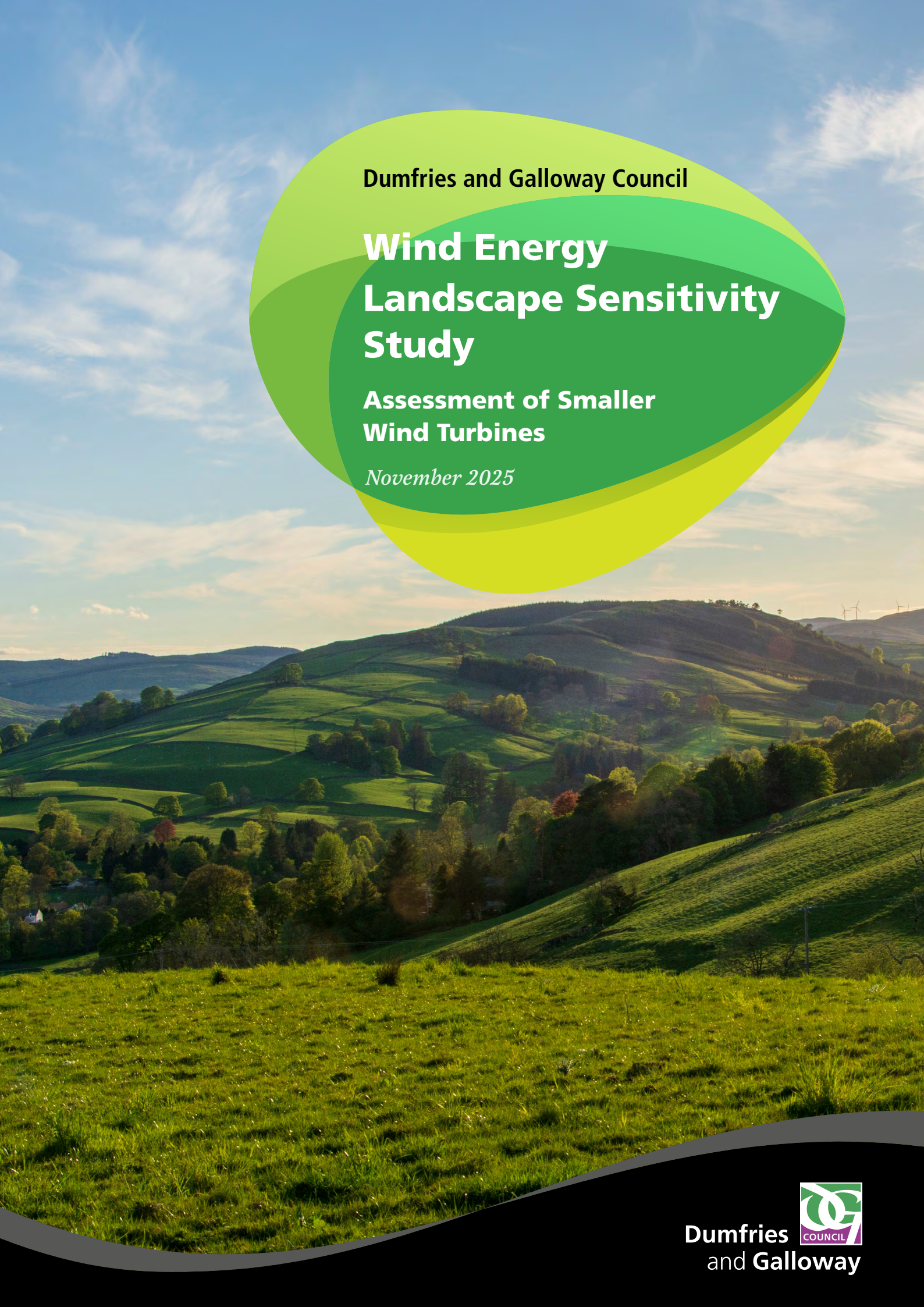


Dumfries and Galloway Council

Wind Energy Landscape Sensitivity Study

Assessment of Smaller Wind Turbines

November 2025

Dumfries and Galloway

CONTENTS

1 INTRODUCTION

1.1 Sensitivity Assessment Methodology

This report assesses landscape and visual sensitivity to smaller turbines <80m high only. The assessment focuses on more settled landscapes where this size of wind turbine is more likely to be considered for individual use, for example, on a farm or associated with a small rural business. The methodology used for the sensitivity assessment is set out in Section A, Chapter 2 of the Main Report which considers larger wind turbines >80m high. In summary, landscape and visual sensitivity is assessed on the basis of Assessment Units defined across Dumfries and Galloway. Key sensitivity criteria such as landform, landcover, views and visibility and the value associated with each Assessment Unit are considered in relation to different sizes of wind turbine.

1.2 The format of the report

An introduction to each Assessment Unit is set out in the sensitivity assessments that follow. This briefly describes the location of the Assessment Unit and outlines operational and consented wind energy developments located both within the subject Assessment Unit and sited in the surrounding area (and clearly visible from the Assessment Unit being assessed).

Figure A shows the Assessment Units considered in this report which focuses on smaller turbines <80m high. Two height bands of wind turbines are considered in this assessment, small and medium. Table 1 below shows which size of turbine is considered in the detailed sensitivity assessment tables prepared for each Assessment Unit. While turbines 50-80m are not considered in the detailed sensitivity assessment tables prepared for smaller valleys and glens, summary guidance is provided on sensitivity to these larger turbines within these landscapes.

Table 1: Detailed sensitivity assessment tables

Assessment Unit	**Detailed sensitivity assessment**	
	Medium turbines 50-80m	*Small turbines 30-50m*
1: Peninsulas	√	√
2: Peninsula with Gorsey Knolls	√	√
3: Coastal Flats	√	√
4: Narrow Valleys	*x*	√
5. Pastoral Valleys	*x*	√
6: Lower and Middle Dales	√	√
7: Dale with Hills	√	√
8: Flooded Valley	√	√
9: Upper Dales	√	√
10: Upland Glens	*x*	√
12: Moss, Moor and Drumlin Pasture	√	√
13: Drumlin Pastures	√	√
14: Coastal/Flow Plateau	√	√
15: Upland Fringe	√	√
19: Foothills	√	√
23: Coastal Granite Uplands	√	√

1.3 Interpreting the overall sensitivity ratings

In terms of the guidance provided in the study, where an Assessment Unit is identified as being of ***High*** sensitivity rating overall for any typology, this means that it is likely that the size of wind turbine cannot be accommodated without significant adverse landscape and/or visual effects arising across a wide range of key characteristics.

Assessment Units found to be of ***High-medium*** sensitivity will have a number of significant constraints to wind turbine development. While some characteristics (usually found in limited parts of these landscapes) may relate better to such development, significant adverse effects are likely to occur on other key landscape and visual characteristics.

Where a ***Medium*** sensitivity is identified, development is likely to be accommodated with fewer significant impacts on key sensitivities. These landscapes are not without constraints however and developers should be required to take note of these in the siting and design of proposals. A ***Low-medium*** sensitivity indicates generally limited sensitivity and there would be opportunities to locate development in most locations whilst minimising adverse landscape and visual effects. A ***Low*** sensitivity landscape is one where the development typology relates well to key landscape characteristics and where change is able to be accommodated without significant adverse impacts arising on landscape character or visual amenity.

Figures B and C show sensitivity of each of the Assessment Units considered in this study to the small and medium wind turbine typology.

1.3.1 *Consideration of turbine height*

The study considers the sensitivity of Assessment Units to a limited number of pre-determined turbine typologies, principally based on height. The smaller typologies considered in this report are assumed to comprise single or small groups (<5 in number) of wind turbines. Individual applications need to be considered on a case-by-case basis with some flexibility on turbine heights being applied within close range of the upper height threshold used in the assessment. Where turbines are slightly above the height threshold or proposed within more sensitive landscapes, they should be subject to careful and thorough consideration.

1.3.2 *The need for more detailed appraisal of specific proposals*

Caution is needed in interpreting the sensitivity findings set out in the sensitivity tables as these represent an average across broad Assessment Units and considerable variation can occur across these landscapes. The assessment identifies constraints in analysis and at a strategic scale and applicants may need to demonstrate how they have dealt with potential effects on the constraints identified in the sensitivity assessment at a more detailed level.

1.4 Supplementary siting and design guidance for smaller wind turbines

Supplementary siting and design guidance for wind turbines <50m high is included at the end of this report.

Assessment Unit	No.
Peninsula	1
Peninsula with Gorsey Knolls	2
Coastal Flats	3
Narrow Valleys	4
Pastoral Valleys	5
Lower and Middle Dale	6
Dale with Hills	7
Flooded Valley	8
Upper Dale	9
Upland Glens	10
Moss, Moor and Drumlin Pasture	12
Drumlin Pastures	13
Coastal/Flow Plateau	14
Upland Fringe	15
Foothills	19
Coastal Granite Uplands	23

Dumfries and Galloway Wind Energy Landscape Sensitivity Study

Figure A: Assessment Units considered in detail in the Smaller Wind Turbine Study

Legend

- Dumfries and Galloway Region
- Assessment Units considered in the Smaller Wind Turbine Study
- Assessment Unit

0 5 10 Kilometers

N

Dumfries and Galloway Wind Energy Landscape Sensitivity Study

Figure B: Sensitivity to Medium Wind Turbines 50-80m high

Legend

- Dumfries and Galloway Region
- High Sensitivity
- High-medium Sensitivity
- Assessment Unit

0 5 10 Kilometers

N

Dumfries and Galloway Wind Energy Landscape Sensitivity Study

Figure C: Sensitivity to Small Wind Turbines 30-50m high

Legend

- Dumfries and Galloway Region
- High Sensitivity
- High-medium Sensitivity
- Medium Sensitivity
- Assessment Unit

0 5 10 Kilometers

N

2 ASSESSMENT UNIT 1: PENINSULAS

2.1 Introduction

The *Peninsula* Assessment Unit comprises the coastal promontories of the *Rhins*, *Machars* and *Dundrennan* found in the western half of the region. Each of these three areas are considered separately in the sensitivity assessment which follows due principally to the differences in landform, the degree of openness and scale between them.

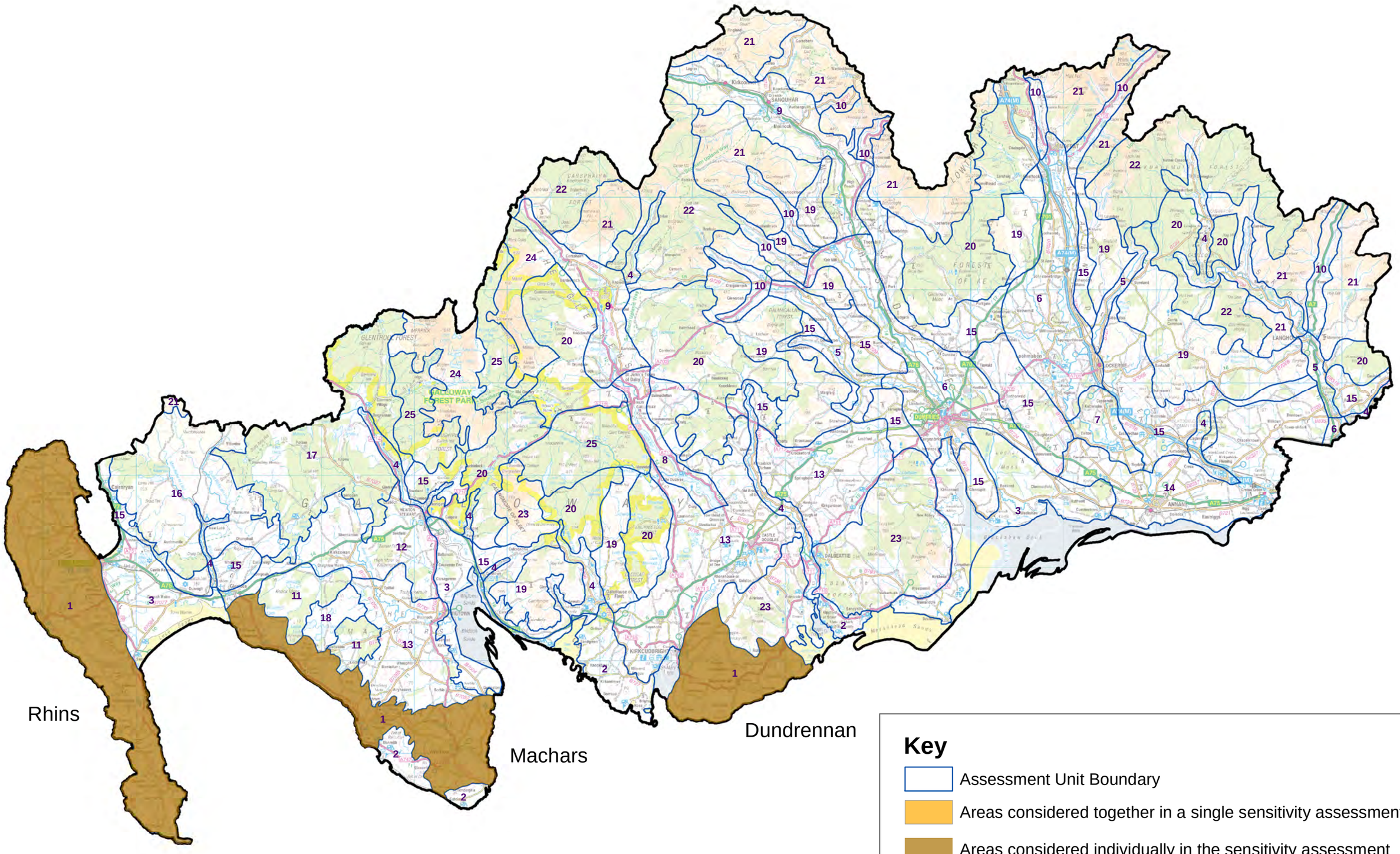
2.1.1 *Operational/consented wind farms*

The operational North Rhins wind farm is located in the *Rhins* area. This development comprises 11 turbines, 100m high to blade tip. A number of smaller wind turbines below 80m high have been erected on farmland within the *Rhins* and *Machars* areas. Some of these comprise small Proven wind turbines, some of which are defunct.

2.1.2 *Cultural heritage overview*

This Assessment Unit is characterised by post-improvement (19th – 20th century) fields and farming, with a number of designed landscapes as well as relict pre-improvement (pre-19th century) land-use evidence with their remains of buildings and distinct field shapes north of Portpatrick (Rhins), around Mochrum Fell (Machars) and Townhead (Dundrennan). In addition, there are some discrete areas of pre-medieval land-use surviving particularly in the Rhins. As well as the ASA of Changue Fell there are numerous archaeological sites of outstanding significance, some of which are promoted to the public.

Assessment Unit Key Map - 1. Peninsulas



2.2 Rhins area

2.2.1 *Description*

The Rhins peninsula has a sheltered interior with the sea present nearby but not always easy to access due to the steepness of the coast. The diverse rugged landform and often strong sense of wildness associated with much of the coast increases sensitivity to all wind turbines. The rolling interior of the peninsula varies in its scale and degree of openness and although it is generally less sensitive than the coastal edge, the rolling landform, small fields and consistent pattern of compact farms and other small buildings, increases sensitivity to larger wind turbines. Some areas with a more upland character of open moorland are present although these are relatively limited in extent. The North Rhins wind farm occupies one of the more extensive upland areas while higher and more open hills to the south form part of the highly sensitive rugged and wild Mull of Galloway. Visibility from roads and settlement is often restricted by the rolling landform. There are distant views to the Rhins from the Machars and from the settled coastal plain close to Stranraer. Fine panoramic views from the Mull of Galloway and along the Rhins coast from beaches and footpaths increase visual sensitivity. Much of the Rhins is covered by a RSA and the presence of other cultural heritage and nature conservation designations, together with the popularity of the coast for recreation, increases the value associated with this landscape.

2.2.2 *Cumulative issues*

The operational wind farm of North Rhins is located in a broader section of the Rhins peninsula at Broad Moor. This development has a limited effect on views from roads and settlement on the Rhins due to the rolling landform and occasional tree cover.

While there are some localised cumulative effects associated with operational smaller wind turbines associated with farms on the Rhins peninsula, the generally consistent pattern, size and number of turbines and the screening provided by the rolling landform, results in the landscape and visual effects of these developments not being widespread.

Key potential cumulative effects that could arise with the addition of further smaller turbines include:

- Small turbines sited close to the North Rhins wind farm (and any other larger wind turbines/wind farm) which could together present a visually confusing image, for example on the skyline of the Rhins peninsula seen from the A77.
- Variations in the type and size of single and small groups of small turbines proposed within the Rhins which could result in visual confusion if concentrated within a small area.
- Sequential visual impacts experienced when travelling on coast roads, ferries or coastal paths.

2.2.3 *Key constraints*

- The increasing narrowness of the peninsula to the south which increases sensitivity to larger turbines, reducing the space or setting around developments necessary to ensure they do not dominate more settled smaller scale landscapes.

- The strong qualities of remoteness and naturalness associated with the northern, western and southern coasts of the Rhins peninsula.
- The rugged landform and wider seascape context of the Mull of Galloway and dramatic views from elevated roads, footpaths (particularly from the Rhins Coastal Path) and from the coast to the Mull of Galloway and the Isle of Man.
- More complex areas of small-scale drumlins, policy woodlands and small enclosed fields.
- Archaeological features and distinctive small scale domestic buildings particularly prominent around the coast and in the south of the peninsula.
- Concentrations of smaller wind turbines in some limited parts of the Rhins which have resulted in cumulative impacts particularly where turbine designs vary.

2.2.4 *Opportunities*

- An elevated open and more expansive upland area within the broader central section of the peninsula (set back from highly sensitive coasts) where a small number of additional larger turbines could potentially be accommodated.
- Gentler hill slopes set well away from more sensitive coasts, policy landscapes and settlements where single and small groups of turbines below 50m high could be accommodated to minimise visual intrusion.

2.2.5 *Sensitivity and guidance*

The complex landform of parts of the Rhins, the strong qualities of remoteness and naturalness associated with rugged coasts and the diverse landcover pattern present in some areas increases susceptibility to larger wind turbines. The value of this landscape is increased by the RSA designation which covers coastal areas, the presence of many cultural heritage features and the attraction of the Rhins for recreation and visitors. Sensitivity is concluded to be ***High*** for turbines >80m, ***High-medium*** for turbines 50-80m and ***Medium*** to turbines <50m.

All turbines should avoid the more isolated and unmodified coastal areas with perceived qualities of wildness and should be sited away from cliff edges, coastal promontories and areas with a complex pattern of small drumlins. Smaller turbines <50m high should be associated with gentler hill slopes away from more sensitive coastal areas and avoiding impact on policy landscapes and small settlements. Turbines <30m would have a better scale relationship with buildings, woodland and field pattern in the more settled parts of the Rhins.

AU 1: Peninsula - Rhins area - Detailed sensitivity assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Landscape scale The Rhins combines rolling low hills and ridges with small rounded, often interlocking hills generally below 100m elevation, and narrow valleys reducing landscape scale. Higher, broader hills between 160-182m occasionally occur and these have a larger scale and more open character. Landscape scale is reduced along the coast where the raised beaches, sea cliffs and rounded hill summits alternate with shallow valleys creating a more complex but small-scale landscape although the presence of the sea increases scale.	Single or small clusters of the medium scale turbines could relate to broader more open hill slopes where the scale of the landscape is increased, although scope to accommodate turbines towards the upper height band of this typology is very limited. Turbines of this size would dominate the smaller scale rolling drumlins, valleys and coastal features such as cliffs and promontories and the narrow southern tip of the Rhins. ***Susceptibility rating: High***	This typology could still dominate the smaller scale areas, such as interlocking rounded drumlins and the smaller valleys. Turbines sited on the upper rim of the coastal edge could dominate the vertical scale of the coastal landscapes and the narrow southern tip of the peninsula. Within broader landscapes with elongated ridgelines, the scale and openness is more likely to be able to accommodate this scale of development. ***Susceptibility rating: Medium***
Landform The rolling landform includes areas of small drumlins but is interspersed with occasional higher and broader upland areas. Cliff faces and steep hill slopes contain the western and southern coasts, with long rocky shelves reaching into the sea on the northern coast. A ridge and dip slope separates the NW coast from the rolling interior of the peninsula. The southern end of the peninsula rises to form longer hills and ridges extending to the dramatic cliffs of the Mull of Galloway. Small sandy bays are cut into the west coast with more extensive sandy beaches edging the gradual slopes of the east coast.	The smaller scale and more complex form of drumlins and low ridges would be sensitive to this typology. Turbines of this size would also dominate the narrow, elongated ridges of the southern Rhins and the rugged hills and cliffs along the south-western coast of the peninsula. It would detract from the diversity of coastal features, including the dramatic sculpted form of the Mull of Galloway. Broader hill slopes and uplands with a simpler landform would be less sensitive, although these are limited in area. ***Susceptibility rating High***	The complex drumlin pattern could be highly sensitive to this typology which unless well located could detract from the interlocking, rounded shapes and complex but unified pattern of the drumlins. This typology could also detract from the narrow, elongated ridges of the southern Rhins and the dramatic sculpted forms of the Mull of Galloway. The diversity of more complex areas of coastal topography, and the abrupt edges of the cliff tops and skylines overlooking the coast are also sensitive. Broader hill slopes and long ridge lines, and the more open and elevated areas of landscape which alternate with the rounded hills would be less sensitive. ***Susceptibility rating: Medium***
Landcover This is a generally open landscape with woodland restricted to narrow valleys inland from the coast and the more extensive areas of policies such as Dunskey and Logan. Wind-sculpted trees indicate the exposure of this landscape. Small lochans and occasional wetlands sit between rolling hills of smooth pasture often enclosed by stone dykes. Less cultivated and often more exposed hills and headlands are dominated by rough pasture and scattered gorse.	There is greater scope to accommodate the medium scale typology to avoid impacting on landscape pattern. This typology could still impact on landmark features if sited within or close to the more dramatic western, northern and southern coasts and wooded policies. ***Susceptibility rating: Medium***	This typology could dominate policy woodlands and the small-scale field pattern found in areas of lower hills if sited close-by. They could also significantly affect landmark features such as the Mull of Galloway if located within their immediate setting. Sensitivity is however reduced in terms of land cover pattern across much of the Rhins ***Susceptibility rating: Medium-low***

The Mull of Galloway and occasional woodlands are landmark features.		
Built Environment This landscape is settled with dispersed farms and individual houses located along narrow roads (some elevated) but generally set back from more exposed coasts. Tight-knit settlements are located in bays along the coast, and lighthouses form landmark features. There are numerous archaeological features, such as forts around the coast, and other sites, such as standing stones and chapels, indicating the long history of occupation of this fertile peninsula. The operational North Rhins wind farm is located in the central northern part of the peninsula.	This typology would dominate individual buildings, settlements and archaeological features if located close to them. The well-settled nature of much of the Rhins increases sensitivity. ***Susceptibility rating: High***	This typology would dominate individual buildings, settlements and archaeological features if located close to them. Turbines towards the lower height band (<35m) of this typology could avoid contrasts in scale and impacts on the setting of these features although the setting of archaeological sites remains sensitive. ***Susceptibility rating: High-medium***
Landscape context The Rhins peninsula is isolated from other Assessment Units although it forms part of the wider seascape where the Machars, Irish coast and Isle of Man also feature.	Medium typologies are less likely to be visually prominent from surrounding land areas which are a considerable distance from the Rhins. ***Susceptibility rating: Low***	The geographical isolation of the Rhins reduces sensitivity of potential effects of this typology on adjacent landscapes and seascapes. ***Susceptibility rating: Low***
Perceptual qualities The northern, western and southern coastal edge of the Rhins has strongly elemental qualities with little development. Difficulties in accessing this coast increase the sense of remoteness experienced.	The sense of wildness associated with the coast would be significantly diminished by the introduction of this typology. There is slightly greater scope to locate this typology to avoid intrusion on the more sensitive coastal areas. ***Susceptibility rating: Medium***	The sense of wildness would be significantly diminished by the introduction of turbines immediately overlooking the coastal edge, but this typology is more likely to be associated with more settled areas which would avoid impacts on perceptual qualities. ***Susceptibility rating: Medium-low***
Views and visibility Views from roads on the Rhins are often restricted by rolling landform. The east coast of the Rhins and Luce Bay are visible from settled coastal fringes and the A716. Views of the west coast are generally limited to occasional glimpsed views of the sea framed by shallow valleys. At the southern end of the peninsula elevated roads offer dramatic views of the coast and across the southern Rhins as well as to and from the Mull of Galloway and the wider seascape to the Isle of Man. The coast of Northern Ireland features in open views from the west coast while the distinct conical form of Ailsa Craig provides a key focus in views from the	The rolling landform of the interior of the peninsula reduces visual sensitivity with greater scope for this typology to be located to avoid impact on views from roads and settlement. Sensitivity could be reduced to turbines towards the lower height band (around 50m) which could avoid impacting on prominent skylines. This typology could still impact on key foci if located within or close to the more sensitive coasts. Any further development would need to be carefully designed to avoid cumulative visual impacts with the existing North Rhins wind farm. ***Susceptibility rating: High-medium***	The rolling landform of the interior of the peninsula is likely to limit extensive visibility of this typology except from more elevated roads and viewpoints. Nevertheless, this typology could significantly intrude on views to open skylines from key viewpoints such as the Mull of Galloway and views to and from landmark features such as Kilantringan Lighthouse. In addition, there are visual sensitivities along the coast from localised viewpoints, including the glimpsed views of the sea from coastal roads, as well as expansive open views of the wider seascape and distant land.

north. In terms of views to this landscape unit, The Rhins peninsula is seen as an elongated, generally low-lying gently undulating plateau in distant views from the Machars, the Stranraer area and from elevated roads within the *Plateau Moorland* (16). The North Rhins windfarm is a prominent feature in many of these more distant views.		Any development would need to be carefully designed to avoid cumulative visual impacts with the existing North Rhins wind farm and other small farm turbines. ***Susceptibility rating: Medium***
Landscape value The Rhins Coast RSA comprises the rocky coastline from the Wig, the narrow southern peninsula and the Mull of Galloway. The Inventory listed designed landscapes of Logan Botanic Gardens, Logan House and Ardwell House are located on the Rhins. Cultural heritage features and the value of the Rhins for recreation, including beaches, the Mull of Galloway and the Rhins Coastal Path, additionally increase the value associated with parts of this AU.	There is possibly scope for the lower band of this typology to be sited to avoid impact on the RSA coastal area, on the Inventory listed designed landscapes, cultural heritage features and on areas well-used for recreation. ***Value rating: High-medium***	There is scope for this typology to be sited to avoid impact on the RSA coastal area, on the Inventory listed designed landscapes, cultural heritage features on areas well-used for recreation. ***Value rating: Medium***
Sensitivity	**High-medium**	**Medium**

2.3 Machars area

2.3.1 *Description*

The Machars area has a predominantly gently undulating landform and open character. It is however settled and largely farmed and this, together with the lack of geographically extensive areas with a large scale and absence of landscape pattern, results in a predominantly small to medium landscape scale. More complex coastal landscapes and their immediate hinterland, the presence of extensive policy woodlands and the frequent occurrence of archaeological features and historic landscapes also increase sensitivity. The openness of this landscape allows wide views from roads and settlements apart from sections of the west coast where the raised beach restricts views inland. Distant views to the Machars are possible from across Wigtown and Luce Bays. The southern part of this landscape has a close visual relationship to the adjacent *Peninsula with Gorsey Knolls* (2) while inter-visibility with the *Moss and Forest Lowland* (11) and *Plateau Moorland with Lochs* (18) Assessment Units occurs in the north-west.

2.3.2 *Cumulative issues*

The operational Barlockhart wind farm is located partially within/close to the north-western boundary of this area. The operational Artfield Fell, Balmurrie Fell, Carscreugh and Glenchamber wind farms, sited in other close-by Assessment Units, are also visible from the north-western part of the *Machars* peninsula and in combination these developments present a visually confusing image in views from roads and settlement because of their different siting, layout pattern and turbine sizes.

A number of operational small (<20m high) turbines are associated with farms in the southern *Machars* area. There are some localised cumulative effects associated with these smaller wind turbines although the generally consistent pattern, size and number of farm turbines, and the screening provided by gently rolling landform, result in these not being significant.

Key potential cumulative effects that could arise include:

- Additional wind energy developments located in the north-western part of this landscape would be likely to exacerbate the visual clutter already associated with operational wind farms sited in adjacent landscapes and experienced from the A75, A747, settlement and footpaths.
- Variations in the type and scale of single and small groups of turbines. The regularity of farmsteads dotted across the *Machars* and the openness of the landscape (particularly in the south) could rapidly lead to it appearing cluttered if single or groups of turbines were associated with the majority of land holdings. In this scenario, turbines could form a dominant feature detracting from other landscape attributes such as distinctive field walls, buildings, small hills and mosses. Larger single and small groups of turbines would contribute greatly to cumulative effects.
- Potential cumulative impacts could arise in association with any offshore development. These could affect key views from coastal roads, paths and settlements but also affect the character of the wider seascape and contrast between land and sea.

- Sequential visual impacts experienced when travelling on coast roads or coastal paths.

2.3.3 *Key constraints*

- More complex areas of rolling landform, rugged coast and key hills which form a backdrop to the raised beach of the west coast of this unit.
- The long profile and narrow width of the raised beach along the west coast of this unit, which is sensitive even to the siting of small turbines.
- The presence of designed landscapes with extensive wooded policies at Glasserton, Galloway and Monreith.
- The setting of historic settlements such as Whithorn and Garlieston and archaeological and historic features, and cultural sensitivities associated with St Ninian and the 'Whithorn Peninsula'.
- The historic landscapes around Elrig and Mochrum, including the tiny field patterns and extensive areas of multi-layered archaeological interest, within the Archaeologically Sensitive Area of Changue Fell.
- The proximity and close visual relationship of this landscape with the adjacent *Peninsula with Gorsey Knolls* (2) Assessment Unit increasing sensitivity to larger turbines which could dominate the often intimate scale and rugged wildland coastal character of this landscape.
- The proximity of this landscape to the small scale, more complex topography associated with the *Drumlin Pasture*s (13) Assessment Unit to the north.
- Potential effects on the setting of landmark features such as Knock Fell and the Mochrum Lochs within adjacent Assessment Units of (18) and (11).
- The perceptual qualities associated with more remote coastal areas such as Sinniness Bluff and St Ninian's Cave area.
- Cumulative effects with the visually confusing array of large turbines within wind farms sited to the north-west of this landscape.

2.3.4 *Opportunities*

- The simple undulating landform found in parts of this area which could relate to smaller turbines.

2.3.5 *Sensitivity and guidance*

The complex landform of parts of the Machars and particularly the coast, the distinctive archaeology, historic settlements and designed landscapes associated with this landscape and the well-settled character of this landscape increases susceptibility to larger wind turbines. The value of this landscape is increased by the RSA designation which covers part of the Machars coast, cultural heritage designations and the attraction of the area for visitors. The landscape of the Machars has a ***High*** sensitivity to the large typology (80-150m) and a ***High-medium*** sensitivity to turbines 50-80m. There would be a ***Medium*** sensitivity to turbines 30-50m high.

Turbines should be sited to avoid intrusion along the coastal edge, on key views from coastal roads, and into the backdrop and setting of small settlements or archaeological features and landscapes of historic interest. Broader, less distinctive hills and upland moorland to the west would have a reduced sensitivity as would less diverse areas of forestry and more open pasture (where distinctive field dykes are not present). Development should not intrude on sensitive coasts, where their scale would dominate

scarp edges and backdrop hills or adversely affect the sense of remoteness or naturalness.

Smaller turbines 30-50m would be likely to be more successfully accommodated in these areas so as to minimising landscape and visual effects. This smaller typology could also be sited to relate to the subtle ridges which are aligned in a distinct south-west/north-east grain in the southern part of this area although this open landscape could quickly be dominated by turbines of this size, particularly in areas where land holdings are relatively small, resulting in significant cumulative effects.

The introduction of additional overhead lines and the construction of new access tracks should also be avoided in this open landscape. Supplementary Guidance is provided on the siting and design of smaller turbines <50m high.

AU1: Peninsula - Machars area – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Landscape scale The *Machars* has a gently undulating landform with rounded low hills rising to around 90m are interspersed with areas of flatter mosses. Higher hills rising to 138m and areas of elevated moorland back the west coast of this unit. While forestry plantations provide some enclosure, tree cover is generally sparse and the landscape has an open character, especially towards the south and east.	While this typology could relate to the larger scale and openness of lowland mosses/forest plantations in the south and moorland and broader hill slopes to the west, single and small clusters of turbines towards the lower height band would have a better relationship to the scale of these areas. Where woodlands and more complex landform reduce scale, turbines of this size would be overly dominant. ***Susceptibility rating: High-medium***	The more open and flatter landscapes, including the mosses, away from the coastal edge, offer some potential to accommodate this typology, especially where the turbines do not overwhelm the scale of individual landscape features. However, the coast, the more complex areas of landform, shallow valleys and areas where the landscape is dominated by small scale and more intricate landscape features would be sensitive to this typology. There is increased scope for accommodating turbines of less than 35m in height, as this size is less likely to dominate individual features in this lowland landscape. ***Susceptibility rating: Medium***
Landform The predominantly undulating landform of low, elongated ridges and occasional flatter mosses/forest and moorland areas has a simple character although more complex rolling hills occur against the west coast. The coastal edge is also very diverse with the strongly contained raised beach of the western coastal edge and bold rugged cliffs and hills between Stairhaven and the Mull of Sinniness contrasting with the rocky bays and subtle promontories of the generally more gently sloping eastern coastal edge.	This typology could also relate to the predominant simplicity of the landform but would similarly detract from diverse coastal features and more distinctive hills. ***Susceptibility rating: Medium***	The longer, most open ridges and flatter areas of land offer some potential to accommodate this typology, but more complex landforms are more sensitive to this typology. Especially sensitive are the more rounded hill forms, the long low raised beaches and the cliffs in the west, as well as more prominent hills. ***Susceptibility rating: Medium***
Land cover This is a generally open landscape with occasional geometric coniferous plantations planted on lowland mosses, and long shelterbelts. Policy woodlands associated with the Glasserton, Monreith and Galloway estates are landmark features. Fields are often large and in places are enclosed by distinctive 'white' stone walls, although smaller rolling pastures occur close to the west coast, especially, for example, near	Sensitivity would be reduced for single and small clusters of turbines towards the lower height band of this typology as these would avoid impacting on the distinctive field pattern and the often diverse pattern of lowland mosses. This typology could still impact on landmark features if sited within or close to policy landscapes. ***Susceptibility rating: Medium***	Where the landscape is relatively open and there are few landmark features against which to assess the size of this typology, there is potential to accommodate this typology. The areas of more diverse and intricate patterns of fields and small woods are more sensitive to development, as are the more complex and diverse policy woodland areas. ***Susceptibility rating: Medium***

Elrig and Mochrum. Areas of scrub-fringed lowland moss are diverse, contrasting with surrounding pastures.		
Built environment This landscape is settled with dispersed farms and the settlements of Whithorn sited inland and Port William and Garlieston on the coast. There are numerous archaeological features and more extensive historic landscapes, such as at Elrig. Many of the roads are narrow and sinuous, especially in the west. Existing small single turbines are associated with farmland in the southern part of the peninsula.	Turbines 50-80m high could dominate individual buildings, settlements and archaeological features if located close to them. Although more sparsely settled areas would be less sensitive to this size of turbine, some of these areas tend to be characterised by archaeological features thus increasing sensitivity. The potential for cumulative effects with existing small turbines could arise in some areas. ***Susceptibility rating: High-medium***	This typology could overwhelm small farms, individual houses and small settlements, affecting their setting and the scale of the built development if sited close-by. More sparsely settled areas would be less sensitive provided the setting of cultural heritage features was not compromised. The potential for cumulative effects with existing small turbines could arise in some areas. ***Susceptibility rating: High-Medium***
Landscape context This landscape is closely related to Assessment Unit 2 which produces a particularly rugged coastal edge to the south and west. There is a gradual transition between the north-western part of this type and the *Plateau Moorland with Lochs* (18), *Moss and Forest Lowland* (11) around Gargrie Moor and Knock Fell and the *Drumlin Pastures* (13). Landmark hills on the west coast, such as Mochrum Fell are important in forming a backdrop to 18.	Sensitivity would be reduced in relation to effects on adjoining Assessment Units for turbines of this size (which are more likely to comprise single or very small groups of turbines). The parts of this landscape which border the southern and western coasts and landmark hills remain sensitive. ***Susceptibility rating: High-Medium***	This typology is unlikely to intrude majorly into wider views and is therefore unlikely to have significant effects on surrounding Assessment Units, except if located close to the small scale drumlin landscapes of type 13, or the prominent hills, more complex landforms and coastal areas associated with 2. ***Susceptibility rating: Medium-low***
Perceptual qualities There are few 'wildland' qualities associated with the farmed interior of this landscape although a distinct sense of seclusion and naturalness can be experienced along the coast, for example at Sinniness Bluff, Cruggleton Point and St Ninian's Cave. Some lowland mosses have a semi-natural character. Cultural associations with St Ninian give a strong sense of history.	This size of turbine would impact on coastal areas and mosses with a wilder character although there is increased scope to avoid these. ***Susceptibility rating: Medium***	Where the landscape is settled and generally managed, this typology will have limited impact on any sense of wildness. However, the sense of wildness associated with the coast and cultural associations around the Whithorn area may be adversely affected by poorly sited turbines. ***Susceptibility rating: Medium***
Views and visibility The southern and eastern parts of the Machars peninsula are open and widely visible from roads and settlement. The east coast and Wigtown Bay are visible from the B7063, with Cairnsmore of Fleet and Cairnharrow Hill providing a distant focus. Long views occur along the western coast from the A747 and	This typology would be particularly intrusive if sited in the open and settled landscape of the southern peninsula or if sited on the top of scarp and backdrop hills within the western coast. Turbines of this size may be visible in distant views from the Rhins and upland/coastal landscapes to the east, although sensitivity would be reduced for	The openness, and low relief of the terrain, as well as the lack of trees in some parts of this type would result in widespread visibility of this typology. If poorly sited, this typology could detract from the visual focus of existing natural and historic features located on the tops of hills and ridges, or from the setting of villages tucked in beneath gentle hill slopes or set on the coastal edge.

coastal settlement, contained by the scarp slope and backdrop of hills. There is strong inter-visibility between moorland in the north-west of this unit with the adjacent Knock Fell and Gargrie Moor and lochs in adjacent Assessment Units. Low hills and ridges often form the visual backdrop/setting to villages and historic features of interest, while occasional landmark hills or more intricate and scenic stretches of coastline form visual foci in the wider landscape. The Machars peninsula is visible from the Rhins, uplands and coastal peninsulas to the east.	turbines towards the lower height band of this typology. ***Susceptibility rating: High-medium***	This typology could also detract from the visual focus of bays, long views along the coast or key views from historic monuments and archaeological sites. This typology would be unlikely to have a significant impact on views from the wider area outside the Machars. ***Susceptibility rating: Medium***
Landscape values The Machars Coast RSA recognises the scenic qualities of the rocky coast which lies in this Assessment Unit and the adjacent *Peninsula with Gorsey Knolls* Assessment Unit (2). Inventory and Non-Inventory designed landscapes and ASAs increase sensitivity in some parts of this landscape. The coastal areas of this Assessment Unit are well-used for recreation with popular beaches and coastal paths. Small unspoilt and historic towns such as Wigtown and and Whithorn are a focus for visitors.	Turbines of this size could also impact on the coast if sited close-by although sensitivity would be reduced in the interior of this landscape where turbines towards the lower height band of this typology would potentially have a less intrusive effect on designed landscapes and ASAs. ***Value rating: High-medium***	Small-medium typologies sited in this area could impact on the rugged coastal edge which is covered by the RSA if sited close-by but there is increased scope to avoid impact on valued landscapes and features. ***Value rating: Medium***
Sensitivity	**High-medium**	**Medium**

2.4 Dundrennan area

2.4.1 *Description*

This landscape comprises rolling coastal hills with areas of more complex knolly landform occurring around the Buckland Burn. More open, simple and expansive hill slopes occur inland at the transition with the *Coastal Granite Hills* (24). The coastal edge is predominantly rugged with cliffs and small bays and the sheltered gently sloping western and eastern coasts of the peninsula feature wooded policies and contribute to the scenic composition of Kirkcudbright and Auchencairn Bays. MOD built infrastructure is present in the western part of this landscape. Although views to this landscape from the surrounding area are not widespread, hill paths in the adjacent *Coastal Granite Hills* (24) (particularly the popular summits of Screel and Bengairn Hills) offer elevated views. The rolling landform tends to limit views from roads and settlement within this Assessment Unit.

2.4.2 *Cumulative issues*

There are no wind farms within the Dundrennan peninsula. The relative isolation of this peninsula and containment of widespread views by the adjacent *Coastal Granite Hills with Settlement* (24) are factors likely to limit widespread cumulative impacts with other onshore wind energy developments. Potential cumulative impacts could arise in association with the existing offshore Robin Rigg windfarm within the Solway Firth which is clearly seen from footpaths along the coastal edge and from occasional open and usually more elevated views inland.

Key potential cumulative effects that could arise include:

- Views from popular coastal footpaths where developments, visible both on land and sea, could have significant impacts on character and views, and on the experience of walking along this coast which has elemental qualities and a strong sense of naturalness and seclusion.
- Variations in the type and scale of smaller wind turbines with the landscape likely to appear cluttered if turbines were associated with the majority of land holdings.

2.4.3 *Key constraints*

- More complex and intimately scaled areas of knolly landform around the valley of the Buckland Burn.
- The sheltered gently sloping western and eastern coasts of the peninsula which feature wooded policies and contribute to the scenic composition of Kirkcudbright and Auchencairn Bays.
- The rugged and remote coast and its backdrop of distinct conical hills ringed by crags and gorse giving them a ruggedness belying their relatively lowly height (around 100m). These hills often feature hill forts and other archaeology which further increase sensitivity.
- Newlaw Hill with its long knolly ridge, prominent location and rich archaeology.
- The settled nature of this area where buildings, and also hill-top trees and woodlands, provide ready scale indicators.
- Settlement tucked in between rounded hills, which could easily become overwhelmed by turbines located within their immediate setting.

- Existing offshore development within the Solway Firth which could contribute to cumulative effects experienced from roads and coastal footpaths and settlement.

2.4.4 *Opportunities*

- Broader hill slopes, areas of gently undulating plateau-like grass moorland at the transition with the adjacent *Coastal Granite Hills* (24) Assessment Unit and lower lying moss, pasture and forestry with a simple landform and land cover.

2.4.5 *Sensitivity and guidance*

The complex small-scale landform found in parts of this area, including the rugged coastal edge and distinctive conical hills, increases susceptibility to larger wind turbines. Wooded policy landscapes and the well-settled nature of this landscape are also factors increasing susceptibility. The value of this landscape is increased by the RSA and NSA designation which covers coastal areas. The landscape of the Dundrennan peninsula has a ***High*** sensitivity to turbines >80m. There would be a ***High-medium*** sensitivity to turbines 50-80m and a ***Medium*** sensitivity to turbines 30-50m.

Turbines towards the lower height band of the medium typology (turbines 50-80m) could potentially be associated with areas of simpler landform (with a more open and expansive scale) that occurs at the transition with the *Coastal Granite Uplands* (24) to the east. Potential effects on the distinctive summits of these uplands and on the East Stewartry NSA would need to be carefully considered from key viewpoints including Bengairn and Screel Hills, the monument at Barstobrick and coastal locations in the NSA.

The small-medium typology (turbines 30-50m) could also be located on gently sloping ground at the transition with the *Coastal Granite Upland* (23) but also on broader hill slopes and ridges away from the coast. This open landscape would be likely to be quickly dominated by multiple developments of the small-medium typology, particularly in areas where land holdings are relatively small thus potentially concentrating development. Turbines of less than 35m in height will be likely to have fewer visual and cumulative impacts. On-going monitoring of cumulative landscape and visual effects will be necessary.

Small turbines (<30m high) should be sited where they can be clearly associated with existing development, farms or other settlement. They will be easier to accommodate if sited on natural low terraces, changes in gradient or on the slopes of ridges or elongated hills. Supplementary Guidance is provided on the siting and design of turbines <50m high.

All turbines should avoid intrusion on key views from coastal roads, and into the backdrop and setting of small settlements or archaeological features and landscapes of historic interest. The more sensitive coastal areas, including the richly scenic Kirkcudbright and Auchencairn Bays, and areas of more complex landform should be avoided. The juxtaposition of turbines with existing telecommunication structures, MOD developments and overhead electricity lines could exacerbate the existing clutter of disparate vertical structures.

AU1: Peninsula - Dundrennan area – Detailed assessment of smaller wind turbines		
Topics and summary description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale The interlocking coastal hills, which rise to around 162m, have a medium scale which is reduced within valleys, particularly where these are well wooded. The complex knolly landform in and around the valley of the Buckland Burn has an intimate scale. There are few expansive open areas of larger scale in this landscape; these occurring mainly inland toward Barcloy Hill at the transition with Assessment Unit (24) The *Coastal Granite Hills with Settlement.*	Small groups of medium scale turbines could relate to broader more open slopes of inland hills and some areas of larger scale flatter ground in the east. Where woodlands and more complex landform reduce scale, the upper band of this typology would be overly dominant although single and small clusters of turbines towards the lower height band would have a better relation to scale. ***Susceptibility rating: High-medium***	The broader scale landscapes, including the long ridges and more open, flatter land in the northern part of this unit offer some potential to accommodate this typology, especially where the turbines do not overwhelm the scale of individual landscape features. However, the coast, the more complex areas of landform, the more intimate valleys and areas where the landscape is dominated by small scale and more intricate landscape features and vegetation patterns will be sensitive to this typology. There is likely to be more scope for accommodating turbines of less than 35m in height, as this size is less likely to dominate individual features in this lowland landscape. ***Susceptibility rating: Medium***
Landform A coastal promontory bounded by the deeply indented inlets, rocky peninsulas and islands within the Auchencairn and Kirkcudbright Bays. A generally rolling landform of often well-defined hills cut by narrow valleys but with a broader upland 'platform' towards the transition with *Coastal Granite Uplands* (24). The valley of the Buckland Burn is deeply incised and complex with small scale knolls and dips. The rocky coastal edge falls steeply and features cliffs and raised beaches. The rugged coastal edge, distinctive conical coastal hills and Newlaw Hill, with its long undulating knolly ridge form landmark features.	This typology would also detract from the diverse coastal edge, coastal hills and complex landform associated with the Buckland Burn. The broader scale and simpler shape of less pronounced inland hills, plateau-like transitional upland areas to the north-east and low-lying landform to the east would be of reduced sensitivity. ***Susceptibility rating: Medium***	The longer, more open ridges and flatter areas of land offer some potential to accommodate small turbines, but more complex landforms would have an increased sensitivity. Especially sensitive are the more rounded hill forms, the raised beaches and the cliffs and rocky promontories as well as more prominent hills and narrow or contained valleys. ***Susceptibility rating: Medium***
Land cover This landscape is often well-wooded with parkland and policy plantings characteristic of the sheltered inlets of Kirkcudbright and Auchencairn Bays. Hill tops are often marked by mature tree clumps.	There is increased scope to accommodate this typology to avoid impacting on landscape pattern, although turbines should be sited well away from existing MOD structures to minimise the clutter of disparate elements on sensitive rolling coastal hills. This typology could still impact on landmark features if sited within or close to policy landscapes, coastal features and Newlaw Hill and would	The areas of more diverse and intricate patterns of fields and small woods are more sensitive to this typology, as are the more complex and diverse policy woodland areas, the rugged coastal edge and prominent landmark hills such as Newlaw. However, where there are gentle hill slopes, or where topography levels out into longer, more even ridges, flatter plains and even shallow concave

	also overwhelm the scale of nearby trees and woodlands. ***Susceptibility rating: High-medium***	basins, there are opportunities to site this typology. ***Susceptibility rating: Medium***
Built Environment This landscape is settled with dispersed farms and small settlements sited within contained valleys. Iron Age fort sites are located on prominent hill tops close to the coast and inlets and there are a number of landmark features, such as the abbey at Dundrennan, as well as with more widespread archaeological interests around key hills such as Newlaw and at Dromore. MOD installations, including masts sited on hill tops, are a prominent feature within the south-western hills of this area.	Turbines 50-80m high could dominate individual buildings, settlements and archaeological features if located close to them although there is likely to be increased scope to site turbines of this size to minimise adverse effects on built features. This typology could exacerbate the clutter of built elements which are detractive features in this landscape. ***Susceptibility rating: High-medium***	This typology could overwhelm small farms, individual houses and small settlements, affecting their setting and the scale of the built development if sited close-by although more sparsely settled areas would be less sensitive. Turbines sited close to existing MOD infrastructure could exacerbate the clutter of built elements which are detractive features in this landscape. ***Susceptibility rating: High-medium***
Landscape context The Dundrennan promontory is backed by the steep slopes of Barcloy Hill within Assessment Unit (23). It also forms an edge to Auchencairn Bay to the east and Kirkcudbright Bay to the west.	Turbines towards the higher height band of this typology could also appear to diminish the scale of the adjacent *Coastal Granite Hills* (24) although there is more scope for the lower height band to minimise impacts on these hills and the adjacent Kirkcudbright and Auchencairn Bays. ***Susceptibility rating: High-medium***	This typology is unlikely to extend significantly into wider views and is therefore unlikely to have significant effects on surrounding character types, except possibly if sited adjacent to Auchencairn Bay, where the turbines might detract from the setting and scale of the intricate coastline of the *Coastal Granite Hills*. ***Susceptibility rating: Medium-low***
Perceptual qualities The rugged coast away from the more settled inlets of Kirkcudbright and Auchencairn Bays has a strong sense of seclusion and naturalness. The MOD presence affects tranquillity to the west to some degree.	There may be greater scope to locate this typology so as to avoid impact on perceptual qualities related to the sensitive coastal edge. ***Susceptibility rating: Medium-low***	Where the landscape is settled and generally managed, this typology will have limited impact on any sense of wildness. ***Susceptibility rating: Low***
Views and visibility The A711 offers occasional elevated views across this landscape although the rolling landform and woodland restricts views to the coast. Visibility from the coast is limited by steep slopes and cliffs although elevated views are possible from coastal hill tops. The northern part of this unit is seen from the B727. The elongated knolly ridge of Newlaw hill forms a focus seen from the A711. MOD installations are also highly visible from this road. Views from settlements such as Dundrennan are contained by tight-knit hills. Views from the gentle wooded slopes at the eastern and western ends of this peninsula focus on the highly	This typology would be highly visible from the A711 if sited on the gentler western and eastern coastal edge although visual intrusion may be reduced on the lower slopes of coastal hills in relation to single and small clusters of turbines towards the lower height band of this typology. There is scope to minimise views from within this landscape if development were sited at the transition with the *Coastal Granite Hills* as these would provide a degree of shielding. Turbines towards the lower height band of this typology would be likely to minimise impacts on views from Bengairn Hill, the	Views across this landscape are limited by the rolling topography and tree cover which would limit visibility of this size of typology except in the most open and more expansive areas. Prominent landmark hills, and the setting of the settlements, key historic or archaeological features as well as dramatic and scenic coastlines all contribute to visual amenity and are sensitive to this typology. ***Susceptibility rating: Medium***

scenic seascapes of promontories, islands and tidal inlets of Auchencairn and Kirkcudbright Bays. Views to this area are limited by its relative isolation and the screening provided by the *Coastal Granite Uplands* (23). There are elevated views over this area from Bengairn Hill and from the monument at Barstobrick, although the landform of the *Drumlin Pastures* (13) provides some intermediate screening from settlement and roads to the north.	monument at Barstobrick and the B727. ***Susceptibility rating: High-medium***	
Landscape values The Solway Coast RSA covers the rocky shore, coastal hills and more settled wooded edges to Kirkcudbright and Auchencairn Bays. Both these bays are popular for recreation with a number of promoted walks along the coast. The Stewartry NSA covers a small part of this Assessment Unit adjacent to Auchencairn Bay.	Medium typologies would similarly impact on the designated coasts although there is greater scope for the lower band of this typology to be sited to avoid intrusion on these areas. ***Value rating: Medium***	Smaller turbines would similarly impact on the designated coasts although there is greater scope for this typology to be sited to avoid intrusion on these areas. ***Value rating: Medium-low***
Sensitivity	**High-medium**	**Medium**

3 ASSESSMENT UNIT 2: PENINSULA WITH GORSEY KNOLLS

3.1 Introduction

This Assessment Unit is found in the following four coastal locations:

- *Monreith*
- *Burrowhead*
- *Borgue*
- *Rockcliffe*

There is a strong similarity of character across these areas and the Assessment Unit is therefore considered in a single sensitivity assessment.

3.1.1 *Operational/consented wind farms*

An existing single small wind turbine is located at Rainton Farm within the *Borgue* landscape area. Onshore wind farm developments in other Assessment Units have little influence on the *Peninsula with Gorsey Knolls* (2) although the offshore Robin Rigg wind farm is clearly visible from the *Rockcliffe* area.

3.1.2 *Cultural heritage overview*

This Assessment Unit is characterised by post-improvement (c19th-20th century) fields and farming with a few designed landscapes. There are numerous archaeological sites of outstanding significance and distinctiveness, some of which are promoted for public benefit, particularly in relation to the Isle of Whithorn.

3.2 Description

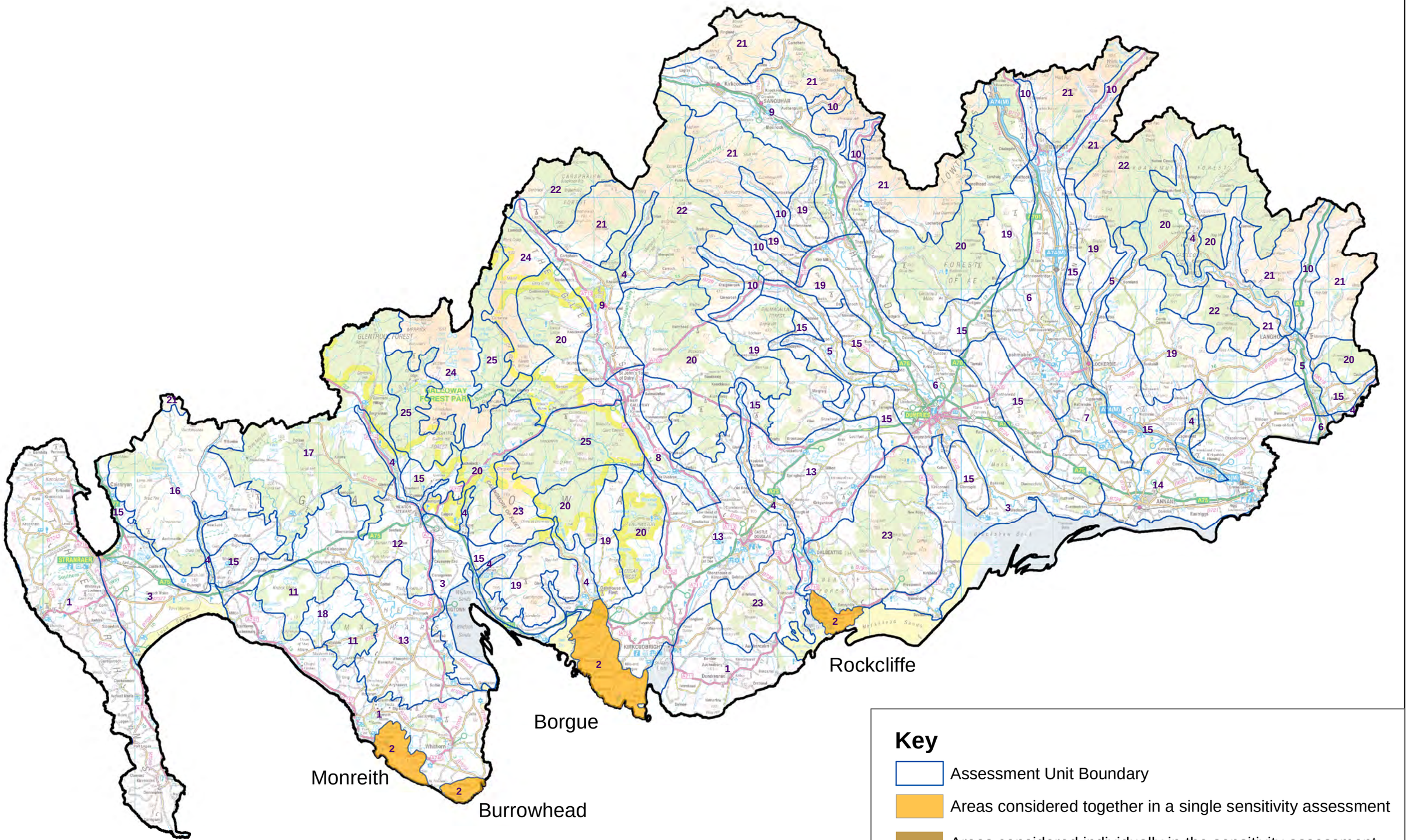
This Assessment Unit has an exposed coastal character and a predominantly small scale complex rocky landform of linear rocky ridges, dips and knolls. The coarse texture of the landscape is accentuated by scrubby vegetation and wind-sculpted trees. There is a distinctive pattern of small walled pastures in places. The coastal edge is diverse and rugged with notable wildland qualities. Visibility from roads and settlement is generally restricted by rolling landform although even small elevations allow more extensive views over the relatively low ridges and knolls of this landscape.

3.2.1 *Cumulative issues*

A single turbine at Rainton Farm is located within the *Borgue* landscape unit. There could be cumulative landscape and visual impacts associated with the existing Robin Rigg offshore wind farm and any onshore development located within the *Rockcliffe* area, potentially affecting views from coastal footpaths and the strong sense of naturalness and seclusion associated with the coast.

Variations in the type and scale of single and small groups of small-medium and small turbines associated with farms could create cumulative landscape and visual impacts. The landscape could appear cluttered if single or groups of turbines were associated with the majority of land holdings. In this scenario, turbines could form a dominant feature detracting from other landscape attributes such as distinctive field patterns, buildings and localised small hills. Small turbines are likely to be partially screened by topography, which could reduce cumulative impacts on views.

Assessment Unit Key Map - 2. Peninsulas with Gorsey Knolls



Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

3.2.2 *Key constraints*

- The very complex landform of linear rocky ridges and dips and knolls which together with scrubby vegetation and occasional wind-sculpted trees creates an intimate scale and highly distinctive character.
- The rugged elemental qualities and the lack of development of the *Burrowhead* and *Monreith* sections of the coast, which contribute to the strong qualities of wildness associated with these seascapes.
- The rocky fragmented coasts of the *Borgue* and *Rockcliffe* areas and their role in the wider scenic composition of the seascapes of the Fleet and Rough Firth estuaries.
- The areas of relatively regular, sometimes linear, field pattern, particularly in the *Monreith* area, have an integrity which makes a particular contribution to the Sense of Place.
- Archaeological and historic features, including those which are particularly prominent around the coast, and small-scale wooded policy landscapes, for example at Glasserton.
- NSA and RSA designations and the high use of these coastal areas for recreation which increases the value associated with this AU.

3.2.3 *Opportunities*

- Broader, less rugged hill slopes at the transition with the *Drumlin Pastures* (13) Assessment Unit within the *Borgue* landscape unit.

3.2.4 *Sensitivity and guidance*

The very complex landform and small scale of this landscape, distinctive field patterns and cultural heritage features and the strong sense of wildness associated the coast increases susceptibility to larger wind turbines. The value of this landscape is recognised by NSA and RSA designations and is further increased by the attraction of the coast for recreation. Sensitivity is ***High*** to wind turbines >50m and ***High-medium*** to turbines 30-50m high.

All turbines should avoid intrusion on key views from coastal footpaths, and into the backdrop and setting of small settlements or archaeological features and landscapes of historic interest. Single or small clusters of the small typology (30-50m) should be located in areas with a simpler landform. This generally occurs within the *Borgue* area away from the coast and close to the transition with the *Drumlin Pastures* (13) Assessment Unit. Turbines of less than 35m in height would be likely to have a reduced visual and cumulative impact.

Small turbines <30m high should be sited where they can be clearly associated with existing development, farms or other settlement. They should avoid areas with perceived qualities of wildness. They will be easier to accommodate if sited on natural low terraces or where there are natural changes in gradient. Supplementary Guidance is provided on the siting and design of smaller turbines <50m high.

The introduction of additional overhead lines should also be avoided in this open, diverse and highly sensitive coastal landscape.

AU2: Peninsula with Gorsey Knolls – Detailed assessment of smaller wind turbines		
Topics and summary description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale Although rocky knolls, ridges and dips provide strong containment and create an intimate scale in places, this landscape also has an open and exposed character, particularly close to the coast.	This typology would dominate the low relief of small hills, concavities and intricate coastal features. ***Susceptibility rating: High***	The larger sizes of this typology could dominate the low relief of small hills and would also detract from the small-scale complexity of landform features, the intricate form of some of the coastlines and the low relief of the dramatic raised beaches. However, there is likely to be scope for this typology in limited areas where the landscape is flatter and more expansive. ***Susceptibility rating: High-medium***
Landform Rocky knolls, ridges and dips, some of these accommodating small lochans, have a distinctive ruggedness and the coastal edge often forms dramatic cliffs cut by inlets and raised beaches, particularly in the *Monreith* area. A fragmented shoreline of rocky promontories and islands is a feature close to Fleet Bay. The landform is less craggy and complex in the south-east part of the *Borgue* area at the transition with AU (13) where broader smoother ridges occur.	While single or small numbers of turbines could fit within small areas of less complex landform found in the south-east of the *Borgue* area, this typology would still detract from the small-scale complexity of landform features which are a key characteristic of this landscape. ***Susceptibility rating: High***	The longer ridges, which are smoother and less intricate and rugged in their shape, could accommodate this typology. Prominent hills, more rugged ridges, and complex, interlocking landforms with rocky outcrops, as well as raised beaches and irregular coastlines or cliffs, are all likely to be more sensitive to this typology. ***Susceptibility rating: High-medium***
Landcover A repeated and highly distinctive coarse textured pattern of rocky outcrops with stone walls (enclosing small often linear pastures) appearing to merge with each other. Policy woodlands and clumps of stunted trees and gorse pattern and punctuate the landscape. Islands, distinct coastal hills, for example Meikle Ross at the entrance to Kirkcudbright Bay, White Hill near Rockcliffe or the Fell of Barhullion near Monreith, rare sandy bays at Graplin and Carrick and dramatic cliffs at Burrowhead and Monreith form landmark features.	This typology would also disrupt the distinctive and consistent pattern of this landscape where this is particularly complex. While single or small clusters of turbines of the lower height band (50m) would have less of an effect on simpler landscapes found in the south/east *Borgue* area, they could still detract from key landmark features which are found near the coast. ***Susceptibility rating: High***	This typology is likely to detract from the consistency and integrity of often pronounced, regular field enclosure pattern in some areas, notably *Monreith.* Large sizes of this typology would additionally detract from landmark features such as rare sandy bays and coastal hills if sited on or close to them. Elsewhere, in areas of more uniform land cover with fewer distinct features, this typology could more readily be accommodated. ***Susceptibility rating: Medium***
Built environment Compact farms are often sited on knolls or ridges. The settlements of Rockcliffe and Isle of Whithorn, occasional caravan parks and golf courses are sited close to the coast. Archaeological and historic features occur across this	While there is greater scope to locate single and small clusters of turbines towards the smaller height band of this typology to avoid impacts on settlement within the less populated *Burrowhead, Monreith* and *Borgue* areas, the setting of archaeological	This typology could overwhelm small farms, individual houses and small settlements, affecting their setting and the scale of the built development if poorly sited. This typology could also impact on the setting and prominence of

landscape with some present on more pronounced hills. There is little large-scale built infrastructure.	sites remains sensitive. This typology would have significant adverse effects on the more densely populated *Rockcliffe* area where the scale contrast between domestic buildings and turbines would be more easily appreciated. ***Susceptibility rating: High***	archaeological and historic features, including those along the coast. More sparsely settled areas would be less sensitive to this typology. ***Susceptibility rating: High-medium***
Landscape context The *Burrowhead* and *Monreith* areas abut the *Machars* peninsula (1) with strong inter-visibility occurring between the two. The *Borgue* area merges gradually with the *Drumlin Pastures* type (13) while the *Rockcliffe* area is strongly contained by the steeper slopes of the *Coastal Granite Uplands* (23).	This typology sited in the *Burrowhead* and *Monreith* areas could impact on sensitive landmark hills such as the Fell of Barhullion which forms a backdrop to AU 1. Turbines of this size could overwhelm the scale of AU1 and AU13 which lie close to this landscape. Development sited within the *Rockcliffe* area could impact on highly scenic views to and from the *Coastal Granite Uplands* ***Susceptibility rating: Hig-medium***	This typology, if sited at the transition between this AU and the *Drumlin Pastures* (13) and more complex and smaller scaled landscapes of the *Peninsula* (1), for example at Glasserton, could dominate or detract from these adjacent small scale landforms. The openness of the adjacent *Peninsula* (1) increases sensitivity particularly to larger turbines within this typology. ***Susceptibility rating: Medium***
Perceptual qualities The coastal edge of *Burrowhead* and *Monreith* areas have a strong sense of wildness. Other areas are less remote and more populated although all instil the same perception of naturalness, accentuated by the distinct ruggedness of the coastline.	There may be increased scope to site turbines towards the lower height band of this typology so as to avoid intruding on areas which have a pronounced wildland character. ***Susceptibility rating: High-medium***	This typology is likely to have effects on the perceived wild land qualities of the more remote and less accessible coasts, especially where there is little or no existing development visible from the coastal edge. ***Susceptibility rating: High-medium***
Views and visibility The *Rockcliffe* area is small and relatively well-populated/visited thus increasing visual sensitivity. The Solway Firth is also popular for sailing. Visibility can be limited from roads and settlement within the *Borgue* area by landform although the coast is more open and views extend across the Fleet Bay and Solway. The A747 offers elevated views over the *Monreith* area although views are more restricted towards the less accessible coast of this and the *Burrowhead* area.	This typology would be highly visible from more open and elevated roads and recreation areas. ***Susceptibility rating: High***	The larger forms of this typology are likely to be relatively easy to see across these relatively open landscape areas, which are also small in extent. Occasional prominent landmark hills, the setting of the settlements, key historic or archaeological features as well as dramatic and scenic coastlines all contribute to visual amenity and are sensitive to this typology. ***Susceptibility rating: High-medium***
Landscape values The Stewartry Coast NSA covers the majority of the *Rockcliffe* unit. The special qualities of this NSA include the complex coastline with rocky coasts and cliffs and rich texture of gorsey knolls. The Solway Coast RSA also covers the *Rockcliffe* unit and the majority of the *Borgue* unit. The Machars Coast RSA covers the *Monreith* and *Burrowhead* areas. This	The national and local landscape designations which cover much of this landscape, and the attraction of these coastal areas for recreation, increases sensitivity to larger wind turbines. ***Value rating: High***	This typology may have less of an adverse effect on the special qualities of designated landscape and could be sited to be less intrusive from well-used coasts. ***Value rating: High-medium***

Assessment Unit contributes to the '*diverse and attractive'* coast of the Solway and Machars Coast RSAs. The *inaccessibility* of the Machars coast is specifically noted in Technical Paper 6. This coastal landscape is well used for recreation with many promoted walks, cycle routes and beaches.		
Sensitivity	**High**	**High-medium**

4 ASSESSMENT UNIT 3: COASTAL FLATS

4.1 Introduction

This Assessment Unit lies adjacent to estuaries and between Luce Bay and Loch Ryan. The following areas are defined:

- *Stranraer Basin*
- *Wigtown*
- *Cree/Fleet Fringe*
- *Nith Coastal Fringe*
- *Inner Solway*

The *Wigtown, Cree/Fleet Fringe*, *the Nith Coastal Fringe* and *Inner Solway* are considered together in the sensitivity assessment with the *Stranraer Basin* area assessed separately.

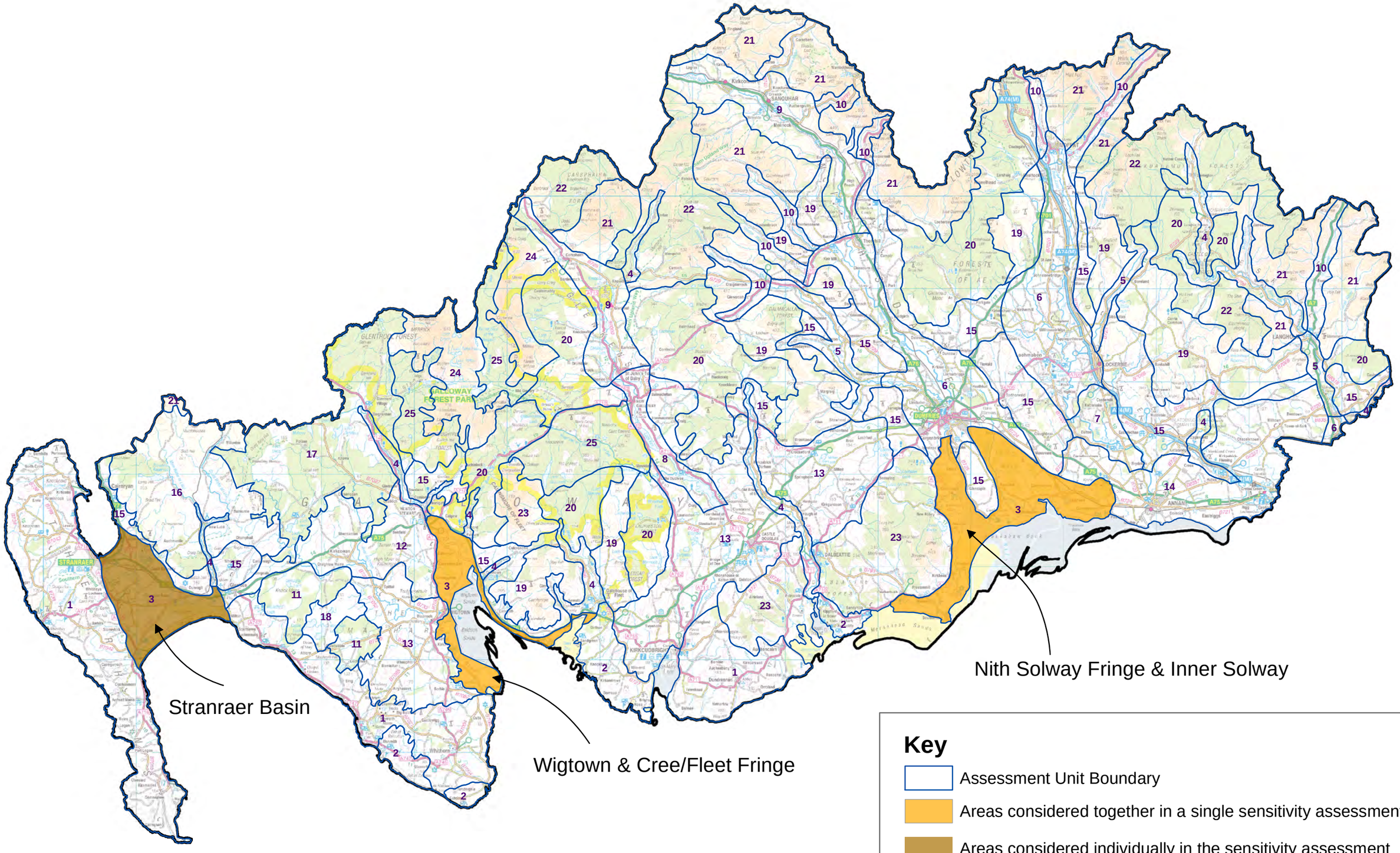
4.1.1 *Cultural heritage overview*

This Assessment Unit is characterised by post-improvement (c19th-20th) fields and farming as well as small 20th century farms, with a number of designed landscapes, patches of forestry/woodland and rough grazing, as well as a scatter of relict land-uses. Some parts retain evidence of pre-medieval land-use as well as areas of pre-improvement remains, particularly in the Stranraer Basin (part of which is an Archaeologically Sensitive Area), north of Garlieston (Wigtown) and south-east of Dumfries (Inner Solway). The Stranraer Basin and Inner Solway units have a number of outstandingly significant and distinctive archaeological sites, a few of which are promoted for public benefit.

4.1.2 *Operational and consented wind energy development*

There is no operational wind farm development within this Assessment Unit. The operational offshore Robin Rigg windfarm is sited within the Solway Firth adjacent to the *Nith Coastal Fringe*.

Assessment Unit Key Map - 3. Coastal Flats



Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

4.2 Wigtown, Cree/Fleet Fringe, Nith Coastal Fringe and Inner Solway

4.2.1 *Description*

The narrowness of these coastal margins, the distinctly natural qualities of the merse, tidal mudflats and estuarine wetlands, the rich pattern of historic features and settlements and the proximity to landmark hills and ridges increase sensitivity to all development typologies. These open coastal areas are highly visible from roads and settlement which are often elevated above them.

4.2.2 *Cumulative issues*

There are no wind energy developments located in these areas. The operational offshore Robin Rigg wind farm influences character and views in the *Nith Coastal Fringe* although other areas are largely unaffected by wind farm development sited in adjacent Assessment Units. Cumulative effects are most likely to occur between the Robin Rigg wind farm and any larger turbines located in the *Nith Coastal Fringe* affecting views and the sense of naturalness experienced from coastal paths, beaches and roads.

Variations in the type and size of single and small groups of small-medium and small turbines (turbines <50m) associated with farms could create cumulative landscape and visual impacts with this often sparse and simple landscape, quickly appearing cluttered. Turbines could form a dominant feature detracting from the pattern and low, 'tucked-in' form of other landscape features such as small, windswept trees, wind sculpted policy woodland and low buildings.

4.2.3 *Key constraints*

- Indirect effects on the steep-sided landmark hills of Criffel, Cairnharrow and Cairnsmore of Fleet, which provide a distinctive backdrop to these coastal flats and contribute to the wider highly scenic contrast of landform and the diverse composition of sea, coast and uplands.
- Indirect effects on the Torthorwald and Ward Law Ridges which back the inland mosses of the *Nith Coastal Fringes/Inner Solway* which would be sensitive to larger turbines that may dominate their scale and perceived prominence.
- The narrowness of these *Coastal Flats* where the scale of larger, or even small-medium, turbines would dominate their extent.
- The natural and diverse character of areas of wetlands and their interface with dynamic tidal estuaries, mudflats and/or extensive sandy beaches.
- The small size and wind pruned shape of trees, as well as low buildings in the most exposed areas, which make the landscape appear sparse and uncluttered with a strong Sense of Place.
- The openness and high visibility of these areas from settlements and roads and their popularity for recreation which increases visual sensitivity.
- Focal views from the coastal flats across the Solway Firth to the Cumbrian Fells.
- The setting of key archaeological features and historic settlements including those which are particularly prominent around the coast.

4.2.4 *Opportunities*

- The simple landform and modified character of forested inland mosses which are sparsely settled and may offer some limited opportunities to accommodate

smaller wind turbines <50m high (although some of these forests are in the process of removal with the aim of restoring moss habitat which will increase sensitivity).

4.3 Sensitivity and guidance

While the often strongly natural character of these coastal flats and their visibility from roads and settlement increases susceptibility to turbines of all sizes, the proximity of landmark hills in adjacent Assessment Units also increase sensitivity to larger wind turbines which could potentially impact on their character and on key views. The value of these landscapes is increased by the presence of NSA and RSA designations and because of the attraction of coastal areas for recreation. Sensitivity would be ***High*** sensitivity to turbines >50m high. Sensitivity would be ***High-medium*** to turbines 30-50m high.

Any turbines 30-50m high located on the less sensitive forested inland mosses of the Nith should be carefully designed to minimise effects on settlements including from Dumfries and on character and views from the nearby Torthorwald Ridge, Ward Law and Criffel. Any future restructuring plans for forested areas should be carefully considered as restoration of more open and natural habitats in this area would be likely to increase sensitivity to wind turbine development.

Small turbines (<30m high) should be sited where they can be clearly associated with existing built development, farms or other settlement. They should avoid the particularly open coastal fringes with a strong sense of naturalness and would be easier to accommodate if sited on slightly rises or folds in the landscape or where there are natural changes in gradient. All turbines should avoid intrusion on key views from settlement, roads and coastal footpaths, and into the backdrop and setting of small settlements, archaeological features and landscapes of historic interest. The introduction of additional overhead lines and the close siting of turbines to existing telecommunication structures and overhead lines should be avoided in these sensitive and very open coastal landscapes.

AU3: Coastal Flats - Wigtown, Cree/Fleet, Nith, Inner Solway areas – Detailed assessment of smaller wind turbines		
Topics and summary description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale These coastal flats form a relatively narrow strip of land often strongly contained inland by steep hill slopes which limits their scale although the presence of the Solway Firth increases openness in a wider context to the south. They are particularly open in areas where extensive flat unenclosed pastures and marsh occur although a more undulating landform, woodland and field enclosure reduce scale and openness further inland and particularly to the west of the Nith Estuary.	Although wind farm development could relate to the expansiveness of the wider seascape and also the scale of broader inland forested basins and mosses in the Nith Estuary, this typology would dominate the scale of these coastal flats which are narrow and often strongly contained by steep hill slopes. ***Susceptibility rating: High-medium***	Sensitivity is reduced for this size of turbine in areas where the field pattern is large or the vegetation type extensive and uniform. In the narrower inner firths and inland reaches, the sense of expanse is limited by the enclosure of surrounding higher topography. The smaller scale of more complex areas of topography and vegetation pattern, such as around New Abbey, are sensitive to this typology. ***Susceptibility rating: Medium***
Landform Marsh and estuarine sands along the coastal edge are interspersed with more undulating landform, for example near New Abbey and west of Cummertrees. The coastal edge comprises a combination of broad sandy beaches and ragged-edged muddy flats and inlets.	There is greater scope to locate this typology, which is more likely to comprise single and small groups of turbines, so as to avoid more sensitive coastal areas. ***Susceptibility rating: Medium***	The more complex areas of topography, including the more intricately patterned coastal fringe, are likely to be sensitive to this typology, although there is scope to accommodate single and small groups of turbines to avoid impacting on more sensitive coastal areas. ***Susceptibility rating: Medium***
Landcover There is a simple pattern of large fields and few trees in the Southerness area. A more diverse pattern of woodlands, field trees and walls is present within the sheltered Nith estuary which also features a number of designed landscapes. Salt marsh and estuarine sands are highly natural and often have a complex pattern, texture and colour. Some areas of productive coniferous forest occur, these planted on inland mosses. Some of these forests are being felled to enable moss restoration. Clumps of wind-stunted trees often mark farmsteads.	This typology would have similar effects if located on sensitive coastal habitats and within or close to the more diverse and patterned *Nith Coastal Fringe*. There is slightly increased scope for this typology, which is more likely to comprise single and small groups of turbines, to relate to areas with a less patterned land-cover such as coniferous forest and more extensive and open coastal pastures. This typology would also overwhelm the scale of wind-stunted trees in more exposed areas. ***Susceptibility rating: Medium***	Wet coastal habitats and inland mosses (some of these recently restored) are of increased sensitivity due to the disruption that would occur to the integrity of natural landcover. Sensitivity would reduce for single and very small groups of turbines as these could relate to areas with a less complex land-cover such as coniferous forest and more extensive and open coastal pastures. This typology would also overwhelm the scale of wind-stunted trees in more exposed areas. ***Susceptibility rating: Medium***
Built Environment Dispersed farms are located away from the marshy coastal edge. Inland forested former mosses are less settled. There are a range of archaeological sites and areas with the historic settlements of New Abbey and Wigtown and Caerlaverock Castle	There is slightly increased scope for turbines towards the lower height band of this typology to be accommodated within less settled or archaeologically rich areas so as to avoid impacts on scale and setting in relation to settlement and cultural	This typology could overwhelm small farms, individual houses and small settlements, affecting their setting and the scale of the built development if poorly sited. This typology could also impact on the setting and the prominence of archaeological or landmark historic

comprising key features. The offshore Robin Rigg wind farm is visible from parts of these *Coastal Flats*.	heritage. Cumulative effects could occur on coastal character. ***Susceptibility rating: High-medium***	features or more extensive historic landscapes although sensitivity would be reduced in more sparsely settled areas. ***Susceptibility rating: High-Medium***
Landscape context The steep-sided hills of Criffel, Cairnharrow and Cairnsmore of Fleet, provide a distinctive backdrop to these *Coastal Flats* and contribute to the often highly scenic wider landscape composition. The Solway Firth also forms part of the wider seascape character. The existing offshore Robin Rigg windfarm is visible from the *Nith Fringe* and *Inner Solway* landscape units. The Ward Law and Torthorwald Ridges which lie within the *Upland Fringe* (15) also contain and contrast with the inland mosses to the south-east of Dumfries.	This typology would have similar effects on the scenic contrast and drama provided by backdrop hills and containing ridges and on the interface of land and sea. ***Susceptibility rating: High***	The transition between the low lying flats and the higher surrounding character types can be abrupt and dramatic and therefore sensitive to development, including this typology. Character types with adjacent smaller scale more complex landforms, such as the drumlins of AU 12 and 13, or some of the smaller hills associated with AU 23 and the *Ward Law Ridge* (15) are also sensitive to this typology. However, where back-dropped against larger and more sweeping landforms associated with neighbouring Assessment Units, this typology could be more readily accommodated. ***Susceptibility rating: High-medium***
Perceptual qualities The merse and estuarine sands of this coastal landscape (and wider seascape) instil a strong sense of naturalness, heightened by the transitional nature of tides and flocks of birds. These coastal areas are well-visited although a degree of seclusion can be experienced on more isolated beaches.	The sense of naturalness, dynamism and elemental qualities associated with the merse and tidal mud flats could be easily compromised and diminished by any development. ***Susceptibility rating: High***	The sense of naturalness, dynamism and elemental qualities associated with the merse and tidal mud flats could be easily compromised and diminished by any development, including this typology although there may be some scope to site these smaller turbines in more modified inland areas set back from the coast. ***Susceptibility rating: High-medium***
Views and visibility The openness of this landscape allows extensive views from settlement and a number of well-used roads, which tend to be elevated above the flat coastal edge. There are notably striking views over the coastal merse and sands from the B725 and the A710. The A75 and other roads on the Machars provide views across the Wigtown Flats. The coastal mosses south-east of Dumfries are also highly visible from the B724 and the A75. Elevated views are also possible from hills such as Criffel which border these coastal flats. Long views across the *Nith Coastal Fringe* and *Inner Solway* focus on the Solway Firth and Cumbrian hills.	This typology would also be highly visible from many roads and from settlement which tends to be slightly elevated thus allowing extensive views across the flatter coastal areas. It could intrude on key foci such as long views across the Solway Firth to the Lake District Fells and on views to hills such as Criffel and Cairnsharrow. ***Susceptibility rating: High***	This typology would be very visible across the largely level landscapes of the coastal flats, and from surrounding areas. The visual setting to, as well as views to and from, key natural and historic features, such as Criffel, the Martyr's stake at Wigtown and Sweetheart Abbey, settlements such as New Abbey and adjacent Wigtown, and coastal views from key viewpoints are likely to most sensitive to this typology. ***Susceptibility rating: High-medium***

Landscape Value The Nith Estuary NSA covers much of the *Nith Coastal Fringe* and *Inner Solway* units. The East Stewartry Coast NSA covers the western part of the *Nith Coastal Fringe*. The dynamism and diversity of the *Coastal Flats* lying within the two NSAs are cited as key special qualities as is their contrast with adjoining landscapes such as Criffel, New Abbey and the Ward Law ridge. Panoramic views across the Solway Firth to Cumbria are particularly noted in relation to this NSA. The Solway Coast RSA extends to cover all of the *Nith Coastal Fringe* and western part of the *Inner Solway*. The Galloway Hills RSA extends over part of the Wigtown Coastal Flats. Within the Solway Coast RSA it is noted that.."*the uplands are dramatically juxtaposed with the flat, exposed landscapes of the coastal flats around the Nith Estuary".* The citation for the Galloway Hills RSA notes that the boundaries have been drawn to include ..."*the contrasting flat landscapes of the upper Cree estuary...because of their scenic juxtaposition with the uplands".* There are Inventory listed designed landscapes at Arbigland and Kinmount and parts of the coast are well-visited by walkers and bird watchers.	This typology would have significant effects on these special qualities of the NSAs and RSAs if sited within or close-by them. Inventory listed designed landscapes could also be affected if development intruded on their setting. ***Value rating: High***	This typology would have significant effects on these special qualities of the NSAs and RSAs if sited within or close-by designated areas. Inventory listed designed landscapes could also be affected if development intruded on their setting. Sensitivity would be reduced across inland areas set well away from designated landscapes. ***Value rating: High-medium***
Sensitivity	**High**	**High-medium**

4.4 Stranraer Basin

4.4.1 *Description*

This landscape forms a broad and low-lying isthmus contained by the ridge of the Rhins peninsula to the west and the plateau moorlands to the north-east. Landform is predominantly simple, comprising a flat to gently undulating coastal plain although some more complex rolling ground occurs in the north. While the southern part of this landscape comprises broad open farmland divided into large fields, a more diverse pattern of policy woodlands and lochans is found in the north. This is a relatively well-settled landscape accommodating the port town of Stranraer and a regular pattern of farms. Some MOD infrastructure is present in the immediate hinterland to Luce Bay. The *Stranraer Basin* is highly visible from roads and settlement which are often elevated above them, although trees limit views in places.

4.4.2 *Cumulative issues*

The operational Barlockhart wind farm is located close to the eastern boundary of this area. The operational Artfield Fell, Balmurrie Fell, Carscreugh and Glenchamber wind farms, sited in other close-by Assessment Units lying to the east and north-east, are also clearly visible from the *Stranraer Basin.* These developments present a visually confusing image because of their different siting, layout and turbine sizes in views from this area. The North Rhins wind farm is also visible on the skyline of the Rhins peninsula to the west of the *Stranraer Basin*.

Potential cumulative effects that could arise include:

- Exacerbation of the visual confusion and clutter which already exists between operational wind farm developments sited close-by this area if additional large scale wind turbines were also sited in the *Stranraer Basin*.
- A weakening of the generally established association of wind farms with correspondingly larger scale, less settled upland landscapes if larger wind turbines were sited within this farmed and settled lowland landscape.
- Variations in the type and scale of single and small groups of turbines. The regularity of farmsteads dotted across the Stranraer Basin and the openness of the landscape (particularly in the south) could rapidly lead to it appearing cluttered if turbines were associated with the majority of land holdings.

4.4.3 *Key constraints*

- The extensive Inventory listed designed landscape of Castle Kennedy and policy features such as woodlands and shelterbelts in the north-east of this Assessment Unit.
- The rolling landform in the north-east of the basin and the small lochs which form occasional features within this generally farmed plain.
- The natural qualities of Luce Sands and the less modified hinterland of dunes and estuarine flats, which includes an Archaeologically Sensitive Area.
- The general openness and high visibility of this area which lies close to settlements and major transport routes.
- Cumulative impacts with operational wind farm developments sited in nearby landscapes.

4.4.4 *Opportunities*

- Broader, flatter and more open areas of farmland and forestry and larger scale buildings (including the West Freugh Airfield/MOD infrastructure) with which development could potentially be associated.

4.5 Sensitivity and guidance

While the generally simple landform and landcover of this landscape reduces susceptibility, the nationally important Castle Kennedy designed landscape and the less modified estuarine flats and dunes (which include an ASA) near Luce Bay are key sensitivities. The high visibility of this landscape from roads and settlement and potential cumulative effects with wind farms sited in adjacent upland landscape additionally increase sensitivity to larger wind turbines. Sensitivity would be ***High*** to wind turbines >80m high, ***High-medium*** to wind turbines 50-80m high and ***Medium*** to wind turbines 30-50m high.

Wind turbines should be associated with the broader, flatter areas of ground with a simple land cover pattern (generally present in the southern part of this area) and set well away from the more complex rolling landform which occurs to the north. All turbines should be sited to avoid impacting on views to, and from, the designed landscape of Castle Kennedy and on the less modified and complex coastal features around Luce Sands, which is also an Archaeologically Sensitive Area. Turbines <35m high would be likely to have fewer cumulative impacts with operational and consented wind farms sited in nearby landscapes and would minimise intrusive across what is a highly visible coastal landscape. On-going monitoring of cumulative landscape and visual effects will be necessary.

Small turbines (<30m high) should be sited where they can be clearly associated with existing development, farms or other settlement. They will be easier to accommodate if sited on natural low terraces and changes in gradient or to fit with existing field patterns if sited within flatter farmland.

The introduction of additional overhead lines and the juxtaposition of turbines with existing telecommunication structures should be avoided in this open landscape.

AU 3: Coastal Flats - Stranraer Basin area– Detailed assessment of smaller wind turbines		
Topics and summary description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale These coastal flats extend from Loch Ryan to Luce Bay and form a relatively expansive plain which is generally more open to the south. Scale is reduced where a more undulating landform and woodland plantings provide containment in the north in the Castle Kennedy area.	This typology would overwhelm the smaller scale of undulating wooded landscapes found to the north although the more open southern parts of this coastal plain are of reduced susceptibility. ***Susceptibility rating: High-medium***	The more open, broader scaled landscapes offer the potential to accommodate this size of typology, although more undulating and smaller scale landforms, and the more wooded and enclosed landscapes to the north of this area are of increased susceptibility. ***Susceptibility rating: Medium***
Landform The *Stranraer Basin* forms a low-lying Isthmus between the Rhins and the plateau moorlands of Galloway. The landform is generally flat although becomes more rolling in the north towards Castle Kennedy and Stranraer with small knolls and dips occasionally filled with lochans. Low grassy dunes provide the hinterland to the expansive sandy beach and estuarine flats of Luce Bay.	This typology could relate to the predominant simple, flat to gently undulating landform of this landscape unit. Turbines and access tracks could however physically damage more fragile coastal landforms and would conflict with the more rolling landform in the north. There is greater scope to site this smaller typology to avoid impacts on more complex coastal landforms. ***Susceptibility rating: Medium***	The flatter landscapes offer the potential to accommodate this typology. This size of turbine could interrupt the rhythm and interlocking complexity of the more rounded landforms found in the north and the dunes close to Luce Bay however. ***Susceptibility rating: Medium***
Landcover Large fields cover the southern part of the *Stranraer Basin* and these are bounded by wire fences and intermittent hedges dominated by gorse. Airfields, conifer plantations and gravel workings interrupt this field pattern in the south in places. A strong pattern of shelterbelts and policy plantings occurs to the north and occasional lochs also feature in this area; these tucked between rounded hills and often fringed by woodland. The policy woodlands, parkland plantings and boundary walls of Castle Kennedy are landmark features in the north-east.	There is greater scope for this typology to relate to the less strongly patterned southern parts of this landscape, it would however still conflict with the strong pattern of shelterbelts, lochs and designed landscape features found to the north. ***Susceptibility rating: Medium***	Where the landscape is relatively open and there are few landmark features against which to assess the size of this typology, there is potential to accommodate this typology. The areas of more diverse fields, scattered small woodlands and shelterbelts, as well as the lochans and wetland in the north of this unit, are more sensitive to development, as are the more complex and diverse policy woodland areas. ***Susceptibility rating: Medium***
Built Environment Small settlements are located on the slightly elevated fringes of the basin. Farms are dispersed across the plain and many feature large sheds. Stranraer is partially located within this Assessment Unit. Key features include the MOD installations and gravel workings close to Luce Bay. There is a range of archaeological features, as well as historic sites associated with	While this typology could also dominate the scale of settlements and farms and may result in cumulative effects with wind farms sited in adjacent Assessment Units, there is some limited opportunity for turbines to be sited far enough away to minimise effects. Turbines of this size would concentrate rather than disperse built development thus reducing adverse effects on the	While this typology could overwhelm small farms, individual houses, small settlements and archaeological features, affecting their setting and the scale of the built development if poorly sited, many of the farms are large and have tall outbuildings, set within more open and expansive landscapes with large fields, therefore there is potential scope to accommodate this typology.

Castle Kennedy. Operational wind farms in adjacent Assessment Units are clearly visible.	integrity of undeveloped farmland. Archaeology and designed landscape features increase susceptibility in places. Cumulative effects could occur with wind farms located in nearby AUs. ***Susceptibility rating: High-medium***	In addition, in more sparsely settled areas, and areas where the MOD buildings and airfield already create a larger scale context, there may be opportunities for this typology. Archaeology and designed landscape features increase sensitivity in places. ***Susceptibility rating: Medium***
Landscape context This Assessment Unit is contained by the steeply rising ground of the *Upland Fringe* (16) and *Plateau Moorland* (17) to the north and the *Rhins Peninsula* (1) to the south-west.	This typology could detract from the smaller scale woodland, field pattern, settlements and archaeological features on the *Upland Fringe* (15) if located close to the outer edges of the *Coastal Flats*. Tall turbines could also potentially visually intrude on parts of the eastern coast of the *Rhins Peninsula* (1). ***Susceptibility rating: Medium***	This typology is unlikely to have significant effects on neighbouring Assessment Units particularly if set into the core of this basin. ***Susceptibility rating: Medium-low***
Perceptual qualities The expansive tidal sands and dunes of Luce Bay have a strong sense of naturalness and can also feel secluded although MOD structures, caravan sites, forestry and quarrying diminish these perceptual qualities in the east. The majority of this area is intensively farmed and settled.	This typology is likely to comprise single or very small groups of wind turbines and as such susceptibility would be reduced in terms of the ability to site confined development to avoid impacts on the less modified coastal areas. ***Susceptibility rating: Medium***	This typology would detract from the strong sense of naturalness experienced within the more unmodified coast of Luce Bay. However, for the majority of this area, the settled and managed character of this landscape would be less sensitive to this typology. ***Susceptibility rating: Medium-low***
Views and visibility The openness and low-lying nature of this landscape enables extensive views only curtailed by woodlands in the north-east. Luce Sands are well-used for recreation and the area is also bordered and crossed by a number of key roads including the A75 and the railway. Settlement located on the eastern edge of the Rhins has elevated views over the Stranraer Basin.	This typology would be highly visible from many major roads and from settlement which tends to be slightly elevated thus allowing extensive views across the flatter coastal areas. Turbines could intrude on views to Luce Bay and Loch Ryan. This typology would extend above woodland in the north-east of this landscape and could impact on views from within the designed landscape of Castle Kennedy or from Soulseat Loch if sited in the northern part of the Basin. ***Susceptibility rating: High***	While in the most open areas views of this size of turbine will be readily visible, the tree lined roads and undulating topography are likely to limit views which will be intermittent. Key sensitivities are likely to include the visual setting and backdrop to Castle Kennedy and Stranraer as well as smaller settlements. ***Susceptibility rating: High-medium***
Landscape Value No scenic landscape designations are associated with this landscape. The Inventory listed designed landscape of Castle Kennedy occupies the north-eastern part of this landscape unit. This designed landscape is rated outstanding against all criteria in the Inventory. Policy woodlands limit views to and from the designed landscape and the wider landscape. Some	The setting of Castle Kennedy GDL and nearby beaches popular for recreation are valued and turbines of this size could detract from their setting/views. ***Value rating: Medium***	Sensitivity is generally reduced in relation to smaller turbines which could be sited to minimise effects on Castle Kennedy GDL and in views from nearby beaches. ***Value rating: Medium-low***

beaches on the fringes of Luce Bay (outside the MOD controlled area) are popular for recreation.		
Sensitivity	**High-medium**	**Medium**

5 ASSESSMENT UNIT 4: NARROW VALLEYS

5.1 Introduction

This Assessment Unit comprises the *Water of Luce, Cree, Palnure, Moneypool, Fleet, Ken, Urr, Kirtle, Eskdale* and *Liddle* valleys. These valleys are considered together due to their similar small scale and strongly contained character. No detailed sensitivity assessment tables are provided for turbines 50-80m high due to the low demand for wind energy development in these strongly contained and narrow valleys and their high sensitivity.

5.1.1 *Cultural heritage overview*

This Assessment Unit is characterised by a mix of post-improvement (c19th-20th century) fields, farming, woodlands and rough grazing as well as a few designed landscapes, with evidence for relict land-uses being largely restricted to the Eskdale unit. Eskdale in particular retains areas of pre-improvement (pre19thc) remains as well those of earlier periods. This is reflected in the fact that there are various Archaeologically Sensitive Areas in Eskdale as well as numerous outstandingly significant and distinctive archaeological sites some of which are promoted for public benefit.

5.1.2 *Operational and consented wind energy development*

No wind farm development is present in these valleys. The wind farms of Carlesgill and Crossdykes, located within the adjacent *Southern Uplands* (22), are visible from the *Eskdale* valley. The consented Hopsrig and Loganhead wind farms will also be visible from this valley.

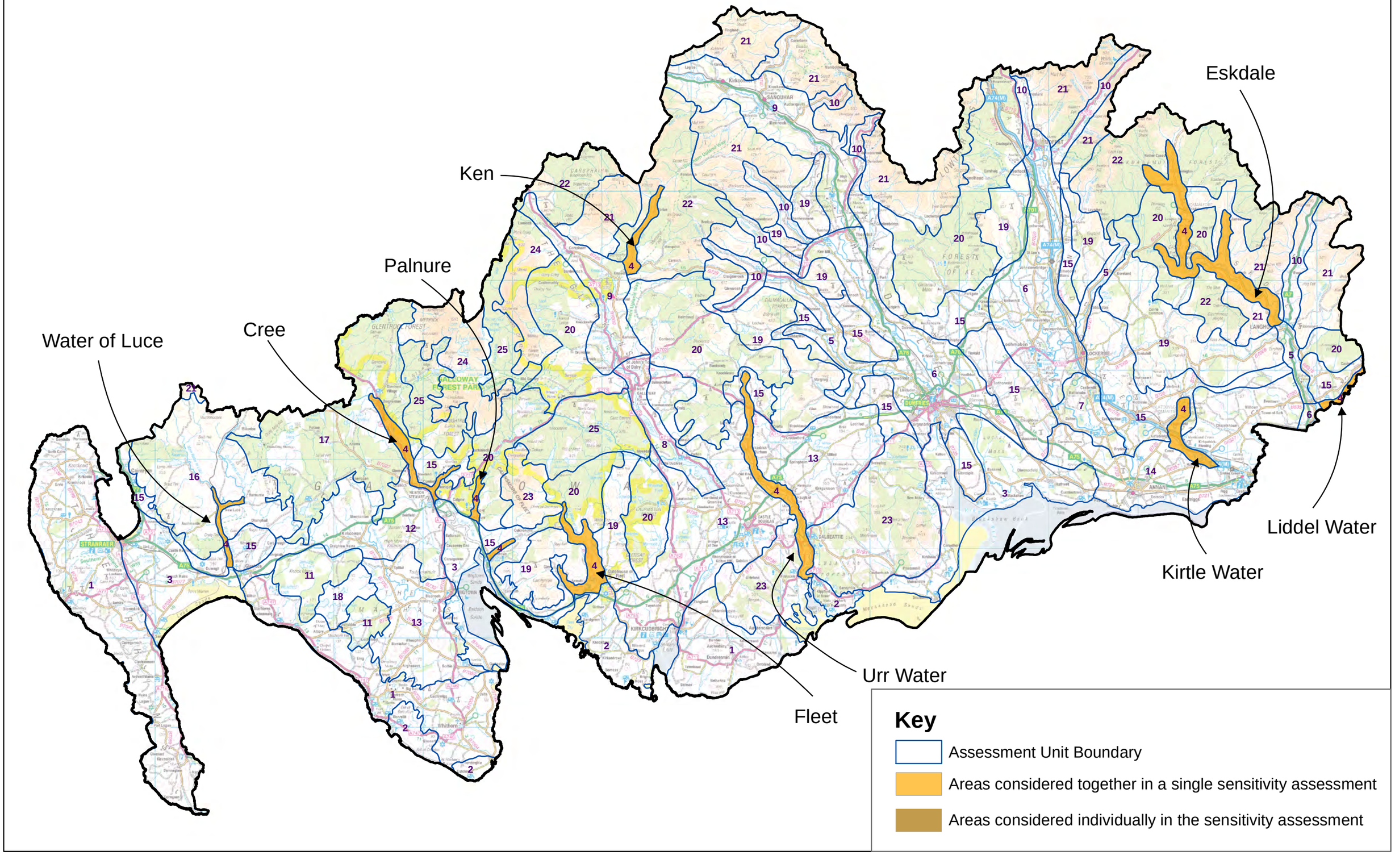
The *Water of Luce* valley is affected by operational wind farms located in the adjoining landscapes *Plateau Moorlands* (16) and *Plateau Moorlands with Forest* (17) Assessment Units. There is also visibility of operational wind farm development located in the *Stroan* area of the *Foothills with Forest* (20) from the *Urr* valley. The consented Lorg wind farm will also be visible from the upper reaches of the *Ken* valley.

5.2 Description

These valleys are generally sinuous and nearly all long enough to individually wind through a range of different adjoining Assessment Units, from enclosing and forested uplands to more open plateau and lowland landscapes. They include shallow valleys contained by well-defined terraces or barely enclosed by low profiled moorland to narrow incised valleys further enclosed by broadleaved woodland and medium scaled valleys, surrounded by the steep slopes of rounded hills or undulating ridgelines. They are further varied in land cover and settlement pattern, embracing extensive conifer woodlands and arable fields, sparsely populated and secluded upper reaches or well settled landscapes, accommodating narrow single-track roads or even motorways.

There are several sensitive viewpoints in these valleys, including those to and from historic sites. Views tend however, to be intermittent and in places curtailed by the land form and tree cover. National and local landscape designations apply to some of these valleys and there are ASAs in Eskdale.

Assessment Unit Key Map - 4. Narrow Valleys



Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

5.2.1 *Cumulative issues*

There is some potential for development located in this Assessment Unit to be seen in conjunction with larger wind farms located on adjacent, surrounding hills or open moorland plateau in upland Assessment Units. In some of the less contained upper valleys, this inter-visibility is likely to be sustained, but elsewhere, it is intermittent.

5.2.2 *Key constraints*

- The smaller scale, narrower and more enclosed valleys are likely to be easily dominated, even by small turbines (<30m).
- The upper edge of the valleys, regardless of the shape of the ridgeline, is visually prominent against the sky when viewed from within the valleys and is sensitive to wind turbines of all sizes.
- Diverse woodlands, individual trees and policies and also, in places, a strong pattern of stone dykes enclosing pastures.
- Views to and from landmark features including views from promoted viewpoints for the Fleet NSA for example.
- The setting of settlements, archaeological sites, landmark historic and other built features and the Archaeological Sensitive Areas in *Eskdale*.
- Cumulative effects with operational and consented wind farms located in nearby upland areas and visible on the skyline of these valleys – the *Water of Luce*, *Eskdale*, *Ken* and *Urr* valleys are most affected by wind farms sited in other landscapes.

5.2.3 *Opportunities*

- Long, sweeping slopes, more gentle gradients and areas backdropped by higher surrounding hills or more open plateaux or by adjacent uplands which have a simple profile and greater horizontal scale where smaller turbines <50m high could be more easily assimilated.
- The lower side slopes, where more gentle gradients, individual terraces and other landforms and small incisions associated with tributary watercourses offer opportunities where small turbines could be sited and associated with these other features in the landscape.
- The more developed landscapes, where the settlement pattern is denser and the infrastructure more obvious and where small turbines could relate to buildings.

5.3 Sensitivity and guidance

These valleys are highly sensitive to most sizes of wind turbine due to their narrow, confined landform and small scale and diverse landcover pattern. The setting of small settlements and cultural heritage features comprise key sensitivities which could be significantly affected by larger wind turbines. NSA and RSA designations cover many parts of this landscape and increase the value associated with these valleys. Sensitivity would be ***High*** to turbines >50m. There would be a ***High-medium*** sensitivity to turbines 30-50m high.

Small-medium sized turbines (30-50m) will be hard to accommodate in many of these small-scale valleys while minimising landscape and visual impacts. Long low ridgelines and concave folds in the landform, backdropped by adjacent larger hills, moorland or

plateaux are less sensitive although careful consideration of the size of these turbines relative to the numerous built and natural features which are widespread in the more settled lower valleys (for example, exploring options around the 35m height) will be necessary to reduce significant adverse effects. Cumulative effects with wind farms sited in adjacent upland areas may also be a constraint within some of these valleys.

The sinuous shape of the valleys and the presence of woodland frequently limits the extent of visibility but turbines should be sited to avoid interrupting prominent skylines, visual focal points or key views. Small turbines should be located where they can reinforce the pattern of existing development, associated with farms and other small groups and single buildings which provide a framework of built development-related point features along the valleys. Turbines under 20m high are likely to provide a better fit with the small scale of buildings and other features in these valleys.

Care should also be taken if siting large turbines on immediately adjacent upland Assessment Units, as if poorly sited, these could ‘perch above’ and easily dominate these valleys. The prominent skyline where the upper rim of the valley sides reaches the open sky is a sensitive visual focus and care should be taken to not place turbines on these immediate skylines or in views up to side valleys where the eye of the viewer is naturally drawn.

AU 4: Narrow Valleys – Detailed assessment of smaller wind turbines	
Topics and description	**Assessment: Small-medium turbines (30-50m)**
Scale These valleys vary in terms of their narrowness, openness and degree of containment, ranging from shallow valleys which spill into the low relief of the surrounding uplands – for example, Corsock and the upper reaches of Eskdalemuir at the transition with the *Foothills with Forest* AU, to more incised and enclosed valleys strongly contained by high hills and also flat valley floors well defined by steep sided wooded slopes. There are occasional side valleys and more expansive areas of valley floor, which form larger scaled stretches of valley as well as narrower, heavily wooded, more intimate spaces. The height of the valley sides is most pronounced when flanked by the *Foothills* (18a) and *Southern Uplands* (19 and 19a) AUs, which can rise to about 350m.	This typology could easily dominate the narrower sections of the valleys and areas where the relief of the valleys sides is relatively low but still contained. Turbines sited along the upper rim of the valleys could appear out of scale with the depth of the valleys. Turbines located on the lower ridges and smaller landforms could also appear out of scale relative to the height of the topography. However, there are occasional areas of relative openness, wider valley floors and longer, gently graded side slopes, often associated with areas where the valleys are shallow and containment minimal, where this size of turbine could be accommodated. There is likely to be more scope for accommodating turbines of less than 35m in height. ***Susceptibility rating: high-medium***
Landform All the valleys are generally sinuous and varied in form. Key landform shapes include: flat bottomed valleys, low river terraces, steep sided but flat topped valley sides and occasional moundy deposits along the valley floors and lower side slopes; steep sided hills, undulating skylines, individual slightly rugged hills and more complex interlocking spurs; and long shallow side slopes which extend seamlessly into the low relief of undulating uplands.	The undulating topography along some of the lower slopes offers some opportunities for siting individual turbines related to topographical features, although the small size of some of these features may limit opportunities for turbines above 35m in height. The rhythm of the undulating ridges, interlocking spurs or individual summits, or alternatively the simplicity of the level terraces which form the valley skylines could be easily disrupted by turbines sitting along the rims of the valleys. Where there are longer, smoother hill flanks, long low ridges and slacker gradients which create a more horizontal alignment in the landform, there are more likely to be opportunities to accommodate this typology, particularly where they are backed by the more expansive scale of adjacent upland character types. ***Susceptibility rating: high-medium***
Landcover Overall, land cover pattern within these valleys varies from extensive conifer woodland combined with abandoned fields on the side slopes and with wetland along the valley floor (e.g., the Ken) to widely cultivated valleys of arable/improved grassland fields defined by hedges and broadleaved woodland (e.g., the Kirtle). Many of the longer valleys combine a range of different land cover patterns from simpler rough grazing, combined with unimproved fields defined by dykes and the semi-natural woodland of the upper reaches to more cultivated lowlands. Woodland features in all the valleys. Mature single trees, clumps of trees and small broadleaved woodlands,	While the small size of individual features – from single, landmark trees to small woodlands and fields – could be easily dominated by this typology, there is potential to site single turbines of this size in areas where they can relate to the broader scale and simpler pattern of open rough grazing land and more extensive conifer woodland. The areas of more diverse and intricate patterns of fields and small woods are more sensitive to development, as are the more complex and diverse policy woodland areas. ***Susceptibility rating: high-medium***

trees associated with settlement, both linear and more extensive and enclosing riparian woodland, numerous and varied shelterbelts as well as extensive conifer woods form diverse and often extensive woodland cover. There are also policy woodland and features associated with individual estates, generally in the lower reaches.	
Built Environment Settlement pattern varies widely, from sparsely settled and relatively secluded upland valleys (e.g., the Ken) to much more settled landscapes of scattered farms, small settlements located at bridging points and large estate houses in prominent positions. Dispersed farms are frequently rhythmically associated with side valleys, and can be located part way up hillsides, always avoiding any floodplains. Relatively narrow roads wind through these valleys (the major exception is the M74, which passes through the Kirtle). There are historic features which are identifiable as landmarks within the valleys, including Luce Abbey, the Motte of Urr and sites such as stone circles in Eskdale, as well as extensive historic and prehistoric settlement areas on the upper slopes.	This typology could overwhelm small farms, individual houses and small settlements, affecting their setting and the scale of the built development if poorly sited. This typology could also impact on the setting and the prominence of archaeological, historic or landmark features. However, in more sparsely settled areas there may be opportunities for this typology, but the setting of archaeological sites remains sensitive. ***Susceptibility rating: high-medium***
Landscape context These valleys pass through a wide variety of different character types. They are most inter-visible, however, with some of the forested upland types, notably the *Southern Uplands with Forest* (22), *Foothills with Forest* (20) and *Plateau Moorland with Forest* (17). Lower reaches extend through more pastoral landscapes, which reinforce containment along the valley sides, but are not extensively visible.	Where there is extensive inter-visibility with surrounding higher ground the more expansive setting, higher relief and overall larger scale helps to accommodate this typology. Elsewhere, where the valleys pass through more diverse and smaller scale landscape character types, such as the *Drumlin Pastures* (13), there is less ability to accommodate this typology without adversely affecting the adjacent AUs. ***Susceptibility rating: medium***
Perceptual qualities These valleys vary between well settled and easily accessible to much more secluded, verging on the remote.	Where the landscape is settled and generally well cultivated and managed, this typology will have limited impact on any sense of wildness. Even where the valleys are more secluded, they often contain extensive conifer woodland which limits the sense of wildness. ***Susceptibility rating: medium***
Views and visibility The sinuous shape of the valleys often limits long views, which are further contained or interrupted by woodland. Views therefore tend to be relatively short and intermittent. The varied rims or containing horizons of the valleys seen in profile against the sky, are visually prominent. Key viewpoints include occasional accessible upland features such as hill forts and key summits, some of which lie in adjacent AUs overlooking the valleys. Views to important and landmark historic features are also sensitive	The ridges are sensitive to development perched along the prominent skyline. The focal point of views up the side glens are especially sensitive, as are views from key viewpoints. More diverse and complex landscapes are highly scenic, for example the Fleet valley, and therefore more sensitive. Although views tend to be intermittent and obscured by woodlands, close views of this typology would be possible from roads and settlement from within the valleys. ***Susceptibility rating: high-medium***

Landscape Value The *Fleet* valley is designated an NSA and is also included together with the *Cree, Moneypool and Palnure* valleys within the Galloway Hills RSA. The key special qualities of the *Fleet* Valley include its strong containment by higher hills, woodlands including policy plantings and hedgerow trees, its intimate scale, historic buildings, settlements and ancient remains. The lower valley of the *Urr* lies within the Solway Coast RSA and is described as a wide flat valley with enclosing inland cliffs which reflects the estuary to the south. The southern part of *Eskdale* lies within the Langholm Hills RSA and the scenic juxtaposition between this narrow incised valley and the hills which contain it is a key special quality.	The taller turbines of this typology would overtop trees and woodlands and adversely affect the strong containment they provide and the contribution they make to the character of the *Fleet* valley. This typology could also overwhelm the scale and affect the setting of settlement and historic/archaeological features. The broader scale of the flat cultivated floor of the lower *Urr* valley would be less affected by this typology, although taller turbines could diminish the containment provided by the steep wooded slopes of the *Coastal Granite Uplands* AU. ***Value rating: High to Low***
Sensitivity	**High-medium**

6 ASSESSMENT UNIT 5: PASTORAL VALLEYS

6.1 Introduction

The *Pastoral Valleys* extend along the lower reaches of rivers generally within the *Foothills* and *Upland Fringe* Assessment Units. They comprise the valleys of *Cairn*, *Old Water*, *Dryfe* and *Pastoral Eskdale*. No detailed sensitivity assessment tables are provided for turbines 50-80m high due to the low demand for wind energy development in these strongly contained and narrow valleys and their high sensitivity.

6.1.1 *Cultural heritage overview*

This landscape type is characterised by post-improvement (c19th-20thcentury) fields and farming with scattered small plantations and a number of designed landscapes. Sundaywell and Glenkiln in Cairn and Old Water include areas of medieval and prehistoric landuse. There are archaeological sites of outstanding significance and distinctiveness in all of these landscape areas.

6.1.2 *Operational and consented wind energy development*

No wind farm development has occurred within this Assessment Unit and they are also largely unaffected by wind farm development sited in other landscapes to date.

6.2 Description

The *Pastoral Valleys* are relatively wide, contained by low ridges with occasional more prominent hills. Gently sinuous, they have occasional pinch points where they narrow between steeper slopes, but generally the scale of the valleys is broad, fragmented more by vegetation than complex topography. Roads are often narrow and settlement is frequent, dispersed and varied, including elevated small villages and numerous farms along the side slopes as well as the valley floor.

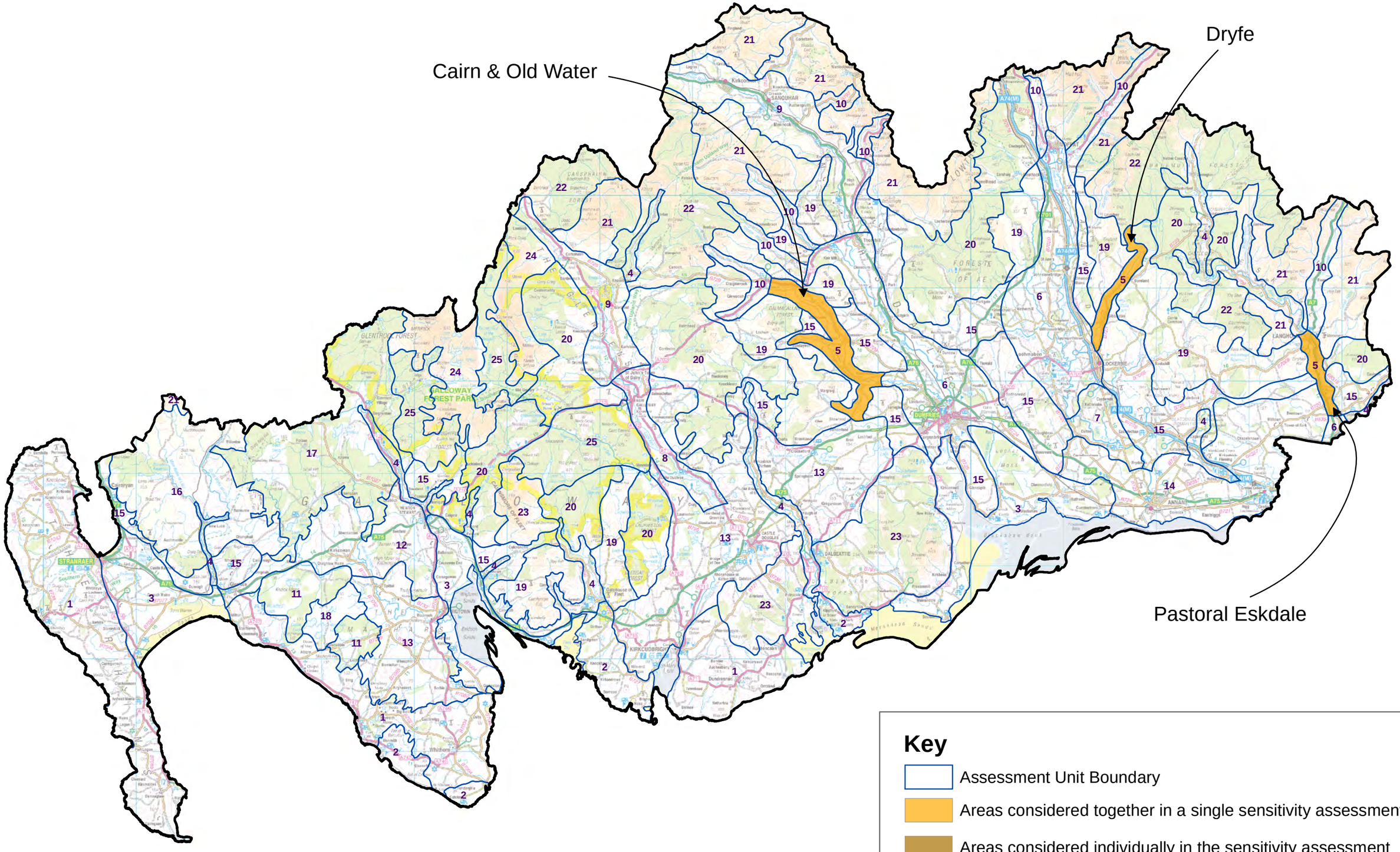
6.2.1 *Cumulative impacts*

There is potential for smaller turbines to be seen in conjunction with larger wind farms located on adjacent uplands although inter-visibility is likely to be intermittent due to screening by woodland and smaller landform features. There may be cumulative impacts which arise if more than one, or small groups, of smaller turbines appear within the valley, including along the hill slopes, and the relationship with operational and consented wind farms will need to be monitored closely.

6.2.2 *Key constraints*

- Occasional narrower ‘pinch points’ where steeper slopes either come together to form a ‘pass’ within the valley or constrict to form a narrower upper valley reducing scale and increasing sensitivity to even small wind turbines (>30m).
- The diverse landscape and settlement pattern of the valleys limits scope for larger typologies and could quickly be dominated by poorly sited development.
- The eye-catching pattern of regular, small fields of pasture marked out by dry stone dykes, which are a particular feature of some of the lower side slopes.
- The diversity of field enclosure, individual field trees, policy-type woodlands and settlements generally associated with the upper *Cairn* valley and *Pastoral Eskdale* valley landscape within the RSAs.

Assessment Unit Key Map - 5. Pastoral Valleys



Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

- The upper edge of the valleys, where the smooth, undulating ridgeline is visually prominent against the sky when viewed from within the valleys. These valleys are sensitive to wind farm development sited in adjacent uplands and seen on immediately containing skylines.
- Views from elevated roads, settlements and other key features within these valleys.
- Archaeological features and broader historic landscapes, often associated with the unimproved grassland on the upper side slopes and ridges

6.2.3 *Opportunities*

- Long, sweeping slopes, more gentle gradients and areas back-dropped by more extensive upland areas where the small/medium typology (30-50m) could be more easily assimilated.
- The pattern of settlement (which is relatively dispersed and widespread) provides a framework of 'point' features with which small turbines (<30m) could be visually associated.

6.3 Sensitivity and guidance

These valleys are highly sensitive to most sizes of wind turbine due to their narrow, confined landform and their modest scale. Landcover is often diverse and the setting of small settlements and cultural heritage features comprise key sensitivities which could be significantly affected by larger wind turbines. RSA designations cover some of these valleys and increase the value associated with this Assessment Unit. The *Pastoral Valleys* have a ***High*** sensitivity to turbines >50m. There would be a ***High-medium*** sensitivity to turbines 30-50m.

Turbines >30m would be difficult to sensitively accommodate within most parts of these valleys. They should be located where they can relate to landform of an appropriate scale, including long low ridgelines and concave folds in the landform, backdropped by adjacent larger hills, moorland or plateaux. Careful consideration of the size of these turbines relative to the numerous built and natural features which are widespread in the more settled lower valleys (for example, exploring options around the 35m height) could create more opportunities for siting this size of development.

Small turbines(<30m) should be located where they can reinforce the pattern of existing development, visually associated with farms and other small groups and single buildings which provide a framework of built development-related point features along the valleys.

Turbines should be sited to avoid intrusion on key views to and from important features, including distinctive buildings, archaeological features and policy landscapes. Care should also be taken to not place turbines in the focal point of views up into side valleys or close to 'pinch-points' along the valley where scale is reduced. Supplementary Guidance is provided on the siting and design of turbines <50m high.

Care should also be taken when siting large turbines and wind farms on adjacent uplands (for example within the *Foothills* or *Upland Fringe* AUs) as poorly sited these could easily dominate these small-scale valleys. Large turbines sited on the edges of these upland areas could dominate immediate skylines seen from these valleys. The

heads of these valleys are particularly sensitive to wind farm development and multiple or extensive developments seen on skylines could affect character and views within these valleys.

AU 5: Pastoral Valleys – Detailed assessment of smaller wind turbines	
Topics and description	**Assessment: Small-medium turbines (30-50m)**
Scale These relatively wide, often shallow and gently sinuous valleys are contained by low hills which form long undulating ridges with occasional higher and more pronounced summits along the edges of the valleys. There are occasional narrower 'pinch points' where steeper slopes either come together to form a 'pass' within the valley or constrict to form a narrower upper valley. The height of the valley sides is most pronounced when flanked by the *Foothills* character type, which can rise to about 350m.	This typology could easily dominate the occasional narrower sections of the upper valleys, or where there are 'pinch points' along the length of the valley. Turbines sited along the upper rim of the valleys could also appear out of scale with the depth of the valleys. Turbines located on the lower ridges and smaller landforms could also appear out of scale with the topographical complexity. However, there are areas of relative openness, wider valley floors and longer, gently graded side slopes where this size of turbine could be accommodated. There is likely to be more scope for accommodating turbines of less than 35m in height. ***Susceptibility rating: high-medium***
Landform The valleys are relatively wide. While they often have flat valley floors, there can be hummocky deposits along the lower side slopes which extend onto the floors of the valleys in places. The containing ridges are gently rolling, with very occasional more pronounced summits.	The more complex and undulating topography along the lower slopes offers some opportunities for siting individual turbines related to topographical features, although the small size of some of these features may limit opportunities for turbines above 35m in height. The rhythm of the undulating ridges could be easily disrupted by turbines sitting along the rim of the valley. Where there are longer, smoother hill flanks, distinct low hills and slacker gradients which create a more horizontal alignment in the landform, there are opportunities to accommodate this typology. ***Susceptibility rating: medium***
Landcover Generally widely cultivated. Grassland and occasional arable as well as improved pasture fields. Sometimes hedged, but often enclosed in walls to create striking patterns, the fields extend across the valley floor and up onto the more fertile lower slopes. Within more upland areas, rough grassland and bracken moor extend over the ridges, often above a head dyke. Mature single trees, small broadleaved woodlands, trees associated with settlement, linear riparian woodland and shelterbelts as well as occasional conifer woods on the higher slopes form diverse but modest woodland cover. There are also occasional policy woodland and features associated with individual estates	While the small size of individual features – from single, landmark trees to small woodlands and fields – could be easily dominated by this typology, there is potential to site single turbines and small groups (<5) of this typology in areas where it can relate to the scale of the larger landforms, bigger fields and more extensive woodland. Where more extensive and less visually diverse vegetation pattern occurs, there is also likely to be more scope for this typology. The areas of striking, repeated pattern of walled, improved pasture fields are more sensitive to development, as are the more complex and diverse policy woodland areas. ***Susceptibility rating: high-medium***
Built Environment Well-settled with occasional small settlements located along the sides of the valleys often associated with river crossing points. Frequent scattered farms and individual houses, including larger estate houses, many with designed landscapes, as well as archaeological sites, are located elevated above the river flood plain and along the lower flanks of the hills.	This typology could overwhelm small farms, individual houses and small settlements, affecting their setting and the scale of the built development if poorly sited. This typology could also impact on the setting and the prominence of archaeological and historic features. ***Susceptibility rating: high-medium***

Occasional A class, but more often B-class roads, from which fork smaller, narrower roads, extend along these valleys.	
Landscape Context These relatively wide valleys often permit views into the *Foothills* (19) and *Upland Fringe* (15) AUs which frequently form the containing ridges, upper slopes or backdrop to these valleys.	Where there is extensive inter-visibility with surrounding higher relief, this helps to accommodate this typology, especially if located where the larger scale landscape creates an expansive setting for development. Elsewhere, more enclosed stretches of the valleys limit the inter-visibility with surrounding larger scale landscapes, consequently limiting scope. ***Susceptibility rating: medium***
Perceptual qualities These valleys are well settled and easily accessible. Therefore, while they are relatively quiet and tranquil, they are neither remote nor secluded.	These valleys are settled and generally well cultivated and managed, therefore this typology will have limited impact on any sense of wildness although their often strongly rural character and tranquillity could be affected. ***Susceptibility rating: medium***
Views and visibility Views from roads focus both along the length and across the width of the valleys. The often smooth and undulating rim of the valleys, seen in profile against the sky, is visually prominent. Key viewpoints are likely to include occasional accessible upland features such as hill forts and key summits, some of which are on adjacent upland AUs, elevated roads which cross the ridges and elevated settlements from where there are long views across the valleys. Low side light catching the strong pattern of dykes on some of the prominent side slopes creates some visual drama. Woodland frequently interrupts views.	The undulating ridges are sensitive to development perched along the prominent skyline. The focal point of views up the side valleys are especially sensitive, as are views from key viewpoints, including from settlements. Occasional more diverse and complex landscapes are relatively scenic and therefore more sensitive. ***Susceptibility rating: high-medium***
Landscape Values The upper *Cairn* valley lies within the *Thornhill Uplands* RSA. The *Esk* valley north of Canonbie is included in the *Langholm Hills* RSA. The contrast with the adjacent uplands is noted in the descriptions for both these RSAs. Improved pastures enclosed by stone dykes in the Cairn valley and the intricate pattern of policy woodlands within the *Esk* valley are also noted. There are many well-used footpaths and cultural heritage features in these valleys.	This typology could impact on the contrast between the upper Cairn valley and the enclosing *Foothills* AU and could overwhelm the scale and pattern of enclosed pastures. It would also impact on the distinctive pattern of policy influenced woodlands within the *Esk* Pastoral valley. ***Value rating: High-medium***
Sensitivity	**High-medium**

7 ASSESSMENT UNIT 6: LOWER AND MIDDLE DALES

7.1 Introduction

This Assessment Unit includes both the *Lower Dales* and the *Middle Dales* Landscape Character Types identified in the Landscape Character Assessment. The *Lower Dales* are generally wide undulating plains straddled between the *Upland Fringe* (15) in Dumfriesshire. The *Middle Dales* are also generally located between the *Upland Fringe* in Dumfriesshire, although their upper reaches are contained by the *Foothills* Assessment Unit.

7.1.1 *Cultural heritage overview*

The *Lower Dales* are characterised by post-improvement (c19th-20thcentury) fields and farming as well as small 20thc farms, with a few small, designed landscapes and a scatter of relict land-uses. The HLA records discrete areas with evidence for pre-medieval land-use and some pre-improvement remains. There are also archaeological sites of outstanding significance and distinctiveness, a number of which are promoted for public benefit. The *Middle Dales* are characterised by post-improvement (c19th-20th century) fields and farming with some small, designed landscapes but little evidence for relict land-uses. There are archaeological sites of outstanding significance and distinctiveness in all of the landscape units.

7.1.2 *Operational and consented wind energy development*

No operational wind farms are located within these dales although occasional single wind turbines are located on farmland. The operational wind farms of Harestanes, Minnygap, Dalswinton and Minsca, located in the *Foothills* Assessment Units (19 +20), lie close to Nithsdale and Annandale.

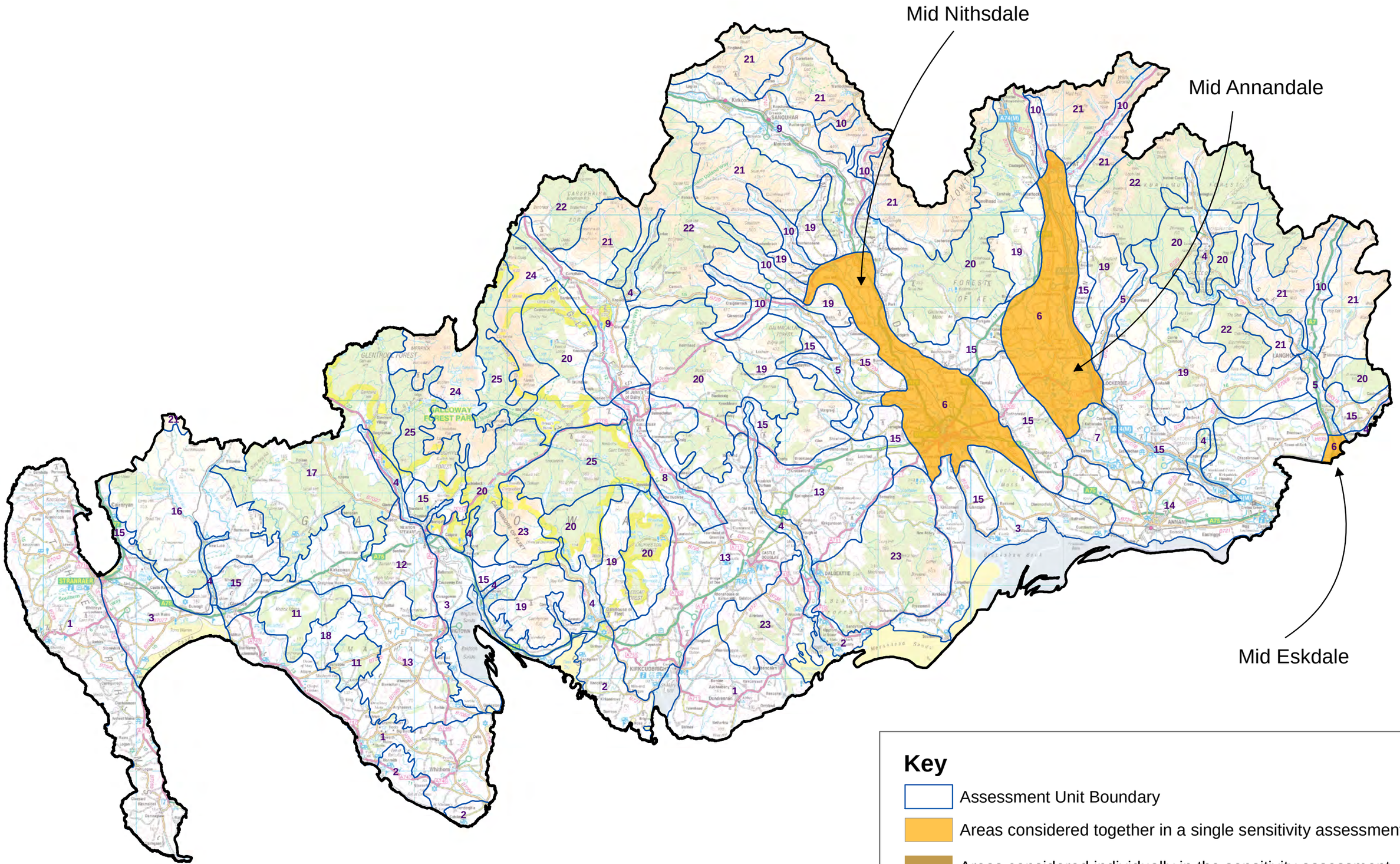
7.2 Description

The *Lower* and *Middle Dales* vary in width and are contained by the low ridges of the *Upland Fringe* and *Foothills* Assessment Units. The gently undulating or flat topography is occasionally punctuated by more complex landform of interlocking low knolls formed by glacial deposits, especially at the edges of the dales. There are also extensive and more open floodplains where widely meandering rivers are occasionally contained by river terraces and embankments. Generally open in character, especially where there are large fields extending over gentle undulations, the landscape is one of medium scale. Diverse policy woodlands and field trees are a key feature in many parts of these dales. These landscapes are well settled, with an extensive network of roads linking the numerous farms, villages and major towns. RSA designations cover the northern parts of Mid Annandale and Mid Nithsdale.

7.2.1 *Cumulative issues*

The operational Dalswinton wind farm development, located within the *Ae* area of the *Foothills with Forest* (20), is widely visible across Nithsdale due to its prominent position on the outer edge of these foothills. The operational Harestanes wind farm is also located in the *Ae* area of the *Foothills with Forest* (20) although it has very limited visibility from Nithsdale and is only seen intermittently from Annandale, largely because of its location set well back into the interior of these foothills.

Assessment Unit Key Map - 6. Lower and Middle Dales



The operational Minsca wind farm sited in the *Annandale* area of the *Foothills* (19) is seen extensively over *Lower Annandale* and the operational Solwaybank wind farm, also located in these foothills, is visible from parts of *Lower Annandale*.

Any development of the larger typologies (>50m) sited within the *Lower* and *Middle Dales* would be likely to be inter-visible with turbines located within the nearby *Foothills* (AUs 19+20) and potential cumulative effects are one of the key sensitivities inhibiting this scale of development in these dales. Inter-visibility between the small-medium typology (turbines 30-50m) and operational/consented development is likely to be more intermittent, but should be monitored closely, particularly if turbines were to be located on the outer, more elevated edges of the dales and would be likely to be seen in close proximity with operational and consented wind farms.

Key cumulative effects are likely to include:

- Visual clutter created by different models and sizes of wind turbine. These dales have greater scope to accommodate larger numbers of the small typology (turbines <30m), even if planned as occasional small clusters.
- Sequential effects on views from roads, including the M74, in *Annandale* where the Minsca, Solwaybank, and to a lesser degree the Harestanes and Minnygap, wind farms are seen with the extensive Clyde wind farm in South Lanarkshire. While these effects are minimised due to the wide spacing between developments and key routes, additional larger typologies sited in this Assessment Unit could significantly contribute to cumulative effects.

7.2.2 *Key Constraints*

- The more complex areas of landform, especially along the sides of the dales or where this forms notable ‘pinch-points’ within the dales and where river terraces form a striking feature.
- The edges of the dales, where there is generally more complex landform, often higher viewpoints and the potential to impact on adjacent, sensitive landscape types especially the *Upland Fringe* (15).
- Key landscape features, including lochs and lochans as well as designed landscapes, mature field trees and the meanders of the rivers.
- Archaeological features and broader historic landscapes, particularly those or pre-19th century date.
- The strong pattern of hedgerows and woodlands associated with Mid Nithsdale which lies within the Thornhill Uplands RSA.
- The high visibility of these dales, which are criss-crossed by a dense network of roads and well settled.
- The potential inter-visibility between any turbines sited within the dales and operational/consented wind farms located within nearby *Foothills* (19+20).
- The landscape setting these dales and the adjacent *Upland Fringe* (15) provides to settlements including Dumfries, Lochmaben and Thornhill and the density of dispersed buildings providing ready scale references

7.2.3 *Opportunities*

- The more open and expansive areas of low-lying land, especially where there are larger fields and the scale of the vegetation pattern is more extensive
- Areas already the focus of industrial developments, including the edges of industrial estates and large buildings around the major towns.
- Areas where settlement is less dense and visibility is more limited by intervening ridges and woodland***.***

7.3 Sensitivity and guidance

While parts of these dales are more open and expansive in scale, sensitivity is increased where more complex landform and diverse landcover is present. The high visibility of these well-settled landscapes and the potential for cumulative effects to occur with wind farm development sited in nearby Assessment Units additionally increases sensitivity. There would be a ***High*** sensitivity to turbines >50m. Sensitivity is ***High-medium*** to turbines 30-50m high. Sensitivity would be ***Low*** for small wind turbines (<30m high) due principally to their greater ability to be screened by rolling landform and woodland.

The small-medium typology (30-50m) should be sited within broader stretches of the dales where landscape pattern is less strong. They should relate to concave folds in the landform, more open and simple areas of vegetation, gently graded side slopes and areas of more expansive scale. There may additionally be opportunities associated with more industrial areas adjacent to the larger towns. However, the location of developments would need to be carefully considered because of the potential for cumulative effects to arise with operational and consented wind farm developments within the adjacent *Foothills* (AUs 19 and 20). There is likely to be scope for multiple developments of this small-medium typology within the broader sections of the *Lower and Middle Dales*, although cumulative effects will be a key limitation. It may be preferable to use turbines towards the lower height band of the small-medium typology in order to create a clear differential between wind turbine developments within landscapes with a more extensive upland character and the well-settled and strongly patterned Lower and Middle Dales which are more 'lowland' in character.

Small turbines (<30m) should be located where they can reinforce the pattern of existing development, visually associated with farms and other small groups and single buildings which provide a framework of built development-related spot features within the dales.

All turbines should be sited to avoid impacts on the setting of settlements, on designed landscapes, archaeological features and key landmark features such as lochs, distinctive patterns of field trees in Annandale, hedgerows and woodlands in Nithsdale and areas of more complex landform. The introduction of additional overhead lines should be avoided.

AU 6: Lower and Middle Dales – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale Broad, low-lying dales contained by higher character types which form a distinct 'rim' clearly defining the edges. Although gently undulating, these dales are expansive and relatively open, even more so along the wide floodplains and where large fields emphasise openness. Smaller scale landforms at the edge of the dales, where they meet the adjacent higher character types, and some more wooded areas increase enclosure and containment in places.	There may be some scope to relate this typology to some of the more expansive and open central areas of wide floodplain although where the dales are narrower, and at their edges where landform is smaller in scale, susceptibility is increased. The presence of woodlands, individual trees and field enclosures all reduce scale in many parts of these dales. ***Susceptibility rating: High-medium***	This typology could be accommodated in some of the more open, central areas where the breadth of the landscape is at its most sweeping. However, where the dales are narrower, and at their edges where landform is smaller in scale, this typology will be harder to accommodate as it could easily overwhelm the small scale of these features. Additional sensitivities include where fields and woodland create a small-scale landscape pattern, and where there is distinct and evident low relief, such as along well defined river terraces. ***Susceptibility rating: Medium***
Landform The dales have generally flat or undulating relief, with some more irregular and complex landforms associated with glacial deposits where they can create 'pinch-points', for example at Auldgirth in Nithsdale. Floodplains, at times very wide, are flat and sometimes contained by river terraces and embankments. Smaller, more complex landform and broad terraces are often associated with the edges of the dales.	While flatter ground would be less sensitive, more complex landforms associated with glacial deposits and at the edges of the dales and the simple lines of the river terraces would be highly sensitive to this typology sited both within it and close-by as it would disrupt and detract from the integrity of the landform. ***Susceptibility rating: Medium***	The generally low relief and horizontal profile of the wider and more extensive areas of flat or undulating landform offer some potential to accommodate this typology although more complex landform features would be sensitive. ***Susceptibility rating: Medium-low***
Landcover The field pattern is emphasised by both arable and improved grassland crops extending across the floodplains, undulations and along well drained slopes. The dales are relatively well wooded, except along the floodplains and the occasional more open expanse of larger fields. Extensive bands of broadleaves, conifer woods, small woodlands and lines of single trees reinforce the field and settlement pattern. There are also occasional policy woodland and features associated with individual estates. Features include small lochs and the wide meanders of the rivers.	The small size of individual features – from single, landmark trees to small woodlands and lochs – would be dominated by this typology. Turbines of this height would detract from landmark features but also from the often diverse patterns of woodland, pastures and policies. ***Susceptibility rating: High***	While the small size of individual features – from single, landmark trees to small woodlands and lochs – could be easily dominated by this typology – there is potential to site single turbines of this size where they can relate to the broad scale of the larger more open fields and areas of conifer forestry. ***Susceptibility rating: Medium***

Built Environment Well settled, with numerous farms and individual houses as well as villages and small towns and archaeological sites. In addition, larger towns, including Dumfries and Lockerbie and their associated industrial estates, lie within the dales. Criss-crossed by an extensive network of minor and B-class roads, these dales are also traversed by A roads linking the main towns. Existing wind farm development is visible and is associated with the adjacent *Foothills* AUs.	This typology could readily overwhelm the numerous small farms, individual houses and small settlements, archaeological and historic features, affecting their setting and the scale of the built development if sited where they can dominate their visual setting. While there may be greater scope to associate this typology with larger industrial buildings the size of these turbines could affect the setting of nearby settlement. Cumulative effects could occur with existing wind farms sited on the *Foothills* if sited close-by. ***Susceptibility rating: High***	This typology could overwhelm the numerous small farms, individual houses and small settlements, affecting their setting and the scale of the built development if sited where they can dominate their visual setting. However, this size of turbines could fit with larger industrial buildings or be sited in less settled areas thus minimising effects. Cumulative effects are less likely to be associated with these smaller turbines. ***Susceptibility rating: High-Medium***
Landscape Context These relatively wide and open dales permit extensive views to the *Upland Fringe* (15) and where present, the *Foothills* (19 and 20) which often form the containing ridges. In addition, there are some views to the *Southern Uplands* (21) which lie beyond the *Upland Fringe* (15). The dales are widely visible from higher roads and settlement in surrounding types, especially from the *Upland Fringe* (15).	The relatively low profile and small/medium scale and often diverse character of parts of the *Upland Fringe* (15) creates a setting which limits scope for this typology, especially along the edges of the dales. ***Susceptibility rating: High***	The relatively low profile and small/medium scale and often diverse character of parts of the *Upland Fringe* (15) creates a setting which limits scope for this typology, especially along the edges of the dales. Where the dales abut more expansive landscapes, with larger scale landform and forestry, there may be scope for this typology. ***Susceptibility rating: High-medium***
Perceptual qualities These dales are well settled, easily accessible and relatively busy and are therefore neither remote nor secluded.	While there might be some impact on rural character, this typology would not affect the appreciation of wildland qualities. ***Susceptibility rating: Medium-low***	While there might be some impact on rural character, this typology would not affect the appreciation of wildland qualities. ***Susceptibility rating: Medium-low***
Views and visibility The area is highly visible from the extensive road and rail network and from settlement although views can be interrupted by the undulating landform and woodland.	The well-settled nature of the dales, their accessibility and openness in places means that this typology would be readily visible over a wide area. Turbines located within the open floodplain would intrude on open views across the dales from roads and settlement. Turbines could also interrupt views to the often highly scenic *Upland Fringe* (15) for example the Terregles Ridge seen from Nithsdale or the Torthorwald Ridge seen from Annandale. ***Susceptibility rating: High***	The relative openness and accessibility of these landscape types increases sensitivity although landform and woodland offer some scope for screening turbines towards the lower height band of this typology. ***Susceptibility rating: High-medium***

Landscape values The *Mid Nithsdale* area is covered by the Thornhill Uplands RSA. The wide scenic pastoral valley centred on Thornhill with its hedgerows and woodlands is noted in the citation. The far northern tip of 'Mid Annandale' is included in the Moffat Hills RSA. Its importance is in providing the setting to the unspoilt borders town of Moffat where it nestles at the junction of the upper glens of Annan and Moffat. There are many cultural heritage features and recreational routes, including the Annandale Way, in these dales.	This typology would distract from the strong pattern of hedgerows and woodlands in the Thornhill area if sited in or close-by the RSA. It would also adversely affect the setting of Moffat if poorly sited. The prominence and landscape setting of the Torthorwald Ridge would be adversely affected by turbines of this size sited close-by. ***Value rating: High-medium***	This typology could distract from the strong pattern of hedgerows and woodlands in the Thornhill Uplands RSA. It could also adversely affect the setting of Moffat if poorly sited. ***Value rating: High-medium***
Sensitivity	**High**	**High-medium**

8 ASSESSMENT UNIT 7: DALE WITH HILLS

8.1 Introduction

The *Dale with Hills* comprises a small area within Annandale. The assessment and guidance on development section focuses on smaller typologies (turbines <50m). No detailed sensitivity assessment tables are provided for turbines 50-80m high due to the high sensitivity of this complex and diverse landscape.

8.1.1 *Cultural heritage overview*

This small AU is characterised by post-improvement (c19th-20th century) fields and farming with many designed landscapes. There are also a few archaeological sites of outstanding significance and distinctiveness.

8.1.2 *Operational and consented wind farm development*

No wind farm development has occurred within this AU. The operational wind farm of Minsca lies approximately 6km to the north-east within the *Annandale* area of the *Foothills* AU (19) while the operational Harestanes wind farm is located over 15km to the north-west within the *Ae Foothills with Forest*. These wind farms are visible only from rare more open and elevated parts of this strongly contained landscape.

8.2 Description

The *Middle Dale with Hills* is a complex landscape, with low but well-defined hills cut by narrow sinuous river valleys, straddled between two areas of *Upland Fringe* AU, and sitting above the lower-lying *Lower and Middle Dales* AU. Strongly contained in nature, except where the edges abut much more expansive areas of the surrounding *Lower and Middle Dales* AU, this sense of enclosure is reinforced by woodland, which includes conifer woods, frequent broadleaved belts and widespread policy woodland associated with the many historic estates which lie within this landscape. These estates are often associated with wide bends on the meandering rivers. This area is well settled, with an extensive network of often tiny roads linking numerous farms. Woodland and some of the areas of higher relief limit the extent of views in many areas. This landscape is not covered by any designations although the complexity of landform and richness of wooded policies give this landscape a distinctive quality and a strong ‘sense of place’.

8.2.1 *Cumulative issues*

There is potential for wind turbines sited on the edge of this AU to be seen in conjunction with any turbines located within adjacent *Lower and Middle Dales* and the *Coastal Plateau* AUs. Larger wind farm development within the *Annandale Foothills* AU including the operational Minsca and Solwaybank wind farms are also visible from open hill tops and monuments such as the Repentance Tower within this AU. The use of small turbines in this AU would be likely to avoid significant cumulative landscape and visual impacts. Although inter-visibility is only likely to be intermittent in this strongly contained landscape, turbine development should be monitored closely, especially at the transition between this AU and the *Lower and Middle Dales* and *Upland Fringe* AUs.

Additional cumulative impacts may arise if more than one, or small groups, of small turbines appear, and the relationship between proposals for this typology will need to be monitored closely. Cumulative effects are most likely to comprise increased visual

Assessment Unit Key Map - 7. Dale with Hills

Middle Dale with Hills

Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

clutter, which may be compounded by different turbine models, and the perception of turbines visually detracting from the rural character, sense of seclusion or historic integrity of this landscape.

8.2.2 *Key constraints*

- The more complex areas of landform, especially along the river bluffs, on top of the prominent hill tops and more interlocking ridgelines, or sinuous, steep sided, narrow river valleys with landform and extensive woodland combining to create an intimate scale in many areas.
- The setting of key landscape features, including both built historic features, designed landscapes, and archaeological sites including those on hill tops.
- Visual foci, which includes vistas, views along the sinuous rivers and prominent hilltop features.
- The strong 'sense of place' which derives from the consistent presence of historic and designed landscapes, and the secluded character of this distinctly contained landscape.
- Potential inter-visibility with operational and consented wind farms (which are associated with more extensive and simpler semi-upland foothill landscapes) from occasional open and elevated viewpoints.
- The Annandale Way long distance recreational route which passes through this Assessment Unit.

8.2.3 *Opportunities*

- The more open and expansive areas of low-lying land at the edges of this AU.
- Areas of more undulating landform which are less dramatic than the steep-sided river valleys.
- Areas where settlement is sparse and visibility is additionally more limited by intervening ridges and woodland.

8.3 Sensitivity and guidance

The complexity and often intimate scale of this landscape, its richly diverse landcover and the presence of many designed landscapes and other cultural heritage features increases sensitivity to wind turbines of all sizes. There would be a ***High*** sensitivity to turbines >50m and a ***High-medium*** sensitivity to the turbines 30-50m.

Small turbines (<30m high) may be able to be more sensitively accommodated in this landscape but should be located on more gently graded topography and in locations where they would avoid impinging on the setting of historic buildings and their designed landscapes and on archaeological features. The introduction of overhead lines should be avoided in this landscape.

AU 7: Dales with Hills – Detailed assessment of smaller wind turbines	
Topics and description	**Assessment of small turbines (30-50m)**
Scale Pronounced, often steep sided and sometimes interlocking hills stand proud of the more low-lying undulating valleys and occasional flat floodplain. The hills are small, rising only to 120m and are cut by narrow river valleys. The small scale of the topography is emphasised by woodland which enhances the sense of containment.	The small to medium scale of this landscape, and low relief of the hills, limits opportunities to sensitively accommodate taller turbines within this typology. Even the areas of more level plain contained in this landscape provide the setting for the small hills, and so are sensitive. ***Susceptibility rating: High***
Landform Steep side slopes, or rocky bluffs, rise from narrow river valleys to elongated but interlocking ridges and small hills. Landform complexity is reinforced by the sinuous shape of the river valleys. The valleys are interspersed by wider, more undulating valley floors and occasional floodplains.	The complexity of the landform increases sensitivity and turbines of this size could detract from the vertical drama of the bluffs or the relationship between the hills and the surrounding more level land. The outer edges of this landscape are generally more gently graded and therefore less sensitive. ***Susceptibility rating: High-medium***
Landcover Extensively wooded, with conifer woodlands and broadleaved belts. There are several areas of extensive policy woodland and parkland associated with large estates. Small and medium sized fields of grass and some arable crops are surrounded by fences and hedges, with occasional lines of trees across gentler slopes and undulating valley floors.	The small size of individual features – from single, landmark trees to small woodlands, lines of trees and widespread policy woodland features would be easily dominated by this typology although areas of more open farmland would be less sensitive. ***Susceptibility rating: High-medium***
Built Environment Relatively well settled, with numerous farms and several individual large estates surrounding historic houses often located near sweeping bends in the rivers. There are frequent smaller built features, from bridges to gateposts, associated with these individual estates. Criss-crossed by an extensive network of minor and B-class roads, which also link small settlements tucked in between the hills, sometimes associated with river crossings. There are various prominent historic features within this area, as well as archaeological sites.	Sensitivity is increased due to the presence of small farms, small settlements, individual houses, historic sites and buildings and frequent archaeological features, some of these sited on hilltops. Turbines of this size could affect the scale of these built features if sited where they can dominate their visual setting. ***Susceptibility rating: High-medium***
Landscape Context These hills stand proud of the surrounding *Lower and Middle Dales* (Annandale) and lie adjacent to the *Torthorwald* and *Annandale* areas of the *Upland Fringe* AU. The long ridge of Torthorwald forms a richly scenic backdrop to this landscape.	The relatively low profile and small/medium scale of the *Torthorwald* area of the *Upland Fringe* creates a setting which increases sensitivity to taller turbines within this typology. Sensitivity is reduced where the edges of this AU abut more expansive areas of the *Lower and Middle Dales*. ***Susceptibility rating: Medium***
Perceptual qualities This area is well settled, but is relatively tranquil and secluded, in places the sense of being 'hidden'	This typology could readily impinge upon the sense of seclusion and of being 'set apart' which characterises this landscape. In addition, the

from surrounding landscapes adds to an easily identifiable 'sense of place'. This is further enhanced by the consistency and quality of the designed landscapes and historic features.	integrity of the coherent sense of place created by the frequent historic features would be undermined by this typology. ***Susceptibility rating: High-medium***
Visibility and views The hills, narrow valleys and frequent ridges limit widespread visibility within this landscape. Views are further restricted by the woodland and tree cover, except in the wider valley floors which are more open. However, there are dramatic views down into the narrow valleys, and key visual sensitivities, including views along the rivers, and to and from key hill tops, vistas and monuments associated with the designed landscapes	Views of this typology are likely to be limited by topography and tree cover, so that visibility is intermittent. Nevertheless, taller turbines of this typology could impinge upon more dramatic visual features and distract from the focus of key views. ***Susceptibility rating: High-medium***
Landscape values There are four Non-Inventory Designed Landscapes lying in this AU with one of these providing the setting to the Category A listed Castlemilk Castle. There are a number of scheduled monuments and other listed structures, including Castlemilk Bridge. The Annandale Way is aligned through this AU and there are promoted walks around Hoddom Estate and Core Paths increasing the value of this landscape for recreation.	Taller turbines within this typology could adversely affect the setting and appreciation of valued features although in general the rolling landform and woodland would provide screening in many areas. ***Value rating: Medium***
Sensitivity	**High-medium**

9 ASSESSMENT UNIT 8: FLOODED VALLEY

9.1 Introduction

There is only one *Flooded Valley* landscape defined within Dumfries and Galloway, the *Ken Valley*. This landscape comprises a shallow valley with an artificially raised loch (Loch Ken) and a narrow floodplain around the River Dee. It lies between the steep sided *Rugged Granite Uplands with Forest* (25) to the west and an area of *Drumlin Pastures* (13) to the east and south.

9.1.1 *Cultural heritage overview*

This Assessment Unit is characterised by post-improvement (c19th-20th century) fields and farming with some small, designed landscapes but little evidence for relict land-uses. Nevertheless, there are archaeological sites of outstanding significance and distinctiveness.

9.1.2 *Operational/consented wind farm development*

While there has been no wind farm development in this Assessment Unit, the operational wind farm of Blackcraig in the *Stroan* area of the *Foothills with Forest* (20) is visible from more elevated locations in the northern part of this landscape.

9.2 Description

The *Flooded Valley* is identified as a unique landscape character type within the Region. The linear loch, although raised artificially, is semi-natural in character, with intricately shaped margins edged with riparian woodland and wetland. There are many small-scale features in this landscape, from the islands on the loch, to the low mounded landforms, rocky terraces, interlocking drumlins and small woodlands, individual trees narrow winding roads and diverse settlement pattern. The setting of the steep conifer-clad slopes of Cairn Edward and Bennan Hill provide a simple and dramatic contrast to this intricate landscape. Views tend to focus along the length of the loch wherever it is visible. This Assessment Unit is largely covered by an RSA designation.

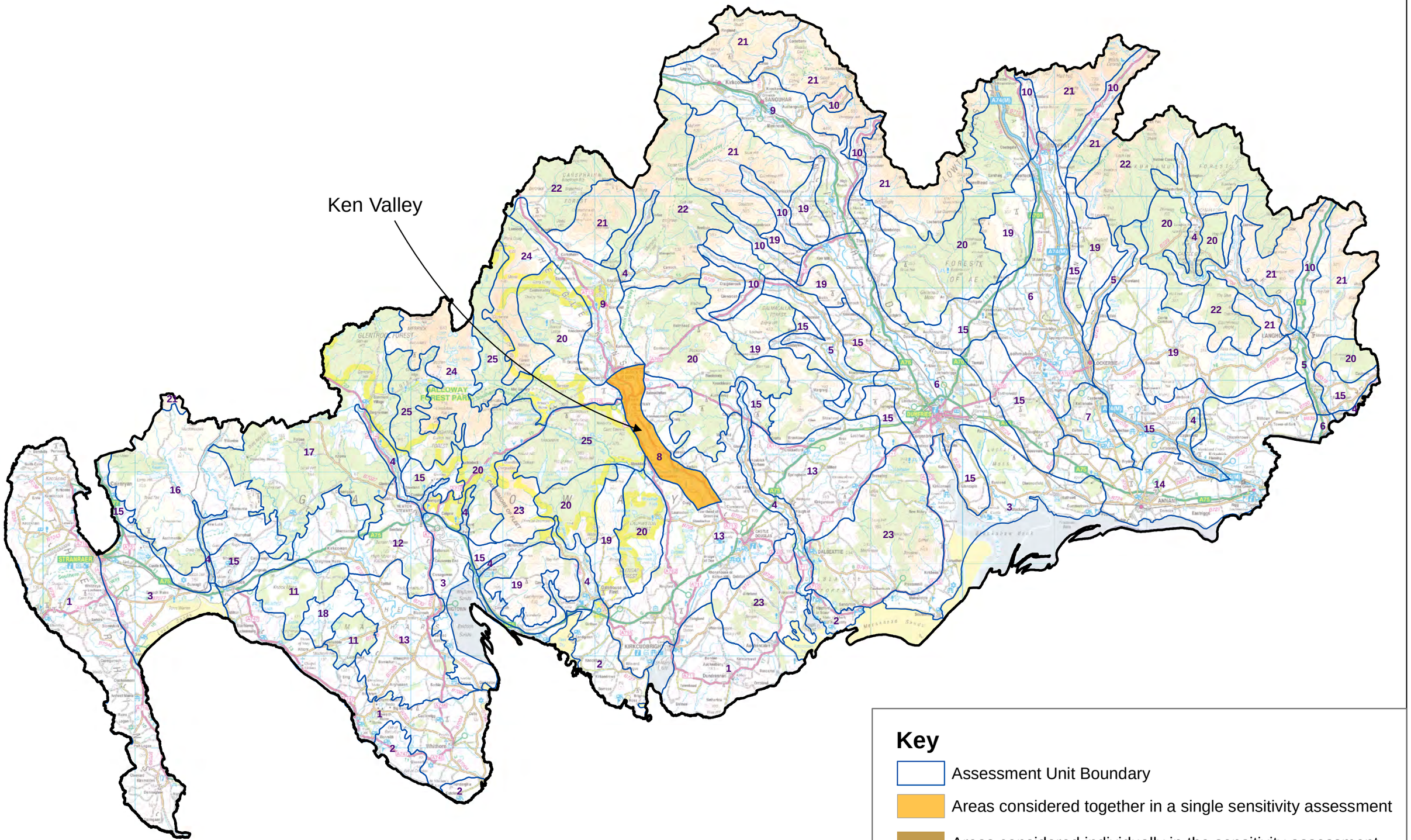
9.2.1 *Cumulative issues*

There is potential for turbines sited in this Assessment Unit to be seen in conjunction with larger wind farms located in the nearby *Stroan Foothills with Forest* (20). Large turbines in this landscape would be contrary to the established association of wind farms with more expansively scaled and simpler upland areas. Cumulative effects are most likely to comprise increased visual clutter and the sense of turbines visually detracting from the complexity of the landform and the focus of Loch Ken where they would become visually dominant.

9.2.2 *Key constraints*

- The visual focus of Loch Ken and its setting, its semi-natural, intricately-shaped margins and its reflective and tranquil qualities.
- The small scale and rounded, low relief of many of the landforms and their seamless transition with the adjacent *Drumlin Pastures* (13) Assessment Unit.
- The diversity of the landscape, including the interlock of landform and tree cover, and the relationship between current and historic settlement and landform, which creates intricate landscape patterns.

Assessment Unit Key Map - 8. Flooded Valley



- Views from roads, settlements and other key features, especially where they focus along the length of the valley or across the loch.

9.2.3 *Opportunities*

- Long, sweeping slopes, gentle gradients with a simpler pattern and areas back-dropped by adjacent *Foothills* and higher ground which have a much more simple profile and greater scale and could provide opportunities to better assimilate the small/medium typology (turbines 30-50m).
- The pattern of settlement, which is relatively dispersed and widespread, and provides a framework of point features with which small turbines could be associated without giving a cluttered appearance to the landscape.

9.3 Sensitivity and guidance

The small scale of this landform and loch, and the diverse pattern of the water body, vegetation cover and presence of small, and often distinctive, buildings result in a ***High*** sensitivity to turbines >50m. Sensitivity would be ***High-medium*** to the small-medium typology (turbines 30-50m). Sensitivity would be reduced to ***Medium-low*** for small wind turbines (turbines <30m).

Turbines should be located where they can be related to landform of an appropriate scale, including terraces or concave folds in the landform, preferably set against a backdrop of larger scaled and more open landscapes which occurs in the north-eastern part of this Assessment Unit. All turbines should be sited to avoid particularly complex small-scale landforms and highly sensitive loch edges. Turbines should avoid intrusion on key views to and from important features, including Loch Ken and its setting, distinctive buildings, archaeological features and policy landscapes.

Careful consideration of the size of these turbines relative to the numerous built and natural features which are widespread in this landscape, for example exploring options around the 35m height, could create more opportunities for siting this size of turbine. Turbines <30m could be more easily accommodated without incurring significant landscape and visual effects due to their better relationship to the scale of the landscape and ability to benefit from a degree of screening by landform and woodland.

Care should also be taken if siting larger turbines on immediately adjacent upland character types, as if poorly sited these could ‘perch above’ and easily dominate this highly sensitive landscape.

AU 8: Flooded Valley – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale A strongly contained valley with a small to medium scale influenced by the complex rolling landform of valley sides, narrow valley floor, many woodlands, individual trees and small buildings.	The small to medium scale of this landscape, and low relief of the hills which contain the valley increases susceptibility. ***Susceptibility rating: high***	The small to medium scale of this landscape, and low relief of the hills increases sensitivity although turbines of this size would generally have a better scale relationship to broader areas of more open floodplain and gently graded valley sides. ***Susceptibility rating: high-medium***
Landform A shallow v shaped valley with relatively narrow valley floor which is largely filled with the intricately edged Loch Ken. The valley sides are complex and hummocky with areas of drumlins and occasional craggy hills such as Meikle Dornell on the western side of the loch in the adjacent Deeside area of the *Drumlin Pasture* AU 13. Some broader areas of farmed floodplain and more gently graded valley sides are present particularly in the southern part of this AU.	The complexity of the landform increases sensitivity and wind turbines could detract from the vertical drama of the bluffy small hills, hummocky valley sides and intricately shaped loch fringes. Areas with a simpler landform are not extensive and turbines of this size would be likely to influence nearby more complex landform features. ***Susceptibility rating: high***	The complexity of the landform increases susceptibility generally and wind turbines could detract from the vertical drama of the bluffy small hills, hummocky valley sides and intricately shaped loch fringes. Broader areas of floodplain and more gently graded valley sides would be less susceptible to single and small groups of turbines towards the lower height band. ***Susceptibility rating: high***
Landcover The diverse fringes of Loch Ken comprise wetlands and woodlands. Rough grassland with heather and gorse on the rocky ridges and knolls which contain this valley. Small walled fields of pasture on valley sides.	The diverse nature of landcover generally increases susceptibility especially on the valley floor. Less strongly enclosed farmland, moorland and productive forestry on valley sides would be less susceptible particularly for single and small groups of turbines. ***Susceptibility rating: high-medium***	The diverse nature of landcover generally increases susceptibility especially on the valley floor. Less strongly enclosed farmland, moorland and productive forestry on valley sides would be less susceptible particularly for single and small groups of turbines. ***Susceptibility rating: high-medium***
Built Environment There are no existing wind turbines in this landscape and wind farms sited in nearby upland landscapes, while visible, do not have a strong influence on character. The valley sides are well-settled with small farms and settlements and there are many cultural heritage features.	This typology could readily overwhelm small farms, small settlements, individual houses, historic sites and buildings and frequent archaeological features, affecting their setting and the scale of the built development. ***Susceptibility rating: high***	This typology could readily overwhelm small farms, small settlements, individual houses, historic sites and buildings and frequent archaeological features, affecting their setting and scale although sensitivity would be reduced in relation to smaller turbines <35m. ***Susceptibility rating: high-medium***
Landscape Context This landscape is bordered by the *Rugged Granite Uplands with Forest*, the *Drumlin Pastures* and *Foothills with Forest* AUs. Key features in adjoining landscapes include the distinctive wooded scarps of Bennan and Cairn Edwards Hills which backdrop upper Loch Ken.	The relatively low profile and small/medium scale of the adjacent *Drumlin Pastures* AU increases susceptibility in the southern part of this AU. Wind turbines would detract from the steep wooded scarp formed by the *Rugged Granite Uplands with Forest* AU to the west. ***Susceptibility rating: medium***	While the low profile and small/medium scale of the adjacent *Drumlin Pastures* AU increases susceptibility there are opportunities to site smaller turbines to minimise intrusion on this landscape. Wind turbines would detract from the steep wooded scarp formed by the *Rugged*

		Granite Uplands with Forest AU to the west. ***Susceptibility rating: medium***
Perceptual qualities The diverse landform and landcover of this landscape create an attractive landscape and one which is perceived as having some natural qualities.	Although settled and not remote, the perception of naturalness associated with this landscape increases susceptibility to some degree. ***Susceptibility rating: medium***	Although settled and not remote, the perception of naturalness associated with this landscape increases susceptibility to some degree. ***Susceptibility rating: medium***
Views and visibility Well-used roads are aligned through this valley. Loch Ken is a focus for watersports and there are many walking routes particularly on the western edge of this AU where there are RSPB Reserves and promoted recreational routes.	The popularity of this landscape for recreation increases potential for impact on views with this size of turbine likely to be readily seen within the confines of the valley. ***Susceptibility rating: high***	The complex topography and well-wooded character of this AU would increase potential screening of this typology, particularly those closer to the lower height band. Nevertheless, the size of this typology could easily impinge upon more dramatic visual features and distract from the focus of Loch Ken in key views. ***Susceptibility rating: high-medium***
Landscape Value This landscape lies within the Galloway Hills RSA. The 2018 RSA Technical Paper notes the uniqueness of the Flooded Valley. This landscape is well-used for recreation. The Loch Ken and River Dee Marshes are also of international importance for nature conservation	This typology would be likely to detract from the unique and attractive character of the RSA and affect views from recreational routes and facilities. ***Value rating: high-medium***	Adverse effects on the qualities of the RSA and on views from areas popular for recreation could occur although there may be opportunities to site smaller turbines within this typology to minimise effects on key features. ***Value rating: medium***
Sensitivity	**High**	**High-medium**

10 ASSESSMENT UNIT 9: UPPER DALES

10.1 Introduction

The *Upper Dales* Assessment Unit comprises the upper valleys of the Rivers Nith and Ken. The *Upper Nithsdale* and the *Upper Glenkens* areas are considered separately in the assessment because of differences in their geographic context and the nature and degree of influence of recent wind farm development.

10.1.1 *Cultural heritage overview*

Site-specific record indicates that this landscape may be one with significant historic environment constraints. At a site-specific level, there are numerous archaeological sites of outstanding significance and distinctiveness, some of which are promoted for public benefit. In addition, there is the largest designed landscape in the region, Drumlanrig Castle in Nithsdale, as well as three Archaeologically Sensitive Areas in the Ken valley.

10.1.2 *Operational/consented wind farms*

The operational Sunnyside turbines and Sandyknowes wind farm are located in *Upper Nithsdale* (the latter development straddles this AU and the adjacent *Southern Uplands* (AU 21). The *Upper Nithsdale* area is also influenced in the north-west by the operational Hare Hill wind farm in adjoining East Ayrshire and the Twenty-Shilling, Whiteside and Sanquhar wind farms which are located in the adjacent *Southern Uplands* (AU 21). The consented Glenmuckloch, Lethans and Sanquhar II wind farms will also be visible from *Upper Nithsdale*.

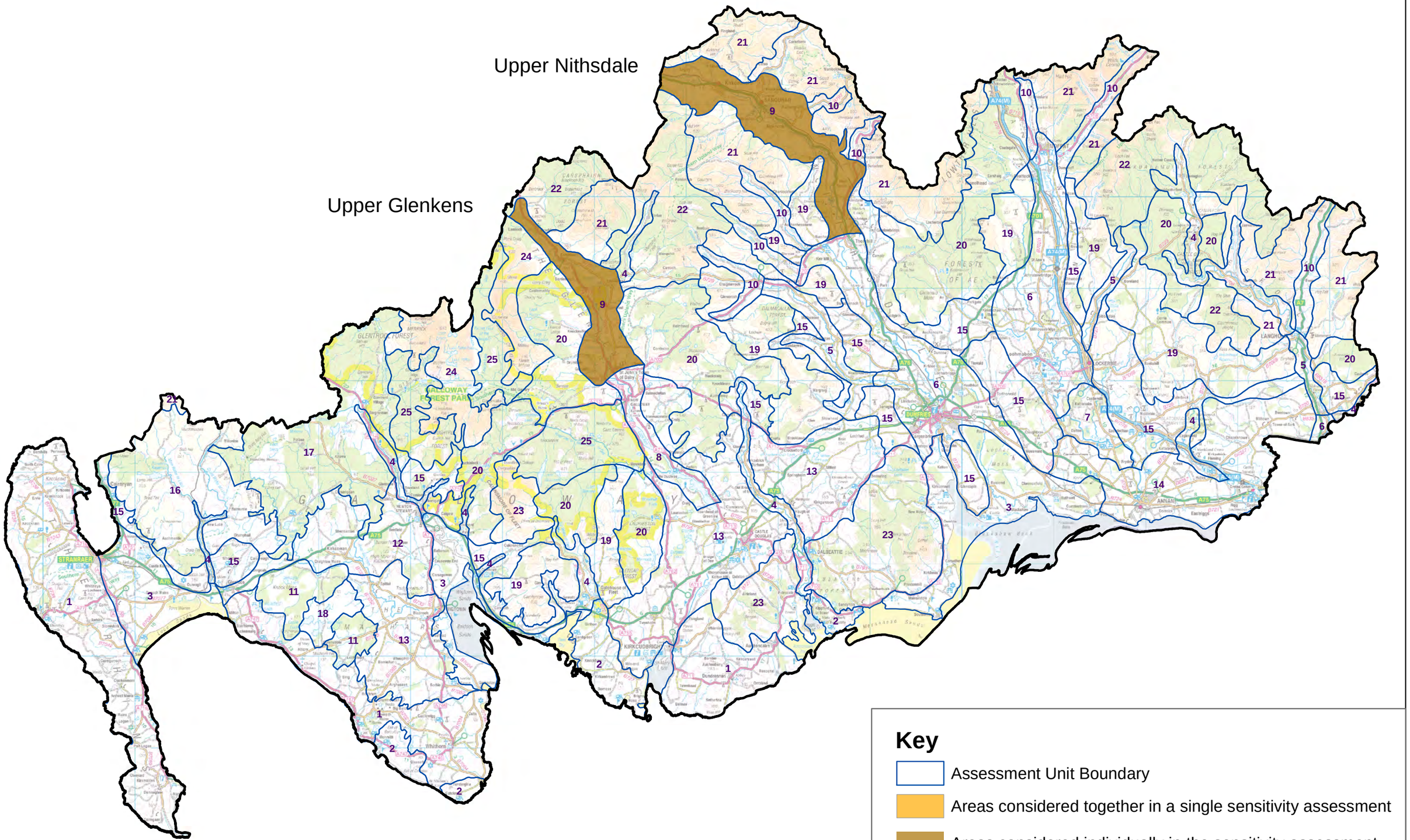
The operational Torrs Hill wind turbines are sited within the *Rhinns of Kells* unit of the *Foothills with Forest* (20), adjacent to and visible from the *Upper Glenkens*. The operational Blackcraig wind farm is also visible from this Assessment Unit and the consented Magree, Shepherds Rig and Glenshimmeroch wind farms will also be visible from the *Upper Glenkens*.

10.2 Upper Nithsdale

10.2.1 *Description*

The upper dale of Nithsdale comprises a predominantly broad valley contained by the much higher hills of the Southern Uplands. The gently undulating valley floor gives way to either uneven, but gently graded side slopes, or to more steep-sided and strongly enclosing slopes within the narrower gorge-like valley of the Nith in the south-east of the Assessment Unit. Outcrop hills form key pinch-points within the valley, marking the change between the narrower south-eastern extent of the valley and the broader and more open valley in the Sanquhar and Kirkconnel area. Enclosed pastures extend up to higher, more open rough grazing and bracken covered slopes in the broader section of the dale although the more confined southern area is densely wooded and features some semi-natural woodland and the extensive wooded policies of Drumlanrig Castle designed landscape. While the floor of the dale is well settled and linked by major roads, the upper slopes and side valleys are more sparsely settled. Former mining activity is evident in disturbed/reclaimed ground and coniferous plantations on lower hill slopes in the Sanquhar and west of Kirkconnel to the border with East Ayrshire.

Assessment Unit Key Map - 9. Upper Dales



Operational wind farms and large wind turbines strongly influence the character of the upper reaches of the valley particularly in the area north-west of Drumlanrig to the East Ayrshire border. This influence will significantly increase due to the number of consented developments located in the adjacent *Southern Uplands – Nithsdale* (21) Assessment Unit and within neighbouring East Ayrshire.

10.2.2 *Cumulative issues*

The operational Sunnyside wind turbines and the Sandyknowe wind farm sited wholly/partially in this Assessment Unit are closely inter-visible with other operational and consented wind farm development located within the adjacent *Nithsdale* area of the *Southern Uplands* (21), the *Ken* area of the *Southern Uplands with Forest* (22) and in neighbouring East Ayrshire. Significant cumulative effects are likely to occur on views from roads, settlement and footpaths within the north-western part of *Upper Nithsdale* with wind turbines sited on more prominent hills and ridgelines lying closer to this settled upper dale making the greatest contribution to cumulative effects.

The operational Sandyknowe wind farm is contrary to the established pattern of wind farms associated with more extensively scaled upland landscapes because of its location on the lower hill slopes within the Nith valley. This development has a greater influence on landscape character and on views within the *Upper Dale* (9). The consented Glenmuckloch wind farm is likely to significantly contribute to cumulative effects in this area.

Further development of large turbines in *Upper Nithsdale* would be likely to incur the following cumulative effects:

- An increasing domination on views from settlement and on the setting provided by farmed and wooded slopes to settlements such as Kirkconnel and Sanquhar.
- Sustained simultaneous and sequential views of large turbines either side of the A76 (and extending into East Ayrshire) potentially creating an overwhelming effect for travellers.
- An accentuation of the negative aspects of landscape character associated with disturbed land in former mining areas, increasing visual clutter and further diminishing the perception of a rural landscape.

Inter-visibility between smaller turbines sited in this Assessment Unit and operational/consented development is likely to be more intermittent, but should be monitored closely, especially as turbines located on the less sensitive upper slopes of *Upper Nithsdale* are likely to be seen in close proximity with operational and consented wind farms.

10.2.3 *Key constraints*

- The narrower south-eastern section of this upper dale, especially where enclosure is emphasised by steeper slopes and woodland, where larger wind turbines would dominate the reduced scale of the landscape.
- The outcrop hills, for example north of Crairiepark Farm in Nithsdale and more complex knolly landform often found within the floors and lower slopes of these Upper Dales.

- Key landscape features, including the River Nith and the extensive woodlands and parkland associated with Drumlanrig Castle.
- The high visibility of Nithsdale from the A76, the railway and from settlement.
- The density, extent and inter-visibility of large wind farms and wind turbines sited both in this Assessment Unit and within the nearby *Southern Uplands* (21) in Dumfries and Galloway and neighbouring East Ayrshire.
- The RSA designation, the nationally important Drumlanrig designed landscape and non-Inventory designed landscapes at Elliock and Craigdarroch which increases the value associated with the south-eastern part of this landscape.

10.2.4 *Opportunities*

- The more open and expansive upper dale sides where the vegetation pattern becomes more extensive and where there is a backdrop of larger hills and broad sweeping upland slopes which are not strongly influenced by operational and consented wind farm developments.

10.3 Sensitivity and guidance

While part of the *Upper Nithsdale* area has a more open and expansive character in the north-west which could relate to larger wind turbines, the presence of nearby operational and consented wind farm development increases susceptibility to larger wind turbines. Sensitivity is increased to all sizes of wind turbines in the more confined parts of the valley and where the RSA designation and the nationally important Drumlanrig Castle designed landscape are present. Sensitivity would be ***high*** to turbines >50m and a ***high-medium*** sensitivity to turbines 30-50m high.

Smaller wind turbines should be sited within the broader stretches of *Upper Nithsdale* and should relate to concave folds in the landform, natural terraces, more open and simple areas of vegetation and gently graded side slopes. However, the location of developments would need to be carefully considered because of the potential for cumulative effects to arise with operational, consented and proposed wind farm developments within the adjacent *Nithsdale and NW Lowthers* area of the *Southern Uplands* (21). Turbines towards the lower height band of the small-medium typology (closer to 30m) would be more likely to minimise cumulative effects with much larger turbines.

Small turbines below 30m high should be located where they can reinforce the pattern of existing development, associated with farms and other small groups and single buildings which provide a framework of built development-related spot features within the dales. All turbines should be sited to avoid impacts on the setting of settlements and on designed landscapes. Areas of more complex landform and key outcrop hills should also be kept free of development.

AU 9: Upper Dales – Upper Nithsdale – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale This broad valley is contained by upland hills with generally sweeping but rounded, gentle slopes, which steepen in places to create more enclosure. There are also narrow 'pinch-points' reinforced by outcrop hills. At their most broad, and especially where more loosely contained by gently graded side slopes, these dales are open and of medium scale, but where they are more contained, enclosed by steeper slopes and where the valley floor is narrow, they are less open and more confined. Small side valleys are also more enclosed.	This typology would overwhelm more confined valleys and areas where the landform is smaller. Broader sections of these dales where the upper reaches of more open gentler hill slopes merge seamlessly with the lower slopes of the surrounding uplands are less susceptible. ***Susceptibility rating: high-medium***	This typology could be accommodated where the breadth of the landscape is at its most sweeping, especially at the upper reaches of the broader, gentler slopes which merge seamlessly with the lower slopes of the surrounding uplands. However, where the dales and side valleys are narrower, slopes are steeper, at pinch-points and where landform is smaller in scale, this typology will be harder to accommodate as it could easily overwhelm the smaller scale of narrower, more confined spaces. ***Susceptibility rating: medium***
Landform The often relatively undulating valley floors extend to either gentle slopes with a rounded profile sometimes interrupted by broad terraces or more even steeply rising side slopes (usually, one side of the valley is steep, the other more gently sloping). Prominent outcrop hills sit part way up the dale. Smaller, more complex landforms, low ridges and knolls associated with glacial deposits, or narrower side valleys occur along the edges of these upper dales.	The more extensive areas of gently undulating landform and long side slopes at the transition with the *Southern Uplands* (21) could potentially accommodate this typology although more complex landforms associated with glacial deposits, steeper gradients and the prominent outcrop hills increase susceptibility to this typology, which could distract from the integrity of the landform. ***Susceptibility rating: high-medium***	The more extensive areas of undulating landform and gentle side slopes are of reduced susceptibility although even these smaller turbines could detract from more complex landforms associated with glacial deposits and steeper gradients in the area north of Mennock and the prominent outcrop hills (in particular those associated with the Nith/Drumlanrig gorge. ***Susceptibility rating: medium***
Landcover A generally diverse landscape with fields of grazed improved pasture, wet grassland, more open rough grazing and bracken covered slopes. Both hedges and dykes feature, with the upper margin of the fields varying in elevation along the length of the dales. Woodland cover further emphasises this diversity, with single field trees to parkland and policies. Semi-natural woodlands are a key feature of the more confined south-eastern section of the valley as well as extensive policy woodlands associated with the Drumlanrig estate. Open cast coal mining and reclaimed land features are	The small size of individual features – from single, landmark trees to small woodlands and lochs – would be dominated by this typology. Larger more open fields and areas of more upland character, where rough grassland and bracken dominate have a reduced sensitivity although turbines of this height would detract from landmark features but also from more diverse patterns of woodland, pastures and policies. ***Susceptibility rating: high-medium***	While the small size of individual features – from single, landmark trees to small woodlands and lochs – could be easily dominated by this typology – there is potential to site single turbines of this size where it can relate to the broad scale of the larger more open fields and areas of more upland character, where rough grassland and bracken dominate. ***Susceptibility rating: medium***

evident in the Sanquhar and Kirkconnel area.		
Built Environment Settlement is variable with sparsely settled upper slopes contrasting with the more developed lower dale, where settlements are located along the valley floor adjacent to roads. There is a range of archaeological and historic features across both the upper and lower slopes of this dale. The A76 is aligned through the floor of the dale, while more narrow minor roads are elevated on the upper slopes. Industrial features associated with former coal mining are present in the north-western part of Nithsdale. The Sandyknowe wind farm is a key characteristic in the NW area and wind turbines located in adjacent uplands also influence the character of the upper reaches of the dale.	This typology could overwhelm the small farms, individual houses small settlements and archaeological features, affecting their setting and the scale of the built development if sited where they can dominate their visual setting. While the less settled upper valley sides offer some potential to accommodate this typology the presence of extensive wind farm development in this AU and adjacent upland AUs increases susceptibility. ***Susceptibility rating: high***	This typology could readily overwhelm the small farms, individual houses and small settlements, affecting their setting and the scale of the built development if sited where they can dominate their visual setting. The setting of archaeological/historic sites is sensitive. This size of turbine, and particularly those closer to 30m high, could potentially minimise cumulative effects with larger operational wind turbines. ***Susceptibility rating: high-medium***
Landscape Context *Upper Nithsdale* lies between the *Southern Uplands* (21) and is strongly contained by these hills. There is often a seamless topographical transition between the more open upper slopes of the dale and this upland AU in the north-west. There is clear inter-visibility between the dale and these surrounding hills, and where the uplands are gently sloped, they provide a large-scale context and visual backdrop to the upper dale. The *Southern Uplands* (21) are more steeply sloping and dramatic to the south-east at the Nith/Drumlanrig gorge.	The visual containment of this AU limits potential for widespread effects on other AUs. Large wind turbines sited within this landscape could impact though on the more pronounced and dramatic hills of the *Southern Uplands* (21) which generally lie to the SE of this AU. ***Susceptibility rating: high-medium***	This smaller typology, and particularly turbines towards the lower height band, would have less of an impact on the dramatic rugged hills of the *Southern Uplands* (21). ***Susceptibility rating: medium***
Perceptual qualities Upper Nithsdale is well settled and easily accessible although a sense of seclusion can be experienced within some of the smaller side valleys and in the south-eastern part of this dale where policy woodlands and landform provides containment.	While there would be some further erosion of the perception of rural character, this typology would not affect the appreciation of wildness apart from in the side valleys, which are less well developed and more secluded. ***Susceptibility rating: medium-low***	This smaller typology, and particularly turbines towards the lower height band of this typology would have less of an impact on the perception of rural character and on the sense of wildness associated with more secluded areas. ***Susceptibility rating: low***
Views and visibility The area is highly visible from the A76 and from settlements and individual farms and houses often located at a relatively high level along the side slopes.	The relative accessibility and openness of this landscape would result in this size of turbine being likely to be visible over a wide area. Turbines located within the floor and lower slopes of the dales would intrude	Turbines of this size located within the floor and lower slopes of the dale would also intrude on presently open views from roads and settlement although they would be less visually dominant if sited on upper side slopes

Views can be interrupted by localised undulating landform and woodland and very confined within the narrower stretches of the valley. Key views extend along the valleys, and towards side valleys, the outcrop hills and the backdrop provided by the *Southern Uplands* (21).	on presently open views across the dale from roads and settlement. The presence of nearby operational and consented wind farms increases susceptibility in terms of potential cumulative visual effects. ***Susceptibility rating: high***	and backdropped by rising ground within broader sections of the valley. The presence of nearby operational and consented wind farms increases susceptibility in terms of potential cumulative visual effects. ***Susceptibility rating: high-medium***
Landscape value The south-eastern part of the *Upper Nithsdale* area is generally of higher value. This area falls within Thornhill Uplands RSA. Technical Paper 6 defines the steep-sided narrow Drumlanrig Gorge and the interlocking pattern of policy woodlands as key special qualities. The Inventory listed designed landscape of Drumlanrig Castle also lies in this area and is of national importance. Many recreational facilities are located at Drumlanrig Castle estate and the hills in the Durisdeer area are popular for walking. There are many archaeological and historic features in this *Upper Dale*.	Turbines of this size could affect the special qualities of the RSA and the setting of the GDL if sited within or close-by these valued landscapes. ***Value rating: high to medium***	Even smaller turbines would have a significant effect on policy woodlands and the setting of the designed landscape of Drumlanrig and on the character of the Mennock gorge although there may be some opportunities to site turbines towards the lower height band of this typology to minimise effects in the more sensitive SE parts of this upper dale. ***Value rating: high-medium to low***
Sensitivity	**High**	**High-medium**

10.4 Upper Glenkens

10.4.1 *Description*

The *Upper Glenkens* forms a broad valley, contained by high hills, including the distinctive landmark hill of Cairnsmore of Carsphairn which lies in the *Southern Uplands* (21) Assessment Unit. The gently undulating to flat valley floor gives way to either uneven, but gently graded side slopes, or to more steep-sided and enclosing slopes. While this upper dale is generally wide and open, occasional outcrop hills create 'pinch points' along the floor and lower side slopes. Enclosed pastures extend up to higher, more open rough grazing and bracken covered slopes. Woodlands are a key feature of the *Upper Glenkens* and these include semi-natural woodlands and the policies of designed landscapes. While the floor of the dale is well settled and linked by major roads, the upper slopes and side valleys are more sparsely settled. The *Foothills with Forest* Assessment Unit forms generally low upland ridges above the eastern and western sides of this upper dale. The high Rhinns of Kells ridge, which lies in the *Rugged Granite Uplands* (24) Assessment Unit forms a dramatic rugged skyline seen above forested slopes to the west.

10.4.2 *Cumulative issues*

There are no operational wind farms or larger wind turbines sited in the *Upper Glenkens* Assessment Unit. The operational wind farms of Torrs Hill and Blackcraig, sited in the adjacent *Foothills with Forest* (20) Assessment Unit, and the Benbrack wind farm located in the *Southern Uplands with Forest* (22) are visible from the *Upper Glenkens* but do not generally have a strong influence on character and views. The consented Shepherd's Rig wind farm will however be highly visible from this Assessment Unit because of its open location at the foot of the eye-catching landmark hill of Cairnsmore of Carsphairn seen at the head of the *Upper Glenkens*. The consented wind farms of Margree and Glenshimmeroch will also be visible from the *Upper Glenkens* but will be generally less intrusive due to their less prominent location where they are seen on simple dipped ridgelines and also because of the partial screening provided by landform.

If larger typologies (turbines >50m) were sited within the *Upper Glenkens*, they could be inter-visible with wind farms located on adjacent, surrounding hills. Cumulative effects may particularly affect elevated and more open views, from hills such as Cairnsmore of Carphairn and the Rhinns of Kells and sequential views from the A713. The small-medium typology (turbines 30-50m), while more able to fit with other key characteristics of these landscapes, could also result in significant cumulative impacts with wind farm development sited in adjacent upland landscapes if poorly sited although there is scope to minimise inter-visibility between developments.

10.4.3 *Key constraints*

- The narrower sections of the *Upper Glenkens*, especially where enclosure is emphasised by steeper slopes and woodland and the scale of the landscape is consequently smaller.
- The outcrop hills, including Dundeugh Hill, and the more complex knolly landform often found within the floors and lower slopes of the *Upper Glenkens*.
- Key landscape features, including water bodies and often extensive designed landscapes such as Garroch.

- The Archaeologically Sensitive Areas in the *Upper Glenkens*.
- The high visibility of these dales, which are well settled along the valley floors as well as being highly visible from roads and from more elevated residential properties.
- The potential inter-visibility of development within the *Upper Glenkens* with larger wind turbines sited in the nearby *Southern Uplands* (21) and *Foothills with Forest* (20) which increases susceptibility in relation to potential cumulative landscape and visual effects.
- Key views to the landmark hills of Cairnsmore of Carsphairn and the high, rugged Rhinns of Kells ridge.
- The Galloway Hills RSA which covers much of this landscape - a key special quality of the designation is the scenic juxtaposition of the pastoral and settled *Upper Glenkens* with the surrounding uplands.

10.4.4 *Opportunities*

- More open and expansive areas, especially where there are larger fields, where the vegetation pattern becomes more extensive and where there is backdrop of larger hills and broad sweeping upland slopes (although cumulative effects with wind farms sited in adjacent upland areas may reduce opportunities in some of these areas).
- Areas where settlement is sparser, usually on upper side slopes at the transition with the *Foothills with Forest* (20) and *Southern Uplands* (21) (although some of these areas are constrained by potential cumulative effects with operational and consented wind farm development in these adjoining Assessment Units).

10.5 Sensitivity and guidance

Sensitivity varies according to the complexity of landform and landcover and the consequent scale of this upper dale. The high visibility of this landscape and potential effects on the setting and views to and from the landmark hill of Cairnsmore of Carsphairn and on the Rhinns of Kells ridge are key sensitivities. The presence of RSA and ASA designations increase the value of this landscape. There would be a ***high*** sensitivity to turbines >80m high. Sensitivity would be ***high-medium*** to the medium typology (turbines 50-80m) and ***medium*** to the small-medium typology (turbines 30-50m).

Wind turbines should be located within broader stretches of the *Upper Glenkens,* relating to concave folds in the landform, natural terraces, more open and simple areas of vegetation, gently graded side slopes and areas of more expansive scale. However, the location of developments would need to be carefully considered because of the potential for cumulative effects to arise with consented wind farm developments within adjacent upland areas. Small-medium turbines (30-50m) would present a clear differential between larger wind turbine developments sited in the larger scale uplands and the more settled and patterned *Upper Glenkens* which has a more distinct 'Lowland' character.

Small turbines (<30m high) should be located where they can reinforce the pattern of existing development, associated with farms and other small groups and single buildings which provide a framework of built development-related spot features within the *Upper Glenkens*. Turbines should be sited to avoid impacts on the setting of

settlements, on designed landscapes, archaeology and other features of importance, as well as key landmark features such as the water bodies within the Glenkens. Areas of more complex landform and key outcrop hills should be kept free of development.

AU 9: Upper Dales - Upper Glenkens – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale This broad dale is generally enclosed by the sweeping but rounded, gentle slopes of the *Foothills with Forest* (20) and the *Southern Uplands* (21), which steepen in places to create more enclosure. There are also narrow 'pinch-points' reinforced by outcrop hills. At its most broad, and especially where more loosely contained by gently graded side slopes, this dale is open and of medium scale but scale decreases where the dale constricts and within side valleys.	This typology would overwhelm more confined side valleys and areas where the landform constricts and provides a greater degree of containment. There may be some scope to relate this size of turbine to broader sections of these dales where the upper reaches of more open gentler hill slopes merge with the lower slopes of the surrounding uplands. ***Susceptibility rating: high-medium***	This typology could be accommodated where the breadth of the landscape is at its most sweeping, especially at the upper reaches of the broader, gentler slopes which merge with the lower slopes of the surrounding uplands. However, where the dales are narrower, slopes are steeper, at pinch-points and where landform is smaller in scale, and within the narrow side valleys, this typology could easily overwhelm the smaller scale of the landscape. ***Susceptibility rating: medium***
Landform The often relatively undulating valley floors extend to either gentle slopes with a rounded profile sometimes interrupted by broad terraces or more even steeply rising side slopes (usually, one side of the valley is steep, the other gentler). Prominent outcrop hills sit part way up this dale, splitting them into two narrower valleys which then converge either side of the hills. Smaller, more complex landforms, low ridges and knolls associated with glacial deposits, or narrower side valleys occur along the edges of these upper dales.	The more extensive areas of gently undulating landform and long side slopes at the transition with the *Foothills* (19) and *Southern Uplands* (21) could potentially accommodate this typology although more complex landforms associated with glacial deposits steeper gradients and the prominent outcrop hills are areas where the landscape is more sensitive to this typology, which could distract from the integrity of the landform. ***Susceptibility rating: high-medium***	The more extensive areas of undulating landform and gentle side slopes offer some potential to accommodate this typology. However, the more complex landforms associated with glacial deposits steeper gradients and the prominent outcrop hills are areas where the landscape is more sensitive to this typology, which could distract from the integrity of the landform. ***Susceptibility rating: medium***
Landcover A diverse land cover with fields of grazed improved pasture, wet grassland, more open rough grazing and bracken covered slopes. Both hedges and dykes feature, with the upper margin of the fields varying in elevation along the length of the dale. Woodland cover further emphasises this diversity and individual field trees. There are extensive areas of semi-natural woodland, often associated with waterbodies or within the side valleys, as well as conifer woodland. Additional features include the impounded lochs associated with hydro schemes in the Glenkens and planted features and policy woodlands	The small size of individual features – from single, landmark trees to small woodlands and lochs – would be dominated by this typology. There is potential to locate single turbines of this size where they can relate to the broad scale of the larger more open fields and areas of more upland character, where rough grassland and bracken dominate although turbines of this height would detract from landmark features but also from more diverse patterns of woodland, pastures and policies. ***Susceptibility rating: high-medium***	While the small size of individual features – from single, landmark trees to small woodlands and lochs – could be easily dominated by this typology – there is potential to site single turbines of this size where it can relate to the broad scale of the larger more open fields and areas of more upland character, where rough grassland and bracken dominate. ***Susceptibility rating: medium***

associated with individual estates and designed landscapes.		
Built Environment Sparsely settled upper slopes contrast with more developed lower dales, where small settlements are tucked along the valley floor adjacent to roads, while there is a range of archaeological and historic features across both the upper and lower slopes of this AU. Major A roads extend through the floor of the dale, while more narrow minor roads are aligned on lower valley sides. Operational and consented wind farms are/will be prominent in views from the head and eastern upper slopes of the *Upper Glenkens*.	This typology could overwhelm the small farms, individual houses small settlements and archaeological features, affecting their setting and the scale of the built development if sited where they can dominate their visual setting. Less settled upper side slopes would be less susceptible. The head and eastern upper slopes of the *Upper Glenkens* are of increased susceptibility in terms of potential cumulative effects with consented wind farms. ***Susceptibility rating: high-medium***	This typology could overwhelm the scale and setting of small farms, individual houses and small settlements and archaeological features if sited close-by. Less settled upper slopes would be of reduced susceptibility and this typology has potential to minimise cumulative effects with operational and consented wind turbines sited in adjacent uplands. ***Susceptibility rating: medium***
Landscape Context The *Upper Glenkens* lie between the *Southern Uplands*, the *Rugged Granite Uplands with Forest* and *Foothills with Forest.* These AUs strongly contain this upper dale and there is often a seamless topographical transition between the more open upper slopes of the *Upper Glenkens* and these more upland landscapes. There is clear inter-visibility between the upper dale and these surrounding hills, and where the uplands are gently sloped, they provide a large-scale context and visual backdrop. The distinctive hill of Cairnsmore of Carsphairn and the Rhins of Kells form key landmark features seen from the *Upper Glenkens*.	The strong inter-visibility and scenic juxtaposition between the Upper Glenkens and the more pronounced uplands of Cairnsmore of Carsphairn and the Rhins of Kells increases susceptibility. There is some scope to site this typology (which is more likely to comprise single or very small groups of turbines) to minimise effects on adjacent landmark hills and ridges. ***Susceptibility rating: high-medium***	There would be greater scope to site these smaller turbines to minimise effects on adjacent landmark hills and ridges. ***Susceptibility rating: medium***
Perceptual Qualities This landscape is well-settled and easily accessible and is therefore not perceived as being remote or secluded. Some of the side valleys are more secluded and contrast with the main valley.	While there might be some impact on rural character, this typology would not affect the appreciation of wildland qualities apart from in the side valleys, which are less well developed and more secluded. ***Susceptibility rating: medium-low***	While there might be some impact on rural character, this typology would not affect the appreciation of wildland qualities apart from within the side valleys, which are less well developed and more secluded. ***Susceptibility rating: medium-low***
Views and visibility The area is highly visible from the A713, a designated Tourist Route, and from settlements and individual farms and houses often located at a relatively high level along the side slopes. Views can be interrupted by localised undulating landform and woodland and	The relative accessibility and openness of this AU means that this size of turbine would be readily visible over a wide area. Turbines located within the floor and lower slopes of the dales would intrude on presently open views across the dale from roads and settlement. This typology could also intrude on views to and from the	The relative accessibility and openness increases sensitivity and although turbines located within the floor and lower slopes of the dales would intrude on presently open views across the dale from roads and settlement, turbines of this size sited on upper side slopes and back-dropped by rising ground would be

very confined within narrow valleys and passes. Key views extend along the valleys, especially along the waterbodies in Glenkens, and towards side valleys or the outcrop hills. Elevated roads and paths offer highly scenic views to Cairnsmore of Carsphairn and the Rhins of Kells.	dramatic hills of the Rhinns of Kells and Cairnsmore of Carsphairn ***Susceptibility rating: high***	less visually dominant although still widely visible. This typology could intrude on views from the Glenkens to the dramatic uplands of the Rhinns of Kells and Cairnsmore of Carsphairn. ***Susceptibility rating: high-medium***
Landscape Values The majority of this landscape is covered by the Galloway Hills RSA. The citation notes the importance of views to the *Rugged Granite Uplands* (24) of the Rhinns of Kells and to Cairnsmore of Carsphairn from the Glenkens valley. The SUW and promoted footpaths are aligned through parts of this AU.	This typology could intrude on the wider setting and views to the Rhinns of Kells and Cairnsmore of Carsphairn if sited either on upper western slopes or in front of views from elevated roads aligned on the eastern slopes of the dale. ***Value rating: high-medium***	This typology could intrude on the wider setting and views to the Rhinns of Kells and Cairnsmore of Carsphairn if sited either on upper western slopes or in front of views from elevated roads aligned on the eastern slopes of the dale. ***Value rating: high-medium***
Sensitivity	**High-medium**	**Medium**

11 ASSESSMENT UNIT 10: UPLAND GLENS

11.1 Introduction

The *Upland Glens* contain the upper reaches of rivers which cut into the *Foothills* and *Southern Upland* Assessment Units in northern and eastern Dumfriesshire. The eight glens of *Castlefairn, Dalwhat, Shinnel, Scaur, Mennock, Dalveen, Evan/Upper Annandale, Moffat* and *Ewes* are considered together in the sensitivity assessment. No detailed sensitivity assessment tables are provided for turbines 50-80m high due to the low demand for wind energy development in these strongly contained and narrow valleys and their high sensitivity.

11.1.1 *Cultural heritage overview*

This Assessment Unit is characterised by post-improvement (c19th-20th century) fields, farming and rough grazing with evidence for relict land-uses (although some of the valleys have not yet been assessed by the HLA process). These include landscapes with evidence for pre-improvement (pre19thc) farming, particularly in *Ewes*, and, at a site-specific level, there are a number of archaeological sites of outstanding significance and distinctiveness.

11.1.2 *Operational/consented wind farm development*

There are no operational or consented wind farm developments sited in these *Upland Glens* although operational and consented wind farms located in adjacent uplands are visible from many of the glens. The operational Wether Hill wind farm is visible at the head of the *Dalwhat Glen,* the operational Whiteside and Twenty-Shilling Hill wind farms are visible from the *Scaur Glen* and the operational Blackcraig wind farm is visible from the *Castlefairn* glen.

The consented wind farm development of Sanquhar II, located in the *Southern Uplands* (21), will be seen on containing skylines above the *Scaur Glen* and *Shinnel Glen.*

11.2 Description

The *Upland Glens* are enclosed and often narrow, contained by steep sides which rise to form irregular ridgelines. The narrowness and enclosure of these glens create a contained and small-scale landscape, reinforced by small woodlands, individual trees and compact buildings often lying on the edges of the valley floor. These glens often include prominent hills lying on the upland edge and the heads of these glens commonly form a dramatic focus in long views channelled by steep side slopes.

11.2.1 *Cumulative issues*

Hills and ridgelines at the head of the *Upland Glens* form a focal point in key views along these glens and significant adverse cumulative visual effects could arise if wind turbines are prominently sited on key skylines in multiple upland glens.

If more than one, or small groups, of small turbines appear within these glens, including along the hill slopes and adjacent ridgelines, the relationship between proposals for this typology should be monitored closely in terms of potential cumulative effects. Cumulative impacts could include increased visual clutter, detraction from the rhythm of existing settlement and diminishing the sense of anticipation of travelling into a more

Assessment Unit Key Map - 10. Upland Glens

Mennock

Annan

Dalveen

Moffat

Scar

Shinnel

Ewes

Castlefairn & Dalwhat

Text

Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

sparsely settled, less developed and often dramatic upper glen. Single turbines are likely to be more easily accommodated especially in the less developed and more secluded sections of the glens provided they are closely associated with widely dispersed buildings.

11.2.2 *Key constraints*

- The narrowness of the glens, which limits scope for larger typologies which would dominate their limited extent and scale.
- The dramatic forms of steep-sided hill flanks, particularly pronounced or distinctive hills and ridges.
- The upper edge of the valleys, where the irregularly shaped enclosing ridgeline is visually prominent against the sky when viewed from within the glen.
- The heads of the glens, which are often the focal point in views; the Devil's Beef Tub at the head of the *Evan Glen/Upper Annandale* area comprising a notably scenic example.
- Archaeological features and broader historic landscapes, often associated with the unimproved grassland on side slopes.
- The RSA designations which cover the majority of these glens and where the scenic juxtaposition of rugged uplands and narrow glens is a key special quality.

11.2.3 *Opportunities*

- The lower side slopes, where individual terraces and other landforms and the pattern of settlement offer opportunities for small turbines to be sited where they can be associated with these other features in the landscape.
- Broader areas of the glen floor which are usually located where side valleys merge with the main valley but set away from the deeper side glens contained by the more dramatic hills of the *Foothills* and *Southern Uplands*.

11.3 Sensitivity and guidance

These glens are highly sensitive to most sizes of wind turbine due to their narrowness, their small scale and the dramatic steep-sided hill flanks and prominent ridges and hills which contain them. RSA designations cover the majority of these glens and increase the value associated with this Assessment Unit. Sensitivity would be ***high*** to wind turbines >30m.

Small turbines (<30m) should be located where they can reinforce the pattern of existing development, associated with farms located at the edge of the glen floor or lower side slopes above the existing built development, possibly associated with side valleys or the head dyke. Small wind turbines should be sited to avoid intrusion on key views to the dramatic heads of the glens and to avoid close inter-visibility with wind farms sited in the adjacent *Southern Uplands* and *Southern Uplands with Forest* (21 and 22) and *Foothills with Forest* (20) Assessment Units. They should also be sited to avoid intrusion on particularly distinctive buildings, archaeological features and policy landscapes.

These *Upland Glens* are highly sensitive to larger turbines sited on the outer edge of adjacent uplands and seen in conjunction with prominent hills and ridges and the head of the glen where they could dominate the scale of these glens and significantly intrude on views.

AU10: Upland Glens – Detailed assessment of smaller wind turbines	
Topics and description	**Assessment: Small-medium turbines (30-50m)**
Scale These are often narrow, high sided valleys with flat floors. The steep valley sides create a high degree of enclosure. Containment is often further reinforced by the sinuous shape of several of the valleys, which limits long views. The height of the valley sides is most pronounced and dramatic when flanked by the hills of the *Southern Upland AU*, which rise to over 600m. They are slightly less contained when located within the *Foothills* AU.	This typology could easily dominate the narrow floor of these valleys and appear to 'fill up' the more contained and enclosed spaces. The sense of 'depth' and often perceived towering scale of some of the more dramatic valleys located in the Southern uplands would be diminished by the presence of this typology. However, in places where the valley floor opens out, or widens at a confluence with a side valley, creating a more extensive sense of space, away from more dramatic steeply rising uplands, there is some potential to accommodate turbines < 35m). ***Susceptibility rating: high-medium***
Landform The valleys are relatively narrow, with flat floors and steep side slopes rising to irregular ridgelines. The ridge between the valley sides and the surrounding uplands appears as an abrupt edge. There are regular side valleys. While the upper side slopes are relatively even and steep, the lower hillsides often have an irregular and relatively complex topography of 'slumped' landforms, rocky outcrops and terraces. These slopes contain the narrow river flats and occasional moundy deposits which extend along the valley floor. When located within the *Southern Uplands*, the dramatic hill forms of the upper slopes and ridges can appear sculptural and particularly prominent in side light.	The irregular topography along the lower slopes offers opportunities for siting individual turbines related to topographical features, although it would be difficult to relate the larger turbines to the small size of many landform features. The rhythm of the undulating and irregular ridges could be easily disrupted by turbines interrupting the skyline when viewed from the valley floor. The more sculptural and dramatic hill forms are particularly sensitive to disruption across the smoothly rolling summits and sheer-sided slopes, especially where the valleys are contained by the *Southern Uplands.* Extensive cut and fill could create scarring if access tracks are built across steep slopes. ***Susceptibility rating: high***
Landcover Rough grassland on the tops of the ridges extends down to head dykes located part way up the hillsides, separating the open grass moor on the upper slopes from fields of unimproved pasture along the lower slopes. The narrow valley floors are subdivided by dykes into small, improved pasture fields. Clumps of broadleaves associated with farms, some riparian woodland, conifer woods and occasional policy woodland in the lower reaches of the glens provide a sometimes sparse but otherwise diverse woodland cover. The exception is the Scar Water, where extensive regeneration of semi-natural woodland is present.	The small size of individual features – from clumps of trees to small woodlands and fields – could be easily dominated by the larger turbines of this typology. Where more extensive and less visually diverse vegetation pattern occurs, there is likely to be more scope for this typology. ***Susceptibility rating: high-medium***
Built Environment Dispersed farms and cottages, become sparser towards the heads of the glens. Occasional estate	This typology could easily overwhelm small farms and individual houses, if sited close enough to dominate the setting and the scale of the existing

houses are set within the lower glens. Settlement is generally located as point features along the edge of the valley floor and is frequently associated with side valleys. Roads can be narrow and often winding, although the A7, A702 and the A708 pass through these glens. Extensive remains of historic land use, including traces of tracks, abandoned farms, field boundaries and varied prehistoric sites can be found on unimproved land generally along the side slopes.	buildings and associate features. This typology could also detract from the way development is characteristically located along the edges of the valley floor, if it is sited on the flat of the flood plain or on the higher ridges. In more dramatic upland glens, there is often a contrast between the small size of the buildings and the sheer-sided mass of the hills, which could be diminished by this typology. Turbines of this size could also impact on the setting and prominence of archaeological features. ***Susceptibility rating: high***
Landscape Context These narrow glens are visually cut off from other landscapes, with the exception of the immediate edges of the surrounding upland AUs, which form the upper rim of the glen sides.	The geographical containment of the glens limits potential impacts on adjacent AUs ***Susceptibility rating: low***
Perceptual Qualities When travelling to the heads of some of the glens on 'dead end' roads, settlement becomes sparse and there is a strong sense of seclusion. However, several of these glens have well used and busy through routes.	While there can be a sense of seclusion in these glens, there is only a limited sense of remoteness, as the landscape is settled and the glen floor is relatively managed, with some busy roads. The upper reaches of the more secluded glens will be more sensitive to this typology. ***Susceptibility rating: medium***
Views and visibility Views from roads often focus along the length of the glens, if they are not too sinuous and if woodland does not obscure the view. The heads of the glens are often the focal point for key views, and the irregular shaped skyline around the rim of the valleys is visually prominent. Key viewpoints are likely to include accessible upland features such as hill forts and key summits, from where there are long views across the uplands and down along the length of the glens.	This typology could quickly become visually dominant within smaller spaces associated with narrower glens or if located where it intrudes into the linear views which focus along the length of the glens. The irregular ridges are also sensitive to development perched along the prominent skyline either within this or adjacent *Southern Uplands* and *Foothills* AUs. Views to the heads of the glens are especially sensitive as these are the focal points of views. ***Susceptibility rating: high***
Landscape Values All these *Upland Glens* are designated as RSAs with the exception of the extreme upper margins of the Castlefairn and Shinnel units. The Ewes upland glen lies within the Langholm Hills RSA. The Moffat and upper Annan/Evan glens lie within the Moffat Hills RSA while the Mennock, Dalveen, Castlefarn, Shinnel, Scar and Dalwhat glens are covered by the Thornhill Uplands RSA.Ewes, Moffat and upper Annan are described as archetypal...'*long, straight-sided U shaped glaciated Upland Glens'*. Castlefairn, Dalwhat, Dalveen, Mennock, Scar and Shinnel are described as contrasting dramatically with the adjacent *Southern Uplands* and *Foothills.* There are archaeological and historic features in many of these glens and promoted walking routes.	This typology could detract from the dramatic hill slopes of the *Southern Uplands* which contain the glens by introducing larger elements which diminish the contrasts between the small size of domestic buildings and the sheer-sided mass of the hills. ***Value rating: high-medium***
Sensitivity	**High**

12 ASSESSMENT UNIT 12: MOSS, MOOR AND DRUMLIN PASTURE

12.1 Introduction

The *Moss, Moor and Drumlin Pasture* occurs in a single area in Galloway. This landscape is easily recognisable by the relatively frequent occurrence of low mounded glacial deposits (drumlins) and more prominent, small hills set within low lying wetland and often rushy pasture. This Assessment Unit forms an extension of the related *Drumlin Pasture* (13) and is straddled between the low-lying *Moss and Forest Lowland* (11) and the more extensive sparsely settled *Plateau Moorland with Forest* (17).

12.1.1 *Cultural heritage overview*

This landscape is characterised as moorland/rough grazing to the west and post-improvement (c19th-20th century) fields, farming and a few small designed landscapes to the east, with areas of relict land-uses including pre-improvement (pre-19th century) land-use with their remains of buildings and distinct field shapes. However, it is the scattered prehistoric antiquities, including standing stones and cairns, that are highlighted as a key characteristic in the Landscape Assessment and which are recognised as being of outstanding significance and distinctiveness.

12.1.2 *Operational/consented wind farm development*

The operational wind farm of Barlockhart is partially located within the far western corner of this Assessment Unit. A group of closely associated operational wind farms, including the Artfield Fell, Balmurrie Fell, Carsecreugh, Aries and Glenchamber development, lie in close proximity to the northern boundary of this landscape.

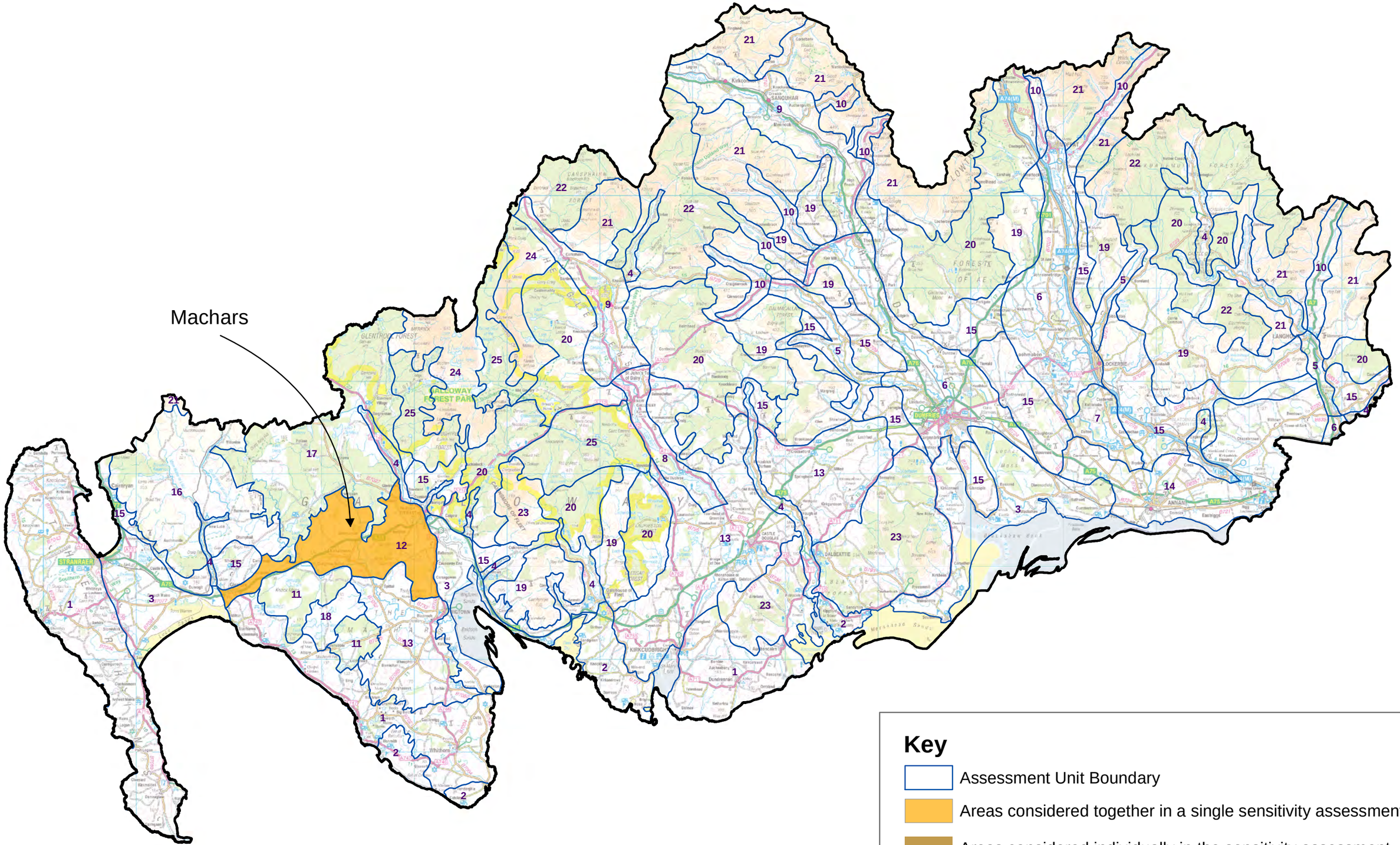
12.2 Description

The *Moss, Moor and Drumlin Pasture* is characterised by the extensive and repeated pattern of small, rounded, elongated mounds and higher, more irregular shaped hills rising out of low-lying areas of flat wetland, moss and flood plain which in places has been afforested. Relatively easy to access, this landscape is both well-settled within the drumlin dominated areas, and less settled within areas associated with more extensive wetlands and higher hills. Smooth textured grazed fields extend up and over the drumlins, well defined by hedges and patterned with occasional small woods and clumps of trees. The higher hills offer a more upland character of open rough grazing fragmented by whin and scrub, while wetland is frequently fragmented by rushy pasture and scrubby willow. The low profile, intimate scale and complexity of the drumlins, as well as the diverse mosaic of the vegetation pattern, and in places relative semi-natural qualities, severely limits scope for larger wind farm typologies. This landscape is visible from the A75 although landform and vegetation result in views being intermittent.

12.2.1 *Cumulative issues*

This Assessment Unit forms a transitional landscape between the sparsely settled and generally simple *Plateau Moorlands* (16 and 17) and the more complex and well-settled lowland landscapes of the Machars. The operational wind farm of Barlockhart is partially located in the western part of this Assessment Unit. A number of operational wind farms The operational Artfield Fell, Balmurrie Fell, Carsecreugh and Glenchamber wind farms lie close to the north-western boundary of this character type. A prominent ridge of

Assessment Unit Key Map - 12. Moss, Moor and Drumlin Pasture



small hills limit visibility of these wind farms from the more settled southern and eastern parts of this landscape although the following cumulative effects could occur with wind energy developments located in this landscape:

- Sequential views from the A75 where development (and particularly larger turbines >50m) sited in this landscape would increase the density and extent of wind energy development seen from this well-used route.
- Larger turbines sited in this, and the adjacent *Moss and Forest Lowland* (11) AU, could combine with the operational and consented wind farms noted above to create a dominant cumulative effect on the settlement of Kirkcowan and contribute to a 'corridor-like' effect on the A75.

Cumulative impacts are also most likely to arise if more than one, or small groups, of small-medium typology (turbines 30-50m) appear across the hills within the drumlin pastures. These are already the focus for other structures, such as masts, which can add to visual complexity and potential clutter. The visual inter-relationship between proposals for this typology will need to be monitored closely.

In the more settled areas, the regularity of farmsteads could rapidly lead to a cluttered appearance if single or groups of turbines were associated with the majority of land holdings. This potential visual cumulative effect would particularly be the case if the small-medium typology was widely developed. The use of small turbines (<30m high) would reduce these effects as they would be more readily visually screened by topography and woodland. Variations in the type and scale of single and small groups of small turbines could lead to cumulative effects.

12.2.2 *Key constraints*

- The low relief, rounded profile, smooth texture and often complex and repeated pattern of the drumlins.
- The hills, which although less sensitive than the drumlins, are still small in a regional context, and often have a rugged irregular landform which would also be sensitive to larger typologies.
- The small settlements and farms, which are often tucked in around the drumlins and could be easily overwhelmed by tall structures sitting above them.
- Archaeological features, as well as historic point features, such as clumps of trees, which sit on top of the drumlins.
- The semi-natural quality of this landscape, formed by the wetland, moss and the rushy pastures with willow scrub, all of which also contrast with the smooth improved grassland of the drumlins to create a diverse vegetation pattern.
- Potential cumulative effects with turbines located in adjoining Assessment Units.

12.2.3 *Opportunities*

- The lower side slopes of the less distinctively rugged hills, which are larger in scale than the drumlins and offer more opportunity for accommodating small-medium and small turbines where slacker slopes and other low landforms can be used to create natural platforms for siting development.
- The pattern of settlement and farms which forms spot features and a spatial framework of dispersed development which can be adopted by smaller turbines.

- Wider areas of flat valley floor, often occupied by wetland, moor and coniferous forestry, which offer more expansive areas with a simpler landform within which the vertical structure of a turbine can be more readily accommodated.

12.3 Sensitivity and guidance

The complex landform of drumlins and pronounced rugged hills, together with the semi-natural quality of landcover increases susceptibility in many parts of this Assessment Unit. Designed landscapes are key sensitivities in some areas. The *Moss, Moor and Drumlin Pasture* has a ***High*** sensitivity to turbines >80m high. Sensitivity would be ***High-medium*** to turbines 50-80m high and a ***Medium*** sensitivity to turbines 30-50m. There would be a ***Medium-low*** sensitivity to small wind turbines <30m high.

Smaller wind turbines <80m high would be more successfully accommodated in this landscape due to their reduced height but also because they are more likely to comprise single and small groups of turbines which would minimise impacts on the character of complex drumlins, mosses, distinctive small hills and cumulative effects with operational wind farms sited in nearby upland areas. Wind turbines 50-80m should be sited within less sensitive broader, flatter, and largely forested, lower-lying areas and on the lower slopes of larger hills, although avoiding impact on more distinctively rugged small hills which are characteristic of this landscape. Areas of more diverse wetland and moor should be avoided. Cumulative landscape and visual issues may arise with operational and consented wind farms located to the north and west of this Assessment Unit and the location of this typology (which are more likely to comprise single and small groups of turbines) would need to be carefully considered to minimise inter-visibility.

Small-medium turbines (30-50m) could also be sited on the broad, low-lying areas of relatively level wetland between the drumlins, or across the lower slopes of the higher hills. More complex drumlin topography, and the tops of the drumlins, should be avoided. It is likely that turbines taller than 35m may be more difficult to accommodate in areas with a more complex landform, and visual impact on the perceived scale of the drumlins and small hills should be carefully assessed, along with potential cumulative visual effects.

There are greater opportunities to locate the small typology (turbines <30m high), whilst minimising landscape and visual effect, in this landscape. Small turbines should be sited where they can be clearly associated with existing development, farms or other settlement. They will be easier to accommodate if sited on natural low terraces and changes in gradient or folds in the topography. Where small turbines are perceived to fit with the scale of the drumlins, these should be located on the side slopes of the drumlin forms where views are more likely to be intermittent and where the rhythmical pattern of the drumlin forms against the sky is less likely to be disrupted.

All turbines should avoid intrusion on key views from elevated roads, and into the backdrop and setting of small settlements or archaeological features and landscapes of historic interest.

AU 12: Moss, Moor and Drumlin pastures – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale The consistent pattern of small drumlins and occasional medium sized hills (rising to just over 200m) is interspersed with wetland, rough grassland and extensive conifer woodland most of which extends over flatter, more poorly drained land. The drumlins and hills create a strong enclosure with varied degrees of intimacy depending on the height and complexity of the landform. The small scale of the low drumlins is easy to read due to the frequent presence of livestock, trees and hedges which create ready scale reference points.	This typology would also form dominant features in this small to medium scale landscape, overwhelming the height of both the small hills and the drumlins and (if sited on hill tops) appearing 'top-heavy' in comparison. The more extensive, broader scale areas of planted moss/flat wetland may have some potential for this size of turbine. ***Susceptibility rating: high-medium***	This typology would form dominant features within the small-scale landscape associated with the drumlins, which are low in height and often clustered into complex interlocking patterns which create areas of intimate scale. This typology could be accommodated if associated with the highest hills, however, which are often broader, stand alone and are often relatively open, or occasional more expansive level land between the drumlin-dominant areas. ***Susceptibility rating: medium***
Landform Frequent occurrence of low rounded and often elongated, smoothly convex mounds or drumlins interspersed with areas of flat wet land or moss. Less frequent, larger, more visually prominent and irregularly shaped craggy-topped small hills occur mainly in the north west with a distinct rugged ridge occurring between Fell End and Culvennan Fell. Drumlins frequently interlock to create more complex topography. The smoothness and rhythm of this topography is a key characteristic.	The smooth, rounded profile of the repeated drumlin pattern, particularly where it is at its most interlocking and complex, would be highly sensitive to this development typology. This typology would also detract from the distinctive band of higher craggy-topped irregular hills which occur in the north-west. The more extensive flatter land may offer some potential for this typology. ***Susceptibility rating: high-medium***	The smooth, rounded profile of the repeated drumlin pattern, particularly where it is at its most interlocking and complex, would be highly sensitive to this development typology. Turbines would impact on the distinctive landform of the more rugged, craggy-topped larger hills although could be sited on slacker lower hill slopes where they would not detract from more pronounced landform. Low lying and more level land also offers some potential scope for this typology. ***Susceptibility rating: medium***
Landcover Extensive pattern of grassland fields, well defined by hedges emphasise the presence of the well-drained drumlins. Small clumps of trees are sometimes located on the tops of the drumlins and the higher more rugged hills feature patchy gorse, rock outcrops and rough grassland. Poorly drained wetland – sometimes extensive – scrub willow and rougher grassland extends between, and contrasts with, the smooth texture of the improved grassland on the drumlins. Occasional more extensive conifer woodland occupies low land, associated with the flatter, wetter areas or low ridges.	Turbines of this size would dominate the interlock of enclosed fields, small woodlands and mosaic of wetland habitats which create a visually diverse pattern across this landscape. They would also detract from the setting of occasional landmark features such as lochs and clumps of trees on the hill tops. Areas with a simpler vegetation cover such as rough grassland and conifer woodland would be less sensitive. ***Susceptibility rating: high-medium***	Turbines of this size, particularly if taller than 35m, could dominate the small scale elements of woodlands and enclosed fields however there is scope to site this typology where it has less interaction with these features. If poorly sited, they could detract from the setting of occasional landmark features such as clumps of trees on the hill tops. ***Susceptibility rating: medium***

The diverse land use of this AU reinforces the small scale and adds to the richness of this landscape in places.		
Built environment The landscape alternates between extensive areas of less settled wetlands and hilly areas and more densely settled areas around drier, drumlin dominated landscapes, all of which include a range of archaeological and historic features. There are dispersed farms and individual houses and estates largely tucked in between the drumlins. The small settlement of Kirkcowan lies in the southern part of this landscape while the town of Newton Stewart is located on its eastern edge. Operational wind farm developments are located in part of the AU and in adjoining AUs, having greatest influence on character in the north-west and north.	This typology would dominate and potentially overwhelm small settlements and would affect the setting of small, clustered settlements sited at the foot of hills and individual buildings and archaeological features dispersed across this landscape. Less settled areas may offer some potential for this typology which is more likely to comprise single and small groups of turbines. Cumulative effects could occur where this size of turbine contrasts with nearby larger turbines. ***Susceptibility rating: high-medium***	This typology could potentially overwhelm small settlements and could affect the setting of settlements sited at the foot of hills and individual buildings. Nevertheless, there should be scope to accommodate this typology where it has a less dominant effect on settlement and archaeology. ***Susceptibility rating: medium***
Landscape context *Plateau Moorland with Forest* (17) extends along most of the northern edge of this type, creating a higher, hillier upland edge which contains and provides a visual backdrop to this unit. To the south and west lie the lowland *Drumlin Pasture* (13) and *Moss and Forest Lowland* (11). To the west, a very narrow section of this type is tightly framed between *Upland Fringe* (15) and the coastal *Peninsula* AU (1). This AU also abuts the *Coastal Flats* (3) to the east.	Turbines of this size could be visible from surrounding AUs. Potential impacts are more likely to occur on neighbouring small-scale drumlins to the south in type 13 and on the sensitive *Coastal Flats* (3). The smaller landscape of lochs and policy features in *Plateau Moorland with Lochs* (18) could additionally be adversely affected by development located in the north-west of this AU although the smaller turbines of this typology would be likely to minimise effects. ***Susceptibility rating: medium-low***	Turbines could impact on the neighbouring small-scale drumlins to the south in type 13 and on the sensitive *Coastal Flats* (3). In general however, there would be greater scope to accommodate this smaller typology to avoid potential impacts on adjacent sensitive landscapes. ***Susceptibility rating: low***
Perceptual qualities The wetland, rush pasture, scrubby willow and rough grassland on the low-lying areas, and the more extensive areas of rough grazing on the higher hills creates a sense of semi-naturalness which contrasts with the improved pasture and more managed fields on the drumlins and with extensive commercial forestry in adjacent landscapes to the north. This is further emphasised by the lack of settlement in the less settled areas.	Although there is not a pronounced sense of wildness associated with this landscape, the perception of semi-naturalness, and the way in which this contrasts with the improved pastures on the drumlins, could be adversely affected by the introduction of this typology. ***Susceptibility rating: medium***	The perception of semi-naturalness, and the way in which this contrasts with the improved pastures on the drumlins, could be adversely affected by the introduction of this typology, although the size of the turbine means that with careful siting, this affect could be minimised. ***Susceptibility rating: medium-Low***
Views and visibility	This typology would also dominate views from the A75 and from	This typology could be visually prominent from well-used roads and

Visibility is often limited from minor roads and settlement by woodland and the enclosure created by interlocking drumlins. However, the A75 generally offers more extensive panoramas. Lower slopes and hills can form the visual backdrop/setting to villages and other features of interest. Side light, for example in the late afternoons, can highlight and dramatise the drumlin forms. Minor roads in this landscape are popular with cyclists. Longer views over this landscape occur from Cairnsmore of Fleet and from the eastern side of Wigtown Bay. Striking long views are also a feature from this AU to Cairnsmore of Fleet and the Galloway Hills.	settlement if sited on small hills or seen on prominent ridgelines. There may be some scope to locate this typology to minimise effects on views from minor roads and settlement although archaeological features remain sensitive to intrusion. ***Susceptibility rating: high-medium***	from more elevated properties and footpaths but is generally likely to be at least partially screened by intervening topography and tree cover. If poorly sited, turbines could detract from the visual focus of existing natural and historic features. ***Susceptibility rating: medium***
Landscape values No landscape designations cover this AU. Archaeological features and non-Inventory listed designed landscapes at Shennanton, Craighlaw, Merton Hall and Castle Stewart are present. This landscape does not attract large numbers of walkers.	Designed landscapes tend to be enclosed by woodland. Large wind turbines sited close-by and seen over the top of woodland could affect their character and landscape setting. There is increased scope to site smaller turbines to avoid impact. This size of turbine could impact on the setting of valued archaeological features. ***Value rating: medium***	Turbines of this size could be more easily sited to avoid impacts on designed landscapes and on valued archaeological features. ***Value rating: low***
Sensitivity	**High-medium**	**Medium**

13 ASSESSMENT UNIT 13: DRUMLIN PASTURES

13.1 Introduction

The *Drumlin Pastures* are easily recognisable by the relatively frequent occurrence of low mounded glacial deposits or drumlins and larger, more prominent, small hills. This landscape occurs relatively extensively in Dumfriesshire, reaching across the width of a wide plain, straddled between lower hill ranges and foothills. The areas of *Milton, Deeside* and *Machars* are identified within the Assessment Unit. These areas have strong similarities and the Assessment Unit is therefore considered as a whole in the sensitivity assessment.

13.1.1 *Cultural heritage overview*

This Assessment Unit is characterised by post-improvement (c19th-20thcentury) fields and farming, with a number of designed landscape areas, as well relict pre-improvement (pre-19thc) land-use with their remains of buildings and distinct field shapes, and a number of areas of pre-medieval land-use. One of the prehistoric foci is an Archaeologically Sensitive Area and there are numbers of archaeological sites of outstanding significance and distinctiveness, some of which are promoted for public benefit.

13.1.2 *Operational/consented wind farm development*

There are no operational or consented wind farm developments in this Assessment Unit, although there are individual and small groups of farm-based small turbines. There are views of the operational Plascow turbines sited in the *Coastal Granite Uplands* (20) from the *Milton* area of this Assessment Unit. The operational Blackcraig wind farm is also visible from parts of the *Deeside* area of this Assessment Unit.

13.2 Description

The *Drumlin Pastures* are characterised by the extensive and repeated pattern of small, rounded, elongated mounds which is occasionally interrupted by higher, more irregularly shaped hills and low-lying areas of flat drained land, wetland, flood plain or small lochs. They are easily accessible, well settled and farmed, with smooth textured grazed fields extending up and over the drumlins, well defined by hedges and occasional small woods and clumps of trees.

13.2.1 *Cumulative issues*

There is limited visibility of operational and consented wind farms sited in other Assessment Units from the *Drumlin Pastures* and cumulative effects are therefore most likely to be associated with multiple developments located in this landscape.

Cumulative impacts are most likely to arise if more than one, or small groups, of small-medium turbines (turbines 30-50m) appear across the hills within the drumlin pastures. These landscapes are already the focus for other structures, such as masts, which can add to visual complexity and potential clutter. The visual inter-relationship between proposals for this typology will need to be monitored closely. A number of existing small (15-20m) high turbines are associated with farms in this area and cumulative landscape and visual impacts could arise where variations in the type and scale of single and small groups of turbines occur.

Assessment Unit Key Map - 13. Drumlin Pastures

Machars

Deeside

Milton

Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

The regularity of farmsteads dotted across the *Drumlin Pasture*s could rapidly lead to it appearing cluttered if single or groups of turbines were associated with the majority of land holdings. This potential visual cumulative effect would particularly be the case if the small-medium typology was widely developed, an effect which would be reduced if well-sited turbines of less than 35m were used. Small turbines are more readily visually screened by topography and woodland, which is likely to limit their cumulative visual impact.

Cumulative visual effects could arise from inter-visibility between the *Drumlin Pastures* and adjacent parts of the *Coastal Granite Uplands* (23) and the *Foothills with Forest* (20) Assessment Units where larger turbines are more likely to be located in future.

13.2.2 *Key constraints*

- The low relief, rounded profile, smooth texture and often complex and repeated pattern of the drumlins.
- The hills, which although less sensitive than the drumlins, are still relatively small and would be dominated by larger typologies.
- Small settlements and farms, which are often tucked in around the drumlins or on side slopes and can be easily overwhelmed by tall structures sitting above them.
- Archaeological features and historic point features, such as clumps of trees, which sit on top of the drumlins.
- The visual backdrop to settlements and the wider setting of historic landscapes and individual archaeological features in valleys.
- Highly sensitive adjoining landscapes including the *Plateau with Lochs* (18), *Flooded Valley* (8) and the *Narrow Valley*s (4).
- Potential cumulative effects with turbines located in the *Coastal Granite Uplands* (23) and *Foothills with Forest* (20).
- Potential clutter created by the addition of individual small-medium and small turbines if associated with many land holdings across this well-settled landscape.
- The recreational value of parts of this landscape and its well-settled nature which increases visual sensitivity.

13.2.3 *Opportunities*

- The lower side slope of the hills, which are larger in scale than the drumlins and offer more opportunity for accommodating small/medium and small turbines where individual terraces, sub-knolls and other low landforms can be used to create natural platforms for siting development.
- The pattern of settlement and farms in this relatively densely settled Assessment Unit, which offers a pattern of spot features which although low lying form a spatial framework of dispersed development which can be adopted by small turbines in particular.
- Wider areas of flat valley floor, sometimes occupied by wetland, but often well drained, which offer more expansive areas of relatively open land within which the vertical structure of a turbine can be more readily accommodated.

13.3 Sensitivity and guidance

The small scale of the landform and the pattern of land cover and settlement, as well as the distinctive smooth rhythm of the drumlin tops increases susceptibility to wind turbine development. This landscape is also well-settled which increases potential for visual intrusion and it lies close to highly sensitive landscapes which could be indirectly impacted by wind energy development. Sensitivity would be ***High*** to turbines >50m and ***High-medium*** sensitivity to wind turbines 30-50m high. The landscape has an overall ***Medium-Low*** sensitivity to wind turbines <30m.

The lower side slopes of the slightly higher hills, as well as occasional more expansive low-lying flatter land offer opportunities to successfully accommodate smaller wind turbines. Turbines taller than 35m may be more difficult to accommodate, and their visual impact on the perceived scale of the drumlins and small hills should be carefully assessed, along with potential cumulative visual effects. More complex drumlin topography and the tops of the drumlins should be avoided. Where small turbines could fit better with the scale of the drumlins, these should be located on the side slopes of the drumlin forms where views are more likely to be intermittent and where the rhythmical pattern of the drumlin forms against the sky is less likely to be disrupted.

The introduction of additional overhead lines should be avoided and the construction of new access tracks avoided or carefully routed to avoid landscape and visual impact on the distinctive landform of this Assessment Unit. Turbines should avoid intrusion on key views from elevated roads, and into the backdrop and setting of small settlements or archaeological features and landscapes of historic interest.

AU 13: Drumlin Pastures – Detailed assessment of smaller wind turbines		
Topics and summary description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale The consistent pattern of small drumlins and occasional medium sized hills (rising to just under 200m) extends over an extensive area of low-lying land. The landform creates a strong enclosure with varied degrees of intimacy depending on the height and complexity of the landform. The small scale of the low drumlins is easy to appreciate due to the frequent presence of livestock, trees and hedges which create ready scale reference points. Some broader low-lying areas occur between drumlins.	This typology would form dominant features in this small to medium scale landscape, overwhelming the height of both the small hills and the drumlins, whether sited on hill tops or in areas of flatter ground between them. ***Susceptibility rating: high***	This typology would form dominant features within the small-scale landscape associated with the drumlins, which are low in height and often clustered into complex interlocking patterns which create areas of intimate scale. This typology could be accommodated if associated with the highest hills, however, which are often broader, stand alone and are often relatively open, or occasional more expansive level land between the drumlin-dominant areas. ***Susceptibility rating: high-medium***
Landform Frequent occurrence of low rounded and often elongated, smoothly convex mounds or drumlins. Less frequent, larger, more visually prominent and irregularly shaped small hills interspersed with occasional areas of flat ground and loch basins. Drumlins frequently interlock to create more complex topography. The smoothness and rhythm of this topography is a key characteristic.	The smooth, rounded profile of the repeated drumlin pattern, particularly where it is at its most interlocking and complex, would be highly sensitive to this development typology. This typology would detract from the irregularly shaped larger hills that infrequently occur in this character type and from the flatter areas which contrast with the distinctive drumlin pattern. ***Susceptibility rating: high***	The smooth, rounded profile of the repeated drumlin pattern, particularly where it is at its most interlocking and complex, would be highly sensitive to this development typology. The lower side slopes of the larger hills, which are more irregular and rugged in shape, offer terraces, which could be used to site this typology away from more prominent hill tops. Occasional low lying and more level land also offers some potential scope for this typology. ***Sensitivity rating: high-medium***
Landcover An extensive pattern of grassland fields, well defined by hedges and occasional woodland. Small clumps of trees are sometimes located on the tops of the drumlins and the higher more rugged hills feature patchy gorse and rough grassland. Occasional lochs and wetlands occupy the flat ground between drumlins. The diverse land use of this character type reinforces the small scale and adds to the richness of this landscape.	Turbines of this size would dominate the small scale elements of woodlands, enclosed fields and settlement that create a strong pattern across this landscape. They would detract from the setting of occasional landmark features such as lochs and wetlands and clumps of trees on the hill tops. Access tracks and installation of other associated infrastructure would interrupt the often smooth grassy cover of drumlins and hills that complements their distinctive form, and could adversely affect the integrity of field enclosures. ***Susceptibility rating: high***	Turbines of this size, particularly if taller than 35m, could dominate the small scale elements of woodlands and enclosed fields however there is some scope to site this typology where it has less interaction with these features If poorly sited, they could detract from the setting of occasional landmark features such as lochs and wetlands and clumps of trees on the hill tops. ***Susceptibility rating: high-medium***
Built environment The landscape is often well settled with dispersed farms and individual houses,	This typology could dominate and adversely affect the setting of settlements sited at the foot of hills and individual buildings and	This typology could also potentially affect the setting of small, clustered settlements sited at the foot of hills and individual buildings and archaeological

settlements and estate buildings largely tucked in between the drumlins. Roads are often small and relatively narrow, winding their way through the drumlins, although there are several larger A-class roads. There is a range of significant archaeological and sites and areas with prominent features such as forts, towers and crannogs in this landscape. In the *Machars* unit in particular, there are numerous archaeological sites and areas of more expansive historic landscape.	archaeological features dispersed across this landscape. Single and small groups of turbines towards the lower height band may have a reduced effect in less settled areas however. ***Susceptibility rating: High***	features dispersed across this landscape although there is greater scope to site turbines (and particularly turbines less than 35m high) to minimise effects. ***Susceptibility rating: Medium***
Landscape context The *Milton* area of this AU abuts the small-scale *Narrow Valley (4)* of the *Urr*, and forms the foreground and lowland setting for upland fringe, foothills and upland areas such as the *Coastal Granite Uplands (23)* and the *Terregles* area of the *Upland Fringe (15).* The *Deeside* area lies adjacent to the *Flooded Valley (8)* of Loch Ken and the Kirkcudbright coast while the *Machars* unit is in close proximity to the highly sensitive *Plateau Moorland with Lochs (18)* AU.	Development sited on drumlins and ridges which overlook highly sensitive small-scale valleys such as the *Narrow Wooded Valley* of the Urr Water, the *Flooded Valley* and the *Plateau with Lochs* would impact on the character and visual amenity of these neighbouring AUs. The rhythm of the smooth drumlin pattern which contrasts with the more rugged upland character of the *Coastal Granite Uplands*, notably seen in views from the 'Machars' area, could also be affected by development. In general, the relative extensiveness of the *Drumlin Pastures (13)* AU would allow scope to site this typology to avoid significant impact on adjacent small scale and highly sensitive landscapes. ***Susceptibility rating: medium***	Turbines sited on drumlins and ridges which overlook adjacent valleys such as the *Narrow Valley* of the Urr Water could impact on the character and visual amenity of these neighbouring AUs. There are, however, opportunities to site this typology where these impacts can be readily avoided. ***Susceptibility rating: medium-low***
Perceptual qualities While the farmed and settled nature of this landscape limits the sense of naturalness and remoteness experienced, it has a strongly rural character accentuated by areas of unimproved ground, scrub and woodland, small fields, largely intact enclosure pattern and traditional architecture of small, clustered villages and dispersed farmhouses.	Although this landscape does not have wildland characteristics, the perception of the strongly rural character of this landscape could be adversely affected by the introduction of this typology. ***Susceptibility rating: medium***	This typology is more likely to relate to the size of existing structures, including pylons and masts, and so while it would reinforce the presence of these more industrial elements in the landscape, it could with care be sited where the potential impact on rural character is limited. ***Susceptibility rating: medium- Low***
Views and visibility Visibility is often limited from minor roads and from small settlements by the enclosure created by interlocking drumlins although farmsteads and other dispersed dwellings are often located on higher, more open ground. Elevated and expansive views occur from the	Large turbines located on hills within these landscapes are likely to be visually prominent from well-used roads and from more elevated properties and footpaths both within the character type and from surrounding more elevated areas.	Located on low hills, this typology could be visually prominent from well-used roads and from more elevated properties and footpaths, but is generally likely to be at least partially screened from settlements and roads by intervening topography and tree cover. If poorly sited, turbines could

Old Military road (National Cycle Route 7) and the A75, A713 and A711 and these landscapes are also highly visible from roads and footpaths in surrounding upland areas. Lower slopes and hills can form the visual backdrop/setting to villages and other features of interest. Side light, for example in the late afternoons, can highlight and dramatise the drumlin forms.	Turbines of this size would detract from the visual focus of existing natural and historic features located on the tops of hills and summits and from the striking lighting effects which occasionally highlight the drumlin form. ***Susceptibility rating: High***	detract from the visual focus of existing natural and historic features located on the tops of hills and summits, or from the setting of more extensive historic landscapes. ***Susceptibility rating: High-medium***
Landscape values No landscape designations cover the *Milton* or *Machars* areas of this AU. The Galloway Hills RSA applies to the northern part of the *Deeside* area lying adjacent to Loch Ken. The RSA citation states that '*the visual envelope of the unique and distinctive Loch Ken is included in the RSA'*. A number of designed landscapes are located in this AU with these being particularly concentrated in the *Deeside* area. The drumlin pastures are additionally a distinctive feature of the Dumfries and Galloway landscape and there are many valued archaeological features and recreation routes. Important visitor destinations are focused in the Deeside area and include Threave Gardens and RSPB Reserve.	If sited within or close to the RSA, this typology would be likely to have significant effects on its special qualities although the extensiveness of the AU allows scope to avoid impacts on designated landscapes. Inventory and non-Inventory designed landscape, archaeological and Core Paths and the distinctiveness of the drumlins increase sensitivity in relation to landscape values. ***Value rating: High-medium***	Small turbines would be likely to have less of an effect on the special qualities of the RSA and could also be sited to minimise effects on designed landscapes and the more complex and distinctive areas of drumlin landform. ***Value rating: medium***
Sensitivity	**High**	**High-medium**

14 ASSESSMENT UNIT 14: COASTAL/FLOW PLATEAU

14.1 Introduction

This low-lying landscape lies in the eastern part of Dumfries and Galloway, close to the inner Solway Firth.

14.1.1 *Cultural heritage overview*

This landscape is characterised by post-improvement (19th-20th century) fields and farming but little evidence for relict land-uses. Nevertheless, there are a few archaeological sites of outstanding significance and distinctiveness present.

14.1.2 *Operational/consented wind farm development*

No operational or consented wind farms are located in this landscape. The operational offshore Robin Rigg wind farm is sited within the Solway Firth and is visible from the western parts of this Assessment Unit. The operational Minsca and Solwaybank wind farms, sited on the outer edges of the *Annandale* area of the *Foothills* (19), are widely visible across this open, gently undulating coastal plain. The operational Ewe Hill and nearby Crossdykes wind farms are also visible but less intrusive as they are set back more into the interior of the uplands.

14.2 Description

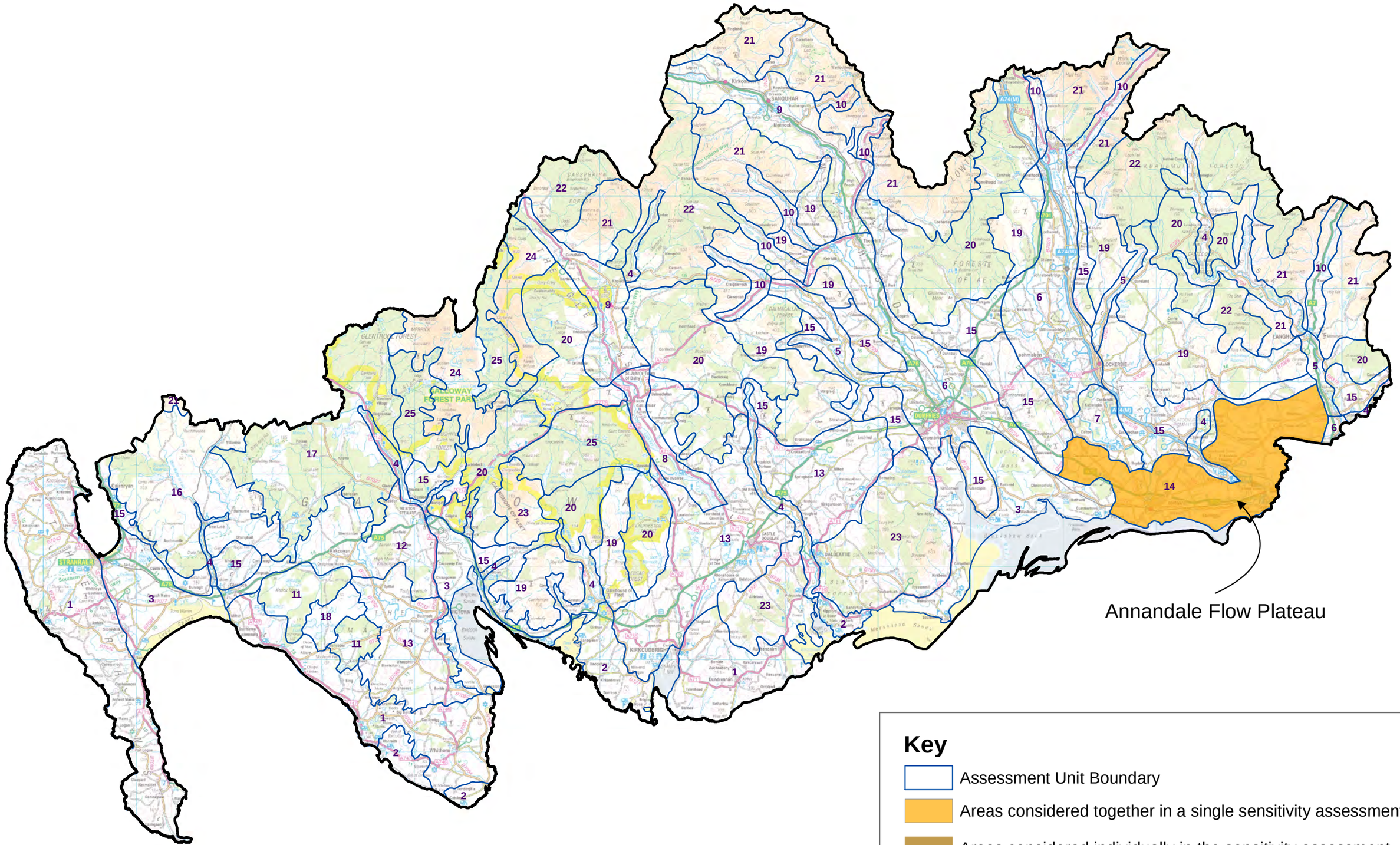
This gently undulating landscape falls gradually to the Solway coast and the broad floodplain at the mouth of the River Esk. Farmland is interspersed with low-lying mosses which are often encircled by broadleaved woodland and scrub. This is a well-settled landscape with a number of settlements concentrated close to the Solway Firth. The field enclosure pattern becomes less distinct and settlement sparser in the north-east of this Assessment Unit at the transition with the *Upland Fringe* (15). This open coastal area is often highly visible from roads and settlement which are often elevated above them.

14.2.1 *Cumulative issues*

While the operational Robin Rigg offshore windfarm may be inter-visible with any onshore development located in the western parts of this Assessment Unit, cumulative impacts are unlikely to be significant due to the distance and relatively limited extent that this wind farm occupies in coastal views.

Cumulative impacts could arise between any wind farm developments located in the northern part of this landscape with the operational Minsca and Solwaybank wind farms which are prominent on the skyline of the southern and south-western edges of the *Annandale* area of the *Foothills* (19). Larger typologies 50-80m high located close to the base of the narrow *Upland Fringe* (15) in the north-east of this Assessment Unit would be likely to have a greater cumulative effect in combination with these operational developments. Cumulative effects could also arise where any larger wind turbines sited in the southern parts of this Assessment Unit were seen simultaneously or sequentially with the Hallburn and Beck Burn operational wind farms near Longtown in Cumbria.

Assessment Unit Key Map - 14. Coastal/Flow Plateau



Key

- Assessment Unit Boundary
- Areas considered together in a single sensitivity assessment
- Areas considered individually in the sensitivity assessment

Variations in the type and size of single and small groups of small-medium and small turbines associated with farms could create cumulative landscape and visual impacts particularly given the well-settled and open character of this landscape.

14.2.2 *Key constraints*

- The well-settled character of these landscapes and their openness which increases visibility from settlement, roads and footpaths.
- The clutter of transmission lines, masts and industrial buildings in parts of these landscapes which increases the potential for cumulative visual impacts.
- The operational Minsca and Solwaybank wind farms within the adjacent *Annandale* area of the *Foothills* (19) and operational wind farms between Gretna and Longtown in neighbouring Cumbria which also increases susceptibility in relation to potential cumulative landscape and visual impacts.
- Dispersed farmsteads, field trees and small woodlands which provide highly visible 'point' features patterning these landscapes and ready scale references.
- Views over the Solway Firth to the Cumbrian Fells and also views across this open landscape which forms a threshold to Dumfries and Galloway and Scotland seen from the M74, A75 and A7 when travelling north and west.
- The natural character of the tidal estuary and its mudflats, remnant mosses and their associated scrub woodland and the occasional, deeply incised valleys which cut into the eastern parts of this plateau landscape.
- Occasional policy woodlands at Springkell, on the north-eastern edge of this landscape, around Hoddam and the highly sensitive *Dale with Hills* (7) Assessment Unit and also within the adjacent *Pastoral Valley* (5) of the Esk.

14.2.3 *Opportunities*

- Broader ridges on the more elevated north-eastern parts of the area which have a more expansive scale, simple land cover of more extensive pasture and coniferous plantation and are less settled.

14.3 Sensitivity and guidance

The relatively simple landform and landcover of parts of this landscape reduce susceptibility to wind energy development although the more natural coastal fringes, remnant mosses, designed landscapes and the potential effects on highly sensitive adjacent landscapes comprise key sensitivities. Sensitivity would be ***High-medium*** to turbines 50-80m high. Sensitivity would be ***Medium*** for turbines 30-50m and ***Medium-low*** for turbines <30m.

Smaller wind turbines <50m high could be more successfully accommodated in this landscape so as to avoid cumulative effects with wind farm development in adjacent landscapes. Development should be sited on broader ridges at the transition with the *Upland Fringe* (15) where the land cover pattern is simpler, featuring more extensive pastures and coniferous forestry, and where there are opportunities to minimise impacts on settlement. Care should be taken however to avoid significant cumulative impacts with operational and consented wind farms sited in the *Annandale* area of the *Foothills* (19) Assessment Unit.

Small turbines (<30m high) should be sited where they can be visually associated with existing built development, farms or other settlement. They will be easier to

accommodate if sited on slight rises or folds in the landscape or where there are natural changes in gradient.

All turbines should avoid intrusion on key views from coastal footpaths, and into the backdrop and setting of settlements or archaeological features and landscapes of historic interest. They should be sited well away from the coastal edge and mosses which are highly sensitive to physical disturbance and intrusion from vertical structures such as turbines. Turbines should also not be sited close to notably incised and often well-wooded valleys. The introduction of additional overhead lines and the juxtaposition of turbines with existing masts and overhead lines should be avoided to reduce clutter in these characteristically open landscapes.

AU 14: Coastal/Flow Plateau – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale The low-lying gently undulating to flat landform and field enclosure pattern with occasional trees and woodlands give this AU a medium scale and a generally open character. Scale and openness are reduced within the narrow valleys that cut into the generally higher plateau to the east and increases on broader ridges with more extensive pastures towards the *Upland Fringe* to the north of this AU. While the Solway increases the sense of openness in coastal areas, the narrowness of the Firth and containment provided by the Cumbrian Fells limit scale.	This typology would dominate the scale of narrow valleys and the enclosed farmland, trees and woodlands in this landscape which provide ready scale references over much of this landscape. More open broader elevated ridges and hill slopes and open mosses would be of reduced susceptibility. ***Susceptibility rating: medium***	These flat and gently undulating landscapes where the field pattern is large or the vegetation type extensive and more uniform are of reduced susceptibility to this size of turbine. The narrow inner Firth and the more contained valleys and more complex rolling topography and vegetation pattern at the transition with AU 7 are of increased susceptibility. ***Susceptibility rating: medium-low***
Landform A gently undulating plateau, rising gradually from the flat coastal edge and broad floodplain of the Esk. The eastern part of this landscape is more elevated and features occasional narrow winding valleys cut into the plateau and contained by broad flattened ridges at the transition with the *Upland Fringe* and *Foothills* AUs. Low-lying mosses with a simple gently domed landform occur across this landscape.	The gently undulating to flat landform characteristic of this landscape could relate to wind turbine development in general. More rolling landform at the transition with AU 7 and the western parts of AU 15 and incised valleys would be of increased susceptibility. ***Susceptibility rating: medium***	The gently undulating to flat landform characteristic of this landscape could relate to wind turbine development in general. More rolling landform at the transition with AU 7 and the western parts of AU 15 and incised valleys would be of increased susceptibility. ***Susceptibility rating: medium***
Landcover There is a simple pattern of large fields enclosed by hedgerows. Field trees are locally distinctive, for example in the Chapelknowe area. Intact mosses are ringed by scrub woodland and these add interest and diversity to the landscape. Broadleaved woodlands trace winding valleys. Policy woodlands are present in the Springkell area and blocky conifer plantations occur on higher ridges and planted on former mosses.	Although this size of turbine could relate to the simpler pattern of more extensive pasture and occasional coniferous plantations which occur in parts of this landscape, it would disrupt the integrity and detract from the character of more natural intact mosses and the distinctive pattern of field trees and policy woodlands elsewhere. ***Susceptibility rating: medium***	Tidal mud flats, semi-natural mosses, broadleaved scrub and woodland, areas with a strong hedgerow and field tree pattern and wooded policies would be sensitive to this typology although turbines towards the lower height band could relate to larger and more open, broader fields. ***Susceptibility rating: medium***
Built environment The settlements of Annan, Eastriggs and Gretna are located along the Solway, but set back from the coastal edge in the east. Smaller settlements and archaeological features occur	The well-settled nature of much of this lowland landscape increases susceptibility. Turbines sited close to the Solway coast and its hinterland could visually interact with other tall	There are increased opportunities to site these smaller turbines to avoid significant effects on settlement and archaeology and minimise cumulative effects with other wind energy development.

elsewhere and large farms are dispersed fairly evenly across this landscape, apart from the mosses and the higher ground at the transition with the *Upland Fringe* (15) where settlement is sparse. Key landmark features comprise the Chapelcross power station (decommissioned) and the transmission lines which converge in this area. A number of major transport routes are aligned through this landscape. The area between Longtown and Dornock is noted for its industrial heritage related to munitions manufacturing. Operational wind farms are located on the hills to the north and on mosses east of Gretna in Cumbria and are clearly visible from this AU.	built infrastructure to create a cluttered landscape. ***Susceptibility rating: high-medium***	***Susceptibility rating: medium***
Landscape context The rolling hills adjacent to the River Annan and Water of Milk (AU7) and the Torthorwald Ridge (AU15) lie to the north-east of this AU. The lower Esk valley also borders the eastern edge of this AU. The Solway Firth is present to the south and forms a narrow inlet of tidal mudflats. The *Foothills* (19) are seen to the north as a distinct edge of higher ground above the *Coastal/Flow Plateau*.	This typology could significantly impact on the highly sensitive small scale *Dale with Hills* (7) and potentially affect the setting of designed landscapes within this AU. The visual prominence of the Torthorwald Ridge could be adversely affected if this typology were sited close-by. This typology could also diminish the sense of visual connection to the Solway Firth if sited along the coastal edge and its immediate hinterland. ***Susceptibility rating: high-medium***	There is increased scope to site these smaller turbines, which are more likely to comprise single and small groups of turbines, to minimise effects on adjacent sensitive landscapes. ***Susceptibility rating: medium***
Perceptual qualities While the tidal mudflats of the Solway and the remnant mosses have natural qualities, the presence of major transport routes, industry, settlement and intensively managed farmland reduces the sense of wildness associated with this landscape.	Provided this typology were not located close to the coastal edge or within or close to semi-natural mosses there would be little effect on the experience of naturalness. ***Susceptibility rating: medium-low***	The sense of naturalness associated with the tidal mud flats and mosses could be easily compromised by any development, including this typology. However, more managed landscapes are of reduced susceptibility to turbines of this size. ***Susceptibility rating: medium-low***
Views and visibility The openness of this landscape allows extensive views from this well-settled landscape and from the major transport routes which are aligned through it. There are notably striking views to the coastal edge from the B6357 east of Annan where the Cumbrian Fells are a key focus. The A75 and M74 are important routes with these landscapes forming the 'threshold' to both Scotland and Dumfries and Galloway from the south.	This typology would be highly visible from major transport routes and from settlement across this generally open landscape. It could intrude on key foci such as the views across the Solway Firth to the Cumbrian Fells and could increase the visual clutter of masts and transmission lines characteristic of the coastal area. ***Susceptibility rating: high***	This typology could be visible from key routes across this generally open landscape. It could also intrude on key foci such as the Cumbrian Fells seen across the Solway Firth if sited in coastal areas and could increase the visual clutter of masts and transmission lines characteristic of the coastal area. Turbines towards the lower height band of this typology would be more likely to benefit from a degree of screening from hedgerows, woodlands and trees and

		the more undulating landform that occurs away from the coast. ***Susceptibility rating: high-medium***
Landscape values These landscapes are not covered by any landscape designations although the Torthorwald Ridge and Langholm Hills RSAs abut the boundaries of these landscapes. A number of designed landscapes are present in this AU.	The setting of the RSAs and designed landscapes would be sensitive to intrusion by large wind turbines although there may be some scope to minimise impacts on this sensitivity. ***Value rating: medium-Low***	There would be increased scope to site these smaller turbines to avoid impacting on the setting of RSAs and designed landscapes. ***Value rating: low***
Sensitivity	**High-medium**	**Medium**

15 ASSESSMENT UNIT 15: UPLAND FRINGE

15.1 Introduction

Twelve landscape areas are identified within the *Upland Fringe* Assessment Unit. These units vary from 'stand-alone' highly distinctive ridges which outcrop within lowland areas (such as the Torthorwald Ridge) to areas which comprise often narrow fringes between lowland valleys/ dales and foothill/upland areas.

The areas that essentially form hill slopes, and a gradual transition in character between lowland and upland landscapes, are considered together in the sensitivity assessment as the 'Hill Fringe' areas. These comprise the *Balker Moor, Cairn Fringe, Camrie, Glentrool, Cairnharrow, Ae, Annandale* and *Liddesdale* areas. The 'stand-alone' ridges of *Dunscore, Ward Law, Terregles* and *Torthorwald* are assessed together in a separate sensitivity assessment.

15.1.1 *Cultural heritage overview*

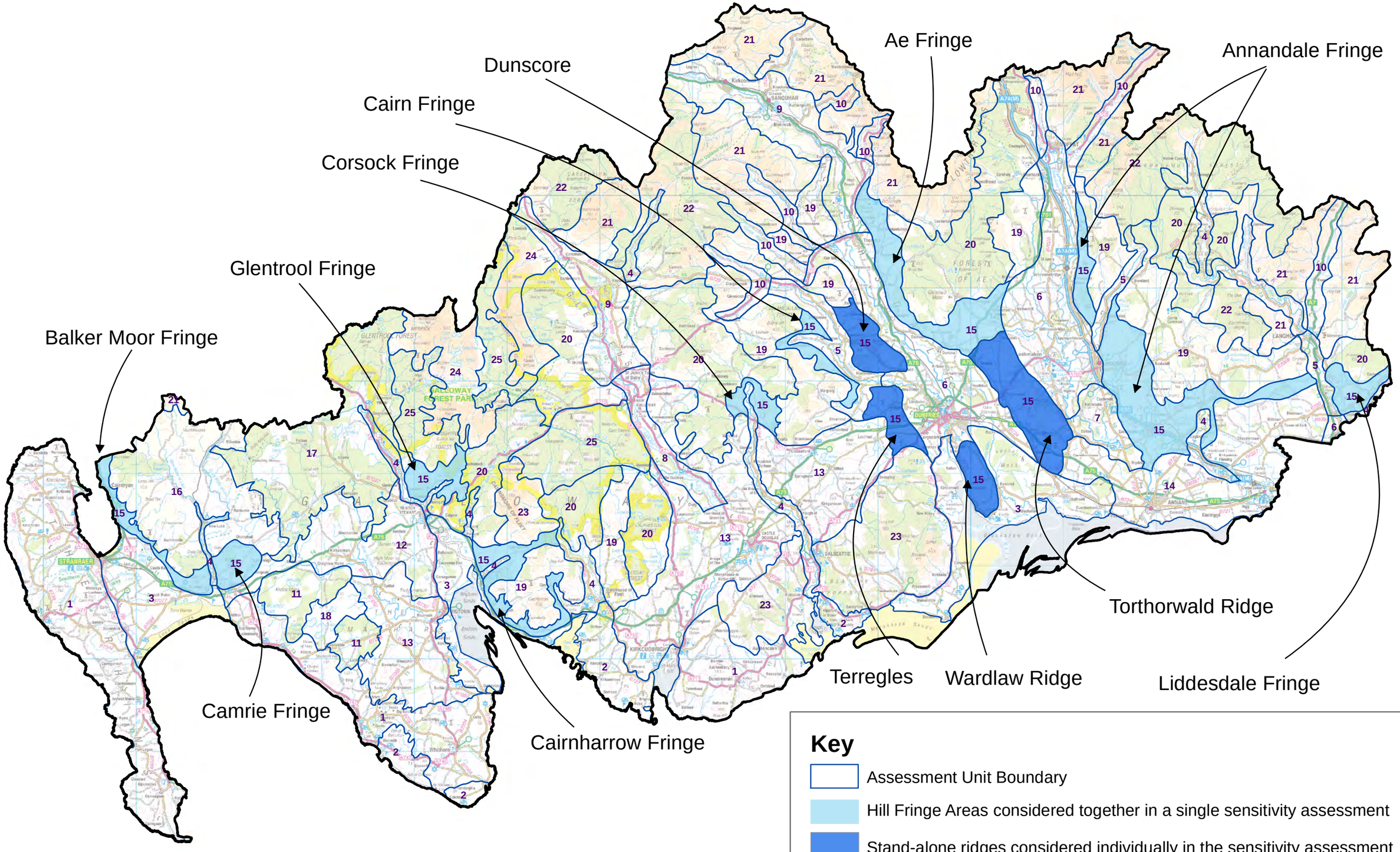
The Upland Fringe AU is characterised as a mix of post-improvement (c19th-20th century) fields, farming, woodland/forestry and rough grazing with a number of small, designed landscapes and areas of relict pre-improvement (pre-19thc) land-use with their remains of buildings and distinct field shapes as well as pre-medieval features. Archaeological features are concentrated in the west and east parts of *Camrie, Glentrool* and *Liddesdale*, with a broader scatter across the larger part of *Annandale* and south *Cairn* areas. Burnswark, a highly significant example of such fortifications (both native and Roman) is an Archaeologically Sensitive Area, as is Cairnholy, an equally significant prehistoric burial and ritual site. The other two Archaeologically Sensitive Areas in *Camrie* and *Glentrool* are more extensive, one extending into the neighbouring plateau moorland type. There are numerous archaeological sites of outstanding significance and distinctiveness, some of which are promoted for public benefit.

15.1.2 *Operational/consented wind farms*

The operational Carsecreugh wind farm is located in the *Camrie* area of the *Upland Fringe*. The operational wind farms of Barlockhart, Artfield/Balmurrie Fell, Glenchamber, Aries and Glen App wind farms also lie very close to the *Camrie* area. The operational Stranoch and Kilgallioch wind farms have a minimal influence on this landscape due to their greater distance.

The operational Minsca and Solwaybank wind farms lie close to the *Annandale* unit of the *Upland Fringe*. The operational Dalswinton and Harestanes wind farms are located adjacent to the *Ae* area. Both these wind farms are also visible in relative proximity from parts of the *Torthorwald* area.

Assessment Unit Key Map - 15. Upland Fringe



Key

- Assessment Unit Boundary
- Hill Fringe Areas considered together in a single sensitivity assessment
- Stand-alone ridges considered individually in the sensitivity assessment

15.2 'Hill Fringe' areas

15.2.1 *Description*

The *Balker Moor, Camrie, Glentrool, Cairnharrow, Cairn Fringe, Ae, Annandale* and *Liddsdale* areas of the U*pland Fringe* predominantly comprise a narrow band of hill slopes between valleys/dales or the coastal edge and the higher foothills/upland landscapes. Typical characteristics include a rolling and occasionally knolly landform and an often diverse cover of broadleaved woodlands, planted policy features and small enclosed pastures, particularly evident on lower slopes. These landscapes are settled and commonly feature a rich archaeological and historic heritage. They are also important in the wider landscape context in that they form highly visible 'edge' landscapes that often provide a scenic backdrop to adjacent dales, valleys and coasts.

15.2.2 *Cumulative issues*

Camrie area: The operational Carscreugh wind farm is located in this area while a large number of other operational wind farms lie close to the northern boundary of this area. Significant cumulative effects already occur due to the proximity and diversity of turbines (size, layout and siting) of wind farms in the eastern part of this area, leading to an intensively cluttered appearance. These developments are highly visible from this landscape, from the A75 and from roads and settlements on the east Rhins and Stranraer Basin and north-western coast of the Machars.

Key cumulative effects that could occur if further wind energy development took place in the *Camrie* unit of the *Upland Fringe* include:

- Significant cumulative effects on the A75, potentially contributing to a concentrated corridor' of wind farm development either side of this major tourist route, particularly if additional wind farm development were located in the adjacent *Moss and Forest Lowland* (11) and *Moss, Moor and Drumlin Pasture* (12) Assessment Units.
- Smaller single and small groups of wind turbines, which would be more likely to be associated with farms on lower slopes, which could exacerbate the visual clutter which is a feature of operational wind farms in this and adjacent landscapes.

Ae area: The operational Dalswinton wind farm is sited within the *Foothills with Forest* (20) Assessment Unit, but close to the boundary of the *Ae Upland Fringe*. Its proximity to the edge of these foothills, together with the scale of the turbines (120m), results in this wind farm being a prominent feature widely visible across Nithsdale. The operational Harestanes wind farm is set back within the broad forested plateau of the same area of the *Foothills with Forest* (20) and this lessens its visual impact on adjacent well-settled lowland landscapes despite the greater scale of this development. Any further development of large wind turbines close to the eastern and southern boundaries of the *Ae* unit of the *Foothills with Forest* (20) would limit opportunities for accommodating smaller 'farm scale' wind turbine development within the *Ae* unit of the *Upland Fringe* because of potential significant cumulative landscape and visual impact.

Key cumulative effects associated with the *Ae* unit of the *Upland Fringe* are likely to include:

- Cumulative effects on views from Nithsdale, Dumfries and the A701 in combination with the Harestanes and Dalswinton wind farms and potentially also on the setting of designed landscapes and the character of the Torthorwald RSA.

Annandale area: The operational Minsca wind farm is located close to the south-eastern edge of this area. The broader extent of the *Upland Fringe* in this area reduces the apparent scale of these turbines seen from the well-settled parts of Annandale although the proximity of this development to the edge of the foothills results in it occupying a prominent skyline and it is highly visible from parts of the *Annandale* unit and from the *Coastal/Flow Plateau* (14) to the south. The operational Solwaybank wind farm has a similar effect on views because of its position close to the outer edge of the uplands.

Key cumulative effects associated with the *Annandale* unit of the *Upland Fringe* include:

- Sequential effects from the M74 in combination with operational wind farms of Minsca, Solwaybank, Harestanes, Minnygap and Clyde.
- Potential visual confusion which may occur between single wind turbines and single/small groups of smaller farm scale turbines which are more likely to be associated with the settled farmland of these *Upland Fringe* landscapes and large turbines within wind farms sited in adjacent upland areas.

The remaining areas of *Balker*, *Glentrool*, *Cairnharrow*, *Cairn Fringe* and *Liddesdale* are not currently significantly influenced by operational and consented wind farm development.

15.2.3 *Key constraints*

- The rolling and occasionally knolly landform, steep slopes and deeply incised narrow valleys which commonly characterise these upland fringe landscapes.
- A diverse land cover, including extensive broadleaved woodlands within the *Glentrool* and *Cairnharrow* units, small semi-improved pastures and distinctive field enclosure pattern of stone dykes, notably within the *Cairn Fringe* and *Cairnharrow* areas.
- The backdrop that these upland fringe landscapes provide to more populated valleys, dales and coastal areas and their high visual prominence from roads, ferry routes and settlement.
- The presence of policy landscapes, especially notable within the *Cairn Fringe* and *Ae* units and the southern part of the *Annandale* unit where mature field trees, roundel and avenue plantings are commonly present.
- The settled nature of these hill fringes, particularly on lower hill slopes.
- A rich archaeological and historic heritage, including many landmark features, including the Burnswark hill fort and Cairn Holy chambered cairns which are the foci of two ASAs, as well as two much more extensive ASAs.
- The contribution these upland fringes provide to the wider setting of designed landscapes, for example Castle Kennedy and Springkell and to settlements such as Lockerbie and Creetown.

- The foreground provided by some of these landscapes to landmark hills such as Cairnharrow or the Merrick group seen from across the *Glentrool* unit, or other natural features, for example the dramatic cleft of Glen App seen beyond the *Balker* unit from ferry routes within Loch Ryan.
- The proximity of the *Ae*, and *Annandale* units to operational and consented large scale wind farm developments in the adjacent *Foothill*s Assessment Units which increases potential for cumulative landscape and visual impact.
- The intense cumulative effects of the operational Carscreugh wind farm located in the *Camrie* unit together with the very close-by operational Barlockhart, Artfield/Balmurrie Fell, Aries and Glenchamber wind farms which have resulted in a visually confusing array of different turbine sizes, layouts and siting elevations affecting key views from roads and settlements.

15.2.4 *Opportunities*

- The transition of some of these upland fringe landscapes with the more open, less diversely patterned and larger scale *Plateau Moorland* (16) and *Foothills* (19 and 20).

15.3 Sensitivity and guidance

The diverse landform and landcover characteristic across much of these hill fringes and the highly visible backdrop they provide to well-settled dales and coastal areas increases susceptibility to larger wind turbines. The presence of cultural heritage features, including many designed landscapes additionally influence the sensitivity of this landscape. There would be a ***High*** sensitivity to wind turbines >50m high.

Some of the areas within this Assessment Unit merge gradually with adjacent larger scale and less settled *Foothills* and *Plateau Moorland* landscapes and these 'transitional' areas at the boundary between Assessment Units would generally be less sensitive to turbines 30-50m high with an overall ***Medium*** sensitivity assessed for this smaller typology.

Wind turbines would be more successfully accommodated on more open, extensively scaled and sparsely settled upper hill slopes at the transition with the adjacent *Foothills* (19 and 20) Assessment Units. These areas principally occur within the *Glentrool*, *Annandale, Liddesdale* and *Ae* units. The prominence of these *Upland Fringe* landscapes would be likely to result in some significant visual impact from well-settled areas within the adjacent valleys and dales, although the use of smaller turbines within the height band of the small-medium typology (closer to 30m high) would minimise impact. Care should be taken to site turbines away from sensitive skylines, utilising a backdrop of higher ground where possible and avoiding key views and the setting of designed landscapes, ASAs, archaeological and historic features and settlements and intrusion on landmark features in adjoining areas.

Additionally, cumulative landscape and visual impacts will also be a key issue in the *Camrie, Ae* and *Annandale* units of the *Upland Fringe* as operational and consented wind farm developments are already prominent from these units but also in views from more settled lowland areas. The use of smaller turbines in areas where existing large scale wind farm development is visually prominent could minimise cumulative effects by providing a clear differential between scales of development and their association with

different landscapes. However, given the extent and visual diversity of operational and consented wind farm development located within and close-by the eastern part of the *Camrie* unit of the *Upland Fringe*, it may be difficult to avoid significant cumulative landscape and visual effects arising.

Small turbines <30m high could be more easily assimilated in this landscape. Turbines should be sited on small terraces or breaks in slope, avoiding more complex knolly landform and steep slopes, and where higher ground can provide a backdrop to minimise visibility. They should be sited so they do not intrude on the fabric or setting of designed landscapes, archaeological and historic features, areas with a distinctive field enclosure pattern and woodlands.

AU 15: Upland Fringe- 'Hill Fringes' of Ae, Annandale, Balker Moor, Cairn, Camrie, Cairnharrow, Glentrool and Liddesdale – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale These landscapes predominantly comprise a narrow band of hill slopes between lowland valleys/dales and foothills/uplands. Landscape scale is generally medium to small depending on the extent of enclosure by rolling landform and woodlands with scale increasing, particularly where there is a more seamless merging with adjacent open *Plateau Moorland* (16), for example as occurs in the *Camrie* unit.	This typology would overwhelm the scale and generally narrow extent of the majority of these upland fringes. Although it could relate to the scale of more extensive open areas, these are rare. This typology would dominate woodlands and field trees which often provide highly visible scale references even on broader more open areas. ***Susceptibility rating: high-medium***	This typology would dominate the scale of lower hill slopes enclosed by woodland, and of narrow valleys but could relate to broader hill slopes and more open extensive areas of moorland and upland pasture often found at the transition with adjacent *Foothill* (19) and *Plateau Moorland* (16) AUs. ***Susceptibility rating: medium***
Landform These *Upland Fringes* comprise gently rolling lower hill slopes. In many units a complex furled landform of dips, narrow terraces, steep slopes and deeply cut valleys feature. Slacker slopes and broader ridges can occur at the transition with the *Foothills* (19 + 20) or *Plateau Moorlands* (16 and 17) AUs.	This typology would detract from the rolling landform, particularly where it is most complex although the broader, slacker upper hill slopes which occur at the transition with the *Foothills* (19) and *Plateau Moorland* (16) would be less susceptible to smaller groups of turbines. ***Susceptibility rating: high-medium***	This typology would detract from particularly complex rolling landform although broader, slacker upper hill slopes and wider ridges that occur at the transition with the *Foothills* (19) and *Plateau Moorland* (16) would be less susceptible. ***Susceptibility rating: medium***
Landcover These landscapes commonly have a richly diverse land cover of enclosed pastures and often extensive broadleaved woodlands, most notably within the *Cairnharrow* and *Glentrool* units. A strong pattern of hedges, stone dykes, mature field trees and planted policies often occur on lower slopes at the transition with settled valleys and dales. The vegetation and enclosure pattern are less diverse at the transition with adjacent landscapes with a more open upland character where more extensive pasture and coniferous shelterbelts occur.	While this typology would have similar effects on notably diverse vegetation pattern and the strong field enclosure pattern, there may be slightly increased scope to accommodate smaller groups of turbines in areas with a simpler pattern. ***Susceptibility rating: high-medium***	Intricately patterned lower hill slopes and valleys with woodlands, policy features and strong field enclosure would be sensitive to this typology. There is scope to locate this typology within areas of simpler land cover that tend to occur on the more exposed upper hill slopes. ***Susceptibility rating: medium***
Built environment These landscapes are generally well-settled with dispersed farms and occasional estate houses mainly located on lower slopes and set within narrow valleys. Main roads tend to be aligned at the foot of these hill slopes although occasional narrow non-through access roads weave up steep	This typology could also dominate the scale of farms and other small dwellings within these settled landscapes. It would also be likely to affect the setting of the many archaeological sites, as well as landmark features located in these upland fringes and could detract from the prominence of mansion houses,	This typology could dominate the scale of farms and other small dwellings if sited too close. The setting of archaeological and historical features could be affected by poorly sited development. This size of turbine is less likely to contribute to cumulative effects with larger wind farm

slopes. These upland fringes commonly feature a rich archaeological and historic heritage including old field systems, chambered cairns, numerous hill forts and castles, some forming landmark features. Operational wind farms have a particularly strong influence on the *Ae* and *Annandale* hill fringes	castles and other historic features if located within their landscape setting. The settled nature of these landscapes increases sensitivity to this typology. The strong influence of operational wind farm development on some hill fringes increases susceptibility. ***Susceptibility rating: high***	development provided it is carefully sited. ***Susceptibility rating: high-medium***
Landscape context These areas of the *Upland Fringe* form generally narrow hill slopes, lying in close juxtaposition with adjacent foothills and upland landscapes. They also commonly contribute to wider landscape compositions seen from lowland and coastal areas. These landscapes form a backdrop to settlements such Creetown, Lockerbie, Glenluce and Thornhill. The *Glentrool* unit is important in the wider setting to Merrick hills, *Cairnharrow* particularly prominent in forming the setting to Wigtown Bay, Cairnharrow hill and the Fleet valley. *Cairn, Ae, Annandale* and *Liddesdale* form highly visible edge to populated valleys and dales.	This typology would adversely affect the scenic backdrop and contrast these landscapes provide to generally more managed and developed valleys and dales. Development within the *Cairnharrow* unit would impact on the wider scenic character of Wigtown Bay, Cairnharrow Hill and the Fleet valley NSA. The setting of settlements which are often located at the foot of these upland fringes could also be affected. ***Susceptibility rating: high***	This typology could adversely affect the scenic backdrop and contrast these landscapes provide to generally more managed and developed valleys and dales although susceptibility would be reduced for turbines within the lower height band. Development within the *Cairnharrow* unit would impact on the wider scenic character of Wigtown Bay, Cairnharrow Hill and the Fleet valley NSA. The setting of settlements which are often located at the foot of these upland fringes could also be affected. ***Susceptibility rating: high-medium***
Perceptual qualities These are generally managed landscapes with little sense of remoteness although more extensive broadleaved woodlands and scrub has a natural character and there is a perception of timelessness associated with less intensively farmed small pastures, narrow roads and the many vernacular buildings.	The landscape is settled and generally well cultivated and managed, therefore this typology will have limited impact on any sense of wildness provided impacts on more natural habitats are avoided. ***Susceptibility rating: medium-low***	The landscape is settled and generally well cultivated and managed, therefore this typology will have limited impact on any sense of wildness provided impacts on more natural habitats are avoided. ***Susceptibility rating: medium-low***
Views and visibility These landscapes are well settled with dwellings located within the upland fringes generally facing outwards, away from more sensitive skylines or in more contained valleys. Woodlands and landform can further contain views although minor roads and footpaths are often elevated and allow open views over the *Upland Fringe* and across adjacent valleys, dales and coasts. The *Upland Fringe* landscapes are highly visible from major roads and settlement within adjacent populated valleys, Nithsdale and Annandale and	While it may be possible to site this typology on less settled upper slopes at the transition with more open and larger scale foothills and plateau landscapes (and thus away from direct views from settlement located within these *Upland Fringes*) it would be highly visible from footpaths and minor roads which cross these areas. This typology would be highly visible over an extensive area, particularly if it affected sensitive skylines, from major roads and settlement within Nithsdale, Annandale and from the Wigtown Bay area. It would diminish the visual focus of woodlands, policy	While this size of turbine (and particularly those towards the lower height band) would be likely to have a less widespread and intrusive effect on key views, they would be visible from footpaths and minor roads which cross these areas. Sensitive skylines seen from major roads and settlement within Nithsdale, Annandale and from the Wigtown Bay area and woodlands, archaeological/historic features and policy landscapes remain susceptible. ***Susceptibility rating: high-medium***

the coastal edges of Wigtown Bay (in the case of the *Cairnharrow* unit).	landscapes, archaeological and historic features seen from within and beyond these landscapes. ***Susceptibility rating: high***	
Landscape values The eastern part of the *Cairnharrow* unit falls within the Fleet NSA. Special qualities of this NSA include the richness of archaeological and historic features, distinctive field pattern and woodlands. The *Cairnharrow* and *Glentrool* units are covered by the Galloway Hills RSA where they are described as being *"prominent westward facing edges of the main hill masses".* The southern part of the *Cairn* unit is covered by the Terregles RSA and its attractive knolly topography and diverse vegetation pattern is noted in the citation. The northern part of the *Ae* unit is included in the Thornhill Uplands RSA and described as forming open sculptural ridges fringing scenic valley landscapes. The *Balker, Camrie, Annandale and Liddesdale* units are not designated but Castle Kennedy GDL lies in the *Balker* hill fringes. There are numerous valued archaeological and historic features within the hill fringes and many recreational routes.	This typology would significantly affect the special qualities of the NSA if located within the designated area. The special qualities of the RSAs focus on their prominence and importance in views from more populated landscapes. This typology could intrude on prominent skylines and views from the Nith and Annandale valleys. It could also adversely affect the diverse landform and vegetation pattern contributed by the *Cairn* unit to the Terregles Ridge RSA and disrupt the open sculptural ridges of the *Ae* unit. ***Value rating: high to low***	This typology would significantly affect the special qualities of the NSA if located within the designated area. The special qualities of the RSAs focus on their prominence and importance in views from more populated landscapes. This typology could intrude on prominent skylines and views from the Nith and Annandale valleys. It could also adversely affect the diverse landform and vegetation pattern contributed by the Cairn unit to the Terregles Ridge RSA and disrupt the open sculptural ridges of the Ae unit. ***Value rating: high to low***
Sensitivity	**High**	**Medium**

15.4 'Stand-alone' Upland Fringes

15.4.1 *Description*

The prominent ridges of *Dunscore, Ward Law, Terregles* and *Torthorwald* which form part of the *Upland Fringe* (15) Assessment Unit, are considered together in this sensitivity assessment. These isolated and relatively low ridges are important in the scenic backdrop they provide to the settled dales and the Nith Estuary. They feature complex interlocking hills and valleys and elongated rolling ridges. Planted policy features are a particular characteristic in places and there is a rich archaeological and historic heritage with many notable landmarks. These landscapes are visually prominent from well-settled lowland areas such as Annandale and Nithsdale.

15.4.2 *Cumulative issues*

No wind farms are located in these landscapes. The operational Dalswinton wind farm is prominently sited on the outer edge of the *Ae Foothills with Forest* (20) and is particularly visible from the *Dunscore* area and across Nithsdale. The operational Harestanes wind farm, which is also sited in the *Ae Foothills with Forest*, is visible in close proximity from the northern part of the *Torthorwald* area. Key cumulative effects that could arise with wind energy developments sited in these areas of the *Upland Fringes* (15) include:

- Potential effects on views from roads, settlement and footpaths in surrounding dales, for example Nithsdale, if larger turbines were sited on these hill tops and seen in conjunction with windfarms sited in the *Ae Foothills with Forest* (20) from Nithsdale.
- Variations in the size and design of smaller wind turbines.

15.4.3 *Key constraints*

- The complex folded landform and richly diverse landcover of these landscapes; particularly characteristic of the *Terregles* Ridge and the northern part of the *Torthorwald* Ridge.
- The relatively lowly height of these ridges and the presence of mature field trees and woodlands on hill tops which provide ready scale references.
- The scenic backdrop these 'stand-alone' ridges provide to Annandale, Nithsdale, the Nith Estuary and the *Drumlin Pastures* (13).
- The high visual prominence of these landscapes in views from populated lowland areas and from major roads.
- The presence of policy landscapes, archaeological and historic sites and areas, small villages and nearby settlement.
- The NSA which covers most of the Ward Law ridge and the RSA designation which applies to all of this landscape.

15.4.4 *Opportunities:*

- Broader and gentler hill slopes with a less diverse vegetation pattern provide opportunities for smaller typologies although the height of turbines will need careful consideration to minimise impacts of scale in relation to other landscape features and on views.

15.5 Sensitivity and guidance

The complex landform and richly diverse landcover of the 'Stand Alone' upland fringes and their high visual prominence increase susceptibility to all sizes of wind turbine. The presence of NSA and RSA designations are also key factors increasing sensitivity. Sensitivity would be ***High*** to turbines >50m high. Sensitivity would be ***High-medium*** sensitivity to turbines 30-50m high and ***Medium-low*** to turbines <30m because of their greater ability to be screened by woodland and landform.

Small turbines <30m high could be more easily assimilated in this landscape provided they were visually associated with existing buildings. Turbines should not be sited on the skyline of these ridges but on hill slopes where higher ground can provide a backdrop to minimise visibility. They should avoid areas with a more complex landform and rich vegetation pattern and designed landscape features. They should also be sited so they do not intrude on key views within the NSA (for example from Ward Law) or on the setting of small settlements and archaeological features which are an important attribute of these landscapes.

AU 15: Upland Fringe – 'Stand Alone Ridges' of Torthorwald, Terregles, Dunscore and Ward Law – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale Relatively low, small hills and undulating ridges rising to between 103m and 250m and cut by narrow valleys. Fields extend over the hill tops and woodlands, hedgerows and field trees are visible on the skyline. The rolling landform limits scale which is generally medium reducing to small in more confined areas.	This typology would overwhelm the vertical scale of these small hills and the field enclosures, trees and woodlands which provide highly visible scale references on hill tops. ***Susceptibility rating: high***	Turbines towards the upper height band of this typology would dominate the vertical scale of the smaller hills and lower ridges such as *Ward Law* and *Terregles* and could also dominate individual field trees and woodlands which provide highly visible scale references on hill tops. Susceptibility is reduced for smaller turbines. ***Susceptibility rating: high-medium***
Landform The *Terregles* and *Dunscore* areas comprise small hills while *Torthorwald* and *Ward Law* form longer rolling ridges with less dissected hills. Landform is particularly complex, with deeply folded hills and occasional knolly craggy tops within the *Terregles* area and at either ends of the *Torthorwald* Ridge. Broader, smooth hill slopes and more flattened tops and ridges occur in the middle sections of the *Ward Law* and *Torthorwald* Ridge and in parts of the *Dunscore* character area.	This typology would detract from the rolling landform, particularly where it is most complex although broader, slacker hill slopes and flattened hill tops would be less susceptibility particularly to single and small groups of turbines of this size. ***Susceptibility rating: high-medium***	This typology would detract from particularly complex rolling hills but could relate better to simpler more even hill slopes and the broader terraces and flatter hill tops found in the middle sections of the *Torthorwald, Ward Law* and within parts of the *Dunscore* character areas. ***Susceptibility rating: high-medium***
Landcover These landscapes have a richly diverse land cover of enclosed pastures and woodlands, with patchy heather, bracken and gorse scrub accentuating the ruggedness of the landform on some hill tops. A notably strong pattern of hedges, stone dykes, roundels, beech avenue plantings and policy woodlands feature in places. Narrow, twisty hedge-lined roads cut through valleys and the lower hill slopes. The vegetation pattern is less diverse in the middle sections of the *Torthorwald* and *Ward Law* ridges and the southern part of the *Dunscore* ridge.	Areas with a notably diverse vegetation pattern and strong field enclosure pattern would be susceptible to larger turbines which could detract from these characteristics. Areas with a simpler landcover pattern would be of reduced susceptibility. ***Susceptibility rating: high-medium***	While this typology would have adverse effects on more intricately patterned areas of woodland, moor and scrub and on areas with a strong field enclosure pattern and designed landscape features, there may be slightly increased scope to accommodate smaller groups of turbines in more open areas of pasture with a simpler pattern. ***Susceptibility rating: high-medium***
Built environment Small tightly clustered villages are set within the sheltered folds of valleys and at the foot of hills. Many villages have a strong architectural integrity. These landscapes are rich in archaeological features, including hill forts, mottes and	This typology could also dominate the scale of farms and other small dwellings and could also adversely affect the setting of small settlements. It would also be likely to affect the setting of the many archaeological features located in these landscapes	This typology could dominate the scale and setting of farms, small dwellings and settlements, particularly if located nearby. It could also affect the setting of archaeological and historical features and could detract from the prominence of mansion houses if

cairns which form landmarks. A number of mansion houses also feature. Dispersed farms and houses are generally sited on outer hill slopes and in valleys. Masts/lattice towers on the *Torthorwald* and *Terregles* ridges are visually prominent and a transmission line is also aligned through the *Terregle*s area.	and could detract from the prominence of mansion houses if located within their landscape setting. ***Susceptibility rating: high***	located within their landscape setting. The settled nature of these landscapes increases susceptibility in general. ***Susceptibility rating: high-medium***
Landscape context These hills and ridges form an important backdrop to Annandale, Nithsdale and the *Drumlin Pastures* (13) to the west where their diverse rolling landform and land cover enriches the wider landscape composition. The *Terregles* and Torthorwald ridges both form part of the setting to Dumfries while the *Ward Law* ridge contains the Nith Estuary and provides an important backdrop to the *Coastal Flats* (3) and Caerlaverock Castle.	This typology would adversely affect the scenic backdrop and contrast these landscapes provide to the dales, farmland to the west and the coastal area to the south-west. The isolated 'stand-alone' nature of these ridges would result in impacts on the scenic backdrop and contrast these landscapes provide to more populated dales and farmland, even if not sited on more sensitive ridges or hill tops. ***Susceptibility rating: high***	This typology could impact on sensitive coastal areas if sited on Ward Law and the prominence of these isolated ridges generally increases susceptibility. Smaller turbines may however be able to be sited to reduce effects on adjacent landscapes. ***Susceptibility rating: high-medium***
Perceptual qualities Generally a managed landscape with little sense of remoteness or naturalness although rough grazing, scrub and woodland on more rugged hill tops is naturalistic.	The landscape is settled and generally well cultivated and managed, therefore this typology will have limited impact on any sense of wildness provided more naturalistic areas are avoided. ***Susceptibility rating: medium-low***	The landscape is settled and generally well cultivated and managed, therefore this typology will have limited impact on any sense of wildness. ***Susceptibility rating: low***
Views and visibility These landscapes are well settled. Villages and dispersed houses tend to be located in visually contained valleys or at the foot of hills or outward-facing slopes. Minor roads within these landscapes are generally similarly contained although views are more open from the B729 which crosses the *Dunscore* ridge. Hill summits and ridges provide vantage points with extensive views possible and there are some promoted viewpoints, for example the Almagill Monument on the *Torthorwald* Ridge. The Annandale Way is also aligned on this ridge and it is highly visible from the nearby major routes of the A75, A709 and A701 and particularly on the approach to Dumfries (and at the 'threshold' to Annandale seen from the M74). The *Terregles* hills are also highly visible from the A75. These outcrop hills form	While it may be possible to site turbines of this size on less settled hill tops to avoid close visibility from settlement, they would be highly visible from the footpaths and minor roads which cross these areas. Large turbines sited on ridges and hilltops would be highly visible over an extensive area from roads and settlement within Nithsdale, Annandale and from within the Nith Estuary. Turbines of this size would also exacerbate the intrusion of masts on some of these hills. ***Susceptibility rating: high***	Opportunities for screening offered by trees and topography, could limit the potential visibility of turbines towards the lower height band of this typology. If poorly sited, on prominent ridges or hill tops, this typology could however detract from the visual focus of existing natural and historic features, including highly scenic coastal landscapes. ***Susceptibility rating: high-medium***

prominent features, viewed on all sides from surrounding well-settled dales and coastal areas.		
Landscape values Much of the *Ward Law* ridge lies within the Nith Estuary NSA. The landmark feature of Ward Law hill is noted as a special quality as is Criffel which features in extensive views from the surrounding area. The *Dunscore* area is located within the Thornhill Uplands RSA. The citation describes the Upland Fringe landscapes within the RSA as forming open sculptural ridges fringing the scenic valley landscapes. The *Torthorwald* area lies within the Torthorwald Ridge RSA. It is described as a...*"prominent hill separating, and widely overlooked and easily accessible from the well populated Nith and Annandale valleys".* The *Terregles* area lies within the Terregles Ridge RSA. The citation describes it as containing and forming western setting to Dumfries. The very diverse character of transitional uplands, steep-sided valleys and attractive knolly topography with areas of enclosed pasture, gorsey knolls and woodlands is noted. These landscapes are rich in archaeology and recreational routes.	This typology would have a significant effect on the special qualities of the Nith Estuary NSA if sited on *Ward Law* as it would dominate its scale, overwhelming the 'emphasis' it provides to the Nith estuary, the landmark feature of Ward Law and views to Criffel from this ridge. This typology would adversely affect the open sculptural ridges of *Dunscore*. It would significantly affect views to the prominent *Torthorwald* Ridge from the well populated Nith and Annandale valleys. It would also adversely affect the very diverse character of the *Terregles* Ridge, conflicting with its attractive knolly topography and intricate vegetation pattern. ***Value rating: high to high-medium***	Turbines towards the lower height band of this typology could have less of an impact on these designated landscapes provided they were located away from the eastern and southern slopes and skyline of *Ward Law* to avoid impact on views from the NSA and other prominent ridges and hill tops and avoided areas with a more diverse or open and sculptural character. ***Value rating: high to medium***
Sensitivity	**High**	**High-medium**

16 ASSESSMENT UNIT 19 – FOOTHILLS

16.1 Introduction

The *Foothills* have a very diverse character with individual areas varying from those with a complex landform and intimate scale to units with a simpler topography and land cover pattern and often larger scale. The *Dalmacallan*, *Cairnharrow*, *Fleet*, *Keir/Tynron* and *Beattock* areas are very sparsely settled and smaller turbines, which are more likely to be associated with individual dwellings, farms and small businesses, are therefore not considered in detail within these areas. The more farmed and settled *Annandale* and the *Nithsdale* areas of this Assessment Unit are considered in this appendix report which considers sensitivity to smaller turbines.

16.1.1 *Cultural heritage overview*

A landscape characterised as moorland/rough grazing in the west of the region, a land-use that is repeated in the east along with some post-improvement fields and farming and patches of forestry/woodland. This Assessment Unit is characterised by extensive relict pre-improvement (pre-19th century) land-use with their remains of buildings and distinct field shapes as well as numerous areas of pre-medieval features. In addition, there are numerous archaeological sites of outstanding significance and distinctiveness, some of which are promoted for public benefit.

16.1.2 *Operational/consented wind farms*

The operational Minsca, Solwaybank and Ewe Hill wind farms are located in the *Annandale* area of the *Foothills* Assessment Unit. The operational Crossdykes wind farm and the consented Hopsrig and Loganhead wind farms would lie close-by this Assessment Unit.

The *Nithsdale* area lies relatively close to the operational wind farm of Twenty-Shilling and the consented Sanquhar II wind farm which are both sited in the *Southern Uplands* (21) Assessment Unit.

16.2 Annandale Foothills

16.2.1 *Description*

The *Annandale Foothills* form a long band of low rolling hills cut by narrow valleys on the east side of Annandale. These foothills are broader in extent in the south but taper to form a narrow fringe in the north, backed by the higher *Southern Uplands with Forest* (22) south of Moffat. These foothills have a diverse character with broader hill tops interspersed with more complex knolly landform and cut by narrow winding valleys. The western and southern edges of these foothills are particularly visible from the surrounding well-settled lowlands of Annandale. Walled pastures cover rolling hill slopes while rough grazing and moorland occur on broader hill tops. Conifer woodlands and shelterbelts are a consistent feature with broadleaved woodlands found around more settled valleys. These foothills are relatively well-settled and they are also rich in archaeology. Wind farm development strongly influences the character of the southern part of these foothills.

Assessment Unit Key Map - 19. Foothills

Nithsdale

Annandale

Key

Assessment Unit Boundary

Areas considered individually in the sensitivity assessment

16.2.2 *Cumulative issues*

The operational Minsca and Solwaybank wind farms, located in the southern part of the *Annandale Foothills,* lie close to the outer edge of these foothills and are prominent from the well-settled *Upland Fringes* (15), the broad lower dale of Annandale and the *Coastal/Flow Plateau* (14). The Ewe Hill wind farm is partially located in the eastern part of this Assessment Unit and extends into the adjacent *West Langholm* area which lies in the *Southern Uplands with Forest* (22) Assessment Unit. This development is less visually prominent than the Minsca and Solwaybank wind farms as it is set back further into the interior of the *Foothills* at the transition with the higher and more expansively scaled *Southern Uplands with Forest* (22). The operational Crossdykes wind farm lies adjacent to the Ewe Hill wind farm (partly in AUs 20 and 21) and comprises turbines of 176m high seen adjacent to the 111m high Ewe Hill turbines. While contrasts of scale between turbines within these two developments are obvious in close views from the Corrie Common area, the less prominent location of these two wind farms reduces the extent of these effects.

The consented Hopsrig and Loganhead wind farms will lie between the Ewe Hill and Carlegill wind farms, principally affecting views from the *Narrow Valley* (4) of the *Ewe Water*.

Operational wind farm development is already a key characteristic of the broader southern part of the *Annandale Foothills*. Key cumulative effects that could occur if additional development were located in this Assessment Unit include:

- Increased intrusion associated with any potential expansion of large wind turbines seen on the outer edges of the *Annandale Foothills* where they abut more settled lowland landscapes to the west and south.
- The siting of wind farms on every broad open hill in this landscape would result in the spacing between operational wind farms being reduced, thus exacerbating cumulative effects from settlement, roads and paths in the local area. The diversity and rural qualities of this landscape could also be diminished if all or the majority of open hill tops were developed.
- Simultaneous visibility between the significantly larger operational Harestanes and Clyde wind farms with wind farms located in the southern part of the *Annandale* unit of the *Foothills* (19) is currently limited (due to intermediate screening and distance) although multiple wind farm developments in this landscape could result in more sustained sequential cumulative landscape and visual effects experienced from major transport routes including the M74.
- Wind farm development located in the northern part of the Annandale Foothills could create a more dominant ‘corridor’ of large wind turbines either side of the narrowing dale of Annandale.

16.2.3 *Key constraints*

- The more complex landform of small, steep-sloped, knolly hills that are occasionally present, and which would be sensitive to all scales of wind energy development.
- The narrow, settled valleys which weave their way through these foothills.

- The narrow extent, and generally more intricate landform and landcover, of the northern part of these foothills which reduces scale and increases sensitivity in relation to effects on the adjacent *Middle Dale* (6) of *Mid-Annandale*.
- A rich archaeology with numerous hill forts, cairns and early settlements sited on hill tops and upper slopes.
- The backdrop provided by these foothills to well-settled *Upland Fringes* (15), lowland areas such as the *Coastal/Flow Plateau* (14) and *Middle Dale - Annandale* (6) and to the *Pastoral Valley* (5) of the Dryfe and Eskdake.
- Potential cumulative effects with the Minsca, Ewe, Solwaybank and Crossdykes wind farms which are located in close proximity to each and are seen sequentially and in combination from settled valleys and roads in the foothills immediately east of Lockerbie and in the wider Annandale area.

16.2.4 *Opportunities*

- Broader hill tops and more expansive hill slopes with a relatively simple landform, set back from the more sensitive southern and western edges of these foothills which abut well-settled upland fringes and lowland areas.
- An absence of landscape designations.

16.3 Sensitivity and guidance – Annandale Foothills

While larger turbines >80m high could relate to the broad scale and less complex form of some hill tops and more expansive hill slopes at the transition with Assessment Units 22 and 20 to the north-east, the settled nature of these foothills and the presence of existing wind farm development increase sensitivity. Landscape sensitivity would be ***High*** for turbines >150m high and ***High-medium*** for turbines 50-150m high. Sensitivity would be ***Medium*** for turbines 30-50m high.

Cumulative effects with operational wind farms will be a key constraint in the more developed southern part of this landscape. Areas of less complex landform, broader topped hills and slacker hill slopes set back from the more prominent outer edges of these foothills would be less susceptible. All turbines should still be sited away from sensitive skylines at the transition with the *Upland Fringe* (15) and the *Pastoral Valley* (5). The setting of archaeological features should be carefully considered in the siting of wind turbines.

AU 19: Foothills – Annandale area – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale This landscape comprises rolling hills, generally rising between 250-300m, tapering in the north to form a narrow band between the *Upland Fringe* (15) and the extensively forested higher uplands to the east. Occasional broad-topped ridges have a larger scale than areas of more complex smaller hills and the narrow valleys that wind their way through these foothills. Operational and consented wind farm developments already occupy some of these larger scaled areas in the south.	This typology could relate to the scale of broader topped hills but would overwhelm the scale of narrow valleys and the small complex hills that occur within parts of these foothills. ***Susceptibility rating: high-medium***	This typology could relate to the scale of broader hill tops but also slacker and more open hill slopes. Turbines of this size would still dominate the scale of the smaller well-defined hills, areas of more rolling landform and narrow valleys. ***Susceptibility rating: medium***
Landform Landform varies considerably with occasional broader hills with flatter gently undulating tops interspersed with more defined steep-sided knolly hills and irregular landform, often found close to main valleys and sometimes on the fringes with the *Foothills with Forest* (20). Narrow, incised river valleys cut often convoluted courses through these foothills, or more dramatic gorges through steep-sided hills such as the Wamphrey Water.	This typology could relate to the simple landform of gently undulating ridge tops but would detract from more complex landform, deeply incised river valleys and small well-defined hills. ***Susceptibility rating: medium***	There is greater scope for this typology to be sited on gently undulating ridges, slacker hill slopes and lower, flatter hill tops. Turbines of this size would still detract from narrow incised valleys and more complex irregular topography. ***Susceptibility rating: medium-low***
Landcover These foothills are farmed with pastures enclosed by stone dykes. More expansive areas of semi-improved and rough grazing and conifer plantations occur on broader hill tops. Broadleaved shelterbelts and clumps form rare, but distinctive, features around more settled valleys. Small angular conifer shelterbelts consistently pattern these smooth, rolling hills.	This typology could fit with the simple pattern of broader pasture and conifer plantations on broader hill tops. It would disrupt and overwhelm the scale of more distinct field enclosure pattern and broadleaved woodlands. ***Susceptibility rating: medium***	Single and small groups of these smaller turbines could fit with the generally simple land cover of pasture and plantations both on hill tops and slopes. They would still adversely affect the more distinct pattern of field enclosure and broadleaved plantings. ***Susceptibility rating: medium-low***
Built environment Small settlements and dispersed farms are located in narrow sheltered valleys and lower hill slopes although occasional settlements such as Corrie Common are more elevated. These foothills are rich in archaeology with numerous hill forts and settlements and occasional stone circles. Operational	This typology would dominate the scale and setting of settlement if sited close to more settled valleys, although the more sparsely settled eastern fringes of these foothills at the transition with the largely unsettled 20 and 22 AUs would be less susceptible although cumulative effects with other wind farms could	While there would be greater scope to locate this typology to minimise impacts on the scale and setting of settlement and archaeological features, this typology would dominate buildings and should be sited away from the more settled valleys. ***Susceptibility rating: medium***

wind farms influence character in the southern part of these foothills. A high voltage transmission line is routed through the south-western part of these foothills.	occur. The setting of archaeological features, which are often located on more distinctive hills, could be adversely affected by nearby larger turbines. ***Susceptibility rating: high-medium***	
Landscape context These foothills merge seamlessly with the *Upland Fringe* (15) to the west, although a more pronounced edge occurs to the south. The well-settled broad dale of Annandale (AU 6) lies to the west and the edge of these foothills (together with the *Upland Fringe*) provides a backdrop to settlements such as Lockerbie and Lochmaben. These foothills also provide prominent skylines to the *Pastoral Valley* (5) of the Dryfe valley. The more extensive and largely unsettled *Foothills with Forest* (20) and *Southern Uplands with Forest* (22) lie to the north-east.	The proximity of these foothills to the well-settled landscapes of Annandale, the Dryfe valley and Eskdale and the often prominent 'edge' of the *Upland Fringe* (15) increases susceptibility. There may be some limited scope to locate this typology at the transition with the less sensitive AUs of 20 and 22. ***Susceptibility rating: high-medium***	The proximity of these foothills to the well-settled landscapes of Annandale, the Dryfe and Eskdale valleys and the often prominent 'edge' of the *Upland Fringe* (15) increases sensitivity to this typology. There are greater opportunities to locate this smaller typology in less sensitive areas away from the southern and western edges of the foothills. ***Susceptibility rating: medium***
Perceptual qualities The farmed and settled character of these foothills limits the sense of naturalness and remoteness experienced. Wind farm development in the southern part of this landscape also influences character. The rich archaeology and traditional rural character of parts of this landscape can however instil a sense of timelessness.	Susceptibility is reduced in terms of any sense of wildness but further larger turbines could diminish the perception of the rural qualities and timelessness of this landscape ***Susceptibility rating: medium***	Susceptibility is reduced in terms of any sense of wildness. Smaller single and small clusters of turbines of this size would be likely to have less of an effect on rural qualities and the perception of timelessness provided they were sensitively sited. ***Susceptibility rating: medium-low***
Views and visibility Small settlements and dispersed farms are mainly associated with the narrow valleys that cut through these foothills but with some settlements and farms more elevated. A network of minor roads provides access through these foothills and even small hills offer vantage points with views over much of this landscape unit. The *Foothills with Forest* (20) and *Southern Upland with Forest* (22) lie to the north-east. These largely unsettled and higher uplands visually contain the *Annandale Foothills* from settled valleys and glens to the east. The well-settled lowlands of Annandale lie to the west and these foothills (together with the *Annandale* unit of the *Upland Fringe*	The settled nature of these foothills increases sensitivity to this typology. Views to these foothills are also extensive from lower-lying and well-settled landscapes to the west and south. The visual containment provided by higher hills reduces susceptibility in the north-eastern part of this AU. ***Susceptibility rating: high***	The settled nature of these foothills increases sensitivity although susceptibility would be reduced for these smaller turbines provided more prominent outer edges of these foothills were avoided. ***Susceptibility rating: high-medium***

15) form a low backdrop and fairly even long skyline to this landscape, with the higher uplands of AU 22 more prominent further north-east beyond these foothills. The outer edge of these foothills is particularly pronounced when seen from the low-lying *Coastal*/*Flow Plateau* (14) from the south. There are elevated views of these foothills from the Torthorwald Ridge and from key elevated viewpoints, such as the Almagill Monument, Burnswark Hill Fort and the Repentance Tower at Hoddam.		
Landscape values These foothills are not covered by any landscape designations although there are a number of valued archaeological features and some recreational routes.	The setting of valued archaeological features and value associated with recreational routes could be impacted by poorly sited larger wind turbines. ***Value rating: Medium***	There is increased scope to site smaller turbines to avoid significant effect on the setting of archaeological features and on recreational routes. ***Value rating: Medium-low***
Sensitivity	**High-medium**	**Medium**

16.4 Nithsdale Foothills

16.4.1 *Description*

The *Nithsdale Foothills* have a complex landform comprising small hills cut by narrow valleys. An intricate pattern of policy woodlands and small fields, interspersed with scrub and species-rich grassland on steep hill slopes, gives a diverse land cover while dispersed farms and houses, set within valleys and on lower hill slopes, have a distinctive 'estate' style. Although much of this landscape is hidden from view from adjacent areas, outer hill tops and ridges and particularly distinctive hills are highly visible from the adjacent *Middle Dale* of the Nith (6) and the *Upland Glens* (10) of the Scaur Water.

16.4.2 *Cumulative issues*

Cumulative impacts could arise where operational and consented wind farm development sited in the adjacent *Nithsdale* area of the *Southern Uplands* (21) were seen together with any development located in these Foothills from hill tops popular with walkers (including the Lowther Hills) and from the Scaur Water glen.

16.4.3 *Key constraints*

- The complex landform of rolling hills cut by winding, narrow incised valleys.
- The predominantly small-scale of this landscape where landform and dense woodland cover combine to provide strong containment.
- A diverse land cover pattern of policy woodlands, scrub and small pastures enclosed by walls and hedges where the balance of open space to woodland is finely tuned.
- The settled and strong archaeological character of these foothills and the rich architectural integrity of estate influenced buildings.
- The designed landscape of Drumlanrig Castle which covers part of the *Nithsdale* area and the *Thornhill Uplands* RSA designation.
- The prominent hill tops and ridges of these foothills which are seen from settled dales and glens.

16.4.4 *Opportunities*

- Broader slopes at the transition with the *Southern Uplands* (22) with a simpler landform and more open character where smaller turbines could be sited.

16.5 Sensitivity and guidance – Nithsdale Foothills

The complex landform, including prominent hills and ridges, and the intricate landcover pattern of these foothills increases susceptibility. The extensive designed landscape of Drumlanrig and the RSA designation additionally increase sensitivity.
Sensitivity would be ***High*** for turbines >50m, ***High-medium*** for turbines 30-50m and ***Medium-low*** for turbines <30m.

Smaller turbines would fit better with the scale and less complex landform of broader hill slopes at the transition with the *Southern Uplands* (22) with turbines closer to 30m and below this height more likely to minimise adverse effects on landscape scale and cumulative effects with operational and consented wind farms located in adjacent uplands. All turbines should be sited to avoid prominent hills and ridges and should

utilise the backdrop provided by rising hill slopes in order to minimise visual intrusion on skylines. They should also be sited to avoid more intricate patterns of policy woodlands and impact on notable buildings and archaeology. Overhead lines should be avoided as these could increase visual clutter in this small scale, distinctively rural landscape.

AU 19: Foothills – Nithsdale area – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale The *Nithsdale Foothills* range from 170m to 250m and comprise small scale complex rounded hills and ridges which limit openness and provide strong containment. Extensive woodland cover accentuates this containment and creates an intimate scale within valley floors. Scale increases slightly and the landscape becomes more open at the transition with the *Southern Uplands* (22).	Turbines of this height would dominate the scale of small hills and narrow incised valleys. ***Susceptibility rating: high***	Turbines of this height would have a better relationship to the scale of the larger hills but would still dominate the narrow valleys, woodlands, individual trees and other small landscape features which contribute to the often intimate scale of these foothills. This typology could relate to broader more open areas at the transition with the *Southern Uplands* where landscape scale increases. ***Susceptibility rating: high-medium***
Landform The hills are generally smoothly rounded with occasional knolls, well-defined summits and more rugged peaks on the western boundary. Long undulating ridges enclose narrow winding valleys. This area has a complex and tightly configured landform.	This typology would conflict with the complexity of the landform which is a key characteristic of this landscape. ***Susceptibility rating: high***	This typology would also conflict with more complex landform although it could fit with smoother, slacker hill slopes at the transition with the *Southern Uplands* (22). ***Susceptibility rating: high-medium***
Landcover Landcover is richly diverse with extensive policy woodlands creating strongly interlocking patterns over ridges and hills. The balance of open space to woodland cover is critical to the landscape composition of these policies. Well defined hedges enclosing small pastures are a feature particularly on lower hill slopes. A diverse land use and settlement pattern adds richness and reinforces the small scale of this landscape.	This typology would have an adverse effect on the integrity of land-cover pattern and on the finely balanced composition of woodland and open space. ***Susceptibility rating: high***	Multiple turbines would fill open spaces, affecting the present balance between open space and woodland cover. This typology could also conflict with the intricate pattern of woodlands, fields and settlement becoming a dominant feature within a landscape where complex and diverse land cover patterns are finely balanced. Open hills with a simpler vegetation pattern would be less sensitive to this typology. ***Susceptibility rating: high-medium***
Built environment The landscape is well settled with dispersed farms and individual houses located largely along lower hill slopes, tucked within hill folds or small valleys alongside a range of archaeological and historic features. There is a strong estate influence evident in the architectural style of buildings throughout this area.	The presence of settlement, archaeological and historic features within this landscape increases susceptibility. ***Susceptibility rating: high***	Turbines of this size could still dominate the small scale of buildings and the setting of archaeological sites although turbines towards the lower height band of this typology may minimise effects. ***Susceptibility rating: high***
Landscape context Although generally hidden from view and surrounded by higher hills to the west and south, these foothills form part of the wider setting to the more	Ridges, hill tops and outer hill slopes within this AU would be highly visible from adjacent smaller scale and more sensitive landscapes. Susceptibility would be reduced at the transition	Turbines of this size would still be prominent features if sited on ridges and hilltops and could affect the landscape setting of settlement within parts of Nithsdale, the Drumlanrig

sensitive eastern part of the Upper Dale of *Nithsdale* (AU 9) (which accommodates the extensive Drumlanrig designed landscape) and also the *Upland Glens* (10) of the Scar and Shinnel Water.	with the larger scale *Southern Uplands* (22) set back from more sensitive landscapes. ***Susceptibility rating: high-medium***	designed landscape and the Scar and Shinnel Water glens. There may be scope to minimise effects on adjacent landscapes if turbines were sited at the transition with the *Southern Uplands* (22) or where turbines towards the lower height band benefitted from screening by landform and woodland. ***Susceptibility rating: medium***
Perceptual qualities The farmed and settled nature of this landscape limits the sense of remoteness although the intimate scale and absence of major roads can make it feel secluded in places. The absence of major built infrastructure gives an impression of timelessness and a strong landscape integrity.	Although the sense of wildness is not pronounced in this landscape, large turbine development would introduce utilitarian structures into this landscape which could detract from its traditional and perceived 'undeveloped' character. ***Susceptibility rating: medium***	Although the sense of wildness is not pronounced in this landscape, large turbine development would introduce utilitarian structures into this landscape which could detract from its traditional and perceived 'undeveloped' character. ***Susceptibility rating: medium***
Views and visibility Views from roads and settlement within this unit are often contained by landform and woodland although many properties are elevated on lower hill slopes and have more open views. Views to this landscape are limited apart from the ridges and hill tops which are prominent from Nithsdale and the adjacent glens of Scar and Shinnel Water and valley of the Cairn Water.	This typology could have a dominant and distracting effect on the viewer from settlement and roads within this landscape and from the adjacent glens, Nithsdale and the Drumlanrig Castle designed landscape. ***Susceptibility rating: High***	Although landform and woodland limits views from within this landscape, turbines perched along the skylines seen from Nithsdale and the Scaur glens would be likely to be visually distracting and could form dominant features although could potentially be accommodated at the transition with the *Southern Uplands* away from more settled areas. ***Susceptibility rating: high-medium***
Landscape value The *Thornhill Uplands* RSA covers this landscape. The Inventory listed designed landscape of Drumlanrig Castle extends to cover the eastern part of the *Nithsdale* area of the *Foothills*. This designed landscape is rated in the Inventory as outstanding against all assessment criteria. These foothills have many archaeological features and there is an extensive network of recreational routes associated with Drumlanrig estate.	This is a valued landscape especially where the RSA and nationally important designed landscape of Drumlanrig coincide. ***Value rating: high-medium***	This is a valued landscape especially where the RSA and nationally important designed landscape of Drumlanrig coincide. ***Value rating: high-medium***
Sensitivity	**High**	**High-medium**

17 ASSESSMENT UNIT 23: COASTAL GRANITE UPLANDS

17.1 Introduction

The *Cairnsmore*, *Bengairn* and *Dalbeattie* areas are defined within the *Coastal Granite Uplands* Assessment Units. The *Cairnsmore* landscape area is very sparsely populated and as demand for smaller scale typologies is likely to be limited, this area is not considered in detail in this appendix. Separate sensitivity assessments are provided for the *Bengairn* and *Dalbeattie* areas due to their different landscape context.

17.1.1 *Cultural heritage overview*

The landscape areas of *Bengairn* and *Dalbeattie* are characterised by a mix of post-improvement (c19th-20thcentury) fields, farming, woodlands and rough grazing as well as some small designed landscapes, with evidence for relict land-uses. There are areas of pre-improvement (pre-19thc) land-use with their remains of buildings and distinct field shapes, as well as areas of prehistoric features.

17.1.2 *Operational/consented wind farms*

The three Plascow wind turbines are located within the *Dalbeattie* area although there is no wind farm development sited elsewhere in this AU. The offshore operational Robin Rigg wind farm influences views from elevated and coastal parts of the *Bengairn* and *Dalbeattie* areas.

17.2 Bengairn area - description

This landscape area of the *Coastal Granite Uplands* varies greatly in scale. It comprises complex, intimately scaled coastal promontories, knolly 'foothills' and narrow valleys but also the larger scale landmark hills of Bengairn and Screel. The dramatic steep slopes, craggy ridges and summits of these hills make a strong contribution to wider scenic diversity. This landscape is visually prominent from settlements, major roads and the higher landmark hills and knolly 'foothills' are additionally visible from an extensive area to the north-west.

17.2.1 *Cumulative issues*

There would be potential cumulative landscape and visual impacts associated with the offshore Robin Rigg wind farm which lies approximately 9km from Almorness Point at the closest location within this landscape unit. This wind farm is visible from hill summits such as Screel Hill and from the A711 at Auchencairn Bay.

17.2.2 *Key constraints*

- The intimately scaled complex landform of small knolly hills cut by narrow valleys between Gelston and the Urr valley and the irregular rocky coastal promontories which separate Auchencairn Bay and the Rough Firth.
- Screel Hill and Bengairn which rise abruptly from the coast and the *Drumlin Pastures* (13) and form landmark features seen over an extensive area and instantly recognisable by their elongated craggy ridges.
- Steep, rocky and forested southern hill slopes which provide a backdrop to Auchencairn and Orchardton Bays and the Urr Valley and contribute to the contrast between more managed farmland, coastal features and the rugged uplands.

Assessment Unit Key Map - 23. Coastal Granite Uplands

Dalbeattie Coastal Granite

Bengairn Coastal Granite

Key

Assessment Unit Boundary

Areas considered individually in the sensitivity assessment

- Policy woodlands and parkland, hill forts and settlement which reflect and accentuate the complexity and small scale of the landform of knolly hills on the north-western edge of this landscape unit between Gelston and the Urr valley.
- Distinct patterns of archaeological and historic land-use features and specific sites.
- Popular promoted walks over many of the hills and along the coast and the panoramic views which are a feature from these routes.
- The East Stewartry Coast NSA and Solway Coast RSA which cover much of this landscape area.

17.2.3 *Opportunities*

- Slacker lower hill slopes and more extensive gently undulating moorland and forestry on the western fringes of this landscape unit

17.3 Sensitivity and guidance

The complex landform of these uplands and the prominence of Bengairn and Screel hills increases susceptibility. The NSA and RSA designations which cover much of this landscape and the popularity of the area for recreation are additional factors increasing sensitivity. Sensitivity would be ***High*** for turbines >80m high and ***High-medium*** for the medium turbines 50-80m and turbines 30-50m. Sensitivity would be ***Medium-low*** for turbines <30m high.

Broader, lower hill slopes with a simple vegetation pattern lying in the western fringes of this area would be of reduced sensitivity to wind energy development with turbines <80m more likely to be successfully accommodated while minimising landscape and visual effects. Development should be sited to avoid intrusion on key views to and from the landmark hills of Bengairn and Screel Hill, but also avoid dominating the lower craggy ridges of Barcloy Hill and the distinct knoll and ridge of Dungarry Fort, by limiting the spread and height of development. Development should also not intrude on highly scenic views from the designated coastal area. Potential effects on these sensitive uplands and the East Stewartry NSA should be carefully assessed from key viewpoints including Bengairn and Screel Hills, the monument at Barstobrick and coastal locations within the NSA.

Smaller turbines 30-50m (and particularly turbines towards the lower height band of this typology) could be accommodated more widely on less complex hill slopes set well away from the core landmark hills but only where vegetation pattern is less distinct and provided turbines are located to minimise impacts on settlement and historic/archaeological features. Small turbines (<30m) could be more easily assimilated in this landscape provided they were visually associated with existing buildings.

Wind turbines of all sizes should not be sited on the skyline or steep slopes of the dramatic edges of the uplands seen to best effect from the Urr valley and Auchencairn Bay area or along coastal edges which have a pronounced wildland character. They should also avoid intrusion on key views from coastal roads and paths, and into the backdrop and setting of small settlements or archaeological features and landscapes of historic interest.

AU 23: Coastal Granite Uplands – Bengairn area – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale Scale varies within this landscape. Smaller knolly hills, cut by narrow valleys, give an intimate scale between Gelston and the Urr valley on the northern edge of this landscape while the larger hills of Galgrie, Screel and Bengairn (391m) are more open and larger in scale. The complex rocky coastal promontories of this area are often small scale in character.	This typology would overwhelm smaller scale landscapes. There may be some limited scope to locate turbines towards the lower height band of this typology (and limited numbers of turbines) to avoid dominating the vertical scale of key hills. ***Susceptibility rating: high-medium***	This typology would dominate the small scale of coastal promontories, lower knolly hills and narrow valleys. It could however relate to the scale of broader, more open lower hill slopes and ridges. There may be greater scope for turbines around 35m high to be accommodated as these are less likely to dominate the scale of individual landscape features. ***Susceptibility rating: medium***
Landform There is a pronounced north-west/south-east grain to this landscape. Screel and Bengairn Hills have elongated ridges with rocky outcrops and pronounced summits. Steep rocky hill slopes provide a dramatic backdrop to Auchencairn Bay to the south, accentuated by the abrupt junction with the flat floodplain backing Auchencairn Bay. The landform fragments at the coast forming a series of rocky peninsulas extending into this bay. Knolly 'foothills' form an edge to these hills between the Urr valley and Gelston while slacker slopes occur on the fringes of Bengairn and Barcloy Hill. Narrow valleys cut between the hills and are often strongly contained by steep slopes.	This typology would detract from the more complex landform of lower hills, narrow valleys and coastal promontories. There may be some limited scope to locate lower turbines on slacker lower hill slopes and less complex undulating moorland in the north-west and west of this unit to minimise effects on adjacent more dramatic rugged hills. ***Susceptibility rating: high-medium***	This typology would adversely impact on the irregular and complex landform of lower hills, narrow valleys and coastal promontories. Slacker lower hill slopes, broader smoother hill tops and flatter ground would have a better association with this typology although turbines of this height could detract from dramatic steep rocky hill slopes and craggy ridges if poorly sited. ***Susceptibility rating: high-medium***
Landcover Coniferous forestry covers much of the steep upper hill slopes. Mature conifers and broadleaves form an attractive woodland character within narrow valleys while smaller broadleaved and policy woodlands accentuate the intimately scaled knolly landform around Gelston. Small fields within narrow valleys and on lower hills are enclosed by a mix of stone walls and hedges and patterned by occasional patchy scrub and rocky outcrops. Larger fields occur on less undulating ground backing the coast and saltmarsh fringes Auchencairn and Ochardton Bays.	Turbines and access tracks would also disrupt the strong and diverse small-scale pattern of woodlands, policies and small fields characteristic within the lower hills, valleys and coastal promontories. While this typology could relate to the simpler land cover of plantation forestry and upland pasture found in some parts of this landscape it could impact on the integrity of more mature and sensitively designed forest. ***Susceptibility rating: high-medium***	Groups of turbines could disrupt the often intricate and diverse small-scale pattern of woodlands, scrub and small fields characteristic of the lower hills, valleys and coastal promontories, although single turbines would have less of an effect. Saltmarsh, policies and diverse mature forest would be highly sensitive to wind farm development; both in a physical sense and in terms of its integrity. This typology could be associated with less strongly enclosed pasture found in parts of this landscape. ***Susceptibility rating: high-medium***

Built environment Small settlements cluster at the foot of steep south-east facing slopes and within the folds of the intimately scaled knolly hills on the north-western edge of this landscape. Farms occupy higher ground raised above the flat pastures bordering Auchencairn Bay. Occasional masts are prominent on some hill tops within these knolly hills. A series of hill forts form landmark features in the Gelston area and at Dungarry while there are a range of pre-improvement and prehistoric sites across the area.	This typology would dominate settlement and archaeological features if located nearby. There may be some limited opportunities to avoid comparisons of scale by siting development in less settled areas in the north-western fringes of this area but the setting of archaeological sites remains sensitive even to this typology. ***Susceptibility rating: high-medium***	While this typology would dominate the scale of buildings, settlements and archaeological features if located nearby, there are some limited opportunities to site these smaller turbines away from less settled areas but the setting of archaeological sites remains sensitive even to this typology. ***Susceptibility rating: medium***
Landscape context The *Bengairn* area of the *Coastal Granite Uplands* are prominent in views from the lower lying *Drumlin Pastures* (13) to the north-west. Steep forested slopes and occasionally dramatically craggy hills form an important backdrop and scenic contrast to the floodplain of the lower *Urr Valley* (4) and the *Peninsula* landscapes (1) and wider seascape.	While this typology could have impacts on wider scenic diversity if sited on or close to prominent landforms, there may be some increased scope to locate turbines towards the lower height band of this typology in areas where the landmark hills are less pronounced and where views from the sensitive coastal areas would be unaffected. ***Susceptibility rating: high-medium***	This typology is unlikely to extend significantly into wider views unless sited on sensitive higher ridges and hill summits of the landmark hills or on the 'edge' of hills which contain the *Urr Valley* (4). It could impact on sensitive coastal areas if sited on promontories and farmland backing the coast. ***Susceptibility rating: high-medium***
Perceptual qualities Although the settled, farmed and forested nature of this landscape precludes a sense of wildness, richly diverse farmland has a traditional feel and some natural qualities. Less managed coastal areas have an elemental and natural quality and can feel secluded.	This typology would impact on the sense of wildness experienced in less managed coastal areas and also on the more subtle naturalness of diverse farmland. ***Susceptibility rating: high-medium***	This typology would adversely affect the appreciation of wildness along the coastal edge. Turbines towards the lower height band of this typology would be less likely to significantly impact on traditionally farmed landscapes. ***Susceptibility rating: medium***
Views and visibility Landform and woodland limit views from within this landscape from settlement and the minor roads aligned through narrow valleys. Views are more open from the A711 and these focus on the dramatic steep south-east facing hill slopes and the rocky peninsulas and Firth of Auchencairn Bay. The hill ridges and summits offer extensive views over this landscape and the Solway Firth. Screel Hill is particularly popular with walkers and is promoted in a number of guides. Bengairn and Screel Hills form foci seen from wide area of *Drumlin Pastures* (13) and the coast. The north-west facing edge of smaller complex	This typology would be highly visible from the A711 and coastal settlements and footpaths if located on hill tops, south-facing slopes and coastal areas. It would also significantly impact on views from key hill tops and ridges which are popular with walkers. This typology would be highly visible if located on the higher hills which form key foci in extensive views from AUs (4) and (13). It would also significantly detract from views of the lower knolly hills on the north-western edge of this unit seen from the adjacent *Drumlin Pastures* (13). Turbines towards the lower height	The small size of this typology and the opportunities for screening offered by trees and topography, limits potential visibility of turbines towards the lower height band, views of which are likely to be intermittent. However, if poorly sited, they could detract from the visual focus of existing natural and historic features, including highly scenic coastal landscapes. ***Susceptibility rating: medium***

knolly 'foothills' are also highly visible from roads such as the A745. The steep wooded slopes of these *Coastal Granite Uplands* are highly visible from the lower Urr valley and Dalbeattie.	band of this typology located on slacker hill slopes in the north-west fringes of this unit would be less prominent in key views from the surrounding area. ***Susceptibility rating: high***	
Landscape values The *East Stewartry* NSA includes the summits and south-east facing slopes of Bengairn and Screel Hill and Auchencairn Bay with its rocky promontories. The special qualities of the NSA include the diversity of landform including the indented coastline and rugged hills, the variety of landcover and contrast between managed farmland and 'wildness'. Screel Hill and Bengairn are noted as key landmarks within the NSA. The *Solway Coast* RSA covers all but the north-western fringes of this landscape unit. The citation for this RSA describes the..."*steep sided, rocky granite hills....contrasting with areas of smoother topography and improved pastures, plus considerable, generally sympathetically designed forestry".* This landscape includes valued nature conservation and archaeological and historic assets and has some promoted recreational routes.	This typology would adversely affect the contrast between the rugged hills and surrounding coast and farmland and would detract from the key landmark hills of Screel Hill and Bengairn. It could also diminish the integrity of sympathetically designed forestry and the variety of land cover in some parts of the NSA/RSA. This typology may also affect the setting of the landmark hills if located in undesignated parts of this landscape unit of the Coastal Granite Uplands. ***Value rating: high-medium***	Small turbines are less likely to impact on the key special qualities of the NSA and RSA provided they are located away from sensitive coasts and avoid intrusion on key views. Turbines towards the lower height band of 12m, and closely associated with existing buildings, would be more likely to minimise impacts on designated landscape as they would more easily fit with the scale and pattern of existing settlement. ***Value rating: medium***
Sensitivity	**High-medium**	**High-medium**

17.4 Dalbeattie

17.4.1 *Description*

The Dalbeattie area of the *Coastal Granite Uplands* comprises a large-scale upland core of shapely hills covered with forestry and moorland, but also smaller scale, rolling craggy hills often featuring an intricate pattern of small, enclosed pastures, scrub and woodlands. The dramatically steep hill slopes of these Coastal Granite Uplands which abut the coastal edge, the iconic form of Criffel and the richly diverse eastern hill slopes with their associated settlement, policy landscapes and landmark historical features, make a strong contribution to wider scenic quality. This landscape is visually prominent from nearby settlements, coastal recreation areas and major roads and also over an extensive area to the north.

17.4.2 *Cumulative issues*

The operational Plascow turbines are located in this landscape although this is a discrete development of three smaller wind turbines reducing potential for cumulative effects to arise. The offshore Robin Rigg wind farm is visible from the coast and elevated areas. The distance of this development (approximately 11km from Colvend at the closest location within this landscape) limits potential for significant cumulative effects to arise with onshore developments.

17.4.3 *Key constraints*

- The core of higher upland hills including the distinctive cone of Criffel which is a landmark feature seen across an extensive part of Dumfries and Galloway and north Cumbria.
- The small-scale lower rolling hills and ridges which fringe the eastern edge of the upland core and have a richly diverse pattern of policy woodlands, parkland, small, enclosed pastures and settlement.
- The craggy, tightly interlocking small hills and narrow valleys with their coarse-textured pattern of small walled fields, scrub and woodland and settlement in the south-west of this area.
- Patterns of archaeological and historic land-use features and specific sites.
- The steep slopes of Criffel and rugged lower hill slopes between Caulkerbush and Sandyhills which form a distinctive backdrop and contrast with the coastal flats.
- The high recreational use of this landscape with Criffel and the core of uplands, Dalbeattie and Mabie Forests attracting many walkers and cyclists.
- The *Nith Estuary* NSA and *Solway Coast* RSA which cover the majority of this landscape and contribute to the high value associated with this landscape.

17.4.4 *Opportunities*

- Broader lower hill slopes and low-lying plateaux where settlement is sparser and vegetation cover simpler and where there may be opportunities for wind turbines to be sited to minimise impacts on the setting of the core uplands of this area and on key views from the coast and settlement.

17.5 Sensitivity and guidance

The complex landform of these uplands, and particularly the landmark qualities of the prominent Criffel Hill, increases susceptibility. The NSA and RSA designations which cover much of this landscape and the popularity of these uplands for recreation are additional factors increasing sensitivity. Sensitivity would be ***High*** for wind turbines >80m high, ***High-medium*** for turbines 50-80m and ***Medium*** for turbines 30-50m. There would be a ***Low*** sensitivity to turbines <30m high.

Slacker hill slopes on the north-western fringes of this area, set well away from the more distinctive core hills, provide opportunities to accommodate turbines <80m high. Careful assessment would be necessary to ensure that intrusion on key views to and from Criffel was minimised. More sparsely populated lower plateau areas to the south-west (some of these areas modified by quarrying and landfill activities) also provide potential opportunities with smaller turbines 30-50m more likely to minimise potential effects on the setting and views from Dalbeattie, nearby settlement and the adjacent Urr valley. Care should be taken to avoid a clutter of disparate structures in these areas as turbines could potentially visually interact with existing industrial development and further diminish the rural character of the landscape.

Small turbines (<30m) could be more easily assimilated in this landscape provided they were visually associated with existing buildings. Small turbines should not be sited on key skylines or on particularly rugged and steep slopes of the dramatic seaward edge of the uplands. They should also avoid intrusion on key views to Criffel and New Abbey from the A710 and the coastal edge and on the setting of archaeological features and landscapes of historic interest.

AU 23: Coastal Granite Uplands – Dalbeattie area – Detailed assessment of smaller wind turbines		
Topics and description	**Assessment: Medium turbines (50-80m)**	**Assessment: Small-medium turbines (30-50m)**
Scale An upland area generally around 400m but with Criffel rising to 569m at the highest point. Scale is reduced in the lower, and often more complex, rolling hills which fringe the core uplands and within the valleys which dissect the uplands on a north-west/south-east grain.	This typology could relate to the large-scale of the upland core of this landscape. It would dominate smaller valleys although turbines towards the lower height band could relate to the broader scale of more open north-west facing hill slopes and the more expansive parts of the lower plateau to the SW ***Susceptibility rating: medium***	This typology would dominate the small-scale lower hills and narrow valleys. It could however relate to the scale of broader plateaux areas to the west and higher hills lying at the core of this landscape. ***Susceptibility rating: medium-low***
Landform These uplands generally have smooth long northern slopes and steeper southern slopes which abut the *Coastal Flats* (3). The core of the higher uplands form a tight arc divided by the Glen Burn. Criffel is the largest hill and is a landmark feature with its conical form, steep smooth slopes and shapely ridges. More complex and smaller, often craggy hills, cut by narrow valleys, fringe the upland core to the south-west. Slopes are slacker on the north-western boundary of this unit and the area bordering the Urr valley is relatively low, forming an undulating plateau around 100m patterned with rocky outcrops.	Turbines sited on or close to the upland core centred on Criffel would detract from its distinctive form. The more complex rolling hills which fringe the upland core would be highly sensitive to this typology. Gentler north-west facing hill slopes would relate better to this typology. ***Susceptibility rating: high-medium***	Turbines sited on or close to the upland core centred on Criffel and associated hills would detract from their distinctive form. The more complex, craggy rolling hills which fringe the upland core would be sensitive to this typology although there are opportunities to accommodate turbines of this scale within areas of lower more regular topography including smoother lower hill slopes and less patterned plateaux. ***Susceptibility rating: medium***
Landcover Heather and grass moorland covers the higher hill tops while coniferous forestry extends over lower hills and upper, generally less steep, hill slopes. Some of this forestry has a poor relationship to landform with angular margins and limited diversity. Policy woodlands occur around Mabie and New Abbey and these feature a rich mix of species and include avenues and some parkland plantings. A number of rounded lochs are occasional features sitting at the foot of the hills and on the lower south-western plateau near Dalbeattie and pockets of wetland fill small valleys and dips. Interlocking woodlands and small scrubby pastures, enclosed by stone dykes, give a coarse textured, diverse pattern within the smaller hills to the south-west although	This typology would disrupt the balance of open space to woodland if sited on open hill tops or lower strongly enclosed pastures and could impact on the integrity of heather moorland which is a notable feature on the higher hill tops. The more diverse mix of policy and broadleaved woodlands, small strongly enclosed pastures and wetlands which contribute to the rich diversity of much of this landscape would be highly sensitive to wind farm development. Development sited near lochs would detract from their landmark status. Commercially managed forestry with limited visual diversity and extensive upland pasture would be less sensitive to this typology. ***Susceptibility rating: high-medium***	This typology would disrupt the balance of open space to woodland if sited on higher hill tops or within policy landscapes on lower hill slopes. Groups of turbines could disrupt the often intricate and diverse small scale pattern of woodlands, scrub and small fields characteristic of the lower hills and valleys although single turbines would have less of an effect. Designed landscape features and wetlands would be highly sensitive to wind farm development; both in a physical sense and in terms of its integrity. This typology could be associated with less strongly enclosed pasture and upland grazing land found in parts of this landscape. ***Susceptibility rating: medium***

larger scale pastures and more extensive upland grazing occurs to the north-west.		
Built environment The small historic settlement of New Abbey nestles at the foot of these uplands. Farmsteads pattern lower hill slopes on the outer edge of the higher upland core with settlement becoming more concentrated within the lower hills and valleys to the south-west. Dalbeattie is located at the transition between this landscape unit and the *Urr Valley* (4). Derelict munitions site, landfill and quarrying occur near Dalbeattie. Mansion houses, the Waterloo Monument, the ruinous Sweetheart Abbey form key landmark built features. Prehistoric settlements skirt the foot of Criffel and the lower hills feature hill forts and cairns.	This typology would dominate settlements and archaeological features if located nearby. There may be some limited opportunities to avoid comparisons of scale by siting development in less settled areas in the north-western part of the upland core but avoiding key hills which provide the setting to settlements. Turbines towards the lower height band of this typology would be more likely to have a better relationship with larger buildings in terms of scale although the setting of archaeological sites remains sensitive. ***Susceptibility rating: high-medium***	While this typology would dominate the scale of buildings, settlements and archaeological features if located nearby, there are greater opportunities to site these smaller turbines to avoid significant scale comparisons. ***Susceptibility rating: medium***
Landscape context Criffel is a landmark hill seen over an extensive area. The steep southern slopes of Criffel and also the craggy edge of lower hills between Caulkerbush and Sandyhills are important in providing a backdrop and contrast with the *Coastal Flats* (3) and Solway Firth. The low densely forested undulating granite plateau of Dalbeattie Forest edges the lower *Urr valley* (4) and forms part of the setting to the town of Dalbeattie. This unit also forms an interesting upland backdrop to the extensive *Drumlin Pastures* (13) to the north. The intricately vegetated rolling ridge of Mabie Forest borders lower *Nithsdale* (6) and forms part of the wider setting to Dumfries	This typology would also impact on the landmark of Criffel and the dramatically steep slopes which provide a backdrop and contrast to the *Coastal Flats*. There may be scope to site turbines towards the lower height band of this typology in the lower less prominent hills and plateaux in the south-western part of this unit to avoid significant impacts on adjacent character types although opportunities are likely to be limited. The richly diverse eastern hill slopes of this unit make a strong contribution to the setting of Criffel, Dumfries and the Nith Estuary and would be highly sensitive to this typology. ***Susceptibility rating: high-medium***	This typology could have a significant impact on adjoining character types if sited on sensitive higher ridges and hill summits of the landmark hills, on the steep hill slopes which backdrop the coast or on the 'edge' of the low plateau of Dalbeattie Forest which fringes the *Urr Valley* (4). It would be unlikely to significantly impact in the wider landscape context if sited on lower, less prominent hill slopes and plateaux. ***Susceptibility rating: medium***
Perceptual qualities Although forestry, quarrying and munitions stores preclude a sense of wildness in some areas, diverse farmland on the fringes of these uplands can appear natural. The less modified open hills of the upland core also have natural qualities.	This typology would impact on the sense of wildness experienced in less managed upland areas. The perception of the strongly rural character of parts of this landscape may be less affected by single and small groups of turbines towards the smaller height band of this typology. ***Susceptibility rating: medium***	This typology could adversely affect the appreciation of wildness within the upland core although sensitivity is reduced elsewhere. ***Susceptibility rating: medium***
Views and visibility The minor roads which cross the valleys of this landscape have fairly limited views due to the containment	This typology would be highly visible over an extensive area of Dumfries and Galloway and also the Cumbrian	This typology would be highly visible over an extensive area of Dumfries and Galloway and also the Cumbrian coast

provided by hill slopes and forestry. New Abbey is similarly contained and many settlements and farms are orientated away from the core uplands being predominantly located on outer hills slopes. The complex hummocky landform to the south-west, together with woodland, restricts extensive views from this more settled area. A network of footpaths in the upland core provides elevated views over much of this landscape and the Solway Firth. This landscape is highly visible over an extensive area with Criffel a key focus in views.	coast if sited on the core upland areas centred on Criffel. This typology would be visible in close proximity from the A711 if sited on northern slopes and on hill tops. The popularity of Criffel with walkers, coastal recreation areas and the presence of settlements on the fringes of this upland area increases visual sensitivity to this typology. ***Susceptibility rating: high***	if sited on ridges and summits within the core upland area centred on Criffel. There is greater scope for turbines towards the lower height band of this typology to be partially screened by woodland and landform from key views from roads, settlement and from popular walking routes within the core hills. ***Susceptibility rating: high-medium***
Landscape values The *Nith Estuary* NSA covers the eastern part of this landscape. The special qualities of this NSA are recorded as being the bold contrasts between the granite upland mass of Criffel and the coastal flats and Firth. The diversity of moorland, woodlands and rolling parkland is noted together with the landmarks of Mabie Forest, Criffel, the Waterloo Monument and New Abbey. The sense of remoteness, naturalness and harmony of the landscape are also considered key special qualities. The *Solway Coast* RSA covers the majority of this landscape. The *Terregles Ridge* RSA covers the Loch Arthur and Mabie Forest areas. The seaward facing slopes of the Criffel uplands are described in the citation as being...."*dramatically juxtaposed with the flat exposed landscapes of the Coastal Flats around the Nith Estuary....*(including the)... *intimate, wooded landscapes of the 'coastal parkland' around New Abbey"* Criffel and Mabie Forest form a focus for recreation.	This typology would adversely affect the contrast between the rugged hills and the coast and would detract from the key landmark hill of Criffel. It would also conflict with the diverse and often small-scale pattering of vegetation cover and would impact on the sense of naturalness and the harmony associated with the NSA/RSA. This typology may also affect the setting of the landmark hills if located in undesignated parts of this landscape unit of the *Coastal Granite Uplands.* ***Value rating: high***	This typology would adversely affect the contrast between the rugged hills and the coast and would detract from the key landmark hill of Criffel. It would also conflict with the diverse and often small-scale pattering of vegetation cover and would impact on the sense of naturalness and the harmony associated with the NSA/RSA. This typology may also affect the setting of the landmark hills if located in adjacent undesignated parts of this landscape unit of the *Coastal Granite Uplands.* ***Value rating: high***
Sensitivity	**High-medium**	**Medium**

ANNEX A: SITING AND DESIGN GUIDANCE FOR WIND TURBINES <50M

Guidance on the micro-siting of smaller turbines

Introduction
The height of turbines relative to other structures in the landscape is a key consideration in terms of landscape 'fit'. With this in mind, two heights of small turbine are principally considered in this guidance:

- Turbines 12-20m high
- Turbines 20-50m high

Turbines (12m – 20m in height)
This size of turbine could be accommodated in most of the landscapes of Dumfries and Galloway as it would relate better than larger turbines to the scale of woodlands, mature trees and buildings in more settled landscapes. Coastal areas, very small valleys and areas with a more complex landform may still be sensitive to turbines of this size however.

In general, the following issues have been identified as being particularly influential in terms of detailed siting of this typology within character types and character areas identified as being appropriate for this typology:

- *Turbine height in relation to the scale of the landscape*
- *Landform shape*
- *Settlement and land use pattern and features*
- *Visibility*
- *Cumulative issues*

Turbine height in relation to the scale of the landscape
Landscape scale is made up of two factors, the scale of the landform and the scale of the pattern of land use. Assessing the scale of the landform involves considering the perceived vertical height and horizontal expanse of the topography, as well as the degree of openness and containment created by topographical relief. The pattern of land use can create an additional layer of possible enclosure, for example where woodland and hedges provide containment, or conversely can reinforce openness, for example where moorland dominates. In addition, while we often assess sense of scale relative to ourselves within the landscape, individual elements, from trees to pylons, can offer reference points against which the scale of the landscape or size of other elements is perceived and understood.

Small wind turbines from 12m to 30m, will appear as being up to about two and a half times the size of a two storey house. While this size of turbine is therefore likely to be prominent and may appear to tower above the buildings, a mature forest, broadleaved or conifer tree is also about 20m in height. In fertile lowland landscapes, where trees often achieve a good stature, turbines of this size may not appear as the largest element in the landscape. Other structures of this height which fall into this category include taller radio masts and small pylons.

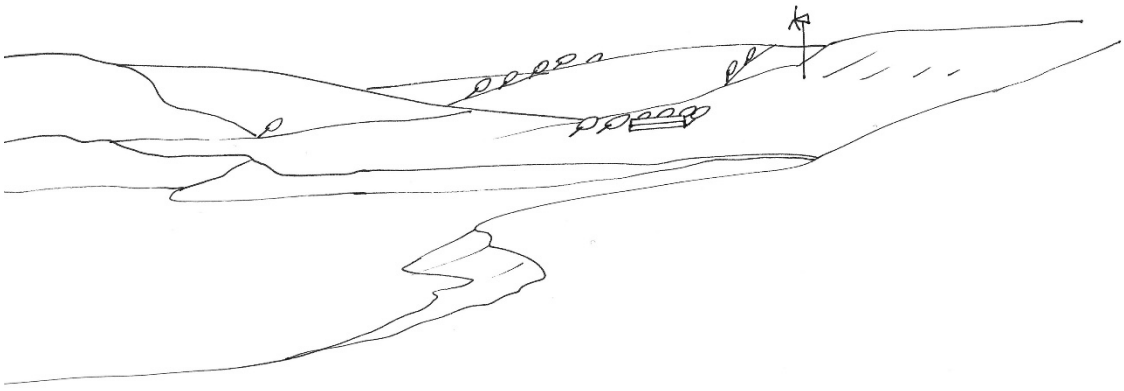
Turbine numbers

The sensitivity assessment has assumed that single turbines and groups of up to 5 turbines are most likely to be associated with this typology. Proposals for 'wind farms' of small turbines over 5 in number are likely to have significant adverse impacts where the speed of blade movement seen on mass would be visually confusing and distracting.

***Inland scenario**: An indicative 16m high turbine (2x height of the house), or a taller turbine located behind the ridge to reduce overall height from this view. The turbine is well scaled in relation to the size of other individual features. It is also located on the side of the hill, rather than the hill top, where it can be 'read' in conjunction with the farm buildings. This forms a 'cluster' of development, which reduces landscape and visual impact.*

In coastal areas and more marginal upland landscapes however, settlement and tree cover is likely to be sparser. Trees may also be limited in height by exposure or poor soils and buildings are often low, either due to exposure, or due to the poorer quality farmland, which is often reflected in the characteristically more modest building style. In such areas, the relationship between the turbines and landscape features is likely to be more sensitive, as turbines could easily dominate the scale of individual elements which are key characteristics of these landscapes.

In such locations, care should be taken to site turbines where they do not dominate individual features. Turbines should be more closely associated with the scale of the relief of the topography or more pronounced and higher topographical features, such as long, elevated ridges higher in relief than the height of the turbines, or back-dropped by higher land.

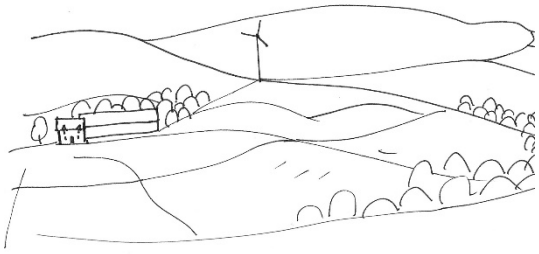


***Coastal scenario**: This indicative 20m turbine (5 x height of the low house) is located at the break in slope, where it relates more to the scale of the landform and avoids the immediate setting of the buildings and trees. Note that the turbine is still tall in relation to the height of the wind-shorn trees, but is also less visually dominant than if it had been perched on the skyline.*

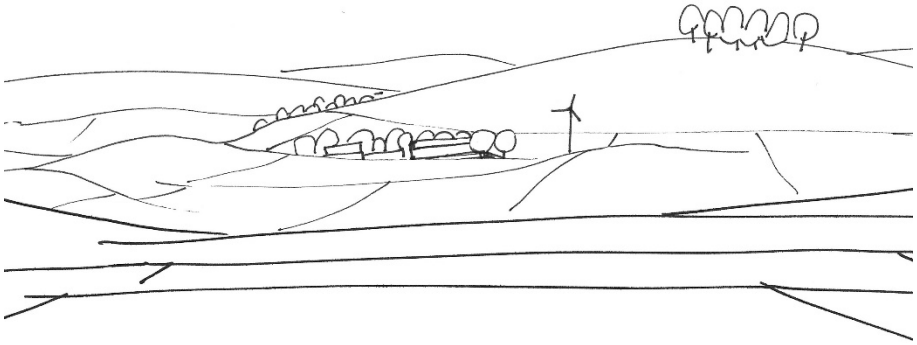
Landform shape

It was noted in site work that many (but not quite all) of the lowland landscape character types demonstrate a pattern of farms and settlements associated with lower hill slopes or valley floors.

Lower hill slopes, or the edges of valleys, often have terraces, narrow ledges, folds and subtle hollows, distinct changes in gradient associated with rising slopes or dips within undulations which have the potential to create natural platforms for siting wind turbines.



Landform shape – Foothills type landscape*: This indicative 20m turbine (2.5 times the size of the house), is located at a distinct change in gradient, which is also at the line of the head dyke and beside a dip created by a watercourse near the farm. This combination means that the turbine reinforces the presence of these changes, rather than detracts from them.*



Landform shape – Lowland/dale type landscape: *This indicative 20m turbine (2.5 times the size of the house), is located on a low ridge at the edge of the flatter, relatively open valley floor. The hilltop, with its existing distinctive clump of trees, has been avoided. The turbine sits on the side of the low ridge (not the top), facing the farm, creating a visual 'cluster' of development.*

Settlement and land use pattern and features

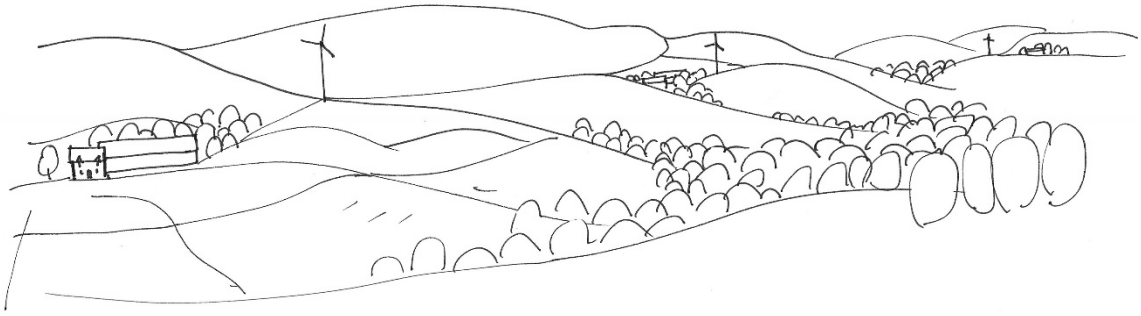
Small turbines are most easily accommodated in areas where there is existing settlement and other infrastructure. In such areas, the distribution of existing built development can form a recognisable pattern to which wind turbines can be visually and physically linked.

In Dumfries and Galloway, there is frequently a clear and in places relatively regular distribution of farms, for example associated with the edge of valleys, or at the base of drumlins, or where watercourses descend a side slope to meet the valley floor. These patterns

are even more visible in some areas where farms are painted white, standing out as prominent 'point features' against the green of the landscape.

While small turbines are likely to be larger than most buildings, it is likely to still be appropriate to establish a visual relationship between a turbine and a farm or other group of buildings in this type of landscape. They may also appear frequently enough in a settled or farmed landscape to create a 'sub pattern' of consistent association with farms or small settlements if the turbines are located close enough to the buildings.

In some landscapes, this consistency can be further reinforced if turbines are located at a similar elevation, especially if this relates to the existing elevation of farms, settlements or another major feature, such as the head dyke.



Settlement pattern: *Indicative 20m high turbines associated with a consistent and recognisable pattern of settlement, in this case farms located along the break in slope above the fields and below more open hill. With careful micro-siting, these turbines all form a similar and consistent relationship in terms of settlement location, elevation and land form. As a result they reflect the existing pattern of built development.*

Visibility

Unsurprisingly, small turbines are likely to be less visible than the larger ones over a wider area. Turbines which are 20m or less are more likely to be able to be screened or hidden within a wooded landscape, or by relatively low landforms and buildings, even if located within a relatively open immediate setting. This is because they are about the same size as mature trees and, especially from lower viewpoints, have the potential to be hidden by other elements in the landscape.

As applicants may own farms or larger land holdings, there may be the potential to screen turbines from viewpoints if required, for example to reduce cumulative visual impacts, by establishing trees adjacent to the viewpoint (for quicker, maximum screening affect).

Cumulative issues

Small turbines have become a common feature in some parts of Dumfries and Galloway, most notably within the landscapes of the Rhins and Machars. Key cumulative issues for small turbines are likely to relate strongly to potential clutter in the landscape. Issues may include:

- *Several individual, or small groups of turbines, could begin to dominate local character. The landscape could appear 'cluttered' if single or groups of turbines were associated with the majority of land holdings;*

- *Clusters, frequent single turbines or several groups of small turbines could begin to dominate local character;*
- *While one turbine breaching a skyline may be a focal point, a number of diverse structures, all spinning at different speeds – or even several groups of the same type of turbine – strung along a prominent or important skyline may become a visual distraction from other landscape features or from perceived visual amenity, especially from key viewpoints;*
- *The variety of potential different types of wind turbines within the landscape could lead to clutter with different styles, sizes of structures and speeds of blade movement dotted across a landscape;*
- *Lack of a clear siting strategy could lead to fragmentation of an existing robust, recognisable, consistent and characteristic pattern of development, especially if turbines do not relate well to existing buildings and point features in the landscape;*
- *There may be the added complication of increased visual clutter created by a wide range of different heights of turbine within a farmed landscape with micro-, small and small/medium sized turbines;*
- *Potential clutter may also be exacerbated if there are other masts, such as telecoms masts, overhead wires and pylons within the same vicinity*

Turbines (20m – 50m in height)
Assessments carried out in all lowland landscape character types have included reviewing the sensitivity of the landscape to turbines between 30-50m. The *Dale with Hills* (7a), *Plateau with Lochs* (17b), *Foothills* (18, Fleet), *Southern Uplands* (19, *Beneraird, Carsphairn, Lowther, North/East Moffat, North/West Langholm, Tarras*), *Coastal Granite Uplands* (20, *Cairnsmore*), *Rugged Granite Uplands* (21) are landscape character types and areas considered to be of high sensitivity to this size of wind turbine. This size of turbine could potentially be accommodated in other landscapes within Dumfries and Galloway although the key constraints identified in the sensitivity assessment would need to be carefully considered.

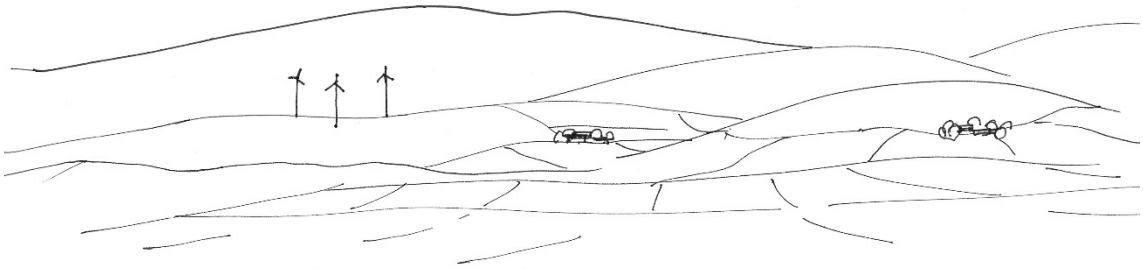
In general within the Dumfries and Galloway landscape, the following issues have been identified as being particularly influential in terms of detailed siting of this typology within character types and units identified as being appropriate for this typology:

- *Turbine height in relation to the scale of the landscape*
- *Landform shape*
- *Settlement and landscape pattern and features*
- *Visibility*

- *Cumulative issues*

Turbine height in relation to the scale of the landscape
Turbines of between 20m and 50m are going to be one of the tallest structures in any landscape. They are going to be taller than most buildings and most trees. They are still, however, similar in height to some pylons.

Turbines of this height can be accommodated most readily by relating the height of the turbines to the scale of the landform, rather than trying to link them to the size of other structures and trees. If well sited, turbines of this size, even in small groups of up to three turbines, may be able to take advantage of the degree of relief created by medium scaled landforms, for example where small hills and ridges rise from 100m – 250m in height above surrounding lower lying valleys and plains.

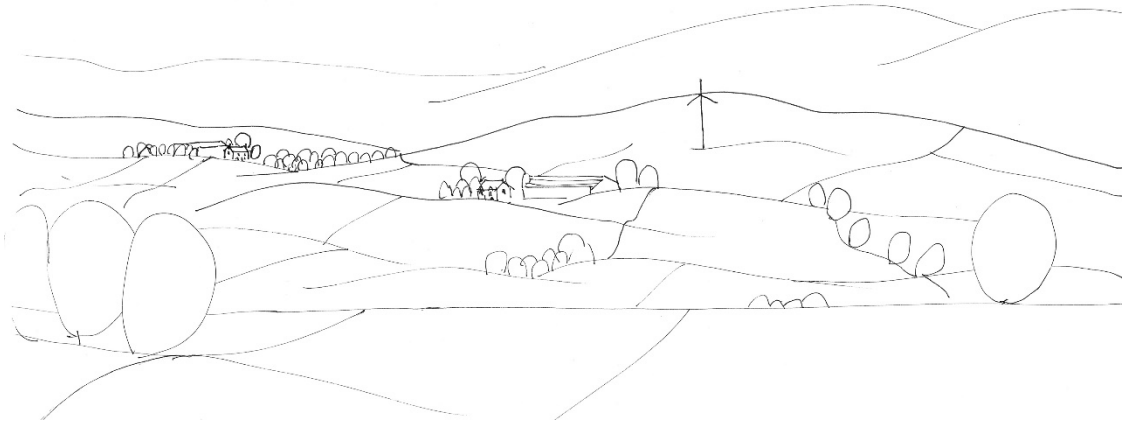


Scale: *Indicative turbines of about 45m (6x house height) located on a long ridgeline, where there are few features in close proximity against which to judge the scale. They are also located at a slight dip in the ridge, and back-dropped in this view by higher ground. Note that even so, they are still large when referenced against fields and nearby buildings – they would be difficult to accommodate any closer to the valley without dominating the scale of the smaller features.*

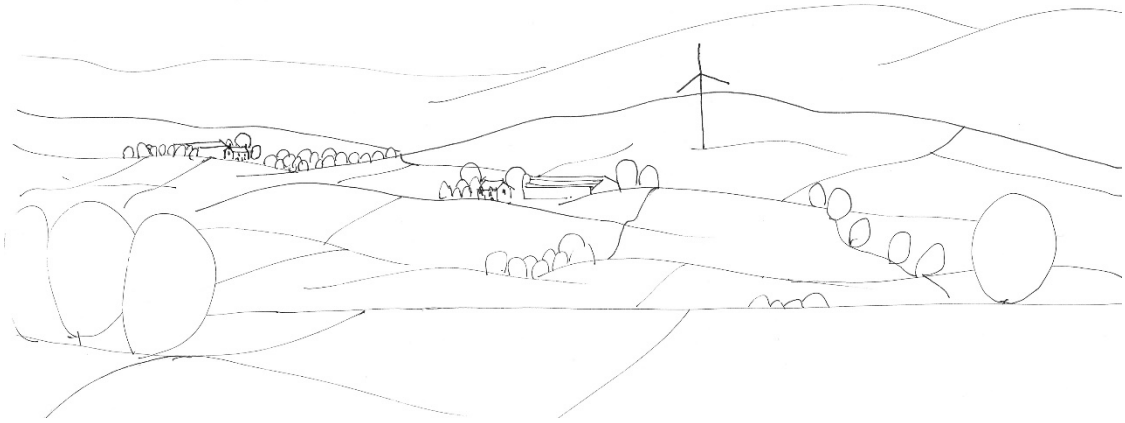
These turbines are likely to be more difficult to accommodate in landscapes of intimate or complex topography, within narrow valleys or along the upper edges or rims of smaller valleys and where small landscape scale is created by small fields, diverse land use and complex or dense settlement distribution.

Landform shape
This size of turbine is likely to be more readily accommodated in medium scaled landscapes where they are more likely to fit with the landscape if they are sited to clearly relate to a specific land form. Turbines of this size could be accommodated on low hills or ridgelines which provide the immediate backdrop to the farmed lowland areas, especially if they, too, are back-dropped by larger hills or more sweeping plateaux.

Distinct changes in gradient associated with rising slopes, well defined dips within undulations or more expansive concave landforms, long ridges and interim hills along the lower edges of the foothills, as well as the edges of more expansive plateaux all provide potential opportunities for micro-siting turbines of this size.



Landform shape and scale: *Indicative 35m high turbine (4.5 x house height) located on the side of a hill, sited where there is a distinct fold in the landform. The turbine has been located on a hillside where there are no other features – like trees or houses – against which to gauge its height.*



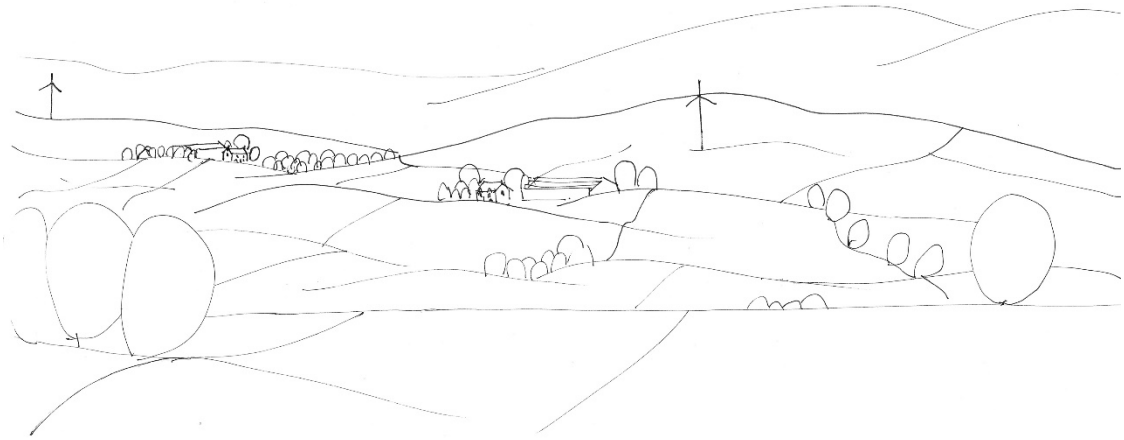
Landform shape and scale: *Indicative 48m high turbine (6 x house height) located on the side of a hill, sited where there is a distinct fold in the landform. The taller the turbine, the more important it is that it is located where it is associated with landform scale, not the size of individual landscape features – this size would be more readily accommodated further away from the farm.*

Settlement and land use pattern and features

These turbines are larger than most buildings found in rural areas. They therefore should be sited where they can more readily be accommodated by landform scale, and avoid overshadowing or dominating smaller elements in the landscape, including small and complex landforms, small fields and intricate patterns of settlement. It is more likely that these small-medium sized turbines will be located on low hills, perhaps at some distance from farms or settlements. Care should be taken not to disrupt the pattern and prominence of small clumps of trees on top of rounded hills, which is a feature in some of the lowland character types.

The alignment of tracks and location of other infrastructure, as well as the turbines themselves, are also more likely to be an issue than with smaller turbine sizes.

Developing a recognisable pattern of development – for example, locating turbines at a similar elevation, and/or on similar topographical features across a landscape type will help create a pattern of development which will appear less cluttered and will also develop a distinctive and consistent landscape characteristic over time.



***Landscape pattern**: These two indicative 35m high turbines are located on similar, low lying and relatively featureless hills, carefully sited to relate to a break in slope or fold in the landscape. They are also loosely associated with the farms. This similarity in size, location and elevation helps to maintain the unity of the landscape pattern.*

Visibility

Turbines which are more than 20m in height are more difficult to screen than small turbines. They are taller than most trees and large farm buildings, and are therefore likely to have wider visibility than those turbines less than 20m in height.

As applicants may own farms or larger land holdings, there may be the potential to screen turbines from viewpoints if required, for example to reduce cumulative visual impacts, by establishing trees adjacent to the viewpoint (for quicker, maximum screening affect).

Cumulative issues

Given the current incentives, turbines of this size may become a frequent and common occurrence, especially in farmed landscapes. Key cumulative issues are likely to relate strongly to potential clutter in the landscape and the visual relationship with other wind farms. Issues are similar to those identified in the analysis of small wind turbines, but because of the larger size of these turbines the issues are likely to occur more quickly and may include:

- *Several individual, or small groups of turbines, could begin to dominate local character;*
- *Diverse designs of turbine, all spinning at different speeds – or even several turbines of the same type – strung along a prominent or important skyline could become a visual distraction from other landscape features or from perceived visual amenity, especially from key viewpoints;*
- *The larger the turbine, the harder it is likely to be to accommodate a number of them in a single view or recognisable tract of landscape without them becoming the dominant feature. It is also harder to accommodate the turbines in a sequence of views experienced, for example, when travelling along a road;*

- *The variety of potential different types of wind turbines within the landscape could lead to clutter with different styles, sizes of structures and speeds of blade movement dotted across a landscape;*
- *Lack of a clear siting strategy could lead to fragmentation of an existing robust and recognisable landscape pattern – where possible, it is important to site turbines on similar landforms, at similar elevations and with a similar relationship to the existing settlement pattern;*
- *Potential clutter may also be easily created if there are other masts, such as telecoms masts, overhead wires and pylons within the same vicinity – this is likely to be a bigger problem with these small turbines than larger ones;*
- *There may be the added complication of increased visual clutter created by a wide range of different heights of turbine within a farmed landscape with micro-, small and small/medium sized turbines;*
- *Other complications may be the visual interrelationship with larger wind farms of large and medium sized turbines, especially in Foothills and Upland Fringe type character areas*

Other issues associated with smaller typologies

There are few obvious access tracks within farmland and more open hill ground, moorland and moss within the lowland landscapes of Dumfries and Galloway. More complex landform, such as the tight-knit small scale drumlins or the gorsey knolls commonly found in coastal areas, will be particularly sensitive to the construction of access tracks for wind turbine development. The construction of new access tracks should be minimised by careful siting of turbines to utilise existing tracks and to avoid more difficult terrain. Care should also be taken in the alignment and design of any access tracks to ensure that sensitive landform and vegetation is not adversely affected and that intrusion on key views is avoided.

Undergrounding of electricity cables should also be undertaken in order to avoid a clutter of disparate built elements in the landscape.