

1 2 JUL 2011	
FOR THE ATTENTION OF	

For office use only

Application No 3/2011/0553

Date received

Fee paid £

Receipt No:

Council Offices, Church Walk, Clitheroe, Lancashire. BB7 2RA Tel: 01200 425111 www.ribblevalley.gov.uk

Application for Planning Permission. Town and Country Planning Act 1990

Publication of applications on planning authority websites.

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website.
If you require any further clarification, please contact the Authority's planning department

1. Applicant Name, Address and Contact Details

Title:	Mr	First name:		Surname:	Ashby
Company name:					
Street address:	c/o Agent		Telephone number:	Country Code	National Number
					Extension Number
Town/City:			Mobile number:		
County:			Fax number:		
Country:			Email address:		
Postcode:					

Are you an agent acting on behalf of the applicant? ☒ Yes ☐ No

2. Agent Name, Address and Contact Details

Title:	Mrs	First Name:	Marilyn	Surname:	Brichard
Company name:	Philip S. Ryley & Co				
Street address:	Philip S. Ryley & Co.		Telephone number:	Country Code	National Number
	Wards End Chambers			01422	356520
	Wards End		Mobile number:		
Town/City:	Halifax		Fax number:		
County:	West Yorkshire		Email address:		
Country:	United Kingdom		marilyn@ryley.co.uk		
Postcode:	HX1 1BX				

3. Description of the Proposal

Please describe the proposed development including any change of use:

Erection of 32m, 225kW wind turbine

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)

Description:

House:		Suffix:	
House name:	WATT CLOSE FARM		
Street address:	BURNLEY ROAD		
	GISBURN		
Town/City:	CLITHEROE		
County:			
Postcode:	BB7 4JJ		

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

Easting:	383255
Northing:	447172

5. Pre-application Advice

Has assistance or prior advice been sought from the local authority about this application?

☒ Yes ☐ No

If Yes, please complete the following information about the advice you were given (this will help the authority to deal with this application more efficiently):

Officer name:

Title: Mr First name: Graham Surname: Thorpe

Reference: RV/2011/ENQ/00138

Date (DD/MM/YYYY): 30/03/2011 (Must be pre-application submission)

Details of the pre-application advice received:

Confirmation of reports required and principle of development assessed.

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. Authority Employee/Member

With respect to the Authority, I am:

- (a) a member of staff
- (b) an elected member
- (c) related to a member of staff
- (d) related to an elected member

Do any of these statements apply to you?

☐ Yes ☒ No

9. Materials

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

Walls - description:

Description of *existing* materials and finishes:

n/a

Description of *proposed* materials and finishes:

White painted steel

Materials continued)

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:

See Supporting Statement

10. 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
Cars	0	0	0
Light goods vehicles/public carrier vehicles	0	0	0
Motorcycles	0	0	0
Disability spaces	0	0	0
Cycle spaces	0	0	0
Other (e.g. Bus)	0	0	0
Short description of Other			

11. 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

12. 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

13. Biodiversity and Geological Conservation

To assist in answering the following questions refer to the guidance notes for further information on when there is a reasonable likelihood that any important biodiversity or geological conservation features may be present or nearby and whether they are likely to be affected by your proposals.

Having referred to the guidance notes, 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

14. Existing Use

Please describe the current use of the site:

Agricultural Land

Is the site currently vacant? ☐ Yes ☒ No

Does the proposal involve any of the following?

If yes, you will need to submit an appropriate contamination assessment with your application.

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

15. 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 may need to provide a full Tree Survey, at the discretion of your local planning authority. If a Tree Survey is required, this and the accompanying plan should be submitted alongside your application. 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'.

16. Trade Effluent

Does the proposal involve the need to dispose of trade effluents or waste? ☐ Yes ☒ No

17. Residential Units

Does your proposal include the gain or loss of residential units? ☐ Yes ☒ No

18. All Types of Development: Non-residential Floorspace

Does your proposal involve the loss, gain or change of use of non-residential floorspace? ☐ Yes ☒ No

19. 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

20. Hours of Opening

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

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

21. Site Area

What is the site area?

04.80

sq.metres

22. 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

23. Hazardous Substances

Is any hazardous waste involved in the proposal? ☐ Yes ☒ No

24. 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

Certificates (Certificate A)

Certificate of Ownership - Certificate A

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

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: First name: Surname:
Person role: Declaration date: ☒ Declaration made

25. Certificates (Agricultural Land Declaration)

Agricultural Land Declaration

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

Agricultural Land Declaration - You Must Complete 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: ☐

If any part of the land is an agricultural holding, of which the applicant is the sole tenant, the applicant should complete part (B) of the form by writing 'sole tenant - not applicable' in the first column of the table below

Title: First Name: Surname:
Person role: Declaration date: ☒ Declaration Made

26. Declaration

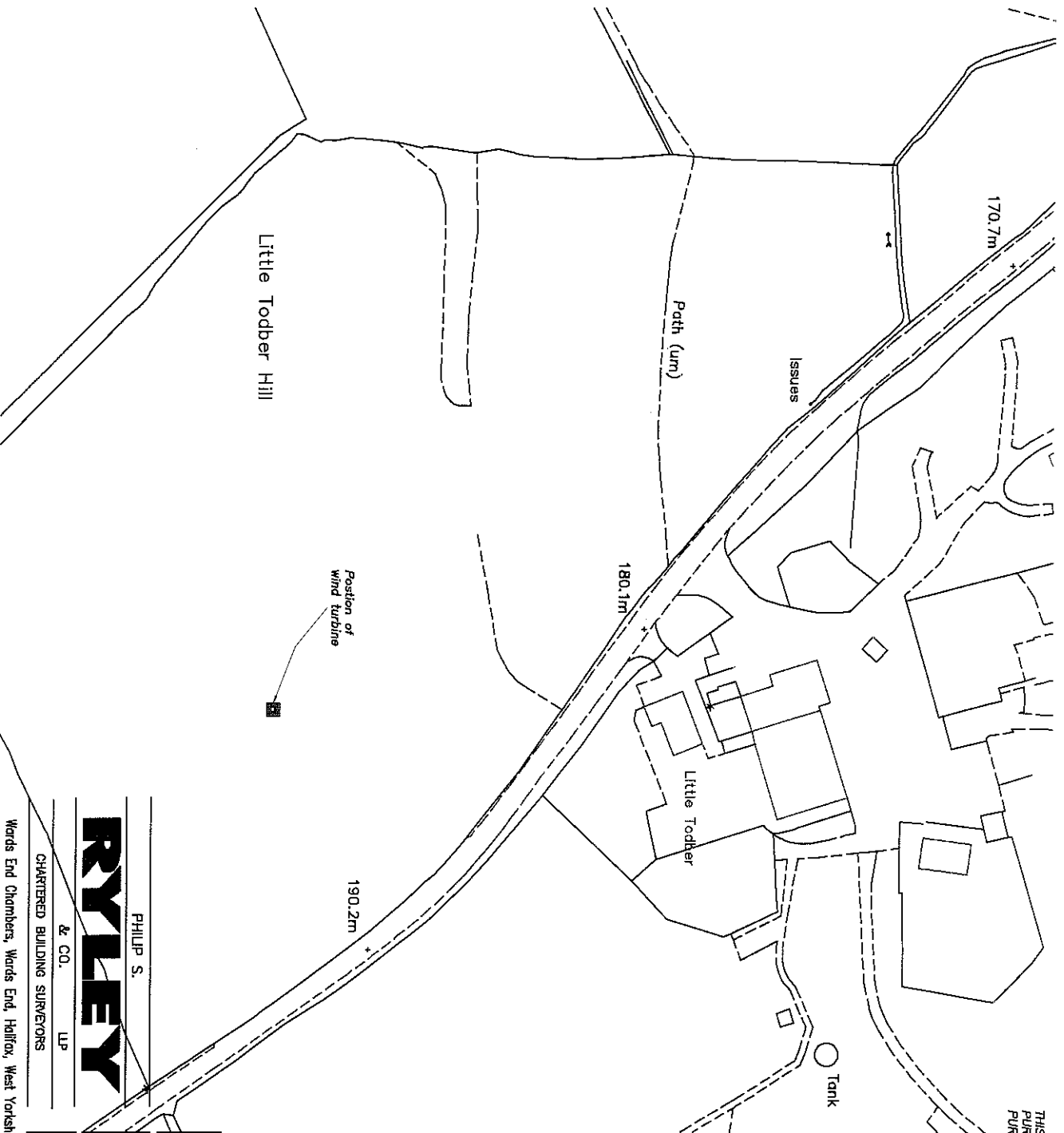
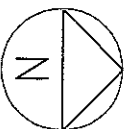
I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information.



Date:

320110553P

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PHILIP S.

RYLEY

& CO.

LLP

CHARTERED BUILDING SURVEYORS

Project: PROPOSED WIND TURBINE
WATT CLOSE FARM, BURNLEY ROAD
GIBBURN

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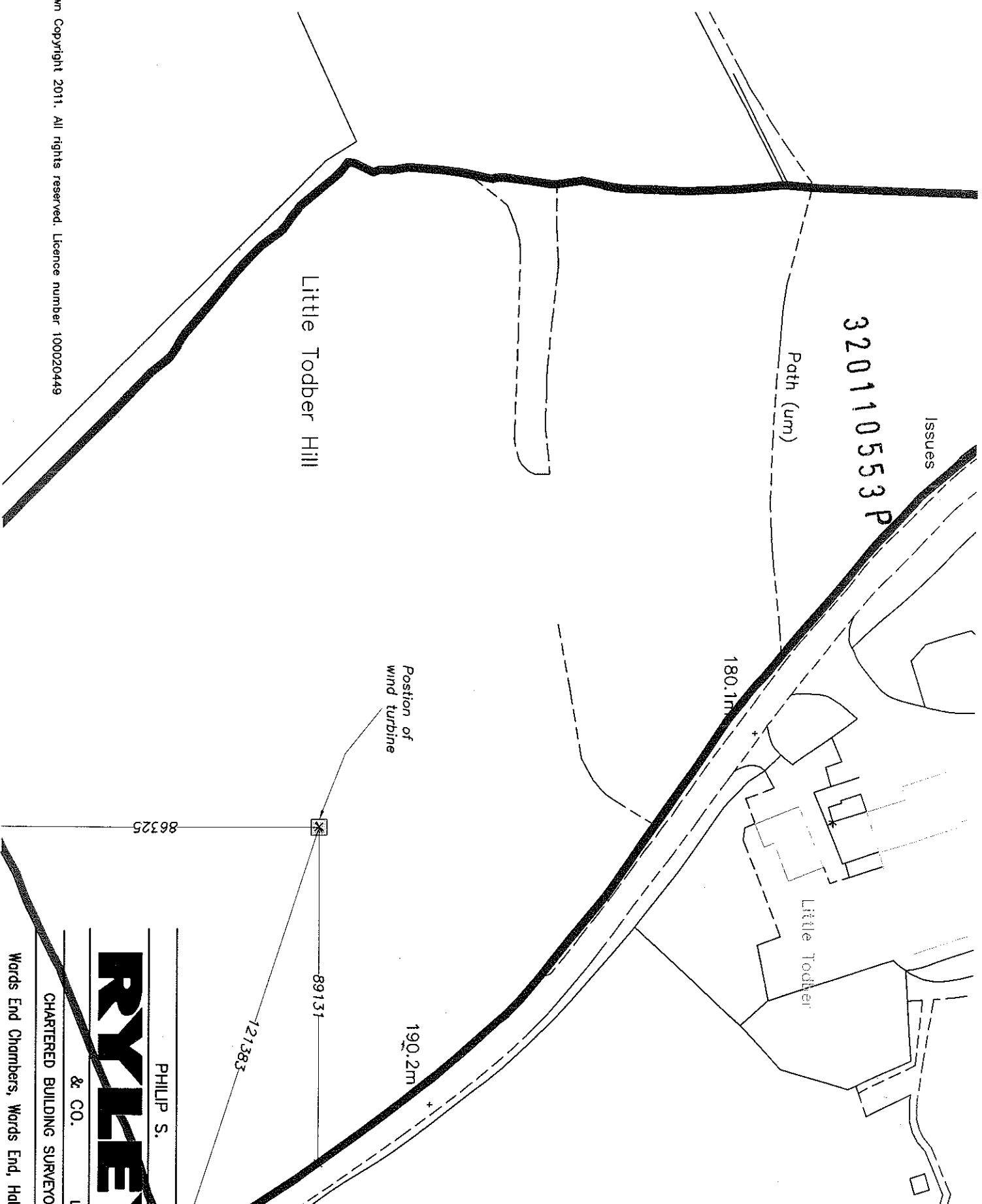
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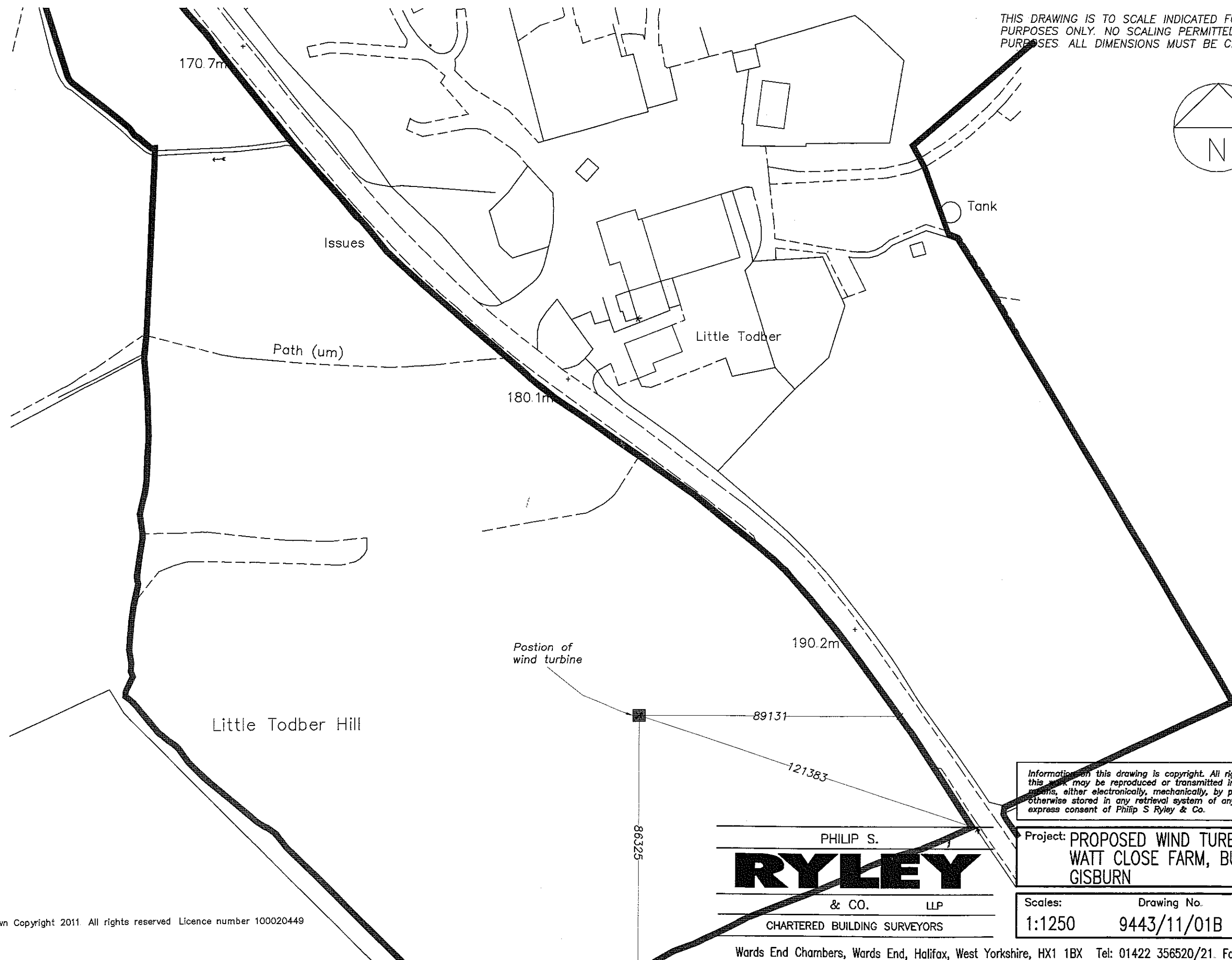
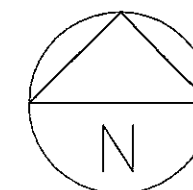
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Words End Chambers, Words End, Halifax, West Yorkshire, HX1 1BX Tel: 01422 356520/21. Fax: 01422 364351



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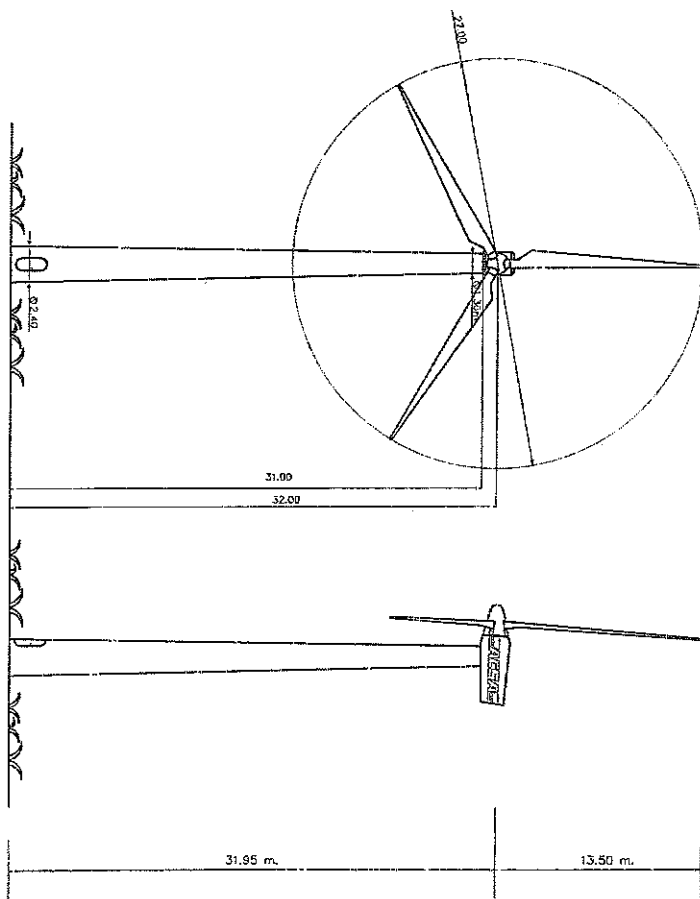
Project: PROPOSED WIND TURBINE
WATT CLOSE FARM, BURNLEY ROAD
GISBURN

Scales:	Drawing No.	Date:
1:1250	9443/11/01B	FEB11

PHILIP S.
RYLEY
& CO. LLP
CHARTERED BUILDING SURVEYORS

Wards End Chambers, Wards End, Halifax, West Yorkshire, HX1 1BX Tel: 01422 356520/21. Fax: 01422 364351

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DRAWING		WTG ACSA-A27 / 225kW.
		SCALE
		1/50d

320110553P



Chartered Building Surveyors
Chartered Town Planners
Building Engineers
Architectural Designers

Planning & Design and Access Statement

Wind Turbine at Watt Close Farm, Burnley Road, Gisburn, Clitheroe,
Lancashire, BB7 4JJ



Wards End Chambers,
Wards End, HALIFAX.
West Yorkshire. HX1 1BX

Tel: 01422 356520
Web: www.ryley.co.uk
E-mail: info@ryley.co.uk

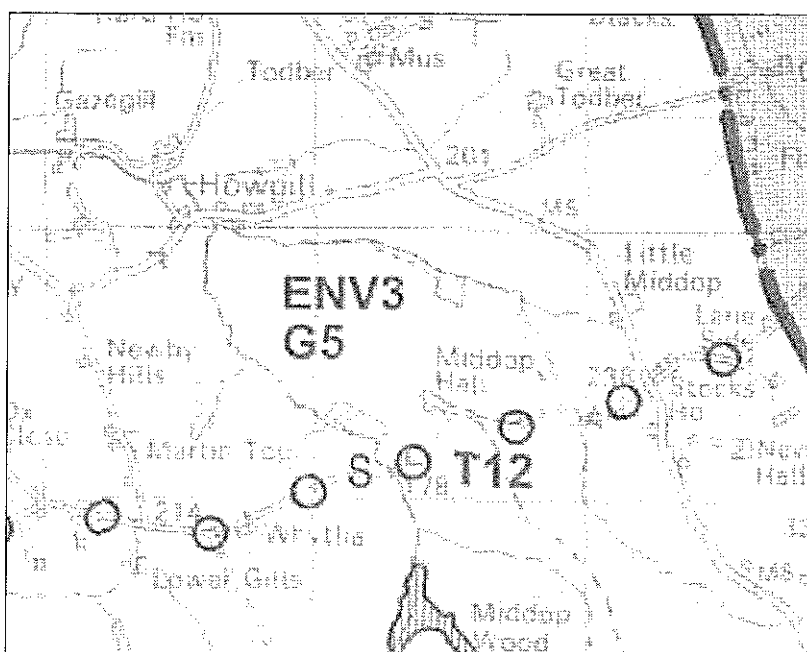
1.1 Introduction

Philip S. Ryley & Co. have been instructed by Mr Ashby to make an application for an 32m, 225Kw turbine at his farm at Watt Close Farm, Burnley Road, Gisburn near Clitheroe.

Section 42 of the 2004 Planning and Compulsory Purchase Act requires that a statement detailing design principles and outlining access issues must accompany an application for planning permission. Similarly section 3 of DCLG Circular 01/06 outlines that a supporting statement must demonstrate how these considerations have been assessed in the proposal, outline the underlying principle applied and how this relates to the local context.

1.2 Local Plan Designation

Figure 1: Extract from Ribble Valley Borough Council Local Plan showing site and surround



The site is designated as Open Countryside within the Ribble Valley Borough Council Local Plan.

1.3 Planning History

Based on a search on Council's website, there is no substantial planning history on this site within the last 5 years.

1.4 Planning Policy Review

The following Policies are deemed relevant to this application:-

1.4.1 National Policy

■ PPS22

PPS22 outlines national policy objectives in relation to renewable energy and considerations relevant to the determination of planning applications of this sort. Of relevance to this proposal are the following extracts :

"(vi) Small-scale projects can provide a limited but valuable contribution to overall outputs of renewable energy and to meeting energy needs both locally and nationally. Planning authorities should not therefore reject planning applications simply because the level of output is small."

This development represents such a project which will provide a renewable source of energy, providing energy for the site itself and also supplying the National Grid where possible.

*"Landscape and Visual Effects of Renewable Energy Developments
20. Of all renewable technologies, wind turbines are likely to have the greatest visual and landscape effects. However, in assessing planning applications, local authorities should recognise that the impact of turbines on the landscape will vary according to the size and number of turbines and the type of landscape involved, and that these impacts may be temporary if conditions are attached to planning permissions which require the future decommissioning of turbines."*

The proposal is for a domestic scale wind turbine in an area of mixed topography. There are few wind turbines in the surrounding area and whilst there are some further afield, these are not of sufficient number to create a cumulative effect. Notwithstanding this, enclosed as part of this submission is a photomontage demonstrating how the wind turbine would appear when viewed from the surrounding area. Looking at the information it is clear that the turbine would not have a significant impact. Furthermore we are happy to welcome a condition attached to a permission regarding its decommission.

"21. Planning authorities should also take into account the cumulative impact of wind generation projects in particular areas. Such impacts should be assessed at the planning application stage and authorities should not set arbitrary limits in

local development documents on the numbers of turbines that will be acceptable in particular locations."

As stated above, a photomontage of the proposal within its landscape context is enclosed as part of the planning submission and this demonstrates the impact of this proposal and also the lack of other turbines in the vicinity. As such there is no cumulative impact.

"Small Scale Renewable Energy Developments

18. Local planning authorities and developers should consider the opportunity for incorporating renewable energy projects in all new developments. Small-scale renewable energy schemes utilising technologies such as solar panels, Biomass heating, small-scale wind turbines, photovoltaic cells and combined heat and power schemes can be incorporated both into new developments and some existing buildings. Local planning authorities should specifically encourage such schemes through positively expressed policies in local development documents "

As stated above, the LPAs should generally support small-scale renewable energy developments subject to the standard material considerations.

■ **PPS7 – Sustainable Development in Rural Areas**

Planning Policy Statement 7 (PPS7) sets out the Government's planning policies for rural areas, including towns and villages and the wider, principally undeveloped countryside up to the fringes of larger urban areas. The following extracts are applicable to this proposal:

"27. The Government recognises the important and varied roles of agriculture, including in the maintenance and management of the countryside and most of our valued landscapes. Planning policies in RSS and LDDs should recognise these roles and support development proposals that will enable farming and farmers to:

- (i) become more competitive, sustainable and environmentally friendly;*
- (ii) adapt to new and changing markets;*
- (iii) comply with changing legislation and associated guidance;*
- (iv) diversify into new agricultural opportunities (e.g. renewable energy crops); or*
- (v) broaden their operations to 'add value' to their primary produce."*

The intention behind the turbine is to provide a source of on-site energy generation for the farm and enable it to diversify revenue sources and reduce operating costs. This, in turn, will

enable the farm to become more competitive, sustainable and environmentally friendly in line with PPS7.

■ **PPS4 – Planning for Sustainable Economic Growth**

Planning Policy Statement 4 (PPS4) sets out the Government's wide-ranging policy framework for planning for sustainable economic development in urban and rural areas. The following extracts are pertinent to this proposal:

"Policy EC12: Determining planning applications for economic development in rural areas

EC12.1 Re-use of buildings in the countryside for economic development purposes will usually be preferable, but residential conversions may be more appropriate in some locations and for some types of building. In determining planning applications for economic development in rural areas, local planning authorities should:

- *support development which enhances the vitality and viability of market towns a. and other rural service centres*
- *support small-scale economic development where it provides the most b. sustainable option in villages, or other locations, that are remote from local service centres, recognising that a site may be an acceptable location for development even though it may not be readily accessible by public transport*
- *take account of the impact on the supply of employment sites and premises and c. the economic, social and environmental sustainability of the area, when considering planning applications involving the loss of economic activity.*
- *approve planning applications for the conversion and re-use of existing d. buildings in the countryside for economic development, particularly those adjacent or closely related to towns or villages, where the benefits outweigh the harm in terms of:*
- *the potential impact on the countryside, landscapes and wildlife*
- *local economic and social needs and opportunities*
- *settlement patterns and the level of accessibility to service centres, markets and housing*
- *the need to conserve, or the desirability of conserving, heritage assets and;*

- *the suitability of the building(s), and of different scales, for re-use v. recognising that replacement of buildings should be favoured where this would result in a more acceptable and sustainable development than might be achieved through conversion."*

The proposal represents an opportunity for a business in the rural economy to continue to develop in the face of tough economic conditions and consequently will boost its economic sustainability. Furthermore the potential for on-site renewable energy generation and improved environmental sustainability is a material consideration to which considerable weight should be attached.

1.4.2 Local RUDP Policy

- **ENV24 Renewable Energy**

"In view of the general environmental benefits associated with harnessing renewable energy sources, the Borough Council will support the development of renewable energy schemes provided it can be shown that such developments would not cause unacceptable harm to interests of acknowledged importance in the local environment."

The proposal will provide a non-renewable source of energy for the agricultural operations on site. Key concerns relating to this type of development are noise and visual impact – with regard to the former a noise report about the turbine is enclosed as part of this submission. In addition, with reference to visual impact the photomontage enclosed demonstrates how the proposal sits within and relates to the landscape.

- **ENV25 Renewable Energy**

"In assessing proposals for renewable energy schemes, the Borough Council will have particular regard to the following issues:

- (i) the measures that would be taken, during and after construction, to minimise the impact of the development on local land use and residential amenity;*
- (ii) the local and wider benefits the proposal may bring; and*
- (iii) the fact that certain renewable energy resources can only be harnessed where the resource occurs.*
- (iv) The immediate and wider impact of the proposed development on the landscape; and AONB in particular the need to protect features and areas of natural, cultural, historic and archaeological interest;"*

The turbine can be installed promptly and with minimal disruption to the site and surroundings. In terms of residential amenity and item (i), the farm is reasonably isolated from third party properties. Notwithstanding this, a noise information is enclosed detailing that the turbine generates minimal noise and will not disrupt its surroundings. With reference to item (ii), the proposal will generate sufficient renewable energy for the agricultural operations undertaken at Watt Close Farm and will significantly reduce the CO₂ generation albeit at this micro-scale. Moving onto to item (iii), the site is extremely windy and this wind represents a renewable energy source. Finally with reference to (vi), the proposal is outside of the AONB, but nearby to it, and therefore landscape matters are extremely important. However the proposal is relatively small-scale with a simple and inconspicuous design. It is not felt that it has a detrimental impact on the AONB.

- **ENV26 Wind Energy**

"The Borough Council will approve proposals for wind turbine generators providing:

1) About the Proposal

- i) the visual impact of the proposal on the wider landscape is justifiable;*
- ii) the proposal does not harm any wildlife habitat or area of historical or architectural importance;*
- iii) the degree of nuisance caused by noise and shadow flicker to nearby residential amenities, agricultural operations, recreational areas or the function of the countryside is minimal;*
- iv) the proposal does not interfere with electromagnetic signals;*
- v) the design, colour layout and scale of turbines and ancillary structures including access roads must be appropriate to the character of the area;*
- vi) connections to electrical grids and sub stations etc. must be acceptable in the landscape setting;*
- vii) adequate restoration and after use provision must be made;*
- viii) suitable parking facilities should be provided where appropriate.*

2) Location

development proposals within or close to the Area of Outstanding Natural Beauty, sites of special scientific interest, local nature reserves, or scheduled ancient monuments will not be allowed, unless:

- i) the proposal cannot be better located outside such statutory designated areas;*
- ii) the proposal is acceptable in environmental and landscape terms; and*
- iii) any adverse environmental impacts as far as practicable have been mitigated.*

With reference to the above, the visual impact of the proposal is demonstrated by the photomontages. The potential for renewable energy generation is a strong material consideration, even for a small installation such as this. It is expected that the presence of other vertical objects on the landscape mitigates any impact of the proposal, and that the very special circumstances of renewable energy generation offset any minimal visual impact.

In relation to matters to noise generation, a noise report is enclosed. In addition, there are no issues of electromagnetic impact. With reference to design the turbine has a simple matte finish and coloured in grey/white which will not appear incongruous or visually dominant on the skyline. Finally there are no access roads to be constructed, any connection is undertaken via cabling and the Applicant is amenable to a condition to remove the turbine if it is left inoperable for a period in excess of 24 months without repair.

1.5 Context

The site lies approximately 1.5 miles east of Rimington and part of agricultural land. The siting of the turbine represents a compromise between the maximum possible wind speed and consequent renewable energy generation, the minimum possible visual impact and obtaining the appropriate distances from other residents to protect their amenity. The farm itself has a high level of energy consumption and the turbine will enable the farm to produce its own energy and also feed some back to the national grid.

1.6 Amount

The single turbine will provide sufficient energy to meet the current needs of the agricultural operations on site.

1.7 Layout

The proposed siting of the turbine is detailed on the plans which accompany this submission.

1.8 Scale

The turbine has an 32m mast and will generate 225Kw of energy. The scale is necessary to meet the requirements of the agricultural operations/domestic needs on the site.

1.9 Landscaping

The base of the turbine will be covered by soil and grass to maintain a natural appearance. No other landscaping is proposed.

2.0 Appearance

The turbine itself is formed from steel and fibreglass and is a grey/white colour with a matte finish. It is expected that this relatively benign appearance combined with its small scale will not be detrimental to wider visual amenity.

2.1 Climate Change Mitigation and Adaptation Measures

Given the nature of the development, no mitigation/adaptation measures are proposed.

2.2 Conclusion

In light of the above, the proposal accords with policy and should therefore be acceptable to the LPA.

ACSA - A27/225 kW WINDTURBINE

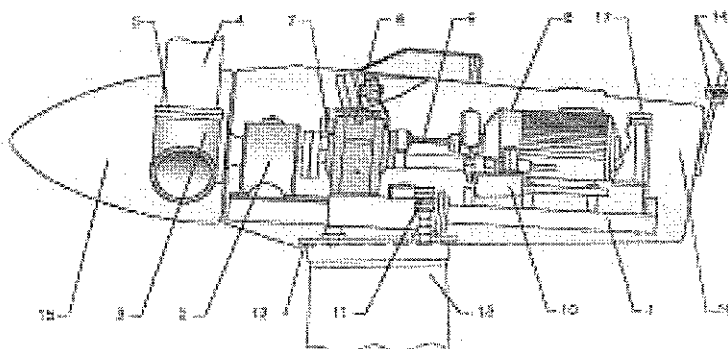
ACSA- A27/225kW Windturbine is a further development of similar windturbines based on the knowledge derived from their exploitation. On this model, the pitch regulation is now even more sensitive and finely tuned, to exploit the advantages that this power system gives, that are detailed below:

- Superior regulation of the max. output of 225kW.
- Smoother coupling-in of the generator.
- Start-up without the motor.
- Less load on the whole construction.
- Braking effected without using the mechanical brake.
- Optimum production under all wind conditions

ACSA -A27/ 225kW Windturbine is described in detail under the following headings:

- | | | | |
|--------------------------|-------------|--------------------|---------------------|
| 1 - Machine structure. | 3 - Nacelle | 5 - Braking system | 7 - Safety features |
| 2 - Tower /lattice tower | 4 - Blades | 6 - Cables | 8 - Control unit |

- 1 Machine bed
- 2 Main shaft
- 3 Blade hub
- 4 Blade
- 5 Blade bearing
- 6 Gear
- 7 Disc brake
- 8 Generator double wound
- 9 Cardan
- 10 Hydraulic unit
- 11 Yaw gears
- 12 Yaw ring
- 13 Tower
- 14 Anemometer and wind vane
- 15 Blade hub protection cover
- 16 Protection cover
17. Top central unit



1. MACHINE STRUCTURE

The windturbine machine is constructed on a heavy-duty machine bed (1) made of profile tubes and plate in order to concentrate all welding joints in the areas with the lowest load

The forged main shaft (2) is supported by two spherical roller bearings fitted in their particular cast casings, and joint to a carrying pipe, absorbing both radial and axial forces from the rotor. From experience we know that this design feature ensures an exceptionally large greased area around the shaft and the bearings and thus provides a long and trouble-free service life.

The cast blade hub (3) is bolted onto the main shaft; this hub supports the blades and contains the rolling mechanism.

Each blades (4) is bolted by a blade bearing (5) on to the rotor axle box which ensures that they can easily be turned around their own axis thanks to a moment arm mounted at the pitch mechanism

A two-stage gearbox (6) with parallel shafts is installed at the rear end of the main shaft. The gear support bracket, which transports moment reactions to the front part of the machine bed, has been designed to ensure equal load impact on both sides. There is an oil refrigeration system over the gearbox.

The disc brake (7) is fitted to the high-speed shaft of the gearbox, and it features two hydraulic disc brake calipers and non-asbestos brake pads

The generator (8) is driven by a shaft from the gearbox through a cardan (9) with a clutch. The generator has two speeds, 1008 rpm and 760 rpm. By using a doubled wound generator the advantages of the two-generator operation are used without having the usual disadvantages, i.e. a considerable loss of ventilation

The hydraulic unit (10) feeds the brake and the pitch regulation mechanism. The generator and the hydraulic unit are mounted on the rear part of the machine bed. Yawing is done by two electrically driven yaw gears (11) installed on the front part of the machine bed. The gears mesh with the yaw ring (12) bolted on the top of the tower (13). The yawing is controlled by an electronic wind vane (14) and is secured against cable twist via the security device. The blade hub protection cover (15) and the protection cover (16) are made of fiberglass reinforced polyester.

From experience the machine structure ensures a compact and efficient windturbine driven by the top control panel (17), with easy access for service and maintenance. In the long run this ensures low operating costs.

2. TOWER

ACSA- A27/225kW Windturbine is available on white painted, steel cone-shaped tubular tower, corrosion resistant or on steel galvanized lattice.

The yaw ring, on which the machine bed is embedded with slide blocks, is mounted on the tower in such a way that access to the nacelle takes place through the yaw ring and a man hole in the front part of the machine bed.

Lamps and power points are installed in the tower as well as an inside ladder, resting and protection platforms and safety cable, also installed in the ladder of the lattice tower.

3. NACELLE

The windturbine's nacelle is covered with a shield which protects the machine components against the environment and reduces the noise. At the same time it allows for sufficient cooling of gear and generators.

The upper part of the shield can be opened to both sides and thus allow for service personnel to stand up in the nacelle and for components to be hoisted in and out, being unnecessary taking the windturbine to the floor. A lamp is installed in the nacelle.

A door in the front end of the shield provides access to the blade hub and the blade bearing.

4. BLADES

The blades are made from fiberglass reinforced polyester (GFRP). The shells are made in a light sandwich construction and are mounted on a supporting closed beam fitted at the root end with 30 embedded special threaded bushings.

The blades are designed and manufactured with a view to optimum balancing of the requirements for efficient wind utilization and minimum load on the windturbine as well as long and troublefree operation.

5. BRAKING SYSTEM

The Windturbine is equipped with two independent systems, both of which, independently, can stop the turbine.

In all normal stop situations only full-feathering of the blades is used. This causes a controlled braking of the turbine with minimum loads on the whole construction.

In very critical situations (emergency stop) the hydraulic disc brake is used together with full-feathering of the blades.

In case of overspeed on the rotor and simultaneous faults on the controller, a monitor independent of the controller will stop the turbine.

6. CABLES

The Windturbine is equipped with the necessary and sufficient wires and cables for connection to the turbine's control unit at the base of the tower.

The public grid cables are connected to the controller's outlets and are not included in the delivery.

7. SAFETY FEATURES

All ACSA- A27/225kW Windturbine safety features meet the safety norms for this kind of resorts, been aimed to avoid any harm to people or the commonwealth.

8. CONTROL UNIT

A microprocessor-based control unit monitors and controls all critical functions of the turbine, including the pitch regulation, in order that the performance of the turbine is optimum at any windspeed. The controller displays data on the current operation and performance of the windturbine.

The generators are coupled in via thyristors, whereas operation takes place via contactors.

The controller is designed to allow remote monitoring and control in case these features are required. These features are not included in the delivery.



MAIN DATA

Rotor:

Diameter	27 m
Swept Area	573 m ²
V _{nom} main generator	43 rpm
V _{nom} small generator	32 rpm
Rotary direction	Clockwise (front view)
Power regulation	Pitch
Number of blades/length	3 / 13 m
Blade material	Fiberglass reinforced polyester (GFRP)
Aerodynamic brakes	Full-feathering of blades
Blade profile	NACA 63-200
Hub height	31,5 m

Operational data:

Start-up wind speed	3,5 m/s
Cut-out wind speed	25,0 m/s
Nominal output achieved at	13,5 m/s

Tower:

Type 1	Cone-shaped, tubular tower
Accessories	Foundation section
Surface	Painted/ metallized
Height	30 m
Type 2	Lattice tower
Accessories	Bolts
Surface	Galvanized
Height	30 m

Generator:

Type: Double wound-Asynchronous	6 pole8 pole
Output	225 kW
	50 kW
Current	400 A100 A
Voltage	
400 Vca	400 Vca
Frecuency	50 Hz50 Hz
Cos phi	0,810,72
Coupling	Triangle
	Triangle
Insulation classification	FF
Protection classification	IP54IP54
Temperature protection	PT 100PT
	100
Rotations	1008 rpm 760 rpm
Manufacturer: SIEMENS, ASEA, ABB or similar	

Phase compensation:

Installed reactive output	87,5 kVAr
	25,0 kVAr
Resulting cos phi	0,940,91
Resulting current	345 A80 A

Gear:

Type	2 speed, parallel shafts
Ratio	1 : 23
Nominal effect	433 kW
Oil volume	70 l
Manufacture	HANSEN, FLENDER o similar

Yaw system:

Type	Active yawing
Control	Windvane
Speed	0,6 degr/sec

Yaw motor:

Type	Asynchronous
Rotation speed	950 rpm

Yaw Gear:

Type	Worm gear/planetary gear
Nominal moment	2 x 5500 Nm
Manufacture	BONFIGLIOLI, or similar

Windvane and Anemometer:

Type	Optoelectrical
Manufacture	VESTAS, or similar

Hydraulic Station:

Type	Gear pump
Capacity	4,2 l/min a 100 bar
Max system pressure	100 bar
Oil volume	30 l
Manufacture	VICKERS SYSTEMS, or similar

Control Unit:

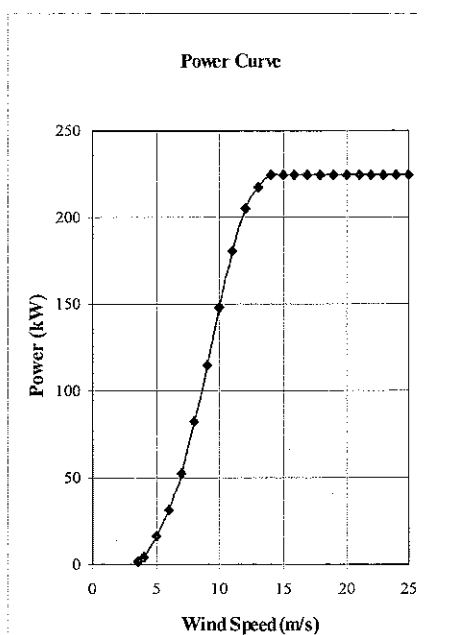
Type	Multi Processors (VMP)
Manufacture	VESTAS

Weight:

Tubular tower	12 000 kg
Nacelle	7 900 kg
Rotor	2 900 kg

POWER CURVE

The power curve below is based on an air density of 1,23 kg/m³.



DELIVERY

The windturbine, as described above, is delivered assembled, erected and commissioned in automatic operation, without the necessary public utility electric grid connection that will be detailed below.

ELECTRIC INSTALLATION

Location of the control unit cabinet:

The control unit cabinet, made in corrosion resistant metal, is placed in the base of the tower and thus well protected against the weather. Its dimensions are:

Height	2.000 mm
Width	1.000 mm
Depth	400 mm

Connection to the utility grid:

Connection to the public utility grid is done via copper cables or aluminum cables. The service cable to the grid must be dimensioned for minimum 450 A and must feature a 500 A fuse. Cable dimension depends on length and material; the terminals in the control unit cabinet are copper with a possibility of connection of cables shoes with 12 mm holes.

Earthing:

The turbine and the controller must be earthed by 50 mm² cables and earthing rods. The maximum resistance of the system must be under 10 Ohm.

Tower lightning:

The control panel has a power point (10 A, 220V) for light supply in the tower and tower power.

Meter arrangement:

In many cases the meter arrangement can be placed with the controller, but in each case it should be discussed with the electricity supply company, usually installed near the transforming station.

Responsability:

ACSA emphasizes that the main connections of the control unit cabinet is the responsibility of the manager/ electrician in question, and that it is not included in the delivery, unless opposed specification.

Foundation:

ACSA supplies standard drawings and the necessary instructions to build the standard foundation as well as the special foundation if they were not included in the delivery.

The geo-technical studies of the soil and the special foundation calculations are not included in the delivery.

APPROPRIATE ACCESS ROAD

It is a condition for the delivery, that appropriate access road to the erection site is established. This access road should allow the entrance of heavy transports, concrete mixers and heavy cranes, all of them necessary for the assembling.

All costs in this connection are on the buyer's account, both the access roads and the working platforms for the assembling. This applies during the subsequent warranty and service period.

WARRANTY

ACSA supplies two (2) years warranty against faults and defects in design and materials provided that the turbine is used according to its purpose and according to ACSA's instructions for use, service and maintenance, ever been done by ACSA or any other ACSA's homologued company.

TECHNICAL SERVICE

Included in the delivery is one (1) free service check during the two year warranty period.

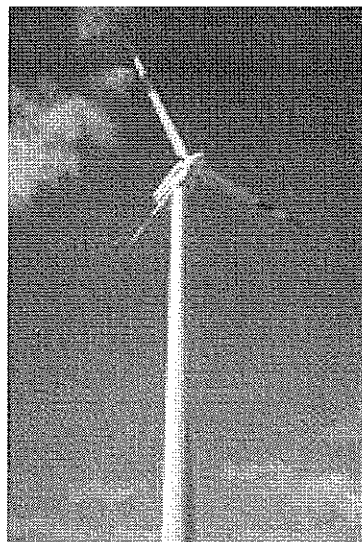
Consumption of normal wearing parts and lubricants is not included in the delivery.

ACSA offers service and maintenance contracts after expiry of the warranty period.

INSURANCE

A deal insurance can be obtained with well-known insurance companies in order to assure the management and exploitation of the windturbine, including the warranty of the production. ACSA will be disposed to give advice about it. The insurance is not included in the delivery.

Special remark: due to the continuous development and improvement of our products, all the specifications related above are subjected to changes without notification.



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WIND TURBINE ACSA-A27/225 kW
NOISE LEVEL

The sound power level is specified as follows.

• Measurement conditions:

- Distance from turbine to the measuring position 63 m
- Height of measurement equipment (above ground) 10 m
- Weather conditions 15°C, cloudy
- Duration 20 x 1 min
- Terrain flat
- Noise signal recorded and analyzed
- Measured wind speed 7 - 8 m/s

• Used formulation:

$$L_{w,ref} = L_{eq,ref} + 10 * \log (4 * \pi * (d^2 + h^2)) - 6 \quad (\text{dB})$$

d = distance to the wind turbine (63 m)

h = hub height (31,5 m)

$$L_{A,eq} = L_{wA,ref} - 10 * \log (a^2 + h^2) - 8 \quad (\text{dB})$$

For a wind speed of 8 m/s and precision level of ± 3 dB, obtained data are:

Hz	63	125	250	500	1000	2000	4000	8000	A-weighted
$L_{eq,ref}$ (dB)	56	58	57	54	50	46	39	31	55
$L_{w,ref}$ (dB)	98	100	99	95	92	88	81	73	97

$L_{A,eq} = 55$ dB

Landscape and Visual Impact Assessment.

1. Introduction

3DVS have undertaken this Visual Impact Assessment study on behalf of Philip s. Ryley, which is intended to form part of an application for the determination of the erection of a 30m Wind Turbine adjacent to the A682, at SD83073 - 46467, Gisburn. The report identifies the visual impact of this turbine through photography.

2. Site Context.

Grid Reference of proposed site	
Lat/Lon:	53 54.844 – 002 15.551
OSGB:	SD84060 - 46049
Landscape Description.	Rolling Agricultural
Green Belt	No
National Park	No
A.O.N.B	No
Planning Authority	Ribble Valley
Distance from site to nearest residential property owned by customer.	Unknown
Distance to nearest property not owned by customer.	Unknown.
Distance from nearest commercial property.	128.05m
Centres of residence	Gisburn, Rimington
Public Highways	A682, Howgill Lane, Stopper Lane, Rimington Lane, Cross Hill Lane, Stocks Lane.
Major Public Footpaths/Bridleways	Numerous

3. Existing Environment.

A desktop study was undertaken to gather information on the existing baseline landscape conditions, location of visual receptors and geographical context to establish the area over which the wind turbine development may have a visual impact. In addition to the desktop study, site survey work was undertaken to verify the findings of the data collection, to identify specific landscape features and to undertake a detailed visual analysis. Photographs were taken from viewpoints from potential visual receptors.

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4. Terrain/Landscape.

The site is on agricultural land at a height of 184m AOD, The landscape is described as an open rolling landscape. The area is rural in population with Gisburn being the largest centre of population in this area. Smaller 'Hamlets' and farms make up the other areas of population. The villages are:

Rimington
Little Todber
Newby

Roads within survey area:

A682
Howgill Lane
Stocks Lane
Martin Top Lane

The majority of the minor roads are narrow lanes bounded by high hedge lines with passing places.

Footpaths.

There are numerous short footpaths within the survey area.

5. Methodology for Assessment of Landscape Resource and Visual Impacts.

The assessment of the visual impacts were conducted in accordance with current guidance, namely The Landscape Institute and Institute of Environmental Management and Assessment *Guidelines for Landscape and Visual Impact Assessment*, (Second Edition) 2002, and Visual Representation of Wind Farms, Good Practice Guide (Scottish Heritage) as described below.

In defining the landscape visual impact Tables 1, 2 & 3 below have been used as guides.

Table 1. Sensitivity Classification

Sensitivity of Landscape Resource	
Landscape of particularly distinctive, character susceptible to relatively Small changes e.g. National Park	High
Landscape with relatively ordinary characteristics reasonably tolerant of changes	Medium
Landscape with few features of value or interest, potentially tolerant of Significant change.	Low

Note on Table 1, specifically A.O.N.B, National Parks, SSSI and World Heritage sites etc.

This report addresses the visual impact of the proposed site from the viewpoint of an individual or individuals looking towards the site from various viewpoints or 'visual receptors', it does NOT assess the 'physical' impact on the Land e.g. Flora/Fauna, Geology, terrain and land use, therefore the objective terminology used in this report is of a different meaning, and RELATES to visual impact.

For example:

The proposed site may be in a National Park, by definition a high sensitivity landscape. However the site from a particular viewpoint, say a road or footpath may be masked or hidden by trees, from a 'visual' reception point of view this would be classed as 'slight' as the turbine is not in full view to the 'visual' receptor. The same criteria are applied to any properties that may have visual reception to the site.

Issues on the physical change to the landscape, listed buildings, archaeology etc (as above) should be addressed by other reports.

3DVS Environmental Impact Visualisation Report

Table 2. Magnitude Classification.

Magnitude of Change	
Substantial change in landscape characteristics over an extensive area, ranging to very intensive change over a limited area. Permanent, long term.	High
Moderate change in landscape component over a wide area and/or moderate change in localised area.	Moderate
Discernable but slight change in any landscape component.	Slight
Virtually imperceptible change. Insignificant scale to affect the integrity of the landscape component	Negligible

Table 3 Impact Significance.

	Low Sensitivity	Medium Sensitivity	High Sensitivity
Substantial Magnitude	Moderate Impact	Substantial Impact	Substantial Impact
Moderate Magnitude	Slight Impact	Moderate Impact	Substantial Impact
Slight Magnitude	Slight Impact	Slight Impact	Moderate Impact
Negligible Magnitude	Negligible Impact	Slight Impact	Slight Impact

Table 4 provides a summary of predicted visual impact upon completion of installation and construction

Table 4. Predicted Visual Impact over the next 5 years.

Activity	Effect upon landscape resource	Sensitivity	Magnitude	Significance of visual impact.
Increase in traffic due to construction works and erection of plant	Loss of a small area of grassland	LOW	LOW	SLIGHT
Initial Operation Stage	Continuation of existing conditions – Loss of small area of grassland	LOW	LOW	SLIGHT
Continued full time operation	Continuation of existing conditions – Loss of small area of grassland.	LOW	LOW	SLIGHT

Table 5. Predicted Visual Impacts Upon Completion of Construction.

Activity	Effect upon Visual Impact	Sensitivity	Magnitude	Significance of visual impact.
Increased visibility of the site due to the operation of the single wind turbine	Near distance views. Loc 1,2,5	Significant at Loc 1, Moderate at 2, Changing sensitivity for loc 5.	Moderate/Significant	Moderate
	Middle Distance Views Loc 3, 4	Moderate at 3. Changing sensitivity for location 4	Moderate	Moderate
	Far distant views	None	None	None

6. Methodology for Assessment of Visual Impact.

Visual impact is the result of a change in view from receptors such as residential property, public rights of way, land with public access and roads. Residential properties are considered the most sensitive receptors to changes in view whereas road users are the least sensitive as their experience is transient. The magnitude of impact is assessed according to the scale of the effect, which will depend largely upon the size and type of the development and the distance of the receptor/s from the site. The significance of visual impact depends upon the sensitivity of the receptor and the magnitude and duration of the effect.

Note: Consideration is given to all possible visual receptors within the range 0 to 5000m during the desktop study. However, it would be impractical to examine all visual vantage points for a project of this size and we accept that the turbine could be seen from other locations.

Table 6. Sensitivity of Visual Receptors.

Sensitivity of Visual Receptor.	
Residential properties less than 1 km from the development with direct views from ground floor and first floor windows towards the development. Public Rights of Way less than 1 km from the development with direct views.	HIGH
Residential properties over 1 km from the development or with more restricted views towards the development. Public Rights of Way more than 1 km from the development, or with restricted views. Local side roads and lanes. Sporting and recreational facilities, allotments.	Medium
Offices, commercial developments and industrial sites. Main roads and rail routes.	Low

Table 7. Classification of Magnitude of Visual Receptors.

Magnitude of Impact (Scale).	
The majority of viewers affected/major changes over a large proportion of the view.	Substantial
Many of the potential viewers affected/ major changes over a smaller proportion of the view/moderate change in view/partial view.	Moderate
Few viewers affected / minor change in view/glimpsed view.	Slight
Indiscernible change in the view.	Negligible

Table 8. Significance of Impact (Relationship Between Sensitivity and Magnitude).

	Low Sensitivity	Medium Sensitivity	High Sensitivity
Substantial Magnitude	Moderate	Substantial	Substantial
Moderate Magnitude	Slight	Moderate	Substantial
Slight Magnitude	Slight	Slight	Slight
Negligible Magnitude	Neutral	Neutral	Slight

The photomontage images have been produced to predict the proposed views of the site post construction. Photograph Locations 1 to 5 were taken using a digital camera with a 35mm lens. The images are comparable to those observed by the human eye. The photomontages were produced using 3d Studio Max an industry standard visualisation package, part of the Autodesk AutoCAD group and PhotoShop. Photographs 1 to 5 were taken from publicly accessible viewpoints, to illustrate the site on completion.

7. Visual Baseline Conditions.

A visual analysis was undertaken in June when weather conditions and visibility were considered to be acceptable.

The Zone of Theoretical Visibility (ZTV) is defined as the area from within which the proposed development would be visible (assuming an eye level of 1.6 m above ground level). The ZTV and potential visual receptors are shown in Part 2 of this report.

8. Visual Receptors.

There were a number of possible visual receptors identified from the desk top study. These were:

A682
Howgill Lane
Martin Top Lane

All of the above sites were visited on the day.

A total of 5 visual receptors were chosen and photographs taken looking towards the site of the Turbine for assessment on how they might be visually affected by the erection of the proposed turbine.

The receptors are situated between 128.05m and 1431m (1.4km) away from the site. There is no Visual Reception from Gisburn, Rimington due to the distance from the site. None from Newby due to differences in local topography and hedgerows etc. The same applies to Stoops.

All photographs were taken from publicly accessible viewpoints.

Near Distant Views (inside 1000m)

Location 1. A682 (entrance to Todber Caravan Park)
Location 2. Howgill Lane (eastern end)
Location 5. A682 (traffic approaching the site from the north)

Middle Distance Views (Between 1000m & 2500m).

Location 3. Howgill Lane (western end)

Location 4. A682 (traffic approaching the site from the south)

Distant Views (Between 2500m & 5000m.)

Changes in landscape, distance and limited visibility points:

None.

9. Predicted Visual Impacts.

A summary of the visual impacts from the above receptors, using the methodology described in Section 6 is summarised in Section 11. The receptor locations are shown in Part 2 of this report. (GIS Image & Shaded relief OS Map). Terrain Cross Profiles with a vertical exaggeration of approx X2 are also supplied in Part 2 of this report.

The description of the views and the potential impact on individual receptors is summarised as follows below:

Location 1. OSGB: SD83166 - 46560. 128m from site looking southwest.

Visual receptor taken from the entrance to the holiday village on the A682. The visual reception for this holiday village is significant

Location 2. OSGB: SD83292 – 46162. 371.83m from site looking northwest.

From the eastern end of Howgill Lane. Looking northwest to the site.

Location 3. OSGB: SD82263 - 45806. 1045m (1.04km) from the site looking northeast.

Taken from the western end of Howgill Lane. The turbine is seen as an isolated structure in the broader landscape.

Location 4. SD84166 – 45548. 1431m (1.43km) from the site looking northwest

Representative view for vehicles travelling north/northwest towards the site. The proposed site will be visible in varying degrees along 1.47km section of the A682.

Location 5. SD82846 – 47180 751.40m from the site looking south/southeast.

Representative view for vehicles moving south/southeast. The proposed site will be visible in varying degrees along a 684m section of the A682.

10. Summary of Predicted Visual Impact.

Fundamental change at the site will result from the erection of the turbine as a new vertical structure in the landscape. Viewpoints are limited due to changes in this 'ordinary, rolling countryside'. Moderate/Significant visual impact occurs to traffic along A682. Concern should be given to the Holiday Village to the northeast of the proposed site. In the broader landscape view will range from moderate to slight.

11. Conclusion.

There are no direct views to the site from Gisburn or other small hamlets/villages in the area due to distance (Gisburn) and location setting (all others). The site does not fall into the categories A.O.N.B., Green Belt, World Heritage or SSSI. Listed buildings, Ecological and Archaeological studies are the subject of other reports. Ribble Valley LA designates this area as 'Open Landscape'.

Attention is drawn to the following:

Ribble Valley District wide Local Plan.

4.11.6 WIND ENERGY POLICY ENV26 SECTION 1.

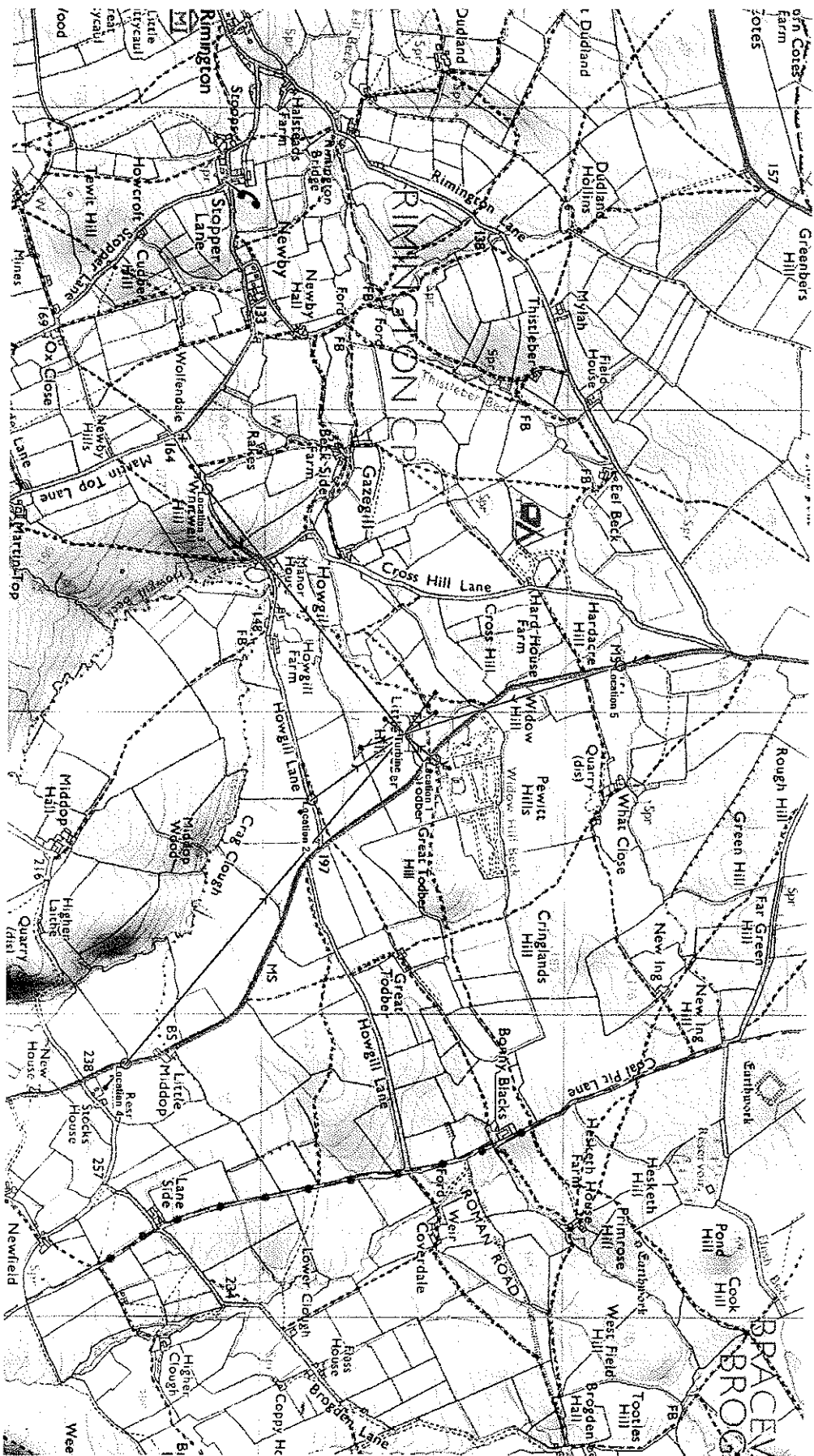
The proposed site falls within the remit of sub-sections I, ii, and iii

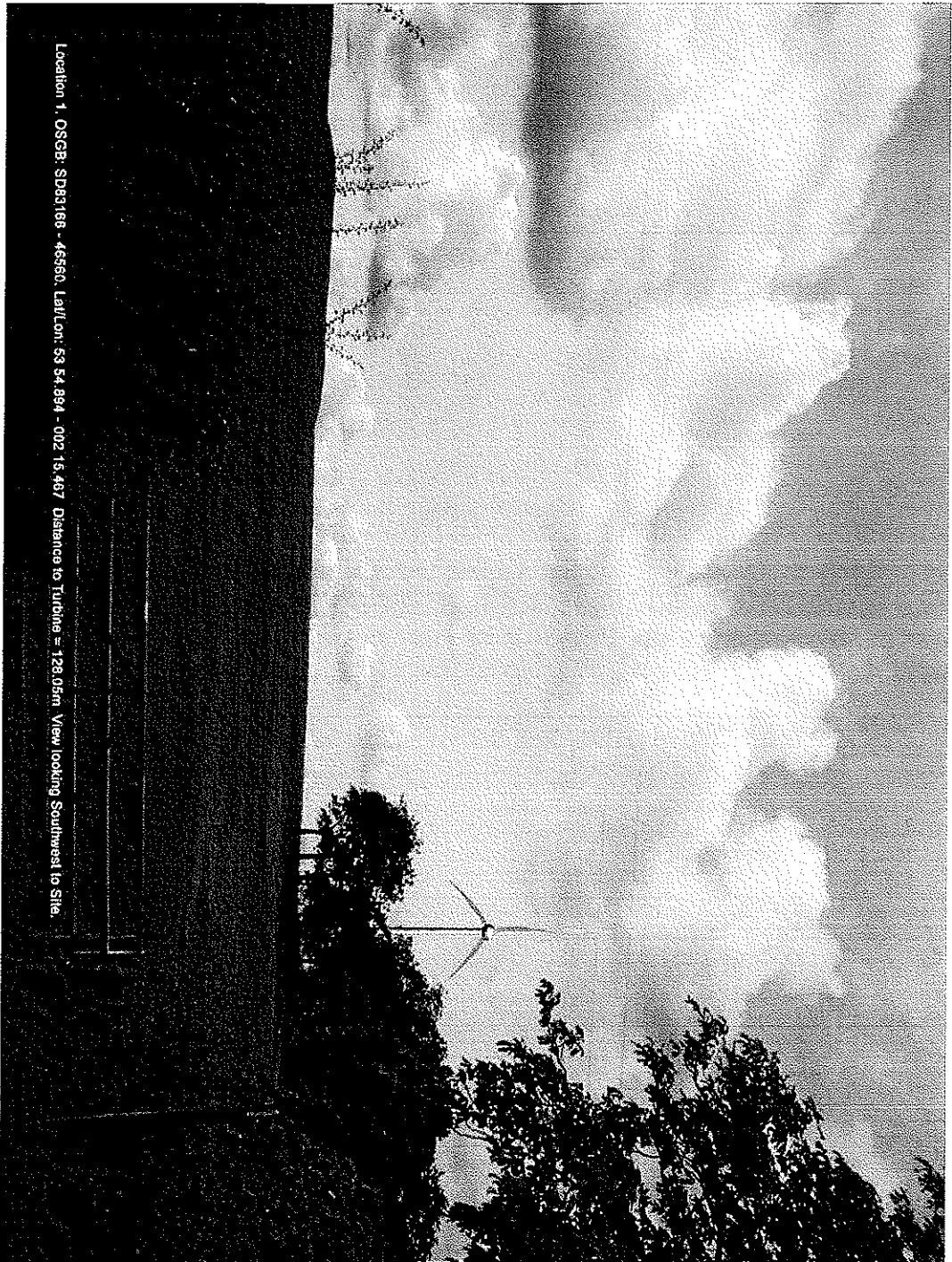
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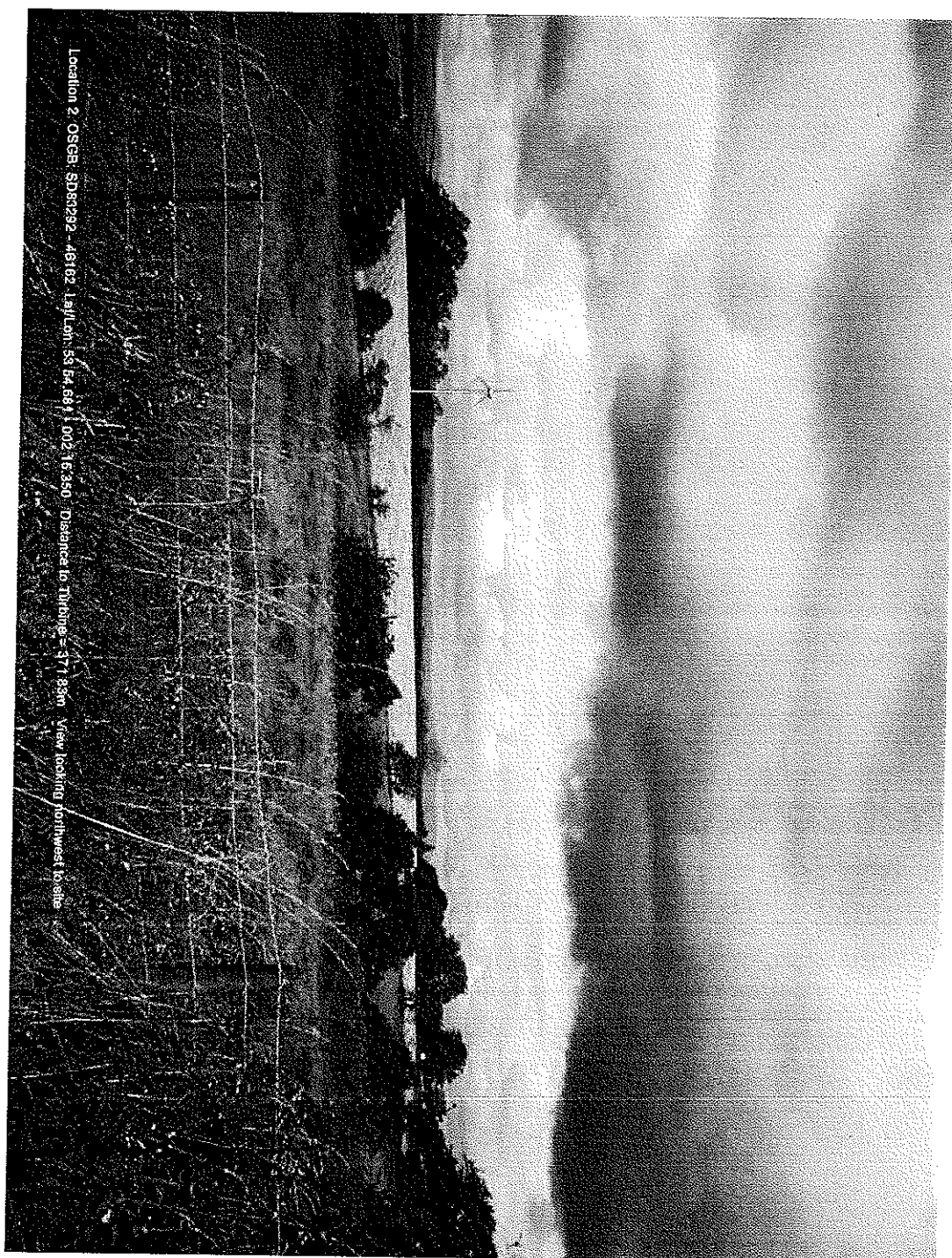


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Location 1, OSG8: SD83168 - 46560, Lat/Lon: 53 54.894 - 002 15.467, Distance to Turbine = 128.05m, View looking Southwest to Site.



Location 2: OSGR: SDB292-46182, Lat/Lon: 53.64.684, 002.16.350. Distance to Tiltline = 371.83m. View looking Northwest to the



Location 3, OSGP SD92263 - 45606 LatLon: 63 54 486 - 002 16 283 Distance to Turbine = 1040.27m (1.04km). View looking northeast to site



Location 4, OSCB, SDB4166 - 45548 Lat/lon: 53 54.351 - 002 14.550 Distance to Turbine = 1431.54m (1.43km) View looking northwest to site.



Location 6. OSG: SDE2346 - 47180 LatLon: 63 56 228 - 002 15 701 Distance to Turbine = 751.40m View looking south/southeast to site.