LDĀDESIGN

New Maythorne Farm Wind Turbine

Cumulative Landscape and Visual Impact Assessment
August 2015

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This document has been prepared and checked in accordance with ISO 9001:2000.

1.0 Introduction

1.1. Background

LDA Design was commissioned in June 2015to carry out a cumulative landscape and visual impact assessment (LVIA) of the proposed wind turbine at New Maythorne Farm, Crow Edge, Holmfirth South Yorkshire.

A planning application was submitted to Barnsley Metropolitan Borough Council (BMBC) in February 2015 (Planning Application Ref: 2015/0357) by Earthmill Ltd. This included a landscape and visual impact assessment, as well as a number of visualisations of how the proposed turbine would appear if built. However, there are a number of existing wind turbine developments within the vicinity of the proposed wind turbine, and BMBC requested that additional information should be submitted to consider the cumulative effects of the proposed wind turbine with other existing, consented and proposed wind turbine developments in the vicinity.

This assessment identifies the existing landscape and visual baseline environments; describes the key landscape and visual related aspects of the proposed development; and assesses the magnitude and significance of the cumulative effects of the proposed development both in combination and iteratively with other existing, consented and proposed wind turbine developments in the vicinity.

1.2. The Site and Proposals

Figure CLVIA1 places the proposed development within its local context. The Site is located within grazing farmland, within a relatively large sized field. It is located approximately 475m east of the host property of New Maythorne Farm, with the closest settlements Hepworth and Meal Hill approximately 3.5km to the north west and the larger settlement of Penistone located approximately 5.5km to the south east. The local landform slopes gently to the north, towards Whitely Road, with a steep drop down into the valley of Sledbrook Dike located approximately 350m to the south west. The landscape is relatively open, with only intermittent vegetation, but the topography creates a degree of enclosure. The wind farms of Blackstone Edge, Spicer Hill and Royd Moor are located immediately to the east and south east, with a number of single turbines also located in the surrounding landscape.

1.3. The Study Area

It is accepted practice within landscape and visual assessment work that the extent of the study area for a development proposal is broadly defined by the visual envelope of the proposed development site and the anticipated extent of the Zone of Theoretical Visibility (ZTV) arising from the development itself. In this case, a study area of 5km was considered to be appropriate to cover all potentially material landscape and visual impacts at the application stage, and has been utilised for this cumulative LVIA.

1.4. Report Structure

This report is structured as follows:

- Introduction
- Methodology
- The Proposed Development
- Cumulative Effects
- Summary

A supporting appendix has been prepared which supplements the section regarding methodology. This appendix is important to the assessment and should be read alongside this chapter. A glossary and references are also provided within Appendices 2 and 3.

2.0 Methodology

2.1. Overview

"Landscape and Visual Impact Assessment is a tool used to identify and assess the significance of and the effects of change resulting from development on both the landscape as an environmental resource in its own right and people's views and visual amenity." (GLVIA, 3rd Edition, 2013, para 1.1).

Sections 2.20-2.22 of the same guidance indicate that the two components (assessment of landscape effects, and assessment of visual effects) are *"related but very different considerations"*.

2.2. Introduction

The assessment method draws upon the established Guidelines for Landscape and Visual Impact Assessment, 3rd edition (LI & IEMA, 2013) and An Approach to Landscape Character Assessment (Natural England, 2014) and other recognised guidelines, in particular Scottish Natural Heritage's 'Visual representation of Wind Farms Best Practice Guidance' (2014).

This assessment builds upon the LVIA work undertaken as part of the planning application by Earthmill Ltd. The cumulative assessment assesses the effects of the proposal in combination with other wind developments.

2.2.1. Assessment Terminology and Judgements

A full glossary is provided in Appendix 2. The key terms used within assessments are:

- Susceptibility and Value – which contribute to Sensitivity;
- Scale, Duration and Extent - which contribute to the Magnitude of effect; and
- Significance.

Susceptibility is assessed for both landscape receptors such as designated areas and landscape character areas, and for visual receptors (people). It indicates the ability of a defined landscape or visual receptor to accommodate the proposed development *"without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies." (GLVIA, 3rd version, para 5.40).* A description of how susceptibility is evaluated for each receptor type is included below. It is rated on the following scale:

- High – undue consequences are likely to arise from the proposed development.
- Medium – undue consequences may arise from the proposed development.
- Low - undue consequences are unlikely to arise from the proposed development.

Susceptibility of landscape character areas is influenced by their characteristics and is frequently considered (though often recorded as 'sensitivity' rather than susceptibility) within documented landscape character assessments and capacity studies.

Susceptibility of designated landscapes is influenced by the nature of the special qualities and purposes of designation and/or the valued elements, qualities or characteristics, indicating the degree to which these may be unduly affected by the development proposed.

Susceptibility of accessible or recreational landscapes is influenced by the nature of the landscape involved; the likely activities and expectations of people within that landscape and the degree to which those activities and expectations may be unduly affected by the development proposed.

Susceptibility of visual receptors is primarily a function of the expectations and occupation or activity of the receptors (GLVIA 3rd version, para 6.32).

Landscape Value is "the relative value that is attached to different landscapes by society" (GLVIA, 3rd version, page 157). It is rated on the following scale:

- National/International – Designated landscapes which are nationally or internationally designated for their landscape value – including National Parks, Areas of Outstanding Natural Beauty, World Heritage sites; Heritage Coast and National Scenic Areas.
- Local/District – Locally or regionally designated landscapes (e.g. Area of High Landscape Value, Regional Scenic Areas); also areas which local evidence (such as tourism guides, landscape character assessments or other documentary information) indicates as being more valued than the surrounding area.
- Community – 'everyday' landscape which is appreciated by the local community but has little or no wider recognition of its value.
- Limited – despoiled or degraded landscape with little or no evidence of being valued by the community.

Sensitivity is rated within the range of High-Medium-Low-Negligible and is assessed by combining the considerations of susceptibility and value described above. Table 1a below illustrates the judgement process for landscape receptors, and Table 1b for visual receptors:

Table 1a: Landscape Sensitivity

		Susceptibility		
		High	**Medium**	**Low**
Value	**National/International**	High	High-Medium	Medium
	Local/District	High-Medium	Medium	Medium-Low
	Community	Medium	Medium-Low	Low
	Limited	Low	Low-Negligible	Negligible

Table 1b: Visual Sensitivity

		Susceptibility		
		High	**Medium**	**Low**
Value	**National/International**	High	High-Medium	Medium
	Local/District	High-Medium	High-Medium	Medium
	Community	High-Medium	Medium	Medium-Low
	Limited	Medium	Medium-Low	Low

The two tables above are different to each other reflecting a slightly greater emphasis on value in terms of the sensitivity of landscape receptors, and a slightly greater emphasis on susceptibility in terms of the sensitivity of visual receptors.

For visual receptors; judgements of susceptibility and value are often interlinked considerations; for example the most valued views are likely to be those which people go and visit because of the available view – and it is at those viewpoints that their expectations will be highest. The value attributed to visual receptors also relates to the value of the view – for example a National Trail is nationally valued for its access, not necessarily for its views. Views will be treated as valued where there is documentary evidence of that value – such as recommendations to visitors; or reference within special qualities of designated areas. The sensitivity of visual receptors is generally rated as follows:

- National value and High susceptibility – visitors to valued viewpoints or routes which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps.
- Local value and High susceptibility –people in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas would also fall into this category.
- Community value and High susceptibility –people in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land).
- Limited value and High susceptibility –people in their own homes.
- National value and Medium susceptibility – users of promoted scenic rail routes.
- Local value and Medium susceptibility – users of promoted scenic local road routes.
- Community value and Medium susceptibility – users of cycle routes, local roads and railways.
- Limited value and Medium susceptibility – outdoor workers.
- National or Local value and Low susceptibility – users of A-roads which are promoted scenic routes.
- Community value and Low susceptibility – users of sports facilities such as cricket grounds and golf courses.
- Limited value and Low susceptibility – users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work.

Scale of effect is assessed for all landscape and visual receptors and identifies the degree of change which would arise from the development. It is rated on the following scale:

- Large – Total or major alteration to key elements, features, qualities or characteristics, such that post development the baseline situation will be fundamentally changed.
- Medium - Partial alteration to key elements, features, qualities or characteristics, such that post development the baseline situation will be noticeably changed.

- Small – Minor alteration to key elements, features, qualities or characteristics, such that post development the baseline situation will be largely unchanged despite discernible differences.
- Negligible – Very minor alteration to key elements, features, qualities or characteristics, such that post development the baseline situation will be fundamentally unchanged with barely perceptible differences.

Duration of effect is assessed for all landscape and visual receptors and identifies the time period over which the change to the receptor as a result of the development would arise. It is rated on the following scale:

- Permanent – the change is expected to be permanent and there is no intention for it to be reversed.
- Long-term – the change is expected to be in place for 10-25 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.
- Medium-term – the change is expected to be in place for 2-10 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.
- Short-term – the change is expected to be in place for 0-2 years and will be reversed, fully mitigated or no longer occurring beyond that timeframe.

As for most wind farms, this development is proposed to be removed after a period of 25 years. Most effects will therefore be Long term; however Medium or Short term effects may be identified where mitigation planting is proposed or local factors will result in a reduced duration of effect (for example where maturing woodland will screen views in future). The effects arising from the construction and decommissioning of the wind farm will be Short term.

The **Extent** of effects is assessed for all receptors and indicates the geographic area over which the effects will be felt. This is rated as follows:

- Limited – site, or part of site, or small part of a receptor area (< approx. 10%).
- Localised – site and surroundings up to 2km, or part of receptor area (up to approx. 25%).
- Intermediate – up to approx. 2-4km, or around half of receptor area.
- Wide – beyond 4km, or more than half of receptor.

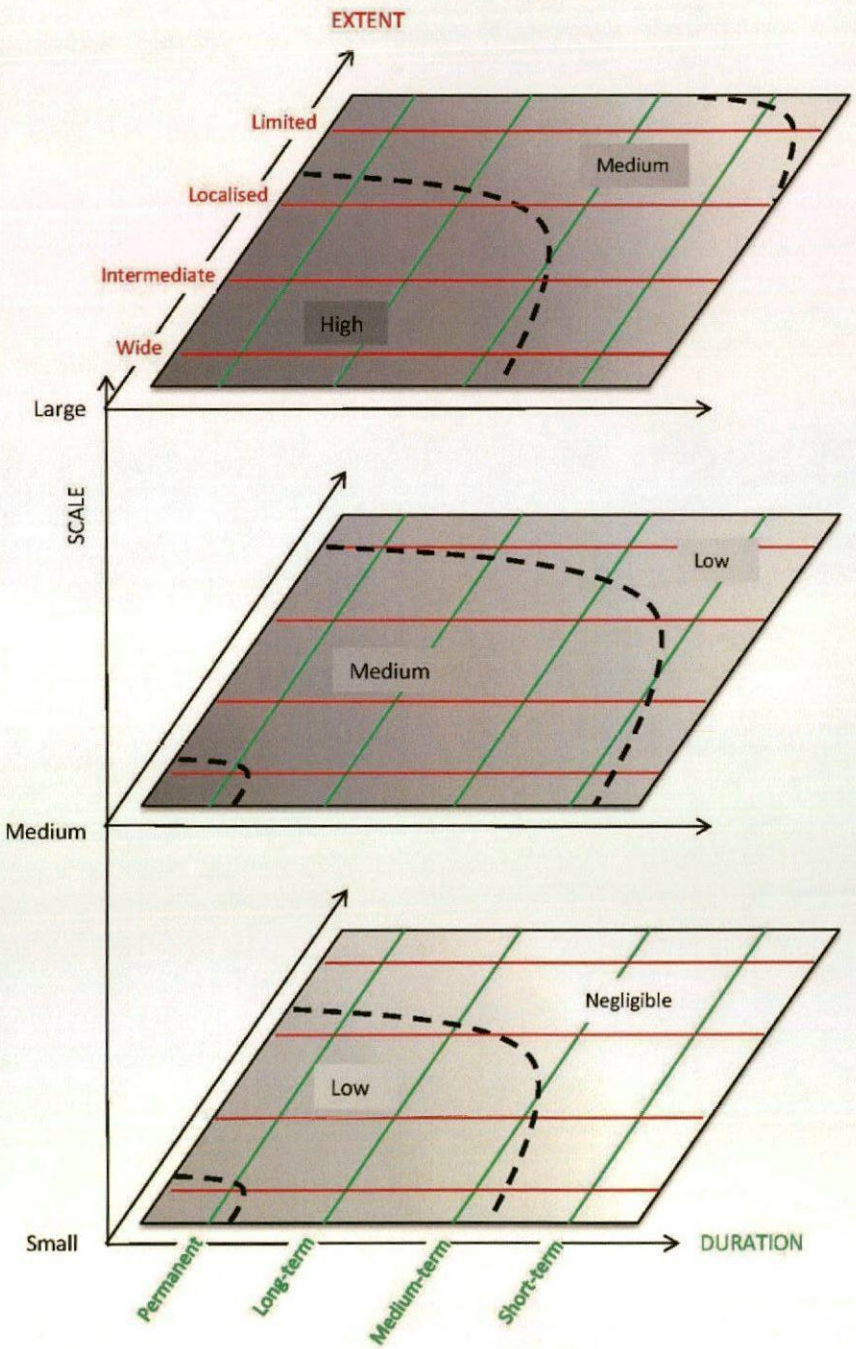
Use of viewpoints in assessing scale, duration and magnitude of effects on visual receptors

The representative viewpoints are used as 'samples' on which to base judgements of the scale of effects on visual receptors. As these viewpoints represent a range of different types of visual receptors, duration and extent are not judged at representative viewpoint locations. Thus, the scale of effect is assessed at representative viewpoints, but duration and extent is judged only when assessing impacts on the visual receptors.

For specific viewpoints (chosen because they are key and sometimes promoted viewpoints within the landscape), duration and extent are assessed, with extent reflecting the extent to which the development affects the valued qualities of the view from the specific viewpoint. For example a very distant wind farm would typically be judged to have a Limited extent of effect on a 360 degree panoramic view; but might be judged to have a greater extent if it appeared within the focal area of a channelled or designed view.

The **Magnitude** of effect is rated within the range of High-Medium-Low-Negligible and is informed by combining the scale, duration and extent of effect. The diagram below illustrates the judgement process:

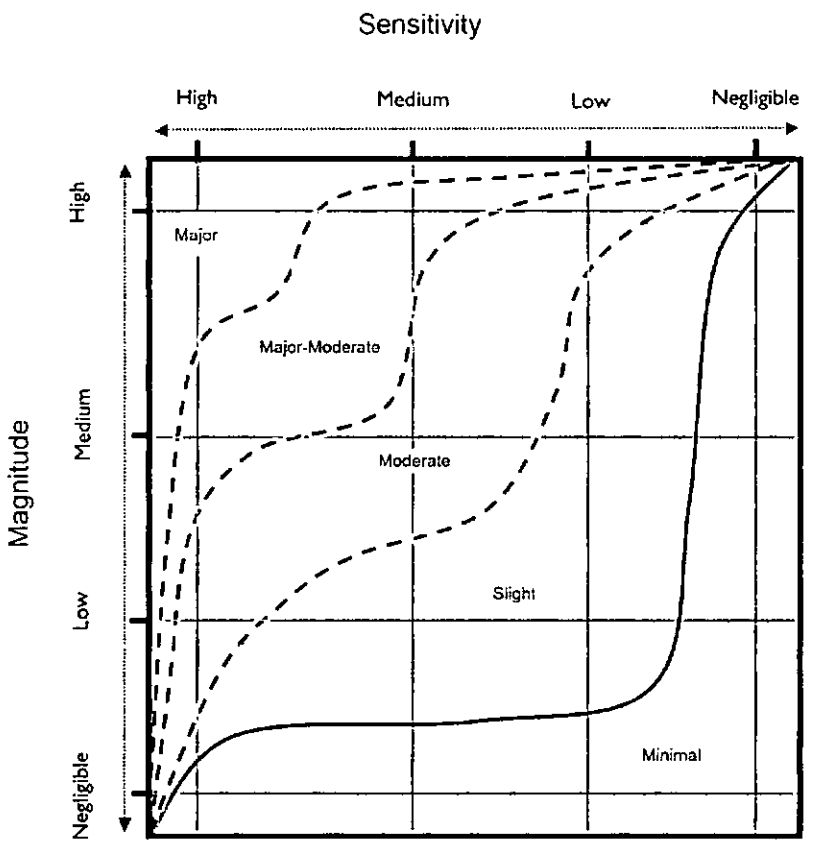
Diagram 1: Magnitude



Where the Scale of effect is judged to be Negligible the Magnitude is also assumed to be Negligible and no further judgement is required.

Significance indicates the importance or gravity of the effect. The process of forming a judgement of significance of effect is based upon the assessments of magnitude of effects and sensitivity of the receptor to come to a professional judgement of how important this effect is. This judgement is illustrated by the diagram below:

Diagram 2: Significance
(based on EIA significance evaluation matrix, IEMA Special report 2011



The significance ratings indicate a 'sliding scale' of the relative importance of the effect, with Major being the most important and Minimal being the least Effects that are towards the higher level of the scale (Major) are those judged to be most important, which those towards the bottom of the scale are. *"of lesser concern"* (GLVIA, 3rd edition, para 3.35).

Where intermediate ratings are given, e.g. "Moderate-Slight", this indicates an effect that is both less than Moderate and more than Slight, rather than one which varies across the range. In such cases, the higher rating will always be given first; this does not mean that the impact is closer to that higher rating, but is done to facilitate the identification of the more significant effects within tables. Intermediate judgements may also be used for judgements of Magnitude.

2.2.2. Positive/Adverse/Neutral

Effects are defined as adverse, neutral or positive based on professional judgement as set out in more detail in Appendix 1. Neutral effects are those which overall are neither adverse nor positive, but may incorporate a combination of both.

The decision regarding the significance of effect and the decision regarding whether an effect is beneficial or adverse are entirely separate. For example, a rating of Major and Positive would indicate an effect that was of great significance and on balance positive, but not necessarily that the proposals would be extremely beneficial.

To summarise the end results of the detailed considerations discussed in Appendix 1; effects on landscape receptors are assumed to be Adverse (reflecting the direction of planning policy towards landscape character remaining unaltered and designated landscapes not being affected by development). Effects on visual receptors are individually considered, but detailed reasoning is only provided where the effects are judged to be other than Neutral (which is the norm given that opinion on the appearance of turbines varies and there is no equivalent policy direction in respect of views remaining unaltered). Effects that are Negligible will typically be classed as Neutral given that it indicates a very limited change. Detailed justification of judgements are only be provided where judgements differ from these.

2.2.3. Landscape Character

Further detail regarding the considerations in respect of the susceptibility of landscape character to effects from wind farm development, and considerations in respect of the magnitude and extent of effects on character are provided within Appendix 1, and briefly summarised below. The susceptibility of landscape character areas is judged based on both the attributes of the receiving environment and the characteristics of the proposed development as described at section 2.2.1 above.

It is noted within An Approach to Landscape Character Assessment (Natural England, 2014) (page 51) that *"Key characteristics are particularly important in the development of planning and management policies. They are important for monitoring change and can provide a useful reference point against which landscape change can be assessed."* Wind turbine developments are unusual in their effects upon landscape character, as they primarily involve the addition of elements rather than any alteration to, or removal of, existing features. The introduction of a windfarm into an existing landscape adds a new feature which may strongly affect the 'sense of place' in its near vicinity, but with distance, the existing characteristics reassert themselves. At its most basic level, the magnitude of effect can best be understood by considering how one might perceive a particular place post-construction; i.e. If the baseline perception is 'I am in a field', then this may change to: 'I am in, or at, a windfarm' (Large Scale); 'I am in a field near a windfarm' (Medium Scale); 'I am in a field and I can see a windfarm over there' (Small Scale); or remain as 'I am in a field' (Negligible).

The judgement of magnitude therefore reflects the degree to which the key characteristics and elements which form those characteristics will be altered by the proposals. The size of the development, the nature and susceptibility of the receiving landscape, as well as local 'barriers' in the landscape (such as breaks of topography, woodlands, settlements, and roads or rivers) will determine the exact extent of effects for each development.

2.2.4. Landscape Designations

In considering the effects on designated areas, a number of factors need to be considered. The effects on the component landscape character areas and the effects on views from within and

towards the designated area need to be understood. These effects are then considered in light of the documented "special qualities", valued elements or characteristics, and the purposes of the designation in order to arrive at a judgement of the effects on the designated landscape or landscape element.

2.2.5. Viewpoints and Visual Receptors

A wide variety of visual receptors can reasonably be anticipated to be affected by a proposed windfarm. The majority of representative viewpoints are in locations where significant effects are anticipated; though some are also outside that zone.

Generally for windfarms, the area of Medium scale visual effects extends to approximately 5km, though may be more or less depending on the size and location of the development and local factors including topography and vegetation patterns.

With the exception of specific viewpoints, each route, settlement or location will encompass a range of possible views, which might vary from no view of the turbines to very clear, close views. Therefore, effects are described in such a way as to identify where views towards the turbines are likely to arise and what the scale, duration and extent of those views are likely to be. In some cases this will be further informed by a nearby viewpoint and in others it will be informed with reference to the ZTVs, aerial photography and site visits. Each of these individual effects are then considered together in order to reach a judgement of the effects on the visual receptors along that route, or in that place.

The assessment of effects on settlements focuses primarily on the visual amenity of public spaces, though views from groups of dwellings will also be noted in the descriptions. Effects on private residential amenity are a separate matter, as set out below.

Appendix 1 contains further detail regarding assessment considerations in respect of visual effects and receptors.

2.3. Cumulative Assessment

There is a common misconception that the multiple effects of a single development could be 'added up' and considered 'cumulatively' and may thus become more significant than the sum of their parts; however this is a misconception and the purpose of cumulative assessment relates to the assessment of the effects of more than one development.

A search area from the proposal site (typically of a similar scale to the study area) is agreed with the planning authority. In terms of selecting which wind turbine proposals within the study area should be included, SNH Guidance 'Assessing the Cumulative Impact of Onshore Wind Energy Developments', (March 2012) advises that:

"An assessment of cumulative impacts associated with a specific development proposal should encompass the effects of the proposal in combination with:

- *existing development, either built or under construction;*
- *approved development, awaiting implementation; and*
- *proposals awaiting determination within the planning process with design information in the public domain. Proposals and design information may be deemed to be in the public domain once an application has been lodged, and the decision-making authority has formally registered the application."*[para. 26] – note that this category also includes recently refused applications which may yet be appealed.

For each of these schemes agreement is reached with the Planning Authority as to whether they should be included in the assessment. Initial cumulative ZTVs, showing the likely areas where schemes may be visible may be used to inform such discussions. For this assessment, a 5km study area was utilised for the cumulative assessment ZTVs, considering all wind turbine proposals within 2km of the proposed wind turbine. Beyond 2km from the proposed turbine, but within 5km, there are no further large wind farms and any further single or small groups of smaller turbines would not visually relate to the proposed turbine.

Schemes which are in scoping are also noted, but are not included within the assessment unless they become active applications before the LVIA is submitted, with occasional exceptions for schemes where reliable information is available with respect to the scheme design, and the application is known to be imminent. For this assessment, no such developments were identified.

The cumulative assessment examines the same groups of landscape and visual receptors as the assessment for the main scheme, though different viewpoints may be used in order to better represent the likely range of effects arising from the combination of schemes. The assessment is informed by cumulative ZTVs, showing the extent of visual effects of the schemes in different colours to illustrate where visibility of more than one development is likely to arise. Cumulative wireframes are prepared which show each of the developments in different colours so that they are each readily identifiable. Cumulative photomontages may also be prepared.

In addition, the effects on users of routes through the area, from which wind farms may be sequentially visible as one passes through the landscape are also considered. This assessment is based on the desk study of ZTVs and aerial photography, and site visits to travel along the routes being assessed, and may also make use of graphs indicating the proximity and visibility of wind farms along the route.

It is important to note the following:

- Operational and consented wind farms are treated as being part of the landscape and visual baseline. i.e. it is assumed that consented schemes will be built except for occasional exceptions where there is good reason to assume that they will not be constructed. For this assessment, no such developments were identified. Reflecting this, the main LVIA assesses effects on the basis that these developments are in place, and consented schemes are included in all wireframes – not just cumulative wireframes. This is not necessary for operational schemes which are included in existing view photographs where visible.
- Schemes in planning are assessed via a series of scenarios involving one or several of the other developments being consented along with (or before) the application scheme. Two assessment ratings are provided for each scenario – one which indicates the combined effects if all of the schemes in in that scenario were consented together (combined effects); and one which indicates the additional effects that consenting the application scheme would have if the other schemes were already consented (incremental effects).
- For each assessed receptor, combined effects may be the same as for the application scheme, or greater (where the influence of multiple schemes would increase effects, or where schemes in planning other than the application scheme would have the predominant effects).
- For each assessed receptor, incremental effects may be the same as for the application scheme, or reduced (where the influence of other schemes in planning would be such

that were they consented and considered to be part of the baseline, the incremental change arising from the addition of the application scheme would be less).

The way in which the assessment is described and presented is varied depending on the number and nature of scenarios which may arise. This variation is needed in order to convey to the reader the key points of each assessment, in line with the SNH guidance which emphasises that:

"*The key principle for all cumulative impact assessments is to focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process.*" (para. 33, and similar directions at paras. 66 and 102)

For example, the three different cumulative combinations that may arise for an assessment in which there are two existing undetermined applications each can be assessed individually. A situation in which there are 10 applications cannot reasonably be assessed in this way and the developments may need to be grouped for analysis.

The SNH guidance also encourages consideration of the composition and relationship of the various developments within the landscape and in views, noting that:

"In presenting the findings of the assessment there is a risk of focussing on a quantitative assessment of the effects. This will be helpful, but a qualitative analysis of these is required to fully appraise the effects. The production of extensive quantitative analysis alone is not sufficient." [para. 99]

2.4. Distances

Where distances are given in the assessment, these are approximate distances between the nearest turbine and the nearest part of the receptor in question, unless explicitly stated otherwise.

3.0 The Proposed Development

The proposed development is described in detail in the Design and Access Statement that accompanied the planning application. The main elements of the scheme would be as follows:

- one turbine up to 67m in height (to tip blade);
- turbine foundation;
- hard-standing areas for erecting crane;
- access tracks; and
- small external turbine transformer meter housing.

LDA Design was not involved in the initial scheme design. However, it is understood that the location of the turbine was chosen to set it back from a bridleway to the north west of the proposed turbine and from the most visually prominent areas of the site. The final location is understood to have been chosen to allow the proposed turbine to relate more closely to other existing turbines in the vicinity.

The proposed candidate turbine modelled in the visualisations and ZTVs is based on a turbine with a hub height of 40m and a tip height of 67m. This is for the purposes of the LVIA only as the planning consent seeks only a maximum tip height.

4.0 Cumulative Effects

4.1. Introduction

As indicated in the methodology described in section 2, the study area and scope for potential cumulative effects of the proposed development includes proposed wind turbine developments located within 5km. Proposed, operational or approved wind farms or single turbines located within the study area are shown in the table below and on Figure CLVIA1. These schemes have been identified using the South Pennines Wind Energy Database and the planning websites of both Barnsley Metropolitan Borough Council and Kirklees Council.

Table 2: Wind farms considered in cumulative assessment:

Wind Farm	Distance, direction	Status	Number of turbines	Size of turbines (nacelle/blade tip) (m)
Blackstone Edge	0.3 E	Operational	3	60/101
Broadstone Reservoir	0.8 N	Operational	1	24.6/34.2
Upper Maythorne Lane	0.8 NW	Operational	1	15/19.75
Spicer Hill Extension	0.8 E	In Planning	3	57/93
Spicer Hill	1.1 E	Operational	3	60/95
Royd Moor	1.2 E	Operational	13	35/54.5
Martins Nest Farm	1.2 NW	Operational	1	24.6/34.2
Upper Woodroyd Barn	1.4 NW	Operational	1	15.54/20
Hazlehead	1.5 SW	Operational	3	60/100
Hey Slack Farm	1.6km, NW	Operational	1	12/15
East of Broadstone Road	1.7 NE	Consented	1	18.4/25
Drake Hill Farm	1.8 NW	Operational	1	15/19.3
Walkers Barn	1.8 W	Consented	1	15.54/20
Broadstone Lodge Farm	1.8 NE	Operational	1	24.6/34
Heyside Farm	2.1 NW	In Planning	1	40/67
Dearne Head Farm	2.2 NW	Operational	1	15.54/20

4.2. Assessment Scenarios and Methodology

As is common practice for cumulative assessments including a number of schemes in planning, this assessment considers a number of different scenarios which may arise. In each scenario, the existing and approved schemes listed above form the baseline, i.e. they are assumed to be operational. Scenarios which do not include the proposed development are not assessed, as those are not material to this application.

The planning application for Spicer Hill Extension was refused by Barnsley Metropolitan Council in February 2015, but the decision has been appealed. It is therefore still considered as being 'In Planning'.

The assessed scenarios are therefore as indicated in the table below:

Table 3: Cumulative scenarios assessed

Scenario	Description
Scenario 1	New Maythorne Farm turbine plus existing and approved schemes. This is the same as the effects for the proposed development on its own and is provided within this section for comparison purposes.
Scenario 2SHE	New Maythorne Farm turbine, existing and approved schemes and Spicer Hill Extension.
Scenario 2HF	New Maythorne Farm turbine, existing and approved schemes and Heyside Farm.
Scenario 3	New Maythorne Farm turbine, existing and approved schemes and Spicer Hill Extension and Heyside Farm.

4.3. Receptors Assessed

Cumulative effects are assessed on the same groups of landscape and visual receptors as the assessment for the main scheme, along with additional receptors identified in accordance with the methodology in section 2 of this LVIA. Landscape and visual receptors that are considered to receive effects of Low-Negligible or Negligible magnitude (both localised and overall) from the Proposed Development are not included in this assessment, as an effect of such low magnitude manifestly adds nothing or very little regardless of the distribution of other developments. If significant cumulative effects arise on those receptors, they would be as a result of other developments and as such are not relevant for consideration as part of this application.

4.4. Presentation of Results

The assessment is considered on a receptor-by-receptor basis with the effects of the proposed wind turbine described in combination. This textual description is followed by four assessment tables which are provided at the end of this section, as follows:

- Table 4 lists the total combined magnitude and significance of effect for each receptor, reflecting the degree of change between the present baseline and the proposed wind turbines.
- Table 5 indicates for receptor the incremental difference that adding the Proposed Development would make over and above the other proposed development, indicating the contribution that the proposed development makes to the total effects indicated in Table 4.

4.5. ZTV Studies

The following cumulative ZTV studies have been prepared to aid this assessment as follows:

- Figure CLVIA3 – New Maythorne Farm and the existing and approved wind developments, which establishes the pattern of visibility for Scenario 1.
- Figure CLVIA4 – New Maythorne Farm and the two wind developments in planning, Spicer Hill Extension and Heyside Farm.

The cumulative ZTV studies indicate areas of potential visibility for the hub of the existing, approved and proposed wind developments. The analysis was carried out using the topographic model and including settlements and woodlands (included in the model with the heights obtained from Nextmap25) as visual barriers in order to provide a more realistic indication of potential visibility.

Figure CLVIA3 illustrates that there would be no areas within the 5km study area where the New Maythorne Farm turbine would be seen without other wind turbines already being visible. The existing pattern of turbine visibility illustrated is that there is very little visibility of any wind turbine in the north of the 5km study area, due to intervening higher ground. Similar intervening high ground also reduces visibility to the north east. Valleys to the south and south west of the proposed wind turbine, such as the valleys of Lee Lane Dike and the River Don, have relatively limited visibility of existing and consented turbines. The greatest areas of visibility of the existing and consented wind turbine developments are located on areas of higher ground, particularly within approximately 3km of the proposed turbine from the north west to the south east and within approximately 0.5km to the south west. Other areas of high ground, at Tinker Hill to the south west and on the edge of the Peak District National park to the south and south west, also have high levels of visibility of existing and consented turbines. This pattern of visibility would be continued by the proposed turbine.

Figure CLVIA4 illustrates the theoretical intervisibility between the proposed turbines and those in planning, i.e. Spicer Hill Extension and Heyside Farm. Intervisibility of all three schemes would be relatively wide spread to the north and north east of the proposed turbine, as well as on the areas of high ground to the south west and the edge of the Peak District. There would be further potential intervisibility with Spicer Hill Extension on the rising ground to the south of the site and other intermittent locations within the study area where Heyside Farm would not be visible.

4.6. Cumulative Effects on Landscape Character

The following landscape character areas, as identified in the South Pennines Wind Energy Landscape Study (2014) and reflected in the Barnsley Borough Landscape Character Assessment (2002) and the Kirklees District Landscape Character Assessment (2015), are located within the 5km study area (Barnsley Character Area references are provided in brackets where these differ from those in the South Pennines Wind Energy Landscape Study):

- D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland)
- D7 – Peak Fringe Upland Pastures (F1 - Ingbirchworth Upland Farmland)
- A2 – North Peak (A1 - Thurlstone and Langsett Unenclosed Moorland)
- R1 – Upland Don River Valley (B1 - Upland Don River Valley)
- G5 – Don River Valley (B1 - Upland Don River Valley)

- D10 – Penistone Upland Pastures (F2 - Penistone Upland Farmland)
- N2 – Cawthorne Park & West Barnsley Rolling Wooded Farmland (E1 - West Barnsley Settled Wooded Farmland)
- G10 – River Dearne Valley
- E6 – Fenay Beck Valley Rural Fringes
- G8 – Holme River Valley
- E1 - Holmfirth - Meltham

Of these, the following are scoped out of this cumulative assessment:

- D7 – Peak Fringe Upland Pastures (F1 - Ingbirchworth Upland Farmland) – the ZTV studies show that visibility of the proposed turbine would be relatively limited from this character area, which already contains the larger Hazelhead wind farm that would be much more visible in areas where there would be any potential visibility of the proposed turbine.
- R1 – Upland Don River Valley (B1 - Upland Don River Valley) – the ZTV study shows there would be almost no visibility of the proposed turbine from this character area due to landform.
- G5 – Don River Valley (B1 - Upland Don River Valley) - the ZTV study shows there would be no visibility of the proposed turbine from this character area due to landform.
- D10 - Penistone Upland Pastures (F2 - Penistone Upland Farmland) – although the ZTV shows extensive potential visibility from the north facing slopes in this character area, views from this character area already include the group of turbines at Royd Moor, Blackstone Edge and Spicer Hill, which are closer to the character area and of much larger scale.
- N2 – Cawthorne Park & West Barnsley Rolling Wooded Farmland (E1 - West Barnsley Settled Wooded Farmland) – from this character area, any views towards the proposed turbine would be through the existing group of turbines at Royd Moor, Blackstone Edge and Spicer Hill.
- G10 – River Dearne Valley - the ZTV study shows there would be almost no visibility of the proposed turbine from this character area due to landform.
- E6 – Fenay Beck Valley Rural Fringes - the ZTV study shows there would be almost no visibility of the proposed turbine from this character area due to landform.
- G8 – Holme River Valley - the ZTV study shows there would be almost no visibility of the proposed turbine from this character area due to landform.
- E1 - Holmfirth – Meltham - the ZTV study shows there would be almost no visibility of the proposed turbine from this character area due to landform.

The following character areas are judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposal, and are therefore assessed for cumulative effects:

- D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland)
- A2 – North Peak (A1 - Thurlstone and Langsett Unenclosed Moorland)

4.6.1. **D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland) (contains the proposed turbine)**

This character area is described in the Barnsley Borough Landscape Character Assessment as *"a characteristic stepped landform with a series of platforms exhibiting scarp and dip slopes, some 300-400m above sea level"*. Other identified features include *"Woodland cover is relatively low, although ribbons of deciduous woodland thrive in the shelter of the incised valleys of the streams that drain south into the River Don"*. Royd Moor wind farm is identified as another feature of the area, referenced in terms of *"Its graceful turbines are visible from many miles around, including from some elevated areas in the far extremes of Barnsley Borough 23 kilometres to the east, providing a prominent landmark in this large-scale landscape"* and *"Views are panoramic, stretching over the valley of the River Don to the south and into Denby Dale to the north. The wind farm at Royd Moor is a prominent feature in views."*

Since the character assessment was completed, a number of other wind energy developments have taken place within the character area. Almost all of the existing and consented sites identified in Table 2 fall within this character area, with the exception of Hazelhead and Walkers Barn. In particular, the central area of this character area has a high concentration of wind turbines.

The Barnsley Borough Landscape Character Assessment states the following in relation to the sensitivity of this character area:

"Although this is an exposed upland area, the incised valleys of the dikes that drain into the Don provide some visual enclosure. Beech plantations also provide some visual enclosure. However, the rural character of the area, and its low density settlement pattern and distinctive field patterns, make this landscape particularly sensitive to built development. The presence of a number of Natural Heritage Sites increase sensitivity to change. The area is highly visible from the Peak District National Park and this further increases its sensitivity to change.

In view of the above, landscape sensitivity to built development is judged to be high."

In addition, this character area forms part of the 'Moorland Fringes / Upland Pastures' landscape character type (LCT), which is described in the South Pennines Wind Energy Landscape Study as follows:

"The aspects of this LCT that increase sensitivity to wind energy development include its close relationship to the adjoining open moorland plateaux, as well as its small scale, complex landcover patterns with human-scale features, wide visibility including from settlements, high scenic quality, valued natural and cultural heritage features, and nationally or regionally important recreational interests.

Land of highest sensitivity generally occurs where the moorland fringes are associated with the main South Pennine ridge, the Calder Valley and the Peak District National Park. Land which borders or forms an immediate setting to the Peak District National Park would be particularly sensitive to the development of wind turbines, which could affect its special qualities (including its sense of wildness and remoteness and the flow of landscape character across and beyond its boundary). This land would be highly sensitive to all scales of wind turbine development in locations on the fringes of the protected landscape.

Locally there are areas of lower sensitivity where the landscape is somewhat larger in scale (more expansive, with larger enclosures) than elsewhere or is already affected by influences such as quarrying e.g. south of Lane Head close to the boundary between Kirklees and Barnsley (LCAs D9 and D10)."

The scale of turbine proposed is identified as a 'Medium' sized turbine (60-89m high). The 'Moorland Fringes / Upland Pastures' LCT is judged within the South Pennines Wind Energy

Landscape Study as having High sensitivity to this size of turbine, although as shown in the quote above, character area D9 is specifically identified as being less sensitive. The South Pennines Wind Energy Landscape Study also specifically refers to cumulative issues within character area 9 as follows:

"Siting of small turbine classes very close to larger turbines, notably in D4 near Bacup, D1 on the boundary of Burnley and Calderdale, and D9 on the boundary of Kirklees and Barnsley. Here the juxtaposition of turbines of different heights and designs may be distracting and/or tends to heighten the perceived scale of the larger turbines.

Concentrations of smaller turbines, notably in D1 near Todmorden, D2 west of Ripponden, D7 south of the M62 and near Holmfirth, and D9 on the boundary of Kirklees and Barnsley. In these areas turbines are collectively becoming a defining influence on the landscape and there are frequent variations in turbine height and design."

The existing and consented schemes already influence the central part of this character area. The addition of the proposed Maythorne Farm wind turbine within this character area would add a further medium sized turbine. It would not provide the strong juxtaposition identified above between very small and small turbines and the large and very large turbines, and would be located within the area where existing turbines are already concentrated, rather than further expanding the distribution of turbines within this character area. In many views within the character area, particularly from the east and west, the proposed turbine would appear to form part of the existing cluster of turbines in the vicinity. In all but very close viewpoints, the distance between the proposed turbine and the existing turbines nearby is such that perspective makes them appear to be of similar sizes, whilst retaining the appearance of being within the same cluster.

The proposed Spicer Hill Extension wind farm would be located within the existing grouping of Royd Moor, Blackstone Edge and Spicer Hill. It would therefore have only a limited additional cumulative effect on the character area in combination with the proposed New Maythorne Farm turbine. The incremental effect of adding the proposed New Maythorne Farm turbine if Spicer Hill Extension were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

The propose Heyside Farm turbine would also be located within this character area. It would be located 2.1km from the proposed turbine and separate from the nearby wind cluster. It would, however, be located further north than a number of existing turbines in the very small to medium size bandings identified in the South Pennines Wind Energy Landscape Study and consequently have a limited additional effect on the character area. The effect of adding Heyside Farm in combination with the proposed turbine and incrementally adding the proposed turbine if Heyside Farm were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

4.6.2. A2 – North Peak (A1 - Thurlstone and Langsett Unenclosed Moorland) (2.3km south)

This character area largely forms part of the Peak District national Park and is described in the Barnsley Borough Landscape Character Assessment as forming part of *"one of the most extensive areas of semi-natural wilderness in England"* and *"The unenclosed nature of the moorland is perhaps its most distinguishable feature; offering dramatic and expansive panoramic views, a strong sense of exposure and open skies".*

The Barnsley Borough Landscape Character Assessment states the following in relation to the sensitivity of this character area:

"The very open nature of the moorland results in a landscape highly sensitive to change having little in terms of vegetation to buffer or mitigate visual effects of built development. The moorland forms part of

the Peak District National Park, is a Nature Conservation Site, has SSSI status and forms part of the Barnsley Borough Greenbelt. The landscape therefore holds significant ecological value and plays an important strategic role in terms of landscape planning.

The unenclosed moorland is recognised for its scenic landscape qualities and the sense of wilderness making it a highly sensitive and inappropriate landscape for development considerations. Landscape sensitivity to built development is judged to be high"

In addition, this character area forms part of the 'High Moorland Plateaux' landscape character type (LCT), which is described in the South Pennines Wind Energy Landscape Study as follows:

"The landscape's large scale and generally simple, sweeping landform with few human-scale features, large tracts of consistent landcover, as well as the presence of some existing development, suggest only moderate sensitivity to wind energy development. However, these factors are outweighed by the fact that the landscape is very highly valued as a backdrop to views from other areas (including settlements) and for its high scenic quality, levels of wildness and tranquillity, natural and cultural heritage features, cultural associations, and recreational interests and opportunities, which are often of national or even international importance.

Land of highest sensitivity occurs where the moorlands narrow, as between Crook Hill and Heald Moor; on the edges of the plateaux where scale comparisons are most easily made and turbines are most prominent visually; in areas with particularly distinctive landform or field enclosure patterns; in areas where the sense of wildness and tranquillity remains strong, especially in the north; and at the northern and southern ends of the South Pennine ridge within the South Pennine Moors SSSI, SAC and SPA. Land which borders or forms an immediate setting to the Peak District National Park is particularly sensitive to the development of all scales of wind energy development, which could affect the National Park's special qualities (including its sense of wildness and remoteness and the flow of landscape character across and beyond its boundary).

Locally there are areas of slightly lower sensitivity, notably around Scout Moor to the west. This area is detached from the main Pennine ridge and is also of lesser landscape quality, scenic quality and natural heritage interest than other parts of the LCT, although it remains highly sensitive in terms of skylines and settings, visibility and views."

The scale of turbine proposed is identified as a 'Medium' sized turbine (60-89m high). The 'High Moorland Plateaux' LCT is judged within the South Pennines Wind Energy Landscape Study as having High sensitivity to this size of turbine. The South Pennines Wind Energy Landscape Study also specifically refers to cumulative issues within character area 9 as follows:

"Siting of turbines in adjacent LCTs but close to larger turbines, notably in D4 near Bacup, D1 on the boundary of Burnley and Calderdale, K1 north of Halifax, and D7 and D9 on the boundary of Kirklees and Barnsley. Here the juxtaposition of turbines of very different sizes may be distracting and/or tend to heighten the perceived scale of the larger turbines."

The proposed wind turbine would be located outside of this character area, but would potentially be visible in panoramic views in the direction of the site. In these views, as identified in the South Pennines Wind Energy Landscape Study, the existing group of turbines at Royd Moor, Blackstone Edge and Spicer Hill are already visible. As shown by viewpoint 6, which is located just outside the character area but at a similar elevation to nearby land within the character area, the proposed turbine would very slightly extend the extent of turbines in the view, appearing part of the existing Royd Moor, Blackstone Edge and Spicer Hill but retaining separation from the Hazelhead turbines.

The proposed Spicer Hill Extension wind farm would be located within the existing grouping of Royd Moor, Blackstone Edge and Spicer Hill. It would infill a gap in the current turbine arrangement between Blackstone Edge and Spicer Hill, adding additional turbines on the skyline. This would be an additional cumulative effect on the character area in combination with the proposed New Maythorne Farm turbine. The incremental effect of adding the proposed New Maythorne Farm turbine if Spicer Hill Extension were already consented would be reduced from the effect of adding the proposed New Maythorne Farm turbine alone.

The propose Heyside Farm turbine would be visible in the gap between the existing grouping of Royd Moor, Blackstone Edge and Spicer Hill and the Hazelhead turbines, as a distant feature and having little effect on the separation between the two groups of turbines. It would have a minor effect on views from the character area. The effect of adding Heyside Farm in combination with the proposed turbine and incrementally adding the proposed turbine if Heyside Farm were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

4.7. Cumulative Visual Effects

The assessment considers two types of cumulative visual effect, namely effects arising from combined and sequential views. This is in accordance with the Assessing the Cumulative Impact of Onshore Wind Energy Developments (SNH, March 2012). These comprise:

- Combined views which 'occur where the observer is able to see two or more developments from one viewpoint. Combined visibility may either be in combination (where several wind farms are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various wind farms)'; and
- Sequential views which 'occur when the observer has to move to another viewpoint to see different developments.'

This section assesses the anticipated cumulative visual effects arising from the proposal in combination with the existing and approved wind developments, and the proposed wind developments. The main linear routes that share combined intervisibility in the study area are then summarised to anticipate the likely sequential views.

4.7.1. Visual Aids

Baseline panorama and wireline visualisations (incl. cumulative schemes) were used to aid the assessment. The visualisations were prepared by Earthmill Ltd and a detailed description of the methods by which wirelines are prepared was included in the original application. Not all viewpoints utilised in the original application have been reproduced for this assessment, as some are more beneficial in demonstrating cumulative effects than others. A further three viewpoint have also been produce that were not assessed as part of the original application. Note that existing developments are shown on the baseline panorama and wireline, and consented and proposed developments are shown on the baseline wireline.

The viewpoint description, description of effects and scale of effect for each viewpoint (see Figure CLVIA2 for locations) are summarised in tables 6 and 7 below. Each of the viewpoints is a 'sample' of the potential effects, representing a wide range of receptors – including not only those actually at the viewpoint, but also those nearby, at a similar distance and/or direction.

From these viewpoints it can be seen that the proposed turbine would generally be seen as part of the same group as the existing Royd Moor, Blackstone Edge and Spicer Hill turbines. often seeming to be of a similar size to the existing turbines from more distant viewpoints.

From all locations, the proposed turbine would remain visually separate from the Hazelhead turbines, retaining the separation between Hazelhead and the Royd Moor, Blackstone Edge and Spicer Hill turbines. There would be a marginal increase in the spread of turbines in the view from some locations to the north and south. The proposed Spicer Hill Extension would generally infill a gap in the existing layout of turbines from most viewpoints, adding to the existing Royd Moor, Blackstone Edge and Spicer Hill. From many of the viewpoints, this would have a slightly greater visual effect than the addition of the proposed turbine alone.

The viewpoints further indicate that the incremental effects of adding the proposed turbine, if other schemes in planning were already consented, would remain virtually unchanged from the effects of proposed turbine alone in many cases.

4.7.2. Cumulative Effects on Settlements

Although there are a number of settlements within 5km of the proposed turbine, the ZTV studies indicate that the proposed turbine is unlikely to be visible from them, with the exception of Ingbirchworth to the east. However, any views from Ingbirchworth would be through the existing group of turbines at Royd Moor, Blackstone Edge and Spicer Hill and consequently these visual effects would be Negligible. Therefore, cumulative effects on settlements are not assessed further.

4.7.3. Cumulative Effects on Roads and Rail

Within 5km of the proposed wind turbine, any routes to the east and north east of the proposed turbine that have potential theoretical visibility of the proposed wind turbine, with the exception of Whitely Road which is the closest road in this direction, would experience Negligible visual effects as views would be through the existing cluster of wind turbines. Roads to the north with theoretical visibility similarly experience views of smaller individual wind turbines in close proximity.

Within the remainder of the study area, most routes would experience relatively limited visibility of the proposed wind turbine and visual effects for road users are likely to be Negligible, with the exception of the routes listed below.

The following routes are judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposal, and are therefore assessed for cumulative effects:

- Whitely Road (0.1km, north east)
- Wood Royd Hill Lane/ Lower Maythorne Lane (0.5km, north)
- A616 (0.9km, south west)
- A628/Manchester Road (3.2km, south east)

Whitely Road (0.1km, north east)

The ZTV studies indicate that the proposed wind turbine would be visible from Whitely Road for approximately 2.4km to the south east and 0.5km to its end to the north west. However, travelling north west along Whitely Road towards the proposed turbines, landform and vegetation would screen the majority of the proposed turbine and the Royd Moor and Blackstone Edge turbines would be more prominent in views, although located on the opposite side of the road. The separation between the proposed wind turbine and the existing Royd Moor, Blackstone Edge and Spicer Hill cluster would be most obvious from Whitely Road within 500m of the proposed turbine, as shown by viewpoint B.

From the stretch of Whitely Road south east of the proposed wind turbine, the proposed Spicer Hill Extension would infill a gap within the existing cluster. One of the Extension

turbines would be a similar distance from the road to the closest Royd Moor turbines. Consequently, there would be an additional cumulative effect on the route in combination with the proposed New Maythorne Farm turbine. The incremental effect of adding the proposed New Maythorne Farm turbine if Spicer Hill Extension were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

The propose Heyside Farm turbine would theoretically be visible when travelling north on Whitely Road. It would be a greater distance than the existing grouping of turbines and would only have a minor effect on views. The effect of adding Heyside Farm in combination with the proposed turbine and incrementally adding the proposed turbine if Heyside Farm were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

Wood Royd Hill Lane/ Lower Maythorne Lane (0.5km, north)

From Wood Royd Hill Lane and Lower Maythorne Lane, the ZTV studies indicate that there would be potential visibility f the proposed turbine, although this would only be the case when travelling eastwards. As shown by viewpoint B, the proposed turbine would appear slightly separated from the existing cluster of turbines, but would not appear greatly out of scale with the existing turbines. As with Whitely Road, it is the stretch of the route closest to the proposed turbine that would experience the greatest visual effects, although the existing cluster of turbines are further from this route, so visual effects would extend further along Wood Royd Hill Lane and Lower Maythorne Lane.

From this route the proposed Spicer Hill Extension would be located behind the existing Blackstone Edge turbines and would have a relatively limited additional effect on this route. The effect of adding Spicer Hill Extension in combination with the proposed turbine and incrementally adding the proposed turbine if Spicer Hill Extension were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

There would be almost no visibility of the proposed Heyside Farm from this route, so the effect of adding Heyside Farm in combination with the proposed turbine and incrementally adding the proposed turbine if Heyside Farm were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

A616 (0.9km, south west)

From stretches of this route, the ZTV studies indicate that the proposed turbine would not be visible due to intervening landform. As shown by viewpoint 5, when travelling north on the A616 from approximately 1.4-2.1km from the proposed turbine there would be some visibility of the proposed wind turbine, although it would be located beyond the intervening landform, the same as the existing Royd Moor, Blackstone Edge and Spicer Hill cluster. The proposed turbine would appear as a minor extension to the existing cluster and would be only partially visible.

Spicer Hill Extension would infill a gap in the existing cluster of wind turbines, but would be only partially visible beyond the landform. The Heyside Farm turbine would not be visible from this route. The effect of adding either of the proposed wind developments in combination with the proposed turbine and incrementally adding the proposed turbine if they were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

A628/Manchester Road (3.2km, south east)

The ZTV studies indicate there would potentially be intermittent visibility of the proposed turbine from this route. Where there are views towards the site, similar to viewpoint 6, the proposed wind turbine would very slightly extend the extent of turbines in the view, appearing part of the existing Royd Moor, Blackstone Edge and Spicer Hill but retaining separation from the Hazelhead turbines.

Similar to the effects on character area A2 – North Peak, the proposed Spicer Hill Extension wind farm would be located within the existing grouping of Royd Moor, Blackstone Edge and Spicer Hill, infilling a gap in the current turbine arrangement between Blackstone Edge and Spicer Hill and adding additional turbines on the skyline. This would be an additional cumulative effect in combination with the proposed New Maythorne Farm turbine. The incremental effect of adding the proposed New Maythorne Farm turbine if Spicer Hill Extension were already consented would be reduced from the effect of adding the proposed New Maythorne Farm turbine alone.

The propose Heyside Farm turbine would be visible in the gap between the existing grouping of Royd Moor, Blackstone Edge and Spicer Hill and the Hazelhead turbines, as a distant feature and having little effect on the separation between the two groups of turbines. The effect of adding Heyside Farm in combination with the proposed turbine and incrementally adding the proposed turbine if Heyside Farm were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

4.7.4. Cumulative Effects on Recreational Routes

There are numerous recreational routes within 5km of the proposed turbine. These include SUSTRANS routes, long distance walking routes and public rights of way (PROW). The Fenay Greenway SUSTRANS route is located to the east of the site, along Spicer House Lane, but any areas with potential visibility of the proposed wind turbine would only have views through the existing Royd Moor, Blackstone Edge and Spicer Hill turbines.

The Trans Pennine Trail SUSTRANS route and long distance walking route is located to the south of the proposed wind turbine, along the River Don valley. The ZTV studies indicate potential visibility from this route, but the route follows a disused railway line as well as the river, which is well vegetated and is likely to screen the majority of potential views.

The Barnsley Boundary Walk is located to the north and east of the proposed wind turbine, 1km from it at its closest point. Any locations along the route where the ZTV studies indicate potential visibility already have existing wind turbines in the foreground that would be more prominent than the proposed wind turbine, as shown by viewpoint C.

The Penistone Boundary Walk is located to the south east of the proposed wind turbine, 1.8km away at its closest point. The majority of the route is indicated by the ZTV as unlikely to have any potential visibility. Any short stretches with potential visibility would be closer to existing wind turbine developments, particularly Royd Moor, similar to viewpoint A.

Of the PROW within 5km of the proposed wind turbine, the majority are either indicated to have no theoretical visibility by the ZTV studies or they are located such that existing and consented turbines would be much closer to the route. The following PROW are judged to receive Low magnitude or greater effects (locally or overall) as a result of the proposal, and are therefore assessed for cumulative effects:

- Public footpath and bridleway running south west from the junction of Lower Maythorne Lane and Brown's Edge Road (0.4km, west)
- Bridleway running south west from Whitely Road near Shiner Hill (0.5km, south east)

Public footpath and bridleway running south west from the junction of Lower Maythorne Lane and Brown's Edge Road (0.4km, west)

These routes run south west from viewpoint B, with the footpath continuing to the location of viewpoint 4 from the original planning application. From the bridleway, the ZTV studies indicate that by 0.5km from the proposed wind turbine, potential visibility would be prevented by the change in landform. As with the local roads in the area, the greatest visual effects would occur within approximately 500m of the proposed wind turbine. It would be the closest wind turbine to these routes, with the existing Royd Moor, Blackstone Edge and Spicer Hill grouping located beyond it.

The ZTV studies indicate that the other proposed wind turbines would not be visible from the same sections of the routes as the proposed New Maythorne Farm turbine. This would indicate that there would be no cumulative effects.

Bridleway running south west from Whitely Road near Shiner Hill (0.5km, south east)

The ZTV studies indicate that there would be intermittent potential visibility along this route. The largest area of visibility would be immediately adjacent to Whitely Road, south west of the proposed wind turbine, before the landform drops down in to the valley of Sledbrook Dike. From this stretch of the route, the proposed turbines would appear slightly separated from the existing Royd Moor, Blackstone Edge and Spicer Hill cluster, but the turbines would appear to be relatively similar in scale given their closer proximity.

This route would be a similar distance from the proposed Spicer Hill Extension, which would be clearly visible from the same stretch of the route. Consequently, there would be an additional cumulative effect on the route in combination with the proposed New Maythorne Farm turbine. The incremental effect of adding the proposed New Maythorne Farm turbine if Spicer Hill Extension were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

The propose Heyside Farm turbine would theoretically be visible from similar stretches of the bridleway. It would be a greater distance than the existing grouping of turbines and would only have a minor effect on views. The effect of adding Heyside Farm in combination with the proposed turbine and incrementally adding the proposed turbine if Heyside Farm were already consented would be no different to the effect of adding the proposed New Maythorne Farm turbine alone.

4.7.5. Cumulative Effects on Accessible and Recreational Landscapes

There are a number of areas of open access land within 5km of the proposed wind turbine. However, these are all either indicated by the ZTV studies to have no potential visibility of the proposed turbine, or are located such that existing wind turbine developments would be located between the open access land and the proposed turbine, reducing likely visual effects to Negligible. This includes the open access land at Tinker Hill to the south west of the proposed turbine, where the Hazelhead turbines would be more visually prominent, and the open access land within the Peak District National Park.

4.7.6. Cumulative Effects on Specific Viewpoints

Ordnance survey mapping does not indicate any specific viewpoints within 5km of the proposed turbine. A single viewpoint has been identified at Royd Moor Hill, to the south east of the proposed wind turbine. This is a panoramic circular viewing area with a panel interpreting the surrounding view at its centre. This is represented by viewpoint A, which demonstrates that views towards the proposed turbine would be through the Royd Moor

turbines and in the context of the Blackstone Edge and Spicer Hill turbines. Consequently, these visual effects would be Negligible and, cumulative effects on settlements are not assessed further.

4.8. Cumulative Effects on Landscape Designations

Peak District National Park (2.4km, south)

The Peak District National Park is the main landscape designation within 5km of the proposed wind turbine. The ZTV study indicates some potential visibility of the proposed turbine from the north facing slopes within the National Park, which is confirmed by viewpoint 6.

The Special Qualities of the National Park are identified in the Peak District National Park Management Plan as:

- *Natural beauty, natural heritage, landscape character and landscapes.*
- *Sense of wildness and remoteness.*
- *Clean air, earth and water.*
- *Importance of wildlife and the area's unique biodiversity.*
- *Thousands of years of human influence which can be traced through the landscape.*
- *Distinctive character of hamlets, villages and towns.*
- *Trees, woodlands, hedgerows, stone walls, field barns and other landscape features.*
- *Significant geological features.*
- *Wealth of historic buildings, parks and gardens.*
- *Opportunities to experience tranquillity and quiet enjoyment.*
- *Easy access for visitors and surrounding urban areas.*
- *Opportunities to experience dark night skies.*
- *Vibrancy and a sense of community.*
- *Cultural heritage of history, archaeology, customs, traditions, legends, arts, and literary associations.*
- *Opportunities for outdoor recreation and adventure.*
- *Environmentally friendly methods of farming and working the land.*
- *Craft and cottage industries.*
- *Opportunities to improve physical and emotional well-being.*
- *Special values attached to the national park by surrounding urban communities.*
- *The flow of landscape character across and beyond the national park boundary*

Considering the listed Special Qualities in light of the nature and scale of the proposed wind turbine and the distance at which it would be sited, it can be seen that those with most potential to be affected would be the *"Natural beauty, natural heritage, landscape character and landscapes"*. Effects on other qualities would be highly unlikely. View from the National Park are not identified as a Special Quality.

As indicated in section 4.6.2 above, the proposed turbine would very slightly extend the extent of turbines in the view, appearing part of the existing Royd Moor, Blackstone Edge and Spicer Hill but retaining separation from the Hazelhead turbines. Cumulative effects on the Peak District would be the same as for character area A2 – North Peak (A1 - Thurlstone and Langsett Unenclosed Moorland).

Table 6: Total Combined Effects over the baseline of existing and approved wind farms

Receptor	Distance/ Direction	Sensitivity	Scenario 1	Scenario 2SHE	Scenario 2HF	Scenario 3
Cumulative viewpoints – note ratings indicate scale of effect						
Viewpoint 3	1.6km, west		Small	Medium-Small	Small	Medium-Small
Viewpoint 5	1.7km, south		Medium-Small	Medium	Medium-Small	Medium-Small
Viewpoint 6	3.7km, south		Small	Medium-Small	Small	Medium-Small
Viewpoint A	2.5km, south east		Negligible	Medium	Negligible	Medium
Viewpoint B	0.5km, north west		Large-Medium	Large-Medium	Large-Medium	Large-Medium
Viewpoint C	1.8km, north east		Medium-Small	Medium	Medium-Small	Medium
Effects on receptors – ratings indicate magnitude and significance						
Landscape Character						
D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland) – Localised effect within approx. 400m	Site within	Medium	Medium-Low Moderate Adverse	Medium Moderate Adverse	Medium-Low Moderate Adverse	Medium Moderate Adverse
D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland) – Overall effect			Negligible Minimal Neutral	Negligible Minimal Neutral	Negligible Minimal Neutral	Negligible Minimal Neutral
A2 – North Peak (A1 - Thurlstone and Langsett Unenclosed Moorland)	2.3km, south	High-Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral
Settlements						
No settlements have been identified that require detailed assessment						

Receptor	Distance/ Direction	Sensitivity	Scenario 1	Scenario 2SHE	Scenario 2HF	Scenario 3
Roads and Rail						
Whitely Road – within 500m	0.1km, north east	Medium	Medium Moderate Adverse	High-Medium Moderate Adverse	Medium Moderate Adverse	High-Medium Moderate Adverse
Whitely Road – whole route			Low Slight Neutral	Medium Moderate Adverse	Low Slight Neutral	Medium Moderate Adverse
Wood Royd Hill Lane/ Lower Maythorne Lane	0.5km, north	Medium	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse
A616	0.9km, south west	Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral
A628/Manchester Road	3.2km, south east	Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral
Recreational Routes						
Public footpath and bridleway running south west from the junction of Lower Maythorne Lane and Brown's Edge Road	0.4km, west	High-Medium	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse
Bridleway running south west from Whitely Road near Shiner Hill	0.5km, south east	High-Medium	Medium Moderate Adverse	High-Medium Major-Moderate Adverse	Medium Moderate Adverse	High-Medium Major-Moderate Adverse

Receptor	Distance/ Direction	Sensitivity	Scenario 1	Scenario 2SHE	Scenario 2HF	Scenario 3
Accessible and Recreational Landscapes						
No accessible or recreational landscapes have been identified that require detailed assessment						
Specific Viewpoints						
No specific viewpoints have been identified that require detailed assessment						
Designated Landscapes						
Peak District National Park	2.4km, south	High-Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral

Table 7: Incremental Effects of adding the proposed development if the planned developments in the scenario were already constructed

Receptor	Distance/ Direction	Sensitivity	Scenario 1	Scenario 2SHE	Scenario 2HF	Scenario 3
Cumulative viewpoints – note ratings indicate scale of effect						
Viewpoint 3	1.6km, west		Small	Small	Small	Small
Viewpoint 5	1.7km, south		Medium-Small	Small	Medium-Small	Small
Viewpoint 6	3.7km, south		Small	Small	Small	Small
Viewpoint A	2.5km, south east		Negligible	Medium	Negligible	Medium
Viewpoint B	0.5km, north west		Large-Medium	Large-Medium	Large-Medium	Large-Medium
Viewpoint C	1.8km, north east		Medium-Small	Small	Medium-Small	Small
Effects on receptors – ratings indicate magnitude and significance						
Landscape Character						
D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland) – Localised effect within approx. 400m	Site within	Medium	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse
D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland) – Overall effect			Negligible Minimal Neutral	Negligible Minimal Neutral	Negligible Minimal Neutral	Negligible Minimal Neutral
A2 – North Peak (A1 - Thurlstone and Langsett Unenclosed Moorland)	2.3km, south	High-Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral
Settlements						
No settlements have been identified that require detailed assessment						

Receptor	Distance/ Direction	Sensitivity	Scenario 1	Scenario 2SHE	Scenario 2HF	Scenario 3
Roads and Rail						
Whitely Road – within 500m	0.1km, north east	Medium	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse
Whitely Road – whole route			Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral
Wood Royd Hill Lane/ Lower Maythorne Lane	0.5km, north	Medium	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse	Medium-Low Moderate Adverse
A616	0.9km, south west	Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral
A628/Manchester Road	3.2km, south east	Medium	Low Slight Neutral	Low-Negligible Slight Neutral	Low Slight Neutral	Low-Negligible Slight Neutral
Recreational Routes						
Public footpath and bridleway running south west from the junction of Lower Maythorne Lane and Brown's Edge Road	0.4km, west	High-Medium	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse
Bridleway running south west from Whitely Road near Shiner Hill	0.5km, south east	High-Medium	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse	Medium Moderate Adverse

Receptor	Distance/ Direction	Sensitivity	Scenario 1	Scenario 2SHE	Scenario 2HF	Scenario 3
Accessible and Recreational Landscapes						
No accessible or recreational landscapes have been identified that require detailed assessment						
Specific Viewpoints						
No specific viewpoints have been identified that require detailed assessment						
Designated Landscapes						
Peak District National Park	2.4km, south	High-Medium	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral	Low Slight Neutral

5.0 Summary

The proposed New Maythorne Farm wind turbine would be located within a landscape that already contains a number of existing wind farms and individual wind turbines. As demonstrated by the visualisations, from the majority of locations, the New Maythorne Farm wind turbine would read as part of the same group as the turbines at Royd Moor, Blackstone Edge and Spicer Hill. The difference in height between the proposed turbine and the existing cluster, as well as the separation by Whitely Road, would not be readily apparent unless in close proximity to the proposed wind turbine.

The cumulative effects arising from the various combinations of wind farms are potentially quite complex. However, through this assessment the in combination effects of the various wind farms and smaller developments have been systematically analysed and assessed indicating that the primary interactions will be with Royd Moor, Blackstone Edge and Spicer Hill, as well as the proposed Spicer Hill Extension.

The assessment indicates that given the distance of the proposed Heyside Farm from the New Maythorne Farm wind turbine, any cumulative landscape or visual effects would be limited.

Greater effects than for the proposed turbine alone would arise on the following receptors if both Spicer Hill Extension and the proposed wind turbine were consented, due either to closer proximity to Spicer Hill Extension or the contribution of the Spicer Hill Extension to a wider spread of turbines in views, in combination with the existing Royd Moor, Blackstone Edge and Spicer Hill cluster:

- D9 – Low Common, Royd Moor & Whitley Common (F1 - Ingbirchworth Upland Farmland) – Localised effect within approx. 400m
- Whitely Road
- Bridleway running south west from Whitely Road near Shiner Hill

The incremental effect of adding the proposed wind turbine to the existing situation if Spicer Hill Extension were already consented would be unchanged from adding the proposed wind turbine alone. However, the incremental effect would be reduced for users of the A628/Manchester Road.

Appendix 1. Methodology

1.1. Introduction

This appendix contains additional detail regarding the assessment methodology, supplementing the information provided within the ES chapter.

1.2. Assessment

The assessment of effects includes desk and site based work, covering the following key activities:

- The preparation of ZTVs based on the finalised design for the development.
- The preparation of computer generated wirelines showing the proposed development from the agreed representative viewpoints, and, potentially, selected residential properties.
- An assessment, based on both desk study and site visits, of the sensitivity of receptors to the proposed development.
- An assessment, based on both desk study and site visits, of the magnitude and significance of effects upon the landscape character, designated and recreational landscape and the existing visual environment arising from the proposed development during construction, operational and decommissioning stages.
- An informed professional judgements as to whether each identified effect is positive, neutral or adverse.
- A clear description of the effects identified, with supporting information setting out the rationale for judgements.

1.2.1. Preparation and use of Visuals

The preparation of the ZTVs, wirelines and photomontages complies with the SNH 'Visual Representation of Wind Farms Best Practice Guidance', published 2014.

The ZTVs and wirelines are used to inform the field study assessment work, providing additional detail and accuracy to inform observations made on site.

The following points should be borne in mind in respect of the ZTV study:

- Areas shown as having potential visibility may have visibility of the development obscured by local features such as trees, hedgerows, embankments or buildings.
- Since only the turbine hubs and blade tips have been modelled, this may be all that is visible – rather than the turbine tower. This is particularly true of areas near the edges of potential visibility.

The following points should be borne in mind in respect of visualisations, as identified in Annex A of the SNH Guidance (2014):

- A visualisation can never show exactly what the wind farm will look like in reality due to factors such as: different lighting, weather and seasonal conditions which vary through time and the resolution of the image;
- The images provided give a reasonable impression of the scale of the turbines and the distance to the turbines, but can never be 100% accurate;

- A static image cannot convey turbine movement, or flicker or reflection from the sun on the turbine blades as they move;
- The viewpoints illustrated are representative of views in the area, but cannot represent visibility at all locations;
- To form the best impression of the impacts of the wind farm proposal these images are best viewed at the viewpoint location shown;
- The images must be printed at the right size to be viewed properly (820mm by 260mm for all but the A3 viewpoint pack which should be printed at 390mm by 260mm);
- The images should be held flat at a comfortable arm's length. If viewing these images on a wall or board at an exhibition, stand at arm's length from the image presented to gain the best impression.

A detailed description of the methods by which ZTVs are prepared is included below, with information on the preparation of the visualisations supplied by Earthmill Ltd as part of the original planning application.

1.2.2. ZTVs–methodology

ZTV Studies

ZTV studies are prepared using the ESRI ArcGIS Viewshed routine. This creates a raster image that indicates the visibility (or not) of the points modeled. Each turbine is analysed at both the proposed hub and blade tip heights. LDA Design undertake two separate ZTV studies, with the first using a topographic model alone (often referred to as a Bareground ZTV), in accordance with SNH guidance. The second study is designed to include visual barriers from settlements and woodlands (with heights derived from NEXTMAP 25 surface mapping data). If significant deviations from these assumed heights are noted during site visits, for example young or felled areas of woodland, the features concerned will be adjusted within the model or the adoption of a digital surface model will be used to obtain actual heights for these barriers. In this instance this has not been required.

NextMAP 25 data has been used to derive the height of vegetation and built form for Figure 6.6. Both the bare ground and visual barrier models are also designed to take into account both the curvature of the earth and light refraction using the curvature and refractivity equation published in the SNH guidance.

In accordance with SNH guidance LDA Design undertake all ZTV studies with observer heights of 2m.

The ZTV analysis begins at 1m from the observation feature (for example the wind turbine) and will work outwards in a grid of the set resolution (on a standard LDA Design assessment this will be at 25 sq. m) until it reaches the end of the terrain map for the project.

For all plan production LDA Design will produce a ZTV that has a base and overlay of the 1:50,000 Ordnance Survey Raster mapping or better. The ZTV will be reproduced at a suitable recommended scale on an A1 template to encompass the study area in accordance with SNH guidance (2014). For printing purposes all A1 figures will be produced at 600 dpi to allow interpretation of the base map.

Ground model accuracy

Depending on the project and level of detail required, different height datasets may be used.

Below is listed the different data products and their specifications:

Product	Distance Between Points	Vertical RMSE Error
LiDAR	50cm – 2m	up to +/- 5cm
Photogrammetrically Derived Heights	2m – 5m	up to +/- 1.5cm
Ordnance Survey OS terrain 5	5 m	up to +/- 2.5m
NextMap25 DTM	25 m	+/- 2.06m
Ordnance Survey OS Terrain 50	50 m	+/- 4m

For most purposes, the NextMap25 data will be used, but on certain more detailed analysis of areas close to the site may be required, in which case, more detailed ZTVs using more detailed surface mapping products such as Photogrammetrically Derived Heights (from Getmapping or Bluesky), or LiDAR may be used. This has not been done for this assessment.

1.3. Positive / Neutral / Adverse - considerations

Whether an effect is Positive, Neutral or Adverse is identified based on professional judgement. GLVIA 3rd edition indicates at paragraph 2.15 that this is a *"...particularly challenging"* aspect of assessment, particularly in the context of a changing landscape and the need to address climate change. In the case of windfarms, much depends upon the attitudes and predispositions of the individual. As has been shown in a number of opinion surveys, the attitudes of the general public vary widely from those who think that windfarms blight the landscape to others who feel that they are a beautiful or positive addition, in some instances regardless of the natural beauty/ value of the landscape in question. In general terms there appears to be a majority view that is positive towards wind energy generation and its appearance in the countryside and this is particularly so once a windfarm is built in a particular location. A 2012 MORI poll indicated that 67% of people favour the use of wind energy in the UK, with only 8% opposed. Attitudes to the appearance of windfarms in the landscape indicated that 42% find this acceptable, with only 13% who do not. Based on this data, the argument that effects on the landscape and views should always be treated as adverse (on a 'worst case' or precautionary principle) seems to go against the majority opinion.

In examining visual effects, it is relevant to recognise this range of public opinion (and the likelihood that professionally qualified landscape architects may have differing positions) when discussing the effect upon views perceived by the public. However, given that there is not an established policy position which aims to maintain unchanged views (similar to those for landscape character), visual effects are generally described as being Neutral unless specific factors contribute to positive or adverse effects as identified within design guidance (Siting and Designing Windfarms in the Landscape, SNH, 2014) or local guidance.

Public opinion is also pertinent when considering effects on landscape receptors, as the way in which an individual regards wind turbines plays a part in their perceptual response to them within the landscape. If one regards them as industrial, alien structures, then it is understandable to perceive their influence as adverse. Likewise those who have concerns regarding climate change may welcome turbines as a physical expression of action being taken. For those who derive particular value from associations with the past, the uncompromising modernity of wind turbines may be jarring within a familiar landscape, whilst for others, turbines may have positive associations with human progress. All of these

responses are equally valid and will affect the perceptual aspects of landscape character. However, in keeping with the general planning policy presumption that distinctive character should not be altered and designated landscape should be protected from development, effects on landscape receptors are generally presumed to be Adverse.

1.4. Landscape Character Considerations

The European Landscape Convention (2000) provides the following definition:

"Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors."

And notes also in Article 2 that landscape includes *"natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas".*

An Approach to Landscape Character Assessment (Natural England, 2014) defines landscape character as:

"a distinct and recognisable pattern of elements, or characteristics, in the landscape that make one landscape different from another, rather than better or worse."

The susceptibility of landscape character areas is judged based on both the attributes of the receiving environment and the characteristics of the proposed development as discussed under 'susceptibility' within the methodology section of the chapter text. Thus, the key characteristics of the landscape character types/areas are considered, along with scale, openness, topography; the absence of, or presence, nature and patterns of development, settlement, landcover, the contribution of heritage assets and historic landscape elements and patterns, and land uses in forming the character. The condition of the receiving landscape, i.e. the intactness of the existing character will also be relevant in determining susceptibility. The likelihood of material effects on the landscape character areas can be judged based on the scale and layout of the proposal and how this relates to the characteristics of the receiving landscape. Thus large-scale landscape is likely to be less susceptible to large scale wind farm developments, whilst small scale, enclosed landscape may be highly susceptible to all but very small scale proposals.

It is specifically noted within An Approach to Landscape Character Assessment (Natural England, 2014) that:

"Our landscapes have evolved over time and they will continue to evolve – change is a constant but outcomes vary. The management of change is essential to ensure that we achieve sustainable outcomes – social, environmental and economic. Decision makers need to understand the baseline and the implications of their decisions for that baseline."

At page 51 it describes the function of Key Characteristics in landscape assessment, as follows:

"Key characteristics are those combinations of elements which help to give an area its distinctive sense of place. If these characteristics change, or are lost, there would be significant consequences for the current character of the landscape. Key characteristics are particularly important in the development of planning and management policies. They are important for monitoring change and can provide a useful reference point against which landscape change can be assessed. They can be used as indicators to inform thinking about whether and how the landscape is changing and whether, or not, particular policies – for example - are effective and having the desired effect on landscape character."

It follows from the above that in order to assess whether landscape character is significantly affected by a development, it should be determined how each of the key characteristics would be affected. The judgement of magnitude therefore reflects the degree to which the

key characteristics and elements which form those characteristics will be altered by the proposals. As a rule of thumb, effects are typically likely to be of Large Scale within 300-500m of turbines (where the turbines may become the dominant characteristic of the landscape), reducing to Medium Scale within up to 1.5km (where the turbines may become one of the key characteristics of the landscape) and decreasing further thereafter. The size of the development, the nature and susceptibility of the receiving landscape, and local 'barriers' in the landscape (such as breaks of topography, woodlands, settlements, and roads or rivers) will determine the exact extent of effects for each development, but in practice significant effects are highly unlikely beyond 5km. For this reason the study of local landscape character areas is limited to a 5km radius from the turbines.

1.5. Viewpoints and Visual Receptors - considerations

A wide variety of visual receptors can reasonably be anticipated to be affected by a proposed wind farm development. Within the baseline assessment, the ZTV studies and site visits will be used to determine which visual receptors are likely to be significantly affected and therefore merit detailed assessment. In line with guidance (GLVIA, 3rd Edition, 2013); both representative and specific viewpoints may be identified to inform the assessment. In general, the majority of viewpoints will be representative – representing the visual receptors at the distance and direction in which they are located and of the type(s) that would be present at that location. The majority of representative viewpoints will be selected in locations where significant effects would be anticipated; though some may be selected outside of that zone – either to demonstrate the reduction of effects with distance; or to specifically ensure the representation of a particularly sensitive receptor.

Generally for wind farms, the area of Medium scale visual effects extends to approximately 5km, though may be more or less depending on the size and location of the development and local factors including topography and vegetation patterns. Typically, therefore, visual receptors within 5km are more likely to experience significant visual effects, and the assessment focusses on these. More sensitive visual receptors such as specific valued viewpoints may also be considered beyond this area.

The types of visual receptors considered for inclusion within the assessment are:

- Users of walking and cycling routes or accessible landscapes within 5km of the proposed developments (including, as appropriate, Public Rights of Way, National and Regional Trails and other long distance routes, Core Paths, Common Land, Open Access Land, permissive paths, land held in trust (e.g. Woodland Trust, National Trust) offering free public access, and other regularly used, permitted walking routes.
- Visitors to and residents of settlements within 5km of the proposed development.
- Visitors to specific valued viewpoints.
- Visitors to attractions or heritage assets for which landscape and views contribute to the experience – within 5km.
- Users of roads or identified scenic routes within 5km.

Appendix 2. Glossary

Cumulative effects. The additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.

Landscape Character Areas. These are single unique areas which are the discrete geographical areas of a particular landscape type.

Landscape Character Types. These are distinct types of landscape that are relatively homogeneous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation, and historical land use, and settlement pattern, and perceptual and aesthetic attributes.

Landscape effects. Effects on the landscape as a resource in its own right.

Landscape character. A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.

Landscape quality (condition). A measure of the physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements.

Landscape receptors. Defined aspects of the landscape resource that have the potential to be affected by a proposal.

Landscape value. The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons.

Magnitude (of effect). A term that combines judgements about the size and scale of the effect, the extent of the area over which it occurs, whether it is reversible or irreversible and whether it is short or long term in duration.

Mitigation. Measures which are proposed to prevent, reduce and where possible offset any significant adverse effects (or to avoid, reduce and if possible remedy identified effects).

Sensitivity. A term applied to specific receptors, combining judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.

Susceptibility. The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences.

Visual amenity. The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of people living, working, recreating, visiting or travelling through an area.

Visual effects. Effects on specific views and on the general visual amenity experienced by people.

Visual receptor. Individuals and/or defined groups of people who have the potential to be affected by a proposal.

Zone of Theoretical Visibility (ZTV). A map, usually digitally produced, showing areas of land within which a development is theoretically visible.

Definitions from *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2013

Appendix 3. References

1. The Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Landscape Institute with the Institute of Environmental Management and Assessment, 2013
2. An Approach to Landscape Character Assessment, Natural England, 2014.
3. Landscape Character Assessment Guidance for England and Scotland, Topic paper 9 – Climate change and natural forces, the consequences for landscape character, SNH/CA.
4. Special Report – The State of Environmental Impact Assessment Practice in the UK, Institute of Environmental Management and Assessment, 2011
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14. South Pennines Wind Energy Landscape Study, Julie Martin Associates and LUC for Rossendale, Burnley, Calderdale, Kirklees and Barnsley Councils, 2014.
15. Barnsley Borough Landscape Character Assessment, ECUS and LUC for Barnsley Metropolitan Borough Council, 2002.
16. Kirklees District Landscape Character Assessment, LUC for Kirklees District Council, 2015.
17. Peak District National Park Management Plan 2012-2017, Peak District National Park Authority, 2012

Appendix 4. Extracts from Landscape Character Assessments

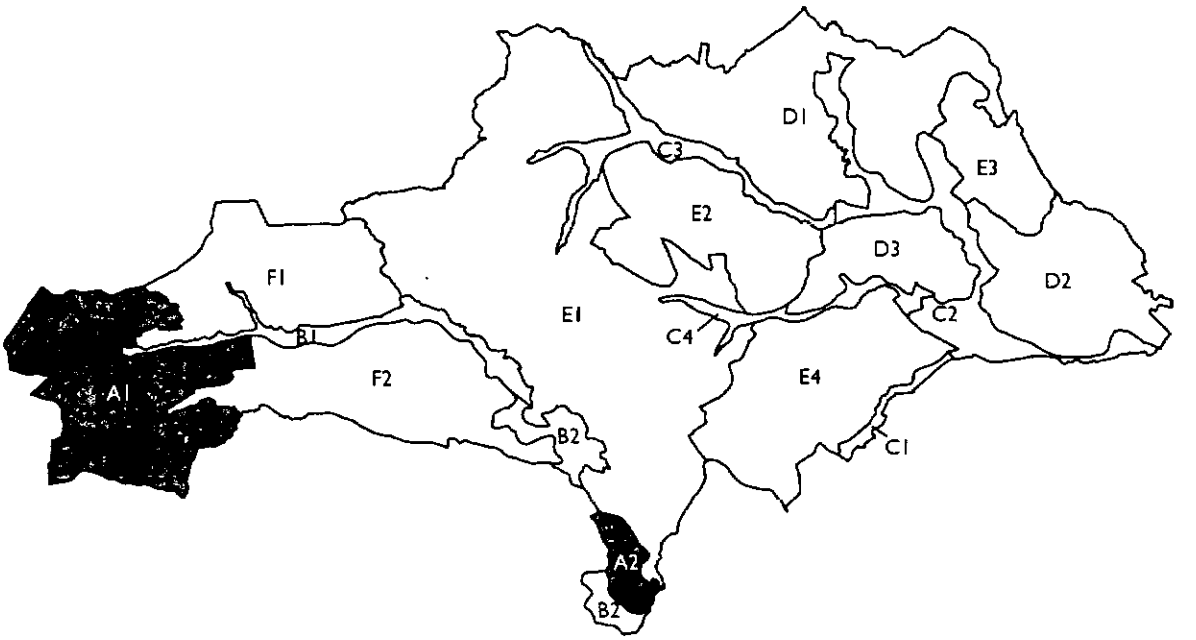
Barnsley Borough Landscape Character Assessment

Final Report

The Countryside Agency

BARNSLEY
Metropolitan Borough Council

A: UNENCLOSED MOORLAND



The *Unenclosed Moorland* landscape type is highly distinctive as a result of its high elevation (generally above 300m AOD) and unenclosed nature that evokes a distinct sense of exposure and provides expansive panoramic views. The simplistic land use, dominated by sheep grazing, provides a harmonious land cover of unimproved grassland and moorland over a rolling, flowing landform. The large scale landform is subdivided by deep cloughs containing dikes or, where they have been dammed, large reservoirs. Despite the remote nature of the landscape there are some obvious human influences including communication towers and pylons, which occur as striking vertical elements. Although there is an overriding sense of wilderness, there are often views to nearby settlements that are a reminder of the proximity of urban development.

Unenclosed Moorland is found in two areas:

A1 Thurlstone and Langsett Unenclosed Moorland

A2 Wharncliffe Unenclosed Moorland.

A1: THURLSTONE AND LANGSETT UNENCLOSED MOORLAND

Landscape Character

Key Characteristics

Open and exposed moorland with wide and expansive panoramic views.

Upland, elevated and gently undulating landform evoking a wild character.

Underlain by a geology of Millstone Grit and Peat.

Perceived sense of water in the landscape due to presence of reservoirs and numerous tributary streams.

Detailed network of cloughs, dikes and butts creating subtle sinuosity in the landscape.

Sheep grazing and grouse shooting are dominate land use activities.

Obvious absence of tree cover resulting in a visually simplistic and vulnerable landscape.

Disused quarries to the north-west offering enclosure and an intimate scale to the landform.

Busy A628T road dramatically increasing the pace and reducing the tranquillity of the landscape.

Pylons carrying overhead wires are prominent features in a landscape of few vertical elements.

Reservoirs associated with the upland reaches of the Don River Valley.

Natural Hertitage and SSSI status.

Location and Boundaries

The landscape character area, classified as *A1 Thurlstone and Langsett Unenclosed Moorland,* is located in the far west of the Barnsley Borough and forms part of the Peak District National Park. The Barnsley Borough administrative boundary provides the arbitrary extents of the character area to the west, north and south while the boundary to the east is defined where unenclosed moorland meets the stone wall-enclosed field system belonging to the landscape character areas classified as *F1 Ingbirchworth Upland Farmland* and *F2 Penistone Upland Farmland.*

Description

This character area falls within the Countryside Character Area 51: Dark Peak (as defined by the Character of England Map) and is distinguished by its elevated position, landform patterning, homogenous land cover and land use qualities. It forms part of one of the most extensive areas of semi-natural wilderness in England.

Topographically, the landscape ranges from 300m AOD to 500m AOD with land generally falling in an east to west direction. Cutting across the landscape are a number of incised cloughs and dikes only obvious at close range. The moorland rolls down to the open waters of Snailsden, Haden, Winscar, and Upper and Lower Windleden Reservoirs. These reservoirs characterise the upland reaches of the River Don and bring an engineered quality to the landscape due to manmade dams and their associated works. In addition, coniferous plantations on the river valleys sides introduce vertical interest and striking colour change.

The underlying geology comprises Peat and Millstone Grit. Millstone grit consists of hard gritstone beds that sandwich softer shales and occurs to the west of the character area. Disused quarries are a feature here and bring local variation to landform in the form of hummocky spoil heaps that offer a sense of enclosure, atypical of the moorland as a whole. Scars on the surface of the moorland are visual clues to previous peat cutting.

The unenclosed nature of the moorland is perhaps its most distinguishable feature; offering dramatic and expansive panoramic views, a strong sense of exposure and open skies. Sheep are dotted across the landscape and, along with grouse shooting, dominate the land use of the moors. The sheep roam freely, unrestricted by field boundaries except where post and wire fences align the A628 trunk road, or stone walls or fences enclose fields belonging to the landscape character areas classified as *F1 Ingbirchworth Upland Farmland* and *F2 Penistone Upland Farmland.* The busy A628 trunk road, carrying much overland freight, cuts east to west across the character area and significantly disturbs the tranquillity and otherwise gentle pace of the open moor. Snow fences also align this road and are strong angular features in an otherwise soft and rolling landscape. Pylons carrying overhead wires are strong vertical elements in a landscape largely devoid of man-made structures. There is a distinct lack of roads and tracks with one secondary road providing the only other vehicular route in addition to the A628. There are no farmsteads or rural outbuildings.

Distant views to urbanised areas at lower elevation tame the otherwise wild character of the moor.

Forces for Change

Increasing volume of traffic along the A628T, further disturbing the tranquillity of the landscape.

Litter aligning the A628T bringing with it a sense of decline.

Further decline of stone walling on the edge of the character area threatening to increase the size of the unenclosed moorland and reduce its distinction from the adjacent upland farmland.

Over and under grazing threatening to change the character and quality of vegetation cover.

Landscape Evaluation

Landscape Strategy

Landscape strategy objectives are determined by the combined assessment of both strength of landscape character and landscape condition.

Strength of Character

Thurlstone and Langsett Unenclosed Moorland is highly typical of the *Unenclosed Moorland* landscape Type. The seamless homogeneity of vegetation, land use and landform evokes a dramatic, unified landscape. Some man-made elements of the landscape are intrusive such as the busy A628 trunk road but are not enough to detract from the undeveloped, **strong** character of the landscape.

Condition

There are some minor intrusions that impinge upon the intactness of the moorland such as litter along the A628 but these are subtle threats within a landscape of **good** overall condition.

Landscape Sensitivity and Capacity

Landscape sensitivity is a judgement about the degree to which a landscape character area can accommodate change without adverse effects on its character. Landscape capacity is a related judgement about the amount of development that can be accommodated.

The very open nature of the moorland results in a landscape highly sensitive to change having little in terms of vegetation to buffer or mitigate visual effects of built development. The moorland forms part of the Peak District National Park, is a Nature Conservation Site, has SSSI status and forms part of the Barnsley Borough Greenbelt. The landscape therefore holds significant ecological value and plays an important strategic role in terms of landscape planning.

The unenclosed moorland is recognised for its scenic landscape qualities and the sense of wilderness making it a highly sensitive and inappropriate landscape for development considerations. Landscape sensitivity to built development is judged to be **high** and landscape capacity is judged to be **none**.

Landscape Strategy Objectives

Based on the evaluation of strength of character and condition, the strategy objective should be to conserve the landscape of *A1 Thurlstone and Langsett Unenclosed Moorland* as shown in the table below.

Condition	Weak	Moderate	**STRONG**
GOOD	Strengthen	Conserve & Strengthen	**CONSERVE**
Moderate	Strengthen & Enhance	Conserve & Enhance	Conserve & Restore
Poor	Creation	Restore & enhance	Restore

Strength of Character

Landscape Management Issues and Opportunities

The *A1 Thurlstone and Langsett Unenclosed Moorland* character area is an important physical and cultural landscape resource.

The overall landscape strategy should be to **conserve** the open, wild and tranquil character of the moorland landscape and to retain the quality of its far reaching views. Landscape strategy objectives should include:

Seek to conserve the open quality and wild character of the open moor.

Recognise the importance of a balanced grazing regime to ensure retention of moorland land cover.

Adhere to SSSI management and maintenance guidelines.

Restrict activities such as large scale quarrying which would have a dramatic influence on landform and ecological intactness.

Encourage management and maintenance regimes to ensure human influences such as litter do not pollute and detract from the scenic beauty of the landscape.

Restrict tree planting which threatens to change the open character of the moorland.

Recognise the historic/cultural importance of the disused quarry sites and encourage research into their value?

Resist development within that would have a negative effect on the open character of the moorland.

Resist development in adjacent character areas that would adversely influence the wild character of the landscape.

Promote management of moorland reservoirs to enhance their value to wildlife and recreation.

Monitor levels and types of recreational activity to control the impacts of visitor pressures.

Making a Judgement about Potential for Built Development

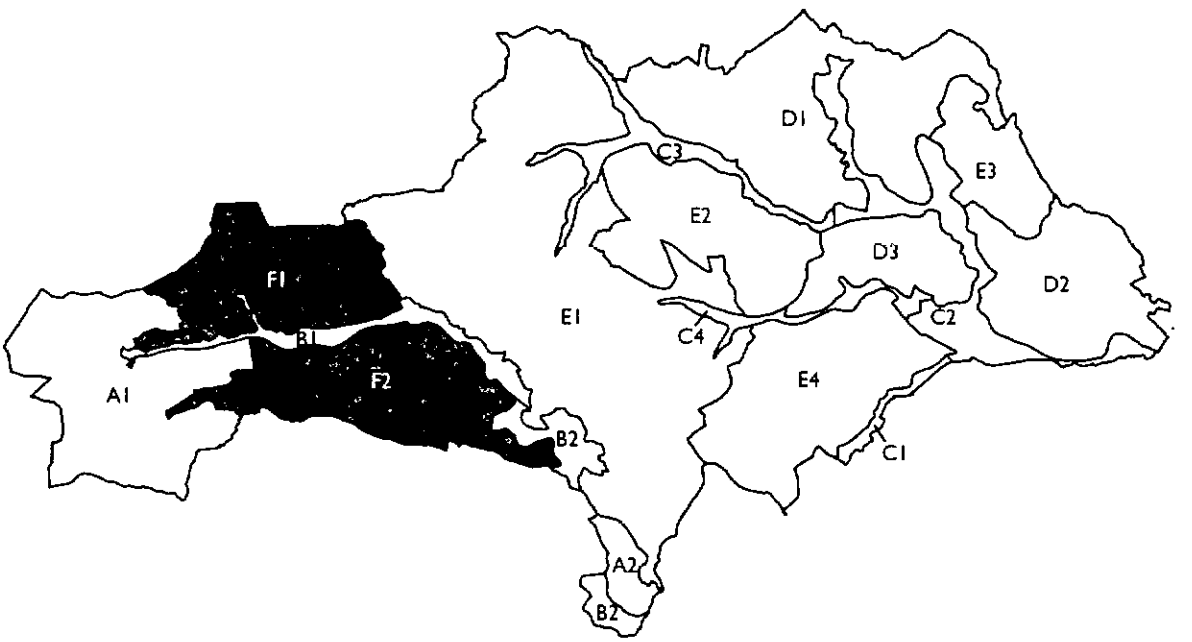
The assessment of potential for new built development is directly related to the landscape capacity and sensitivity. Overall, the landscape sensitivity for this area is **high** and the landscape capacity for this area is **none**.

The objective should be to prohibit development and conserve the open, wild and tranquil character of the moorland landscape.

Priority Areas for Future Search

The landscape capacity of this character area has been classified as **none** and it is recommended that no significant development should be considered.

F: UPLAND ROLLING FARMLAND



The *Upland Rolling Farmland* landscape type is upland hill country defined by a distinctive undulating topography above 200m AOD. The underlying geology of Lower Coal Measures is a series of complex beds comprising bedded sandstones, shales and mudstones with intermittent coal seams that have given rise to differential weathering of the seams and a characteristic undulating or `stepped' landform.

A network of intact gritstone walls provides a strong, and distinctive, geometric field pattern over the hills. Field sizes vary corresponding to elevation with the older, smaller fields located in the lower and more sheltered areas and the larger, later enclosured fields over the higher moors. Most of the farmland is now improved grassland grazed by sheep, but remaining unimproved areas on the steeper or more elevated slopes, and damp pastures alongside dikes and springs, are valuable for nature conservation. The area is largely devoid of woodland, although ribbons of deciduous woodland thrive in the shelter of the incised valleys of the dikes. Stands of beech and sycamore are familiar features of this upland landscape type and stand silhouetted against the skyline. The area has a sense of remoteness and the settlement pattern is one of scattered hamlets and agricultural settlements. Past industrial activities are indicated by the presence of disused mines, quarries and shafts.

Upland Rolling Farmland is found in two areas that are separated from each other by the valley of the River Don:

F1 Ingbirchworth Upland Rolling Farmland

F2 Penistone Upland Rolling Farmland

F1: INGBIRCHWORTH UPLAND FARMLAND

Landscape Character

Key Characteristics

Stepped landform rising to 367m at Upper Whitley Edge.

Fields of pasture comprising medium geometric field units strongly defined by distinctive **stone walls**.

Beech plantations stand out on the skyline, sometimes enclosed by stone walls.

Unimproved pasture with scrub on steeper slopes.

Scattered farmsteads of sandstone, quarried from the local area.

Villages of Thurlstone and Millhouse Green on the character area border with the valley of the River Don, both with links to the former fulling mills along the river.

Windfarm at Spicer Hill is visually prominent on the skyline.

Single lane rural roads criss-cross the open countryside, bounded by stone walls.

Disused industrial quarries, shafts and mines indicate the importance of the area for the extraction of coal and stone.

Man made reservoirs at Broadstone, Ingbirchworth, Royd Moor and Scout Dike.

Panoramic views over adjacent river valleys and towards the open moorland of the Peak District National Park.

Location and Boundaries

The landscape character area classified as *F1 Ingbirchworth Upland Farmland*, is a large area of upland hill country in the north-west of the Borough. The western boundary of the area is clearly defined by a transition to the open moorland of character area *A1 Thurlstone and Langsett Unenclosed Moorland*. The eastern boundary forms a less clear transition into area *E1 West Barnsley Settled Wooded Farmland*. The rolling wooded landscape of E1 gradually flattens out and becomes more open, with less woodland, until it becomes more characteristic of *F1 Ingbirchworth Upland Farmland*. Features that lie in this area of transition, such as field boundaries and a railway line, have been used to define this boundary. The southern boundary is clearly defined by the valley of the River Don and the northern boundary of the area is dictated by the administrative boundary of Barnsley Metropolitan Borough.

Description

The complex beds of the Lower Coal Measures, comprising bedded sandstones, shales and mudstones with intermittent coal seams, form the underlying solid geology of the Ingbirchworth Upland Farmland. This has given rise to differential weathering of the seams and a characteristic stepped landform with a series of platforms exhibiting scarp and dip slopes, some 300-400m above sea level. The valley of the River Don bounds the area to the south, separating it from landscape character area *F2 Penistone Upland Farmland.*

This is an area of upland hill country, its network of intact gritstone walls providing a strong and distinctive, geometric field pattern. Field size varies corresponding to elevation with the older, smaller fields located in the lower and more sheltered areas and the larger, later enclosure fields over the higher ground. Some of the largest fields occur on Ingbirchworth Moor alongside 'The Whams', a marshy area of unimproved upland grassland. A large wind farm, built in 1993, is another feature of this area. Its graceful turbines are visible from many miles around, including from some elevated areas in the far extremes of Barnsley Borough 23 kilometres to the east, providing a prominent landmark in this large-scale landscape.

Woodland cover is relatively low, although ribbons of deciduous woodland thrive in the shelter of the incised valleys of the streams that drain south into the River Don. These becks, brooks and dikes drain the hills and have been artificially dammed in the 20th century to produce large reservoirs that sit surprisingly comfortably within the rural landscape. Stands of beech and sycamore are common features of the upland landscape, standing silhouetted against the skyline.

This hill country is a good example of the established pattern of farming, in which stone-walled fields, hamlets and isolated farmsteads, together with valley woodlands, form a landscape of natural beauty. Sheep have been a familiar feature of the landscape for many centuries and it has strong links to the wool industry. The villages of Thurlstone and Millhouse Green, located on the edge of the border with the valley of the River Don, are rural settlements linked to the fulling mills on the Don. Traditional long wool weavers' windows on the upper floors of cottages can still be seen in Thurlstone. Ingbirchworth is a more recent rural village settlement, located by the side of the Ingbirchworth reservoir.

Most of the farmland is now improved grassland, but remaining unimproved areas on the steeper or more elevated slopes, and damp pastures alongside dikes and springs, are valuable for nature conservation. Straight rural lanes, bounded by stone walls, cut across the hills linking adjacent farms. The A616 cuts across the area, at the foot of Whitley Edge, and is a busy route through the upland landscape. A large clay works sits, well enclosed by landform, by the side of the A616. Other past industrial activities are indicated by the presence of disused mines.

Views are panoramic, stretching over the valley of the River Don to the south and into Denby Dale to the north. The wind farm at Royd Moor is a prominent feature in views.

Forces for Change

Decline in intactness of stone walls resulting in decline in distinctive field pattern and strength of character.

Conversion of rural stone barns to other uses, including residential dwellings.

Pressure for new built development around the villages of Millhouse Green and Thurlstone.

Declining tree cover as a result of over maturing of existing stock and limited planting or natural regeneration.

Replacement of traditional stone gate posts with metal or wooden equivalents.

Introduction of large scale agricultural buildings of modern materials that stand out in the landscape.

Landscape Evaluation

Landscape Strategy

Landscape strategy objectives are determined by the combined assessment of both strength of landscape character and landscape condition.

Strength of Character

Landscape character area *F1 Ingbirchworth Upland Farmland* is a good example of the *Upland Rolling Farmland* landscape type as a result of its distinctive stepped topography, intact network of stone walls, rural upland character and panoramic views. The presence of these characteristics ensure that the overall strength of character is considered to be **strong.**

Condition

Although this area is an extensive tract of intact farmland, the condition of some of the individual features is in decline. For example, many of the stone walls are beginning to erode and replacement or natural regeneration of trees is low. Some vernacular stone buildings are in a state of dereliction. Overall landscape condition may be described as **moderate.**

Landscape Sensitivity and Capacity

Landscape sensitivity is a judgement about the degree to which a landscape character area can accommodate change without adverse effects on its character. Landscape capacity is a related judgement about the amount of development that can be accommodated.

Although this is an exposed upland area, the incised valleys of the dikes that drain into the Don provide some visual enclosure. Beech plantations also provide some visual enclosure. However, the rural character of the area, and its low density settlement pattern and

distinctive field patterns, make this landscape particularly sensitive to built development. The presence of a number of Natural Heritage Sites increase sensitivity to change. The area is highly visible from the Peak District National Park and this further increases its sensitivity to change.

In view of the above, landscape sensitivity to built development is judged to be **high** and landscape capacity is considered to be **low**.

Landscape Strategy Objectives

Based on the evaluation of strength of character and condition, the strategy objective should be to **conserve and restore** the landscape of *F1 Ingbirchworth Upland Farmland* as shown in the table below.

Condition	Weak	Moderate	**STRONG**
Good	Strengthen	Conserve & Strengthen	Conserve
MODERATE	Strengthen & Enhance	Conserve & Enhance	**CONSERVE & RESTORE**
Poor	Creation	Restore & Enhance	Restore

Strength of Character

Landscape Management Issues and Opportunities

The overall landscape strategy objective should be to **conserve** the intact nature of the agricultural landscape and **restore** features in decline.

Conserve the network of stone walls that are strong features of the landscape and promote the restoration and re-building of declining stone walls.

Conserve the rural stone buildings and barns as features of the landscape, restoring these in favour of building new properties.

Maintain the low density development pattern of rural farmsteads and hamlets.

Ensure that any new development is well placed within areas sheltered by landform and trees.

Consider a tree planting strategy to enhance tree cover and provide shelter for wildlife, encouraging natural regeneration of trees where possible.

Conserve stands of beech on the skyline as features of the landscape.

Conserve traditional stone gate posts as features of the agricultural landscape and consider replacement of those that have been lost.

Care should be taken in introducing new agricultural buildings into the landscape - attention to scale, materials and colour will be crucial to their successful integration.

Consider opportunities to develop the network of footpaths for recreation, and to study and interpret the wildlife habitats through nature trails and interpretative centres.

Consider opportunities to interpret and explain the area's rich history in the form of heritage trails, together with a programme of identifying and restoring significant local landmarks and historic artefacts including stone walls.

Consider new opportunities for farmers to diversify into recreation and other land uses.

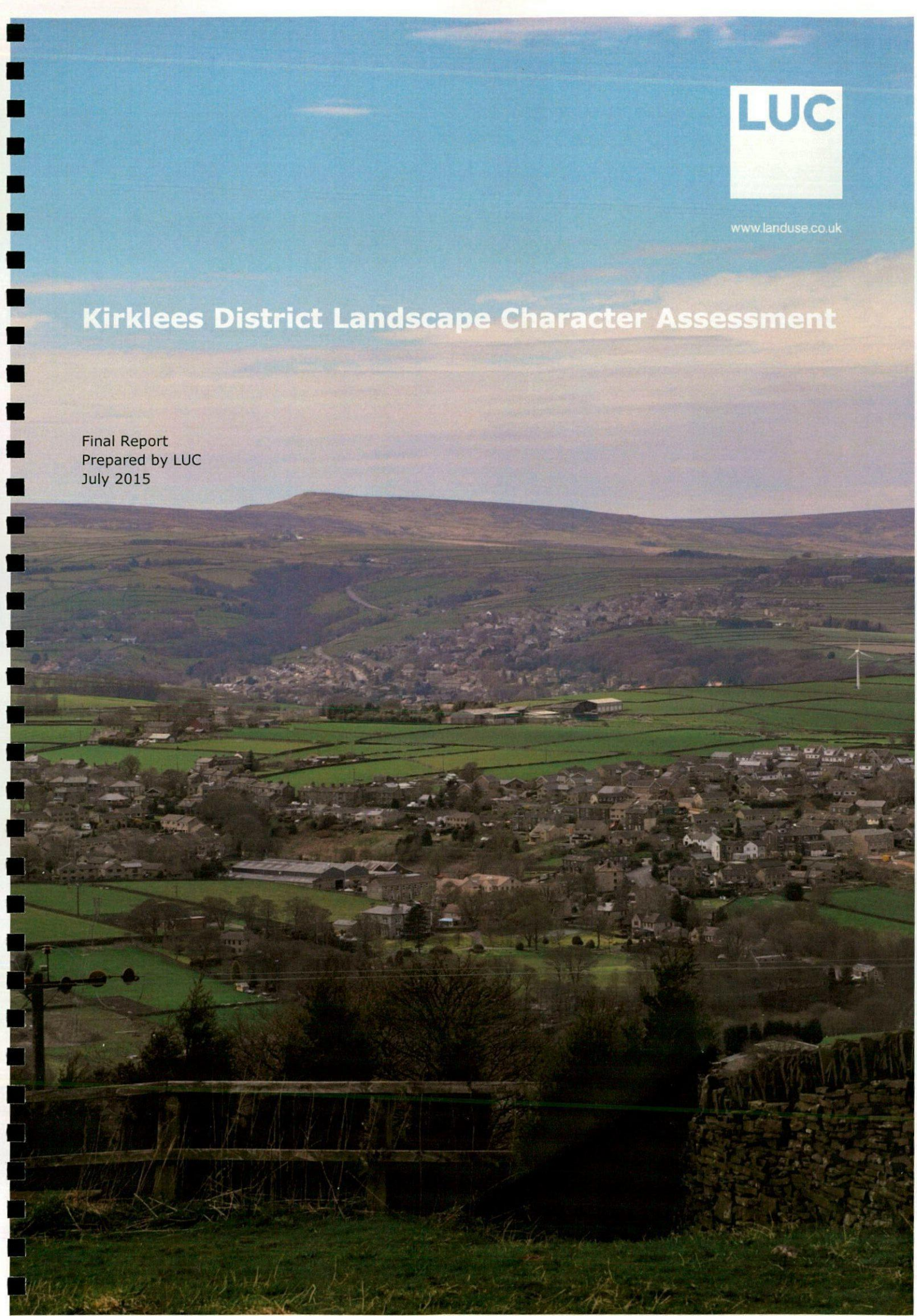
Making a Judgement about Potential for Built Development

The assessment of potential for new built development is directly related to the landscape capacity and sensitivity. Overall, the landscape sensitivity for this area is **high** and the landscape capacity for this area is **low**.

The objective should be to conserve the open, undeveloped, rural character of the landscape and to protect the valleys and dike corridors from built development. Villages and hamlets should remain compact to maintain the rural character of the upland landscape. Apparent urbanisation of this intact rural landscape should be avoided.

Priority Areas for Future Search

The landscape capacity of this character area is low - it is a rural area characterised by low density, scattered farmsteads and hamlets. In searching for areas for future development small, isolated sites that are sheltered by landform and/or vegetation may be appropriate.



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Kirklees District Landscape Character Assessment

Final Report
Prepared by LUC
July 2015

Kirklees District Landscape Character Assessment

Figure 2.1 Landscape Character Types and Areas

Study area

Local Authority boundaries

Peak Distict National Park

A - High Moorland Plateaux
- A1 - South Pennine Moors
- A2 - North Peak (Wessenden & Meltham Moors)

D - Moorland Fringes / Upland Pastures
- D7 - Peak Fringe Upland Pastures
- D9 - Low Common Royd Moor & Whitley Common

E - Rural Fringes
- E1 - Holmfirth - Meltham
- E2 - Barkisland - Holwell Green
- E6 - Fenay Beck Valley Rural Fringes
- E7 - Emley Moor Northern Fringes
- E8 - Batley - Dewsbury Rural Fringes

F - Settled Valleys
- F4 - Colne (Slaithwaite Marsden)
- F5 - Holme and Hall Dike (Holmfirth and Meltham)

G - Wooded Rural Valleys
- G8 - Holme River Valley
- G9 - Fenay Beck Valley and Tributaries
- G10 - River Dearne Valley
- G11 - Batley Fringe Incised Valleys

K - Coalfield Edge Urban Fringe Farmland
- K1 - Thornton - Queensbury

M - Industrial Lowland Valleys
- M1 - Calder Valley Floor

N - Rolling Wooded Farmland
- N1 - Emley Moor
- N2 - Cawthorne Park & West Barnsley Rolling Wooded Farmland

O - Industrial / Business Parks

U - Urban

Map Scale @ A3: 1:100,000

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CB:Green_C EB:Green_C LUCLON 6364-01_006_LCA 18/05/2015

Source: Ordnance Survey, Natural England

JULIE MARTIN ASSOCIATES

LUC

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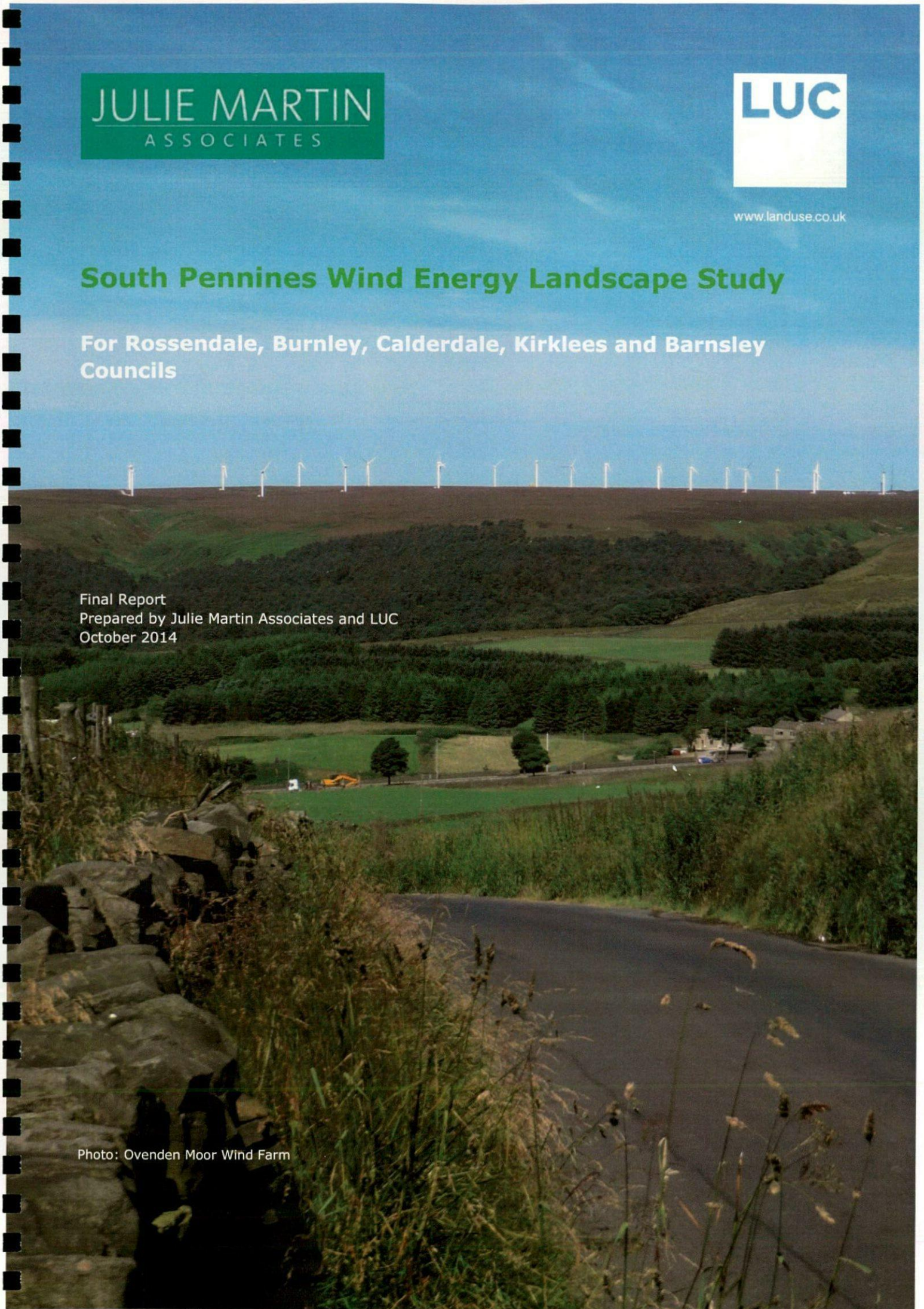
South Pennines Wind Energy Landscape Study

For Rossendale, Burnley, Calderdale, Kirklees and Barnsley Councils

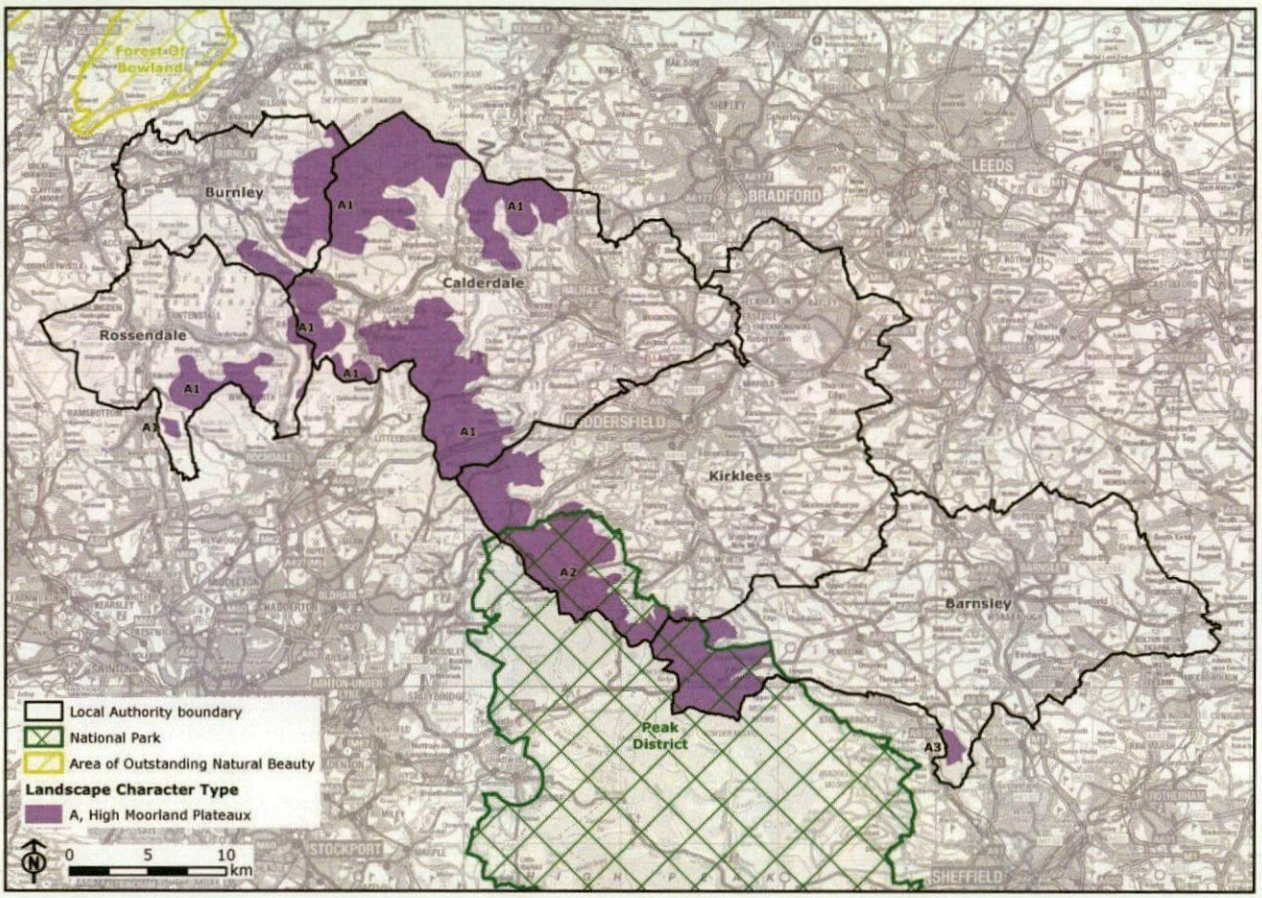


Final Report
Prepared by Julie Martin Associates and LUC
October 2014

Photo: Ovenden Moor Wind Farm

LCT A: High Moorland Plateaux

LCT Location Map



Component Landscape Character Areas

A1: South Pennine Moors

A2: North Peak (Wessenden & Meltham Moors)

A3: Wharncliffe Unenclosed Moorland

Local authorities where LCT is present

Rossendale, Burnley, Calderdale, Kirklees, Barnsley

Landscape character summary

The high moorland plateau rolls in a series of even, sweeping ridges across the central part of the area forming the heart and core of the South Pennines landscape. It is a windswept, exposed upland landscape raised above the dissecting valleys and is frequently enshrouded by mists and fog and possesses a strong sense of remoteness and 'wildness'. Distinctive physical features include the frost weathered tors and regoliths which crown some of the moorland summits and the characteristic stepped topography of interlocking terraces and edges corresponding to the interleaved layers of underlying Millstone Grit geology. The moorland is rich in history, culture and wildlife. The mosaic of upland habitats including heather moorland, blanket bog, acid grassland and wet and dry heathland are of great importance for key bird species as reflected in the designation of the South Pennines SPA. There is also good survival of prehistoric sites and the moorland landscapes represent a valuable resource for further archaeological research into the early stages of human exploitation. It is a landscape with strong cultural and literary associations forming a 'wild' backdrop to the novels of the Brontë sisters and an inspiration for the poetry of the former Poet Laureate Ted Hughes.

This is a 'remote' landscape very sparsely settled with only occasional isolated farmhouses, many now abandoned and in ruins and contributing to the sense of remoteness. Resource exploitation is visible in the form of power supply structures including pylons, transmission lines, wind turbine developments and communications masts, as well as reservoirs and mineral extraction sites. In some areas, intervisibility between these developments diminishes the sense of isolation.

Key environmental features

- A perception of remoteness, isolation and wildness provided by the altitude, absence of trees and settlement plus expansive views.
- Mosaic of upland habitats, including blanket bog habitat, wet heathland, dry heathland and acid grassland which support an internationally important range of bird species (South Pennines SPA).
- Blanket bog is of international importance, supporting a specialist flora and associated fauna and representing a habitat of which the UK has 7-13% of the global resource.
- Important archaeological landscape with much prehistoric interest. The blanket bog is a significant archaeological and palaeoenvironmental resource.
- Strong cultural associations – powerful influence on and inspiration for the writing of the Brontë sisters and Ted Hughes, among others.
- Distinctive landform of terraces and gritstone edges reflecting the underlying geology and process of weathering. Frost weathered tors and regoliths are prominent features.
- High geological interest including several geological SSSIs, at natural and quarried locations.
- Reservoirs provide water and recreational resources, as well as supporting wildfowl and wader species.
- Absence of settlement, with only isolated dwellings and abandoned farmsteads.

LCT A: Landscape Sensitivity to Wind Energy Development

Criteria	Lower sensitivity ▪▪▪▪▪▪▪▶ Higher sensitivity
Scale	M The high moorland plateau lies mainly between 300 and 500m AOD, and is relatively large in terms of vertical scale. However horizontal scale varies. The two main plateau blocks north and south of the Calder valley have an expansive character, but other areas such as the narrow ridge from Crook Hill to Heald Moor do not and hence are more sensitive. Infrequent human-scale features include stone walls, occasional farmsteads, sparse woodland clumps and conifer blocks.
Landform	M On the tops, this is a large scale sweeping landform. However the high ridges are narrow in places and are intersected by numerous deeply incised valleys; and alternating tough gritstones and softer shales have created a characteristic stepped profile with prominent tors and regoliths. These factors may heighten landscape sensitivity.
Landcover	M The characteristic semi-natural vegetation cover includes blanket bog, heather moor and extensive areas of grass moor and the landscape is generally unenclosed. Sensitivity is often fairly low, but on the edges of the plateau may be higher, due to the presence of walled, often historic, enclosures that are vulnerable to physical disturbance e.g. on the southern fringes of Crook Hill.
Built environment	M This LCT is highly sensitive in that it is characteristically open and undeveloped, in contrast to the adjoining valleys. However locally the landscape may be affected by quarries on plateau edges, transmission lines and other developments, reducing its sensitivity. This is particularly the case towards the west, around Scout Moor and in the area east of Bacup.
Skylines and settings	H The sharp edges of the high moorland plateaux are highly sensitive because they are extremely prominent visually (particularly where narrow ridges or fingers of moorland extend outwards from the main ridgelines). They often form open, unspoilt and highly valued backdrops to the settlements in the valleys below. The presence of distinctive rock outcrops and landmark hilltop monuments such as Stoodley Pike may also heighten sensitivity locally.
Visibility and views	H The moorland plateaux are characteristically open in character, with expansive views and wide areas of intervisibility, and in this sense they are highly sensitive. They are visible from many well-known vistas and tourist viewpoints, including Blackstone Edge, Stoodley Pike and the Pennine Way; such views tend to occur mainly on higher ground along the main South Pennine ridge. Visibility from the settled valleys below may be more limited where views are contained by steep enclosing hillsides. However there are also many more distant views into the LCT, notably from Pendle Hill (part of the Forest of Bowland AONB) to the north-west, Greater Manchester to the south-west and the Peak District National Park to the south.
Landscape quality (condition)	M The landscape quality of the moorland plateaux is generally good, but some areas have been adversely affected by lack of management, or by urban fringe pressures such as flytipping and scrambling. Again, this is particularly the case towards the west.
Scenic quality	H The high scenic quality of the South Pennine Moors has long been recognised. The area links the Peak District and Yorkshire Dales National Parks and is important to the continuity of the Pennine backbone; it is also visible and accessible from many urban areas. This LCT lies at the heart of the area of the South Pennines that was identified in 1947 by the National Parks Committee as a potential AONB. Today, Pennine Prospects promotes the protection and regeneration of these landscapes, which are valued regionally as part of the non-statutory South Pennines Heritage Area. The southern section of this LCT around Huddersfield and Holmfirth directly abuts the Peak District National Park (and continues into the Park); all of the LCT in Calderdale also falls within the Calderdale Special Landscape Area (defined under Policy NE12 of the Replacement Calderdale UDP (2006)), which is valued for its very high visual quality and impressive landscape.

Wildness and tranquillity			**H**
	This is a windswept, exposed upland landscape that possesses a strong sense of remoteness and relative 'wildness'. It is very sparsely settled and its perceived isolation and tranquillity are rare and highly valued, especially given the close proximity to large urban areas. The area of highest tranquillity lies in the north of the study area around Heptonstall, Widdop and Wadsworth Moors. Locally, views to development may diminish the sense of wildness and tranquillity.		
Natural and cultural heritage features			**H**
	A very high proportion of this LCT is covered by the South Pennine Moors SSSI, SAC and SPA, which extends both north and south of the Calder valley and is of international importance for its mosaic of upland habitats and bird life. Much of the LCT as a whole is covered in deep peat. Locally there are also areas of high geological interest, including several geological SSSIs. The area is an important archaeological landscape with much prehistoric interest, often associated with the blanket bog.		
Cultural associations			**H**
	This is a landscape with strong cultural and literary associations, forming a 'wild' backdrop to the novels of the Brontës and an inspiration for the poetry of the former Poet Laureate Ted Hughes. It is of high sensitivity in this regard.		
Amenity and recreation			**H**
	The southern section of this LCT lies within the Peak District National Park. The LCT as a whole is a key recreational resource for surrounding urban populations, with extensive areas of open access land and a strong concentration of National Trails (including substantial sections of the Pennine Way and Pennine Bridleway) and other long distance recreational routes. It provides access to open, relatively wild landscapes for 7 million people within an hour's drive.		
Discussion on landscape sensitivity[22]	The landscape's large scale and generally simple, sweeping landform with few human-scale features, large tracts of consistent landcover, as well as the presence of some existing development, suggest only moderate sensitivity to wind energy development. However, these factors are outweighed by the fact that the landscape is very highly valued as a backdrop to views from other areas (including settlements) and for its high scenic quality, levels of wildness and tranquillity, natural and cultural heritage features, cultural associations, and recreational interests and opportunities, which are often of national or even international importance. Land of highest sensitivity occurs where the moorlands narrow, as between Crook Hill and Heald Moor; on the edges of the plateaux where scale comparisons are most easily made and turbines are most prominent visually; in areas with particularly distinctive landform or field enclosure patterns; in areas where the sense of wildness and tranquillity remains strong, especially in the north; and at the northern and southern ends of the South Pennine ridge within the South Pennine Moors SSSI, SAC and SPA. Land which borders or forms an immediate setting to the Peak District National Park is particularly sensitive to the development of all scales of wind energy development, which could affect the National Park's special qualities (including its sense of wildness and remoteness and the flow of landscape character across and beyond its boundary). Locally there are areas of slightly lower sensitivity, notably around Scout Moor to the west. This area is detached from the main Pennine ridge and is also of lesser landscape quality, scenic quality and natural heritage interest than other parts of the LCT, although it remains highly sensitive in terms of skylines and settings, visibility and views.		
Sensitivity to different turbine heights	**Very Small (≤24m)**		**M-H**
	Small (25-59m)		**M-H**
	Medium (60-89m)		**H**
	Large (90-129m)		**H**
	Very large (≥130m)		**H**
	The landscape's wide visibility, the role of its elevated upland skylines as a backdrop to both immediate and long distance views, its strong remote and 'wild' character, and its function as a moorland 'extension' to the Peak District National Park to the south mean that it is highly sensitive to 'medium', 'large' and 'very large' wind turbines. It is somewhat less sensitive to smaller turbines although these are only likely to be appropriate on the lower, gentler, marginal slopes. Areas close to the Peak District National Park are highly sensitive to turbines of any height which could affect the Park's		

[22] Note that this refers to inherent landscape sensitivity i.e. the assessment has not been affected by any existing development.

	special qualities (although this will need to be judged on a case by case basis).
Commentary on turbine group size • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-5 turbines) • Medium wind farm (6-10 turbines) • Large wind farm (11-20 turbines) • Very large wind farm (≥21 turbines)	This landscape's many sensitive attributes mean that in most areas only 'single turbines' or 'small clusters' will be appropriate in the landscape. The landscape is highly sensitive to 'large wind farm' and 'very large wind farm' group sizes.

LCT A: Guidance for Wind Energy Development

Guidance for future development

This landscape is extremely sensitive and highly valued although it has seen several medium and large wind farm developments in the past (see below). Looking forward, there is a need to contain the landscape influence of wind energy development at existing locations, to prevent the landscape becoming dominated by wind turbines. At other locations, only very occasional 'very small' or 'small' single turbines or small clusters are likely to be appropriate in this landscape.

Constraints

- This LCT is very widely visible and its open upland character is critical to the visual continuity of the Pennine backbone. The ridgeline between Crook Hill and Heald Moor is especially vulnerable to change due to its narrowness and location at the head of both the Irwell and Calder valleys.
- The sharp edges of the moorland plateaux, often marked by gritstone tors and monuments, form distinctive skylines, settings and focal points in views from the surrounding valleys and valley settlements.
- The Pennine Way and Pennine Bridleway National Trails and many other long distance paths pass through the LCT, offering fine views into the Settled Valleys (LCT F) and across the moorland plateaux beyond; these panoramas may be interrupted by nearby turbines.
- The extensive open access land and commons provide rare opportunities for large nearby urban populations to enjoy relative wildness and tranquillity – qualities that wind energy development may damage.
- There is a particular need to maintain the integrity of the core areas of relatively wild, unspoilt character and north and south of the Calder valley.
- Further south, on the edge of the Peak District National Park, conservation of the Park's special qualities, including its sense of wildness and remoteness and the flow of landscape character across and beyond its boundary, is a key concern.
- Extensive areas are covered by deep peat and by national and international nature conservation designations and there are highly valued historic and cultural heritage interests and associations, as described in the sensitivity assessment above.

Opportunities

- Some limited repowering or extension of existing (operational and consented) wind farms may be acceptable in landscape terms, in the western part of A1 around Scout Moor only, subject to detailed consideration of landscape, visual and other environmental impacts (see guidance below).
- Some of the lower, gentler and less visually exposed plateau slopes may be able to accommodate small turbines. This applies in A1 only, away from the National Park.
- Otherwise opportunities for new wind energy development in the landscape of this LCT without serious detriment to its character and qualities are likely to be very limited.

Key considerations

When siting and designing wind energy developments in this LCT, the generic guidance in **Appendix 3** and in the small turbine guidance[23] and the wind energy landscape sensitivity assessment that covers the Peak District National Park[24] should also be taken into account where relevant. In addition, specific landscape considerations within this LCT are as follows:

- Minimise any further loss of accessible areas of relatively wild, unspoilt landscape to help contain impacts on this key landscape quality.
- When repowering or extending existing wind farm sites, ensure a compact turbine layout so as to minimise impacts on landscape character and on the visual amenity of nearby settled landscapes.
- When extending existing wind farms, choose turbines of consistent height and design to existing

[23] Julie Martin Associates (2013) *Landscape Guidance for Wind Turbines up to 60m high in the South and West Pennines*, report to Blackburn with Darwen, Burnley, Calderdale, Hyndburn, Kirklees, Pendle, Rochdale and Rossendale Councils.

[24] Land Use Consultants (2009) *Landscape Sensitivity Assessment for Renewables in the Peak Sub-Region*, report to the Peak District National Park Authority and others.

turbines so as to avoid visual discordance.

- Set large turbines well back from steep moorland edges, generally by at least 400m, to minimise visibility and avoid undue intrusion on skylines as perceived from valley settlements below.
- Choose turbine locations well away from the distinctive features such as gritstone tors and monuments that characterise this LCT; also avoid locations close to the prominent knolls that occur on some of the moorland summits, for example on Scout Moor.
- If possible, site any new 'very small' or 'small' turbines so that they are backclothed against higher ground and do not break the skyline when viewed from the farmland and valleys below.
- Avoid locating turbines where they will interrupt popular panoramic views from the escarpment edge and from National Trails or other long distance paths.
- Minimise any impacts on deep peat deposits (e.g. by siting turbines on quarried or brownfield land where present) and on other natural, cultural heritage and recreation interests as described above.
- Minimise the need for new infrastructure by utilising existing wind farm access points, on-site tracks, grid connections and other services where possible. Ensure that any new grid connections are underground.
- Avoid the use of structures that have an industrial character, such as lattice towers or masts; and limit any unnecessary disruption to the simple, open character of the moorland, for example due to access track cut and fill, fencing, other enclosures, or external turbine transformers.
- Put in place measures to minimise the impacts of recreational motor vehicles, which can cause erosion and loss of tranquillity.
- In the longer term, manage wind farm sites to restore and improve the condition of moorland landscapes and habitats.

Current patterns of permitted wind energy development

As at June 2014 there were 7 operational and consented wind energy sites with a total of 56 turbines in this LCT, as well as others in surrounding areas. The patterns were as follows:

- **Rossendale A1** – Part of one very large wind farm of 26 large turbines (Scout Moor, partly in Rochdale). One small cluster of 3 large turbines (Reaps Moss) on Crook Hill to Heald Moor ridge. Total of 5 small turbines (including a small wind farm of 4 turbines at Scar End Farm) just to the west within LCT D Moorland Fringes/ Upland Pastures near Bacup (D4) – seen in conjunction with Reaps Moss and Todmorden Moor wind farms (the latter in Calderdale).
- **Burnley A1** – One medium wind farm of 8 large turbines (repowered Coal Clough) on north side of Cliviger Gorge. Seen together with several very small turbines just to the east in Calderdale within LCT D Moorland Fringes/ Upland Pastures (D1).
- **Calderdale A1** – One medium wind farm of 9 large turbines (repowered Ovenden Moor) north-west of Halifax. One small wind farm of 5 large turbines (Todmorden Moor) south of Cliviger Gorge and a large wind farm of 12 large turbines (Crook Hill, partly in Rochdale) – both of these sites located on Crook Hill to Heald Moor ridge. One single very small turbine on moorland edge west of Cragg Vale. Numerous very small/ small turbines in LCT D Moorland Fringes/ Upland Pastures (D2) and LCT K (Coalfield Edge Urban Fringe Farmland) close by to east.
- **Kirklees A2** – None within the LCT but many very small and small turbines nearby in LCT D Moorland Fringe/ Upland Pastures, especially close to the M62 and south and east of Holmfirth (D7 and D9 respectively).
- **Barnsley A2** – None within the LCT but many very small and small turbines, as well as three small clusters of large turbines (Hazlehead, Spicer Hill, Blackstone Edge) and a large wind farm of small turbines (Royd Moor) nearby in LCT D Moorland Fringes/ Upland Pastures west of Penistone (D7 and D9).

Follow web link to database and web map to see the latest position.

Cumulative landscape and visual issues arising

Key cumulative issues arising in this LCT are:

- The considerable landscape and visual influence exerted by wind farms in the western part of the LCT, particularly around Scout Moor.

- The fact that many of the existing wind farms, although clearly separate developments, are sited relatively close together (typically 2-4km apart along the Crook Hill to Heald Moor ridgeline). This means that they do not present a coherent image and severely disrupt the continuity of the ridgeline.
- The cumulative impact of permitted wind energy development on views from, and the settings of, surrounding valleys and valley settlements (including a number of Conservation Areas), especially in the upper Irwell and upper Calder valleys (including Cliviger Gorge).
- Cumulative effects on recreational enjoyment of National Trails, other long distance paths, open access land and commons – including diminution and loss of remoteness and relative wildness – especially affecting Scout Moor and the Crook Hill to Heald Moor ridge.
- Siting of turbines in adjacent LCTs but close to larger turbines, notably in D4 near Bacup, D1 on the boundary of Burnley and Calderdale, K1 north of Halifax, and D7 and D9 on the boundary of Kirklees and Barnsley. Here the juxtaposition of turbines of very different sizes may be distracting and/or tend to heighten the perceived scale of the larger turbines.

These existing cumulative landscape and visual issues may limit wind energy development in the LCT.

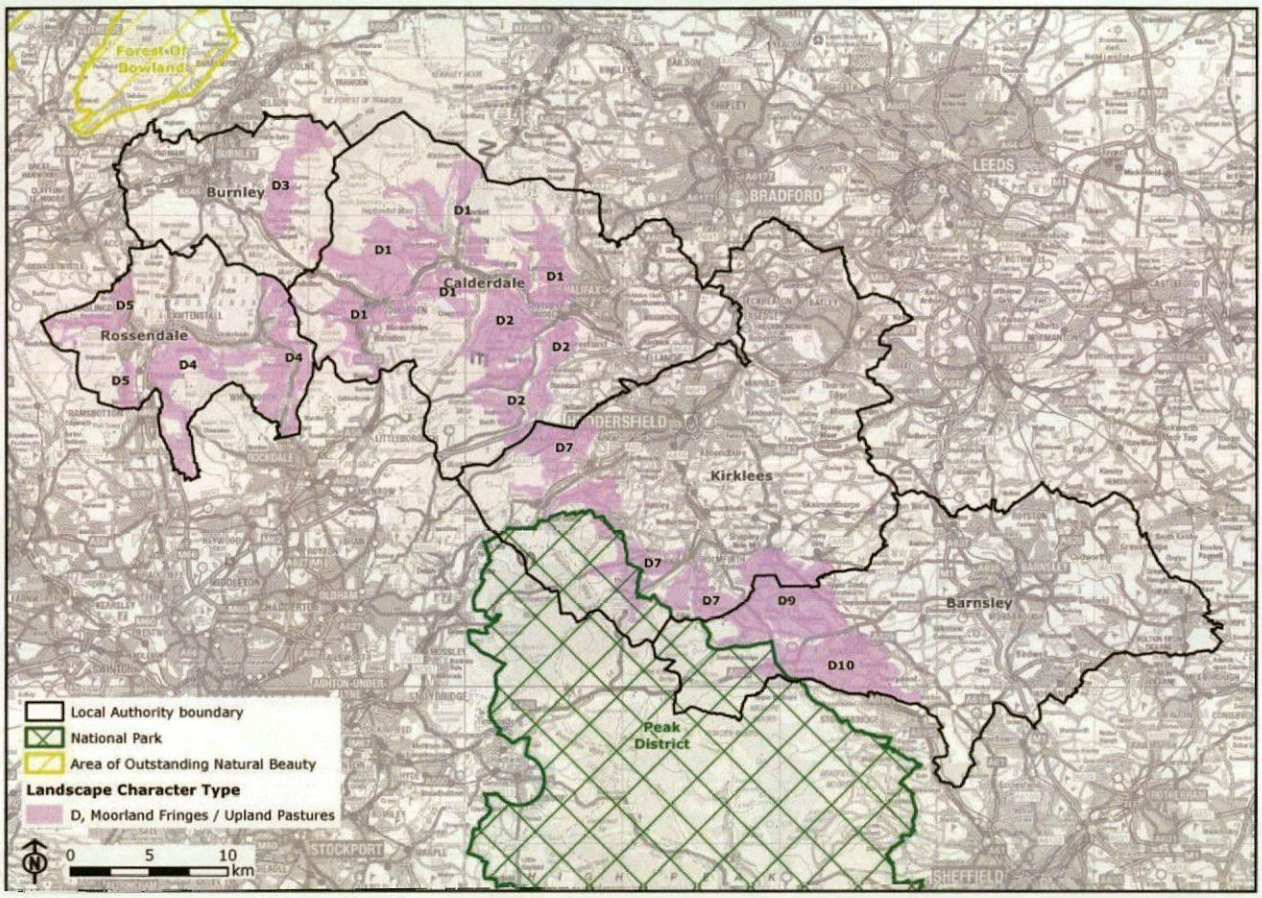
Guidance for siting multiple developments within this LCT

Within this LCT particular care will need to be taken to ensure that:

- New wind energy development does not extend a wind energy influence over a wider area than at present or visually 'connect' existing wind energy developments in the same or adjoining LCTs.
- In repowering existing wind energy sites or extending the existing Scout Moor wind farm, the surrounding landscape does not become 'a wind farm landscape' i.e. a landscape in which the influence of wind energy development dominates landscape character, effectively creating a new character.
- There is no further disruption to the continuity of the Crook Hill to Heald Moor ridgeline.
- Wind energy development presents a clear and coherent image that does not visually dominate or overwhelm a specific landform feature, skyline or settlement, especially in the upper Irwell valley and Calder valleys (F1, F2 and G3) adjacent to A1.
- Any wind energy development at new locations in the landscape is generally limited to very occasional 'very small' or 'small' single turbines of consistent height and design.
- Any new 'small' or 'very small' turbines are located well away from large turbines, so that the different turbine size classes are not seen together.

LCT D: Moorland Fringes / Upland Pastures

LCT Location Map



Component Landscape Character Areas

D1: Calder Terrace
D2: Blackwood Common
D3: Forest of Trawden - Worsthorne Moor Fringe
D4: Scout Moor & Shore Moor Fringe
D5: Hameldon, Oswaldtwistle & Darwen Moor Fringe
D7: Peak Fringe Upland Pastures
D9: Low Common, Royd Moor & Whitley Common
D10: Penistone Upland Pastures

Local authorities where LCT is present

Rossendale, Burnley, Calderdale, Kirklees, Barnsley

Landscape character summary

The enclosed landscape of the moorland fringe and upland pastures are typically found between 250 and 300 metres altitude on the broad terrace flanking some of the main valleys and slopes fringing the open moors. These elevated areas have strong moorland connections both visually and economically, with the moors forming an integral part of the upland farming system. The land is divided into a patchwork of small fields enclosed by gritstone walls with areas of larger intake relating to later moorland enclosures. The land remains almost entirely grazing pasture and the remaining unimproved areas of in-bye hay meadows and damp pastures are extremely valuable for nature conservation and support a rich and distinctive flora and important bird species including twite, curlew, lapwing and snipe. Other enclosures are intensively farmed and the bright green improved sward forms a sharp distinction with the more subdued tones of the moors. Much of the moorland fringe is in a state of transition; with some areas being farmed intensively and others where farming is in decline and a variety of other, non-agricultural land uses are becoming common. Both can have a significant visual impact and this landscape type particularly sensitive and vulnerable to change. The area nevertheless retains an 'upland' character and sense of remoteness. Settlement comprises isolated scattered farmhouses and their associated buildings with occasional clusters of buildings and short terraces of weavers' cottages. There is a general absence of trees except where the summits of the steep wooded cloughs penetrate these upland areas and occasionally tree clumps around farmsteads. The whole area has an open character often with long views out across the valleys and, on the edges of the area, across the extensive urban conurbations beyond.

Key environmental features

- Open, 'upland' landscape character created by the altitude, absence of trees and long views, often with a sense of remoteness and isolation.
- A characteristic patchwork of upland pastures including small irregular fields and larger rectangular fields representing a later phase of moorland enclosure.
- A dense network of gritstone walls creates the field enclosures. The stone walls provide shelter and habitat for wildlife and are also of considerable historical/ cultural interest.
- Remnant unimproved upland pastures including colourful species-rich hay meadows and damp pastures are an integral part of the mosaic of upland habitats and are of great importance for nature conservation. Flushed meadows are of special interest.
- Numerous paved packhorse routes linking with an extensive public rights of way network, providing not only distinctive features but evidence of the historic strategic importance of the moorland fringes.
- Dispersed settlement pattern comprising scattered farmsteads (sometimes in fairly close proximity) and occasional short terraces of houses.
- A network of narrow winding lanes connects the farmsteads and settlements. Stone walls without grass verges often bound the lanes.
- Distinctive vernacular architecture dominated by the millstone grit building stone and including laithe houses and weavers' cottages.
- Frequent long views across the intersecting valleys and/or out over the urban conurbations that surround the South Pennines uplands.

LCT D: Landscape Sensitivity to Wind Energy Development

Criteria	Lower sensitivity ▪▪▪▪▪▪▪▶ Higher sensitivity
Scale	H These landscapes are relatively small in scale. They are transitional, contained uphill by the high moorland plateaux and downhill by the settled valleys and rural fringes, so their horizontal extent is often quite limited (typically 2-3km). In addition, the subdivision of the land into a patchwork of small fields and larger intakes enclosed by gritstone walls heightens sensitivity. Features which bring a human scale to the landscape include the walls, scattered farmsteads and cottages, occasional tree clumps and cloughs on hill summits.
Landform	M This LCT occupies the high land fringing the main moorland blocks at between 250 and 300m AOD. It includes the immediate slopes to either side of the main upland ridge as well as the terraces that occur above the main South Pennine valleys such as the Irwell, Calder and Colne. The distinctive terraced landform is often relatively flat, steepening both above and below. These marked landform changes mean that it is of at least moderate sensitivity.
Landcover	H The land is almost entirely grazed pasture, most farms also having rights for summer grazing on the moorland above. The lower gentler slopes comprise older enclosures distinguished by their small size and irregular patterns; while higher and steeper slopes tend to have larger more regular parliamentary enclosures and intake land. The strong, often ancient, enclosure patterns and networks of narrow winding lanes are very vulnerable to physical disturbance.
Built environment	M Much of the area has an established historic built character and is of high sensitivity in this respect. Locally certain areas are affected by other influences e.g. quarrying on the moorland edges above the Irwell valley; urban fringe uses such as riding stables; and commercial development on the south-western outskirts of Huddersfield. The landscape is also affected in parts e.g. around Bacup by transmission lines, routed to avoid the open moorland tops.
Skylines and settings	M These landscapes often form an immediate skyline when seen at close range from the valley settlements below and in this context will be highly sensitive. Where slopes are gentler and views slightly longer they may not always form part of the skyline but nonetheless provide the foreground and setting to the high moorland plateaux and are sensitive in this respect; their green patchwork of fields contrasting with the more subdued tones of the moors above.
Visibility and views	H At the main upland edges, e.g. south-west of Huddersfield, these landscapes are widely visible over long distances. Where these landscapes occur within the upland area, e.g. near Todmorden, visibility may be somewhat more limited. The landscape generally has an open character often with long views out across the valleys; and views may be spectacular where walking routes traverse the valley sides, e.g. north and south of the Calder valley (LCA D1). Sensitivity to this criterion is therefore assessed as high.
Landscape quality (condition)	M Landscape quality is mainly fairly high, although locally the landscape may be affected by farm decline and abandonment and by the introduction of non-agricultural uses, particularly in the western parts of the LCT, where farming is more marginal and urban fringe influences stronger.
Scenic quality	H The high scenic quality of the South Pennine Moors has long been recognised. The southern section of this LCT around Huddersfield and Holmfirth directly abuts the Peak District National Park (and the LCT continues into the protected landscape). Most of the LCT, apart from areas within Barnsley Borough, lies within the part of the South Pennines that was identified in 1947 by the National Parks Committee as a potential AONB. Today, Pennine Prospects promotes the protection and regeneration of these landscapes, which are valued regionally as part of the non-statutory South Pennines Heritage Area. The majority of the LCT in Calderdale also falls within the Calderdale Special Landscape Area (defined under Policy NE12 of the Replacement Calderdale UDP (2006)) which is valued for its very high

Criteria	Lower sensitivity ▪▪▪▪▪▪▪▶ Higher sensitivity
	visual quality and impressive landscape. In many places, this landscape is visible and accessible from urban areas and forms an important part of the Southern Pennines, linking the Peak District and Yorkshire Dales National Parks.
Wildness and tranquillity	Much of the area retains a relatively wild and tranquil upland character, due to its altitude, dispersed settlement pattern, general absence of modern development and close associations with open, remote moorland above (LCT A). Perceptions of wildness and tranquillity are eroded locally in those parts of the LCT that lie in close proximity to, or have views dominated by, nearby urban areas. In some localised areas the landscape is also affected by influences such as former mining activity, quarrying, transmission lines and urban fringe land uses.
Natural and cultural heritage features	There is extensive deep peat, and remaining unimproved areas of in-bye hay meadows and damp pastures are very valuable for nature conservation, supporting a rich and distinctive flora and fauna and important bird species including twite, curlew, lapwing and snipe. Some upper edges of the LCT are within the South Pennine Moors SSSI, SAC and SPA and there are SSSIs at Broadhead Clough (Calderdale) and Spring Meadows, Alderman's Head and Cow Croft Meadows (Barnsley). Numerous scheduled features relating to ancient settlement and religion are found across the area (e.g. prehistoric settlement remains above Denby Dale, cairns on Ringstone Edge Moor and Romano-British farmsteads near Worsthorne). In addition, Conservation Areas (e.g. Lumbutts and Mankinholes, Warley, Millbank and Cottonstones, Penistone and Ingbirchworth) underline the historic importance of the settlements on the fringes of the moor, displaying fine vernacular architecture including laithe houses and weavers' cottages of Millstone Grit.
Cultural associations	The terraces provided the route for many ancient trackways including much of the Long Causeway from Burnley to Halifax and other routes for the transport of lime and salt as well as later packhorse ways associated with the expansion of the woollen trade. This landscape, in conjunction with that of the high moorland plateaux, was an inspiration for the poetry of the former Poet Laureate Ted Hughes. The Brontë Way passes through the northern fringes of Worsthorne Moor, commemorating the wider area's strong associations with the famous writers from Haworth. The LCT is therefore of high sensitivity in this regard.
Amenity and recreation	Like the High Moorland Plateaux (LCT A), this LCT is of considerable recreational value to nearby urban populations, its many panoramic views offering an outstanding landscape experience. The extensive rights of way network includes the route of much of the Pennine Bridleway, dramatic sections of the Pennine Way where it crosses the Calder valley, and other long distance recreational routes, including the Burnley Way, Todmorden Centenary Way, Calderdale Way, Brontë Way, Kirklees Way and Barnsley Boundary Walk. Popular recreational destinations include Scout Dike Reservoir near Penistone and part of the National Trust's Holcombe Moor estate above Ramsbottom.
Discussion on landscape sensitivity[31]	The aspects of this LCT that increase sensitivity to wind energy development include its close relationship to the adjoining open moorland plateaux, as well as its small scale, complex landcover patterns with human-scale features, wide visibility including from settlements, high scenic quality, valued natural and cultural heritage features, and nationally or regionally important recreational interests. Land of highest sensitivity generally occurs where the moorland fringes are associated with the main South Pennine ridge, the Calder Valley and the Peak District National Park. Land which borders or forms an immediate setting to the Peak District National Park would be particularly sensitive to the development of wind turbines, which could affect its special qualities (including its sense of wildness and remoteness and the flow of landscape character across and beyond its boundary). This land would be highly sensitive to all scales of wind turbine development in locations on the fringes of the protected landscape. Locally there are areas of lower sensitivity where the landscape is somewhat larger in scale (more expansive, with larger enclosures) than elsewhere or is already affected by influences such as quarrying e.g. south of Lane Head close to the boundary between Kirklees and Barnsley (LCAs D9 and D10).

[31] Note that this refers to inherent landscape sensitivity i.e. the assessment has not been affected by any existing development.

Sensitivity to different turbine heights	**Very Small (≤24m)**	**M**
	Small (25-59m)	**M-H**
	Medium (60-89m)	**H**
	Large (90-129m)	**H**
	Very large (≥130m)	**H**
	The landscape's tranquil character, strong associations with the open moor, elevated rural skylines which form a setting to valley settlements, many human-scale features (walls, trees, farmsteads) and its function as a setting to the Peak District National Park to the south mean that it is generally highly sensitive to 'medium', 'large' and 'very large' wind turbines. Locations immediately adjacent to the National Park are likely to be highly sensitive to the development of turbines of any height (although this will need to be judged on a case by case basis).	
Commentary on turbine group size • Single turbine • Small cluster (2-3 turbines) • Small wind farm (4-5 turbines) • Medium wind farm (6-10 turbines) • Large wind farm (11-20 turbines) • Very large wind farm (≥21 turbines)	The lower slopes of this LCT, defined by small-scale historic enclosures, are highly sensitive to any developments larger than 'single turbines'. Larger scale, regular enclosures on higher land may be less sensitive to groups of turbines, but the many sensitive landscape attributes mean that even here the landscape will remain highly sensitive to 'large wind farm' and 'very large wind farm' group sizes.	

LCT D: Guidance for Wind Energy Development

Guidance for future development

This LCT is highly sensitive to larger scale wind energy development. In general it is suited only to scattered 'very small' (or occasionally small) single turbines that will relate well to the many human scale features that characterise its landscape. Only in exceptional cases may this LCT be able to accommodate larger turbines or groups of turbines.

Constraints

- This complex, small scale and highly scenic LCT forms a narrow band fringing the higher ground of the South Pennine Moors and the Peak District National Park and offers very limited space for any significant wind energy development.
- The LCT provides the foreground to views from the High Moorland Plateaux (LCT A) and many national and recreational routes.
- It also acts as the landscape and visual setting for the Settled Valleys (LCT F) and the Wooded Rural Valleys (LCT G) below, which often include historic mill towns and Conservation Areas.
- Protection of these views and settings – including the northern setting of the National Park – are key constraints on wind energy development within the LCT.
- Other constraints locally include the many natural and cultural heritage features, cultural associations and recreational interests outlined in the sensitivity assessment above.

Opportunities

- Small scale wind energy development that is visually associated with settlements or farms, and evenly spread across the landscape rather than concentrated in one particular area, will be most suited to this landscape.
- Locally, where the landscape is somewhat larger in scale (more expansive, with larger enclosures and sparser settlement) there may very occasionally be scope for small turbine groups or single larger turbines, subject to consideration of cumulative impacts. This applies in D9 and D10 only.

Key considerations

When siting and designing wind energy developments in this LCT, the generic guidance in **Appendix 3** and in the small turbine guidance[32] and the wind energy landscape sensitivity assessment that covers the Peak District National Park[33] should also be taken into account where relevant. In addition, specific landscape considerations within this LCT are as follows:

- Avoid siting turbines within key views, especially those to and from the main South Pennine ridge, the Calder valley and the Peak District National Park.
- Avoid locations close to the lower edge of the moorland fringe terrace, because such locations are very prominent from the settled valleys below and conflict with the strong horizontal form of the terrace edge.
- Where development is located just below the open moorland above (LCTs A and B), seek to backcloth the turbine(s) against the hillsides above and consider the use of a darker turbine colour.
- Give special consideration to the effects of turbines on the approaches to and settings of historic buildings, villages and settlements.
- Look to retain the landscape's relatively tranquil, remote, rural character, locally valued due to the close proximity of urban development.
- Minimise the impacts of access tracks on field enclosure patterns and carefully restore any damage.
- Where larger turbines are proposed, ensure that they do not overwhelm the human scale of the landscape features, including farmsteads, trees and stone walls.

[32] Julie Martin Associates (2013) *Landscape Guidance for Wind Turbines up to 60m high in the South and West Pennines*, report to Blackburn with Darwen, Burnley, Calderdale, Hyndburn, Kirklees, Pendle, Rochdale and Rossendale Councils.

[33] Land Use Consultants (2009) *Landscape Sensitivity Assessment for Renewables in the Peak Sub-Region*, report to the Peak District National Park Authority and others.

Current patterns of permitted wind energy development

As at June 2014 there were 61 operational and consented wind energy sites with a total of 95 turbines in this LCT, as well as others in surrounding areas. The patterns were as follows:

- **Rossendale D4 and D5** – Scattered single very small or small turbines plus, in area east of Bacup, a total of 5 small turbines (including a small wind farm of 4 at Scar End Farm) seen in very close conjunction with Reaps Moss and Todmorden Moor wind farms (the latter in Calderdale).
- **Burnley D1 and D3** – Three very small single turbines in northern part of D3, seen together with numerous small turbines just to the west in Calderdale within LCT E Rural Fringes (E4). Repowered Coal Clough wind farm within LCT A High Moorland Plateaux abuts southern end of D3.
- **Calderdale D1 and D2** – Single turbines and small clusters of very small and occasional small turbines. Concentrations in several areas, notably in west near Coal Clough (D1) where seen together with large turbines; and around Ripponden (D2) where there are cumulative effects on landscape character.
- **Kirklees D7 and D9** – Concentrations of very small and small turbines (single turbines and small clusters) close to the M62 and south and east of Holmfirth (D7 and D9), also extending south-eastwards into Barnsley. Cumulative effects on landscape character in these areas.
- **Barnsley D7, D9 and D10** – Many very small and small turbines south of Holmfirth (D7) and in scattered locations on the eastern fringes of D9 and D10. Also three small groups of large turbines (Hazlehead, Spicer Hill, Blackstone Edge) and a large wind farm of small turbines (Royd Moor). Complex cumulative effects due to range of turbine heights and designs in close proximity.

Follow web link to database and web map to see the latest position.

Cumulative landscape and visual issues arising

Key cumulative issues arising in this LCT are:

- Siting of small turbine classes very close to larger turbines, notably in D4 near Bacup, D1 on the boundary of Burnley and Calderdale, and D9 on the boundary of Kirklees and Barnsley. Here the juxtaposition of turbines of different heights and designs may be distracting and/or tends to heighten the perceived scale of the larger turbines.
- Concentrations of smaller turbines, notably in D1 near Todmorden, D2 west of Ripponden, D7 south of the M62 and near Holmfirth, and D9 on the boundary of Kirklees and Barnsley. In these areas turbines are collectively becoming a defining influence on the landscape and there are frequent variations in turbine height and design.

In the locations indicated, these existing cumulative landscape and visual issues may be a constraint on further wind energy development.

Guidance for siting multiple developments within this LCT

Multiple wind energy developments in this LCT should:

- Be similar in terms of siting, layout, form and relationship to key landscape characteristics, so as to present a simple image that relates clearly to landscape character[34] – for example through a clear association of 'very small' turbines with the regular clusters of farm buildings that occur in this LCT.
- When locating 'very small ' and 'small' turbines, choose sites that are well away from medium or large turbines (in the same or adjoining LCTs), so that the different size classes are not seen together, and avoid strong concentrations of turbines in a given area.
- Also avoid close juxtaposition of different small turbine designs and heights, aiming instead for a consistent height and design in a given area.
- Identify and take account of possible cross-boundary cumulative impacts associated with small turbines in adjoining local authorities inside and outside the study area.

[34] See Scottish Natural Heritage (2014) *Siting and Designing Wind Farms in the Landscape*.