DARTON ALC

Locating of a wind turbine within the proposed school site

Landscape and Visual Supporting Statement

March 2010

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1. LANDSCAPE AND VISUAL ASSESSMENT

1.1 Introduction

1.1.1 This landscape and visual statement assesses the potential landscape and visual implications of locating 1 no. 80kw, 33.9m high WES18 wind turbine within the Darton ALC site in Kexbrough. The landscape and visual assessment is divided into the following sections;

- Introduction and methodology
- Assessment of existing views and extent of visibility of the site
- Proposed mitigation measures
- Predicted impacts on views, landscape an amenity.
- Visual impacts and conclusions.

1.2 Assessment Methodology

1.2.1 The format of this assessment is based on the principles described in The Countryside Agency and Scottish Natural Heritage's *Landscape Character Assessment Guidance for England and Scotland*, published 2002 (ref 1-1) and The Landscape Institute and Institute of Environmental Management and Assessment *Guidelines for Landscape and Visual Impact Assessment, Second Edition*, published 2002 (ref 1-2). The assessment is also in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) Regulations 1999.

1.2.2 A desktop study was made of published information to establish the landscape context of the site and identify potential viewpoints which may be affected by the development. These viewpoints were discussed and agreed with Barnsley MBC prior to commencement of the study.

1.2.3 The application site and surrounding area was visited on 17th November 2009 and 10th March 2010. The weather conditions were good and visibility was clear on the visits.

1.3 Landscape and visual assessment

1.3.1 The **landscape impact assessment** describes the likely nature and scale of changes on individual landscape elements known as 'receptors' and the resultant effect on the landscape character due to the proposed development. The extent to which a landscape can accommodate change due to development varies according to a range of factors such as land use, the scale and pattern of the landscape, visual enclosure, and quality of view and the value of the landscape. Changes to the fabric and character of a particular landscape may affect the perceived value of that landscape, giving rise to changes in its quality. The scale or magnitude of landscape effects ranges from negligible, through to minor, moderate and major. Such changes are described as either adverse or beneficial.

1.3.2 The Countryside Agency's guidelines make a clear distinction between the characterisation process (in which the attributes of the landscape are described) and the judgment making process. This section of the assessment deals with the characterisation process and later sub-sections make judgments about the potential effects of the proposed development based upon the characterisation.

1.3.3 The Countryside Agency guidelines describe how **landscape character assessment** can be applied at different scales, from the national or European level, to the parish level. Assessments are ideally prepared at different scales that should fit together as a nested series or a hierarchy of landscape character types and/or areas, such that each level of assessment adds more detail to the one above. The three main levels identified by The Countryside Agency are: national and regional scale; local authority scale; and local scale. This assessment uses and presents a summary of the relevant published assessments at national and regional scale and local authority scales. These wider character assessments are then used to provide the context for the local scale landscape assessment for the application site.

1.3.4 The Countryside Agency's guidance recommends that the characterisation process should be based on an assessment of natural factors, cultural and social factors and aesthetic and perceptual factors. These factors have been examined for the site's surroundings, the existing site as it stands today and the site, as it would be, following completion of the development.

1.3.5 The **assessment of visual effects** describes the changes in the visual character of available views and in the visual amenity of local receptors arising from the development. The sensitivity of visual receptors and views will be dependent on the context of the view, the importance of the view and the nature of the receptor. The scale or magnitude of visual change is affected by scale, the degree of contrast, the permanence of the effect, angle of view, distance and the extent of change.

1.3.6 Principal viewpoints are selected on the basis of which points provide the clearest views of the site and are also the most accessible to the public. The viewpoints selected for the production of the photomontages were identified and agreed with Barnsley MBC.

1.4 Significance Criteria

1.4.1 The potential significance of landscape and visual impact is determined by a combination of the magnitude of the potential impact and the sensitivity of the receptor to change. These two variables can be correlated as illustrated in Table 1.1, below. Thus, a landscape impact of low magnitude may nevertheless be assessed to have a moderate impact in a highly sensitive landscape such as an Area of Outstanding Natural Beauty (AONB) or a National Park. In general the following principles apply:

Table 1.1 - Principles of Assessing Significance of Landscape and Visual Impacts

Sensitivity of Receptor to change		Magnitude of Impact				Significance of Effect
		Negligible	Low	Medium	High	
	Very High	Negligible	Moderate	Moderate / Major	Major	
	High	Negligible	Minor/ Moderate	Moderate	Moderate / Major	
	Medium	Negligible	Minor	Minor / Moderate	Moderate	
	Low	Negligible	Negligible	Minor	Minor/ Moderate	

1.4.2 The above consideration of the sensitivity of the receptors with the magnitude of the potential impacts provides an overall assessment of the potential significance of impacts. However, this process is not a quantitative process; there is not an absolute scoring system. Instead, the correlation of the two factors, although reflecting recognised features and methods of working outlined in this report, is in the end a matter of professional judgment.

1.4.3 Table 1.2, below, provides a brief definition of the full range of significance criteria. It must be emphasised that both landscape and visual impacts can be either adverse or beneficial in nature:

Table 1.2: Significance Criteria for Landscape and Visual Impacts

Significance	Definition
Negligible	The proposed scheme is appropriate in its context. It may be difficult to differentiate from its surroundings and would affect very few or no receptors.
Minor	The proposed scheme would cause a barely perceptible impact, and would affect few receptors.
Moderate	The proposed scheme would cause a noticeable difference to the landscape, and would affect several receptors.
Major	The proposed scheme would completely change the character and/or appearance of the landscape for a long period of time or permanently. It would affect many receptors.

1.4.4 These ratings reflect the existing site condition, established use and existing planning consents, but also the nature and scale of the proposed development. The visual impacts arising form visual changes in the appearance of the landscape associated with the development and perceived by the visual receptor may be beneficial or adverse and are assigned a significance rating.

1.5 Determining Landscape Capacity and Sensitivity

1.5.1 Topic paper 6 of Landscape Character Assessment guidance for England and Wales seeks to define concepts of Capacity and Sensitivity. The following definitions are suggested:

- **Overall Landscape Sensitivity** refers primarily to the inherent sensitivity of the landscape itself, irrespective of the type of change that may be under consideration.
- **Landscape sensitivity to a specific type of change** is used where it is necessary to assess the sensitivity of the landscape to a particular change or development.
- **Landscape Capacity** describes the ability of a landscape to accommodate different amounts of change or development of a specific type.

1.5.2 Sensitivity is the degree to which a particular landscape type or area can accommodate change arising from a particular development, without detrimental effects on its character and will vary with:

- Existing land use;
- The pattern and scale of the landscape;
- Visual enclosure/openness of views, and distribution of visual receptors;
- The scope for mitigation, which would be in character with the existing landscape;
- The value placed on the landscape.

1.5.3 Overall landscape sensitivity to change will be judged using a three point verbal scale of high, medium or low. Judgements are then made of each of the constituent aspects of sensitivity and these assesments are tabulated to provide a profile of a particular landscape area. An overview is than taken of the distribution of the assessments of each aspect and this is used to make an informed judgement about the sensitivity of the landscape to accommodate the specific change.

Table 1.3: Principles of Assessing Landscape Sensitivity to Change

Landscape area	Landscape character sensitivity	Sensitivity of individual elements	Sensitivity of aesthetic aspects	Visual sensitivity	Landscape sensitivity	Value of Landscape	Landscape sensitivity to change
Area A	High	Medium	Medium	High	HIGH	Low	MEDIUM
Area B	Low	Medium	Low	Low	LOW	Low	LOW
Area C	High	High	High	Medium	HIGH	High	HIGH

1.6 Determining the Sensitivity of Visual Receptors

1.6.1 Principal viewpoints are selected on the basis of which points provide the clearest views of the site and are also the most accessible to the public. Secondary viewpoints represent views from areas which are not commonly used by the public, or which would provide less clear views of the proposed development. Secondary viewpoints also represent areas which may be perceived to be sensitive to the visual impact of the proposed development due to their nature or proximity, but which in reality have restricted views of the site.

1.6.2 Sensitivity of visual receptors is typically assessed by ascribing one of the following levels: very high, high, medium or low sensitivity to change. The sensitivity of visual receptors and views will depend on the context of the view, the importance of the view and the nature of the receptor.

1.6.3 Table 1.4 below provides a description of the criteria used to define the sensitivity of the visual receptors:

Table 1.4: Criteria for Assessing Sensitivity of Visual Receptors

Sensitivity	Definition of Visual Receptor
Very High	The principal views from residential buildings; beauty spots and picnic areas. Users of outdoor recreational facilities including strategic recreational footpaths, cycle routes or right of ways, whose attention may be focused on the landscape; important landscape features with physical. Cultural or historic attributes.
High	Other footpaths; secondary views from residential buildings' people travelling through or past the landscape roads, train lines or other transport routes.
Medium	People engaged in outdoor sports or recreation (other than appreciation of the landscape), commercial buildings or commercially engaged pedestrians, whose attention may be focused on their work or activity rather than the wider landscape
Low	Views from heavily industrialised areas

1.7 Determining Magnitude of Impacts on Landscape Character and Visual Receptors

1.7.1 Magnitude is determined by the distance from the viewer, the extent of change in the field of vision, the proportion or number of views affected and the duration of each from each viewpoint, or a sequence of viewpoints that may have transient views (e.g. along a road).

1.7.2 Generally, greater weight is given to visual impacts on public viewpoints than on private properties. Table 1.5 provides a description of the criteria used to assess the magnitude of impacts on landscape and visual receptors:

Table 1.5: Assessing Magnitude of Impacts on Landscape and Visual Receptors

Magnitude	Typical Criteria
High	Total loss of or major alteration to key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.
Medium	Partial loss or alteration to one or more key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements that may be predominant but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.
Low	Minor loss of or alteration to one or more key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements that may not be uncharacteristic when set within the attributes of the receiving landscape.
Negligible	Very minor loss or alteration to one or more key elements/ features/ characteristics of the baseline i.e. pre-development landscape or view and/or introduction of elements that are not uncharacteristic within the surrounding landscape – approximating the 'no change' situation.

1.8 Nature of the Development

1.8.1 The proposal is for the installation of 1 no. 80kw, 33.9m WES18 wind turbine on the north boundary of the site. Information on the location of the wind turbine and further detail on their structure is shown on drawing BP4L_DAR_AWP_DR_94_BW_13 P04 which is included within the application.

1.9 Baseline Conditions

1.9.1 The site is located to the west of the village of Kexbrough. The entire site area comprises of approximately 13.5ha and a new school building and associated grounds are currently under construction. The construction of the wind turbine is proposed to be located in a 0.1km area on the north western boundary, away from the mature tree cover evident along the south and west boundaries of the site. The residential area of Kexbrough forms the boundary of the site to the east, arable farm land and a track to the adjacent farm are located to the west, further pastoral and arable fields are located to the north and individual residential properties on the outskirts of Kexbrough and Upper Field Lane leading to High Hoyland form the boundary to the south. The site topography generally falls from north to south in a series of terraces on which the existing buildings and playing fields are located. The area where the wind turbine is to be located is adjacent to one of the proposed playing fields which is being formed between the new school building and the north boundary.

1.10 Landscape Character Designations

Broad Landscape Character

1.10.1 The study area lies within Character area 38 'Nottinghamshire, Derbyshire and Yorkshire Coalfield' as defined in The Countryside Commission's Countryside Character, 'The character of England's natural and man-made landscape', Volume 3: Yorkshire and The Humber (Ref. 1.3). The key characteristics of area 38 'Nottinghamshire, Derbyshire and Yorkshire Coalfield' are as follows:

- Widespread evidence of industrial activity including mine buildings, former spoil tips and iron and steel plants;
- Complex mix of built up areas, industrial land, dereliction and farmed open country;
- Many areas affected by urban fringe pressures creating fragmented and downgraded landscapes;
- Substantial areas of intact agricultural land in both arable and pastoral use;
- Small, fragmented remnants of pre-industrial landscape and semi-natural vegetation, including many areas of woodland, river valley habitats, subsidence flashes and other relict habitats;
- Ever-present urban influences from major cities, smaller industrial towns and mining villages;

- Widespread influence of transport routes, including canal, road (M1, M62) and rail, with ribbon developments emphasising the urban influence in the landscape;
- Rolling landforms with hills, escarpments and broad valleys;
- Local variation in landscape character reflecting variations in underlying geology;
- Strong cultural identity arising from history of coal mining and other heavy industry.

Local Landscape Character

1.10.2 In terms of local character the site sits within Character Area E1: 'West Barnsley Settled Wooded Farmland' as defined in ECUS and Land Use Consultants 'Barnsley Borough Landscape Assessment' (Ref 1.4). The key characteristics of this area are:-

- Gently rolling landform with hills and broad valleys;
- Small, medium sized and large woodlands, mainly deciduous and some coniferous;
- Substantial areas of intact agricultural land, both in arable and pastoral use;
- Stone farmsteads, often with large modern outbuildings;
- Villages and hamlets set in open countryside;
- Large stone country houses set within designed parkland landscapes;
- Urban encroachment visible to east, outside the character area.

1.11 Landscape Designations

1.11.1 Having viewed the Magic website (Ref 1-5) it was found that, other than the site being located adjacent to greenbelt, there are no other national or local designations within 1.5km of the site.

1.12 Visual assessment ZVI

1.12.1 A visual assessment has been made of four principle views in and out of the site to identify the extent of visual impact arising from the proposed siting of the wind turbine. In the following section there is a brief description of the existing visibility of the site in the context of the surrounding landscape and receptors.

ZVI TO THE WEST OF THE SITE

1.12.2 The extent of the ZVI from the west is largely defined by the hedgerow forming the perimeter to the arable fields to the west. The topography of the site is such that the buildings within the site are hidden from view with only the flue stack being visible allowing distant views over the site to Mapplewell and Barnsley. Oblique views are available to users of Upper Field Lane.

1.12.3 ZVI TO THE NORTH

1.12.4 Due to the landform dropping away to the north only views of the northern section of the site are visible. Distant direct and oblique views are available from sections of the M1.

ZVI TO THE EAST

1.12.5 Views of the site are available from first floor windows of properties to the west of Kexbrough, off Brookfield Road. Views can also be achieved from the grounds of Kexbrough Primary School although these are significantly screened by a belt of mature trees. A public right of way also runs along the east of the site and oblique views are available along the majority of the route where it runs immediately adjacent to the site.

ZVI TO THE SOUTH

1.12.6 To the south of the site the land falls away down to Cawthorne restricting views of the site from this village. Villages further to the south east and travellers using the M1 have clear views of the site as it sits on a hill top.

RECEPTORS

1.12.7 The principle receptors, from where photomontages have been developed, were agreed with Barnsley MBC and are indicated in the table below.

Table 1.6: Significant Visual Receptors

Visual Receptor		Approx. Distance from site	Grid ref
Key Visual Receptors			
1	View from Upper Field Lane	0.25km	N 09794 E 29213
2	Public right of way to the east of the site	0km	N 10046 E 29804
3	Ballfield Lane/New Entrance	0km	N 10032 E 30066
4	Huddersfield Road	0.35km	N 10480 E 29752

1.13 Assessment of Impacts

IMPACTS ON LANDSCAPE CHARACTER

1.13.1 The introduction of the wind turbine at the Darton ALC site will have a **negligible impact** on the landscape character of the area due to the relatively small scale of it in relation to that of the surrounding area and the presence of other vertical structures ot the present school and locality.

IMPACTS ON VISUAL RECEPTORS

1.13.2 The assessment of impacts of the locating of a wind turbine on visual receptors is summarised below and the significance of these impacts is detailed in Table 1.8. The impacts have been assessed taking into consideration the parallel construction operation of building the new school and associated grounds.

Upper Field Lane to west of site

1.13.3 The construction of the wind turbine will be seen in conjunction with the development of the new school building and associated grounds for which use tall structures, such as tower cranes, are a regular occurrence. At completion the wind turbine will stand at a height of 33.9m to hub above the existing ground level. The photomontage from this viewpoint, drawing no. Darton ALC 1 (Appendix 1), reflects this. The photomontage indicates that although the mast and hub of the turbine is visible, it is seen against the hillsides in the background, preventing the turbine from becoming a skyline feature. The turbine is also seen in context with other vertical elements associated with the existing school and surrounding and even distant areas resulting in an **adverse impact of minor significance**. After a period of 15 years the existing planting to the west of the site will have matured but it is not anticipated that it will screen full views of the turbine but rather

some of the mast, reducing the **impact to that of negligible significance.**

Public right of way to east of site

1.13.4 During the construction of the wind turbine construction vehicles will be seen trafficking the area but this will visible in the context of the development of the new school building and associated grounds for which use tall structures, such as tower cranes, are a regular occurrence. The photomontage for the viewpoint taken from this receptor, drawing no. Darton ALC 2 (Appendix 1), shows that the wind turbine, although obliquely, is visible against the sky and existing woodland planting to the north of the site, resulting in an **adverse impact of moderate significance**. 15 years after construction it is anticipated that views of the wind turbine will be partially obscured, as the proposed tree and hedge planting up to the entrance of the new building and closer to the public right of way becomes established, reducing the adverse impact to that of **minor / moderate significance**.

Ballfield Lane / New Entrance

1.13.5 During the construction of the wind turbine construction vehicles will be seen trafficking the area but this will visible in the context of the development of the new, entrance, carpark and other landscape works which form part of the new school development. The photomontage for the viewpoint taken from this receptor, drawing no. Darton ALC 3 (Appendix 1), shows that the wind turbine, although obliquely, is visible half as a skyline feature and half against a backdrop of existing woodland and fields to the west of the site. It is also seen in the context of other infrastructure in the fore and mid ground, including lighting columns to the new road, thus resulting in an **adverse impact of minor significance**. 15 years after construction it is anticipated that views of the wind turbine will be substantially obscured as the proposed woodland planting to the south of the access road and individual trees along the access road become established, reducing the impact to that of **negligible significance**.

Huddersfield Road

1.13.6 During the construction of the wind turbine construction vehicles will be seen trafficking the area but this will visible in the context of the development of the new school building and associated grounds for which use tall structures, such as tower cranes, are a regular occurrence. The photomontage for the viewpoint taken from this receptor, drawing no. Darton ALC 4 (Appendix 1), shows that the wind turbine is fully visible due to the valley landform between the receptor and the wind turbine preventing the existing vegetation within this area from screening any views. It is visible partially as a skyline feature and partially against the new school building and associated infrastructure to the south of it. Due to the scale of the turbine in relation to other elements within the view this results in an **adverse impact of moderate significance**. 15 years after construction it is anticipated that views of the lower sections of the wind turbine will be partially obscured as existing vegetation to the north of the site matures but the turbine will still remain a skyline feature. The impact will therefore only reduce marginally to that of established, reducing the adverse impact to that of **minor / moderate significance**.

Table 1.8 Significance of Impact on Receptors

	Visual Receptor	Sensitivity of viewpoint	Magnitude of the impact during construction	Significance	Magnitude of the impact on completion	Significance	Magnitude of the impact after 15 years	Significance
Key Visual Receptors								
1	Upper Field Lane	Medium	Low	Minor Adverse	Low	Minor Adverse	Negligible	Negligible
2	Public right of way to east	High	Medium	Moderate adverse	Medium	Moderate adverse	Low	Minor/moderate adverse
3	Ballfield Lane/New Entrance	Medium	Low	Minor Adverse	Low	Minor Adverse	Negligible	Negligible
4	Huddersfield Road	Medium	High	Moderate adverse	Medium	Moderate adverse	Low	Minor/moderate adverse

1.14 Conclusion

1.14.1 From all receptors it is evident that the proposed turbine will be visible both due to its height and the fact that the site is located on a hill top. During construction and completion phases the erection of the wind turbine has an adverse impact of minor significance on both receptors 1 and 3, roads to the east and west of the site, due to both screening by existing vegetation and frequency of other vertical elements in the view. The wind turbine has an impact of moderate adverse significance on the public right of way and Huddersfield road receptors due to the sensitivity of the viewpoints and the nature of the landform to the north of the site providing open views over a valley. The impacts on some of the receptors will reduce over 15 years to be that of negligible significance. Others where the turbine will remain a skyline feature will reduce to an impact of minor/moderate adverse significance.

1.15 References

1-1 Countryside Agency and Scottish National Heritage (2002); Landscape Character Assessment Guidance for England and Scotland.

1-2 The Landscape Institute and Institute of Environmental Management and Assessment, Second Edition (2002); Guidelines for Landscape and Visual Impact Assessment.

1-3 Countryside Commission (1998); Countryside Character. The Character of England's natural and man-made landscape, Volume 3: Yorkshire and the Humber.

1-4 ECUS and Land Use Consultants (2001); Barnsley Borough Landscape Character Assessment

1-5 www.magic.gov.uk – Multi Agency Graphic Information for the Countryside

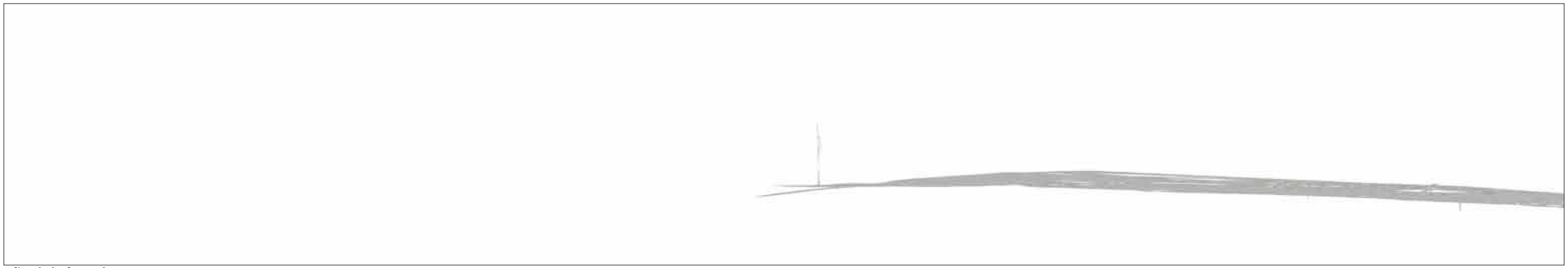
APPENDICES

APPENDIX 1

Photomontages



Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N09794, E29213**

Elevation: **149m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **12.00PM Wednesday 10/03/2010**

Turbine: **1no. wind turbines 34m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

PROJECT
Barnsley Schools BSF

DRAWING TITLE
Photomontage Location - Darton ALC1

DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Darton ALC	NTS	07/04/10	KA	JM

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Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N10046, E29804**

Elevation: **120m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **12.10PM Wednesday 10/03/2010**

Turbine: **1no. wind turbines 34m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

awp

PROJECT: Barnsley Schools BSF				
DRAWING TITLE: Photomontage Location - Darton ALC 2				
DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Darton ALC	NTS	07/04/10	KA	JM

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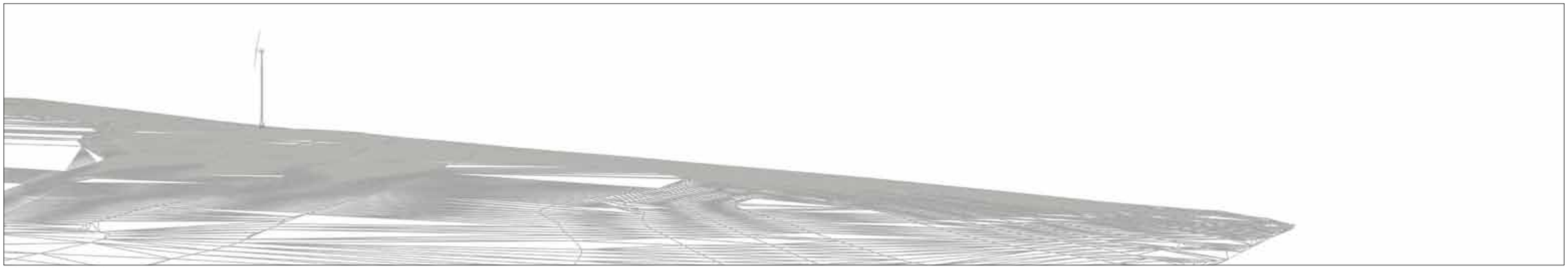
Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N10032, E30066**

Elevation: **117m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **12.20PM Wednesday 10/03/2010**

Turbine: **1 no. wind turbines 34m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

PROJECT				
Barnsley Schools BSF				
DRAWING TITLE				
Photomontage Location - Darton ALC3				
DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Darton ALC	NTS	07/04/10	KA	JM

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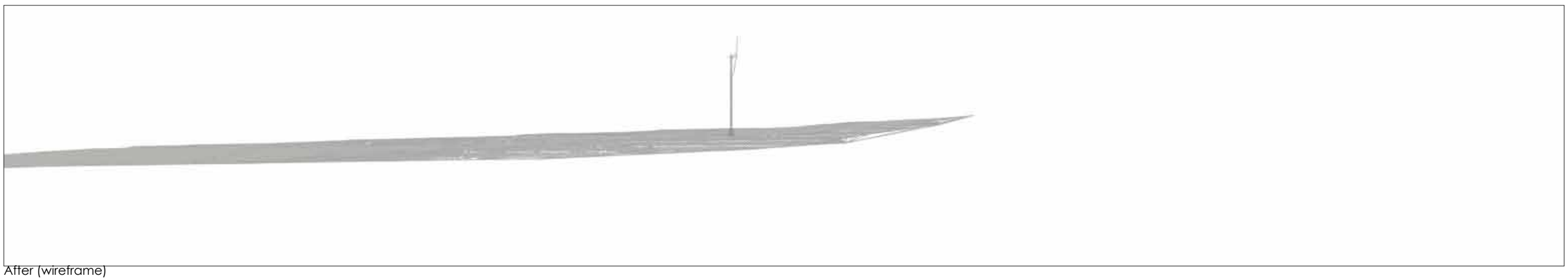
Before (90 degree view)



After (wireframe)



After (solid render)



Viewpoint Location

Viewpoint Parameters:

Grid reference: **N10480, E29752**

Elevation: **99m**

EPS (Estimated Position Error): **3m**

Tripod height: **1.75m**

Date and time of photography: **12:35PM Tuesday 10/03/2010**

Turbine: **no. wind turbines 34m high to hub**

Note: Photographs were taken using a 35mm Digital SLR, which is equivalent to 50mm SLR.

PROJECT
Barnsley Schools BSF

DRAWING TITLE
Photomontage Location - Darton ALC4

DRAWING No.	SCALE (A3)	DATE	DRAWN	CHKD
Darton ALC	NTS	07/04/10	KA	JM

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