the Supporting Statement giving a brief overview of the planning policy context and the UK renewable energy policy and therefore justifies the need for the development.

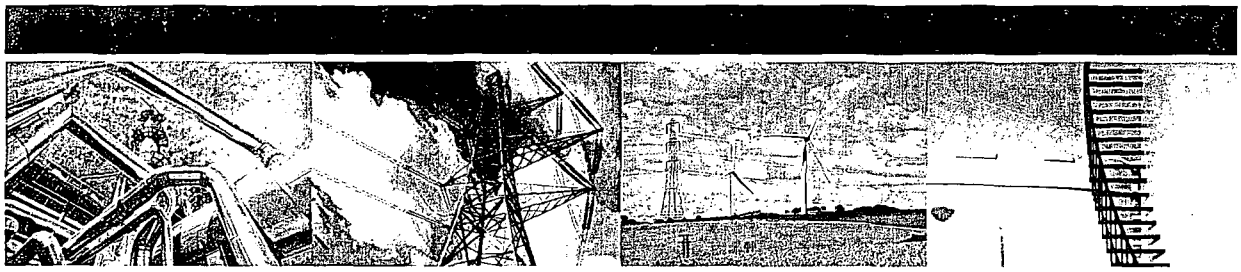
If the development were consented the proposal would contribute and show a commitment in reaching the UK target of 10% of electricity supply from renewable energy by 2010.

Layout

- *Will the place be easy to understand, maintain and adapt and is the space accessible?*
- *Does the layout use spaces to their best advantage?*
- *Will public spaces be safe, overlooked and convenient?*

These questions are not applicable to this development; however the location of the proposed turbines has regard to site characteristics and the workings of the Tesco site. These included:

- Proximity to surrounding adopted highways (i.e. the turbine's topple distance)
- Proximity to surrounding residential uses



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Consideration was also given to ecology, archaeology and historical features within the locality, all of which informed the siting, and the size of turbines.

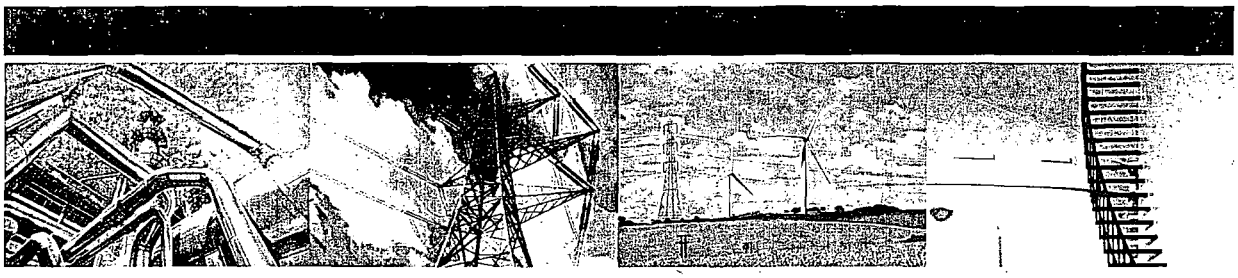
Scale

- The statement should explain and justify:
  - *The height, width and length of buildings*
  - *The size of spaces in relation to each other and their surroundings, and*
  - *The size of parts of a building or its details*
- *The statement should provide clear evidence that the planned scale has been influenced by the existing character of the local area or, where relevant, opportunities to improve that character.*

This section of the Design and Access statement primarily relates to building design and scale. The wind turbine development proposal is for two 6kW turbines with an overall height of 10.6 metres.

The scale of development proposed is related to constraints within the locality with the proposed development being well related to its surroundings in terms of scale, context and form. Although it is acknowledged that the proposed turbines would be visible it has been demonstrated given their height, scale and colour treatment they would not have any significant detrimental impact to adjacent uses / buildings or on the surrounding landscape character.

The size and scale of the turbines proposed will maximise the potential for this site to extract energy from the wind.



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Landscaping

- *The statement should justify and explain the hard and soft landscaping of private and public spaces. It should explain the purpose of landscaping and its relationship to the surrounding area. The landscaping strategy, as set out in the statement, should show how the development responds to opportunities to improve the landscape character of the site.*

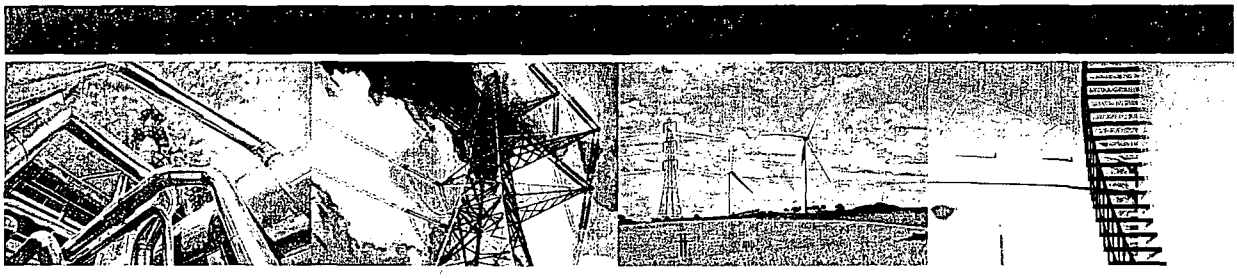
This section does not relate to this development as the turbines are located in the existing car park of the Tesco store and no additional hard or soft landscaping is proposed.

However, as the site is within an established developed urban area, such a site is considered to be more capable of accommodating change than less-developed rural areas. Therefore the landscape should be able to accommodate such turbines. The turbines will add a point of interest to the supermarket site.

Appearance

- *The statement should explain and justify the appearance of buildings and spaces, and show how they relate to their surroundings. It should cover architecture, materials, decoration, lighting, colour and texture. The best designs link all the parts of a scheme, and the statement should show how decisions on appearance related to all other aspects of the scheme, reinforcing the main design.*

The proposed turbines are located in a predominantly urban commercial area. The turbines would be well related to their surroundings and would not appear dominant, particularly when viewed in the context of the



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adjacent store, petrol station, trees and lighting columns all of which is located in this predominantly commercial environment.

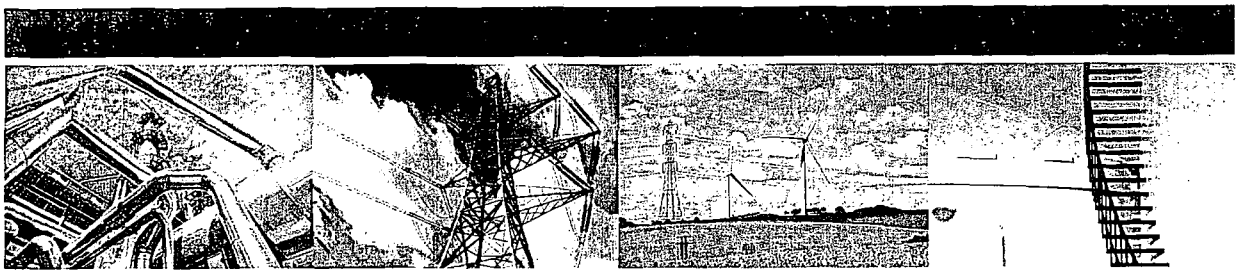
The machines will be vertical axis turbines with a white colour coated steel tower and blades.

Access

- *The statement covers two connected issues one is the general movement to and through the site and its buildings and the other is how all members of society will be able to use the site.*

The proposed turbines are located within the existing car park of the Tesco store with the foundation measuring approximately 7.59m^2. However, the foundations would be entirely underground and could therefore be easily incorporated into any existing concrete or tarmac hardstanding, or buried beneath topsoil. The turbines would take up a maximum of 2 car parking spaces although the area which is subject of the application consists of upto 4 parking spaces to allow for on site micro-siting. The turbines would not result in any change to the internal circulation of vehicles within the car park. In terms of any impact on the general public the statement in paragraph 49 of the companion guide to PPS22 should be noted which states:

'Experience indicates that properly designed and maintained wind turbines are a safe technology. The very few accidents that have occurred involving injury to humans have been caused by failure to observe manufacturers'



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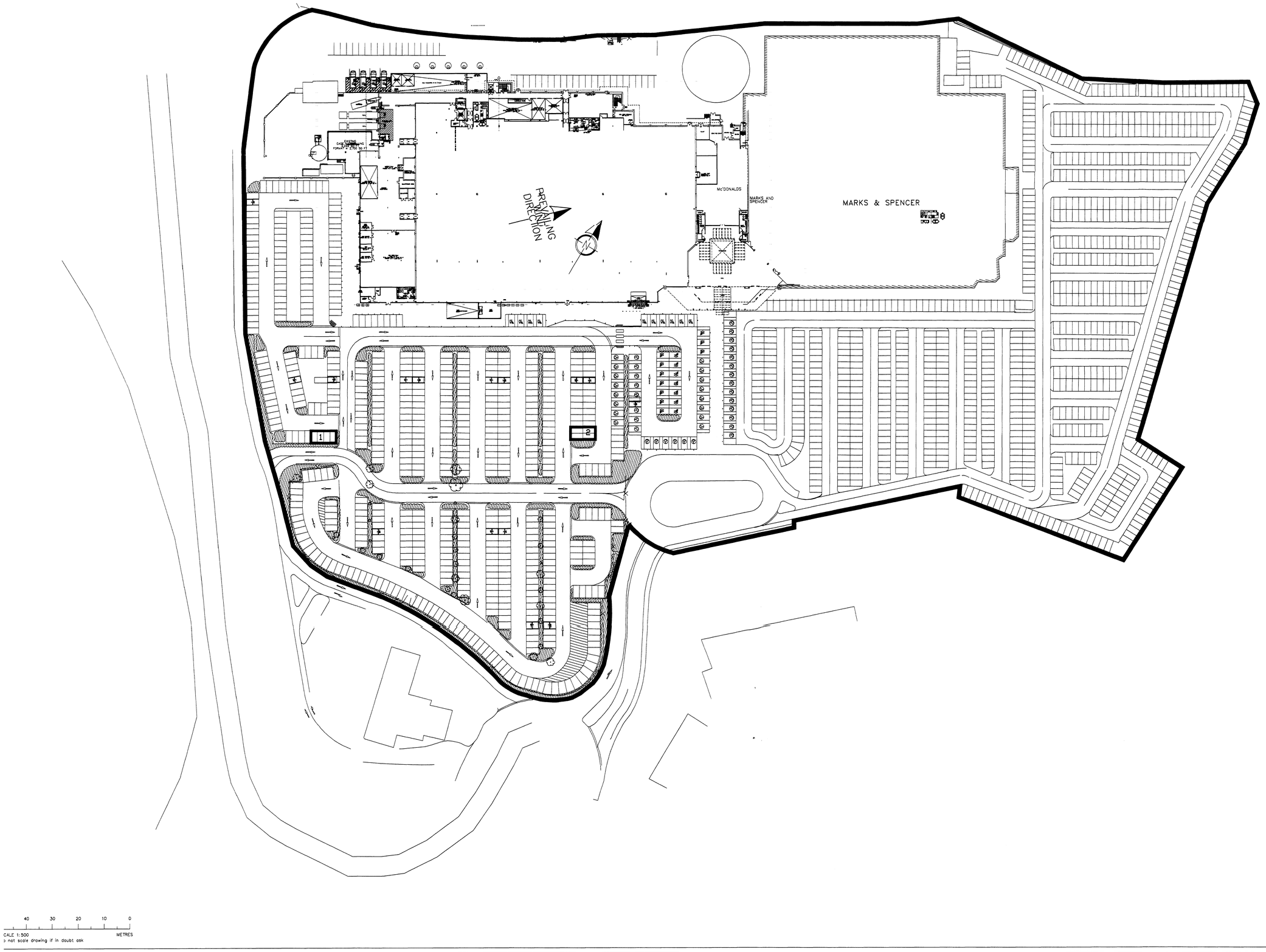
and operators' instructions for the operation of the machines. There has been no example of injury to a member of the public'.

In terms of access, the site is well located to the surrounding road network.



REV.	AMENDMENTS	DATE

TESCO DEMISE (INDICATIVE)

DEVELOPMENT BOUNDARY

PROJECT
3178
SHOREHAM F80

DESCRIPTION
WIND HARVESTING
PROPOSED SITE PLAN

DRAWING NO. 3178PAG1#

PHASE ISSUE E

SYSTEM ID. No.

SCALE 1:500@A0 DATE 25.09.08

PLANNER MIKE REGAN

DRAWN CLG

CHECKED MH

ARCH DRAWING No.
5655-3178 PL(90)200

hlnarchitects

TESCO
IMPLEMENTATION STORE PLANNING

TESCO STORES LIMITED
STORE PLANNING DEPARTMENT
PROPERTY SERVICES
P.O. BOX 400, CIRRUS BUILDING, SHIRE PARK
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03 NOV 2008