

DESIGN AND ACCESS STATEMENT

Dated 8th October 2012

Applicant:	Mr R Auckland
Proposed Development:	Installation of 1 No medium scale 50Kw Endurance wind turbine on a 25m monopole mast
Site Address:	Land at Scout Bridge Farm, 17 Huddersfield Road, Penistone S36 7BX

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1 Introduction

- 1.1 This Statement has been prepared and submitted as a requirement of Section 62 of the 1990 Town and Country Planning Act as amended by Section 42 of the 2004 Planning and Compulsory Purchase Act.
- 1.2 It has been prepared in accordance with “Guidance on the Requirements of Validation” March 2010 published by the Department for Communities and Local Government and incorporates the overarching principles set out in the National Planning Policy Framework (March 2012)

2 Proposal

- 2.1 Full planning consent is sought to erect and install a single, medium scale commercial wind turbine on land at Scout Bridge Farm, Huddersfield Road, Penistone, hereafter called ‘The Farm’. The proposed development will comprise of the following: -
 - Construction of a concrete foundation base measuring 36m².
 - Erection of an Endurance E-3120 50 Kw turbine (Endurance 50 for short) on a 25m monopole mast. This is a horizontal axis type with a rotor consisting of 3 blades approximately 9.5m long resulting in a diameter of 19m. The blades will be mounted to a wind turbine hub and nacelle, at a height of 25m above ground. The turbine will be fixed to the concrete base and in total it will stand 34.5m from ground to blade tip.
 - The digging of a 55m trench and the laying of a cable at a depth of 0.6m to connect the turbine to a meter point at The Farm and provide a connection to the National Grid.
 - The erection of a small metal cabinet to house meters, inverters and associated electrical equipment
- 2.2 The Proposed Endurance 50 Wind Turbine will be sited in a field approximately 150m north of Halifax Road. It lies 425m east of Scout Dike Education Centre, 330m west of Westhorpe and 360m west of Westhorpe House. Scout Dike Reservoir is situated approximately 0.5km away. The Huddersfield-Penistone-Sheffield Railway line runs immediately to the north of the site. Land ownership of the applicant is outlined in blue on the proposed location plan in figure 2 and 3 below.



Figure 1: Proposed site and surrounding area. Image courtesy of Google Earth

3 Purpose of Development

3.1 The development is proposed for the following reasons: -

- Generate Renewable Energy for the National Grid and help meet the Government's renewable energy targets and obligations
- To help diversify the farm business and generate income to re-invest and support the farm estate

3.2 The Endurance 50 will generate approximately **150,000 kWh** of renewable electricity per annum at an estimated annual average wind speed of **5.6m/s** (at 25m hub height) and an estimated **100%** net of this will be fed into the grid. The proposed development will off-set the energy usage of the farm and help reduce the carbon footprint of the business.

4 Policy Context

4.1 Consideration has been given to national, regional and local policy guidance in the preparation of our development proposal.

5 Design Principles

5.1 Our **key aim** is to design a wind turbine development that satisfies both technical and environmental factors/ considerations and balances these, making compromises where necessary, to achieve a scheme that optimises the benefits of renewable energy production and minimises potential economic, environmental and social impacts through thoughtful design and careful site selection.

5.2 **Turbine design** has been influenced by the following principles: -

- To choose a product fit for purpose
- To choose a design of elegant and slender proportions
- To select a turbine or turbine (s) of the appropriate height and scale relative to the sensitivity of the landscape, its key characteristics and local site conditions
- To select turbines with colours and finishes that will provide an appropriate contrast with the background landscape and sky and help reduce visual and landscape impact.
- To generate renewable energy for the National Grid
- To develop a proposal that will off-set the energy usage of The Farm and generate income to support the business/ estate.
- To select a reliable turbine that is known to perform well in the unpredictable British climate, is suitable for this site and offers best value for money.

5.4 **Site selection** has been influenced by the following principles: -

- To generate renewable energy for the National Grid
- To develop a proposal that will off-set the energy usage of The Farm and generate income to support the business/ estate.
- To maximise annual average wind speed and minimise interference from obstacles that may affect performance or increase maintenance/repair liabilities
- To mitigate visual and landscape impacts
- To minimise potential impacts on heritage assets, protected species, local footpaths/ bridleways, tourist attractions, residential properties or businesses
- To minimise and/or eliminate noise disturbance and shadow flicker
- To avoid impact or interference with transportation routes, power infrastructure or underground services, aviation systems or communication signals
- To enable a practical and viable connection to The Farm and National Grid.

6 Development Appraisal – Our approach and methodology

6.1 Our appraisal was undertaken in three stages. These are outlined as follows: -

Stage 1: Needs Assessment

6.2 This assessment was undertaken in order to formulate a clear development brief. It was focused on determining the actual energy needs of the applicant and the client's requirement to generate renewable energy for the National Grid and produce income to help support and diversify his rural enterprise and to improve his property. The assessment explored alternative forms of electricity generation recommending that wind technology offered the most viable and cost effective solution. Given the location of the farm buildings on the opposite side of Halifax Road it was not possible to make a direct connection to this property. The wind speed on land adjacent to the farm buildings is not considered high enough to support a viable wind development of this scale.

Stage 2: Feasibility Study

6.3 An in-depth feasibility study was carried out to collect and map the necessary background information required to assess the sensitivity and suitability of the area to wind turbine development. This information was then used to help identify the most suitable geographical location for the turbine and influence turbine appearance, size, number and height.

6.4 The following methods were used: -

- Site Survey
- Desk Top Mapping
- Consultation with Experts
- Consultation with Statutory bodies and interested parties

6.5 The following information was considered: -

- The extent of land ownership of the client
- The potential for grid connection
- Areas with wind speeds of 6m/s and above
- Landscape character and appearance
- Green Belt status
- Proximity to visible major transport routes and telecommunications.

- National or international designations such as National Parks, SSSI's, AONB's World Heritage sites
- Proximity to Scheduled ancient monuments, listed buildings, conservation areas and other heritage assets
- Tourist attractions and recreational sites including footpaths and bridleways
- Areas with special local status such as High Landscape Value, Wildlife areas or other protected areas.
- Local planning policy and supplementary

6.8 This exercise resulted in a preferred geographical zone being identified. This is illustrated below.

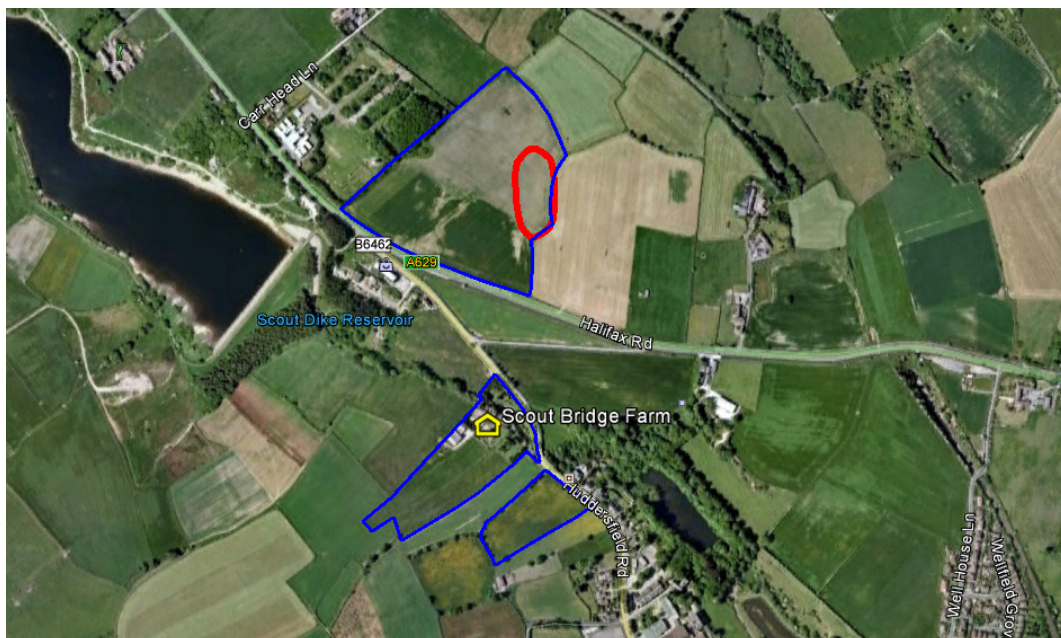


Figure 2: Stage 1 Feasibility – Preferred Geographical Zone. Image courtesy of Google Earth

- 6.9 Our preferred site was chosen because it offers an elevated position with an open and unobstructed south-westerly aspect.
- 6.10 It was decided to opt for a single medium turbine to generate the required energy output rather than a group of smaller turbines sited across the landholding. As well as been more practical and economically viable a single turbine will cause less harm to the openness of the Green Belt as several smaller turbines. It will also generate significantly less noise than a group of smaller turbines.
- 6.11 For comparison purposes it would need between 7 / 8 no. Evoco 10Kw turbines, each generating a minimum of 20,000kWh per year at this location in order to meet the applicant's needs. They would have to be sited with a minimum spacing of 5

times blade diameter from tip to tip for turbines stood side by side and 7 times blade diameter when stood behind each other against the prevailing winds. This would cover a large land area and given the number and spread of turbines they would certainly be more visible than a single medium machine. Given the constraints of this site (i.e. underground water main, overhead power lines, proximity the main road/ railway line and proximity to residential properties it would be impossible to site this many smaller turbines on this site.

- 6.12 Taking all these factors into account it was decided a single medium turbine was best suited to meeting the applicant's energy needs and would be less harmful to the openness of the Green Belt
- 6.13 Different types of medium wind turbines were considered before choosing the Endurance E3120 50kWh. This machine was chosen because: -
- It is high quality turbines with a good record of reliability and is widely used in the UK.
 - It is aesthetically pleasing with clean flowing lines and is painted all one colour – dull white
 - It is shorter can be installed on a shorter mast height of 25m rather than 30m
 - It produces the minimum energy generation required to meet the brief

The table below gives a brief summary of the chosen turbine.

Design & Specification	Endurance E3120 50kWh Turbine
Output/ Max Power at 11 m/s	50kW
Estimated Annual Generation	150,000 kWh
Wind speed	5.6 m/s
Number of blades	3
Blade sweep (diameter)	19m
Mast Height	25m
Overall Height	34.5m
Mast colour	Off-White (Matt)
Hub Colour	Off -White (matt)
Blade Colour	Off -White(matt)

6.9 Stage 3: Micro-siting

A further survey was carried out to examine localised site factors and determine the exact siting of the proposed Endurance 50 turbine. The following factors were considered: -

- A close and viable grid connection
- Suitable access for installation and maintenance
- Minimum stand- off distances from trees, hedgerows, watercourses and other potential habitats as recommended by our ecologist
- Localised flooding and ground conditions
- Minimum distances from buildings, trees or other physical obstacles that may affect turbine performance
- Safe fall distances away from footpaths, accessways and power lines.
- Acceptable distances from neighbouring properties to prevent noise disturbance or shadow flicker.
- Local landscape features and conditions that may help to mitigate visual and landscape impacts and where possible help screen the turbine from view, reduce its presence or assimilate into the background view
- To avoid nearby microwave links and NATS radar safeguard zone

A site was chosen to avoid on-site constraints (water, power lines, trees roads and railway), provide adequate separation distances for noise and shadow flicker and ensure the property is not in the direct line of site of neighbouring residential properties.

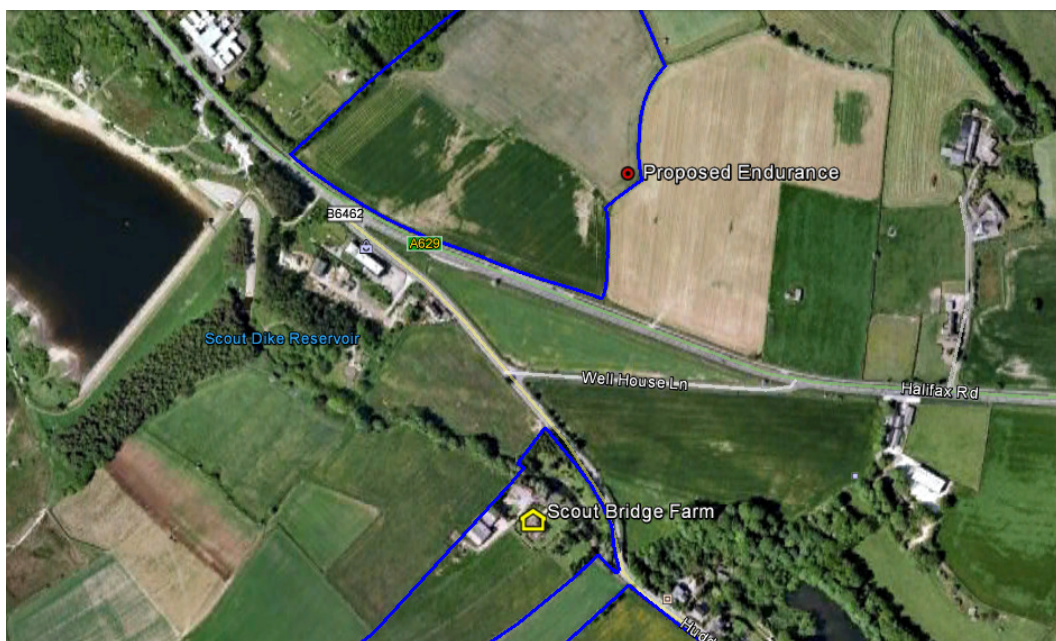


Figure 3: Chosen Site following 'Micro-siting' Exercise

7 Consultation

7.1 There have been no pre-application discussions with the Local Planning Authority regarding this proposal but initial consultation has taken place with our own specialist consultants (as detailed below) to assist the development process, in particular help determine site selection, turbine design and product choice.

- 3DVS (Landscape and Visual Impact),
- Bradbury PM Limited (Planning Consultants)
- M J Coates Limited (Architect & Design Consultants)
- Quants Environmental Limited (Ecological Consultants)
- Newgen Limited (Independent Renewable Energy Consultants and turbine supplier)

7.2 Consultation influenced the design and site selection process and this is discussed in more detail in section 6.

8 Access

8.1 Access is required for construction of the concrete foundation slab, the erection of the wind turbine and its connection to the grid. Access will also be required for routine maintenance once the turbine is operational.

8.2 Access to the proposed site is directly from the A629 Halifax Road.

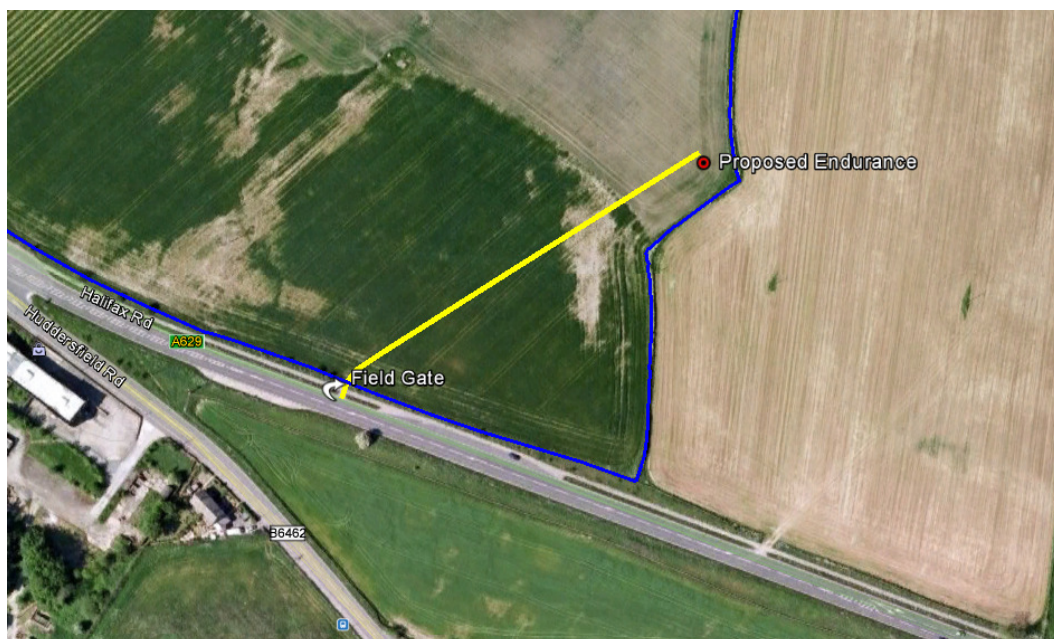


Figure 4: Proposed access route. Image courtesy of Google Earth

- 8.3 Localised access is gained through a gate directly from Halifax Road and then via a designated route across a field leading directly to the site. The total route from the adopted highway is approximately 185m. This route has been identified in conjunction with the landowner and having regard to the size and frequency of transport and construction vehicles required and giving due regard to health and safety regulations. The proposed access route is identified above. Temporary improvements will be required at the field gate entrance to accommodate delivery vehicles.



Figure 5: Photograph showing field gate access point from Halifax Road. Courtesy of Google Street View

- 8.4 The construction period for a single, relatively small turbine such as the proposed Endurance 50 is short, normally 7-10 working days, spread over a period of 3-4 weeks. Firstly, a trench is dug using a standard excavator to carry the cable to connect the turbine to the Grid. In the case of this proposal the trench will be approximately 55m long and dug to a minimum depth of 600mm. Once the cable is laid the trench is back-filled with sub soil and re-instated with top soil. The cable will be connected to the Grid via the main 3-phase power line that crosses the site nearby. A small metal cabinet will be installed at the base of the timber pylon adjacent to the nearby dry stone boundary wall. This cabinet will house meters, inverters and associated electrical equipment to connect the turbine to the National Grid.



Figure 6: Proposed connection and trench route. Image courtesy of Google Earth

On the following week the concrete foundation will be constructed and in week 3 the turbine mast, hub, nacelle and rotor will be delivered to site in on the back of a low loader. The mast sections will be fitted together, the blades and rotor installed and the bolted firmly to its concrete base. The foundations will be backfilled with subsoil and topsoil and the electrical installations completed in week 4.

The installation will require the use of an excavator and tele-handler and the turbine will be delivered to site on the back of a HGV trailer. It is estimated the plant will generate a maximum of 12 vehicle movements and the delivery 2 (one access and 1 egress). Light commercial vehicles will be required by the electrical and ground works contractors. This will generate an estimated 28 movements over a 3-4 week period.

It is proposed to erect the turbine during the spring in dry weather conditions.

Environmental Assessment

Background

- 9.1 Renewable Energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic and social impacts can be addressed satisfactorily. Developers should give careful consideration to the effects of landscape and visual impact and this will vary

according to the type of development, its location and landscape setting. Effects may be minimised through appropriate siting, design and landscape schemes, depending on the size and type of development proposed and it local authorities, when assessing planning applications, should recognise that the impact of turbines will vary according to the size and number of turbines and the type and sensitivity of landscape involved.

- 1.2 The development proposed on land adjacent to Scout Bridge Farm is relatively modest in scale (compared to utility turbines) and it will not be located in an area with a national or regional landscape designation. It lies in Green belt in an open field adjacent to the A629 Halifax Road. The land is defined as an area of 'Borough Landscape Value' under policy GS13 of the UDP. This does not afford the land any greater protection but recognises its quality and value locally as an area of pleasant countryside. Special care has been taken to ensure the turbine is correctly sited and designed to balance both technical factors and environmental considerations and to mitigate potential impact upon the Green Belt as well as ensure that potential impacts to landscape character, local ecology, the historic environment and visual amenity are minimised. This process has been carried out with due consideration to the advice and guidance contained in the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 and in accordance with the Guidelines for Landscape and Visual Impact Assessment published by the Landscape Institute and Institute of Environmental Management and Assessment 2002 and with due regard to the relevant local policies and guidance outlined in the attached Appendix.

EIA Screening Opinion

- 9.3 A formal Screening Opinion has not been requested from the Local Planning Authority despite it being above the height threshold of 15m to hub height as detailed in Schedule 2 of the Regulations. Given the scale of the development proposed and after assessing potential environmental impacts it is our opinion, based on previous experience, that this is not an EIA Development.

Landscape Impact

- 9.4 Subject of a separate LVIA report - copy attached

Visual Impact

- 9.7 Subject of a separate LVIA report - copy attached

Ecology

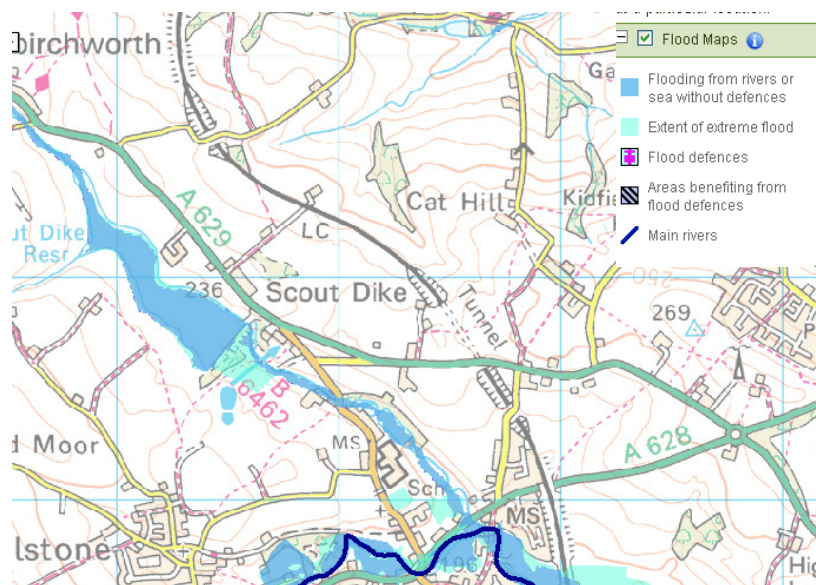
- 9.10 Subject of a separate report - copy attached

Heritage Assets

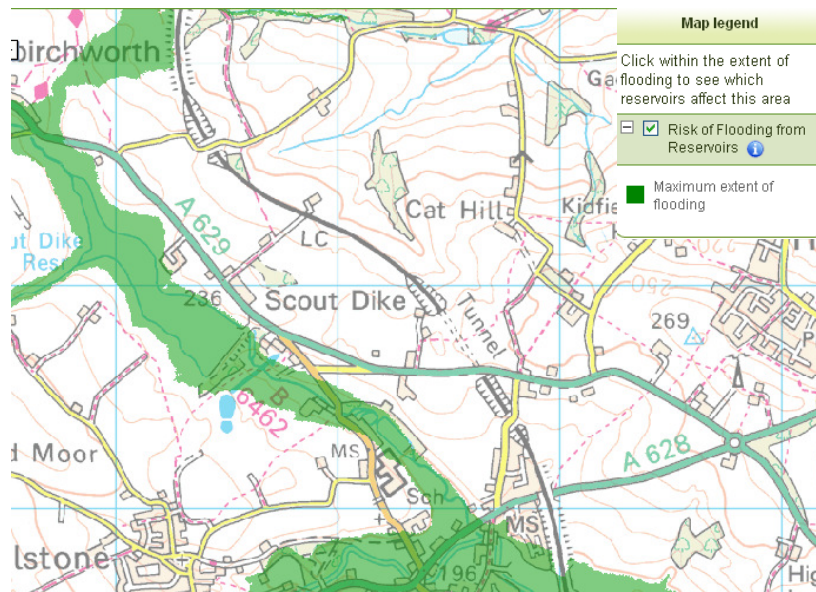
- 9.12 A desk top survey was conducted to identify potential heritage assets that may be affected by the proposed development. A 0.5km search of the immediate area around the proposed turbine revealed 2 entries on the statutory register and no recorded entries on the local HER register. The 2 entries on the statutory register are both Grade II listed buildings. One is Far Farm farmhouse at Westhorpe and the other is a barn 20m west of the farmhouse. Both are located at least 350m from the proposed turbine. The settings of these buildings extend to their curtilage and the curtilage of other buildings in the immediate and adjacent group (i.e. Westhorpe and Far Farm) and no more than the immediate land around them. Given the significant distance between the proposed turbine and these buildings (and the presence of the main A629 Halifax Road and the Huddersfield-Sheffield railway line that runs a few meters to the north of the listed buildings), and taking into account the turbine's slender form there will be no adverse effect on the settings of these heritage assets.

Flood Risk

- 9.13 The site does not fall in a river flood zone as identified on the Environment Agencies register. See Flood Map extract below (scale 1:20,000).



- 9.14 The Flood Map also shows that the site does not fall in a reservoir flood zone as indicated on the 1:20,000 scale map below.



Ground Conditions and Contamination

- 9.14 There is no known history of quarrying or mine workings on the site. Neither is there any record on the Environment Agency's register of any ground contamination or previous landfill.

Noise Disturbance

- 9.15 The proposed turbine has been sited 360m from the nearest existing residential properties at Far Farm and Westhorpe House, Westhorpe. It is also understood that there is a residential flat located in the old water works premises fronting Halifax Road. These lie just over 300m away but there are two main roads immediately adjacent. At these significant distances and given that the Endurance is a quiet turbine there will be no noise disturbance to local residents at this location.

Transport

- 9.16 The A629 Halifax Road and Huddersfield-Sheffield railway line lie adjacent to the site. There have been no specific consultations with the MOD or NATS.

Communications/ Services

- 9.17 A row of timber pylons cut across the site carrying a local power line and a main water main runs north-south about 150m to the west. The turbine has been sited to give adequate separation from this infrastructure. Microwave links and NATS radar have been considered in the site selection.

Shadow Flicker

- 9.18 This is a medium size turbine with a relatively small blade diameter of 19m. Shadow flicker is more likely to occur in much larger turbines (with a significant blade sweep) when the sun is low in the sky – i.e. either early in the morning or in the evening as the sun sets and rises – and in a flat landscape with no obstructions. The PPS22 Annex and subsequent guidance from the Department of Energy and Climate Change require a minimum separation distance equivalent to 10 diameters from the nearest occupied property. In this case this is 190m. The nearest residential property lies approximately 300m to the south-west (flat in former water works) and 360m to the east (properties at Westhorpe) and thus fall considerably outside the minimum threshold.

Footpaths and Bridleways

- 9.19 There are no footpaths or bridleways in the immediate vicinity of the site. The nearest path gives access to nearby Westhorpe 360m to the east. The Penistone Boundary Walk runs to the south of Scout Dike Reservoir and transverses along Huddersfield and Halifax road before running along the far boundary of Scout Dike Education Centre. The turbine will be visible from the path (particularly along the road frontage) but in many places will be screened by trees. The development proposed will not affect the recreational use of these paths.

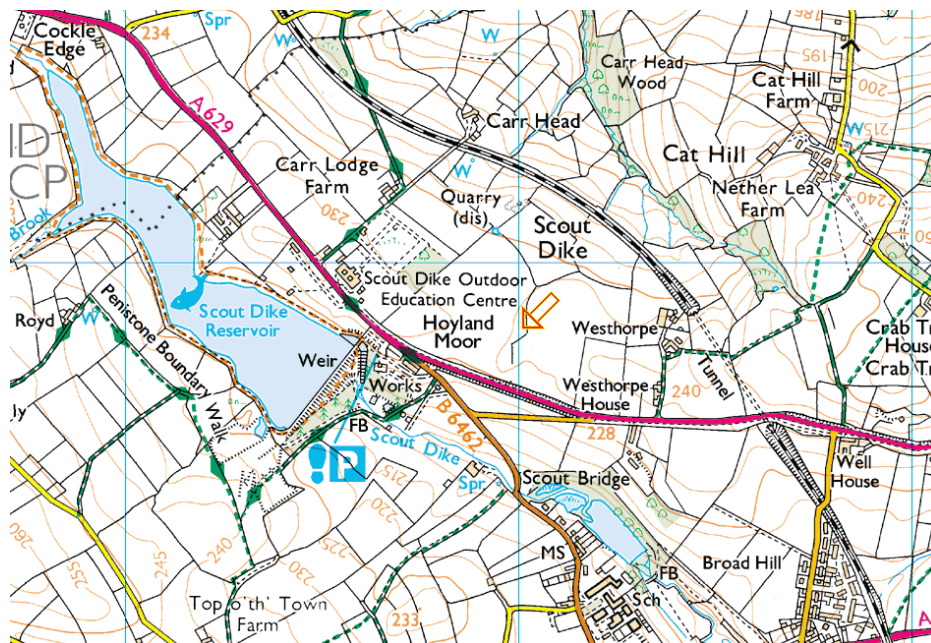


Figure 7: Streetmap indicating routes of footpaths and bridleways