## 4 Summary of results

4.1 This section presents a summary of the results of the landscape sensitivity assessment. The full landscape sensitivity assessments for each of the landscape character area groupings are presented in tabular format in Appendix 3. These full assessments should always be referred to when interpreting the maps and tables in the remainder of this section.

### Results of the landscape sensitivity assessment

- 4.2 **Table 4.1** provides an overview of the overall landscape sensitivity to wind energy and solar PV development across the landscape character area groupings in the Broads. It summarises the overall sensitivity judgements set out in the matrices at **Appendix 3**. It should be noted that judgements in relation to wind turbines are also applicable to infrastructure of comparable for off shore schemes, such as pylons, and this is reflected in the matrices at **Appendix 3**. The mapped results are summarised in **Figures 4.1 to 4.10** (for wind energy development) and **Figures 4.11 to 4.15** (for solar PV development). These maps show the landscape sensitivity of the Broads character area groupings to renewable energy typologies as follows:
  - Figure 4.1: Wind turbines overall landscape sensitivity
  - Figure 4.2: Sensitivity to small turbines (0-20m height)
  - Figure 4.3: Sensitivity to medium turbines (20-50m height)
  - Figure 4.4: Sensitivity to large turbines (50-70m height)
  - Figure 4.5: Sensitivity to very large turbines (70m+ height)
  - Figure 4.6: Sensitivity to single turbines
  - Figure 4.7: Sensitivity to up to 5 turbines
  - Figure 4.8: Sensitivity to 6-10 turbines
  - Figure 4.9: Sensitivity to 11-25 turbines
  - Figure 4.10: Sensitivity to more than 26 turbines
  - Figure 4.11: Solar PV overall landscape sensitivity
  - Figure 4.12: Sensitivity to roof mounted solar PV requiring planning permission
  - Figure 4.13: Sensitivity to roof mounted solar PV of up to 1 hectare area
  - Figure 4.14: Sensitivity to small scale field mounted solar PV of up to 1 hectare area
  - Figure 4.15: Sensitivity to medium scale field mounted solar PV of 1-5 hectares area

### Observations on landscape sensitivity across the LCA groupings

4.3 Generally the landscapes of the Broads are of rural and largely undeveloped, often remote character, whether simple, expansive marshes or complex interplay of river, broads, reed and carr. The built features they contain are relatively small in scale (e.g. church towers, vernacular settlement and wind pumps). As such, the landscape's sensitivity to wind energy development and solar PV tends to be fairly high, both in terms of landscape character and representation of special qualities. Reflecting these attributes, the assessment has found that there are no landscapes in the Broads which score low or moderate-low to the development of wind energy or solar PV schemes.

- 4.4 LCA groupings often contain areas of higher and lower sensitivity within them it is therefore important to note the context of the individual evaluations in **Appendix 3**. Variations may occur to urban fringes for example such as at Thorpe Island or Oulton Broad, or where there is a greater perception of influences affecting the special qualities. The highest sensitivity areas are generally those which display the broadest and most intact range of special qualities and historic/landscape patterns.
- 4.5 With regard to **Figures 4.2** (landscape sensitivity to small turbines of less than 20 m in height) and **4.6** (landscape sensitivity to single turbines), these should be read in conjunction with one another, since sensitivity judgements in relation to single, large scale turbines will be different.

#### A note on scale

4.6 All landscapes in the Broads would be highly sensitive to 'large'/very large scale wind turbines, as few of the Broads landscapes are truly large scale in the context of wider UK landscapes. In the case of the larger marshland landscapes, the undeveloped skyline character is intrinsic to their character and to representation of special qualities and as such they are often highly sensitive in these terms.

Table 4.1: Summary of landscape sensitivity to wind energy and solar PV across the LCA groupings

Landscape character area grouping	Landscape sensitiv	ity to wind energ	Landscape sensitivity development	y for solar PV		
LCAs 1 and 2	Overall sensitivity:	н			Overall sensitivity: M	I-H
LCAs 1 and 2  Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at Appendix 3, which refer to relevant topographic, physical and visual features in these areas.	Overall the two areas had evelopment. Particular tranquillity, the strong stridges and steeper valle Norfolk). In addition, the commons, the 17 <sup>th</sup> centipattern increase sensitive when combined, demon	ly this refers to the sense of enclosure proy sides in the adjace historic landscape fury grazing marsh er	pecial qualities such ovided by undulating nt character areas (A features reflected in the history are are evelopment. As a re	as the sense of landform, wooded 5 and B4 in South he area's toric settlement sult, the areas	Overall the landscape sendevelopment is moderated to the representation of spareas including the sense diversity of nature. These sensitive to solar PV development of the diversity of habitats at landscape in an otherwise resulting in a perceptual of character. Also sensitive to the historic landscape and is vulnerable to change as footprint. It is however no screening provided by landindicates a lower sensitivity landscape has an overall reto solar PV development.	chigh. This is primarily due becial qualities within the of tranquillity and the characteristics are highly opment due to the footprint to impact upon and to create a developed remote and tranquil area, thange to landscape o solar PV development is settlement pattern which a result of development ted that the structural dform and tree cover by and therefore the
	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
	Small (0-20m) <b>M-H</b>	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission M-H
	Medium (20-50m) H	Medium (20- 50m) <b>H</b>	<5 turbines H	<5 turbines <b>H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>M-H</b>
	Large (50-70m)	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare <b>M-H</b>	Field mounted: Small - < 1 hectare <b>M-H</b>
	Very large (70m+) H  Very large (70m+) H  Very large (70m+) H  Very large (70m+) H  >26 turbines H  >26 turbines H				Field mounted: Medium - 1 to 5 hectares <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>H</b>

Landscape character area grouping	Landscape sensitiv	ity to wind energ	Landscape sensitivity development	y for solar PV		
LCA 3	Overall sensitivity:	M-H			Overall sensitivity: M	l
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at Appendix 3, which refer to relevant topographic, physical and visual features in these areas.	scenic and special qualivernacular settlements slightly reduced by introvalley floor. The erosio	cles Marshes to wind turbine development is moderate-high. Whilst a number of nic and special qualities sensitive to turbines are present in this area, such as nacular settlements and areas of open skies, overall landscape sensitivity is notly reduced by intrusions such as the A146 corridor and line of pylons in the eay floor. The erosion of aspects of historic landscape character, such as and areas of open skies, overall landscape character, such as and areas of open skies, overall landscape this sensitivity gement.  Barsham, Gillingham and PV development is moderate scenic and special qualities present in this area, such as and areas of open skies, overall landscape character, such as land areas of open skies, overall landscape that the A146 corridor and line of floor. The erosion of aspect character, such as boundar sensitivity judgement, as discharacter, to a degree. However, the A146 corridor and landscape was sensitivity to solar PV, give				
	Turbine heights – land in the Broads	Turbine heights – land outside the Broads	Turbine clusters – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
	Small (0-20m) <b>M-H</b>	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission M-H	Roof mounted requiring planning permission M-H
	Medium (20-50m) H	Medium (20- 50m) <b>H</b>	<5 turbines <b>H</b>	<5 turbines <b>H</b>	Roof mounted - <1 hectare M-H	Roof mounted - <1 hectare M-H
	Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines	6-10 turbines H	Field mounted: Small - < 1 hectare <b>M</b>	Field mounted: Small - < 1 hectare M
	Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines H >26 turbines	11-25 turbines <b>H</b> >26 turbines	Field mounted: Medium - 1 to 5 hectares <b>M-H</b>	Field mounted: Medium - 1 to 5 hectares M-H

Landscape character area grouping	Landscape sensitiv	ity to wind energ	Landscape sensitivity development	y for solar PV			
LCAs 4, 5 and 6  Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at	turbine development in Broads special qualities to the varied landscape associated with 16 <sup>th</sup> and provision for boating, the of Edwardian settlement of localised intrusion at	nsidered to have a mageneral. This is due within these character pattern and scale, the sense of tranquillity to surrounding Oulton Lowestoft, the sand a 20th century rectiline.	Overall sensitivity: H  Areas 4, 5 and 6 have a high overall sensitivity to solar PV development in general. This is primaril due to the representation of some of the se character areas. Specifically reference is made d scale, the historic landscape character ary marshes, the winding river corridor and tranquillity across the marshes and the presence ng Oulton Broad. Sensitivity is lowered as a result the sand and gravel pits in South Norfolk District, ry rectilinear field patterns which results in an high.				
Appendix 3, which refer to relevant topographic, physical and visual features in	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads	
these areas.	Small (0-20m) M-H	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission <b>M</b>	
	Medium (20-50m) <b>H</b>	Medium (20- 50m) <b>M-H</b>	<5 turbines <b>H</b>	<5 turbines M-H	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>M</b>	
	Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare M-H	
	Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines H >26 turbines H	11-25 turbines <b>H</b> >26 turbines <b>H</b>	Field mounted: Medium - 1 to 5 hectares H	Field mounted: Medium - 1 to 5 hectares H	

Landscape character area grouping	Landscape sensitiv	ity to wind energ	Landscape sensitivity development	y for solar PV			
LCAs 7 and 16	Overall sensitivity:	м-н			Overall sensitivity: H		
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at <b>Appendix 3</b> , which refer to relevant topographic, physical and visual features in these areas.	The areas when combin development due to the of tranquillity and most character areas. The rewith adjacent areas also there is a noticeable deareas as a result of the highly visible on skyline where there is strong expensitivity to wind turbinevertheless reduce services.	e special qualities of the symmetric character of the prince of increase sensitivity gree of intrusion and pylon lines and the Costactors the area. The vidence of field bound ne development and	he Broads (wide, openes) which are represented areas and the degree to wind turbine development of the cantley Factory complete large scale rectilined ary loss also indicate	en landscape, sense ented within these ented within these enter of intervisibility lopment. However, exists within these lex which are a ear field pattern, es a lower	big skies which characteristareas. Other important chandscapes which contribution relation to solar PV are of the marshland landscapassociated intervisibility wincluding with those in adjudynd the Executive Area	igh. This is due to the qualities sensitive to solar ally the sense of space and se many parts of the aracteristics of these te to this sensitivity rating the open visual character ses in these areas and ith adjacent landscapes acent local authorities a. Also important in judgements of the historic is small scale curvilinear oric assets such as wind arch tower at St Peter's	
	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads	
	Small (0-20m) M-H	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission <b>M- H</b>	
	Medium (20-50m) H	Medium (20- 50m) <b>M-H</b>	<5 turbines H	<5 turbines M-H	Roof mounted - <1 hectare H	Roof mounted - <1 hectare <b>H</b>	
	Large (50-70m)	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare M-H	
	Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines H	11-25 turbines H	Field mounted: Medium - 1 to 5 hectares H	Field mounted: Medium	

# Landscape character area grouping

#### Landscape sensitivity to wind energy development

# Landscape sensitivity for solar PV development

#### LCAs 8 and 9

Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at **Appendix 3**, which refer to relevant topographic, physical and visual features in these areas.

### Overall sensitivity: H

This character area grouping has a high sensitivity to wind turbine development due to the special qualities of the Broads represented within these areas (wide, open landscape, sense of tranquillity and mostly undeveloped skylines) and all of these would be sensitive to wind turbine development. The remote character, the sense of rurality and the undeveloped nature of these areas create a landscape which is sensitive to wind turbine development. It is however recognised that there is a degree of intrusion from adjacent areas (particularly from G4 within Great Yarmouth) as a result of pylons, boatyards and caravan parks which reduce this sense of tranquillity, although this is localised. The degree of visual containment to adjacent character also reduces sensitivity, although the elevated ridges are highly sensitive to wind turbine development due to their prominence. Due to the combination of sensitive characteristics, these character areas are of a high sensitivity to wind turbine development overall.

#### Overall sensitivity: M-H

These character areas combine to create a landscape of medium-high sensitivity to solar PV development. This is due to the representation of special qualities sensitive to solar PV, specifically the sense of tranquillity, wide open landscape, sense of space and big skies which characterise many parts of the areas. Other important characteristics of these landscapes which contribute to this sensitivity rating in relation to solar PV is the open character of the marshland landscapes and the associated intervisibility with prominent ridges in adjacent local authorities beyond the Executive Area. Also important in relation to this judgement is the sensitivity of the historic landscape pattern, such as small scale curvilinear dykes and 17<sup>th</sup> century enclosure marshes, and prominent historic assets such as drainage mills, Augustinian Priory of St Olaves and Burgh Castle.

Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
Small (0-20m) H	Small (0-20m)	Single turbine H	Single turbine H	Roof mounted requiring planning permission M-H	Roof mounted requiring planning permission M-H
Medium (20-50m) <b>H</b>	Medium (20- 50m) <b>H</b>	<5 turbines <b>H</b>	<5 turbines <b>H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>H</b>
Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare H	Field mounted: Small - < 1 hectare <b>M-H</b>
Vary large (70m ) II	Very large	11-25 turbines <b>H</b>	11-25 turbines <b>H</b>	Field mounted: Medium	Field mounted: Medium
Very large (70m+) H	(70m+) <b>H</b>	>26 turbines <b>H</b>	>26 turbines <b>H</b>	- 1 to 5 hectares H	- 1 to 5 hectares <b>H</b>

Landscape character area grouping	Landscape sensitiv	ity to wind energ	Landscape sensitivity development	y for solar PV		
LCAs 10 and 11	Overall sensitivity:	М			Overall sensitivity: N	1
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at <b>Appendix 3</b> , which refer to relevant topographic, physical and visual features in these areas.	by large scale settlement Bypass), the degree of and the presence of large Against this are balance created by parkland as	Indscape pattern and historic character (severances created not edges and by transport corridors such as the Norwich visual containment created by valley sides and woodlands ge scale settlement edge influences to area 10 in particular. The description of the sensitive features such as relict historic landscape patterns at Whitlingham and Trowse Newton, and the sense of ingham Country Park and the Great Broad.			coherence of which would solar PV development foot	lopment is judged to be of disjointed landscape of cter (severances created edges and by transport wich Bypass), the degree ated by valley sides and ace of large scale is to area 10 in particular. Sensitive features such as atterns created by m and Trowse Newton, the potentially be affected by
	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
	Small (0-20m) <b>M</b>	Small (0-20m) <b>M</b>	Single turbine M	Single turbine M	Roof mounted requiring planning permission <b>M</b>	Roof mounted requiring planning permission <b>M- H</b>
	Medium (20-50m) <b>M</b>	Medium (20- 50m) <b>M-H</b>	<5 turbines <b>H</b>	<5 turbines <b>H</b>	Roof mounted - <1 hectare M-H	Roof mounted - <1 hectare M-H
	Large (50-70m) <b>M-H</b>	Large (50-70m) <b>H</b>	6-10 turbines	6-10 turbines	Field mounted: Small - < 1 hectare <b>M</b>	Field mounted: Small - < 1 hectare <b>M</b>
	Very large (70m+) H	Very large (70m+) <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>M-H</b>	Field mounted: Medium - 1 to 5 hectares M-H		

Landscape character area grouping	Landscape sensitiv	ity to wind energ	Landscape sensitivity development	/ for solar PV		
LCAs 12, 13, 14 and, 15  Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at	Overall sensitivity:  Overall landscape sensit be high. This is due to the assense of tranquillity are related aspects such as this sensitivity judgement the coherence of which all landscape which provide potentially increase the the sensitivity increase the the sensitivity increase the the sensitivity increase the sensitivity increase the sensitivity.	ivity of these areas the sensitive special of the wide open lar areas of undeveloped are the varied land would be vulnerable to greater intervisibility	qualities represented ndscape of big skies, d skylines. Other fac dscape and historic la to turbines, as well a y with adjacent areas	in the areas such together with tors important to indscape patterns, s the areas of open	Overall sensitivity: H Overall landscape sensitivity PV development is judged the sensitive special qualit areas such as sense of tra a wide open landscape of landscape of landscape of landscape of landscape of landscape pat which would be vulnerable footprints, as well as the a which provide greater inte areas and therefore potent influence of solar PV.	ty of these areas to solar to be high. This is due to ies represented in the nquillity and areas where big skies persists, cts such as areas of her factors important to are the varied landscape terns, the coherence of it to solar PV development areas of open landscape rvisibility with adjacent
Appendix 3, which refer to relevant topographic, physical and visual features in	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
these areas.	Small (0-20m) <b>M-H</b>	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission M-H
	Medium (20-50m) H	Medium (20- 50m) <b>H</b>	<5 turbines <b>H</b>	<5 turbines <b>H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>H</b>
	Large (50-70m) H	Large (50-70m) <b>H</b>	6-10 turbines	6-10 turbines	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare M-H
	Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines <b>H</b> >26 turbines <b>H</b>	11-25 turbines <b>H</b> >26 turbines <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>H</b>

Landscape character area grouping	Landscape sensi	tivity to wind ene		Landscape sensitivity development	y for solar PV			
LCA 17	Overall sensitivi	ty: H			Overall sensitivity: H			
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the	be high. This is due sense of tranquillity, Hardley Flood, toget factors important to	to the sensitive speci the habitat mosaic ar her with the largely un this sensitivity judger	overall landscape sensitivity of this area to development is judged to to the sensitive special qualities represented in the area such as the habitat mosaic and the large expanse of open water at the work of the varied landscape and historic he coherence of which would be vulnerable to turbines.  Overall landscape sensitivity of this area to development is judged to be high. This is development is judged to be high. The habit the sensitive specia					
relevant matrices at <b>Appendix 3</b> , which refer to relevant topographic, physical	Turbine heights  – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads		
and visual features in these areas.	Small (0-20m) M-H	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission  H	Roof mounted requiring planning permission M-H		
	Medium (20-50m) H	Medium (20-50m) H	<5 turbines H	<5 turbines	Roof mounted - <1 hectare H	Roof mounted - <1 hectare H		
	Large (50-70m) <b>H</b>	Large (50-70m)	6-10 turbines H H	6-10 turbines H	Field mounted: Small - < 1 hectare H	Field mounted: Small - < 1 hectare M-H		
	Very large (70m+)	Very large (70m+)	11-25 turbines H >26 turbines H	11-25 turbines H >26 turbines H	Field mounted: Medium - 1 to 5 hectares H	Field mounted: Medium - 1 to 5 hectares H		

Landscape character area grouping	Landscape sensitiv	ity to wind energ		Landscape sensitivity development	y for solar PV	
LCAs 18, 19, 20 and 21  Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at Appendix 3, which	Overall sensitivity H Overall landscape sensitivity due to the representation openness/wide open landscapes would be vulnerable to be judgement are the open landscapes in the Broad again be vulnerable to the sensitivity.	on of sensitive special idscapes, simple skyl wind turbines. Other i visual character and s, and the largely tra	qualities such as the ines and big skies, th factors important to I level of intervisibility	Overall sensitivity H  Overall landscape sensitivity of this area grouping to solar PV is high. This is due to the representation of sensitive special qualities such as the sense of openness/wide open landscapes, simple skylines and big skies, the sense of which would be vulnerable to solar PV development footprints.  Other factors important to this sensitivity judgement are the open visual character and level of intervisibility with adjacent landscapes in the Broads, and the largely tranquil perceptual character, the perception of which would again be vulnerable to solar PV.		
refer to relevant topographic, physical and visual features in these areas.	Turbine heights – land in the Broads	Turbine heights – land outside the Broads	Turbine clusters – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
	Small (0-20m) M-H	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission M-H
	Medium (20-50m) H	Medium (20- 50m) H	<5 turbines <b>H</b>	<5 turbines <b>H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>H</b>
	Large (50-70m) <b>H</b>	Large (50-70m) H	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare <b>H</b>
	Very large (70m+) H		11-25 turbines H	11-25 turbines H		
			>26 turbines <b>H</b>	>26 turbines <b>H</b>		
		Very large (70m+) H			Field mounted: Medium - 1 to 5 hectares H	Field mounted: Medium - 1 to 5 hectares H

Landscape character area grouping	Landscape sensitiv	ity to wind energ		Landscape sensitivity development	y for solar PV		
LCAs 22 and 23  Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at Appendix 3, which refer to relevant topographic, physical	Overall sensitivity: Character areas 22 and general. This is due to would be sensitive to de Also, the landscape pattermoteness and the pre-riverside vernacular are	23 have a high sensi the representation of evelopment such as the tern and scale, histor esence of human scale	special qualities in the sense of tranquillic ic character and integ indicators associate	ne areas which ty and wildness. grity, the sense of	Overall sensitivity:H  This grouping of character areas has a high overall landscape sensitivity to solar PV development. This is due to the representation of special qualities (i.e. sense of tranquillity and diversity of habitats) in the areas which would be sensitive to such development. Also the landscape pattern and scale, historic character and integrity, the sense of remoteness, as well as areas of vernacular settlements. Sensitivity is reduced due to intrusion associated with Hoveton and Wroxham and the ability of this enclosed landscape to screen and filter views. Thus the overall sensitivity judgement is high		
and visual features in these areas.	Turbine heights – land in the Broads	Turbine heights – land outside the Broads	Turbine clusters – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads	
	Small (0-20m) M-H	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission <b>M</b>	
	Medium (20-50m) H	Medium (20- 50m) <b>M-H</b>	<5 turbines <b>H</b>	<5 turbines M-H	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare M-H	
	Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines	6-10 turbines H	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare H	
	Very large (70m+)	Very large (70m+)	11-25 turbines >26 turbines	11-25 turbines >26 turbines	Field mounted: Medium - 1 to 5 hectares	Field mounted: Medium - 1 to 5 hectares H	

Landscape
character area
grouping

#### Landscape sensitivity to wind energy development

# Landscape sensitivity for solar PV development

#### LCAs 24, 29 and 31

Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at **Appendix 3**, which refer to relevant topographic, physical and visual features in these areas.

#### Overall sensitivity: H

Overall, this area cluster has a high landscape sensitivity to wind turbine development. This is due to the representation of sensitive special qualities such as the sense of tranquillity, the wide open landscape and big skies and the local character imparted by features such as drainage mills. Other elements which contribute to this sensitivity rating are directly linked to the special qualities such as the mostly undeveloped skylines which contribute to the simplicity of the landscape and 'big skies' character. Other factors influencing the judgement include the level of intervisibility which all three areas have with adjacent districts' landscapes beyond the Executive Area, and the cultural pattern. For example in area 29, features such as St Benet's Abbey ruins are significant, as are the wind pumps which locally punctuate the skylines of all three areas. Other aspects of cultural pattern relate to landscape pattern more generally and would also have a high sensitivity due to the potential effect of turbines on their coherence, for example small rectilinear dyke patterns and early enclosures or small wooded broads such as Upton Broad within area 24 or Womack Water and Horse Fen in area 29.

#### Overall sensitivity: H

Overall landscape sensitivity of this area cluster to solar PV development is high. This is due to the representation of special qualities sensitive to solar PV in these areas, specifically the sense of tranguillity, the wide open landscape, sense of space and big skies which characterise many parts of all three areas. Also the diversity of habitat mosaics in areas 24 and 31, which would be vulnerable to solar PV development footprints. Other important characteristics of these landscapes which contribute to this sensitivity rating in relation to solar PV are the open visual character of the marshland landscapes in all three areas. Also important in relation to this sensitivity judgement are the historic landscape pattern, such as small scale rectilinear dykes, medieval broads and Womack Water (area 31) and wooded broads at Upton Broad (area 24), and prominent historic assets such as St Benet's Abbey and causeway within area 29.

Turbine heights – land in the Broads	Turbine heights – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
Small (0-20m) <b>M-H</b>	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission M-H
Medium (20-50m) <b>H</b>	Medium (20- 50m) <b>M-H</b>	<5 turbines <b>H</b>	<5 turbines <b>M-H</b>	Roof mounted - <1 hectare H	Roof mounted - <1 hectare <b>H</b>
Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare H	Field mounted: Small - < 1 hectare <b>M-H</b>
Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines H	11-25 turbines H	Field mounted: Medium - 1 to 5 hectares H	Field mounted: Medium - 1 to 5 hectares H

Landscape character area grouping	Landscape sensitivity to wind energy development				Landscape sensitivity development	y for solar PV
			>26 turbines H	>26 turbines H		
LCA 25	Overall sensitivity:	н			Overall sensitivity: H	
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at Appendix 3, which refer to relevant topographic, physical and visual features in these areas.	Overall landscape sensitivity to wind turbine development and to related tall infrastructure such as pylons is judged to be high. This is in view of the representation of special qualities sensitive to wind turbine development, such as the sense of tranquillity and the wide open landscape of big skies. The predominantly open and undeveloped skyline character and the level of intervisibility with other remote landscapes such as the Halvergate Marshes are also important to this sensitivity judgement, as is the presence of occasional historic skyline features such as wind pumps and Caister Castle.				Overall landscape sensitivity to solar PV development is judged to be high. This is in view of the representation of special qualities sensitive to solar PV development, such as the sense of tranquillity, sense of space and the wide open landscape of big skies. The predominantly open and undeveloped skyline character and the level of intervisibility with other remote landscapes such as the Halvergate Marshes are also important to this sensitivity judgement.	
	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
	Small (0-20m) <b>M-H</b>	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission M-H
	Medium (20-50m) H	Medium (20- 50m) <b>M-H</b>	<5 turbines	<5 turbines M-H	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>H</b>
	Large (50-70m) H	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare <b>M-H</b>
	Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines <b>H</b> >26 turbines <b>H</b>	11-25 turbines <b>H</b> >26 turbines <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>H</b>	Field mounted: Medium - 1 to 5 hectares H

Landscape character area grouping	Landscape sensitivity to wind energy development				Landscape sensitivity development	y for solar PV
LCA 26	Overall sensitivity: H				Overall sensitivity: H	
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at <b>Appendix 3</b> , which refer to relevant topographic, physical and visual features in these areas.	Overall landscape sensitivity of this area to wind turbines and associated tall infrastructure such as pylons is high. This is due to the presence of sensitive special qualities, principally represented by the area's sense of tranquillity and undeveloped character, which would be sensitive to the introduction of turbines. Other factors which are essential to this sensitivity judgement are the undeveloped skyline character and the presence of fine grain historic and landscape elements which would be vulnerable to the introduction of large scale elements such as turbines.				Overall landscape sensitivity of this area to solar PV is high. This is in view of the sense of tranquillity and wildness (one of the special qualities of the Broads) of the area which would be sensitive to the introduction of such development. Other aspects important to this sensitivity judgement are the fine grain historic pattern and intricate landscape mosaic, as the coherence of both of these would potentially be affected by solar PV development	
	Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
	Small (0-20m) H	Small (0-20m) M-H	Single turbine H	Single turbine M-H	Roof mounted requiring planning permission H	Roof mounted requiring planning permission <b>M- H</b>
	Medium (20-50m) <b>H</b>	Medium (20- 50m) <b>H</b>	<5 turbines <b>H</b>	<5 turbines <b>H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>M-H</b>
	Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines H	Field mounted: Small - < 1 hectare H	Field mounted: Small - < 1 hectare <b>M-H</b>
	Very large (70m+) <b>H</b>	 Very large	11-25 turbines H >26 turbines H	11-25 turbines H >26 turbines H	 Field mounted: Medium	Field mounted: Medium
		(70m+) <b>H</b>			- 1 to 5 hectares H	- 1 to 5 hectares M-H

Landscape character area grouping	Landscape sensitivity to wind energy development				Landscape sensitivity for solar PV development		
LCAs 27 and 28	Overall sensitivity:	Overall sensitivity: H				Overall sensitivity: H	
Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at <b>Appendix 3</b> , which refer to relevant topographic, physical and visual features in these areas.	Areas 27 and 28 have a high overall landscape sensitivity to wind turbine development in general. This is due to the representation of special qualities in the areas which would be sensitive to such development. Also the landscape pattern and scale, historic character and integrity, the sense of remoteness and the presence of human scale indicators associated with traditional wind pumps and vernacular settlement within area 28 in particular.				Areas 27 and 28 have a high overall landscape sensitivity to solar PV development in general. This is due to the representation of special qualities in the areas which would be sensitive to such development. Also the landscape pattern and scale, historic character and integrity, the sense of remoteness, as well as areas of vernacular settlement in area 28 which would be sensitive to such modern development.		
	Turbine heights – land in the Broads	Turbine heights – land outside the Broads	Turbine clusters – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads	
	Small (0-20m) <b>M-H</b>	Small (0-20m)	Single turbine M-H	Single turbine	Roof mounted requiring planning permission <b>H</b>	Roof mounted requiring planning permission <b>M</b>	
	Medium (20-50m) <b>H</b>	Medium (20- 50m) <b>M-H</b>	<5 turbines H	<5 turbines <b>M-H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>M-H</b>	
	Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines	6-10 turbines H	Field mounted: Small - < 1 hectare <b>H</b>	Field mounted: Small - < 1 hectare <b>H</b>	
	Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines H >26 turbines H	11-25 turbines H > 26 turbines H	Field mounted: Medium - 1 to 5 hectares H	Field mounted: Medium - 1 to 5 hectares H	

Landscape
character area
grouping

#### Landscape sensitivity to wind energy development

# Landscape sensitivity for solar PV development

#### LCA 30

Note that for the sensitivity ratings for landscape character areas outside the Broads, the parameters to which their sensitivity ratings apply, are described in the relevant matrices at **Appendix 3**, which refer to relevant topographic, physical and visual features in these areas.

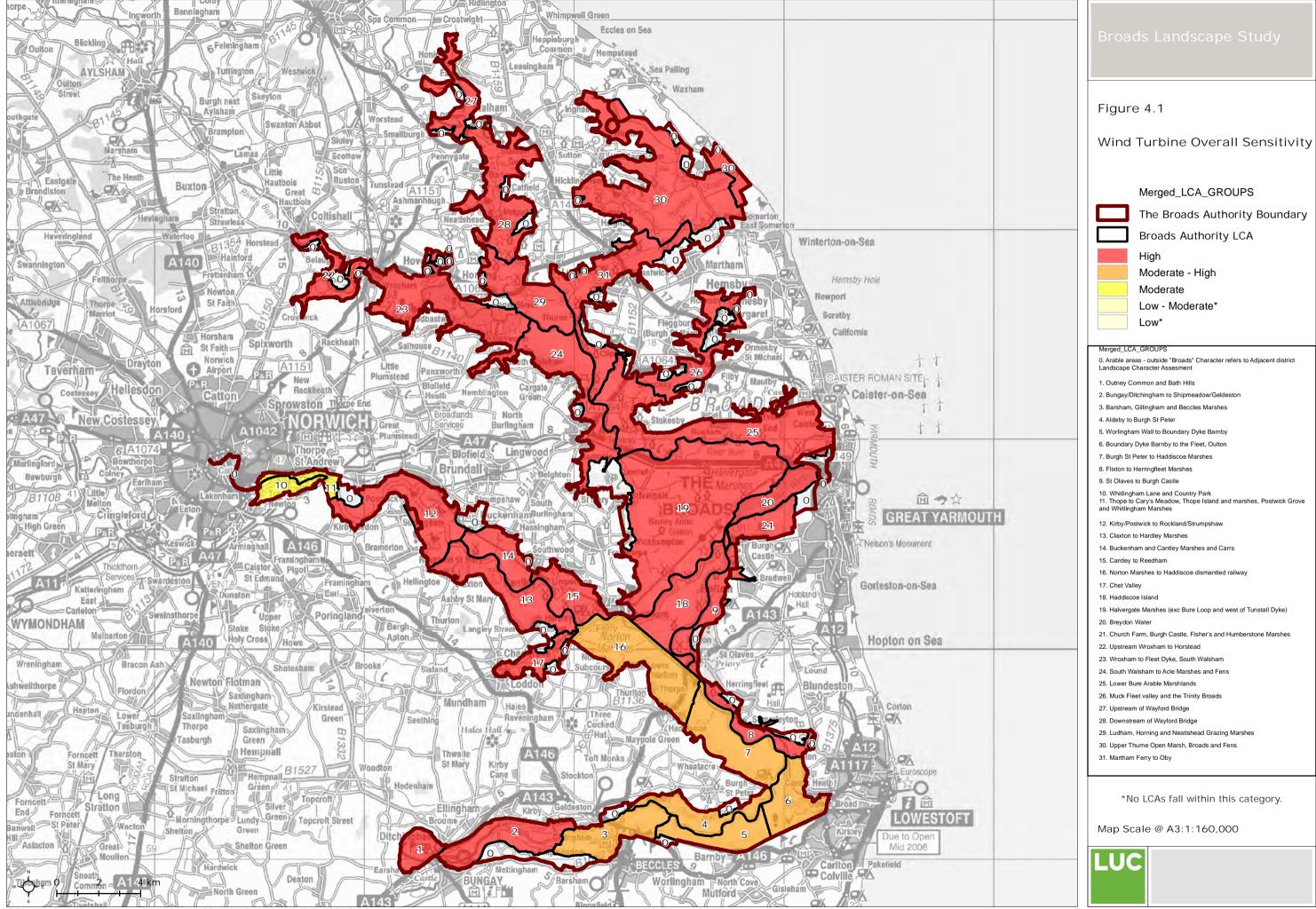
#### Overall sensitivity: H

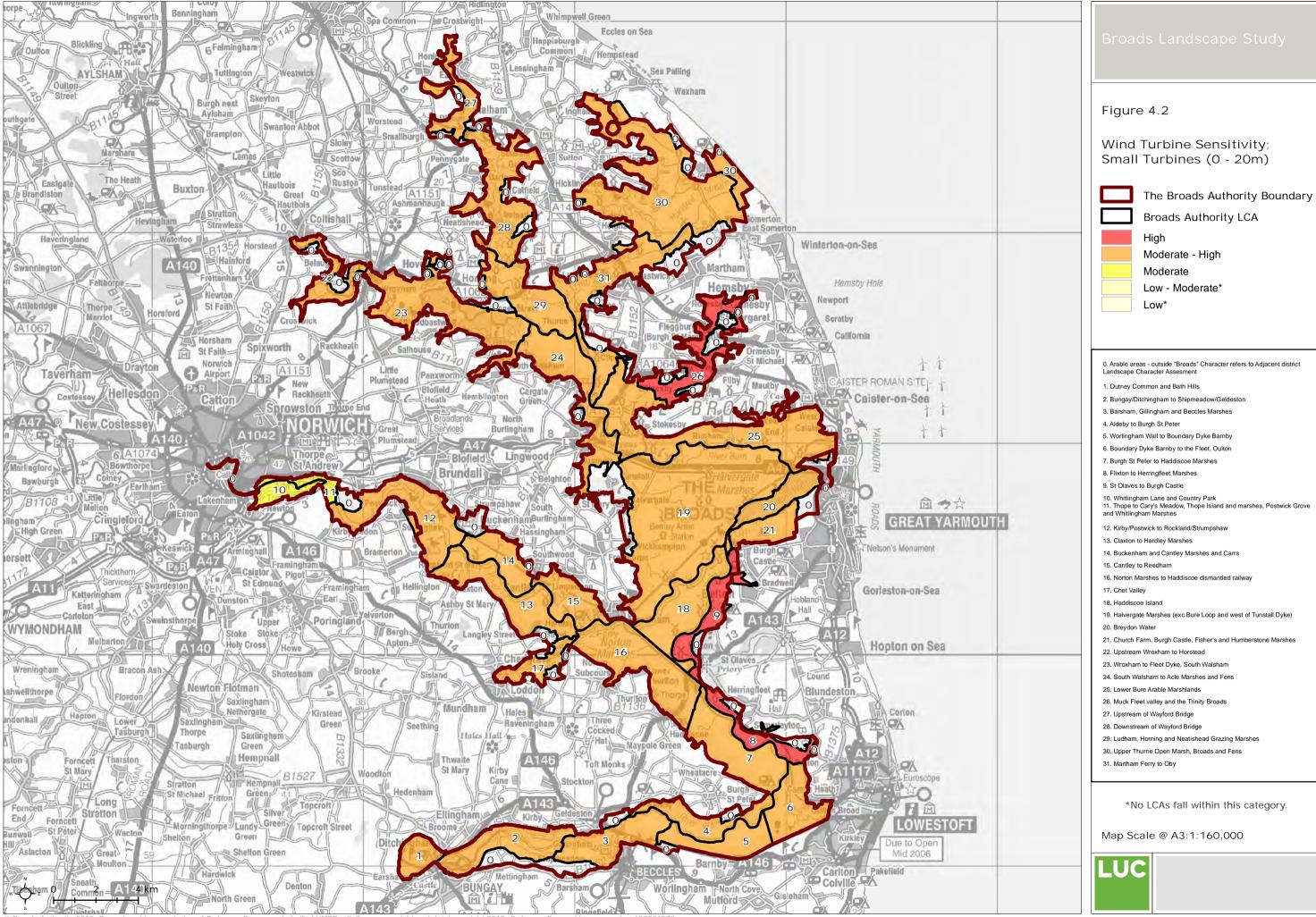
This character area has a high overall landscape sensitivity to wind turbines in general, including off shore development and associated on shore infrastructure such as pylons. This is due to the diversity of sensitive special qualities sensitive to wind energy development in the area, notably the sense of tranquillity and wildness created by grazing marsh, fen and coastal landscapes, and the wide, open character of the landscape. Other factors which are important in contributing to this sensitivity judgement are elements of historic landscape character such as freshwater fens and windmills, the coherence of which would potentially be vulnerable to introduction of wind turbines. Also the visual character and the extent of visibility across the area, and its intervisibility with adjacent landscape character areas within Great Yarmouth Borough and North Norfolk District

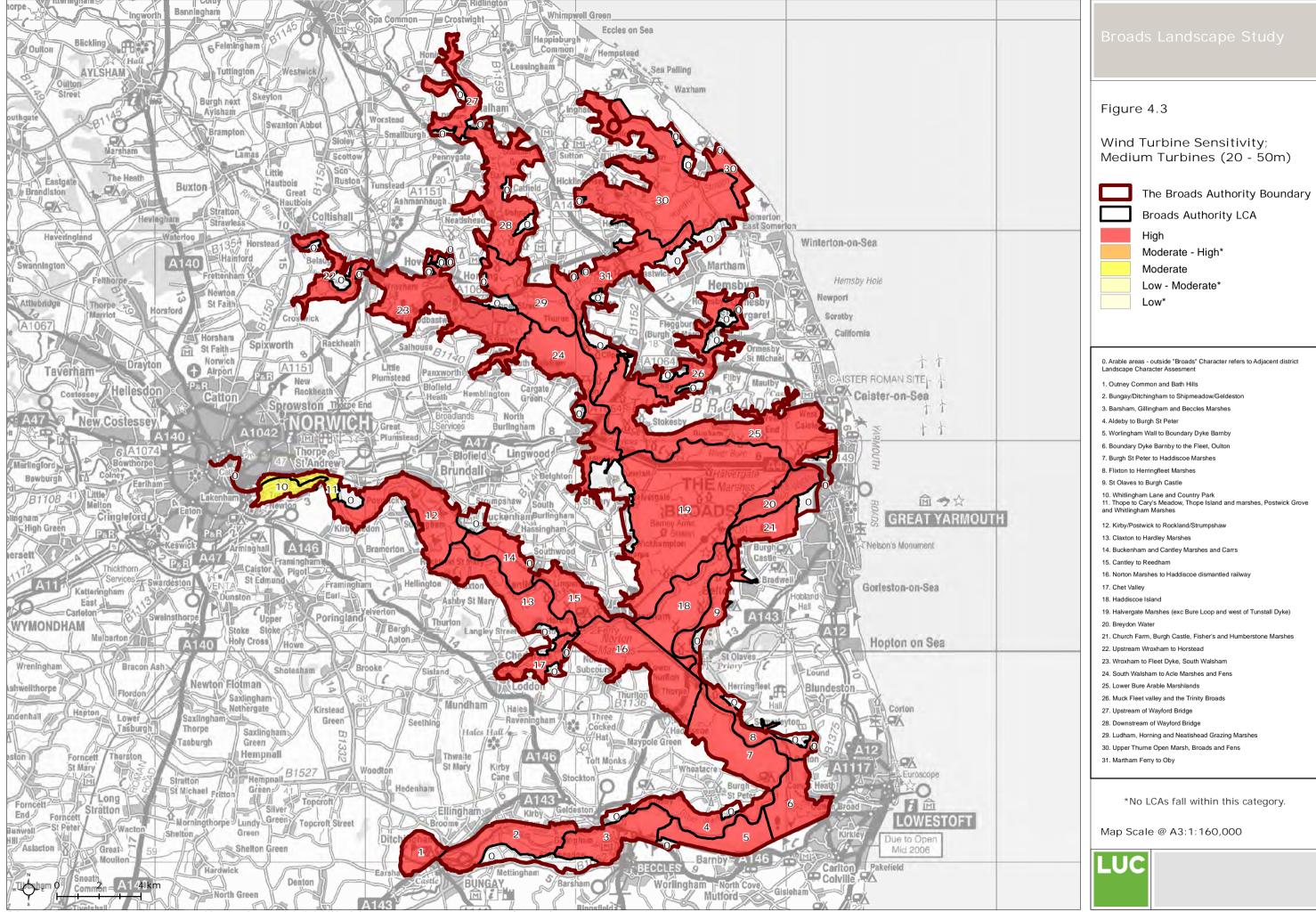
#### Overall sensitivity: H

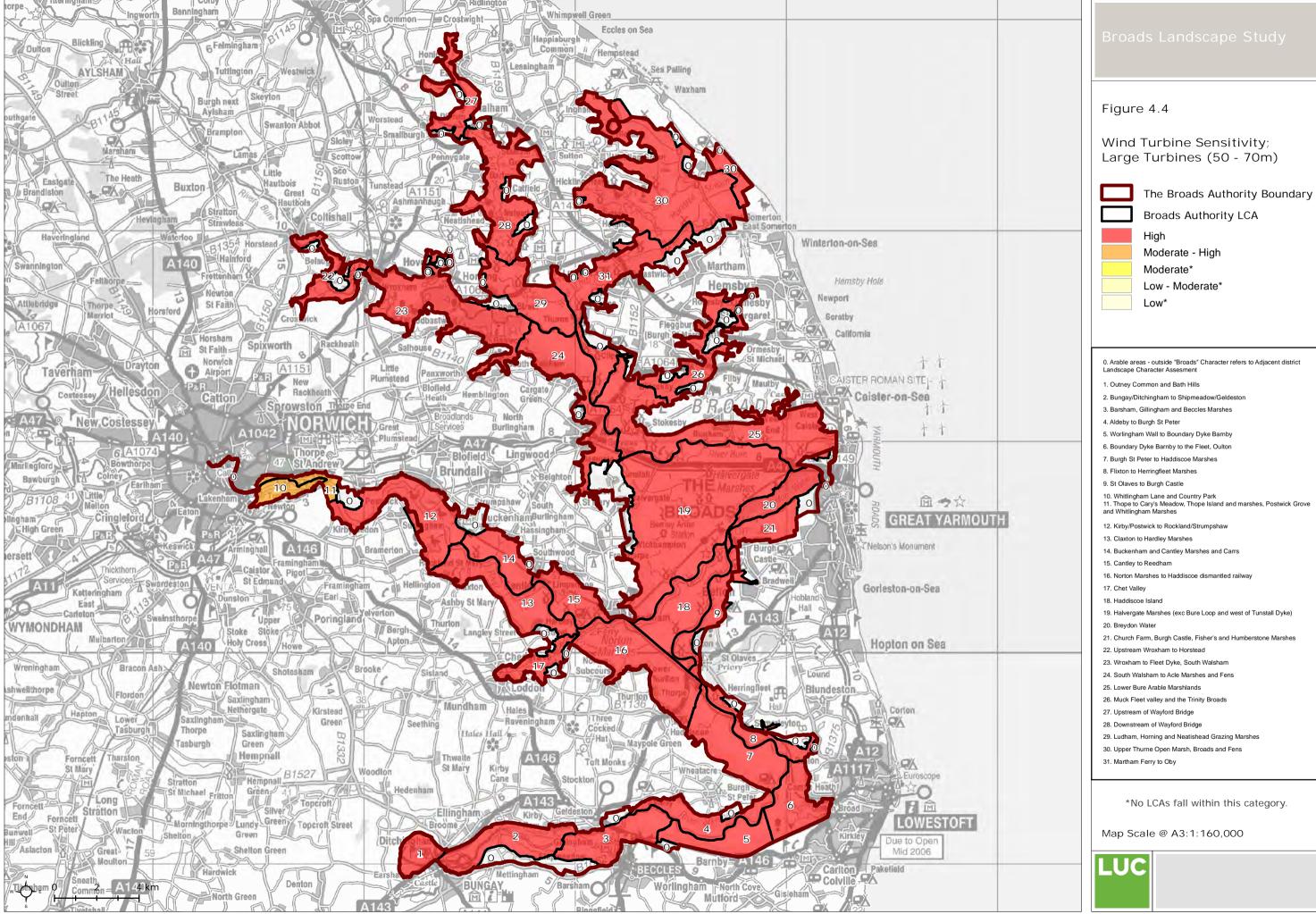
This character area has a high overall landscape sensitivity to solar PV development in general. This is due to the diversity of special qualities sensitive to solar PV in the area, notably the sense of tranquillity and wildness created by grazing marsh, fen and coastal landscapes, and the wide open character of the landscape and associated sense of space. Other factors which are important in contributing to this sensitivity judgement are elements of historic landscape character such as freshwater fens and windmills, the coherence of which would potentially be vulnerable to introduction of solar PV development footprints. These could also potentially affect elements of landscape pattern in general, such as the intricacy of the dyke pattern. Also the visual character and the extent of visibility across the area and intervisibility with adjacent landscape character areas within Great Yarmouth Borough and North Norfolk District

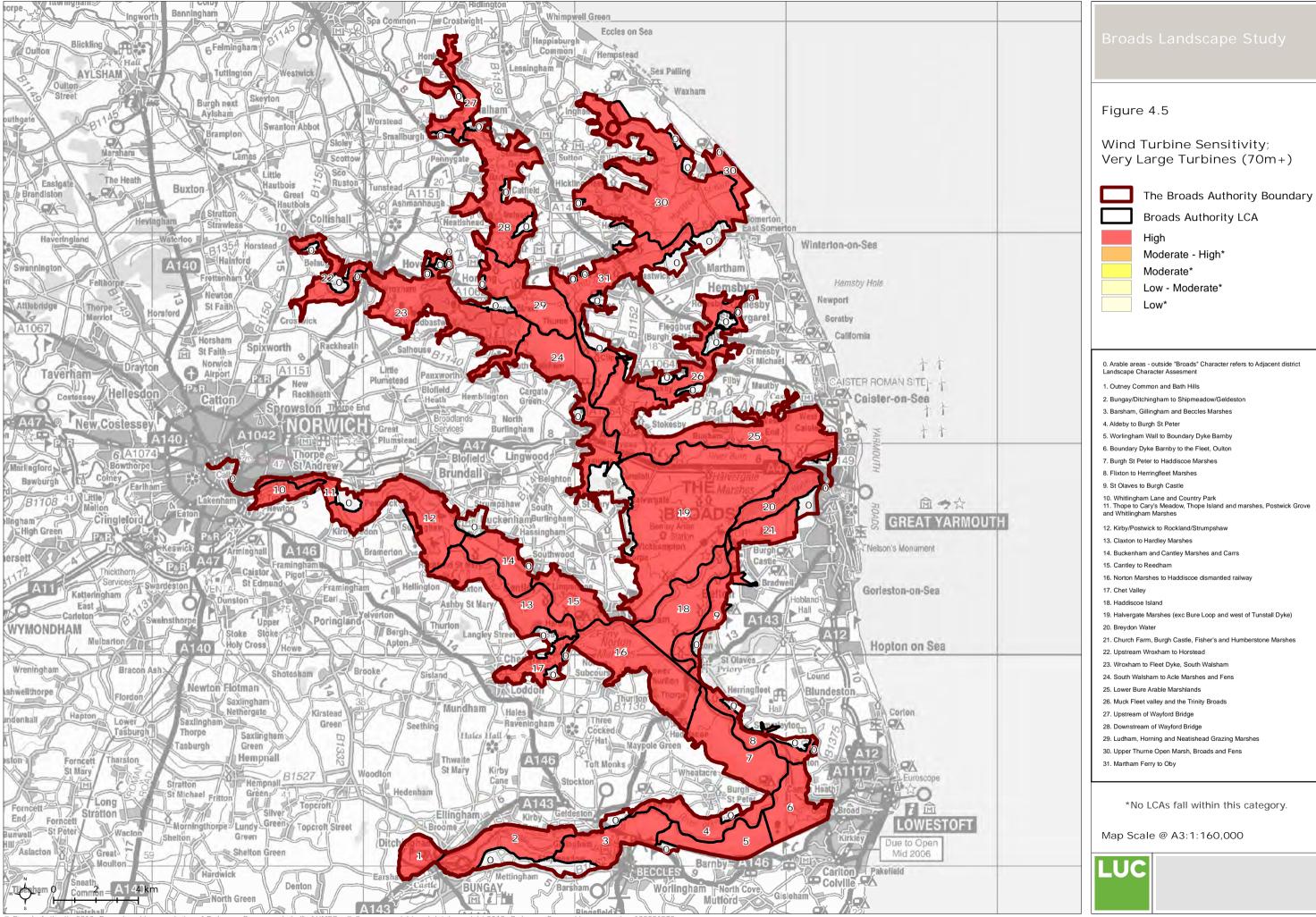
Turbine heights – land in the Broads	Turbine heights  – land outside the Broads	Turbine clusters  – land in the Broads	Turbine clusters  – land outside the Broads	Solar PV – land in the Broads	Solar PV – land outside the Broads
Small (0-20m) M-H	Small (0-20m) M-H	Single turbine M-H	Single turbine M-H	Roof mounted requiring planning permission <b>H</b>	Roof mounted requiring planning permission M-H
Medium (20-50m) H	Medium (20- 50m) <b>H</b>	<5 turbines <b>H</b>	<5 turbines <b>M-H</b>	Roof mounted - <1 hectare <b>H</b>	Roof mounted - <1 hectare <b>H</b>
Large (50-70m) <b>H</b>	Large (50-70m) <b>H</b>	6-10 turbines H	6-10 turbines <b>H</b>	Field mounted: Small - < 1 hectare H	Field mounted: Small - < 1 hectare <b>M-H</b>
Very large (70m+) H	Very large (70m+) <b>H</b>	11-25 turbines <b>H</b> >26 turbines <b>H</b>	11-25 turbines <b>H</b> >26 turbines <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>H</b>	Field mounted: Medium - 1 to 5 hectares <b>H</b>

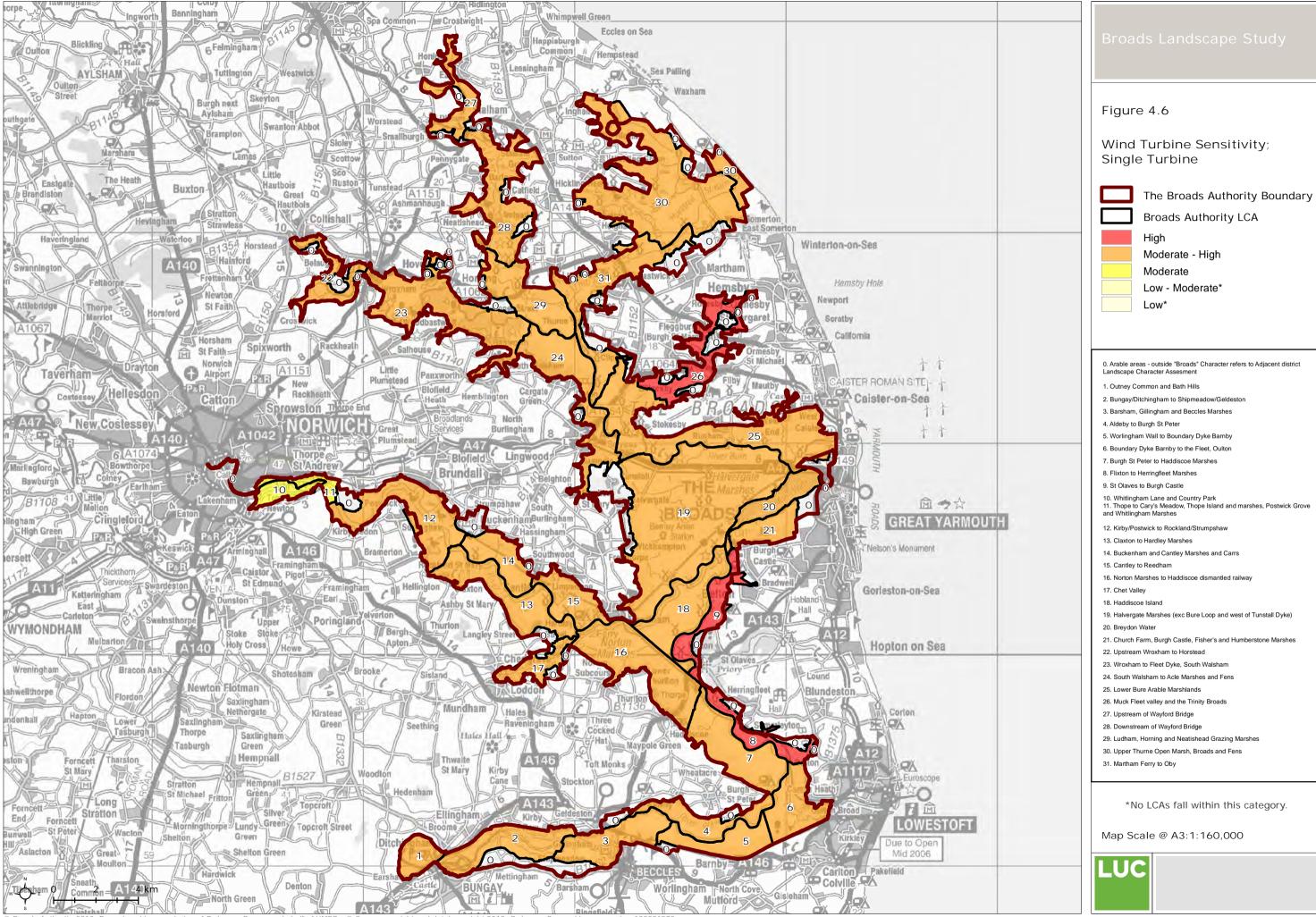


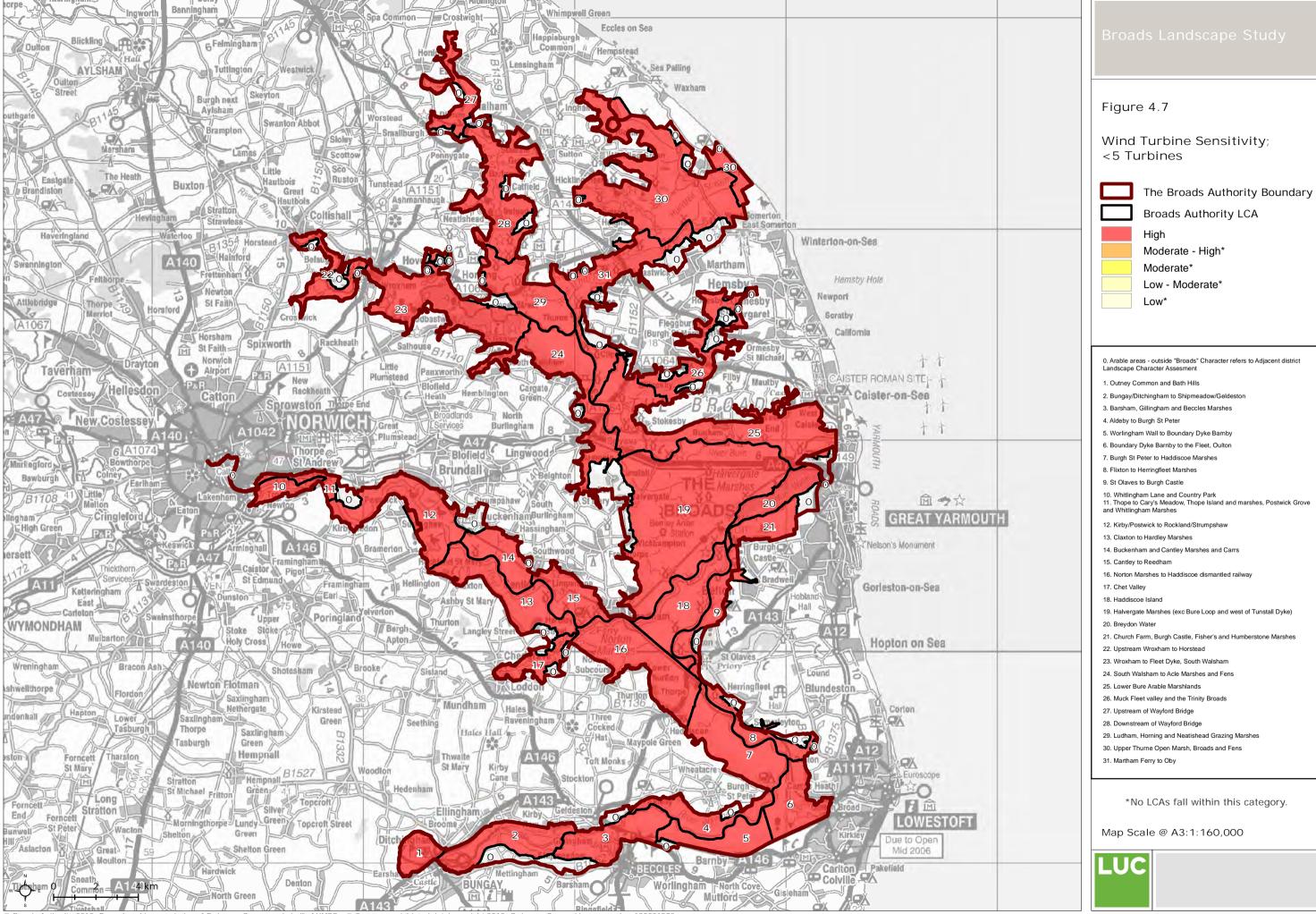


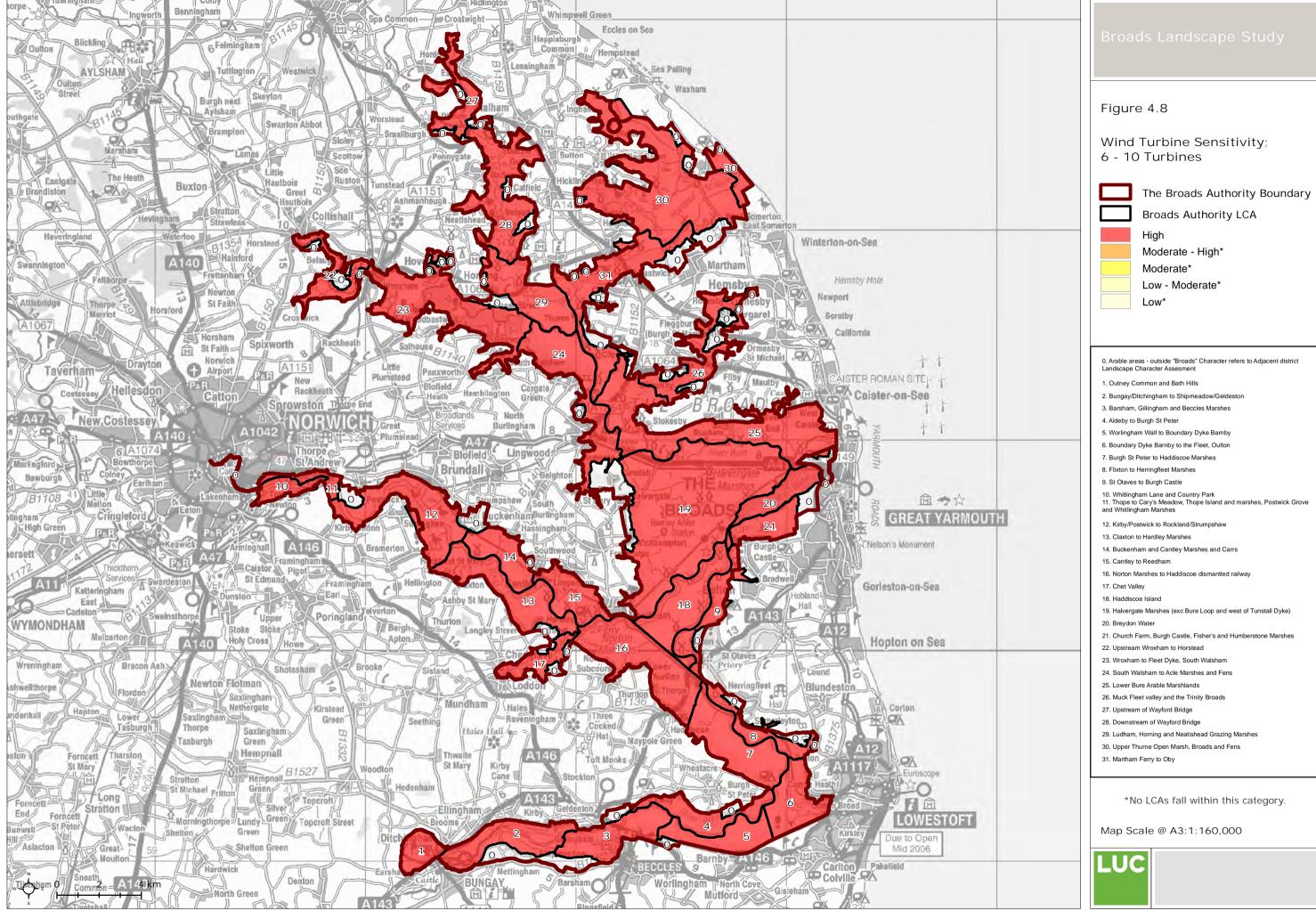


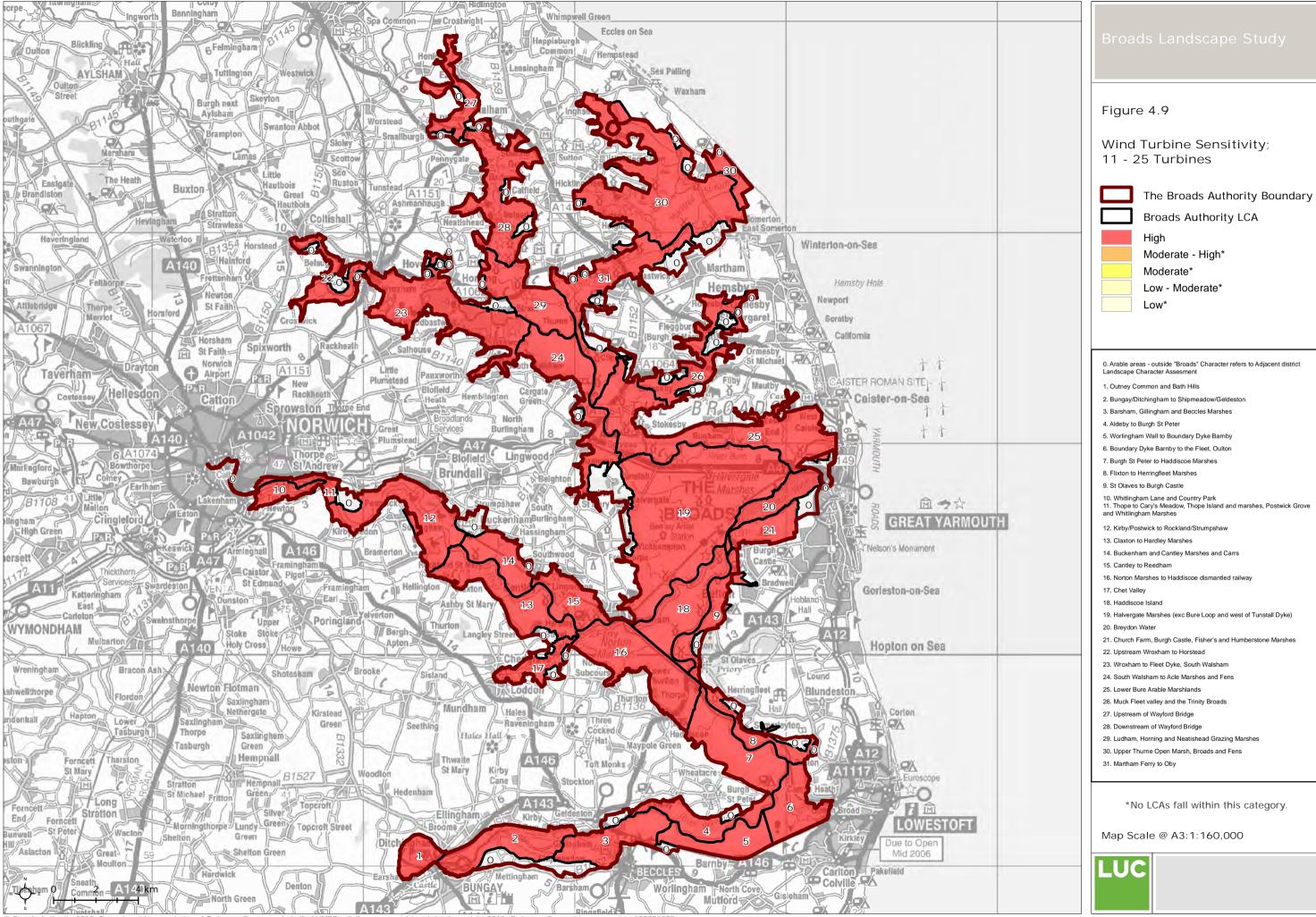


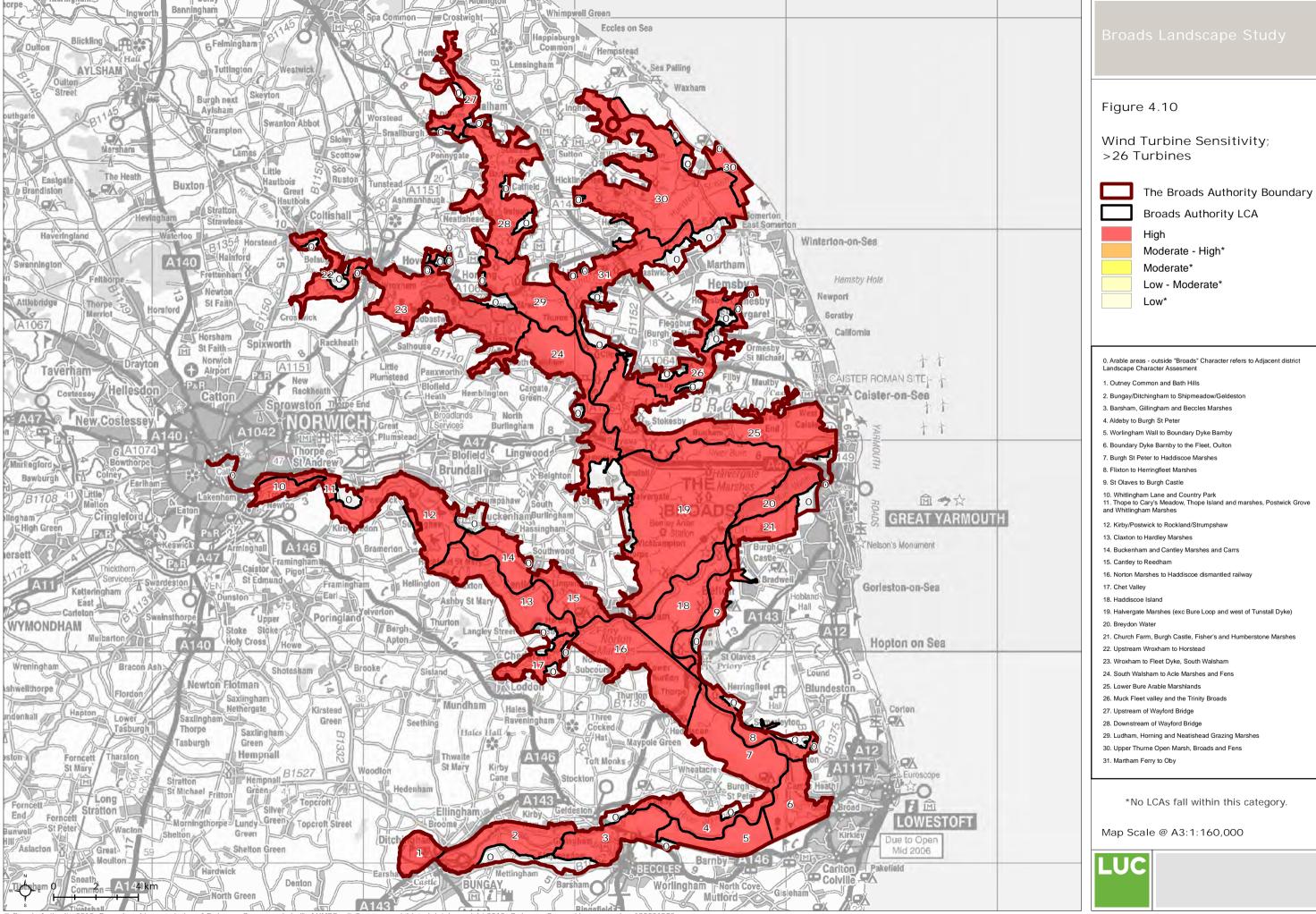


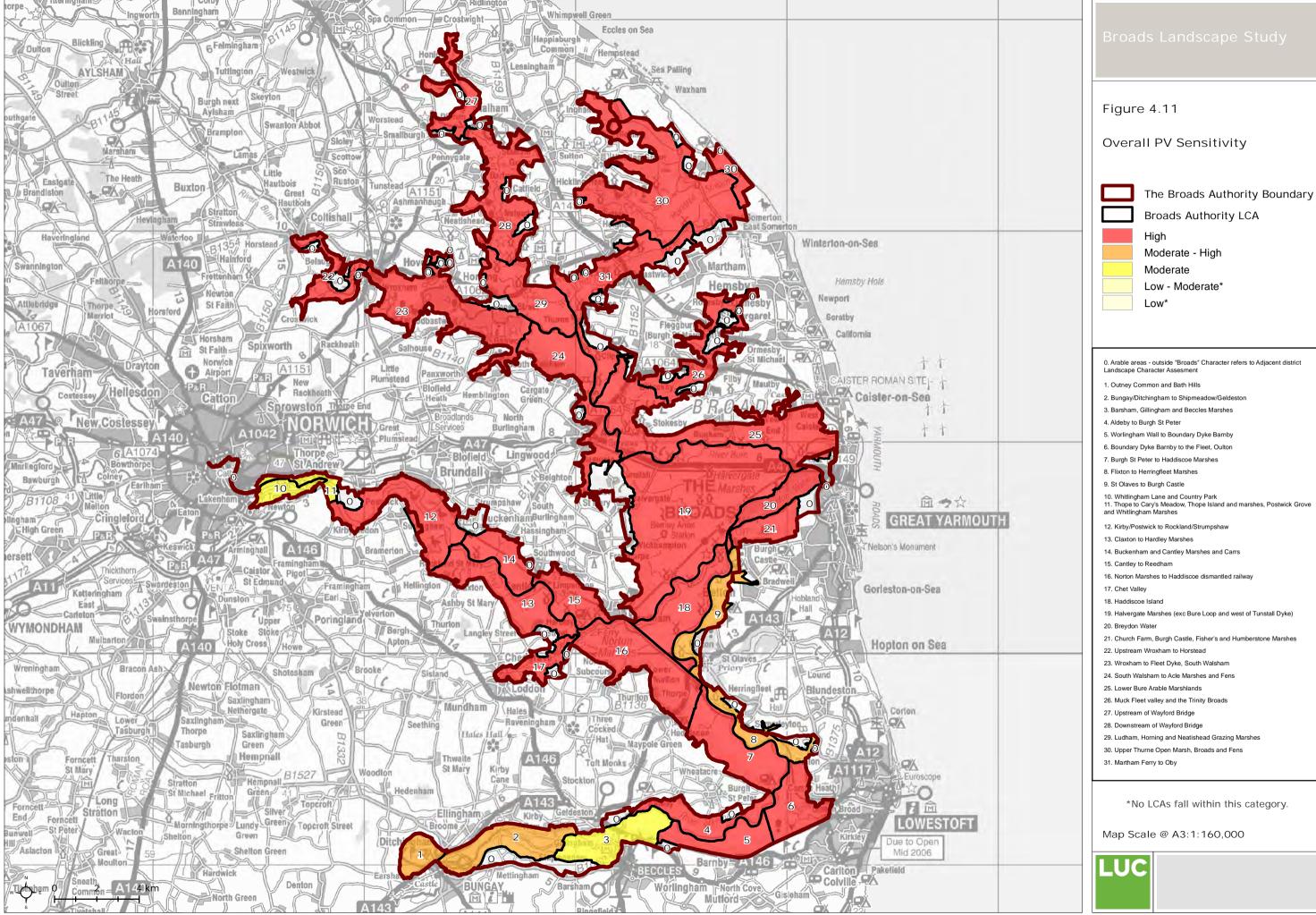


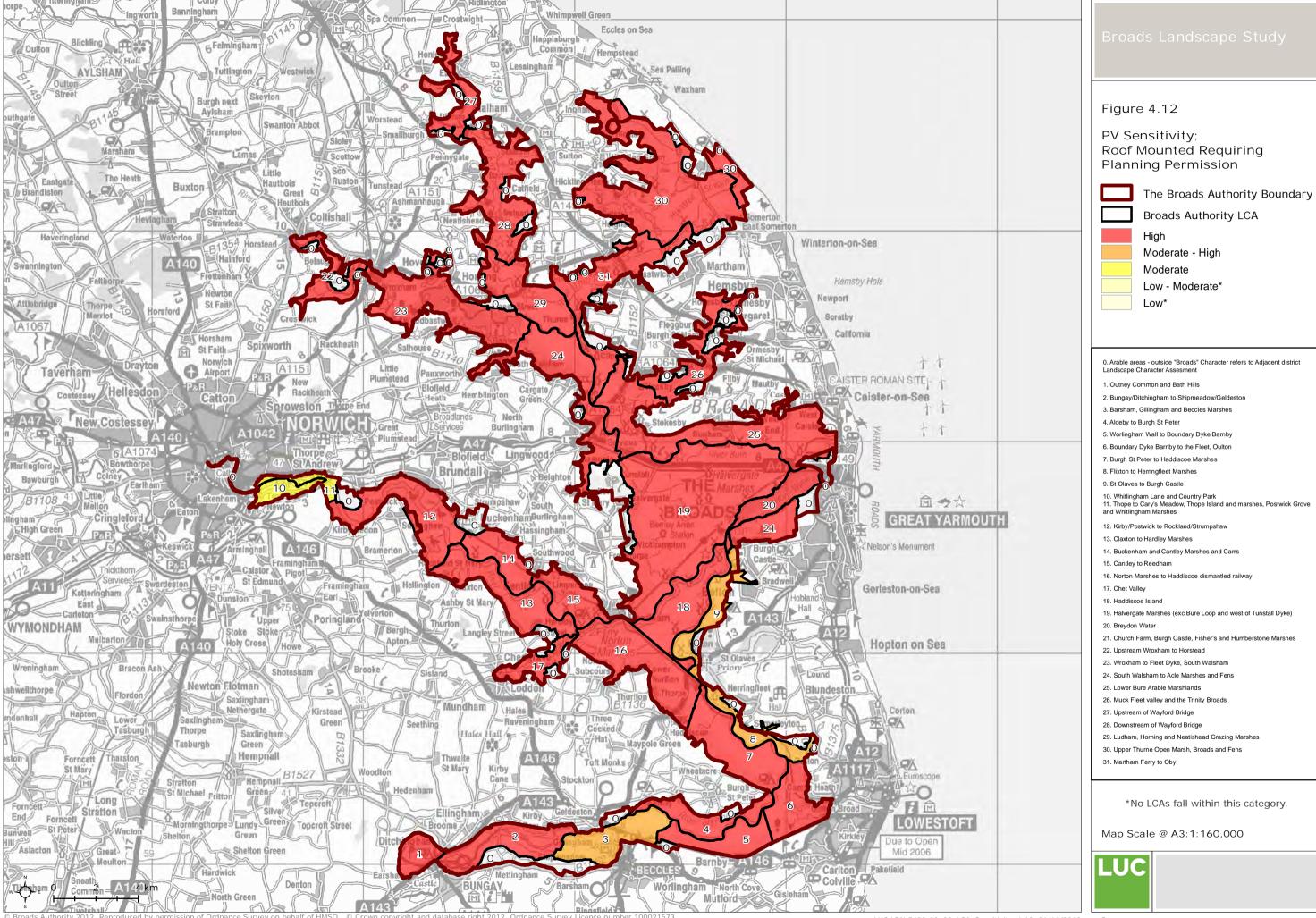


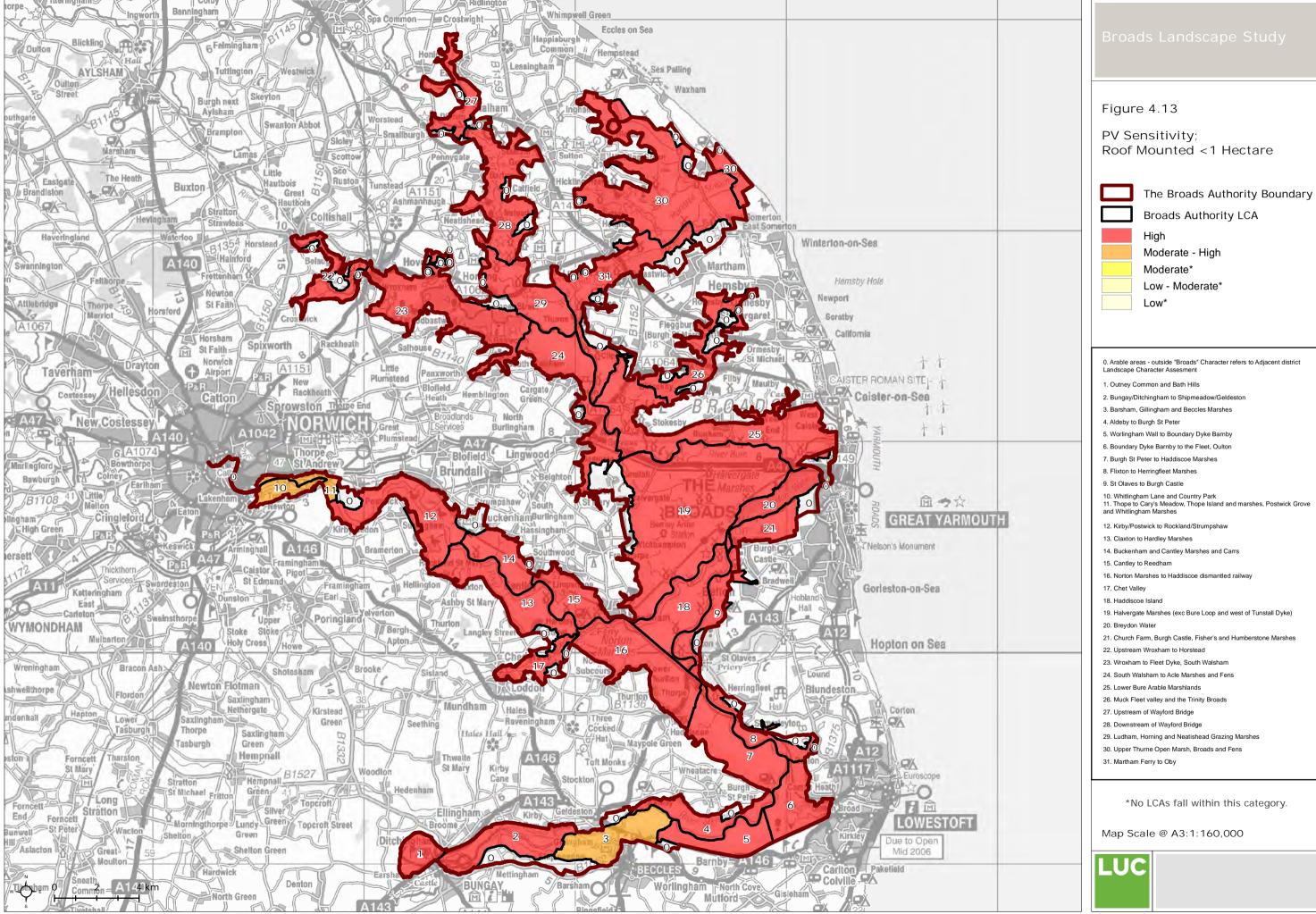


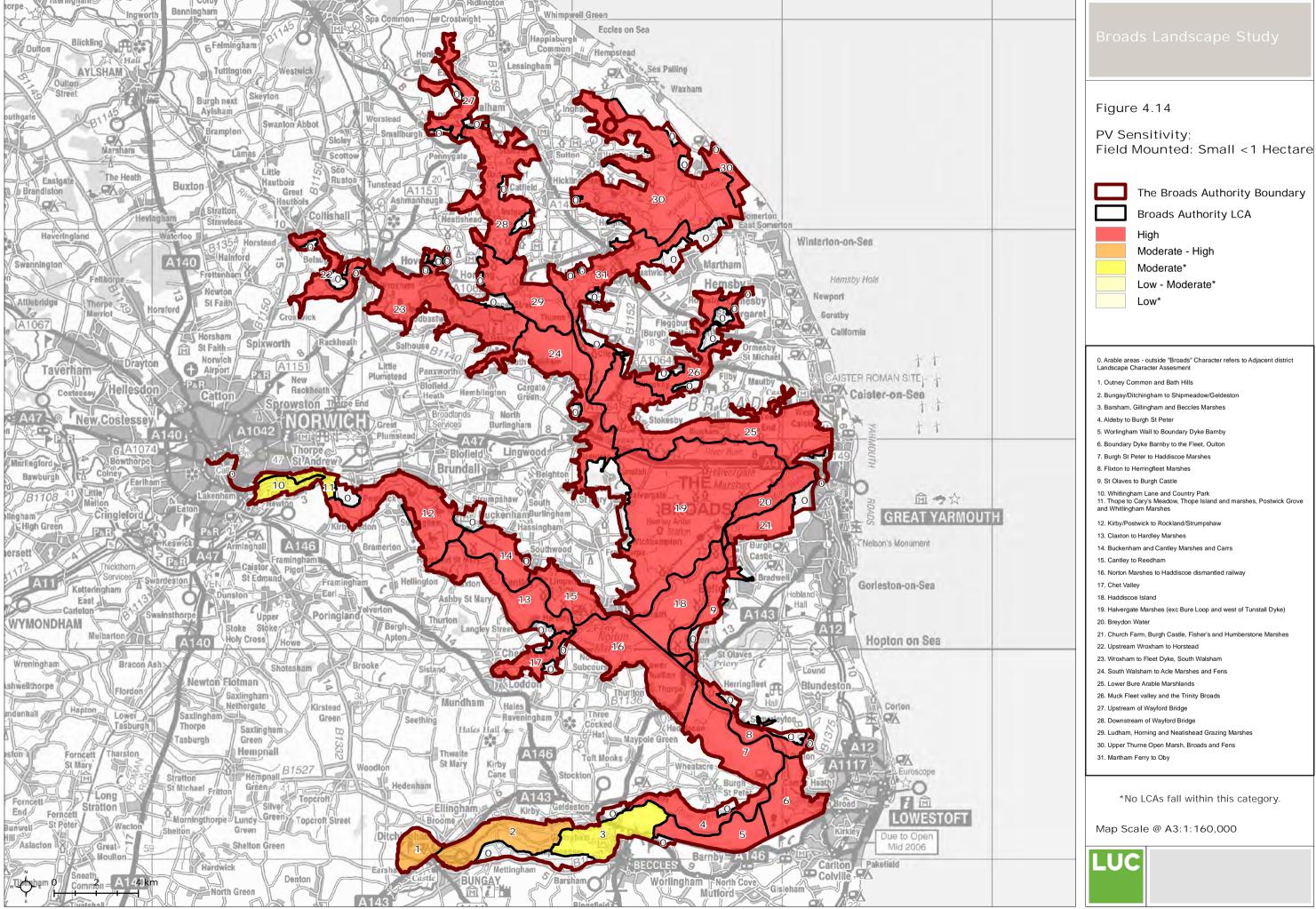


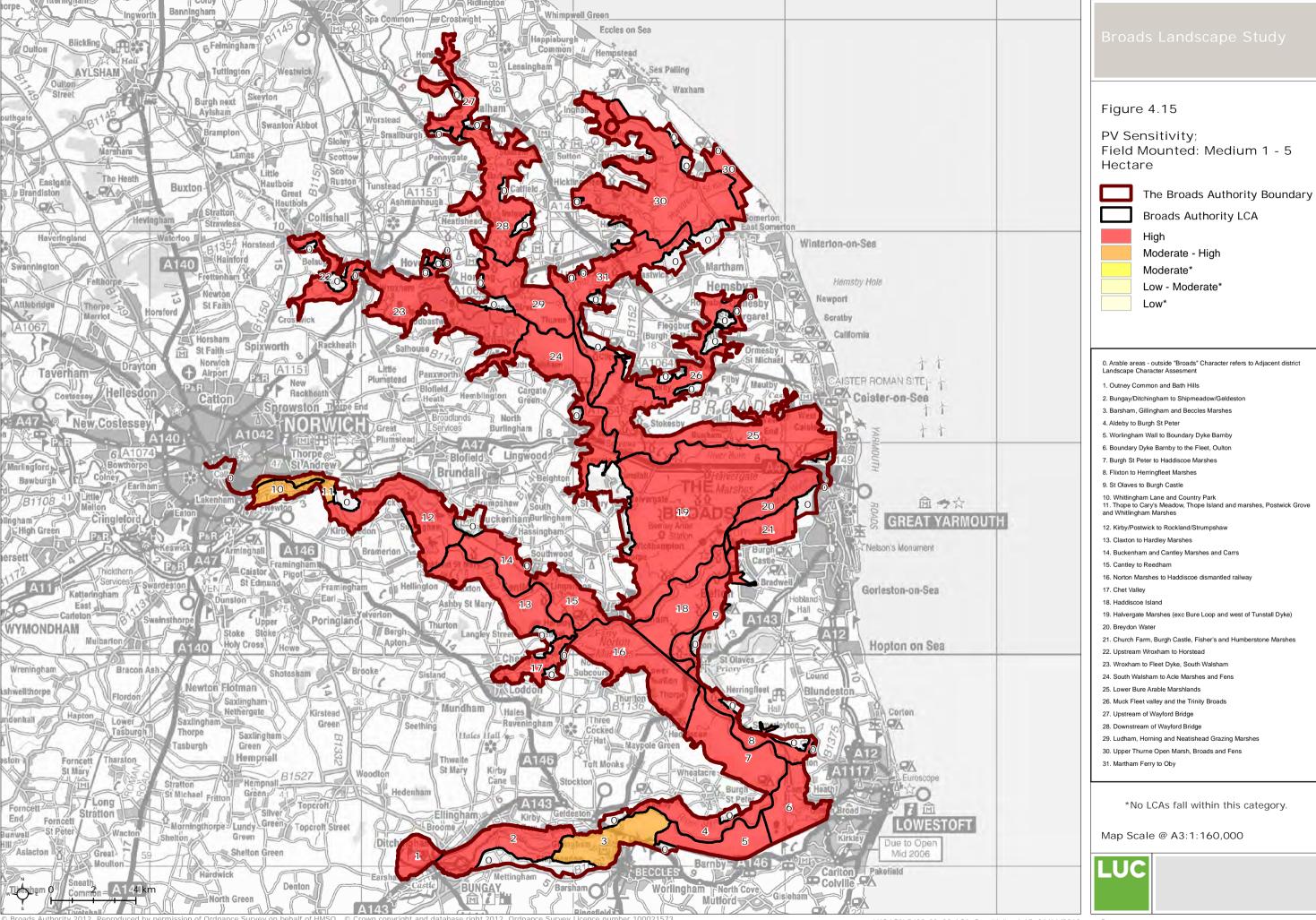












# **Appendix 1: Glossary of terms**

### **Glossary of Terms**

Term	Definition
Above Ordnance Datum or AOD	Term to describe land heights above sea level.
CPRE Intrusion Mapping	A national map produced for the Campaign to Protect Rural England identifying areas of intrusion such as settlements/transport corridors which can affect tranquillity. The map complements and adds to the earlier nationwide Tranquillity Mapping also produced for the CPRE.
Decoy or decoy pond	An enclosed place or waterbody where wildfowl were lured for capture, to provide a food source, usually for medieval and later landed estates.
Doles	Many of the fen areas of the Broads were common land for use by those with common rights. Doling was used to divide the land up between those with common rights to ensure a fair distribution of the fen products (peat, reed, sedge, litter, grazing etc.). The separate allocations were marked by dykes or dole stones. These doles took the form of long narrow strips which gradually came to be regarded as private property and were bought, sold and exchanged. This led to consolidation of neighbouring strips and it is this simplified pattern of consolidated strips which survive in places today (Tom Williamson's 'fossilised doles'). These survive quite well on the Waveney to the north of Worlingham (there is also a Dole's Covert nearby). Elsewhere they may only now be apparent from aerial photographs (e.g. Upton Fen/The Doles).
Enclosure Acts	Also sometimes known as Inclosure Acts. A series of Acts of Parliament by which common land and open fields were enclosed. The majority of the Acts were passed between 1750 and 1860 although some occurred earlier/in the Medieval period. The Acts removed rights over the land previously held by individuals, such as grazing, hay cutting and cultivation.
Foiling/foil	Visual filtering provided by structural vegetation, by interlacing of tree canopies and understorey, as opposed to blanket screening.
HLC	Historic Landscape Characterisation. Developed by landscape archaeologists, this involves analysis and interpretation of time depth and historic evolution of units of land.
Holms or holmes	Small 'islands' of more elevated ground.
Intervisibility	The property of visibility between one place or site and another.
Landscape character  Landscape character area	The distinct, recognisable and consistent pattern of elements that occurs consistently in a particular landscape and how these are perceived. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement/cultural pattern.  Geographically and locally specific units of
,	landscape character.
Landscape character type or landscape type	Distinct, but generic areas of common or similar landscape character, either within a landscape character area or forming the framework for

Term	Definition
	these.
Loke	A private path or road.
Peri urban	Landscapes or environments associated with settlement edges, also sometimes referred to as urban fringe or settlement fringe.
Reed ronds	Reed beds which are grown and cut for commercial use such as thatch.
Sites and Monuments Record or SMR	A national register maintained by English Heritage, detailing Scheduled Monuments (formerly referred to as Scheduled Ancient Monuments or SAMs).
Soke dyke	Also soak dike. A ditch running parallel to an embankment of a river or watercourse, to take away any water from the watercourse beyond, such as when overtopping of rivers occurs.
Special qualities	These underpin the designation of nationally protected landscapes such as National Parks and Areas of Outstanding Natural Beauty. Those relevant to the Broads can be found in the Broads Plan 2011.
Staithe	A landing place or pier for ships or boats to tie up and load or unload.
Time depth	The imprint of the past and cultural pattern upon a place.
Tithe map	A term usually applied to a map of an English or Welsh parish or township, prepared as a result of the Tithe Commutation Act of 1836.
Toft (as in place names such as Toft Monks)	An Old English name for a homestead or a holding.
Vernacular	A style of building indigenous or specific to a particular place and or adapted to environments and user's needs. The term is derived from the Latin 'vernaculus', meaning native.

# Appendix 2: Characteristics of renewable energy technologies

# Appendix 2: Characteristics of wind energy development and field-scale solar PV

2.1 In order to develop a method for assessing landscape sensitivity to wind energy development and field-scale solar PV development, it is important to understand the characteristics of these developments and how they may affect the landscape.

# Wind energy development

General features of wind energy development

The key components of wind energy development are the wind turbines, which may be grouped together into a 'wind farm'. The majority of wind turbines consist of horizontal axis three-bladed turbines on a steel tower as shown in **Figure A2.1** below. Other turbines are available including two bladed turbines and vertical axis turbines. All forms of turbine are usually given planning permission for 25 years, although re-powering may take place after this period has elapsed.



Figure A2.1: Three bladed turbines at Somerton in Great Yarmouth Borough

- 2.3 The main visible components of a wind turbine consist of the tower, nacelle and rotor blade system. Depending on the scale and design of the turbine, the transformer may be located inside or outside the tower. The tower itself sits on a buried concrete foundation. In addition to the turbines themselves, developments involving large-scale wind turbines typically require additional infrastructure as follows:
  - Road access to the site and on-site tracks able to accommodate Heavy Goods Vehicles (HGVs) carrying long, heavy and wide loads (for the turbine blades and construction

cranes) – the size of these tracks will vary with the size of turbine and will remain during the operation of the wind farm, although they can be narrowed during operation.

- A temporary construction compound and lay down area for major components.
- Borrow pits to provide construction materials for the access tracks.
- An area of hardstanding next to each turbine to act as a base for cranes during turbine erection (these can be removed or covered over during operation).
- Underground cables connecting the turbines (buried in trenches, often alongside tracks).
- One or more anemometer mast(s) to monitor wind direction and speed.
- A control building (to ensure the turbines are operating correctly) and a substation.
- 2.4 Lighting requirements depend on aviation and can be required on turbines. However, aircraft warning lights can be infra-red (IR) and therefore not visible to the naked human eye, thereby reducing night time visual impacts. Lighting has not been considered as part of the landscape sensitivity study.
- 2.5 The District Network Operator (DNO) is responsible for establishing a connection between the substation and the national grid. This connection is usually routed via overhead cables on poles, but may be routed underground (more expensive option). Since these are part of a separate consenting procedure these connections are not being considered as part of the landscape sensitivity study. However, consideration is given where appropriate to large scale infrastructure which could give rise to landscape and visual impacts, such as pylons.

2.6

## Landscape effects of wind turbines

- 2.7 Wind turbines are usually substantial vertical structures that are highly visible within the landscape. The movement of the blades is a unique feature of wind energy developments, setting then apart from other stationary tall structures in the landscape such as masts or pylons. Wind energy development may affect the landscape in the following ways:
  - Construction of turbines and associated infrastructure may result in direct loss of landscape features.
  - Movement of rotor blades is a unique feature of wind energy development and may affect characteristics of stillness, remoteness and solitude - larger models having slower rotor speeds than smaller models.
  - The presence of turbines may increase the perceived modern human influence on the landscape and may appear large in the context of human scale features (particularly larger scale turbines).
  - Turbines on skylines may compete with existing landmark features for prominence where prominent skylines or landmark features are characteristic of the landscape (particularly larger scale turbines).
  - Access tracks may be highly visible, particularly in open landscapes or undeveloped landscapes that currently may not contain tracks.
    - Ancillary buildings and security requirements (such as fencing) may introduce new features into the landscape.
- 2.8 'Shadow flicker' only theoretically occurs within ten rotor diameters of a turbine<sup>1</sup> under specific conditions and is therefore a specific residential amenity issue rather than a landscape character issue, and so falls outside the remit of this study.
- 2.9 In undertaking any landscape sensitivity assessment it is important to acknowledge that varying attitudes to wind energy development are expressed by different individuals and constituencies. Aesthetic perceptions can be positive or negative depending on individual attitudes to the principle and presence of wind generation.

# **Cumulative issues**

1.1 As larger numbers of wind farms are built, it is increasingly necessary to consider their cumulative effects. Scottish Natural Heritage's guidance on the siting and design of windfarms in the

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<sup>&</sup>lt;sup>1</sup> ODPM (2004) Planning for Renewable Energy: A Companion Guide to PPS22, para. 76.

landscape<sup>2</sup> suggests that a key consideration is to understand how different developments relate to each other, their frequency as one moves through the landscape, and their visual separation, with the aim of allowing experience of the character of the landscape in-between.

# Trends in wind energy development in and adjacent to the Broads

1.2 **Table A2.1** below shows the size and height of consented and operational wind farms affecting the Executive Area (within adjacent Districts of the Executive Area)<sup>3</sup>.

Table A2.1: Operational wind farms in the study area

Wind farm	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)
Lowestoft Ness Point (Gulliver)	W14512/1	W14512/1 Waveney		100
Household Waste and Recycling Centre	nd Recycling W256/10BA W	Waveney	1	-
Harrod UK South Lowestoft Industrial Estate	W8554/19	Waveney	1	48
Africa Alive Wildlife Park, Kessingland	DC/06/1401/FUL	Waveney	2	125
Bernard Mathews at Holten Field	DC/09/0491/FUL	Waveney	5	100
Lenwade House Hotel (wind turbine generator)	980415	Broadland	1	-
Upton Poultry Farm	20110913	Broadland	1	50m to hub
Reepham High School	20110269	Broadland	1	25
Horstead Lodge	20110084	Broadland	1	18.3
Playing Field, Village Hall, Postwick	20101131	Broadland	1	15m hub height
Renenergy (roof mounted)	20100725	Broadland	1	-
Bure Valley Farm, Aylsham	20081470	Broadland	1	24.8
Petersfield, Attlebridge (domestic)	20080915	Broadland	1	-

<sup>&</sup>lt;sup>2</sup> Scottish Natural Heritage (December 2009) Siting and Designing Windfarms in the Landscape, Version 1. [NB Scottish guidance has been quoted as there is no equivalent English guidance.]

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<sup>&</sup>lt;sup>3</sup> Details of individual wind farm applications are based on information provided by the Broads Authority

Wind farm	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)
The Whitehall and Reepham Station, Reepham	20091644	Broadland	1	24.8
Fox Barn, Holly Lane, Blofield	20091642	Broadland	1	-
21 Meridian Way, Postwick	20071491	Broadland	1	-
Land adjacent to Banningham Road, Aylsham	20070075	Broadland	1	15
Hellesdon Hospital, Hellesdon	20061892	Broadland	1	9
Thorpe St Andrew School, Laundry Lane, Thorpe St. Andrew	20061293	Broadland	1	14
Twyford Hall Barn, Twyford Lane, Foulsham	20041975	Broadland	1	9.5
1 Berrington Road Hellesdon	20031158	Broadland	1	-
Church Farmhouse, Beck Lane, Tuttington	20030750	Broadland	1	-
New Police ODB, Land adjacent NNDC Holt Road, Cromer	PF/09/0893	North Norfolk	1	15
The Hall, Stalham Road, East Ruston	PF/09/0940	North Norfolk	1	15
East View Farm, Stone Lane, Ashmanhaugh	PF/09/0985	North Norfolk	1	18.3
Land at Coltishall Airfield, Scottow	PF/10/0172	North Norfolk	1	70
Village Hall, Coast Road, Bacton	PF/10/0408	North Norfolk	1	15
Rosewood Farm, Craymere Beck Road, Thurning,	PF/10/1035	North Norfolk	1	18

Wind farm	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)
Melton Constable				
Stone Lodge, Kelling Road, Lower Bodham, Holt	PF/10/1098	North Norfolk	1	-
Hall Farm, Aylsham Road, Saxthorpe	PF/10/1186	North Norfolk	2	15
Woodfruits, Locks Farm, Road, Corpusty	PF/10/1305	North Norfolk	1	-
Land off Church Street, Sco Ruston	PF/10/1328	North Norfolk	1	60
Hall Farm Barn, Field Dalling Road, Bale	PF/10/1420	North Norfolk	1	15
Land at Stibbard Road, Fulmodeston, Fakenham	PF/11/0064	North Norfolk	1	15
Church Farm, Church Road, Bacton	PF/11/0334	North Norfolk	1	15
Bridge Farm, Pond Road, Bradfield, North Walsham	PF/11/0523	North Norfolk	2	15
Rosewood Farm, Craymere Beck Road, Thurning, Melton Constable	PF/11/0902	North Norfolk	1	18
Gothic Cottage, Mill Road, East Ruston	PF/11/0922	North Norfolk	1	36.4
Skeyton Poultry Farm, Skeyton Road, Skeyton	HR/83/0119	North Norfolk	1	-
Wayside, Church Lane, Alby with Thwaite	PF/98/1258	North Norfolk	1	-
Thurnes Farm, Crowgate Street, Tunstead	PF/00/1271	North Norfolk	1	-
Site at Wallgate Lane, Little Snoring	PF/01/1826	North Norfolk	1	-
The Farmhouse and	PF/04/0891	North Norfolk	1	15

Wind farm	Application number			Height (m) of turbines (inc. blade)
the barn, Swanton Road Boundary Farm, Gunthorpe				
Land of Turf Moor Road, Lynn Road, Sculthorpe	PF/04/1849	North Norfolk	1	15
Cley Marshes Reserve visitor centre off Coast Road, Cley-Next- The-Sea	PF/04/2192	North Norfolk	1	-
Land at Grimes Hall Farm, Yarmouth Road, Stalham	PF/05/1220	North Norfolk	1	11
Land of Turf Moor Road, Lynn Road, Sculthorpe	PF/05/1750	North Norfolk	1	15
Calthorpe Broad National Nature Reserve, Ingham	PF/05/1750	North Norfolk	1	-
Copys Green Farm, Copys Green, Wighton	PF/06/0316	North Norfolk	1	-
2 Hall Farm Cottages, The Street, Morston	PF/06/0853	North Norfolk	1	-
September House, 2 Cricketers Close, Wood Norton	PF/06/1138	North Norfolk	1	-
Little House, Barningham Road, Gresham	PF/06/1223	North Norfolk	1	-
Highfields, Briston	PF/06/1733	North Norfolk	1	-
45 Skeyton Road, North Walsham	PF/07/0017	North Norfolk	1	-
Old Mill House, The Street, Swafield	PF/07/0055	North Norfolk	1	
Old Mill House, The Street, Swafield	LA/07/0056	North Norfolk	1	-
The White House,	PF/07/0093	North Norfolk	1	15

Wind farm	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)
Middle Hill, Alby				
Home Farm, Creake Road, Cranmer	PF/07/1184	North Norfolk	1	18
The Cottage, Clipstone Lane, Kettlestone	PF/07/1873	North Norfolk	1	9
45 Skeyton Road, North Walsham	PF/08/0140	North Norfolk	1	-
Sheringham High School & 6 <sup>th</sup> Form Centre, Holt Road, Sheringham	PF/08/0465	North Norfolk	1	15
Fakenham High School, Field Lane, Fakenham	PF/08/0666	North Norfolk	1	15
Hoveton Old Hall, Stone Lane, Ashmanhaugh	PF/08/0777	North Norfolk	1	18
Warren Barn, Brewrey Road, Trunch	PF/08/01236	North Norfolk	1	11.5
Home Farm, Creake Road, Cranmer	PF/08/1343	North Norfolk	1	-
Home Farm, Creake Road, Cranmer	PF/09/0011	North Norfolk	1	-
Beach Cottage, The Marrams, Sea Palling	PF/09/0492	North Norfolk	1	15
South Denes (Great Yarmouth Industrial Area)	-	Great Yarmouth	4	67
Somerton (near Winterton)	-	Great Yarmouth	10	66
Hemsby	-	Great Yarmouth	4	65
West Caister	-	Great Yarmouth	1	9
Caister-on-Sea (St. Nicolas Drive	-	Great Yarmouth	1	-

Wind farm	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)	
Martham – Flegg High School	-	Great Yarmouth	1	15	
Caister High School	-	Great Yarmouth	1	15	
Tesco, Victoria Road, Diss (roof top turbines)	2005/1882/F		South Norfolk	5	-
Lodge Farm, The Heywood, Heywood (micro turbines)	2006/1089/F	South Norfolk	2	-	
Wymondham College, Golf Links Road, Morley St. Peter	2006/1973/EA	South Norfolk	2	-	
Lotus Cars, Potash Lane, Hethel	2007/0739/EA	South Norfolk	3	-	
Semere Green Lane, Dickleburgh	2007/1372/ES	South Norfolk	7	-	
Land to the west of New Road, Tivetshall St Mary	2008/0324/ES	South Norfolk	6	-	
Norwich Site Bypass, Caistor St Edmunds	2008/0436/ES	South Norfolk	2	60	
Land at Group Lotus PLC, Potash Lane, Hethel	2008/0592/F	South Norfolk	3	120	
Upper Vaunces Farm, Semere Lane, Pulham St Mary	2008/2247/ES	South Norfolk	3	125	
Land east of Semere Green Road (forming part of Upper Vaunces Farm) Pulham Market and Dickleburgh	2010/0383/F	South Norfolk	3	-	
New Road/Patten Lane (accessed from Moor Road), Tivetshall St Mary	2010/0861/F	South Norfolk	3	-	
Turnpike Farm, London, Suton,	2010/1315/F	South Norfolk	2	-	

Wind farm	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)
Wymondham				
Hill Farm, Redenhall Road, Harleston	2011/0001/EA	South Norfolk	3	-
Hill Farm, Redenhall Road, Harleston	2011/0082/ES	South Norfolk	3	-

1.3 In addition the following planning applications have been made for wind turbines in and adjacent to the Executive Area:

Table A2.2: Wind farm planning applications in the study area

Site and application reference	Application number	District	Number of turbines	Height (m) of turbines (inc. blade)
Cantley Sugar Factory, Station Road, Cantley (micro wind turbine 3.4m above roof level)	20091048	Broads Authority	1	-
Manor Farm House, Halvergate	20060299	Broads Authority	1	-

# Field scale solar photovoltaics (PV)

1.4 Field-scale solar PV developments are an emerging renewable technology which proved popular with developers from April 2010-August 2011 as a result of the Government's feed-in tariffs which provided an attractive financial incentive for their development (for schemes of less than 5MW in capacity). However, early in 2011 Energy Secretary Chris Huhne launched a comprehensive review of the Feed in Tariffs (FITs) scheme. Fast-track consideration of the tariffs confirmed tariff reductions for large-scale solar PV (over 50 kilowatts) and all stand-alone PV projects. These new tariffs came into force on 1 August 2011. As a consequence a number of applications have been dropped. Nevertheless, the landscape of parts of Norfolk and surrounding the Broads is seen as a potentially attractive location in the UK for this technology due to exposed open character and associated high levels of solar radiation.

## General features of solar PV developments

1.5 This section is based on the details of planning applications for solar PV schemes in Norfolk and the Broads and other parts of the UK, as well as developments that are already in place in mainland Europe. Like wind farms, solar PV developments are usually given planning permission for 25 years.

Size and arrangement

- 1.6 The size of field-scale solar PV developments may vary, with planning applications typically varying in size between approximately 8 and 18 hectare sites (which would generate between 2.1 and 5 MW of electricity).
- 1.7 Panels are arranged in groups or 'arrays' of around 20 panels. The panels are encased in an aluminium frame, supported by aluminium or steel stands, and positioned at a fixed angle

between 20-40 degrees from the horizontal, facing south. These arrays usually take the form of a linear rack of panels. These arrays or linear racks of panels are usually sited in parallel rows with gaps between the rows for access and to prevent shading of adjacent rows. They therefore do not cover a whole field. The actual arrangement of the arrays within the landscape varies from scheme-to-scheme (i.e. regular layouts versus more varied and irregular, depending on the site situation). Generally though, layouts of the solar arrays tend to be regular.



Figure A2.2: Solar PV development at Benbole Farm, Cornwall

1.8 Some developments contain panels that can be manually rotated several times a year to enable the arrays to track the sun and so ensure maximum capture of the sun's energy, while others feature fixed panels which are positioned to face in a southerly direction. The technology does exist to allow for automatic tracking, although this is rarer. Movement due to automatic tracking is likely to be imperceptible as it will be slow.

Location in the landscape

1.9 In general, the favoured sites for PV schemes from a technical standpoint are plateau tops or gently sloping landforms, with a southerly aspect to maximise efficiency. From a logistical standpoint, steep slopes are avoided. Unless viewed from above, it is unlikely that a whole solar PV development would be visible to the eye.

Height of the solar panels

1.10 Ground mounted panel arrays are usually mounted around 3-4m above ground level allowing the growth of vegetation beneath and between the arrays and the associated grazing of stock.

Appearance of the solar panels

1.11 In the planning applications studied, some of the panels are described as appearing dark in colour as a result of their non-reflective coating and maximised absorption of light, and some have been likened to poly tunnels when viewed from a distance. Some solar PV developments are likened to areas of standing water (i.e. reservoirs or lakes) when viewed from certain angles and from a distance. An example of a solar PV development in Germany is shown in **Figure A2.3**.



Figure A2.3: Solar PV development in Muhlhausen, Germany

1.12 However, it should be noted that the panels may also be seen from behind (back of the panels) or from the side (down the rows of frames) which will also influence how they are perceived. An example is shown in Figure A2.4.



Figure A2.4: Solar PV development seen from behind at Benbole Farm, Cornwall Other features of field scale solar PV development

- 1.13 Other features of field scale solar PV may include:
  - Temporary storage compounds for plant, machinery and materials during the construction phase.
  - Inverters to convert the electricity from DC to AC which may be housed within new or existing buildings.
  - Transformer and underground power cables to transfer the electricity to the National Grid
  - On-site power house (usually a Portacabin with a concrete base).
  - Security fencing up to 2.5 metres in height required for insurance purposes.
  - Hedgerows or tree planting to screen sites.
  - CCTV (such as cameras mounted on 4.5m high poles).

1.14 New access tracks are not necessarily a requirement because temporary matting can be used to bring the solar panels to a site (i.e. if a site is not accessible by existing roads or tracks). However, transportation of panels to the site needs to be considered.

## Landscape effects of solar PV developments

- 2.10 Solar PV developments, although not prominent in terms of height, can occupy substantial areas of ground which may be visible, particularly if located on slopes. Landscape effects may include the following:
  - As extensive developments, field-scale solar PV developments may be particularly visible in open landscapes or on upper slopes of hillsides, especially where covering significant areas. Depending on scale it is likely that this would be exacerbated by roof mounted schemes.
  - The presence of PV panels and associated infrastructure may increase the perceived modern human influence on the landscape, including landscapes that form a setting to heritage assets. Depending on scale it is likely that this would be exacerbated by roof mounted schemes.
  - Solar PV developments will change the land use and appearance of a field or fields, affecting land cover patterns.
  - The regular edges of solar PV developments may be conspicuous in more irregular landscapes (particularly where they do not follow contours or where field boundaries are irregular in form).
  - The height of racks (up to 3m) means that they may overtop typical hedgerow / hedgebank field boundaries.
  - Screen planting around solar PV development can change the sense of enclosure of a landscape (NB some changes in management, such as allowing hedges to grow out, may enhance diversity and local landscape character resulting in positive change as long as native species are used).
  - Construction of the solar PV development may result in damage to landscape features.
  - Structures may appear out of place in particularly wild or undeveloped landscapes which are valued for their qualities of remoteness.
  - Ancillary buildings and security requirements (such as fencing and/or CCTV) may introduce new and unfamiliar features into the landscape.
- 2.11 The possibility of light or glare emitting from the solar panels is an important consideration in terms of the visual impacts of schemes. However, photovoltaic technology requires absorption of sunlight to allow for the conversion of energy to take place and therefore very little light energy is lost through reflection. Glare is further minimised through the use of translucent coating materials to improve light transmittance through the glass<sup>4</sup>.

# **Cumulative issues**

1.15 Cumulative effects of multiple schemes are a significant issue for local authorities to deal with.

This is because field-scale solar PV developments tend to cluster around grid connection points.

# Trends in solar PV development in and adjacent to the Broads

1.16 Details of planning applications for solar PV schemes affecting the study area (as of May 2012), are set out in table A2.3 overleaf.

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<sup>4</sup> www.whealjanemasterplan.co.uk

Table A2.3: Solar PV planning applications in the study area

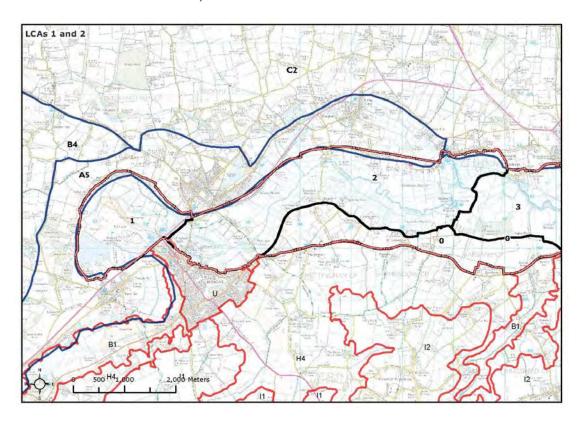
Location	Land area (ha)	Application number
Broadland District	-	201120442
Richardsons Boatyard, The Staithe, Stalham	0.29	BA/2012/0130/FUL
Douglas Farm, Falcon Lane, Ditchingham	0.0432	BA/2011/0314/FUL
Fir Tree Farm, Coast Road, Waxham	0.011	BA/2011/0217/FUL
Farmhouse, Somerton Holmes Farm, Horsey Road, West Somerton	0.1	BA/2011/0160/FUL
Carlton Marshes Visitor Centre, Burnt Hill Lane, Carlton Colville	0.1	BA/2008/0303/FUL
Beccles Swimming Pool, Puddingmoor, Beccles	0.27	BA/2010/0327/FUL
Waveney Inn And River Centre, Staithe Road, Burgh St Peter, NR34 0BT	0.02	BA/2011/0364/FUL
139 Beccles Road, Bungay, NR35 1HX	0.06	BA/2012/0055/FUL
Irstead Manor, Hall Road, Irstead, NR12 8XP	0.029	BA/2011/0034/FUL
25 Northgate, Beccles, Suffolk, NR34 9AS	0.1	BA/2010/0166/FUL
Bramerton Staithe, Woods End, Bramerton, Norwich, NR14 7ED	0.1	BA/2010/0253/FUL

Appendix 3: Landscape sensitivity matrices for each landscape character area

Landscape sensitivity matrices for wind turbines

# LCA 1: Waveney Valley - Outney Common and Bath Hills Area: LCA 2: Waveney Valley - Bungay/Ditchingham to Shipmeadow/Geldeston

# Location and landscape character context



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Landscape Sensitivity Assessment for Wind Turbines

Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity
1.Scenic and special qualities	Special qualities such as ar areas and the sense of traintroduction of larger structranquillity is however reduced on the western edge of Bulbroads Executive Area, it remoteness from within an thus reduces sensitivity. He landscape due to its undevicombined have an overall development in these term	nquillity are particularl tures such as wind tur uced by some large scangay in area 1. Althou negatively influences that id immediately surrour owever, area 2 compri reloped nature and as a moderate-high sensitive	y sensitive to the bines. The sense of ale industrial development gh located outside the ne perception of ading the settlement and ses of a more sensitive a result the areas when
2.Enclosure and scale	while character area 2 has differences in relation to fig area 1 is defined by a med	sides. Character area 1 steep valley sides risin ve Area, which provide a broad, flat charactereld pattern and scale it ium scale field pattern e a lower sensitivity, werows) field pattern in combined have a hightainment provided by	however has a more g to 30m to the north es a degree of containment r. There are some subtle n these areas. Character and large open bodies of hile character area 2 has a dicating a higher gh sensitivity due to the hedgerows and landform,
3.Landscape and land cover pattern	Landscape and land cover pattern of elements (pastu of open water) which are s potential for wind turbines 1 exhibits a more varied conslightly more simplistic nattareas combine to create a moderate-high sensitivity to	re, woodland, river va ensitive to wind turbin to dominate small sca emposition of elements ture of elements within combination of elemer	ne development due to the le features. Although area in comparison to the character area 2, both ints which indicate a
4.Skylines	Both character areas have character area 1 where the and south of character are well wooded ridges definin uninterrupted skylines and However the interface of commed by modern, large sconfined, this locally lower the areas are considered turbine development.	e ridge encircles the are a 2 are also prominent g the extent of views. rising landform indicath haracter area 1 with the cale development on the surress.	ea. The ridges to the north twith rising landform and As a result these te a higher sensitivity. The settlement of Bungay is the skyline and although rounding character area.
5.Perception and experience of the landscape	The tranquil, undisturbed of and remote perception of the however in contrast to the edges of both character and fluence of Bungay. The influence of	he area indicating a hi localised level of intru eas where the bounda	igher sensitivity. This is sion associated with the ries adjoin the settlement

	T =			
	area 1, away from the settle	ment, the	although elsewhere within chara e area displays a strong sense o vity. Therefore the overall sensit	f
6.Historic landscape character	marsh within the south of ch wind turbine development. A historic settlements (Geldest character area 2 which have the area. Large scale wind tu coherence of the historic land area 1 also displays some im at The Hards, the Bath Hills of Ditchingham Estate and com	aracter a lso sensit on, Bung a strong irbine dev dscape in portant h which are mons wit	association with former water n velopment could impact upon th these areas. In addition, chara- historic features (i.e. historic cor	ty to and mills of the cter mmon these
7.Visual sensitivities and intervisibility with areas outside the Broads	surrounded by wooded skylir indicating a lower sensitivity Although contained, there is areas outside the Broads Exe Norfolk District and area H4 evident where these areas ar	nes that p to wind t some intecutive Ar in Waven re on high ore prom	defined by ridge topography and provide a degree of containment urbine development in these televisibility with adjacent character (namely areas A5 and B4 in ey District). This is particularly the ground (A5 and B4) having the character of the	t, rms. ter South the er
		nt areas a	nd the degree of intervisibility t	
	with filtered views of adjacer	nt areas a	nd the degree of intervisibility t	
Discussion on landscape sensitivity	overall sensitivity of the area  Overall the two areas have a development. This is due to tranquillity, the strong sense wooded ridges and steeper v and B4 in South Norfolk). In reflected in the area's command the historic settlement p development. As a result, the sensitivity to wind turbine descriptions.	high land the special of enclose alley side addition, ons, the attern independent	dscape sensitivity to wind turbing all qualities such as the sense of sure provided by undulating land the historic landscape features 17th century grazing marsh enclarease sensitivity to wind turbing when combined, demonstrate a	dform, as (A5 osures e high
landscape	overall sensitivity of the area overall the two areas have a development. This is due to tranquillity, the strong sense wooded ridges and steeper vand B4 in South Norfolk). In reflected in the area's common and the historic settlement p development. As a result, the sensitivity to wind turbine dead this judgement also applies a schemes, such as pylons.	high land the special of enclose alley side addition, ons, the fattern independent attern independent to large in	dscape sensitivity to wind turbing all qualities such as the sense of sure provided by undulating landers in the adjacent character area the historic landscape features 17 <sup>th</sup> century grazing marsh enclorease sensitivity to wind turbin when combined, demonstrate a ant overall.	dform, as (A5 osures e high
landscape sensitivity	overall sensitivity of the area overall the two areas have a development. This is due to tranquillity, the strong sense wooded ridges and steeper vand B4 in South Norfolk). In reflected in the area's common and the historic settlement p development. As a result, the sensitivity to wind turbine details judgement also applies over the area.	high land the special of enclose alley side addition, ons, the fattern industrial are areas we evelopment	dscape sensitivity to wind turbing all qualities such as the sense of sure provided by undulating landers in the adjacent character area the historic landscape features 17 <sup>th</sup> century grazing marsh enclorease sensitivity to wind turbin when combined, demonstrate a not overall.	dform, as (A5 osures e high
landscape sensitivity  Sensitivity to	overall sensitivity of the area overall the two areas have a development. This is due to tranquillity, the strong sense wooded ridges and steeper vand B4 in South Norfolk). In reflected in the area's command the historic settlement prodevelopment. As a result, the sensitivity to wind turbine deal of the product of the sensitivity to wind turbine deal of th	high land the special of enclose alley side addition, ons, the mattern industrian are areas we evelopment	dscape sensitivity to wind turbing all qualities such as the sense of sure provided by undulating landers in the adjacent character areas the historic landscape features 17th century grazing marsh enclurease sensitivity to wind turbing when combined, demonstrate a not overall.  Infrastructure for off shore wind Land outside the Executive	dform, as (A5 osures e high
landscape sensitivity	with filtered views of adjacer overall sensitivity of the area overall the two areas have a development. This is due to tranquillity, the strong sense wooded ridges and steeper vand B4 in South Norfolk). In reflected in the area's common and the historic settlement produced development. As a result, the sensitivity to wind turbine described by the sensitivity of the area of the sensitivity of the sensitivity of the sensitivity of the area of the	hit areas as is is cons high land the special of enclos alley side addition, ons, the attern induce areas we evelopment to large in areas  M-H	dscape sensitivity to wind turbing all qualities such as the sense of sure provided by undulating landers in the adjacent character areas the historic landscape features 17th century grazing marsh enclarease sensitivity to wind turbing when combined, demonstrate a not overall.  Infrastructure for off shore wind Land outside the Executive Small (0-20m)	dform, as (A5 osures e high

# Commentary:

This grouping of character areas is likely to have a lower sensitivity to small scale turbines (0-20m) where topography and vegetation can provide an element of screening. Siting will need careful consideration so as not to impact upon the distinctive historic settlement and landscape pattern of the areas, in addition to taking account of intervisibility with adjacent character areas and the well-defined skylines. As outlined above, the landscape would be highly sensitive to all other larger scale turbine typologies.

#### Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

South Norfolk -

A5: Waveney Rural River Valley: Rising valley sides to the Broads which provide intervisibility.

B4: Waveney Tributary Farmland: Elevated land close to the Broads in the north.

Waveney District -

H4: Mettingham Tributary Farmland: Steeply rising valley sides (10-15m AOD) to the north and forms part of the landscape setting of the Broads abutting the Broads Authority boundary along much of its length.

Fieldwork confirmed that the elevated ridgelines of areas A5 and B4 which surround character areas 1 and 2 are sensitive. H4 character area also displays a strong visual association with the Broads and is therefore of high sensitivity. The rising ridges are sensitive to wind turbine development of most typologies, particularly those at the higher end of the scale due to their prominence. Adjacent areas are less sensitive to small scale turbines (0-20m) where there is careful consideration of siting and impact upon sensitive characteristics (i.e. skylines, scale and intervisibility).

# Commentary on different cluster sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character a	ireas	Land outside the Executive	Area
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Н	<5 turbines	Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

# Commentary:

Within both character areas the landscape has a moderate-high sensitivity to single wind turbine schemes provided careful consideration of the sensitive characteristics (e.g. skylines) is demonstrated. The areas would however be sensitive to larger clusters due to the potential to interrupt skylines and in turn create visual clutter within an otherwise largely undeveloped skyline.

# Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

South Norfolk -

A5: Waveney Rural River Valley: Rising valley sides to the Broads which provide intervisibility.

B4: Waveney Tributary Farmland: Elevated land close to the Broads in the north.

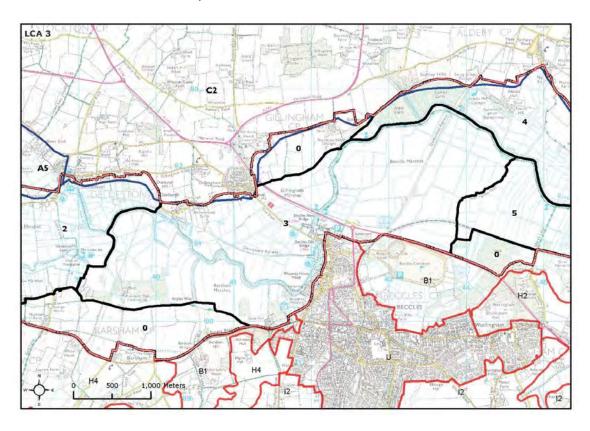
Waveney District -

H4: Mettingham Tributary Farmland: Steeply rising valley sides (10-15m AOD) to the north and forms part of the landscape setting of the Broads abutting the Broads Authority boundary along much of its length.

Fieldwork confirms that due to the relative prominence of the valley sides and ridges in these adjacent areas as they overlook the Broads, multiple turbine clusters could be more dominant in relation to skyline character and intervisibility, resulting in a high landscape sensitivity. Although the landscape has a lower sensitivity (moderate-high) to schemes of up to five turbines, design and siting would require careful consideration in relation to the predominantly undeveloped skylines to the Broads.

# LCA 3: Waveney Valley - Barsham, Gillingham & Beccles Marshes

# Location and landscape character context



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Landscape Sensitivity Assessment for Wind Turbines

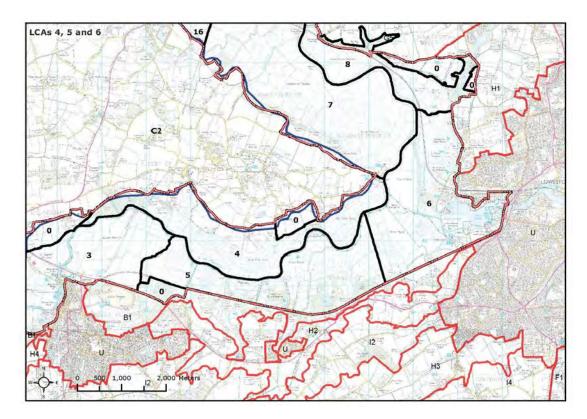
Criteria	Lower sensitiv	/ity	$\longleftrightarrow$	Higher sensitivity
1.Scenic and special qualities	and perceptual Beccles with ass would be sensit turbines. Also s valley floodplair associated mean	character - the sociated promive to large sensitive are follower to poten dering cours of open skie	ne traditional vern ninent medieval st cale modern deve the sense of trang ential impact of mo se of the River Wa s would be sensiti	rea relate mainly to aesthetic acular valley town core at cone built church tower, which lopment such as wind puillity to the wider river oving tall structures) and veney and wetland habitat ve due to potential impact of
2.Enclosure and scale	A well-defined water to created by pollar valley topograph in adjacent charmandscape patter elements are important to the control of the cont	valley landsca and willows to hy, woodland racter areas b erns are appai aparted by sa ine to create	ipe of small to me the river and assist to the southern beyond the Executerent to settlement illing boats using to a landscape which	dium scale, with enclosure ociated water courses, and by area boundary and the ridges ive Area. Small scale edges, whilst human scale he river. All of these is sensitive to large scale
3.Landscape and land cover pattern	riparian habitat, small areas of c number of humanistoric settlemenavigable Wave sensitivity to turlandscape, the I turbines. Howe	, flood meado arr woodland an scale refer ent of Beccles eney), and the rbines, as the legibility of w ever, larger so	ow and historic valued and orchards. The ences such as was, its quayside and echurch tower, all ey create human shich would potent	izing pasture, river and addition to the landscape contains a terside pollard willows, the diboats (associated with the lof which indicate higher cale elements in the lially be affected by wind the landscape pattern such as high overall.
4.Skylines	Skylines are mo are however vis formed by valle small woodland development, a horizon to the s predominantly of be sensitive. Ta	ostly uninterrusible in parts, y sides in adjudicks and outling the south (including vernacular aller skyline e	upted and undeve reducing skyline sacent landscape occasional small so ettlement edge at ng prominent churcharacter and of a	loped (high voltage pylons sensitivity). Horizons are character areas, and comprise ale settlement edge a Beccles forms part of the each tower). This is a scale and type which would bylons locally reduce
5.Perception and experience of the landscape	would be sensit perceptual land compact and his corridor within t	ive to turbine scape charact storic charact the area, loca as pylons – m	es due to their pot ter. Settlements a er. However intru illy reduce landsca	oor such as flood meadows ential effect on cohesion of are mostly of contained, usions such as the A146 ape sensitivity, as do tall sitivity to turbines in
6.Historic landscape character	areas of fragme	nted dole pat	tterns and traditio	sensitive to turbines e.g. nal vernacular settlement ne effect that turbines would

potentially have on scale and cohesion/perception of such historic elements. Much of the landscape of this area is also defined by boundary loss which reduces historic landscape sensitivity, as do areas where more modern settlement fringe influences persist. Taking all of the above into account, sensitivity of historic landscape character to wind turbines is moderate. This area has intervisibility with a small part of the Waveney River Valley outside the Broads Authority Executive Area, and associated tributary valley farmlands which form the valley slopes (Waveney LCA H4: Mid Waveney 7.Visual Tributary Farmland), although a degree of visual filtering is provided by the sensitivities and woodland blocks on the southern boundary of the character area. Similarly intervisibility the area is intervisible with the valley crests in South Norfolk District with areas character area C2 Thurlton Tributary Farmland, with a more open visual outside the character in this direction. The valley crests are therefore visually **Broads** prominent and important. In places, views are filtered by the presence of pollard willows lining water courses, creating visual foiling in relation to other Broads character areas within the Waveney Valley. Taking this varied visual character into account, the landscape has a moderate sensitivity to turbines in visual terms. Overall landscape sensitivity of the Waveney Valley – Barsham, Gillingham and Beccles Marshes to wind turbine development is moderate-high. Whilst a number of scenic and special qualities sensitive to turbines are present in this area, such as vernacular settlements and areas of open skies, overall Discussion on landscape sensitivity is slightly reduced by intrusions such as the A146 landscape corridor and line of pylons in the valley floor. The erosion of aspects of sensitivity historic landscape character, such as boundary loss, and associated impacts on scale, also influence this sensitivity judgement. This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons. Land within the character areas Land outside the Executive Area Small (0-20m) Small (0-20m) M-H M-H Medium (20-50m) н Medium (20-50m) Large (50-70m) Large (50-70m) н н Very large (70m+) Very large (70m+) н Commentary: Turbines at the smallest end of the range (below 20 metres to tip height) would have less effect on perceptual landscape character as they are closer in scale to existing landscape elements and existing vertical skyline features such as church towers. Turbines beyond this height range would introduce Sensitivity to elements out of scale with the landscape, hence the higher sensitivity different turbine heights Landscapes outside the Executive Area Relevant character areas and sensitivities are: Waveney District character area H4: Mid Waveney Tributary Farmland: Framed views to the Broads. South Norfolk District character area C2: Thurlton Tributary Farmland: Open views to the Broads. Turbines at the smallest end of the range (below 20 metres to tip height) would have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements. However, fieldwork confirms that the relative prominence of the valley sides and ridges in these adjacent areas means that larger turbines would appear

	more dominant in relation to t sensitivity.	the Broa	ids, resulting in a high landscap	е
	Land within the character a	areas	Land outside the Executive	Area
Commentary on different cluster sizes	Single turbine	М-Н	Single turbine	М-Н
Cimala tumbia	<5 turbines	Н	<5 turbines	Н
Single turbine Small clusters (<5 turbines)	6-10 turbines	Н	6-10 turbines	Н
Medium (6-10) Large (11-25)	11-25 turbines	Н	11-25 turbines	Н
Very large (>26)	>26 turbines	Н	>26 turbines	Н
	Commentary: Single turbines would confine the introduction of visual clutter in this simple valley landscape.  Landscapes outside the Executive Area Relevant character areas and sensitivities are:  Waveney District character area H4: Mid Waveney Tributary Farmland: Framed views to the Broads. South Norfolk District character area C2: Thurlton Tributary Farmland: Open views to the Broads.  Fieldwork confirms that the relative prominence of the valley sides and ridges in these adjacent areas as they overlook the Broads means that multiple turbine clusters could be more dominant in relation to skyline character and intervisibility, resulting in a high landscape sensitivity.			

LCA 4: Waveney Valley – Aldeby to Burgh St Peter: LCA 5: Waveney Valley - Worlingham Wall to Boundary Dyke, Barnby: LCA 6: Waveney Valley -Boundary Dyke Barnby to The Fleet, Oulton

# Location and landscape character context



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Landscape Sensitivity Assessment for Wind Turbines

zarraceape cerre	BILIVITY ASSESSITIETT TO	er willia ranemie.	
Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity
1.Scenic and special qualities	specifically the wide and of 6. These wide open areas as a result of the introduction strong sense of tranquillit corridors indicating a high contrast with the mostly the second of the	open landscapes of the are sensitive to movertion of wind turbines by away from settlementer sensitivity to large tranquil and isolated of	
	remote area.		
2.Enclosure and scale	(i.e. some large scale recommondand) creating localist in landform (i.e. the adjace the Broads Executive Area and Stanley carrs in area and Old Broad in area 5). of the River Waveney proof These areas are sensitive features and passing boat Elsewhere the areas are concept to the Castle Marshes and Peto's	tilinear enclosures and sed variation. Enclosus cent South Norfolk and a) and small clusters 4 and North Cove Na In addition, areas of vide enclosure within to wind turbine deveting traffic providing a considerably more opens Marsh) which would the due to the reduced states.	lopment with landscape a relative sense of scale. en (large scale marshes i.e. have a lower sensitivity to sense of scale with no visual
3.Landscape and land cover pattern	a mosaic of carr woodland with reed fringed edges. I textured surface and this to wind turbines. The woo characteristic of the area	d, open marshland an When combined, thes diversity of elements oded settlement at the and is sensitive to wi	e elements create a rich and indicates a higher sensitivity
4.Skylines	where development at Lo Gently rising ridgelines in and wooded ridges filter of and undeveloped skylines Elsewhere, localised mode sand and gravel workings Lowestoft wind turbine (G	westoft is visible on to the adjacent South No distant views. These re are sensitive to wind ern development form in South Norfolk, and Gulliver) visible from a	lorfolk and Waveney Districts elatively uninterrupted views I turbine development. In part of the skyline (i.e. doverhead power lines and
5.Perception and experience of the landscape	Each of the character area there is some localised in development, and sand at Although remote, areas 5 via the Angles Way and lo the well-used Oulton Broa	as have a tranquil and trusion on the edges and gravel extraction pand 6 have provision focal footpaths across and (recreation). Area	d remote character although (Lowestoft urban bits in South Norfolk District). In for access along the river the marshes, in addition to

	each of the areas. Although there are some localised intrusions, all						
	landscape character areas would be sensitive overall to wind turbine development in perceptual terms.						
6.Historic landscape character	A number of sensitive historic landscape types are apparent; specifically in area 6 which retains 16 <sup>th</sup> and 17 <sup>th</sup> century grazing marshes and where Edwardian waterside development at Oulton Broad is recognised through Conservation Area status. Such small scale features would be sensitive to wind turbine development. Elsewhere, localised features such as Worlingham medieval wall (today a raised tree lined corridor) in the west of area 5 and 17 <sup>th</sup> and 18 <sup>th</sup> century farmsteads on the northern fringes of area 4 are of higher sensitivity to wind turbine development. Some areas of lower sensitivity HLT's are evident, although this is confined to localised areas of large scale rectilinear field patterns which are a result of field boundary removal (e.g. central parts of area 4 and eastern parts of area 5).						
7.Visual			<u> </u>	11 .			
sensitivities and intervisibility with areas outside the Broads	The open expanse of marshes provides distant views with some intervisibility into adjacent character areas (i.e. South Norfolk District area B1 and C2 and Waveney District area H2) which would indicate a higher sensitivity to wind turbines. Areas of enclosed landscape character adjacent to blocks of carr woodland or rising topography create containment and would therefore have lower sensitivity to wind turbine development.						
the state of the s							
Discussion on landscape sensitivity	to wind turbine of some of the Specifically ref historic landscathe winding rivacross the mar Oulton Broad. Lowestoft, the large scale 20 <sup>th</sup> judgement of r	e development Broads special erence is made ape character a ver corridor and rshes and the p Sensitivity is lo sand and grav h century rectil moderate – hig t also applies t	in general qualities to the version the version of	al. This within aried lar d with 1 on for bo of Edwa s a resuld South N d pattern	oderate - high s is due to the re these character ndscape pattern 6 <sup>th</sup> and 17 <sup>th</sup> cer ating, the sense rdian settlemer t of localised in lorfolk District, ns which results	epresentar areas. n and scantury mar e of trand nt surroui trusion a and area s in an ov	ation ale, the rshes, quillity nding at as of verall
landscape	to wind turbine of some of the Specifically ref historic landscathe winding rivacross the mar Oulton Broad. Lowestoft, the large scale 20 <sup>th</sup> judgement of r	e development Broads special erence is made ape character a ver corridor and shes and the pSensitivity is losand and graving century rectil moderate – hight also applies that as pylons.	in general qualities to the vassociated provision presence owered as left in the control of the	al. This within aried lar d with 1 on for bo of Edwa s a resul South N d pattern	is due to the re these character ndscape pattern 6 <sup>th</sup> and 17 <sup>th</sup> cer ating, the sense rdian settlemer t of localised in lorfolk District, ns which results	epresentar areas. In and sca Intury mar e of trand Intusion a and area is in an over	ation ale, the rshes, quillity nding at as of verall
landscape sensitivity	to wind turbine of some of the Specifically ref historic landscathe winding rivacross the mar Oulton Broad. Lowestoft, the large scale 20 <sup>th</sup> judgement of r	e development Broads special erence is made ape character a ver corridor and rshes and the p Sensitivity is lo sand and grav h century rectil moderate – hig t also applies t as pylons.	in general qualities to the vassociated provision presence owered as left in the control of the	al. This swithin aried lar dwith 1 on for bo of Edwa sa resul South Nd pattern frastructure Land of Small of Sm	is due to the rethese character and cape pattern 6 <sup>th</sup> and 17 <sup>th</sup> cer ating, the sense rdian settlement of localised in lorfolk District, as which results eture for off shoot butside the Extension (0-20m)	epresentar areas. In and sca Intury mar e of trand Intusion a and area is in an over	ation ale, the rshes, quillity nding at as of verall
landscape	to wind turbine of some of the Specifically ref historic landscathe winding rivacross the mar Oulton Broad. Lowestoft, the large scale 20 <sup>tl</sup> judgement of running the schemes, such	e development Broads special erence is made ape character a ver corridor and rshes and the p Sensitivity is lo sand and grav h century rectil moderate – hig t also applies t as pylons. he character	in general qualities to the vassociated provision presence owered as el pits in inear fielch.  o large in areas	al. This swithin aried lar dwith 1 on for bo of Edwa sa resul South Nd pattern frastructure Land of Small of Sm	is due to the rethese character ndscape pattern 6 <sup>th</sup> and 17 <sup>th</sup> cer ating, the senser to flocalised in lorfolk District, ns which results cture for off sho	epresentar areas. In and sca Intury mar e of trand Intusion a and area is in an over	ation ale, the rshes, quillity nding at as of verall farm
landscape sensitivity  Sensitivity to	to wind turbine of some of the Specifically ref historic landscathe winding rivacross the mar Oulton Broad. Lowestoft, the large scale 20 <sup>th</sup> judgement of rather than the schemes, such Land within the Small (0-20m)	e development Broads special erence is made ape character a ver corridor and rshes and the p Sensitivity is lo sand and grav h century rectil moderate – hig t also applies t as pylons. he character	in general qualities to the vent of the ve	al. This swithin aried lar dwith 1 on for bo of Edwa s a resul South N d pattern frastructure Land of Small (	is due to the rethese character and cape pattern 6 <sup>th</sup> and 17 <sup>th</sup> cer ating, the sense rdian settlement of localised in lorfolk District, as which results eture for off shoot butside the Extension (0-20m)	epresentar areas. In and sca Intury mar e of trand Intusion a and area is in an over	ation ale, the rshes, quillity nding at as of verall farm  Area

# Commentary:

Within areas 4, 5 and 6, the introduction of medium, large and very large scale turbines would introduce elements out of scale with the existing features and could become focus points in a relatively undeveloped landscape. It is however noted, that when carefully sited, some areas are less sensitive to small scale turbines of less than 20m to tip height due to existing scale of landscape and elements.

# Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

#### South Norfolk -

C2 Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley.

#### Wavenev -

B1 Waveney Valley: Rising valley sides (15-20m AOD) evident in views from the Broads.

H2 Waveney Tributary Valley Farmland: Gently sloping valley sides providing views out into the Broads with some smaller blocks of woodland.

Given the prominence of the adjacent ridges in relation to the Broads landscapes, landscape sensitivity to the largest turbines in the typology is the same as for the areas in the Broads as set out above. Character areas which are partially screened from within the Broads by clusters of woodland (H2) and rising landform indicate a lower sensitivity to wind turbines of smaller scale (small and medium). However, these would need careful consideration with their relationship with the Broads, due to topography, skylines and land cover.

Commentary on
different cluster
sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character areas		Land outside the Executive	Area
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Н	<5 turbines	М-Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

## Commentary:

Clusters of turbines would be likely to have greatest impact upon the character of these areas creating a level of visual intrusion in what are relatively undeveloped skylines. As a result, areas 4, 5 and 6 are considered to have the highest level of sensitivity to clusters of turbines due to the complex pattern of elements, largely uninterrupted views and skylines and the tranquil character of the marshes. There is however lower sensitivity to single wind turbines of a small scale although careful siting and design would be needed in relation to existing features which form part of the skyline and historic character.

# Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

#### South Norfolk -

C2 Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley.

# Waveney -

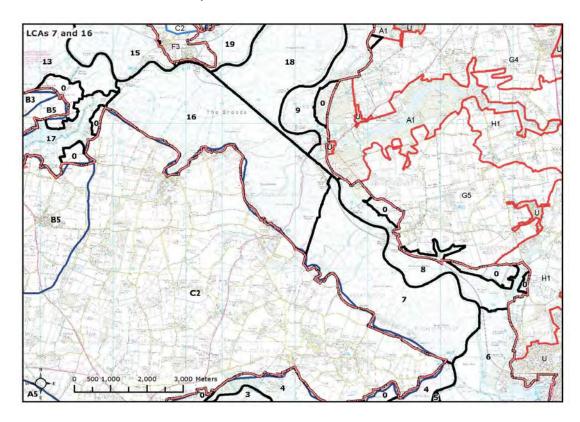
B1 Waveney Valley: Rising valley sides (15-20m AOD) evident in views from the Broads.

H2 Waveney Tributary Valley Farmland: Gently sloping valley sides providing views out into the Broads with some smaller blocks of woodland.

Given the prominence of the adjacent ridges in relation to the Broads landscapes, landscape sensitivity to the largest turbine clusters is the same as for the areas in the Broads as set out above. Character areas which are partially screened from within the Broads by clusters of woodland (area H2) and rising landform indicate a lower sensitivity to clusters of up to five turbines. However, these would need careful consideration to their relationship with the Broads, due to topography, skylines and land cover.

# LCA 7: Waveney Valley – Burgh St. Peter to Haddiscoe Marshes: LCA 16: Yare and Waveney Valley - Norton Marshes to Haddiscoe Dismantled Railway

# Location and landscape character context



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Landscape Sensitivity Assessment for Wind Turbines

Criteria	Lower sensitivity	<b></b>	Higher sensitivity
1.Scenic and special qualities	with big skies, the wide excharacter of the areas. How intrusion, such as the Lowe	evelopment. These inc panses of floodplain a wever some areas have estoft railway line and le area 16 is locally in the A143 which reduce ugar Beet Factory com the areas are sensitive pansive views and op alised intrusive eleme	clude the sense of openness and the tranquil and remote we a degree of localised the edge of the settlement fluenced by pylons crossing es sensitivity. Within area applex on the skyline also to wind turbine en landscape character,
2.Enclosure and scale	enclosure provided by distate element of visual containmans. Sugar Beet Factory complete although they do provide reboundaries are ditched and enhances the sense of operassociated with area 16 and elements.	due to the lack of visuant valley sides and rigent. Elements such as ex introduce clutter to eference to human so dunmarked by structurness across area 7, od the New Cut also reall the area has a moscale open marsh whe sure provided by distant.	ual boundaries, although the sing landform provides an spylons and the Cantley this large scale landscape, ale features. Marshural vegetation which while the boundary loss educe sensitivity to wind derate sensitivity as a result are field boundary removal ant valley sides and
	The large cools simple are	ble land sover pattern	of area 7 which displays
3.Landscape and land cover pattern	rectilinear dyke patterns w to wind turbines, due to th	elements (water and rarbine development. He a 16 is more varied which are of a finer grae influence of larger soloser to the fringes of 7), there is greater we of carr woodland whand results in a higher d landscape pattern to	marsh) would indicate a lowever, the landscape with a mix of curvilinear and in and thus more sensitive cale elements (turbines) on of the areas (particularly the ariation in land cover nich influences the sensitivity. Due to both
4.Skylines	Skylines are mostly undeversible localised intrusion do exist Cantley Factory complex) was maller scale vertical feature. Herringfleet, church tower at Burgh Marshes) althoug increase sensitivity. Rising edges of the areas also hel nature of views, thus having of area 7, skylines are defi	(e.g. pylons on Thurli which reduce sensitivi- res visible on the skyl at St Peter's Staithe a h these are of historic landform and distant p define skylines and ng a higher sensitivity	ton Marshes and the ty. There are also some lines (wind pumps at and a steam engine house all importance and therefore wooded ridges on the add to the undeveloped. For example to the north

	T				
	south skylines are formed by a band of carr woodland on lower valley slopes. The skyline of area 16 is defined by undulating farmland in the adjacent South Norfolk character area (C2), while to the east the horizon is defined by wooded ridges of Waveney Forest and Somerleyton Estate. Although there is a degree of intrusion associated with the Cantley Factory, pylons and traffic travelling through the area on the A143, the area has an overall moderate-high sensitivity due to largely undeveloped skylines with mostly uninterrupted views.				
5.Perception and experience of the landscape	Both character areas have a with the wide, expansive ma localised intrusion (i.e. pylor complex). The A143 and the impede on the sense of tran human activity create a deg characteristics of the area a has a moderate sensitivity to perception and experience.	arshes alth as on Thun Great Ya quillity in ree of dist and therefo	nough this is reduration Marshes and rmouth to Lowes these areas and turbance in relatione reduce sensiti	the Cantley Factory toft railway line also these elements of on to the perceptual vity. Overall the area	
6.Historic landscape character	Areas of 17 <sup>th</sup> century grazing wind turbine development do historic landscape pattern, who boundary loss, particularly resensitivity to wind turbine do of 20 <sup>th</sup> century rectilinear gradiower sensitivity. Both areas of these has since been lost the north of area 7 (i.e. Here higher sensitivity due to the	ue to the while parts near the 1 evelopment azing man were once but there tingfleet [	potential to affects of area 16 which 9th century New (ant. In addition, the shes across both the drained by mill are visual links to Drainage Mill) whi	t coherence of this n display evidence of Cut are of lower here are large areas areas which are of s although evidence o drainage mills to	
7.Visual sensitivities and intervisibility with areas outside the Broads	Due to the flat nature of the marshes there is intervisibility with areas within the Broads (6, 8 and 16) and those in adjacent districts. These include areas A1, G4 and G5 in Waveney District and area C2 in South Norfolk District. Although views towards adjacent areas are often contained by wooded ridges (i.e. north and south of area 7) these adjacent areas influence the character of the Broads and this degree of intervisibility indicates a higher sensitivity to wind turbine development. The areas have an overall high sensitivity as a result of the degree of intervisibility, distant views and the potential of adjacent character areas to influence the visual character of the Broads areas.				
Discussion on landscape sensitivity	The areas when combined have a moderate-high sensitivity to wind turbine development due to the special qualities of the Broads (wide, open landscape, sense of tranquillity and mostly undeveloped skylines) which are represented within these character areas. The remote character of the areas and the degree of intervisibility with adjacent areas also increase sensitivity to wind turbine development. However, there is a noticeable degree of intrusion and visual clutter which exists within these areas as a result of the pylon lines and the Cantley Factory complex which are highly visible on skylines across the area. The large scale rectilinear field pattern, where there is strong evidence of field boundary loss, also indicates a lower sensitivity to wind turbine development and although this is localised it would nevertheless reduce sensitivity.  This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.				
Sensitivity to different turbine heights	Land within the character Small (0-20m)	m-H	Land outside of Small (0-20m)	the Executive Area	

Medium (20-50m)	Н	Medium (20-50m)	М-Н
Large (50-70m)	н	Large (50-70m)	Н
Very large (70m+)	н	Very large (70m+)	Н

## Commentary:

Due to the nature of the open, expansive marshes with distant views, this grouping of character areas has a high sensitivity to wind turbine development to most groupings on the larger end of the typology scale, although the sensitivity of the landscape to small scale turbines (0-20m) is reduced. Siting will need careful consideration particularly in relation to their impact upon skylines and the potential to create visual clutter. As set out above, the majority of these areas are sensitive to wind turbine development, particularly those at the large end of the scale.

# Landscapes outside the Executive Area

The relevant character areas and sensitivities are:

South Norfolk -

C2: Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley.

Great Yarmouth and Waveney -

G4: Hobland Settled Farmland: Site work confirmed that the escarpment at Burgh Castle is a prominent ridge which provides views out into the Broads.

G5: Somerleyton Settled Farmland: Some long views across the adjacent low lying pasture and wetland landscape of the Broads and reciprocal views back with this area.

Given the prominence of these topographic features in relation to the marshland landscapes of these parts of the Broads, landscape sensitivity to the largest turbines is generally the same as for the areas in the Broads as set out above. However, sensitivity would be slightly lower (moderate-high) for clusters of up to 5 turbines where careful consideration is given to siting in relation to the more sensitive characteristics.

# Commentary on different cluster sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character areas		Land outside the Executive	Area
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Н	<5 turbines	М-Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

# Commentary:

Due to the level of visibility across both areas, the landscape has a high sensitivity to all groupings of turbines due to their potential to introduce visual clutter to this landscape of undeveloped skylines. The landscape is however less sensitive to single turbines where there is careful siting and consideration is given to the sensitive characteristics outlined above.

# Landscapes outside the Executive Area

Relevant areas and sensitivities are:

South Norfolk -

C2: Thurlton Tributary Farmland with Parkland: Views open out to the

Broads where land rises up from the low lying Waveney Valley.

Great Yarmouth and Waveney -

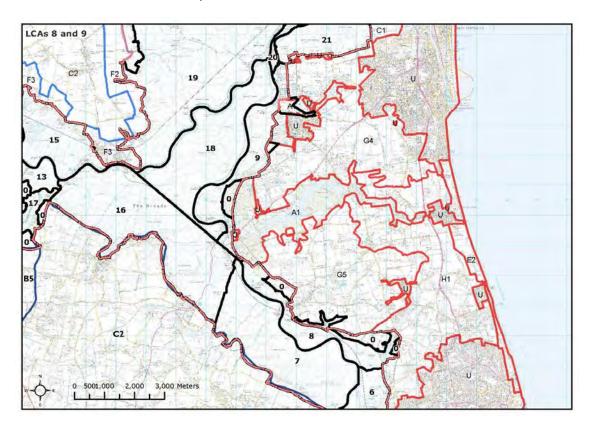
G4: Hobland Settled Farmland: Site work confirmed that the escarpment at Burgh Castle is a prominent ridge which provides views out into the Broads.

G5: Somerleyton Settled Farmland: Some long views across the adjacent low lying pasture and wetland landscape of the Broads and reciprocal views back with this area.

Given the prominence of these topographic features in relation to the marshland landscapes of these parts of the Broads, landscape sensitivity to turbine clusters is generally the same as for the areas in the Broads as set out above. However sensitivity would be slightly lower (moderate-high) for clusters of up to 5 turbines where careful consideration is given to siting in relation to the more sensitive characteristics.

# LCA 8: Waveney Valley - Flixton to Herringfleet Marshes: LCA 9: Waveney Valley - St Olaves to Burgh Castle

# Location and landscape character context



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Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity				
1.Scenic and special qualities	such as the wide open land highly sensitive to wind tu of tall vertical features in t impede upon the sense of	dscapes, big skies and rbine development. The hese expansive areas space and the large slocross the marshes would add moveled scape, thus increasing the side of the same and scape, thus increasing the same and scapes and scapes and scapes are side of the same and scapes are side of the same and scapes are same and scapes are side of the same are same a	nis is because the presence of open landscape would kies. The rural character all also be influenced by the ment and noise to an ing the sensitivity. Overall				
2.Enclosure and scale	more defined medium size expansive character (parti area 9 is however less sen lack of visual boundaries a scale (albeit some drainag an open landscape, the no have a greater sense of er Great Yarmouth's G4:Hobl Settled Farmland characte	d field pattern, while a cularly to the west). To sitive to wind turbine and having few feature e mills along the Wave of area 8 aclosure with a pronou and Estate Farmland a rareas and small blocatural containment results of scale perceived by later visible throughout a cariation in enclosure at	he open marsh character of development, due to the is that relate to human eney). Although generally and eastern edge of area 9 nced ridge rising to 20m in and G5: Somerleyton ks of carr woodland create sults in a higher sensitivity andform and tree cover.				
3.Landscape and land cover pattern	although there is a good delements. Specifically this rivers and bands of mixed variation across the areas both areas indicate a high the sinuous dyke pattern for These patterns are of high the potential of turbines to	The landscape and land cover pattern is predominantly grazing marsh although there is a good deal of textural variation due to a combination elements. Specifically this is provided by reed ronds along the course of rivers and bands of mixed and coniferous plantation which create textura variation across the areas. This degree of variation in land cover pattern both areas indicate a higher sensitivity to wind turbine development as the sinuous dyke pattern found within the Caldecott Marshes in area 9. These patterns are of higher sensitivity to wind turbine development due the potential of turbines to affect visual perception, although there are lateracts of grazing marsh which are of a lower sensitivity. Overall the areas					
4.Skylines	to detract from this simple area 8 and in adjacent cha and therefore any introduc potential to appear out of and north of area 8 also for have a higher sensitivity.	uth from area 9) with ensitivity. This is due a skyline character. Vinacter areas (areas 18 ction of tall structures scale. The wooded rider distinctive undeversity over all, due to the relative to the relative to the scape.	a simple open character to the potential for turbines ews of drainage mills in B) provide reference to scale such as turbines have the ges to the east of area 9 loped skylines and therefore				
5.Perception and experience of the landscape	remoteness from within th	e expansive marshes. lough some distant vie	by the sense of rurality and There is little in the form of the ews of Great Yarmouth exist and turbine development.				

	and due to their perceived hi Overall the areas have a high is due to the potential for wir	storical s n sensitiv nd turbine	lrainage mills characterises bot ignificance they increase sensi- ity to wind turbine developmer es to detract from the sense of f modern, large scale features.	tivity. nt. This
6.Historic landscape character	(drainage mills, Burgh Castle Wicker Well and Summerhou turbine development. These wind turbine development duthese features and the ability area is primarily comprised of there are areas of sensitive 1 curvilinear marsh boundary paredium-high sensitivity to	e, the Aug se Water cultural e ue to the y to appre if 19 <sup>th</sup> -20 17 <sup>th</sup> centu- patterns. wind turl fect the se	ements of historic significance gustinian Priory at St. Olaves, a gardens) which are sensitive telements are considered sensiti potential to affect the coherence ciate them. In landscape term th century grazing marsh althoury rectilinear enclosures and Overall the area is considered bine development, due to the potale and coherence of historic	to wind ve to ce of us, the ugh
7.Visual sensitivities and intervisibility with areas outside the Broads	contained by rising ridges (20 which reduces sensitivity. The Somerleyton Settled Farmlan resulting in a landscape which However due to the open and due to the elevation of the hi	Om) to the wooded of character in is less stands and the more exited the contracter in the contracter	the marshes although these vine north of area 8 and east of a diridge of Great Yarmouth's G5 ter area also filters views thus sensitive to wind turbine developments views into the marshed east and their prominence in views the ridges screen distant views in the consisting terms of the constitution of the consisting terms of the consisting terms of the constitution of the constitution of the consisting terms of the constitution of the constitu	opment. es and ews, iews,
	wind turbine development in			ity to
				ity to
Discussion on landscape sensitivity	wind turbine development in  This character area grouping development due to the specthese areas (wide, open land undeveloped skylines), all of development. The remote chundeveloped nature of these wind turbine development. It of intrusion from adjacent ary Yarmouth) as a result of pylothis sense of tranquillity, althe containment to adjacent character areas are of high sense of the sense of the character areas are of high sense of the sense o	has a high ial qualities which we aracter, the areas creater is however the combination of the combination o	gh sensitivity to wind turbine ies of the Broads represented we have of tranquillity and mostly build be sensitive to wind turbing the sense of rurality and the leate a landscape which is sensitiver recognised that there is a common of the sense of the sensitive recognised that there is a common of the sense of the sensitive recognised that there is a common of the sensitive recognised that there is a common of the sensitive recognised that there is a common of the sensitive recognised that there is a common of the sensitivity to wind turbine its answer.	within  ne litive to legree  reduce sual hough t due to es, these byerall.
landscape	wind turbine development in  This character area grouping development due to the specthese areas (wide, open land undeveloped skylines), all of development. The remote chundeveloped nature of these wind turbine development. It of intrusion from adjacent are Yarmouth) as a result of pylothis sense of tranquillity, alth containment to adjacent character delevated ridges are highly their prominence. Due to the character areas are of high sense of tranquillity alther prominence. This judgement also applies the schemes, such as pylons.	has a high ial qualities ape, see which we areas creations, boaty nough this racter are y sensitive combinate institutions to large in	gh sensitivity to wind turbine lies of the Broads represented vense of tranquillity and mostly build be sensitive to wind turbing the sense of rurality and the leate a landscape which is sensitive recognised that there is a control of the leate and caravan parks which is is localised. The degree of visities also reduces sensitivity, alto reto wind turbine development of the latter of the lat	within ne itive to degree reduce sual hough due to es, these overall.
landscape	wind turbine development in  This character area grouping development due to the specthese areas (wide, open land undeveloped skylines), all of development. The remote chundeveloped nature of these wind turbine development. It of intrusion from adjacent are Yarmouth) as a result of pylothis sense of tranquillity, althe containment to adjacent character areas are of high set.  This judgement also applies to	has a high ial qualities ape, see which we areas creations, boaty nough this racter are y sensitive combinate institutions to large in	gh sensitivity to wind turbine ies of the Broads represented vense of tranquillity and mostly buld be sensitive to wind turbin the sense of rurality and the eate a landscape which is sensitive recognised that there is a cicularly from G4 within Great yards and caravan parks which is is localised. The degree of visities also reduces sensitivity, alto the to wind turbine development of the wind turbine developmen	within ne itive to degree reduce sual hough due to es, these overall.
landscape	wind turbine development in  This character area grouping development due to the spect these areas (wide, open land undeveloped skylines), all of development. The remote character areas development. It of intrusion from adjacent are Yarmouth) as a result of pylot this sense of tranquillity, alth containment to adjacent character areas are of high sections.  This judgement also applies to schemes, such as pylons.	has a high ial qualities which we areas creations, boaty nough this racter are y sensitive combinate in large in areas	gh sensitivity to wind turbine lies of the Broads represented wense of tranquillity and mostly build be sensitive to wind turbing the sense of rurality and the leate a landscape which is sensitive recognised that there is a conficularly from G4 within Great leated and caravan parks which is is localised. The degree of visities also reduces sensitivity, alto the to wind turbine development of the towards and caravan parks which is also reduces sensitivity, alto the towards are towards and turbine development of the towards are towards and turbine development of the towards are towards and turbine development of the towards are the	within  ne itive to degree  reduce sual hough due to ss, these overall. I farm
landscape sensitivity  Sensitivity to	wind turbine development in  This character area grouping development due to the specthese areas (wide, open land undeveloped skylines), all of development. The remote chundeveloped nature of these wind turbine development. It of intrusion from adjacent ary Yarmouth) as a result of pylothis sense of tranquillity, althe containment to adjacent character didges are highly their prominence. Due to the character areas are of high schemes, such as pylons.  Land within the character Small (0-20m)	has a high land plant areas creations, boaty areaster area combinated by sensitivity to large in areas.	gh sensitivity to wind turbine ies of the Broads represented we have of tranquillity and mostly build be sensitive to wind turbine he sense of rurality and the eate a landscape which is sensiver recognised that there is a conficularly from G4 within Great yards and caravan parks which is is localised. The degree of visities as also reduces sensitivity, alto reto wind turbine development of the towind turbine development of the towing turbine development of the turbine development of the towing turbine development of the turbine development of turbine development of the turbine development of turbine dev	within he litive to legree reduce sual hough t due to cs, these overall. I farm

## Commentary:

Due to the nature of the open, expansive and undeveloped marshes, this grouping of character areas has a high sensitivity to wind turbine typologies of all scales. This is primarily due to the potential impacts on undeveloped skylines, the sense of scale in relation to historic features (particularly in relation to drainage mills and Burgh Castle) and the perceptual experience of such a remote landscape. As set out above, the majority of these characteristics are highly sensitive to wind turbine development, due to the potential to impact upon the coherence and character of the landscape and influence the perception of scale.

## Landscapes outside the Executive Area

Relevant character areas and sensitivities:

Great Yarmouth/Waveney -

A1: Waveney Rural Wooded Valley: Fieldwork has confirmed that the wooded ridge to the edge of area A1 which incorporates Waveney Forest is prominent and therefore sensitive in relation to the Broads.

G4: Sensitive elements of this area in relation to the Broads and revealed through field survey are the low wooded ridge which adjoins the north eastern part of Broads LCA 9 and Burgh Castle Roman Fort, which occupies the top of the ridge. These are prominent features in relation to the Broads.

G5: The wooded parkland fringes on the plateau to the edge of the Waveney Rural Wooded Valley form undeveloped skyline elements to the east of the Broads, which contribute to this setting and are therefore sensitive.

Due to the level of intervisibility with adjacent prominent ridges outside the Broads, these landscapes are considered to have a high sensitivity in relation to the Broads, to larger scale turbines. Although screened in parts by woodland blocks the prominence of these ridges reduces the ability to screen turbines and therefore they are judged to have a high sensitivity in relation to the Broads.

# Commentary on different cluster sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

relation to the Broads.			
Land within the character a	ireas	Land outside the Executive	Area
Single turbine	Н	Single turbine	Н
<5 turbines	Н	<5 turbines	Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

### Commentary:

Due to the level of visibility and prominence of adjacent ridges, the landscape has a high sensitivity to all clusters of turbines, due to their potential to introduce visual clutter to an undeveloped skyline.

## Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

Great Yarmouth/Waveney -

A1: Waveney Rural Wooded Valley: Fieldwork has confirmed that the

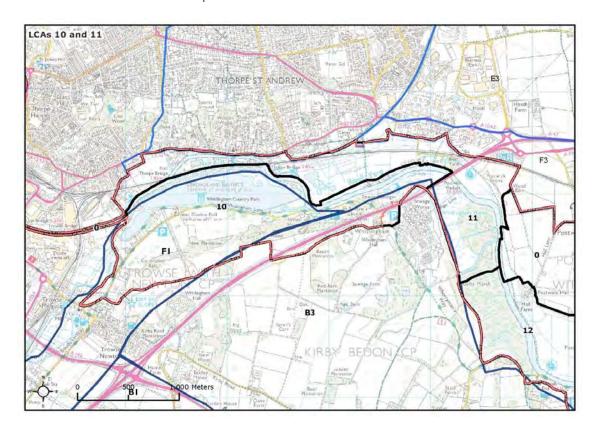
wooded ridge to the edge of area A1 which incorporates Waveney Forest is prominent and therefore sensitive in relation to the Broads.

G4: Sensitive elements of this area in relation to the Broads and revealed through field survey are the low wooded ridge which adjoins the north eastern part of Broads LCA 9 and Burgh Castle Roman Fort, which occupies the top of the ridge. These are prominent features in relation to the Broads.

G5: The wooded parkland fringes on the plateau to the edge of the Waveney Rural Wooded Valley form undeveloped skyline elements to the east of the Broads which contribute to this setting and are therefore sensitive.

Due to the level of intervisibility with adjacent prominent ridges outside the Broads, these landscapes are considered to have a high sensitivity in relation to the Broads to larger scale turbines. Although screened in parts by woodland blocks, the prominence of these ridges reduces the ability to screen turbines and therefore they are judged to have a high sensitivity in relation to the Broads.

## LCA 10: Yare Valley - Whitlingham Lane and Country Park, LCA 11: Local Character Area 11 - Yare Valley Cary's Meadow, Thorpe Island and Marshes, Postwick Grove and Whitlingham Marshes



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	3				
Criteria	Lower sensitiv	rity	$\longleftrightarrow$	Higher ser	nsitivity
1.Scenic and special qualities	represented in thabitats in area in terms of coheruse of both area interest in the lathese terms. Ta	his character 10 relates to esiveness to was for boating andscape and aking the above sensitivity to	as sensitive to wind area grouping, alta a landscape patte vind turbine develor also indicates a de therefore also solve into account, the to turbine develop	though the divern which would opment. The regree of recreame sensitivity these areas have	ersity of d be sensitive ecreational ational user o turbines in e a moderate
2.Enclosure and scale	enclosure provid (e.g. wood fring wooded parkland wooded valley s landscape to tur appear out of sc	ded by woodladed broad in a ds to the sour ides. This lest bine development is udgement is	of medium scale a and within and sur rea 10 plus woode th, and, in area 17 vel of enclosure in ment, as wind turl elements which m reinforced by hum sing the river.	rounding the c ed south facing I, by relatively creases the ser bines would po ake up these la	haracter areas ridge and the steep, well nsitivity of the tentially andscapes.
3.Landscape and land cover pattern	created by trans diverse and mor presence of rive nature reserve r aggregate extra	sport corridors e naturalistic r and ripariar near Postwick ction, industr	ms of landscape p s and urban edge pattern is created n vegetation, areas Viaduct, albeit wi ial sites and boaty ern, landscape ser	development, of in area 11 dues of scrub, gras th contrast crewards. Due to the development of the contrast crewards.	whilst a e to the ssland and the ated by this mixed and
4.Skylines	partly foiled by voverlooking the pylons, are pronsensitivity to tur in character, largewage works so skyline sensitivity	woodland and valley. To the ninent skyline bines. Withinger scale devouth of the rivity to turbines	ch of the northern I mature trees on e west taller build e elements, locally n area 11, whilst relopment such as ver form skyline e is moderate, alth s within area 11 w	the south facings within Nor reducing lands much of the sky the Postwick V lements. Giver ough it is recog	ng ridge rwich, and scape yline is wooded riaduct and the n the above, gnised that
5.Perception and experience of the landscape	landscape chara (including the by locally enhanced including relict p sense of tranqui	cter, such as ypass and The by the wetla barkland and lity and percolarge scale s	ant intrusions which urban fringe developpe). However seemed environment of the work whitlingham Great eptual landscape ettlement at Norwhe A47 bypass.	elopment at No ense of tranquil of Whitlingham t Broad. Withi character is dis	rwich lity here is Country Park n area 11, the jointed due to
6.Historic landscape character	associated with turbines as the o vulnerable to su	Trowse Newto cohesiveness ch developme	scape character su on and Whitlingha of such features v ent. Other historiced the Great Broad	m Hall would b would potential c processes suc	e sensitive to ly be ch as gravel

	historic landscape pattern an of the historic character of ar such as areas of 17 <sup>th</sup> -20 <sup>th</sup> cer sensitivity is reduced by area Given the above, sensitivity of overall, due to its level of fra	ea 11 wontury rect s of bour of the his	ould also be sensitive to wind cilinear grazing marsh, althoundary loss north east of the ratoric landscape pattern is mo	l turbines, ugh iver.
7.Visual sensitivities and intervisibility with areas outside the Broads	Views out from area 10 are of parkland and the embankmer although large scale developing from within the area (pylons). Some views are available to the Norwich urban area, with Spixworth Estate Lands beyon intervisibility with South Norf Tributary Farmlands. Within area 11, many views at the river, the valley topograph However, there is intervisibility from this area, notably to the Broadland District character at Estatelands and Rackheath and area F3: Reedham to The As such, whilst there is a decomposition.	nts to the ment assument alle the settle Broadlar and took Distribute are frame why and waty with one north of areas E3 and Salhooppe Mars	e edge of Whitlingham Great ociated with the urban edge of buildings within Norwich). It wooded ridge to the north and District character area E3 to the rising parklands to the ct character area B3 Rocklar and due to the meandering convolland, particularly to the other landscapes outside the of the river, the wooded skyling and E4 (Spixworth Wooded use Wooded Estatelands responses Fringe are visible.	Broad, is visible  (within  south - ad  urse of south. Broads aes within  bectively),
	character, sensitivity to wind  This judgement also applies t schemes, such as pylons.	turbines	in visual terms is judged mo	oderate.
	character, sensitivity to wind  This judgement also applies t	turbines	in visual terms is judged mo	oderate.
Discussion on landscape sensitivity	character, sensitivity to wind  This judgement also applies t	of this ardisjointed by large Norwicky sides anfluenceses such anitlinghan	ea group to wind turbines is d landscape pattern and hist e scale settlement edges and the Bypass), the degree of visind woodlands and the present to area 10 in particular. Agis relict historic landscape par and Trowse Newton, and the	nd farm  coric d by ual nce of painst this atterns ne sense
landscape	Character, sensitivity to wind  This judgement also applies to schemes, such as pylons.  Overall landscape sensitivity moderate. This is due to the character (severances create transport corridors such as the containment created by valle large scale settlement edge if are balanced sensitive feature created by parkland as at Wh	of this ardisjointed by large Norwicky sides another such anithinghan ham Court	ea group to wind turbines is d landscape pattern and hist e scale settlement edges and the Bypass), the degree of visind woodlands and the present to area 10 in particular. Agis relict historic landscape par and Trowse Newton, and the	nd farm  coric d by ual nce of jainst this itterns ne sense
landscape sensitivity	Character, sensitivity to wind  This judgement also applies to schemes, such as pylons.  Overall landscape sensitivity moderate. This is due to the character (severances create transport corridors such as the containment created by valle large scale settlement edge if are balanced sensitive feature created by parkland as at Whof tranquillity within Whitling	of this ardisjointed by large Norwicky sides another such anithinghan ham Court	ea group to wind turbines is d landscape pattern and hist e scale settlement edges and the Bypass), the degree of vis nd woodlands and the present to area 10 in particular. Ages relict historic landscape partern and trowse Newton, and the partern and Trowse Newton.	nd farm  coric d by ual nce of jainst this itterns ne sense
landscape sensitivity  Sensitivity to different turbine	Character, sensitivity to wind This judgement also applies to schemes, such as pylons.  Overall landscape sensitivity moderate. This is due to the character (severances create transport corridors such as the containment created by valle large scale settlement edge if are balanced sensitive feature created by parkland as at Whof tranquillity within Whitling  Land within the character	of this ar disjointed by larg ne Norwicky sides anfluences es such anitlinghan ham Court	ea group to wind turbines is d landscape pattern and hist e scale settlement edges and woodlands and the present to area 10 in particular. Ages relict historic landscape pattern and the trowse Newton, and the htry Park and the Execut	nd farm  coric d by ual nce of painst this atterns ne sense id.
landscape sensitivity  Sensitivity to	Character, sensitivity to wind  This judgement also applies to schemes, such as pylons.  Overall landscape sensitivity moderate. This is due to the character (severances create transport corridors such as the containment created by valle large scale settlement edge if are balanced sensitive feature created by parkland as at Whof tranquillity within Whitling  Land within the character Small (0-20m)	of this ardisjointed by large Norwicky sides anfluenceses such anitlinghanham Couareas	ea group to wind turbines is d landscape pattern and hist e scale settlement edges and the Bypass), the degree of visind woodlands and the present to area 10 in particular. Agis relict historic landscape par and Trowse Newton, and the htry Park and the Great Broad Land outside the Execut Small (0-20m)	nd farm  coric d by ual nce of painst this etterns ne sense d.  ive Area

## Commentary:

The landscape of this area grouping would be most sensitive to the largest turbine size typologies, due to their potential effect on the legibility of existing landscape scale elements and landscape features.

## Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities are:

#### Broadland District -

E3 Spixworth Estate Lands: Only a small part of this area is intervisible with the Broads due to urban fringe development at Norwich. The wooded skylines which form the hinterland are sensitive in relation to the Broads.

E4 Rackheath and Salhouse Wooded Estatelands: Lightly settled, part wooded skylines which are intervisible with the Broads.

F3: Reedham to Thorpe Marshes Fringe: Fieldwork has identified few sensitive features due to low lying character.

#### South Norfolk District -

B3 Rockland Tributary Farmlands: Fieldwork confirmed the valley sides on which Whitlingham Hall and parklands are sited, together with the mostly undeveloped, part wooded ridge, are sensitive.

Due to the topographic prominence of the more elevated areas in relation to the Broads and the fact that they overlook these areas in many instances, landscape sensitivity to turbines is the same as for the Broads at the larger end of the turbine typology.

## Commentary on different cluster sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character a	reas	Land outside the Executive	Area
Single turbine	M	Single turbine	M
<5 turbines	Н	<5 turbines	Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

### Commentary:

Larger turbine groups and clusters would create further visual clutter and potential for erosion in an already eroded landscape of fragmented skylines.

## Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities are:
Broadland District character area E3 Spixworth Estate Lands:
Only a small part of this area is intervisible with the Broads due to urban fringe development at Norwich. The wooded skylines which form the hinterland are sensitive in relation to the Broads.

## Broadland District -

E3 Spixworth Estate Lands: Only a small part of this area is intervisible with the Broads due to urban fringe development at Norwich. The wooded skylines which form the hinterland are sensitive in relation to the Broads.

E4 Rackheath and Salhouse Wooded Estatelands: Lightly settled, part wooded skylines which are intervisible with the Broads.

F3: Reedham to Thorpe Marshes Fringe: Fieldwork has identified few

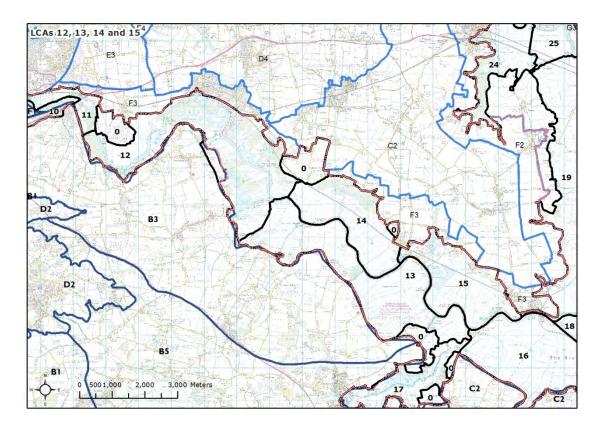
sensitive features due to low lying character.

South Norfolk District -

B3 Rockland Tributary Farmlands: Fieldwork confirmed the valley sides on which Whitlingham Hall and parklands are sited, together with the mostly undeveloped, part wooded ridge, are sensitive.

Due to the topographic prominence of the more elevated areas in relation to the Broads and the fact that they overlook the Broads in many instances, landscape sensitivity to turbines is the same as for the Broads. This is due to visual prominence issues and potential for readily perceived skyline clutter which multiple turbines could introduce.

LCA 12: Yare Valley -Kirby/Postwick to Rockland/Strumpshaw, LCA 13: Yare Valley - Claxton to Hardley Marshes, LCA 14: Yare Valley - Buckenham and Cantley Marshes and Carrs, LCA 15: Yare Valley - Cantley to Reedham



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Editascape Seris	SILIVILY ASSESSMENT TO	vviila raibilies	
Criteria	Lower sensitivity	<b></b>	Higher sensitivity
1.Scenic and special qualities		<ul> <li>wide open landscap</li> <li>This and the ass</li> <li>14 and 15. The handscape mosaic which</li> <li>All of the special quant</li> </ul>	oes, big skies and sense of ociated sense of tranquillity abitat diversity in area 12 is h would be sensitive to alities set out above would
2.Enclosure and scale	Much of area 12 is of an encontrast is created by the vice Strumpshaw Fen. The sense Other areas where a more sensitivity in these terms elocalised enclosure and fine Some elements create a husensitive to turbines by virtic boating/sailing on the river 15, the sense of enclosure increases sensitivity to turb sensitivity to turbines in terhigh.	wide flat valley floor a se of enclosure would open character persi- .g. area 13 and 14, a er grain landscape sca man scale in the landue of their size e.g. of in all areas within the created by valley sid bines in these terms.	around Postwick Marsh and d be sensitive to turbines. sts would have lower although area 13 also has ale – Langley Staithe. dscape which would be carr woodlands and seasonal his grouping. Within area es and carr woodlands Given the above,
3.Landscape and land cover pattern	of area 13 and carr woodla discontinuous and disjointe – industrial uses associated	build be sensitive to we have on the cohesive network of dykes and land blocks and fense ated by carr woodlands and water bodies of landscape pattern with the Cantley Fay reduce the landscape	vind turbines due to the eness of such landscape and rectilinear grazing in area 12, the wetland ands in the arable landscape in area 14. A more characterises part of area 15 ctory and associated settling pe sensitivity of this area, in
4.Skylines		evelopment. Exceptions such as Postwick as Factory Complex in which is intervisible area 13 and 15. Such development includitoresent in a number cents. Taken together	area 14. This is a with a number of other elements reduce the ng wind turbines. The of these areas would also r, these areas have a
5.Perception and experience of the landscape	in the western part of area	ensitive to wind turb e transport corridors 12 and the Cantley S es areas 13, 14 and 1	sines. Aspects which would and communications routes Sugar Beet Factory, the 15. Considering the above,

6.Historic landscape character	sensitive to wir mills and aspec staithes in area	nd turbine deve cts of the histor a 13, plus intac is is due to the	elopment ric function t areas continented effect the	include onal land of rectilin nat wind	e areas which would be the wind pumps/drain dscape such as the hist lear dyke patterns as in turbines would have o	age toric n areas
7.Visual sensitivities and intervisibility with areas outside the Broads	The presence of visual containing of intervisibility e.g. Postwick Min area 13 and areas in South Farmland), whie Thorpe Marshe increase sensit	of carr woodland nent although a would have go Marsh within are area 14. Area Norfolk District list area 12 is in s Fringe (area ivity to turbines cross these are	ds in a nareas of reater see a 12 and 15 has standards (characentervisibles) withins in visua	umber omore opensitivity d the lar strong in the lar area le with part of the lar mandal terms.	f these areas would pren marshes with highe to turbines in visual tegely open areas of lantervisibility with adjact B3 Rockland Tributary arts of the Reedham to and District, and this worship overall, given the level turbines in visual term	r levels erms, dscape ent o would vel of
Discussion on landscape sensitivity	judged to be hi in the areas su- skies, together Other factors ir landscape and vulnerable to to greater intervis the influence of	igh. This is due ch as sense of with related as mportant to thi historic landsca urbines, as wel sibility with adja f wind turbines	e to the stranquill spects sus sensitive appearance as the accent are	sensitive ity and to uch as are	wind turbine developm special qualities repre he wide open landscap eas of undeveloped sk ement are the varied coherence of which w open landscape which therefore potentially in	esented be of big ylines. ould be provide acrease
	Land within to Small (0-20m)	he character	areas M-H		outside the Executive (0-20m)	M-H
	Medium (20-50	)m)	н	Mediun	n (20-50m)	Н
	Large (50-70m	)		Largo (	(FO 70ms)	
			Н	Large	(50-70m)	н
	Very large (70r	m+)	н		rge (70m+)	H H

Turbines at the smallest end of the range (below 20 metres to tip height) would have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements (i.e. carr woodland). However, fieldwork confirms that intervisibility with the adjacent areas and the expansive views out from the marshes means that larger turbines would appear more dominant in relation to the Broads, resulting in a high landscape sensitivity.

<b>Commentary on</b>
different cluster
sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character a	reas	Land outside the Executive	Area
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Н	<5 turbines	Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

## Commentary:

Single turbines would respond more closely to existing skyline elements such as wind pumps, although larger groups of turbines would create visual clutter in relation to open landscapes and simple skylines of these areas, hence the highest sensitivity rating.

## Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities are:

South Norfolk -

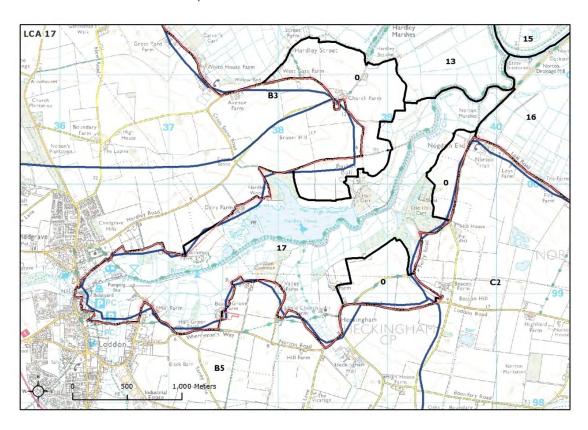
B3 Rockland Tributary Farmland: Fieldwork confirmed distant views out over the Yare Valley and into the Broads indicating a greater vulnerability to visual intrusion associated with tall elements.

Broadland District -

F3 Reedham to Thorpe Marshes Fringe: Fieldwork confirmed intervisibility between the valley sides in this area and Broads character area 12.

Fieldwork confirms that the degree of intervisibility with adjacent areas as they overlook the Broads means that multiple turbine clusters could be more dominant in relation to skyline character and intervisibility, resulting in a high landscape sensitivity. Single turbines would however have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements (i.e. carr woodland).

## LCA 17: The Chet Valley



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Criteria	Lower sensit	ivity	<b>←</b>	•	Higher sensitivity
1.Scenic and special qualities	this area is as landscape mos The winding w relates to sens	follows – the saic which we aterways and sitive special ecial qualitie	e habitat diversit buld be sensitive d large expanse qualities such as	y is in to tu of ope the	which are represented in adicative of an intricate orbines in terms of scale. The water at Hardley Flood wide open landscape. As tensitivity to the
2.Enclosure and scale	17 increases s	ensitivity to		e term	nd carr woodlands in area ns. Given the above, scale is high.
3.Landscape and land cover pattern	landcover patt potential effec patterns. For	ern which wo t they would example, the water, reed,	ould be sensitive have on the cole intricate mix owet fen, grazing	to winesive f wetla	dscape mosaic and ind turbines due to the eness of such landscape and landscape elements carr woodland, which would
4.Skylines	valley sides an adjacent South telegraph pole	nd ridges, and In Norfolk Dis Is and wires.	d occasional ope trict. The few ir	n, sm itrusic eleme	formed by woodland fringed tooth arable farmland in the ons are small scale, such as ents together, area 17 is
5.Perception and experience of the landscape	sensitive to wi are the staithe	nd turbines. and watersi roportion of t	Aspects which de development	would at Lo	haracter which would be locally reduce sensitivity addon, although this affects litive to turbines in terms of
6.Historic landscape character	to solar PV dev areas of rectili	velopment in near dyke pa to the effect	clude the histori atterns in the va that wind turbin	c stai <sup>.</sup> Iley flo	ea which would be sensitive the at Loddon plus intact por. Such aspects would be ald have on the coherence
7.Visual sensitivities and intervisibility with areas outside the Broads	visual containr	nent. Whilst Ik District, v	there is some i iews are framed	ntervi	the valley side provide sibility with adjacent areas creates a moderate-high
Discussion on landscape sensitivity	judged to be h in the area suc expanse of ope undeveloped s judgement are coherence of v	nigh. This is th as sense den water at he kyline charace the varied le which would le	due to the sension tranquillity, the Hardley Flood, to cter. Other factor and scape and his vulnerable to	tive specified the second the sec	turbine development is pecial qualities represented itat mosaic and the large er with the largely aportant to this sensitivity landscape patterns, the nes.

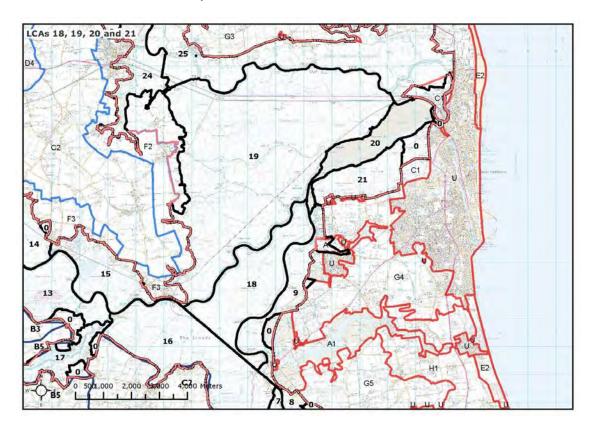
	schemes, such as pylons	•		
	Land within the charac	cter area	Land outside the Exec	utive Area
	Small (0-20m)	М-Н	Small (0-20m)	М-Н
	Medium (20-50m)	Н	Medium (20-50m)	н
	Large (50-70m)	н	Large (50-70m)	н
	Very large (70m+)	н	Very large (70m+)	н
Sensitivity to different turbine heights	relation to skylines. How appear to dominate such pattern, hence the higher Landscapes outside the Relevant landscape characters. South Norfolk - B3 Rockland Tributary Far over the Yare Valley and visual intrusion associated b5 Chet Tributary Farmla with the Broads where vithe Broads, due to closer (i.e. carr woodland). How with the adjacent areas relationship in the sample of the Broads, due to closer (i.e. carr woodland).	vever, the lar elements as st sensitivity e Executive acter areas a similar the Broad with tall elements of the acter areas of	e <b>Area</b> nd sensitivities are:  dwork confirmed distant vi  ads indicating a greater vu	ews out ilnerability t ationship ent. ip height) spects withi e elements intervisibility
	Land within the charac	cter area	Land outside the Exec	e sensitivity
different cluster	Land within the characteristics Single turbine	M-H	Land outside the Exec	e sensitivity
different cluster sizes				e sensitivity
different cluster sizes Single turbine Small clusters	Single turbine	М-Н	Single turbine	e sensitivity  utive Area  M-F
different cluster sizes Single turbine Small clusters (<5 turbines) Medium (6-10)	Single turbine <5 turbines	М-Н	Single turbine <5 turbines	e sensitivity cutive Area M-H
different cluster sizes Single turbine Small clusters (<5 turbines) Medium (6-10)	Single turbine <5 turbines 6-10 turbines	M-H H	Single turbine <5 turbines 6-10 turbines	e sensitivity cutive Area M-H H
Small clusters (<5 turbines) Medium (6-10) Large (11-25)	Single turbine  <5 turbines  6-10 turbines  11-25 turbines  >26 turbines  Commentary: Single turbines would resuch as buildings within I	M-H  H  H  spond more of coddon, altholation to ope ighest sensiti	Single turbine  <5 turbines  6-10 turbines  11-25 turbines  >26 turbines  closely to existing skyline expugh larger groups of turbines in landscapes and simple sivity rating.	M-H H H H H H H H H H H H H H H H H H H

over the Yare Valley and into the Broads indicating a greater vulnerability to visual intrusion associated with tall elements.

B5 Chet Tributary Farmland: Fieldwork confirmed the visual relationship with the Broads where views of the area's rising ridges are evident.

Fieldwork confirms that the filtered intervisibility with adjacent areas as they overlook the Broads means that multiple turbine clusters could be more dominant in relation to skyline character, resulting in a high landscape sensitivity. Single turbines would however have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements (i.e. carr woodland).

LCA 18: Haddiscoe Island; LCA 19: Halvergate Marshes (excluding Bure Loop and the west of Tunstall Dyke), LCA 20: Breydon Water; LCA 21: Yare Valley – Church Farm, Burgh Castle, Fisher's and Humberstone Marshes



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Larrasoapo corre	Silivity Assessineiil	TOT WITHGIT GIRBITIO					
Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity				
1.Scenic and special qualities	Sensitive special qualities are represented by the sense of openness a simple skylines in areas 18 and 19, and the sense of space evident in areas 19 and 20. These characteristics are also reflected in area 21. sense of space and openness and of big, simple skies in these areas where be highly sensitive to the introduction of large scale elements which coalter this character, such as turbines.						
2.Enclosure and scale	vast scale, although va area 21 for example. A area 18 by the presence Waveney Forest is sited west of the Halvergate Similarly, enclosure is particularly castle is located. Brey although variation in so tide and by the low sear references are provided	riation is provided by content of the wooded ridge and by the low carr work marshes, which is also provided to area 21 by a don Water (area 20) is alle is introduced by the wall fringing the water of by wind pumps and second to the work with elements which p	oodland fringed ridge to the reflected in area 19. the low cliffs on which Burgh an entirely open estuary, e mud flats and creeks at low . Occasional human scale easonally by sailing boats. rovide localised enclosure,				
3.Landscape and land cover pattern	These are predominantly open marshland landscapes of simple pattern, although variation is introduced by riverside reed ronds in area 18 and 2 and by rectilinear dyke networks, which create variations in scale within areas. Similarly in area 19, occasional variations are created by intermittent trees/tree lines, domestic buildings to the edges (e.g. within Halvergate village) and occasional World War II Pill Boxes on the marsher.						
4.Skylines	These are generally landscapes of largely flat, open skylines with relatively few modern development influences, and would therefore be sensitive to large scale features such as wind turbines. Historic drainage mills such as Toft Monks at area 18 provide occasional skyline punctuation elements which would be sensitive to the introduction of turbines, although pylons are also significant skyline elements in area 18. Other aspects of skyline character which are sensitive are the low wooded ridges as at St Olaves and Halvergate (area 18/19) and the former coastal cliffs at Burgh Castle on the southern edge of area 21. The sensitive, simple skyline character is reflected at Breydon Water (area 20), albeit with intrusions to the east in the form of large scale modern and industrial development edges at Great Yarmouth. Although skyline sensitivity is locally reduced due to the latter, overall skyline sensitivity to wind turbines is high given the simple, mostly undeveloped character.						
5.Perception and experience of the landscape	These are a series of rescale, and with few obvious strong sense of remote these factors indicate a	emote, isolated marshla vious modern human inf ness and tranquillity, w high sensitivity to turb	and landscapes of often vast fluences, and which have a with few intrusions. All of wines in perceptual terms. roup are: the mostly tranquil				

	character of area 18, albeit with localised intrusions created by adjacent developments outside the Broads and by the influences of St Olaves Marina and the large number of pylons crossing the area. Area 19 is largely isolated with only movement and aural effects from the A47 and the railway line affecting tranquillity. The greatest level of intrusion is provided by the settlement edge and A47 at Great Yarmouth on the eastern edge of Breydon Water (area 20) and area 21, indicating slightly lower landscape sensitivity, although this is localised. Given the general level of remoteness and isolation, this area group would be highly sensitivity to wind turbines in perceptual terms.				
6.Historic landscape character	Historic drainage mills such as at Toft Monks (area 18) are sensitive to wind turbine development, due to the potential effect they would have on one's ability to appreciate such elements. This also applies to features such as Burgh Castle on the ridge which overlooks areas 18, 20 and 21. Areas of boundary loss associated with the A47 in areas 19 and 21 reduce historic landscape sensitivity, although Breydon Water is an important and ancient relic of a formerly much more expansive coastal landscape, and is therefore sensitive for this reason. Taking all the above into account, sensitivity to turbines in historic terms is judged to be moderate-high.				
7.Visual sensitivities and intervisibility with areas outside the Broads	These predominantly exposed, open marshland landscapes have exceptionally high levels of intervisibility with adjacent landscapes within and outside the Broads. This open visual character means that the landscape character group would be highly sensitive to turbines in visual terms. Areas 19 and 20 in particular also have intervisibility with existing wind farms such as Scroby Sands (off shore) and such features often appear prominent in the landscape.  Within area 18, wider views are truncated by the Waveney Forest, which lies on the edge of the adjacent Great Yarmouth/Waveney character area A1: Waveney Rural Wooded Valley. Area 19 has high levels of intervisibility with adjacent marshland character areas in the Broads, as far as Breydon Water to the east and to the edge of Great Yarmouth, beyond the Executive Area. The low ridge to the west of area 19 (within Broadland District) is visually prominent and important in containing views in a westerly direction. The Burgh Castle ridge within Great Yarmouth character area G4 is significant in providing visual containment to parts of areas 20 and 21, with Burgh Castle a visually sensitive historic feature. Taking the above into account, the areas have a high sensitivity to turbines due to their often				
Discussion on landscape sensitivity	Overall landscape sensitivity of this area grouping to wind turbines is high. This is due to the representation of sensitive special qualities such as the sense of openness/wide open landscapes, simple skylines and big skies, the sense of which would be vulnerable to wind turbines. Other factors important to this sensitivity judgement are the open visual character and level of intervisibility with adjacent landscapes in the Broads, and the largely tranquil perceptual character, which would again be vulnerable to turbines.  This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.				
	Land within the character	areas	Land outside the Executive	Area	
Sensitivity to	Small (0-20m)	М-Н	Small (0-20m)	М-Н	
different turbine heights	Medium (20-50m)	Н	Medium (20-50m)	Н	
	Large (50-70m)	Н	Large (50-70m)	Н	

Very large (70m+)	н	Very large (70m+)	н

#### Commentary:

Turbines within the smallest typology (0-20m) would respond more closely to existing vertical scale elements within the landscape, such as church towers and historic wind pumps, resulting in a slightly lower landscape sensitivity rating. However, all larger turbine typologies could appear visually dominant in these simple landscapes, hence the high sensitivity rating.

## Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

Great Yarmouth/Waveney character area A1: Waveney Rural Wooded Valley: Fieldwork has confirmed the low wooded ridge at Waveney Forest to be visually important/sensitive in relation to the Broads.

Great Yarmouth character area G4: Hobland Estate Farmland. Fieldwork confirms the prominent ridge on which Burgh Castle is sited to be sensitive in relation to the Broads.

Broadland District character area F2: South Walsham to Reedham Marshes Fringe: Survey has confirmed the low ridge to the west of Halvergate Marshes and on which Halvergate Village is sited, as being sensitive in relation to the Broads.

Given the prominence of these topographic features in relation to the marshland landscapes of these parts of the Broads, landscape sensitivity to turbines is the same as for the areas in the Broads as set out above.

# Commentary on different cluster sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character areas		Land outside the Executive	Area
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Н	<5 turbines	Н
6-10 turbines	I	6-10 turbines	H
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

## Commentary:

Single turbines would respond more closely to existing vertical scale elements within the landscape, such as church towers and historic wind pumps, resulting in a slightly lower landscape sensitivity rating. However, all multiple turbine clusters could appear visually dominant in these simple landscapes and skylines, hence the high sensitivity rating.

## Landscapes outside the Executive Area

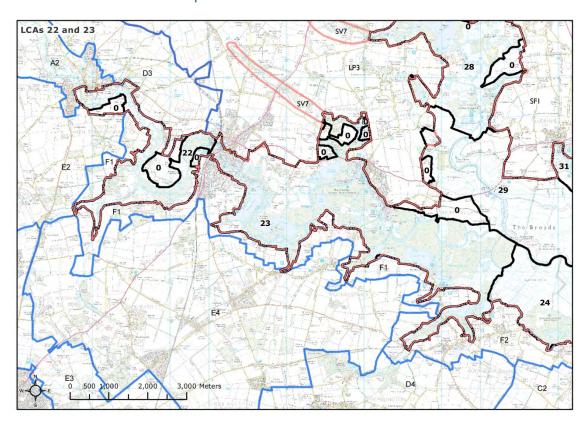
Relevant landscape character areas and sensitivities are: Great Yarmouth/Waveney character area A1: Waveney Rural Wooded Valley: Fieldwork has confirmed the low wooded ridge at Waveney Forest to be visually important/sensitive in relation to the Broads.

Great Yarmouth character area G4: Hobland Estate Farmland. Fieldwork confirms the prominent ridge on which Burgh Castle is sited to be sensitive in relation to the Broads.

Broadland District character area F2: South Walsham to Reedham Marshes Fringe: Survey has confirmed the low ridge to the west of Halvergate Marshes and on which Halvergate Village is sited, as being sensitive in

relation to the Broads.
Given the prominence of these topographic features in relation to the marshland landscapes of these parts of the Broads, landscape sensitivity to turbines is the same as for the areas in the Broads as set out above.

## LCA 22: Bure Valley – Upstream Wroxham to Horstead: Area 23: Bure Valley – Wroxham to Fleet Dyke, South Walsham



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Criteria	Lower sensitivity	<b>—</b>	Higher sensitivity
Citteria	Lower sensitivity		Higher sensitivity
1.Scenic and special qualities	sense of tranquillity and these would be sensitive The 'local character of b represented in the settle	I wildness evident in mue to noise and movement eautiful churches and quements in these areas, eton, Horstead, Belaugh ethighly sensitive in view	nin these areas include the such of the Bure Valley and nt introduced by turbines. Juiet villages' is particularly e.g. vernacular settlements Horning and Coltishall. This w of the small scale,
		<u> </u>	
2.Enclosure and scale	landscapes of intimate sof carr woodland in the containment. Outside the parts, thus enhancing the sensitive to turbines, as and often define landscape scale and there are area Marshes and the open readdition, the presence cosailing boats in both are	scale. Valley sides are ovalley floor which provide Executive Area, the lane sense of enclosure. To such topographic features of more open fen at Fiverside green and grazof the church at Ranwortes provide human scalenes. Overall, due to the	andform rises to 15m in This landscape would be are visually important the areas exhibit variations in Ranworth on the Hoveton ing marshes at Coltishall. In the and the seasonal use of a indicators increasing area's considerable sense of
3.Landscape and land cover pattern	and sinuous reed fringer and texture would be see presence of human scale settlement in both areast diversity of waterside see from large Edwardian viparkland at Woodbastwichalets to later and mod at Crabbetts Marsh. Dev	d river. As such, this divensitive to wind turbines e indicators such as small, which is particularly cettlement adds to the vallas at Wroxham, minor ick, and original Boultor dern development, particulation of wind turbinesse the potential to impossitive	ariety of pattern and texture,
4.Skylines	Skylines defined by woo character areas, with th settlement and boatyard tower is a particularly prarea and is visible from surrounding countryside reed fringed rivers, area both areas, and togethe horizon, would be sensitive potential for turbines and characteristics.	oded ridges are largely are exception of localised ds at Hoveton and Wrox rominent feature on the within both character are. The wooded skyline was of open water, marsher with the mainly under to wind turbine devoted other related infrastructive to wind turbines. This is I with Hoveton and Wrose	areas of vernacular cham. Ranworth church e skyline in the immediate reas and from the which forms a backdrop to a and fen is distinctive to veloped nature of the elopment. This is due to the ucture such as pylons to skylines are considered to however reduced by xham and the overall
5.Perception and experience of the landscape	A strong sense of tranquareas once away from the these settlements it is e	uillity and remoteness e he settlements of Hovet essentially a tranquil rur	exists within both character ton and Wroxham. Outside of al character with little human wind turbines. Both areas

	have a lightly settled character and an often remote, largely inaccessible quality (other than by boat and from within settlements). The larger areas of modern settlement at Hoveton and Wroxham and associated boatyards dilute this sense of tranquillity. Overall the areas have a moderate-high sensitivity to wind turbine development in perceptual terms.			
6.Historic landscape character	Both areas display characteristics of historic significance. The principal HLC types within both areas are regenerated carr woodland interspersed with freshwater fen and small broads. Areas of 17 <sup>th</sup> century grazing marsh (at Coltishall) and the vernacular of the area's settlement (particularly Horning Conservation Area) are sensitive to wind turbine development. This higher sensitivity is due to the potential to affect the coherence of such historic features and the way they are perceived. Overall the areas have a high sensitivity to wind turbine development in historic terms.			
7.Visual sensitivities and intervisibility with areas outside the Broads	The areas are defined by landscapes of intimate spatial scale and of contained visual character, although there is intervisibility with adjacent areas in Broadland District (D3: Coltishall Tributary Farmland, E2: Marsham and Hainford Wooded Estatelands and E4: Rackheath, Salhouse Wooded Estatelands and F1: Wroxham to Ranworth Marshes Fringe) and North Norfolk's LP3: Worstead, Coltishall, Hoveton and Smallburgh Area. These open areas of fen and undulating farmland provide views into adjacent character areas and this would increase sensitivity to turbines in visual terms. The character areas themselves however have a predominantly enclosed character with a degree of containment and so have an overall			
	moderate-high sensitivity to	wind turl	oine development.	
Discussion on landscape sensitivity	Character areas 22 and 23 had development in general. This qualities in the areas which we sense of tranquillity and wild historic character and integri of human scale indicators as are sensitive to wind turbine.  This judgement also applies to schemes, such as pylons.	ave a hig s is due t would be s ness. Als ty, the se sociated v developr	h sensitivity to wind tu o the representation of sensitive to developme so, the landscape patte ense of remoteness and with traditional riversid nent.	rbine f special ent, such as the rn and scale, d the presence e vernacular
landscape	Character areas 22 and 23 had development in general. This qualities in the areas which we sense of tranquillity and wild historic character and integriof human scale indicators as are sensitive to wind turbine.  This judgement also applies to schemes, such as pylons.  Land within the character	ave a hig s is due t would be s ness. Als ty, the se sociated v developr	h sensitivity to wind tu o the representation of sensitive to developme so, the landscape patte ense of remoteness and with traditional riversidment.  Infrastructure for off should be considered to the construction of the cons	rbine f special ent, such as the rn and scale, d the presence e vernacular ore wind farm
landscape sensitivity	Character areas 22 and 23 had development in general. This qualities in the areas which we sense of tranquillity and wild historic character and integriof human scale indicators assure sensitive to wind turbine.  This judgement also applies to schemes, such as pylons.	ave a hig s is due t would be s ness. Als ty, the se sociated v developr	h sensitivity to wind tu o the representation of sensitive to developme so, the landscape patte ense of remoteness and with traditional riversid nent.	rbine f special ent, such as the rn and scale, d the presence e vernacular ore wind farm
landscape sensitivity  Sensitivity to different turbine	Character areas 22 and 23 had development in general. This qualities in the areas which we sense of tranquillity and wild historic character and integriof human scale indicators assure sensitive to wind turbine.  This judgement also applies to schemes, such as pylons.  Land within the character Small (0-20m)  Medium (20-50m)	ave a hig s is due t vould be s ness. Als ty, the se sociated v developr to large in	h sensitivity to wind tu o the representation of sensitive to developme so, the landscape patteense of remoteness and with traditional riversident.  Infrastructure for off should be sense of the landscape patteense of remoteness and with traditional riversident.  Land outside the Example 1 and	rbine f special ent, such as the ern and scale, d the presence e vernacular ore wind farm
landscape sensitivity  Sensitivity to	Character areas 22 and 23 had development in general. This qualities in the areas which we sense of tranquillity and wild historic character and integring of human scale indicators as are sensitive to wind turbine.  This judgement also applies to schemes, such as pylons.  Land within the character Small (0-20m)	ave a hig s is due t would be s ness. Als ty, the se sociated v developn to large in	h sensitivity to wind tu o the representation of sensitive to developme so, the landscape patte ense of remoteness and with traditional riversiduent.  Infrastructure for off should be considered to the sense of th	rbine f special ent, such as the ern and scale, d the presence e vernacular ere wind farm executive Area M-H

## Commentary:

The majority of the larger turbine typologies would interfere with the intimate scale and the undeveloped skylines of these character areas. Subject to careful siting in relation to the above characteristics, small scale wind turbines (below 20m) would have less effect on sensitive characteristics (i.e. skylines, landscape scale and pattern). Sensitivity to small scale turbines is however only marginally lower than those of a larger scale. Turbines beyond this height range would introduce elements out of scale with the landscape, hence the higher sensitivity rating.

## Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

#### Broadland District -

D3: Coltishall Tributary Farmland: Wide expansive views and uninterrupted skyline although views into the Broads are filtered due to tree cover.

E2: Marsham and Hainford Wooded Estatelands: Close to the edges small-scale woodlands and copses reflects its proximity to the Broads.

E4: Rackheath, Salhouse Wooded Estatelands: Characteristic northerly views over descending wooded slopes to the Broads, and associated wooded horizon.

F1: Wroxham to Ranworth Marshes Fringe: Forms a fringe to the lower-lying flat landscapes of the Broads and has a strong association with the area.

#### North Norfolk -

LP3: Worstead, Coltishall, Hoveton and Smallburgh: Closely adjoining and infiltrated by the Broads and contributing to their setting.

The adjacent character areas have intervisibility with the Broads and display a strong association with the area. It is noted however, that there is a high degree of foiling created by carr woodland on rising valley slopes on both sides of the Bure. Turbines at the smallest end of the range (below 20 metres to tip height) would have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements. Fieldwork confirmed that turbines of a larger scale, located in such close proximity to the Broads would appear dominant, resulting in a high landscape sensitivity.

Commentary on different cluster
sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character areas		Land outside the Executive	Area
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Η	<5 turbines	М-Н
6-10 turbines	I	6-10 turbines	I
11-25 turbines	I	11-25 turbines	I
>26 turbines	Н	>26 turbines	H

## Commentary:

Large clusters of turbines would have considerably greater likelihood of introducing visual clutter in relation to the undeveloped skylines which define the majority of this grouping of character areas. Accordingly these clusters have been assigned the highest landscape sensitivity rating. This landscape has a slightly lower sensitivity to single turbines in these terms. However this would depend on a careful, well considered visual relationship

to other skyline elements including historic taller structures such as Ranworth church tower, in addition to siting in relation to the historic settlements.

## Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

#### Broadland District -

D3: Coltishall Tributary Farmland: Wide expansive views and uninterrupted skyline although views into the Broads are filtered due to tree cover.

E2: Marsham and Hainford Wooded Estatelands: Close to the edges small-scale woodlands and copses reflects its proximity to the Broads.

E4: Rackheath, Salhouse Wooded Estatelands: Characteristic northerly views over descending wooded slopes to the Broads, and associated wooded horizon.

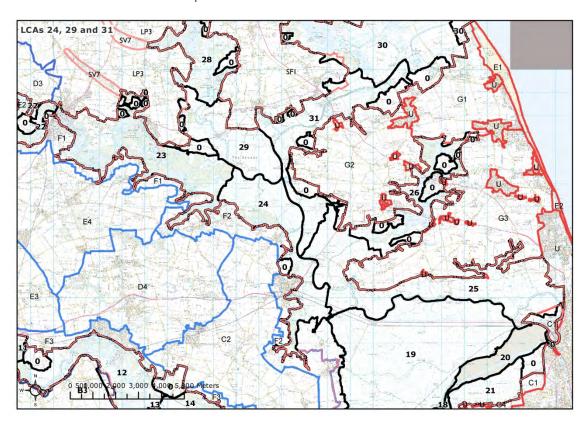
F1: Wroxham to Ranworth Marshes Fringe: Forms a fringe to the lower-lying flat landscapes of the Broads and has a strong association with the area.

#### North Norfolk -

LP3: Worstead, Coltishall, Hoveton and Smallburgh: Closely adjoining and infiltrated by the Broads and contributing to their setting.

Fieldwork confirmed that due to the degree of intervisibility, the landscape sensitivity is similar for the valley sides which lie adjacent to the Executive Area boundary. These landscapes would have a slightly lower sensitivity to single turbines or small groups of less than five turbines, although this is dependent upon the relationship with existing skyline elements which define skylines e.g. avoid according undue prominence in relation to these, particularly when viewed from within the Executive Area. Multiple turbine clusters have the potential to be dominant in relation to skyline character and intervisibility, resulting in a higher landscape sensitivity.

LCA 24: Bure Valley – South Walsham to Acle Marshes and Fens; 29:Ant and Bure Valleys – Ludham, Horning and Neatishead Grazing Marshes; 31: Thurne and Bure Valley – Martham Ferry to Oby



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	Silivity Assessment to			
Criteria	Lower sensitivity	<b></b>	Higher sensitivity	
1.Scenic and special qualities	defined by a wide open lan character would potentially three areas have a sense ovisual, movement and aurariverine access and are well indicates a degree of sensilandscape. Furthermore, a	ensitive to wind turbing dscape of big skies, as be affected by introduction of tranquillity, which the lintrusion. The fact ill used by recreational tivity due to the interpolation of the special qualities are particularly producter areas have a highest windmill on the Broad cater areas have a highest windmill on the broad cater areas have a highest windmill with the broad cater areas have a high windmill with the broad cater areas have a high windmill with the broad cater areas have a high with the broad cater areas have a high with the broad cater areas hight with the broad cater areas high with the broad	nes. For example area 24 is as is area 29, and this duction of wind turbines. All urbines would affect through that all three areas afford all boating traffic also est users have in their eas represent aspects of the es of the Broads, through the rominent within area 29, add at St Benet's Abbey.	
2.Enclosure and scale	All three areas are for the most part defined by open, low lying and flat marshland landscapes. Although areas 24 and 31 are cut by an intricate network of dykes, this is not readily perceived in term of so However in areas 24 and 31, sensitivity to turbines is increased by intimate scale, contained landscapes created by valley side carr work such as around Upton Broad (area 24), and particularly in area 31 work would impact on the coherence of such landscape patterns. Within localised enclosure is created by landform variation such as the low which St Benet's Abbey and causeway are sited. Human scale elemintroduced by the presence of windmills in all three areas, particular area 29, and by small scale riverside settlement such as that associ with the medieval bridge and staithe at Potter Heigham (area 31). the seasonal presence of sailing craft on the Rivers Bure, Thurne and The presence of such human scale elements increase the sensitivity			
3.Landscape and land cover pattern	to the presence of open mais evident. This is due to the Broad in the southern part reeded river edges to all the and fens (Womack Water/Handscape would be highly effect they would have on in a landscape of otherwise presence of human scale erecreational sailing boats up to the south of the	arshland, although me mosaic of carr wood of area 24, the subtlinate areas, and the wallorse Fen) in area 31 sensitive to wind turk their cohesiveness, alternatively simple parallements such as wind sing the rivers, are an, overall sensitivity of	Ithough these are variations ttern. However, the	
4.Skylines	Skylines have a largely sim sensitive to turbines), with of area 24 (including larger Windfarm and industrial burespectively of area 29. Al flyover and adjoining mode northern part of area 31. I character across the marsh the southern edge of area	the exception of setter buildings at Upton), uildings visible at Acle so visual intrusions a tern development arould any skylines are others with occasional bases.	tlement edges to the south and the Somerton e, to the north and south ssociated with the A47 and Potter Heigham, in the nerwise of largely flat ands of carr woodland (e.g.	

	area 31 (Womack Water/Horse Fen). Punctuation by traditional Broads vernacular features such as windpumps is a characteristic of skylines in all three areas, which increases skyline sensitivity. This is particularly the case from the St Benets Levels (area 29) where the skyline is partly formed by distinctive historic structures such as the ruins of St Benet's Abbey. Allied to the predominantly undeveloped skyline character, these are sensitive to wind turbine development, although sensitivity is locally reduced by occasional modern skyline development described above, resulting in an overall moderate-high sensitivity to wind turbines for these areas, in skyline terms.			
5.Perception and experience of the landscape	The tranquil character created in these areas by expansive, open and predominantly undeveloped marshland, and by wooded broads such as Upton Broad and wooded fens at Horse Fen would be highly sensitive to wind turbines, due to the potential changes they would create in terms of landscape perception. Localised intrusions such as larger buildings outside the Executive Area in Upton and which form part of the southern skyline to area 24, and the Somerton Windfarm which is intervisible with area 29, locally reduce sensitivity to turbines, although this is judged moderate-high overall for these three character areas in perceptual terms.			
6.Historic landscape character	The small scale early enclosures (17 <sup>th</sup> century and later) created by the network of boundary dykes within all three areas and particularly areas 24 and 29 would be sensitive to turbines due to their potential effect on the coherence of this landscape pattern. Also sensitive are areas of carr woodland and small scale wooded broads such as in area 24 (Upton Broad), for the same reasons. Area 29 possesses some notable scheduled historic archaeological resources which are visually prominent and whose visual and cultural setting would be sensitive to turbines e.g. St Benet's Abbey. This and associated drainage mill, plus other wind pumps in all three areas, increase landscape sensitivity in historic terms. Within area 31, remnant medieval landscapes such as Womack Water (former medieval broad) would also be sensitive due to cohesiveness of the landscape pattern. Given the above, this area grouping has a high sensitivity to wind turbines in historic			
7.Visual sensitivities and intervisibility with areas outside the Broads	The areas of open marshland character and the level of intervisibility with adjacent landscapes to the north and south of area 24 and in area 29 (views to farmland within Great Yarmouth Borough to the north, including intervisibility with Somerton Windfarm, and, specific to area 24, views to the farmland within Broadland District) would be highly sensitive to wind turbines due to the potential extent of their visual influence. Intervisibility is less in area 31 (the western part of the area in particular) due to the intermittent blocks of carr woodland to the area's boundaries (including the valley tributaries at Womack Water). However, the more open landscape and visual character to the east creates greater intervisibility with adjacent landscapes in Great Yarmouth Borough and North Norfolk District, and therefore high sensitivity to wind turbines in visual terms.			
Discussion on landscape sensitivity	Overall, this area cluster has a high landscape sensitivity to wind turbine development. This is due to the representation of sensitive special qualities such as the sense of tranquillity, the wide open landscape and big skies and the local character imparted by features such as drainage mills. Other elements which contribute to this sensitivity rating are directly linked to the special qualities, such as the mostly undeveloped skylines which contribute to the simplicity of the landscape and 'big skies' character. Other factors influencing the judgement include the level of intervisibility which all three areas have with adjacent districts' landscapes beyond the Executive Area, and the cultural pattern. For example in area 29, features such as St Benet's Abbey ruins are significant, as are the wind pumps which locally			

punctuate the skylines of all three areas. Other aspects of cultural pattern relate to landscape pattern more generally and would also have a high sensitivity due to the potential effect of turbines on their coherence, for example small rectilinear dyke patterns and early enclosures or small wooded broads such as Upton Broad within area 24, or Womack Water and Horse Fen in area 29.

This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.

Land within the character areas		Land outside the Executive	Area
Small (0-20m)	М-Н	Small (0-20m)	М-Н
Medium (20-50m)	Н	Medium (20-50m)	М-Н
Large (50-70m)	н	Large (50-70m)	Н
Very large (70m+)	н	Very large (70m+)	Н

### Commentary:

This landscape character area grouping would have a slightly lower (moderate-high) landscape sensitivity to turbines at the smallest end of the typology scale (up to 20m to tip). This is due to the fact that such turbines are closer in scale to skyline elements such as wind pumps, although much would depend on siting. However, for all other larger turbine typologies, landscape sensitivity judgements are high, due to the reasons outlined in the sensitivity profile and overall landscape sensitivity judgement to turbines in general, outlined above.

## Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

## Sensitivity to different turbine heights

## **Great Yarmouth District:**

GI East Flegg Settled Farmland: Fieldwork confirmed that the wooded landscape of the Broads, notably the carr woodlands at Ormesby Broad, form a prominent backdrop which contains views.

G2 West Flegg Settled Farmland: Small scale field pattern persists around villages and on the edges of the Broads where woodland and areas of parkland occur. Site work also confirmed views across the lowland wetlands of the Broads.

G3 Ormesby and Filby Settled Farmland: Fieldwork confirmed the area shares similar characteristics but views from the Broads are filtered by woodland.

## **Broadland District:**

C2 Freethorpe Plateau Farmland: Fieldwork confirmed partial views over descending wooded slopes to the Broads, and associated strong but low horizon.

D4: Blofield Tributary Farmland: the rising farmland forming the valley side is visually sensitive.

F2 South Walsham to Reedham: Horizons wooded in places, but some areas facilitate views over adjacent broads, lowland rivers and marshes.

### North Norfolk:

SF1 Stalham, Ludham and Potter Heigham: The sense of enclosure is increased by the woodland fringe of adjoining broads.

Fieldwork confirms that the intervisibility with adjacent areas means that larger turbines would appear more dominant in relation to the Broads, resulting in high landscape sensitivity. Landscape sensitivity is lowest for

small and medium scale turbines, as turbines below 50 metres to tip height would have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements. However, much would depend on siting in relation to the Broads and areas of intervisibility noted for the Broads at criterion 7 above. Otherwise sensitivities are high due to visual prominence issues.

different cluster
sizes
Single turbine
Small clusters
(<5 turbines)

Medium (6-10) Large (11-25) Very large (>26)

Commentary on

Land within the character areas		Land outside the Executive Area		
Single turbine	М-Н	Single turbine	М-Н	
<5 turbines	Н	<5 turbines	М-Н	
6-10 turbines	Н	6-10 turbines	Н	
11-25 turbines	Н	11-25 turbines	Н	
>26 turbines	Н	>26 turbines	Н	

## Commentary:

Within this character area grouping, the landscape would have moderatehigh sensitivity to single turbines, as, subject to siting, these could impact less on simple, undeveloped skylines or create les visual confusion with other vertical elements.

All the larger turbine clusters would create potential for skyline clutter and dominance and accordingly the sensitivity of the landscape to these is high.

## Landscapes outside the Executive Area

Relevant character areas and key landscape sensitivities are:

## Great Yarmouth Borough:

GI East Flegg Settled Farmland: The wooded landscape of the Broads, notably the carr woodlands at Ormesby Broad, forms a prominent backdrop which contains views in that direction.

G2 West Flegg Settled Farmland: Small scale field pattern persists around villages and on the edges of the Broads where woodland and areas of parkland occur. Also evident are views across the lowland wetlands of the Broads.

G3 Ormesby and Filby Settled Farmland: Shares similar characteristics with the area but views from the Broads are however filtered by woodland.

### **Broadland District:**

C2 Freethorpe Plateau Farmland: Partial views over descending wooded slopes to the Broads, and associated strong but low horizon.

D4: Blofield Tributary Farmland: the rising farmland forming the valley side is visually sensitive.

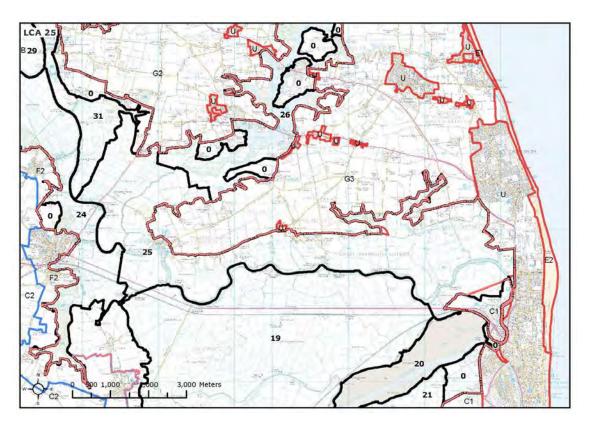
F2 South Walsham to Reedham: Horizons wooded in places, but some areas facilitate views over adjacent broads, lowland rivers and marshes.

North Norfolk:

SF1 Stalham, Ludham and Potter Heigham: The sense of enclosure is increased by the woodland fringe of adjoining broads.

Fieldwork confirms that the degree of intervisibility with adjacent landscapes means that multiple turbine clusters could be more dominant in relation to skyline character, resulting in high landscape sensitivity. Single turbines would however have less effect on landscape character and perceptual aspects within the Broads, due to closer relationship to existing landscape scale elements.

# LCA 25: Bure Valley – Lower Bure Arable Marshlands



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	2						
Criteria	Lower sensiti	ivity		Higher sen	sitivity		
1.Scenic and special qualities	This character area displays a number of special qualities which would be sensitive to wind turbine development, notably the wide open landscape character and big skies (the perception of which could be altered by wind energy development and associated tall on-shore infrastructure such as pylons for off-shore schemes). Similarly, the area's remote and empty character (which relates to the special quality 'sense of tranquillity') would also be vulnerable to introduction of large moving structures such as turbines, although this would be locally reduced in proximity to the settlement edges at Great Yarmouth and Caister. The character area is highly sensitive overall to wind turbines with regard to scenic and special qualities, taking the above into account.						
2.Enclosure and scale	turbines, the p	resence of local yond the Execu	arshland charact lised elements o tive Area, and ir sensitivity to wi	f enclosure such ntermittent block	as the low s of carr		
3.Landscape and land cover pattern	scale rectilinea and variation p valleys such as the course of t elements are in also seasonally simple landsca scale elements	or marshes and a provided by the s at Caister Cast he Bure create ntroduced by sn by sailing boat pe pattern, sens	ively simple, bei arable fields, alb presence of carrile. The wide batextural variationall scale settler is using the Buresitivity is increasif textural variation wind turbines.	peit with localise woodland fring ands of reed asson, whilst human ment such as Store. In spite of the sed by the prese	d complexity ed tributary ociated with scale okesby and e generally ence of human		
4.Skylines	with Mautby Do associated tall disturbance to horizon (Great sensitivity. His	ecoy) would be on-shore infras perceptual char Yarmouth – Ca storic skyline fea	nes (including w sensitive to win- tructure such as racter, although ister) would loca atures such as w r, giving a high s	d turbine develogy pylons due to put the developed eally decrease land in pumps and	pment and potential eastern dscape Caister Castle		
5.Perception and experience of the landscape	The generally tranquil landscape and remote landscape character, reinforced by mostly undeveloped skylines, would be sensitive to wind turbine development, although this would be locally reduced in the eastern part of the character area, where the landscape is influenced by coastal settlement edge. Overall, the landscape has a high sensitivity to wind turbines in perceptual terms.						
6.Historic landscape character	Many of the historic landscape types and features of this area have been affected by boundary loss and resultant erosion of landscape pattern. However, historic features of this character area which would be sensitive to wind turbine development are areas of small scale vernacular settlement such as Stokesby and the traditional wind pumps which define skylines, together with the ruins of Caister Castle. These elements increase landscape sensitivity to turbines to moderate-high in historic terms.						
7.Visual	,						
sensitivities and intervisibility	The expansive	nature of views	across the area	and to the adja	acent		

#### with areas Halvergate Marshes mean that this landscape is visually sensitive to the outside the introduction of large scale vertical elements such as turbines and supporting infrastructure of comparable scale such as pylons. This is reinforced by the **Broads** part intervisibility with adjacent character areas beyond the Broads Authority Executive Area (Great Yarmouth Borough character area G3: Ormesby and Filby Estate Farmland), albeit partly filtered by carr woodland. Given the visual influence on and of the Halvergate Marshes, this landscape character area is highly sensitive to turbines in visual terms. Overall landscape sensitivity to wind turbine development and to related tall infrastructure such as pylons is judged to be high. This is in view of the representation of special qualities sensitive to wind turbine development, such as the sense of tranquillity and the wide open landscape of big skies. Discussion on The predominantly open and undeveloped skyline character and the level of landscape intervisibility with other remote landscapes such as the Halvergate Marshes sensitivity are also important to this sensitivity judgement, as is the presence of occasional historic skyline features such as wind pumps and Caister Castle. This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons. Land within the character areas Land outside the Executive Area Small (0-20m) Small (0-20m) М-Н М-Н Medium (20-50m) Medium (20-50m) М-Н Large (50-70m) Large (50-70m) н н Very large (70m+) н Very large (70m+) н Commentary: Turbines in the smallest height typology would have less impact on human scale feature such as wind pumps, resulting in a marginally lower (moderate-high) sensitivity rating, although for all other typologies the high Sensitivity to landscape sensitivity rating would apply, for the reasons outlined in the different turbine overall sensitivity judgement above. heights Landscapes outside the Executive Area Relevant landscape characteristics and key landscape sensitivities are: Great Yarmouth Borough -G3: Ormesby and Filby Settled Farmland: Panoramic views albeit with carr woodlands providing visual filtering in relation to the Broads. Whilst the landscape has a slightly reduced (moderate-high) sensitivity in relation to the Broads, to smaller and medium size turbines (due primarily to more filtered visual character), siting would be critical in relation to the Executive Area. Landscape sensitivity to large turbine typologies would be high, due to potential visual prominence in relation to the Broads. Land within the character areas Land outside the Executive Area Commentary on different cluster sizes Single turbine М-Н Single turbine M-H <5 turbines Single turbine <5 turbines н М-Н Small clusters (<5 turbines) 6-10 turbines Н 6-10 turbines н Medium (6-10)

Н

11-25 turbines

н

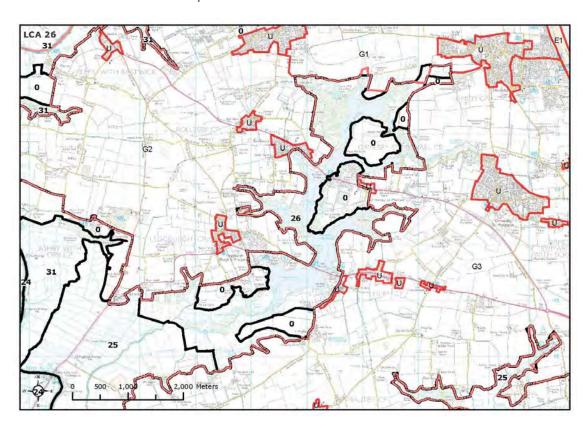
Very large (>26)

Large (11-25)

11-25 turbines

>26 turbines	Н	>26 turbines	Н
single wind pumps, reducing t introduced by larger clusters, sensitivity rating for this typol typologies would be high due	he visua hence a ogy. La to the p	to existing skyline elements such all clutter that would potentially be slightly lower (moderate-high) ndscape sensitivity to all multi turb tential for visual clutter in relations and the adjacent Halvergate	e rbine
Great Yarmouth Borough: G3: Ormesby and Filby Settled woodlands providing filtering i  The landscape has a slightly re to the Broads, to single turbin filtered levels of intervisibility)	d Farmla n relation educed (es and s	d key landscape sensitivities are:  and: Panoramic views albeit with on to the Broads.  (moderate-high) sensitivity in relational clusters (due primarily to megh siting would be critical in relations.	ation ore ion
to the Executive Area. Landso	ape sen Il visual	sitivity to larger multi turbine clu- prominence in relation to the Bro	sters

#### LCA 26: Muck Fleet Valley and the **Trinity Broads**



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Landscape Sensitivity Assessment for Wind Turbines

Criteria	Lower sensitivity		Higher sensitivity
	The sense of tranquillity a	and wildness is reflecte	ed in the quiet, rural and
1.Scenic and special qualities	be highly sensitive to the turbines and also to supp	introduction of tall, monorting infrastructure (so the effect that such	s sense of tranquillity would oving structures such as such as pylons for off-shore elements could have upon
	T. 6.		
2.Enclosure and scale	carr woodland backdrops would be highly sensitive to the potential confusion	and the associated st to large scale element they would introduce. nan scale elements (su	ts such as wind turbines, due . The landscape also uch as seasonal recreational
3.Landscape and land cover pattern	The richly varied and intr sinuous broads, reed rond fine grain appearance, we difference in scale and th of this landscape pattern.	ds and carr woodland, buld be highly sensitive e effect they would have	together with associated
4.Skylines	The wooded skylines are would be highly sensitive elements such as turbine	by virtue of this, to in	veloped character which troduction of any developed
5.Perception and			
experience of the landscape		the experience of this	e associated tranquil, rural character area would be ch as wind turbines.
6.Historic landscape character	This area exhibits a number would potentially be affect would therefore be sensit woodland and regenerate century rectilinear grazing	ted by wind turbine de ive, such as broads/re d carr and small scatte	servoirs fringed by carr
7.Visual sensitivities and intervisibility with areas outside the Broads	is intervisible with the are provide in relation to larg	dlands, which create al little intervisibility wit nstrated by the existin ea, the extent of visual er structures such as t	Imost continuous visual h landscapes beyond the g Somerton Windfarm which I filtering such features
Discussion on landscape sensitivity	tall infrastructure such as sensitive special qualities tranquillity and undevelop introduction of turbines. judgement are the undev	pylons is high. This is , principally represented ped character, which we Other factors which ar eloped skyline charact d landscape elements	ed by the area's sense of yould be sensitive to the re essential to this sensitivity er and the presence of fine which would be vulnerable to

This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.

Land within the character areas		Land outside the Executive Area	
Small (0-20m)	Н	Small (0-20m)	М-Н
Medium (20-50m)	н	Medium (20-50m)	Н
Large (50-70m)	Н	Large (50-70m)	н
Very large (70m+)	Н	Very large (70m+)	Н

#### Commentary:

This area has no comparable vertical features or scale references similar to any turbine types in the identified typology. As such, landscape sensitivity is high for all typologies, for the reasons set out in the overall sensitivity judgement above.

#### Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities:

### Sensitivity to different turbine heights

Great Yarmouth Borough -

G1: East Flegg Settled Farmland: Fieldwork confirmed the prominence of Somerton Windfarm in addition to the wooded landscape backdrop created by carr woodlands at the Trinity Broads.

G2: West Flegg Settled Farmland: Views are punctuated by vertical features such as wind pumps, turbines (Somerton and offshore) with views to and from the Broads, although there is a degree of enclosure associated with the edge of the Broads.

G3: Ormesby and Filby Settled Farmland: Panoramic views albeit contained by the wooded backdrop of the Broads. Vertical elements such the turbines at Somerton are visible, and the interface with the wetland landscapes of the Executive Area provide localised textural variation and interest.

Fieldwork confirmed that these character areas are visible through filtered views (carr woodland) from the Executive Area. However, due to the largely undeveloped skyline character and resultant visual prominence of turbines such as those at Somerton, sensitivity of the landscapes outside the Executive Area remains high to nearly all turbine typologies (skylines, prominence of such features in relation to the Broads). The exception is the smallest turbine typology where this could potentially be visually absorbed behind the carr woodlands, although much would depend on siting.

## Commentary on different cluster sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character areas		Land outside the Executive Area	
Single turbine	Н	Single turbine	М-Н
<5 turbines	I	<5 turbines	Н
6-10 turbines	I	6-10 turbines	Н
11-25 turbines	I	11-25 turbines	Н
>26 turbines	I	>26 turbines	Н

#### Commentary:

This area has no comparable vertical features or scale references similar to any turbine types in the identified typology. As such, landscape sensitivity is high for all typologies, for the reasons set out in the overall sensitivity judgement above.

#### Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities:

Great Yarmouth Borough -

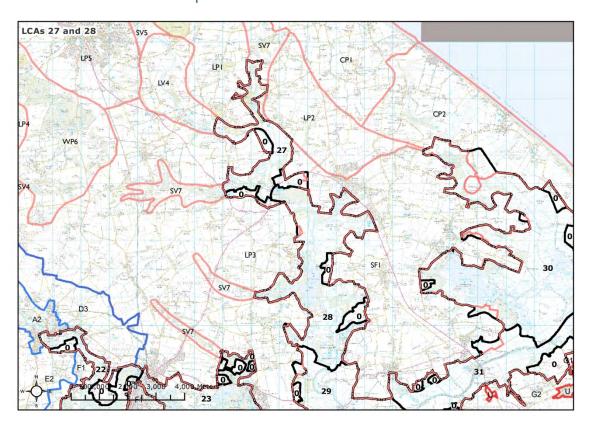
G1: East Flegg Settled Farmland: Fieldwork confirmed the prominence of Somerton Windfarm in addition to the wooded landscape backdrop created by carr woodlands at the Trinity Broads.

G2: West Flegg Settled Farmland: Views are punctuated by vertical features such as wind pumps, turbines (Somerton and offshore) with views to and from the Broads, although there is a degree of enclosure associated with the edge of the Broads.

G3: Ormesby and Filby Settled Farmland: Panoramic views albeit contained by the wooded backdrop of the Broads. Vertical elements such the turbines at Somerton are visible, and the interface with the wetland landscapes of the Executive Area provide localised textural variation and interest.

Site work confirmed that views to these character areas are generally filtered from the Executive Area due to carr woodland. However, due to the largely undeveloped skyline character and prominence of turbines such as those at Somerton, sensitivity of the landscapes outside the Executive Area is high to nearly all turbine typologies (skylines, prominence of such features in relation to the Broads and potential of multiple turbine clusters to introduce visual clutter when viewed from the Broads). The potential exception is the single turbine typology, although siting and distance in relation to the Broads would be critical.

## LCA 27: Ant Valley upstream of Wayford Bridge: LCA 28: Ant Valley downstream of Wayford Bridge



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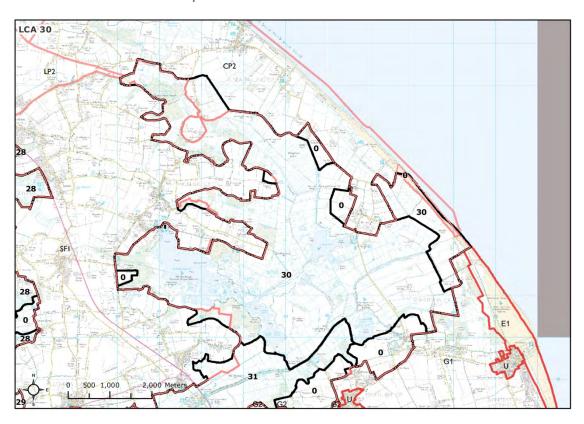
Landscape Sensitivity Assessment for Wind Turbines

Criteria	Lower sensitivity	<b></b>	Higher sensitivity
1.Scenic and special qualities	Many of the special qualities represented in both areas and wildness evident in munoise and movement introduced beautiful churches and quiesettlements in area 28 e.g. Irstead. This local charact traditional settlement patterns.	27 and 28, specifically uch of the Ant Valley, would be turbines. The trillages is particula wernacular settlemener would be sensitive it	which would be sensitive to which would be sensitive to e 'local character of rly represented in its such as Neatishead and
2.Enclosure and scale	Both areas 27 and 28 are printimate spatial scale, with woodlands which provide provide to turbines as successful of the define landscape scathat there is considerable and more expansive areas of managest broad in the Executed 28 and, seasonally of sailing indicators in the landscape	subtly perceived valle obysical and visual con th landscape features le. However, within an variation in landscape harsh and of Barton Br tive Area. The present ng boats in both areas,	ey sides masked by carr tainment. This would be are visually important and rea 28 it should be noted scale, due the presence of oad, which is the second ce of wind pumps in area , provide human scale
3.Landscape and land cover pattern	Both areas 27 and 28 displayed marsh and fen, reed ronds area 28 is also defined by edges. As such, this diversensitive to wind turbines. scale indicators within both both areas, presence of wi	and sinuous river with a series of broads, ofte sity of landscape elem This is reinforced by a character areas e.g.	n riparian vegetation, whilst en with intricate reeded ents and texture would be the presence of human
4.Skylines	Skylines are predominantly exception of localised area Ruston (area 27) and the t Stalham (area 28), and oc The wooded skyline formin open water, marsh and fer the mainly undeveloped naturbine development. This related infrastructure such	s of settlement which araditional waterside secasional traditional wire a backdrop to reed for is distinctive to both ature of the horizon, was is due to the potential	form the horizon e.g. East ettlement and staithe at and pumps within area 28. fringed rivers, areas of areas, and, together with ould be sensitive to wind all for turbines and other
5.Perception and experience of the landscape	little human disturbance and development. This is partilightly settled character and other than by boat. More	nd which would be sen cularly the case in are id an often remote, lar modern areas of settle t Ruston create localis would be sensitive ove	a 28 which has a very gely inaccessible quality ement edge within area 27, ed intrusions, however both
6.Historic landscape character	turbines as they could affe of historic landscape chara	example ancient woo of freshwater fen and s of often small scale. s of freshwater fen woo ct the coherence of su cter in area 28 are clo	dland within area 27 at 17 <sup>th</sup> century and later

	T				
	and areas of small, traditio Barton Turf and Irstead.	nal vernac	ular settlement such as Nea	tishead,	
7.Visual sensitivities and intervisibility with areas outside the Broads	which define much of areas turbines in visual terms. H higher intervisibility with a (North Norfolk landscape of and the Low Plains Farmlar of area 28 which are interv Settled Fen (area SF1) and	s 27 and 26 dowever, open dijacent lar haracter tynd type to visible with Low Plain	and of contained visual chara 8 would have the lowest sen pen fen within area 27 and v ndscapes beyond the Executi ype Coastal Plain CP1/CP2 to the west – area LP1), and sr North Norfolk District landso Farmland (area LP3), would erate overall sensitivity to to	sitivity to which have ve Area the east mall parts cape types I be more	
Discussion on landscape sensitivity	Areas 27 and 28 have a high overall landscape sensitivity to wind turbine development in general. This is due to the representation of special qualities in the areas which would be sensitive to such development. Also the landscape pattern and scale, historic character and integrity, the sense of remoteness and the presence of human scale indicators associated with traditional wind pumps and vernacular settlement within area 28 in particular.  This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.				
	Land within the characte	er areas	Land outside the Execu	tive Area	
	Small (0-20m)	М-Н	Small (0-20m)	М	
	Medium (20-50m)	н	Medium (20-50m)	М-Н	
	Large (50-70m)	н	Large (50-70m)	н	
	Very large (70m+)	н	Very large (70m+)	н	
Sensitivity to different turbine heights	Commentary:  Turbines within the smallest typology (0-20m) would respond more closely to existing vertical scale elements within the landscape, such as historic wind pumps, resulting in a slightly lower landscape sensitivity rating. However, all larger turbine typologies could appear visually dominant in these simple landscapes, hence the high sensitivity rating.  Landscapes outside the Executive Area:  Relevant character areas and sensitivities are:  North Norfolk —  CP1/CP2 Coastal Plain: Open, undeveloped skylines are sensitive.  LP1 Edingthorpe to Honing Area: Evidence of some intervisibility with the				
	Broads although some larger woodlands provide screening (Bacton and Honing Hall).  LP3 Worstead, Coltishall, Hoveton and Smallburgh: The area is intervisible with the Broads landscape with views available from rising valley landform. SF1 Stalham, Ludham and Potter Heigham: Sense of enclosure is increased by the woodland fringe of adjoining Broads.  Fieldwork confirmed that outside the Executive Area, landscape sensitivity to turbines is the same at the larger end of the typology scale. This is due				
	sloping valley sides when valley a slightly lower overall senset the lower end of the 20-	riewed fron sitivity to s 50 metre l	actures could have from the land within the Executive Area. Smaller turbines below 20 manager to the level were much would depend on	There is etres and el of foiling	

design in relation to specific planning applications, with regard to topography, valley sides and relationship to landscape structure features. Land within the character areas Land outside the Executive Area Commentary on Single turbine М-Н Single turbine different cluster sizes <5 turbines н <5 turbines М-Н Single turbine Small clusters 6-10 turbines н 6-10 turbines н (<5 turbines) Medium (6-10) 11-25 turbines н 11-25 turbines Large (11-25) Very large (>26) >26 turbines н >26 turbines Commentary: Multiple turbine clusters would have considerably greater likelihood of introducing visual clutter in relation to the simple, rural and undeveloped skylines which define the majority of areas 27 and 28. Accordingly the landscape has the highest sensitivity rating to these clusters. The landscape of these two character areas has a slightly lower sensitivity to single turbines in these terms. However this would depend on a careful, well considered visual relationship to other skyline elements including historic taller structures such as church towers and wind pumps. Landscapes outside the Executive Area: Relevant character areas and sensitivities are: North Norfolk -CP1/CP2 Coastal Plain: Open, undeveloped skylines are sensitive. LP1 Edingthorpe to Honing Area: Evidence of some intervisibility with the Broads although some larger woodlands provide screening (Bacton and Honing Hall). LP3 Worstead, Coltishall, Hoveton and Smallburgh: The area is intervisible with the Broads landscape with views available from rising valley landform. SF1 Stalham, Ludham and Potter Heigham: Sense of enclosure is increased by the woodland fringe of adjoining Broads. Fieldwork confirmed that sensitivity to larger turbine clusters is high. These landscapes would have a slightly lower sensitivity to single turbines or small groups of less than five turbines, although this depends on relationship to existing skyline elements and landscape features to valley sides, which define skylines.

## LCA 30: Upper Thurne Open Marsh, Broads and Fens



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Landscape Sensitivity Assessment for Wind Turbines

Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity			
1.Scenic and special qualities	and wildness created by wide open landscapes su marshes. Sense of trand effects of turbines and th	ed in this area, specificopen marshes and coach as at Hickling Broaduillity would be vulner be perception of the wies and supporting tall	cally the sense of tranquillity astal landscapes, and the			
2.Enclosure and scale	broad, essentially flat va provided by the rising co variations are created by fringing Hickling Broad to	lley floor. A degree of astal dunes at Winterton the bands of carr wood the west. These eleroric windmill at Horseyne above into account,	on to the east, and localised odland and reeded areas ments and human scale of, increase the sensitivity of the landscape has a			
3.Landscape and land cover pattern	The variation in pattern and texture created by the intricate, fine grain dyke network and the mix of land cover elements such as grazing marsh, arable fields, reed ronds, rush pasture and areas of reed fringed open water, creates a landscape sensitive to wind turbines. This is due to the effect turbines could have on the coherence of such landscape patterns. The human scale elements of the landscape pattern, such as Horsey Windmill, also contribute to this sensitivity.					
4.Skylines	coastal dunes and the we sensitive to the introduct elements of the skyline s turbines also, as well as Skyline elements such as	The largely undeveloped skyline character created by elements such as coastal dunes and the wooded backdrop to Hickling Broad would be sensitive to the introduction of tall vertical elements, as would historic elements of the skyline such as Horsey Windmill. This applies to off shore turbines also, as well as related tall on shore infrastructure such as pylons. Skyline elements such as the Somerton Windfarm and settlement edges to the south locally reduce sensitivity, resulting in an overall skyline sensitivity				
5.Perception and experience of the landscape		n human development as Somerton Windfarn southernmost parts of on and off shore turbi	and influence, save for nand perception of			
6.Historic landscape character	Hickling and unimproved landscape mosaic which Other historic elements of	freshwater fen (includ would be sensitive to t of the landscape appara- ive, resulting in a high	e types such as peat broad at ling associated small scale curbines due to scale issues). ent in the area, such as a sensitivity to wind turbines			
7.Visual						
sensitivities and intervisibility with areas outside the	across the more locally e	levated 'holmes' and f	cter, with expansive views rom the Winterton Dunes, adjacent character areas in			

Broads	Great Yarmouth Borough (G1: East Flegg Settled Farmland) and North Norfolk District (Coastal Plain landscape type – area CP2), with more filtered and framed views into the North Norfolk District Settled Fen landscape type (area SF1). Given the above, the landscape of this area is sensitive in visual terms to wind turbines including off shore turbines and associated tall on shore infrastructure for such schemes, such as pylons.					
Discussion on landscape sensitivity	This character area has a high overall landscape sensitivity to wind turbines in general, including off shore development and associated on shore infrastructure such as pylons. This is due to the diversity of special qualities sensitive to wind energy development in the area, notably the sense of tranquillity and wildness created by grazing marsh, fen and coastal landscapes, and the wide, open character of the landscape. Other factors which are important in contributing to this sensitivity judgement are elements of historic landscape character such as freshwater fens and windmills, the coherence of which would potentially be vulnerable to introduction of wind turbines. Also the visual character and the extent of visibility across the area, and its intervisibility with adjacent landscape character areas within Great Yarmouth Borough and North Norfolk District.  This judgement also applies to large infrastructure for off shore wind farm schemes, such as pylons.					
	Land within the character areasLand outside the Executive AreaSmall (0-20m)M-H      Small (0-20m)M-H					
Sensitivity to different turbine	Medium (20-50m)	Н	Medium (20-50m)	н		
heights	Large (50-70m) H Large (50-70m)			н		
	Very large (70m+)	Н	Very large (70m+)	Н		

#### Commentary:

Small scale turbines (less than 20m to tip) would have slightly lower potential impact on the landscape pattern and scale of the character area, and, subject to siting, on historic skyline elements such as windmills. They would be less likely to impinge on skyline character in certain parts of the area (such as where the horizon is formed by Winterton Dunes). As such the sensitivity rating is marginally lower for these (moderate-high). However for all larger turbine typologies, the high sensitivity rating applies, due to the potential effect they would have on perception of landscape scale, pattern and cultural pattern, and on skyline character and intervisibility (potential creation of visual clutter). This also applies to off shore turbines and associated on shore development such as pylons, substation and land fall infrastructure.

#### Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

#### Great Yarmouth Borough

G1: East Flegg Settled Farmland: Fieldwork confirmed that the wooded landscape of the Broads, notably the carr woodlands at Ormesby Broad, form a prominent backdrop which contains views.

#### North Norfolk District

Coastal Plain CP2: Open, undeveloped skylines are sensitive.

Settled Fen SF1: Fieldwork confirmed that filtered views between this area and the Broads are sensitive.

The same sensitivity judgements apply to the adjacent landscape character areas due to the level of intervisibility these have with the character area, and the associated potential impact wind turbines here would have on skylines, perception, experience and cultural pattern of the area. This also applies to off shore turbines affecting these areas and associated on shore development such as pylons, substation and land fall infrastructure.

Commentary on
different cluster
sizes

Single turbine Small clusters (<5 turbines) Medium (6-10) Large (11-25) Very large (>26)

Land within the character areas		Land outside the Executive Area	
Single turbine	М-Н	Single turbine	М-Н
<5 turbines	Н	<5 turbines	М-Н
6-10 turbines	Н	6-10 turbines	Н
11-25 turbines	Н	11-25 turbines	Н
>26 turbines	Н	>26 turbines	Н

#### Commentary:

Single turbines would potentially contain impacts on the area's skyline character, subject to siting (careful consideration would be needed in relation to historic elements which contribute to skyline character, such as windmills). This results in a marginally lower sensitivity judgement for this typology of moderate-high. However, this landscape would be highly sensitive to all other multiple turbine typologies. This is due to the fact that such turbines would create potential for confusion in terms of landscape scale, and domination of existing landscape elements and of skyline character. This also applies to off shore turbines affecting these areas and associated on shore development such as pylons, substation and land fall infrastructure.

#### Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

Great Yarmouth Borough

G1: East Flegg Settled Farmland: Fieldwork confirmed that the wooded landscape of the Broads, notably the carr woodlands at Ormesby Broad, form a prominent backdrop which contains views.

North Norfolk District

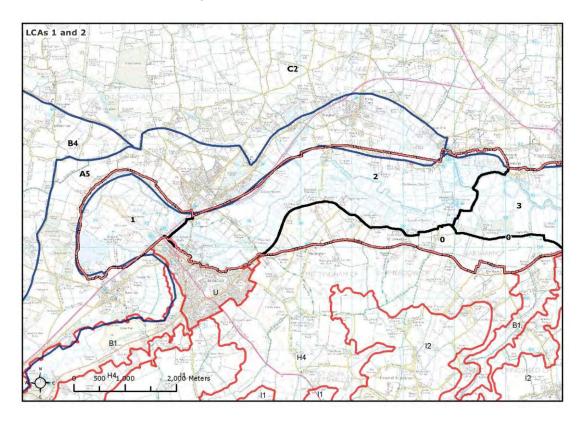
Coastal Plain CP2: Open, undeveloped skylines are sensitive.

Settled Fen SF1: Fieldwork confirmed that filtered views between this area and the Broads are sensitive.

The same sensitivity judgements apply to the adjacent landscape character areas for the largest turbine clusters. This is due to the level of intervisibility these have with the Broads character areas and the associated potential impact the larger wind turbine typologies would have on skylines, and perception and experience, as well as on landscape scale of the area. This also applies to off shore turbines affecting these areas and associated on shore development such as pylons, substation and land fall infrastructure.

Landscape sensitivity matrices for solar PV

## LCA 1: Waveney Valley - Outney Common and Bath Hills Area: LCA 2: Waveney Valley - Bungay/Ditchingham to Shipmeadow/Geldeston



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Landscape Sensitivity Assessment for Solar PV Development

	Sitivity Assessifient for Sold		
Criteria	Lower sensitivity		Higher sensitivity
1.Scenic and special qualities	The character areas display a numare sensitive to solar PV developm of tranquillity and the range and convocation woodland, hedgerows and winding sensitive to solar PV and its assocreduced close to Bungay due to la of character area 1. However, over sensitivity to solar PV development	nent. Specifically liversity of habing waterways whilated footprint. Irge scale develorable rall the areas h	y these include the sense tats associated with sich are particularly Sensitivity is locally opment on the perimeter ave a moderate-high
2.Sense of openness / enclosure	Character area 1 is defined by a mareas of landscape which would in area 2 has a small scale enclosed meanders through the area. This sensitivity to solar PV developmer similar characteristics such as rising pattern, where hedgerows and treprovided by undulating landform, this is enhanced by landscape elemedgerows. The areas, when comis due to the sense of enclosure and landform, although the small a result of the likely field boundary	dicate a lower so (hedgerow) field small scale pattern and to land to he cover filter viparticularly in coments such as white distributions and containment scale field pattern (hedgerow).	sensitivity, while character Id pattern where the river tern indicates a higher ake. Both areas display with an enclosed landscape ews. Containment is character area 1. Elsewhere wooded ridges and moderate sensitivity. This provided by hedgerows
3.Landscape and land cover pattern and scale	The smaller scale field pattern of of sensitivity to solar PV due to the public dilute the existing landscape pattern of character area 1 with its undula screening provided by rising topog sensitivity. The areas have a modin landscape pattern/scale terms.	ootential of the ern. However th ating topograph graphy and woo	development footprint to be medium scale landscape y and greater degree of oded valley sides, reduces
4.Perception and experience of the landscape	There is a strong sense of tranquil areas although this is diluted some where large scale development is however localised and the areas a This indicates a higher sensitivity perceptual changes the development area. The areas have a moderate	ewhat closer to apparent in are s a whole retair to solar PV dev ent would introd	the settlement of Bungay ea 1. This intrusion is n a sense of remoteness. elopment due to the duce to an undeveloped
5.Historic landscape character	These areas retain a sense of historicatures such as the distinct medicentury grazing marsh pattern who development due to vulnerability of primarily due to the potential effection and scape features. Also sensitive settlements (Geldeston, Bungay a which have a strong association work vernacular of the area which would development. Additional historic for (The Hards) and the Bath Hills who	eval dole patter ich are of higher of such features cts of solar PV of are the malting nd Ellingham Morith the former of be highly seneatures such as	ern and the traditional 17 <sup>th</sup> er sensitivity to solar PV es to land take. This is on the coherence of such g complexes and historic lill) within character area 2 water mills and the sitive to solar farm the historic commons

	Ditchingham Estate are also sensitive to dilution of historic landscape pattern from solar PV development. When combined, these features indicate a clear sense of historic landscape character and as a result the areas are considered to be highly sensitive to solar PV development.				
6.Visual sensitivities and intervisibility	An enclosed landscape, defined by rising valley topography and surrounded by wooded skylines, providing a degree of containment, indicating a lower sensitivity to solar PV development in visual terms. Although contained, there is some intervisibility with adjacent character areas outside the Broads Executive Area (namely, areas A5 and B4 in South Norfolk District and area H4 in Waveney District). This is particularly evident where adjacent character areas are on higher ground (A5 and B4). This elevation provides a greater degree of visibility and as such these areas are more prominent in views. Although there is a level of structural screening provided by rising landform, the filtered views of elevated land in adjacent areas increase sensitivity, and therefore the sensitivity of the area is moderate-high in visual terms.				
Discussion on landscape sensitivity	Overall the landscape sensitivity to solar PV development is moderate-high. This is primarily due to the representation of special qualities within the areas including the sense of tranquillity and the diversity of nature. These characteristics are highly sensitive to solar PV development due to the potential of development footprint to impact upon the diversity of habitats and to create a developed landscape in an otherwise remote and tranquil area, resulting in a perceptual change to landscape character. Also sensitive to solar PV development is the historic landscape and settlement pattern which is vulnerable to change as a result of development footprint. It is however noted that the structural screening provided by landform and tree cover indicates a lower sensitivity and therefore the landscape has an overall moderate-high sensitivity to solar PV development.				
	Land within the character a	areas	Land outside the Executiv	e Area	
	Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission	м-н	
	Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hectare	М-Н	
	Field mounted: Small - < 1 hectare	м-н	Field mounted: Small - <1 hectare	м-н	
	Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н	
	Commentary:				
Sensitivity to different sizes of solar PV development	Although the character areas are sensitive to the majority of solar PV development, the landscape is less sensitive to small scale solar PV (less than one hectare) where field size can accommodate schemes of this size. However, this is subject to careful siting and avoidance of intervisibility where consideration should be given to landform and tree cover. The sensitive characteristics set out above must also be given close consideration so as to reduce any potential impacts, particularly on the tranquil character and the historic settlement and landscape pattern.  Landscapes outside the Executive Area  The relevant character areas and sensitivities are:  South Norfolk— A5: Waveney Rural River Valley: Rising valley sides to the Broads which provide intervisibility.				

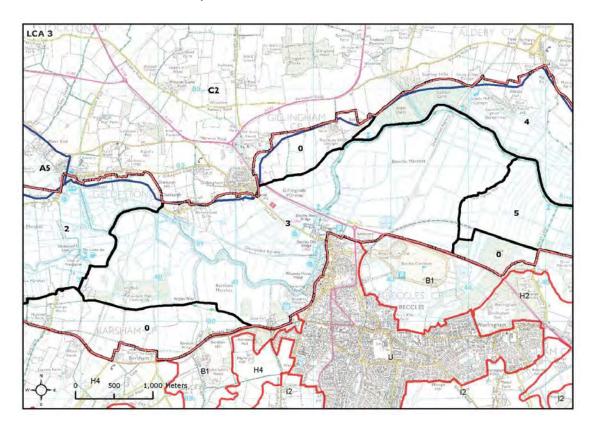
B4: Waveney Tributary Farmland: Elevated land close to the Broads in the north.

Waveney District -

H4: Mettingham Tributary Farmland: Steeply rising valley sides (10-15m AOD) to the north and forms part of the landscape setting of the Broads abutting the Broads Authority boundary along much of its length.

Fieldwork confirmed that sensitivity ratings for these areas for medium scale solar PV are high. Due to the elevated nature of the surrounding character areas, impacts upon skylines and views are of critical importance. However, these areas have a lower sensitivity to roof mounted and small scale field mounted solar PV development (up to one hectare) and this would depend entirely on siting (orientation of such development) and intervisibility in relation to the Broads.

## LCA 3: Waveney Valley - Barsham, Gillingham & Beccles Marshes



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Landscape Sensitivity Assessment for Solar PV Development

Lanuscape Sens	SITIVITY ASSESSMENT T	ui Suiai PV Deve	еюритети			
Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity			
1.Scenic and special qualities	would be concitive in terms of materials to color DV development. Also					
2.Sense of openness / enclosure	PV, due to impact of deverage where a more intime by valley floor vegetation topography, woodlands to adjacent character areas sensitivity. This is due to assimilate solar PV, as sm	elopment footprint on nate character persists including pollard willo the southern area bo beyond the Executive the potential of such naller scale solar PV co	s, with containment created ows, and by valley oundary and the ridges in Area, would have a lower landscape frameworks to			
3.Landscape and land cover pattern and scale	A mosaic landscape due to the interplay of grazing pasture, river and riparian habitat, flood meadow and historic valley settlements, in addition to small areas of carr woodland and orchards. The landscape contains a number of small scale references such as the landscape pattern near the settlements and the quayside at Beccles, together with the varied pattern of landscapes associated with the flood meadows. Such features would be vulnerable to solar PV development footprints. However, larger scale elements and erosions of the landscape pattern which create intrusions in character, such as pylons, reduce sensitivity to moderate-high.					
4.Perception and experience of the landscape	would be sensitive to solar perceptual landscape chat compact and historic chart corridor within the area, r	ar PV due to their pote racter. Settlements a racter. However intru- reduce landscape sens	sions such as the A146			
5.Historic landscape character	potentially have on the co Much of the landscape of reduces historic landscap	patterns and tradition wns. This is due to the phesion and perception this area is also define e sensitivity, as do are ses persist. Taking all	nal vernacular settlement e effect that solar PV would n of such historic elements. ed by boundary loss which eas where more modern of the above into account,			
6.Visual sensitivities and intervisibility	outside the Broads Autho farmlands which form the Tributary Farmland), alth woodland blocks on the s the area is intervisible wi character area C2 Thurlto character in this direction	rity Executive Area, and a valley slopes (Waven ough a degree of visuouthern boundary of the the valley crests in a Tributary Farmland, a. The valley crests ar	, with a more open visual			

pollard willows lining water courses, creating visual foiling in relation to other Broads character areas within the Waveney Valley. Given the above and taken together, the area has a moderate sensitivity to solar PV in visual terms, although the more open areas of floodplain would be more sensitive in visual terms.

## Discussion on landscape sensitivity

Overall landscape sensitivity of the Waveney Valley – Barsham, Gillingham and Beccles Marshes to solar PV development is moderate. Whilst a number of scenic and special qualities sensitive to solar PV are present in this area, such as vernacular settlements and areas of open skies, overall landscape sensitivity is slightly reduced by intrusions such as the A146 corridor and line of pylons in the valley floor. The erosion of aspects of historic landscape character, such as boundary loss also influence this sensitivity judgement, as do areas of filtered visual character, to a degree. However, areas of more open floodplain landscape would have higher sensitivity to solar PV, given increased intervisibility.

Land within the character areas		Land outside the Executive Area		
Roof mounted requiring planning permission	М-Н	Roof mounted requiring planning permission	М-Н	
Roof mounted - < 1 hectare	М-Н	Roof mounted - < 1 hectare	М-Н	
Field mounted: Small - < 1 hectare	M	Field mounted: Small - < 1 hectare	М	
Field mounted: Medium - 1 to 5 hectares	М-Н	Field mounted: Medium - 1 to 5 hectares	М-Н	

#### Sensitivity to different sizes of solar PV development

Commentary:

The landscape of this area would be more sensitive to medium scale (multi field) solar arrays due to potential effect they would have on field patterns and landscape structure.

#### Landscapes outside the Executive Area

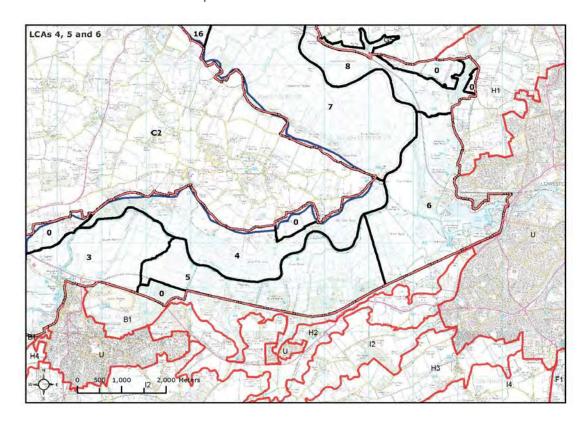
Relevant character areas and sensitivities are:

Waveney District character area H4: Mid Waveney Tributary Farmland: Framed views to the Broads.

South Norfolk District character area C2: Thurlton Tributary Farmland: Open views to the Broads.

Fieldwork has confirmed that sensitivity ratings for this area would be the same as those set out for the Broads area above, due to level of visual containment, although much would be subject to siting, topography and level of intervisibility. The ridges in these adjacent character areas are visually prominent, as described above.

LCA 4: Waveney Valley – Aldeby to Burgh St Peter: LCA 5: Waveney Valley - Worlingham Wall to Boundary Dyke, Barnby: LCA 6: Waveney Valley -Boundary Dyke Barnby to The Fleet, Oulton



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Landscape Sensitivity Assessment for Solar PV Development

,	
Criteria	Lower sensitivity Higher sensitivity
1.Scenic and special qualities	Areas 4, 5 and 6 have a high proportion of special qualities which are sensitive to solar PV development footprint. Specifically these are the diversity of nature and habitats of carr woodland, freshwater fen, marsh and reed ronds which are all potentially vulnerable to solar PV. Also the relative sense of tranquillity and more open landscape evident in central parts of the character areas could be interrupted by solar PV development.
2.Sense of openness / enclosure	Large areas of open marsh (i.e. Castle Marsh and Peto's Marsh) are sensitive due to their sense of openness and increased level of visibility. However, areas of carr woodland in the south of character area 5 (i.e. North Cove Nature Reserve and Barnby Broad) and areas of intimate scale in area 6 (i.e. Carlton Marshes) would indicate a lower sensitivity to solar PV development due to the sense of containment provided by landscape features, although overall the character areas are considered to have a moderate-high sensitivity.
3.Landscape and land cover pattern and scale	Areas 4, 5 and 6 are defined by their varied and intricate land cover pattern which forms a mosaic of carr woodland, open marshland and meandering waterways with reed fringed edges. Due to the variation in texture and the complex nature of the individual elements, the areas are considered to have a higher sensitivity to solar PV development. Landscape pattern is characterised by a mix of regular 20 <sup>th</sup> century rectilinear enclosures indicating lower sensitivity, while 16 <sup>th</sup> and 17 <sup>th</sup> century grazing marshes and small scale field patterns on the perimeter of the area indicate higher sensitivity due to vulnerability to solar PV footprint.
4.Perception and experience of the landscape	A relatively tranquil and naturalistic character - areas 4, 5 and 6 retain a strong sense of remoteness away from settlement edges (Lowestoft) and communication corridors. As a result the areas are sensitive to solar PV development as their introduction would detract from the sense of tranquillity and remote character. Evidence of human influences and modern development is not particularly apparent; aside from localised visibility of Lowestoft, pylons and sand and gravel pits within South Norfolk and as such the area has an overall high sensitivity to solar PV development.
5.Historic landscape character	The landscape within areas 4, 5 and 6 comprise numerous historic features which are sensitive to solar PV development. For example, area 6 retains some 16 <sup>th</sup> and 17 <sup>th</sup> century grazing marshes which are vulnerable to changes in their perceived coherence and therefore considered more sensitive to solar PV development. In addition, enclosed areas of smaller broads (i.e. Barnby Broad) could also be vulnerable to any changes in perceptual character due to solar PV. Elsewhere however, there are some areas which are less sensitive, particularly where field boundaries have been removed as a result of 20 <sup>th</sup> century agriculture practices (e.g. central marshes within area 4 and eastern edge of area 5 near Barnby Broad).
6.Visual sensitivities and intervisibility	Due in part to the sense of openness and ability for greater visibility, the marshes are more sensitive to solar PV development than the more enclosed areas of carr woodland which provide localised screening. The

sloping valley sides of adjacent character areas (i.e. South Norfolk District C2 and Waveney District B1 and H2) are visible from within the Executive Area and as such have a higher sensitivity to solar PV. The more locally contained areas created by carr woodland on the edges filter views and are less sensitive, although overall the area has a high sensitivity to solar PV.

## Discussion on landscape sensitivity

Areas 4, 5 and 6 have a high overall sensitivity to solar PV development in general. This is primarily due to the representation of the Broads special qualities (i.e. diversity of nature, sense of tranquillity and wide, open landscapes). The intricate land cover and mixed pattern of elements, the perceived sense of remoteness and the Edwardian settlement at Oulton Broad are also sensitive to solar PV development.

Land within the character areas		Land outside the Executive Area	
Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission	M
Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hectare	M
Field mounted: Small - < 1 hectare	н	Field mounted: Small - < 1 hectare	М-Н
Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	Н

#### Commentary:

Character areas 4, 5 and 6 have a high sensitivity to solar PV development of all types and scales, particularly within the larger areas of marshland where visibility is increased. The relatively undeveloped nature of the area and the perceived sense of remoteness also indicate higher sensitivity. These areas would also be sensitive to roof mounted PV due to the potential visual prominence of such structures and potential effects on historic settlement character in area 6. Overall however, areas 4, 5 and 6 are considered sensitive to most types of solar PV.

#### Sensitivity to different sizes of solar PV development

#### Landscapes outside the Executive Area:

Relevant character areas and sensitivities are:

#### South Norfolk -

C2 Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley.

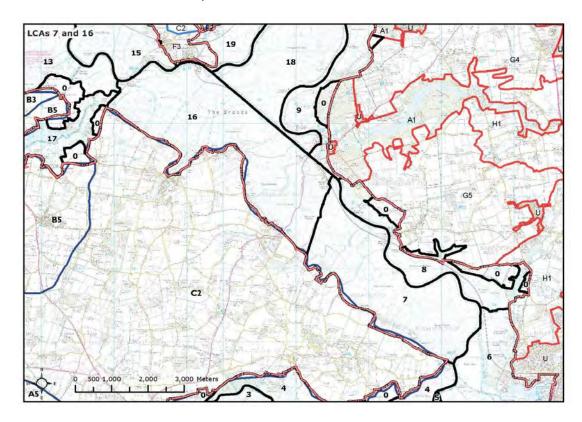
#### Waveney -

B1 Waveney Valley: Rising valley sides (15-20m AOD) evident in views from the Broads.

H2 Waveney Tributary Valley Farmland: Gently sloping valley sides providing views out into the Broads with some smaller blocks of woodland

Due to the extent of intervisibility of adjacent valley sides, the adjoining character areas have a high sensitivity to medium scale field mounted solar PV development. Landscape sensitivity to small scale field mounted solar PV in relation to the Broads would be moderate high, although this would depend on siting and orientation in relation to the Broads. Careful siting and design of <1 hectare roof mounted schemes will be required to ensure they do not influence the uninterrupted skylines from within the Broads.

# LCA 7: Waveney Valley – Burgh St. Peter to Haddiscoe Marshes: LCA 16: Yare and Waveney Valley - Norton Marshes to Haddiscoe Dismantled Railway



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Landscape Sensitivity Assessment for Solar PV Development

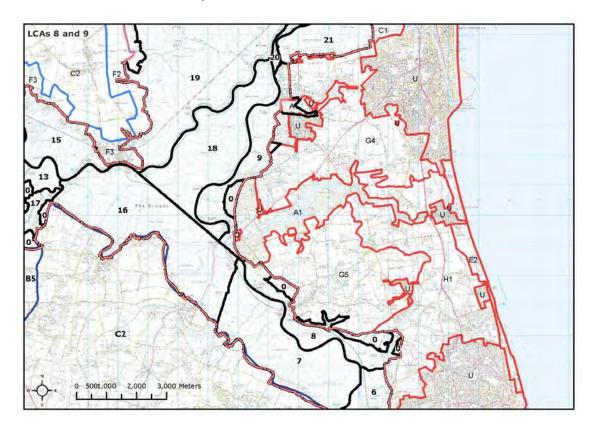
Lanuscape Sens	sitivity Assessment i	or Solar I v Deve	Юртнети
Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity
1.Scenic and special qualities	areas are defined by a wassociated sense of space of solar PV development where visual clutter is all areas have a sense of tradevelopment footprint, latelements resulting in furtimpacts on recreational controls.	ould be sensitive to solaride, open landscape of e would potentially be a ready apparent (pylons anquillity, which solar Pand take and introduction ther visual intrusion. The arest users have in their	ar PV. For example, both big skies. This and the affected by the introduction eas which reduce sensitivity at Thurlton Marshes). Both V would affect through on of additional man-made he potential perceptual ndicate a degree of r landscape. As a result the
2.Sense of openness / enclosure	highly sensitive to solar I such structures and impassolar PV. The large scale boundary removal has tall a lower sensitivity. Howe	PV in view of the potent acts on sense of space of field pattern where are aken place (e.g. surrour ever, without any visual in these areas would be sensitive to solar PV. As	nding the New Cut) indicate filtering being provided by the highly apparent, and as a result of the above,
3.Landscape and land cover pattern and scale	in area 7, where the pres land cover or pattern. The edges of the area where interest and as such creat of pattern. Overall the art development due to the cohesiveness of the curv	sence of open marshlan here is however some with the wooded valley edge ate a more sensitive lan reas have a moderate supotential of developmentinear dyke pattern fou	es provide greater visual dscape to solar PV in terms
4.Perception and experience of the landscape	PV, due to the perceptual Localised intrusions such	ped marshland would be il change such structure as the Cantley Factory sensitivity although the	e highly sensitive to solar es would introduce.
5.Historic landscape character	due to the potential effect pattern. However there eroded and this reduces historic features which a	area 7 would be sensitive ton the coherence of the are large areas where the sensitivity. Area 16 poster visually prominent are	ve to solar PV developments his historic landscape the historic pattern has been

	solar PV, e.g. church tower at St Peter's Staithe and steam engine house at Burgh Marshes. Given the above, these areas have a moderate-high sensitivity to solar PV in historic landscape character terms.				
6.Visual sensitivities and intervisibility	The areas of open marshland character and the level of intervisibility with areas within the Broads (6, 8 and 16) and those in adjacent districts (areas A1, G4 and G5 in Waveney District and area C2 in South Norfolk District) would indicate a higher sensitivity to solar PV development. Although views towards adjacent areas are often contained by wooded ridges (i.e. north and south of area 7 and to the east of area 16) these adjacent areas influence the character of the Broads and this degree of intervisibility indicates a higher sensitivity to solar PV development. The areas have an overall high sensitivity as a result of the degree of intervisibility, distant views and the potential of adjacent character areas to influence the visual character of the Broads areas.				
Discussion on landscape sensitivity	Overall landscape sensitivity of this area grouping to solar PV development is high. This is due to the representation of special qualities sensitive to solar PV in these areas, specifically the sense of tranquillity, wide open landscape, sense of space and big skies which characterise many parts of the areas. Other important characteristics of these landscapes which contribute to this sensitivity rating in relation to solar PV, are the open visual character of the marshland landscapes in these areas, and associated intervisibility with adjacent landscapes, including with those in adjacent local authorities beyond the Executive Area. Also important in relation to this sensitivity judgement are the historic landscape pattern, such as small scale curvilinear dykes, and prominent historic assets such as wind pumps at Herringfleet, the church tower at St Peter's Staithe and steam engine house at Burgh Marshes.				
	Land within the character a	reas	Land outside the Executive	Area	
	Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission  Roof mounted - < 1 hectare	М-Н	
	Roof mounted - < 1 hectare  Field mounted: Small - < 1 hectare	н	Field mounted: Small - <1 hectare	М-Н	
	Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н	
Sensitivity to different sizes of solar PV development	Roof mounted and field mounted solar PV of all sizes in the typology would have the potential to exacerbate impacts on perceptual characteristics of these areas and associated special qualities such as sense of space and tranquillity, and in terms of views and intervisibility across these landscapes. Therefore landscape sensitivity of these character areas to all solar PV typologies is high.  Landscapes outside the Executive Area Relevant character areas and sensitivities: South Norfolk - C2 Thurlton Tributary Farmland with Parkland: Views open out to the Broads where land rises up from the low lying Waveney Valley.  Great Yarmouth and Waveney - G4: Hobland Settled Farmland: Site work confirmed that the escarpment at Burgh Castle is a prominent ridge which provides views out into the Broads.				

G5: Somerleyton Settled Farmland: Some long views across the adjacent low lying pasture and wetland landscape of the Broads and reciprocal views back with this area.

Due to levels of intervisibility, sensitivity ratings for larger scale solar PV schemes are generally the same as for the Broads. There would however be slightly lower sensitivity to the smallest scale (roof mounted) and small scale field mounted solar arrays, although this would depend entirely on orientation in relation to the Broads.

#### LCA 8: Waveney Valley - Flixton to Herringfleet Marshes: LCA 9: Waveney Valley - St Olaves to Burgh Castle



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Landscape Sensitivity Assessment for Solar PV Development

Larracoape corre	Silivity Assessment i		стортноги
Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity
1.Scenic and special qualities	sensitivity in relation to s the sense of tranquillity a skies and the sense of sp landscape has a high sen	olar PV development. and wildness, the wide ace which is perceive sitivity due to the affe	paracter areas results in a high. Specifically this relates to e open landscapes with big d within these areas. The ect solar arrays could have on ar array footprint to impinge
2.Sense of openness / enclosure	landform to the north of a in character and have a smarshland. This would insolar PV due to the promition However, where pockets screening (northern extension the potential for the development of the development of the potential for the development of the deve	area 8 and east of are ense of openness wit dicate a highly sensiti inence of developmer of woodland and encl nts of area 8) the land elopment to be filtered ting a lower sensitivit	ive landscape in relation to ht in an open landscape. osure provide a degree of dscape is less sensitive due to d and less easily perceived in
3.Landscape and land cover pattern and scale	ronds) combines to created ue to the potential of dedilute the character of the with the Caldecott Marshe Although sensitive to sola exhibit a simple landscap	e an intricate pattern evelopment footprint t e landscape. The sinu es in area 9 is also se ar PV, there are areas e pattern and are the	niferous woodland and reed which is sensitive to solar PV to impinge on the pattern and tous dyke pattern associated ensitive to changes in pattern. It is of grazing marsh which erefore less sensitive, although y to solar PV development.
4.Perception and experience of the landscape	and lack of development solar PV. This is due to the sense of remoteness by in detract from the rural char reduced closer to settlem areas G4 and G5 which e	results in a landscape ne potential of develop ntroducing uncharactor aracter. This perception ent of Belton and Gre xhibit a greater deal of and Wild Duck carava 9, reducing sensitivit	of intrusion (pylons, an parks) and therefore have by. Overall however the
5.Historic landscape character	resulted in field boundary practices. Although there which are less sensitive to 17th century rectilinear er which are sensitive to sol elements of historic signit Augustinian Priory at St. gardens) which are sensitive to affect appreciate them. Overall	removal due to the in are areas of rectiline or solar PV development of the inclosures and curvilinar PV. The landscape ficance (drainage millolaves and Wicker Witive to solar PV development of the solar parea has a medium of the inclosure of the solar potential of development.	s, Burgh Castle, the ell and Summerhouse Water opment due to the potential se features and the ability to um-high sensitivity to solar PV ent footprint to affect the
6.Visual sensitivities and			rshes although these views

#### intervisibility

are contained within the Broads character areas. Rising ridges (10m) to the north of area 8 and east of area 9 provide containment, thus limiting views into adjacent areas. The wooded ridge of Great Yarmouth's G5: Somerleyton Settled Farmland character area is apparent in views and filters views in this direction. The wooded nature of this ridge also influences the perception of views from character area 8 and as a result this creates a landscape which is more sensitive to wind turbine development. Views to the east of area 9 are of a similar nature, defined by the ridge of the adjacent Great Yarmouth G4: Hobland Settled Farmland character area. Overall, this degree of containment indicates a lower sensitivity due to the lack of intervisibility to adjacent character areas outside the Broads and as a result the landscape has a medium sensitivity to solar PV.

### Discussion on landscape sensitivity

These character areas combine to create a landscape of medium-high sensitivity to solar PV development. This is due to the representation of special qualities sensitive to solar PV, specifically the sense of tranquillity, wide open landscape, sense of space and big skies which characterise many parts of the areas. Other important characteristics of these landscapes which contribute to this sensitivity rating in relation to solar PV is the open character of the marshland landscapes and the associated intervisibility with prominent ridges in adjacent local authorities beyond the Executive Area. Also important in relation to this judgement is the sensitivity of the historic landscape pattern, such as small scale curvilinear dykes and 17<sup>th</sup> century enclosure marshes, and prominent historic assets such as drainage mills, the Augustinian Priory of St Olaves and Burgh Castle.

Land within the character areas		Land outside the Executive Area		
Roof mounted requiring planning permission	М-Н	Roof mounted requiring planning permission	М-Н	
Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hectare	Н	
Field mounted: Small - < 1 hectare	н	Field mounted: Small - < 1 hectare	М-Н	
Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н	

#### Commentary:

#### Sensitivity to different sizes of solar PV development

Roof mounted and field mounted solar PV in the majority of these typologies would have the potential to exacerbate impacts on perceptual characteristics of these areas and associated special qualities such as sense of space and tranquillity, and in terms of views and intervisibility across these landscapes. There are however some areas of enclosed landscape which are of a lower sensitivity to solar PV development. These areas of lower sensitivity relate to the edges of the character areas where appropriate landform and land cover screening is provided. Careful siting will be an important consideration, particularly in relation to skylines and historic features.

#### Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

Great Yarmouth/Waveney -

A1: Waveney Rural Wooded Valley: Fieldwork has confirmed that the wooded ridge to the edge of area A1 which incorporates Waveney Forest is prominent and therefore sensitive in relation to the Broads.

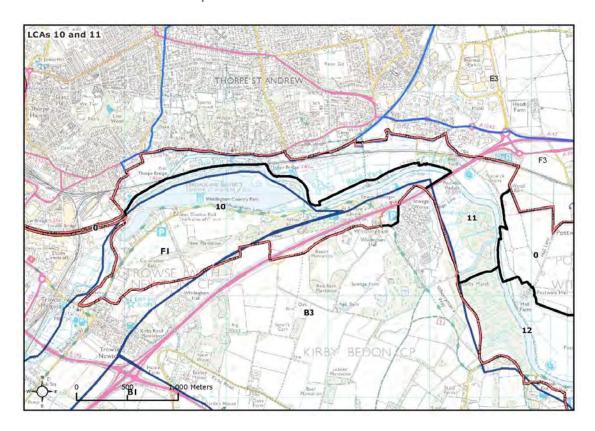
G4: Sensitive elements of this area in relation to the Broads and revealed through field survey are the low wooded ridge which adjoins the north eastern part of Broads LCA 9 and Burgh Castle Roman Fort, which occupies

the top of the ridge. These are prominent features in relation to the Broads.

G5: The wooded parkland fringes on the plateau to the edge of the Waveney Rural Wooded Valley form undeveloped skyline elements to the east of the Broads which contribute to the Broads setting and are therefore sensitive.

Due to the degree of intervisibility with prominent ridges, sensitivity ratings are generally the same as for the Broads although there would be a slightly lower sensitivity to the smallest scale (roof mounted) and field mounted solar arrays although this would depend entirely on orientation in relation to the Broads and particularly careful consideration of intervisibility.

#### LCA 10: Yare Valley - Whitlingham Lane and Country Park, LCA 11: Local Character Area 11 - Yare Valley Cary's Meadow, Thorpe Island and Marshes, Postwick Grove and Whitlingham Marshes



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Landscape Sensitivity Assessment for Solar PV Development

Lanuscape Sens					
Criteria	Lower sensiti	vity	$\leftarrow$	Higher ser	nsitivity
1.Scenic and special qualities	Relatively few special qualities sensitive to solar PV development are represented in this character area grouping, although the diversity of habitats in area 10 relates to a landscape pattern which would be sensitive in terms of cohesiveness to footprints introduced by solar PV development. The recreational use of both areas for boating also indicates a degree of recreational user interest in the landscape and therefore also some sensitivity to solar PV in these terms. Taking the above into account, these areas have a moderate overall landscape sensitivity to solar PV development in terms of the special qualities.				
2.Sense of openness / enclosure	enclosure provi (e.g. wood fring wooded parklan wooded valley	ided by woodla ged broad in a nds to the sou sides). This le blar PV develop	of medium scale and within and surea 10 plus wood th, and, in area 1 evel of enclosure coment, due to the ent.	rrounding the c ed south facing 1, by relatively decrease the se	haracter areas ridge and the steep, well nsitivity of the
3.Landscape and land cover pattern and scale	created by trandiverse and more presence of riverse aggregate extrapartly eroded lamoderate. Hur	nsport corridors  ore naturalistic  er and ripariar  near Postwick  action, industr  andscape patte  man scale elen	ms of landscape ps and urban edge pattern is create a vegetation, area Viaduct, albeit wial sites and boattern, landscape senents introduced oats would be ser	development, of in area 11 dures of scrub, grassith contrast creeyards. Due to the insitivity to solar by the presence	whilst a e to the ssland and the ated by his mixed and r PV is
4.Perception and experience of the landscape	landscape char (including the k locally enhance including relict similar within a character is dis	acter, such as bypass and The ed by the wetla parkland and area 11 – sense jointed due to	ant intrusions whith urban fringe developed. However so and environment of the whitlingham Greater of tranquillity are the proximity to lock Viaduct which	elopment at Noi ense of tranquil of Whitlingham at Broad. The s nd perceptual la large scale sett	rwich lity here is Country Park ituation is ındscape lement at
5.Historic landscape character	associated with solar PV develor would potential processes such have eroded as sensitivity. Sol sensitive to sol century rectilin of boundary los	Trowse Newto opment footprii lly be vulnerable as gravel exti spects of histor me aspects of ar PV developri ear grazing mass ss north east of	scape character son and Whitlinghants, as the cohesione to such develoraction (which havid landscape patt the historic charament footprints, sarsh, although sent formula from the river. Giver moderate overall,	am Hall would be veness of such pment. Other have created the Cern and therefore the form of area 11 such as areas of insitivity is reduct the above, ser	re sensitive to features inistoric Great Broad) are reduced would also be 17th-20th ced by areas insitivity of the
6.Visual sensitivities and intervisibility	Views out from parkland and the although large	ne embankmei scale developr	ften framed due to the to the edge of ment associated vand taller building	Whitlingham G vith the urban e	reat Broad, edge is visible

Some views are available to the settled wooded ridge to the north (within the Norwich urban area, with Broadland District character area E3 Spixworth Estate Lands beyond) and to the rising parklands to the south intervisibility with South Norfolk District character area B3 Rockland Tributary Farmlands.

Within area 11, many views are framed due to the meandering course of the river, the valley topography and woodland, particularly to the south. However, there is intervisibility with other landscapes outside the Broads from this area, notably to the north of the river, the wooded skylines within Broadland District character areas E3 and E4 (Spixworth Wooded Estatelands and Rackheath and Salhouse Wooded Estatelands respectively), and area F3: Reedham to Thorpe Marshes Fringe are visible. As such whilst there is a degree of intervisibility, due to the filtered visual

As such whilst there is a degree of intervisibility, due to the filtered visual character, sensitivity to solar PV in visual terms is judged moderate.

## Discussion on landscape sensitivity

Overall landscape sensitivity of this character area grouping to solar PV development is judged to be moderate. This is in view of disjointed landscape pattern and historic character (severances created by large scale settlement edges and by transport corridors such as the Norwich Bypass), the degree of visual containment created by valley sides and woodlands and the presence of large scale settlement edge influences to area 10 in particular. Against this are balanced sensitive features such as relict historic landscape patterns created by parkland as at Whitlingham and Trowse Newton, the coherence of which would potentially be affected by solar PV development footprints, and the sense of tranquillity within Whitlingham Country Park and the Great Broad.

Land within the character areas		Land outside the Executive	Area
Roof mounted requiring planning permission	М	Roof mounted requiring planning permission	М-Н
Roof mounted>1 hectare	М-Н	Roof mounted>1 hectare	М-Н
Field mounted: Small - >1 hectare	M	Field mounted: Small - >1 hectare	М
Field mounted: Medium - 1 to 5 hectares	М-Н	Field mounted: Medium - 1 to 5 hectares	М-Н

#### Commentary:

#### Sensitivity to different sizes of solar PV development

Landscape sensitivity to larger scale solar PV developments in the typology (e.g. roof mounted schemes up to 1 hectare) and field schemes of 1-5 hectares would be higher due to potential visual prominence and the effect they may have on the cohesiveness and perception of the landscape pattern. Whilst sensitivity has been assigned moderate for domestic scale roof mounted PV, this would be entirely dependent on siting.

#### Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities are:

Broadland District -

E3 Spixworth Estate Lands: Only a small part of this area is intervisible with the Broads due to urban fringe development at Norwich. The wooded skylines which form the hinterland are sensitive in relation to the Broads.

E4 Rackheath and Salhouse Wooded Estatelands: Lightly settled, part wooded skylines which are intervisible with the Broads.

F3: Reedham to Thorpe Marshes Fringe: Fieldwork has identified few sensitive features due to low lying character.

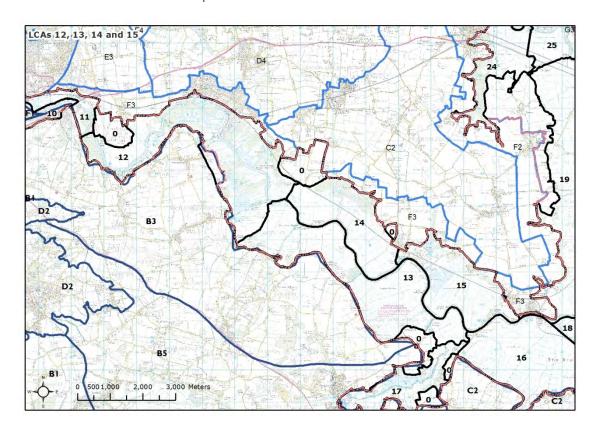
South Norfolk District -

B3 Rockland Tributary Farmlands: Fieldwork confirmed the valley sides on

which Whitlingham Hall and parklands are sited, together with the mostly undeveloped, part wooded ridge, are sensitive.

Field mounted schemes of less than 1 hectare could potentially be absorbed with landscape structure, subject to siting, reducing landscape sensitivity slightly in relation to the Broads. However, due to the visual prominence of the more elevated areas in relation to the Broads, and the potential visual prominence of the larger/more elevated solar PV typologies, landscape sensitivity of these areas in relation to the Broads would be moderate-high.

LCA 12: Yare Valley -Kirby/Postwick to Rockland/Strumpshaw, LCA 13: Yare Valley - Claxton to Hardley Marshes, LCA 14: Yare Valley - Buckenham and Cantley Marshes and Carrs, LCA 15: Yare Valley - Cantley to Reedham



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Earlascape Seris	Silivity Assessment it	or Solar I V DC	velopinem					
Criteria	Lower sensitivity	<b></b>	Higher sensitivity					
1.Scenic and special qualities	Special qualities sensitive to solar PV and which are represented in these areas are as follows – wide open landscapes, big skies and sense of space represented in area 13. This and the associated sense of tranquillity are also represented in area 14 and 15. The habitat diversity in area 12 is indicative of an intricate landscape mosaic which would be sensitive to solar PV development footprint. All of the special qualities set out above would be vulnerable to the introduction of solar PV – high sensitivity.							
2.Sense of openness / enclosure	Strumpshaw Fen. The ser solar PV, due to the poten where a more open charac area 13 and 14, although landscape scale – Langley created by valley sides an	wide flat valley floonse of enclosed are stial to assimilate socter persists would this also has localist Staithe. Within and carr woodlands do for the above into a	or around Postwick Marsh and las would be less sensitive to uch development. Other areas have higher sensitivity e.g. sed enclosure and finer grain rea 15, the sense of enclosure lecreases sensitivity to solar PV account, sensitivity to solar PV					
3.Landscape and land cover pattern and scale	landcover pattern which weffect they would have on example, the network of cwoodland blocks and fens created by carr woodland woodlands and water bodidisjointed landscape patter associated with the Cantle would locally reduce the later moderate-high, although	yould be sensitive to the cohesiveness of dykes and rectilined in area 12, the we in the arable lands dies in area 14. A matern characterises party and scape sensitivity of the presence of its						
4.Perception and experience of the landscape	character which would be reduce sensitivity are tran western part of area 12 ar	sensitive to solar Pasport corridors and and settlement edge resence of which in a area group has a	group are of tranquil rural PV. Aspects which would locally discommunications routes in the influences such as the Cantley Ifluences areas 13, 14 and 15. moderate-high landscape					
5.Historic landscape character	and aspects of the historic in area 13, plus intact are 15. Such aspects would b	lopment include the c functional landsca as of rectilinear dyl de sensitive due to	e wind pumps/drainage mills upe such as the historic staithes ke patterns as in areas 14 and					
6.Visual sensitivities and intervisibility	visual containment althou	gh areas of more o	of these areas would provide pen marshes with higher levels by to solar PV in visual terms,					

e.g. Postwick Marsh within area 12 and the largely open areas of landscape in area 13 and area 14. Area 15 has strong intervisibility with adjacent areas in South Norfolk District (character area B3 Rockland Tributary Farmland), whilst area 12 is intervisible with parts of the Reedham to Thorpe Marshes Fringe (area F3) within Broadland District. Overall, given the level of intervisibility across these areas, sensitivity to solar PV in visual terms is judged to be high.

# Discussion on landscape sensitivity

Overall landscape sensitivity of these areas to solar PV development is judged to be high. This is due to the sensitive special qualities represented in the areas such as sense of tranquillity and areas where a wide open landscape of big skies persists, together with related aspects such as areas of undeveloped skylines. Other factors important to this sensitivity judgement are the varied landscape and historic landscape patterns, the coherence of which would be vulnerable to solar PV development footprints, as well as the areas of open landscape which provide greater intervisibility with adjacent areas and therefore potentially increase the influence of solar PV.

Land within the character a	areas	Land outside the Executive Area		
Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission	М-Н	
Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hectare	Н	
Field mounted: Small - < 1 hectare	н	Field mounted: Small - < 1 hectare	М-Н	
Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н	

# Sensitivity to different sizes of solar PV development

# Commentary:

Due to the level of intervisibility and the predominantly open visual character of these areas, sensitivity of the landscape to all solar PV typologies is high throughout, for the reasons outlined in the overall sensitivity judgement above.

# Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities are:

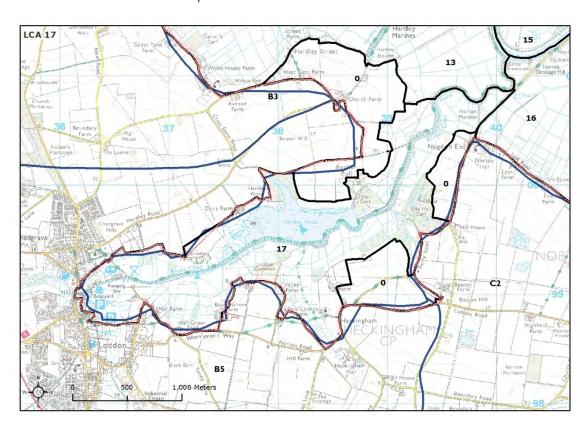
#### South Norfolk -

B3 Rockland Tributary Farmland: Fieldwork confirmed distant views out over the Yare Valley and into the Broads indicating a greater vulnerability to visual intrusion.

#### Broadland District -

F3 Reedham to Thorpe Marshes Fringe: Fieldwork confirmed intervisibility between the valley sides in this area and Broads character area 12. The level of intervisibility would render this landscape sensitive to solar PV due to the visual setting this area creates to the Broads. Whilst sensitivity to smaller (domestic) roof mounted schemes and in field schemes (sub 1 hectare, where field boundaries could be retained) may be lower (moderate-high), siting in relation to the Broads would be critical here.

# LCA 17: The Chet Valley



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,	9	Silient for e			1			
Criteria	Lower sensiti	vity	<b>—</b>	<b>+</b>	Higher sen	sitivity	,	
1.Scenic and special qualities	are the wide op Hardley Flood, Iandscape mos to solar PV dev	Special qualities sensitive to solar PV and which are represented in this area are the wide open landscape created by the expansive open water at Hardley Flood, and the habitat diversity associated with the area's landscape mosaic. The latter in particular would potentially be vulnerable to solar PV development footprints. All of the special qualities set out above would be vulnerable to the introduction of solar PV – high sensitivity.						
2.Sense of openness / enclosure	Within this area woodlands deci the above into scale is judged	reases sensitivi account, sensit	ty to solar ivity to sola	PV in the	se terms. Ta	aking all	of	
3.Landscape and land cover pattern and scale	Much of the are which would be have on the colintricate mix of fen, grazing an such as sailing highly sensitive and scale.	e sensitive to so hesiveness of s wetland landso d carr woodlan boats, would a	olar PV due uch landsc cape eleme d. The pre lso be sens	to the posterior to the	otential effecterns. For exa as open wate human scale e landscape	t they ware the theory was the theory was the theory was the the theory was the theory was the theory was the theory was the the theory was t	rould he , wet ces irea is	
4.Perception and experience of the landscape	Many parts of t sensitive to sol sensitivity, alth Considering the in perceptual to	ar PV. The set lough this affec e above, the are	tlement ed ts only a si	ge within mall prop	Loddon loca ortion of the	lly reduc area.		
5.Historic landscape character	Aspects of historion to solar PV devareas of rectiling sensitive due to coherence of the	elopment include near dyke patte o the effect tha	de the historns in the votant to the termination to the termination in	oric staith valley floo footprints	ne at Loddon or. Such asp	plus int ects wo	act	
6.Visual sensitivities and intervisibility	The presence of visual containm Norfolk District terms, to mode	nent although t landscapes wo	he filtered	intervisib	ility with adj	acent So	outh	
Discussion on landscape sensitivity	to be high. Thi areas such as s wide open land related aspects important to th landscape patte	Overall landscape sensitivity of this area to solar PV development is judged to be high. This is due to the sensitive special qualities represented in the areas such as sense of tranquillity, the habitat mosaic and areas where a wide open landscape of big skies persists (Hardley Flood), together with related aspects such as areas of undeveloped skylines. Other factors important to this sensitivity judgement are the varied landscape and historic landscape pattern, the coherence of which would be vulnerable to solar PV development footprints.						
Sensitivity to different sizes of solar PV development	Roof mounted planning permi	requiring ssion	H R	oof mour lanning p	side the Exe nted requiring permission nted - < 1 he	9	Area M-H H	

Field mounted: Small - < 1 hectare	н	Field mounted: Small - < 1 hectare	М-Н
Field mounted: Medium - 1 to 5 hectares	Н	Field mounted: Medium - 1 to 5 hectares	н

#### Commentary:

Sensitivity of the landscape to all solar PV typologies is high throughout, for the reasons outlined in the overall sensitivity judgement above.

# Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities are:

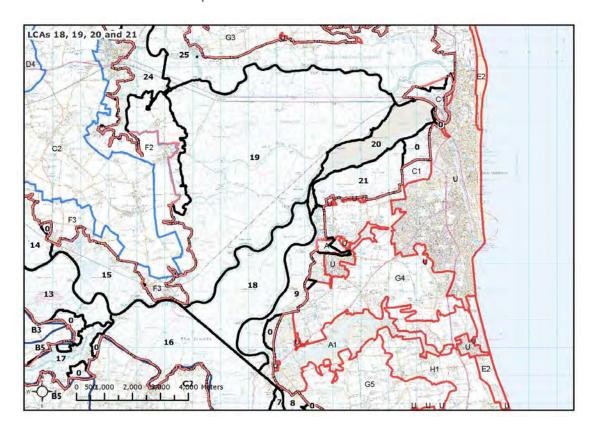
South Norfolk -

B3 Rockland Tributary Farmland: Fieldwork confirmed distant views out over the Yare Valley and into the Broads indicating a greater vulnerability to visual intrusion.

B5 Chet Tributary Farmland: Fieldwork confirmed the visual relationship with the Broads where views of the area's rising ridges are evident.

The partial intervisibility would render these landscapes sensitive to solar PV due to the visual setting these areas create to the Broads. Whilst sensitivity to smaller (domestic) roof mounted schemes and in field schemes (sub 1 hectare, where field boundaries could be retained) may be lower (moderate-high), siting in relation to the Broads would be critical here.

LCA 18: Haddiscoe Island; LCA 19: Halvergate Marshes (excluding Bure Loop and the west of Tunstall Dyke), LCA 20: Breydon Water; LCA 21: Yare Valley – Church Farm, Burgh Castle, Fisher's and Humberstone Marshes



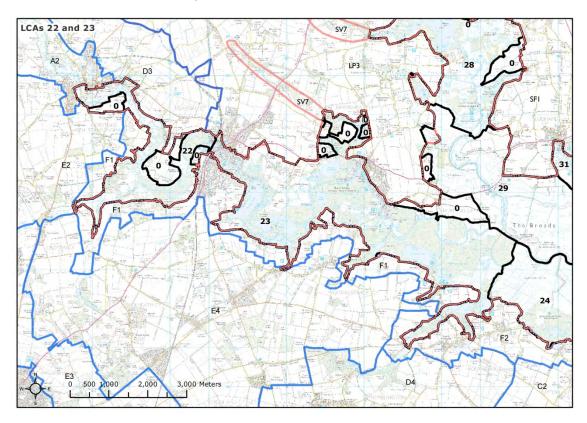
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Criteria	Lower sensitivity	<b>*************************************</b>	Higher sensitivity				
oriteria	Lower sensitivity		Thigher sensitivity				
1.Scenic and special qualities	simple skylines in areas areas 19 and 20. These sense of space and oper be highly sensitive to the land take and associated which would be sensitive.	18 and 19, and the see characteristics are also nness and of big, simple introduction of featured impact on this character to solar PV are the high scharacter of the solar PV are the high scharacter of the solar PV are the sola	the sense of openness and ense of space evident in both so reflected in area 21. The le skies in these areas would res such as solar PV, due to cter. Other special qualities abitat mosaics associated with potentially be vulnerable to				
2.Sense of openness / enclosure	degree of wider context the wooded ridge at St low carr woodland fring which is also reflected in provided to area 21 by Breydon Water (area 20	enclosure is provided Olaves on which Waveled ridge to the west of a rea 19. Similarly so the low cliffs on which o) is an entirely open enacter of these areas were					
3.Landscape and land cover pattern and scale	variation is introduced by rectilinear dyke network Similarly in area 19, occurrences/tree lines, domest village) and occasional value 20, variations in landscattes wisible in the mu	These are mainly open marshland landscapes of simple pattern, although variation is introduced by riverside reed ronds in areas 18 and 21 and by rectilinear dyke networks, which create variations in scale within the areas. Similarly in area 19, occasional variations are created by intermittent trees/tree lines, domestic buildings to the edges (e.g. within Halvergate village) and occasional World War II Pill Boxes on the marshes. Within area 20, variations in landscape pattern are primarily formed by the sinuous creeks visible in the mudflats at low tide.  These and the localised variations in landscape pattern described above,					
4.Perception and experience of the landscape	scale, and with few obvistrong sense of remoter these factors indicate a they would be vulnerable development footprints. are: the mostly tranquil created by adjacent development footprints are: the mostly tranquil created by adjacent development footprints are: the mostly tranquil created by adjacent development for the provided by adjacent development for the railway line affect provided by the settlemedge of Breydon Water landscape sensitivity, all	ious modern human interess and tranquillity, whigh sensitivity to solate to change introduced Specific relevant aspecharacter of area 18, velopments outside the the large number of pth only movement and acting tranquillity. The ent edge and A47 at G (area 20) and area 21, though this is localised n, this area group wou	and landscapes of often vast fluences, and which have a with few intrusions. All of ar PV in perceptual terms, as doby such structures and ects of the areas in this group albeit with localised intrusions. Broads and by the influences bylons crossing the area. Area aural effects from the A47 greatest level of intrusion is ireat Yarmouth on the eastern, indicating slightly lower did be highly sensitivity to				
5.Historic landscape character	The setting of scheduled the ridge which overlood PV development. Areas and 21 create erosions sensitivity to solar PV. ancient relic of a former	d archaeological featur ks areas 18, 20 and 21 of boundary loss asso in historic landscape pa However, Breydon Wat ly much more expansi					

adjacent area could be affected by solar PV. Other sensitive aspects would be components of Broads vernacular such as wind pumps, whose cohesiveness as historic landscape features could be vulnerable to solar PV. Taking the above into account, sensitivity to solar PV in historic terms is judged to be moderate-high. These predominantly exposed, open marshland landscapes have exceptionally high levels of intervisibility with adjacent landscapes within and outside the Broads. This open visual character means that this landscape character group would be highly sensitive to solar PV in visual Within area 18, wider views are truncated by the Waveney Forest, which lies on the edge of the adjacent Great Yarmouth/Waveney character area 6.Visual A1: Waveney Rural Wooded Valley. Area 19 has high levels of intervisibility sensitivities and with adjacent marshland character areas in the Broads, as far as Breydon intervisibility Water to the east and to the edge of Great Yarmouth, beyond the Executive Area. The low ridge to the west of area 19 (within Broadland District) is visually prominent and important in containing more widely views in a westerly direction. The Burgh Castle ridge within Great Yarmouth character area G4 is important in providing visual containment to parts of areas 20 and 21, with Burgh Castle a visually sensitive historic feature. Taking the above into account, the area has a high sensitivity to solar PV due to its often open visual character. Overall landscape sensitivity of this area grouping to solar PV is high. This is due to the representation of sensitive special qualities such as the sense of openness/wide open landscapes, simple skylines and big skies, the sense Discussion on of which would be vulnerable to solar PV development footprints. Other landscape factors important to this sensitivity judgement are the open visual character sensitivity and level of intervisibility with adjacent landscapes in the Broads, and the largely tranguil perceptual character, the perception of which would again be vulnerable to solar PV. Land within the character areas Land outside the Executive Area Roof mounted requiring Roof mounted requiring М-Н planning permission planning permission Roof mounted - < 1 hectare Roof mounted - < 1 hectare н н Field mounted: Small - < 1 Field mounted: Small - < 1 н hectare н hectare Field mounted: Medium - 1 Field mounted: Medium - 1 н to 5 hectares to 5 hectares Commentary: Due to the sense of openness and visual character, landscape sensitivity to Sensitivity to all of the solar PV typologies would be high throughout. different sizes of solar PV Landscapes outside the Executive Area development Relevant landscape character areas and sensitivities are: Great Yarmouth/Waveney character area A1: Waveney Rural Wooded Valley: Fieldwork has confirmed the low wooded ridge at Waveney Forest to be visually important/sensitive in relation to the Broads. Great Yarmouth character area G4: Hobland Estate Farmland. Fieldwork confirms the prominent ridge on which Burgh Castle is sited to be sensitive in relation to the Broads. Broadland District character area F2: South Walsham to Reedham Marshes Fringe: Survey has confirmed the low ridge to the west of Halvergate Marshes and on which Halvergate Village is sited, as being sensitive in relation to the Broads.

Landscape sensitivity to small scale roof mounted solar PV in relation to the Broads would be moderate high, although this would depend on siting and orientation in relation to the Broads. Due to the visual prominence of the ridges and topographic features noted above in relation to the Broads, landscape sensitivities to solar PV are otherwise the same as for the Broads.

# LCA 22: Bure Valley – Upstream Wroxham to Horstead: Area 23: Bure Valley – Wroxham to Fleet Dyke, South Walsham



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Landscape Sens	mivity Assessment	TOT SOIAL FV DEVE	еюритети					
Criteria	Lower sensitivity	<b>←</b>	Higher sensitivity					
1.Scenic and special qualities	qualities which are sensi to the diversity of nature sense of tranquillity and could be interrupted by	This character area grouping represents a number of the Broads special qualities which are sensitive to solar PV development, specifically in relation to the diversity of nature and habitats vulnerable to land take. Also the ense of tranquillity and wildness evident in both character areas which could be interrupted by solar PV development. Overall the area has a high ensitivity to solar PV development.						
2.Sense of openness / enclosure	appear in parts (e.g. sur higher sensitivity to sola be more readily perceive	ely lower sensitivity to lowever areas of open rounding Ranworth an r PV, due to the fact the d in such locations.	solar PV due to the fen and grazing marsh which d Coltishall) would have a nat such development would					
3.Landscape and land cover pattern and scale	areas are considered to	narsh and grazing past have a high sensitivity rable to dilution by sol partially eroded surrol n development, the col ut the rest of the area.	ure, fen and open water, the to solar PV. Such landscape ar PV development. Although unding Hoveton and mplex landscape texture.  Overall however the					
4.Perception and experience of the landscape	the settlements of Hovel modern development (bo of the landscape is one of	on and Wroxham whic patyards, chalets and l of tranquillity and rural new uncharacteristic fo	reas, particularly away from the display some elements of busier roads). The perception lity, and due to the potential eatures which may detract adged to have a high					
5.Historic landscape character	types within both areas a freshwater fen and small Coltishall) and the verna Horning Conservation Ar higher sensitivity is due of this pattern as a resul historic landscape charac settlement at Horstead,	are regenerated carr was broads. Areas of 17 <sup>th</sup> cular of the area's set ea) are sensitive to so to the potential of solat of development land cter sensitive to solar leading.	gnificance. The principal HLC woodland interspersed with century grazing marsh (at tlement pattern (particularly plar PV development. This ar PV to affect the coherence take. Other aspects of PV are traditional vernacular ck, Horning and Crabbett's y to solar PV development.					
6.Visual sensitivities and intervisibility	Landscapes of intimate s define much of areas 22 PV in visual terms. How are found at Coltishall ar potential visibility of sola intervisibility with adjace	spatial scale and of cor and 23 would have th ever, areas of open fe and Ranworth have high or PV in an open landso ent areas beyond the E Coltishall Tributary Far	ntained visual character which e lowest sensitivity to solar n and grazing marsh which her sensitivity due to the cape. There is some executive Area boundary in mland, E2: Marsham and					

	Estatelands and F1: Wroxham to Ranworth Marshes Fringe) and North Norfolk's LP3: Worstead, Coltishall, Hoveton and Smallburgh Area, which increases sensitivity. Due to this degree of intervisibility with adjacent areas, the areas have potential to be influenced in visual terms by solar PV development and this would indicate overall moderate-high sensitivity to solar PV.						
Discussion on landscape sensitivity	This grouping of character areas has a high overall landscape sensitivity to solar PV development. This is due to the representation of special qualities (i.e. sense of tranquillity and diversity of habitats) in the areas which would be sensitive to such development. Also the landscape pattern and scale, historic character and integrity, the sense of remoteness, as well as areas of vernacular settlements. Sensitivity is reduced due to intrusion associated with Hoveton and Wroxham and the ability of this enclosed landscape to screen and filter views. Thus the overall sensitivity judgement is high, taking the above into account.						
	Land within t	the character a	areas	Land o	outside the Exe	ecutive	Area
	Roof mounted planning perm		н		ounted requirin ng permission	g	М
Sensitivity to different sizes of	Roof mounted	- < 1 hectare	Н	Roof m	ounted - < 1 he	ectare	М-Н
solar PV development	Field mounted hectare	: Small - < 1	н	Field m hectare	nounted: Small - e	- <1	н
	Field mounted to 5 hectares	: Medium - 1	н	Field m to 5 he	nounted: Mediur ectares	n - 1	Н

#### Commentary:

This grouping of character areas would have a high sensitivity to field and roof mounted solar PV irrespective of size, due to the potential effects on vernacular settlement character and on landscape pattern. As such, sensitivity of both character areas to all types of solar PV would be high overall in landscape terms.

# Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

#### Broadland District -

D3: Coltishall Tributary Farmland: Wide expansive views and uninterrupted skyline although views into the Broads are filtered due to tree cover.

E2: Marsham and Hainford Wooded Estatelands: Close to the edges small-scale woodlands and copses reflects its proximity to the Broads.

E4: Rackheath, Salhouse Wooded Estatelands: Characteristic northerly views over descending wooded slopes to the Broads, and associated wooded horizon.

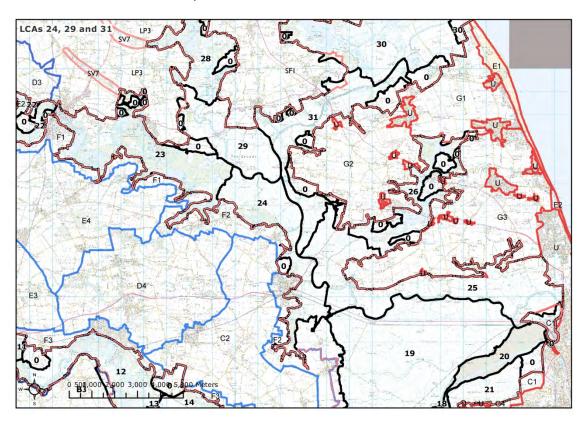
F1: Wroxham to Ranworth Marshes Fringe: Forms a fringe to the lower-lying flat landscapes of the Broads and has a strong association with the area.

#### North Norfolk -

LP3: Worstead, Coltishall, Hoveton and Smallburgh: Closely adjoining and infiltrated by the Broads and contributing to their setting.

Fieldwork has confirmed that sensitivity ratings for this area would be the same at the upper end of the typology as those set out for the Broads areas above, although aspects of the landscape may be less sensitive to smaller scale roof mounted solar PV where there is a degree of visual containment. This however would be subject to siting, topography and level of intervisibility. The ridges in these adjacent character areas are visually prominent, as described above and are therefore highly sensitive.

LCA 24: Bure Valley – South Walsham to Acle Marshes and Fens; 29:Ant and Bure Valleys – Ludham, Horning and Neatishead Grazing Marshes; 31: Thurne and Bure Valley – Martham Ferry to Oby



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Onitaria	Tivity 713363				A		
Criteria	Lower sensitiv	vity		Higher sensitivi	ty		
1.Scenic and special qualities	The three character areas in this grouping all display special landscape qualities which would be sensitive to solar PV. For example area 24 is defined by a wide open landscape of big skies, as is area 29. This and the associated sense of space would potentially be affected by introduction of solar PV development. The diversity of habitat in areas 24 and 31 in particular, as represented by carr woodland, wooded broads at Upton Broad in area 29 and wooded fen at Womack Water in area 31 would also potentially be vulnerable to solar PV land take. All three areas have a sense of tranquillity, which solar PV would affect through development footprint, land take and introduction of additional man made elements – visual intrusion. The fact that all three areas afford riverine access and are well used by recreational boating traffic also indicates a degree of sensitivity due to the interest users have in their landscape. Given the above, the character areas have a high sensitivity to solar PV with regard to special qualities.						
2.Sense of openness / enclosure	areas would be intrusion of suc sensitivity in th stronger sense Broad (area 24	highly sensiting histructures a ses terms is longer of enclosure, and Womack	ve to solar PV in vend impacts on serocally decreased be such as the wooder Water/Horse Ferocally	hland landscapes in a riew of the potential f nse of space. Whilst by locations which have ed landscapes around (area 31), the overa b), which would be se	or visual ve a I Upton Ill sense		
3.Landscape and land cover pattern and scale	character due t pattern is evide Upton Broad in pattern and ree tributaries and these areas of development du these are varia	o the presence ont. This is du the southern ded river edge fens (Womack woodland land ue to the pote tions in a land	e of open marshla e to the mosaic of part of area 24, the es to all three are to Water/Horse Fer scape would be housely affect of deve scape of otherwise	nost part have a simp nd, much local variat f carr woodland and the ne subtlety of the dyk as and the woodland a) in area 31. The int ighly sensitive to solate elopment footprint, a e relatively simple pa	ion in proads at se fringed ricacy of ar PV Ithough ttern.		
4.Perception and experience of the landscape	predominantly Upton Broad ar solar PV, due to Localised intrus Upton and which Somerton Wind This is due to ir	undeveloped rad wooded fen to the perceptusions such as labeled form part of farm which is ntroduction of	narshland, and by s at Horse Fen wo al change such sta arger buildings ou the southern sky intervisible with a	y expansive, open are wooded broads such uld be highly sensitive ructures would introdutside the Executive Aline to area 24, and the area 29, reduce sensitives, although sensitive haracter areas.	n as ve to uce. urea in the tivity.		
5.Historic landscape character	network of bour and 29 would be effect on the co- land take. Also wooded broads 29 possesses so which are visua	ndary dykes we sensitive to wherence of this sensitive are such as area ome notable sully prominent	vithin all three are solar PV developr s landscape patte areas of carr woo 24 (Upton Broad) cheduled historic and whose visual	and later) created by as and particularly ar nents due to their porn, and due to the ef dland and small scale, for the same reasor archaeological resour and cultural setting to the same PV, extended.	reas 24 tential fects of e is. Area ces would be		

	Benet's Abbey. This increases					
	Within area 31, remnant medi (former medieval broad) would the landscape pattern. Given	d also b	e sensitive due to the cohe	siveness of		
	sensitivity to solar PV in histor			J		
	T			1111		
6.Visual sensitivities and intervisibility	The areas of open marshland of adjacent landscapes to the not (views to farmland within Great specific to area 24, to Broadlat sensitive to solar PV due to positive to solar PV due to positive to the intermittent blocks (including the valley tributaries open landscape and visual chaintervisibility with adjacent land North Norfolk District, and the terms.	rth and at Yarm nd Distrotential (the word carrist at Wordscape)	south of area 24 and in are outh Borough to the north a rict to the south) would be lissues of visual influence. Western part of the area in p woodland to the area's bout mack Water). However, the othe east creates greaters in Great Yarmouth Borough.	ea 29 and, nighly articular) ndaries e more		
Discussion on landscape sensitivity	is high. This is due to the repisolar PV in these areas, specifical landscape, sense of space and three areas. Also the diversity would be vulnerable to solar POther important characteristic sensitivity rating in relation to marshland landscapes in all the landscape pattern, such as smand Womack Water (area 31)	Overall landscape sensitivity of this area grouping to solar PV development is high. This is due to the representation of special qualities sensitive to solar PV in these areas, specifically the sense of tranquillity, the wide open landscape, sense of space and big skies which characterise many parts of all three areas. Also the diversity of habitat mosaics in areas 24 and 31, which would be vulnerable to solar PV development footprints.  Other important characteristics of these landscapes which contribute to this sensitivity rating in relation to solar PV are the open visual character of the marshland landscapes in all three areas. Also important are the historic landscape pattern, such as small scale rectilinear dykes, medieval broads and Womack Water (area 31) and wooded broads at Upton Broad (area 24), and prominent historic assets such as St Benet's Abbey and causeway within area 29				
	Land within the character a	ireas	Land outside the Execu	itive Area		
	Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission	М-Н		
	Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hecta	are H		
	Field mounted: Small - < 1 hectare	н	Field mounted: Small - < hectare	1 <b>M-H</b>		
	Field mounted: Medium - 1 to 5 hectares	Н	Field mounted: Medium - to 5 hectares	1 <b>H</b>		
Sensitivity to different sizes of solar PV development	Commentary: Roof mounted solar PV of all sizes in the typology would have the potential to exacerbate impacts on perceptual characteristics of these areas and associated special qualities such as sense of space and tranquillity, and in terms of views and intervisibility. Accordingly, landscape sensitivity of this character area grouping to all solar PV typologies set out in this study, is high.					
	Landscapes outside the Executive Area Relevant character areas and sensitivities are:					
	Great Yarmouth Borough: GI East Flegg Settled Farmland notably the carr woodlands at which contains views in that d G2 West Flegg Settled Farmland villages and on the edges of the	Ormestirection of: Small	by Broad, forms a prominer all scale field pattern persis	t backdrop ts around		

parkland occur. Also evident are views across the lowland wetlands of the Broads.

G3 Ormesby and Filby Settled Farmland: Shares similar characteristics with the area but views from the Broads are filtered by woodland.

#### **Broadland District:**

C2 Freethorpe Plateau Farmland: Partial views over descending wooded slopes to the Broads, and associated strong but low horizon.

D4: Blofield Tributary Farmland: the rising farmland forming the valley side is visually sensitive.

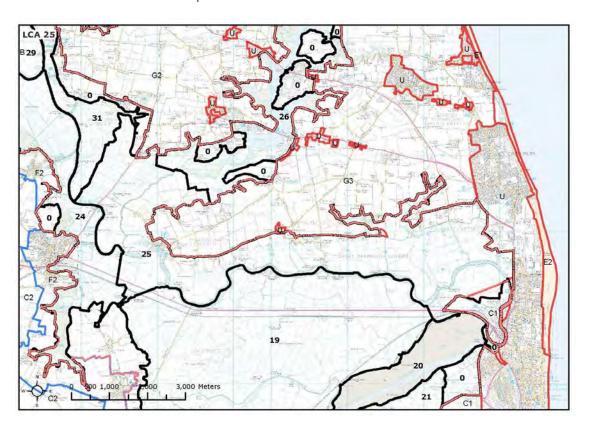
F2 South Walsham to Reedham: Horizons wooded in places, but some areas facilitate views over adjacent broads, lowland rivers and marshes.

#### North Norfolk:

SF1 Stalham, Ludham and Potter Heigham: The sense of enclosure is increased by the woodland fringe of adjoining Broads.

There would be slightly lower landscape sensitivity to smallest scale (roof mounted) and 'in field' solar PV, although this would depend entirely on orientation in relation to the Broads.

# LCA 25: Bure Valley – Lower Bure Arable Marshlands



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,	SHIVITY ASSESSMENT I							
Criteria	Lower sensitivity	<b></b>	Higher sensitivity					
1.Scenic and special qualities	This character area displays a number of special qualities which would be sensitive to solar PV, notably the wide open landscape character and big skies and associated sense of space (the perception of which could be altered by land take and infrastructure associated with solar PV). Similarly, the area's remote and empty character (which relates to the special quality 'sense of tranquillity') would also be vulnerable to introduction of solar PV due to land take/footprint, although this would be locally reduced in proximity to the settlement edges at Great Yarmouth and Caister. Taking account of the above, the character area is highly sensitive to solar PV with regard to scenic and special qualities.							
	r ogara to ocorno ana opos	a. quanties:						
2.Sense of openness / enclosure	would be sensitive to sola created by carr woodlands	r array development to and reed ronds would	aracter (marshland) and this footprints. Local enclosure Id potentially lower landscape open landscape which would					
3.Landscape and land cover pattern and scale	and variation provided by	and arable fields, alberthe presence of carry Castle. The wide barrete textural variation by small scale settlem boats using the Bure. De less likely to be affolthough elements such sensitive – moderate	with localised complexity woodland fringed tributary ands of reed associated with whilst human scale ent such as Stokesby and The generally simple fected by solar PV has carr woodlands and e sensitivity to solar PV					
4.Perception and experience of the landscape	This would however be locarea, where the landscape	ess across much of the nes, would be sensitive cally reduced in the ea e is influenced by larg						
5.Historic landscape character	Many of the historic landscape types and features of this area have been affected by boundary loss and resultant erosion of landscape pattern. However, historic features of this character area which would be sensitive solar PV development are areas of small scale vernacular settlement such as Stokesby and the traditional wind pumps, together with the ruins of Caister Castle. These elements locally increase landscape sensitivity to solar PV to moderate-high in historic terms.							
	The expansive pature of w	iows across the area	and to the adjacent					
6.Visual sensitivities and intervisibility	potential visual impact on part intervisibility with adj Authority Executive Area Ormesby and Filby Estate	that this landscape is such as solar PV (due sense of openness). facent character areas (Great Yarmouth Bord Farmland), albeit par on and of the Halver	s visually sensitive to the to development footprint and This is reinforced by the s beyond the Broads ough character area G3: "tly filtered by carr woodland. gate Marshes, this landscape					

# Discussion on landscape sensitivity

Overall landscape sensitivity to solar PV development is judged to be high. This is in view of the representation of special qualities sensitive to solar PV development, such as the sense of tranquillity, sense of space and the wide open landscape of big skies. The predominantly open and undeveloped skyline character and the level of intervisibility with other remote landscapes such as the Halvergate Marshes are also important to this sensitivity judgement.

Land within the character a	areas	Land outside the Executive	ive Area	
Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission	М-Н	
Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hectare	М-Н	
Field mounted: Small - < 1 hectare	н	Field mounted: Small - < 1 hectare	М-Н	
Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н	

# Commentary:

# Sensitivity to different sizes of solar PV development

Within the character area, landscape sensitivity to solar PV of all identified typologies would be high, due to the reasons outlined in the overall landscape sensitivity judgement above. As described above, roof mounted schemes of all sizes would have a greater sense of visual prominence in relation to the sense of openness of this character area.

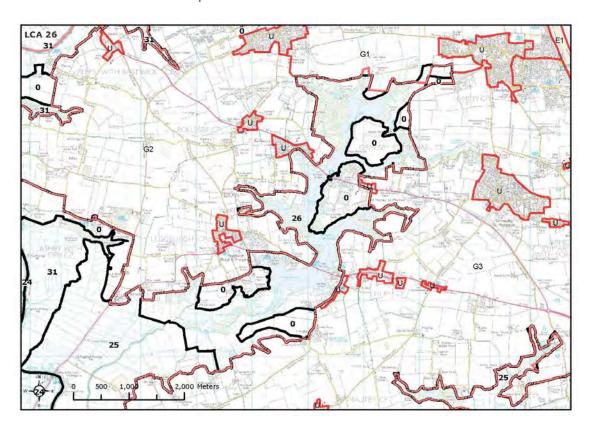
# Landscapes outside the Executive Area

Relevant landscape characteristics and key landscape sensitivities are: Great Yarmouth Borough

G3: Ormesby and Filby Settled Farmland: Panoramic views albeit with carr woodlands providing filtering in relation to the Broads.

Whilst the landscape would have slightly reduced (moderate-high) sensitivity in relation to the Broads, to roof mounted and smaller in field (sub 1 hectare) solar PV schemes, siting would be critical in relation to this judgement (avoidance of intervisibility issues in relation to the Broads). Landscape sensitivity to medium scale field solar PV would be higher due to potential impacts on landscape structure which may provide visual foiling in relation to the Broads.

# LCA 26: Muck Fleet Valley and the **Trinity Broads**



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Criteria	Lower sensiti	ivity	<b>—</b>	<b>—</b>	Higher ser	neitivity		
oriteria	Lower sensiti	vicy			Trigiter ser	isitivity		
1.Scenic and special qualities	largely undeve be highly sens because of the	The sense of tranquillity and wildness is reflected in the quiet, rural and largely undeveloped character of this area. This sense of tranquillity would be highly sensitive to the introduction of structures such as solar PV. This because of the effect that such elements could have upon the perception of these special qualities.						
2.Sense of openness / enclosure	This landscape continuous pre development v	sence of carr v	voodland	s which wo			V	
3.Landscape and land cover pattern and scale	The richly various broads fine grain appedifference in so of this landsca	s, reed ronds a earance, would cale and the ef	nd carr w be highly	voodland, t y sensitive	together with to solar PV, o	associate lue to the	9	
4.Perception and experience of the landscape	The relative at character asso the introduction have on this possible.	ciated with the n of structures	experier	nce of this	area would be	e sensitiv	e to	
5.Historic landscape character	This area exhibition would potential therefore be seand regenerate rectilinear grazing.	illy be affected ensitive, such a ed carr, and sn	by solar is broads	PV develop reservoirs	pment, and wl s fringed by ca	hich woul arr woodl	ld	
6.Visual sensitivities and intervisibility	A high degree presence of ca and results in This level of vi structures such moderate-low	rr woodlands, very little inter sual containmen as solar PV.	which cre visibility ent reduc Consider	eate almos with landso es sensitiv ing the abo	t continuous v capes beyond ity to relativel ove, this lands	risual foili the area ly low lev	rel	
Discussion on landscape sensitivity	Overall landsca of the sense of Broads) of the development. fine grain histo of both of thes	tranquillity an area which wo Other aspects oric pattern and	d wildne: uld be se importar d intricate	ss (one of ensitive to nt to this se e landscape	the special qu the introduction ensitivity judg e mosaic, as t	nalities of on of sucle pement ar he cohere	the h re the ence	
Sensitivity to different sizes of solar PV development	Roof mounted planning perm Roof mounted Field mounted hectare Field mounted to 5 hectares	requiring ission - < 1 hectare : Small - < 1	H H H	Roof mou planning Roof mou Field mou hectare	unted requiringermission unted - < 1 he unted: Small - unted: Mediunares	g ectare - < 1 m - 1	M-H M-H M-H M-H	

#### Commentary:

The landscape of this area would have a high sensitivity to solar PV in all typologies, for the reasons outlined in the overall sensitivity judgements above.

# Landscapes outside the Executive Area

Relevant landscape character areas and sensitivities:

Great Yarmouth Borough -

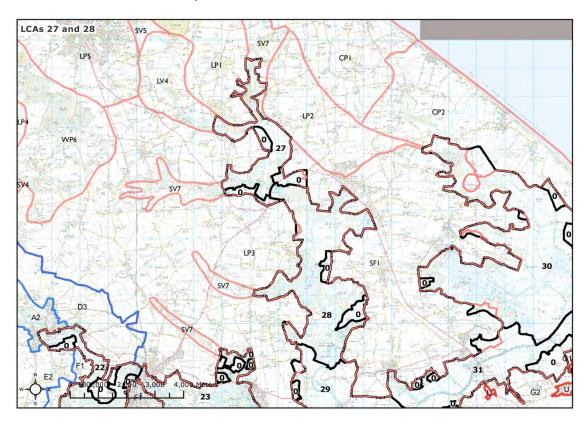
G1: East Flegg Settled Farmland: Fieldwork confirmed the prominence of Somerton Windfarm in addition to the wooded landscape backdrop created by carr woodlands at the Trinity Broads.

G2: West Flegg Settled Farmland: Views are punctuated by vertical features such as wind pumps, turbines (Somerton and offshore) with views to and from the Broads, although there is a degree of enclosure associated with the edge of the Broads.

G3: Ormesby and Filby Settled Farmland: Panoramic views albeit contained by the wooded backdrop of the Broads. Vertical elements such the turbines at Somerton are visible, and the interface with the wetland landscapes of the Executive Area provide localised textural variation and interest.

Views of adjacent character areas are generally filtered from view due to the density of carr woodland at the edges of the Executive Area. Although the sensitivity of these landscapes to solar PV and in relation to the Broads is therefore slightly lower overall (moderate-high), this is entirely dependent on siting with regard to topography and vegetation.

# LCA 27: Ant Valley upstream of Wayford Bridge: LCA 28: Ant Valley downstream of Wayford Bridge



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Criteria	Lower sensit		<b>←</b>	Higher sensitivity
omeria		,,,		Thigher constitutes
1.Scenic and special qualities	would be sensi diversity of na woodland (are all potentially	tive to solar Poure and habits a 27), carr woo wilnerable to so	V development. S ats created by jux odland, fen, mars olar PV land take character areas,	of the special qualities which Specifically these are the staposition of ancient h and reed ronds, which are . Also the sense of tranquillity and which could be
2.Sense of openness / enclosure	enclosed chara due to the con marsh/pasture	acter which ind tainment affor which appear olar PV, due to	icates a relatively ded. However ard in both areas 27 o the fact that suc	28 has an intimate and lower sensitivity to solar PV eas of open fen and grazing and 28 would have a higher h development would be
3.Landscape and land cover pattern and scale	pattern which ronds, marsh a patterns would parts of area 2 Barton Broad a	is created by tl and grazing pa I be vulnerable 8 have a large and Sutton Fen	he interplay of wo sture, fen and op to dilution by sol r landscape scale to the north eas	omplex, intricate landscape odland/carr woodland, reed en water. Such landscape lar PV development. Whilst due to the presence of t, landscape texture remains r the above reasons.
4.Perception and experience of the landscape	particularly the displays none which affect lo parts of Dilhan	e case in area 2 of the more mo calised parts o n and East Rus	28, which, aside f odern human inte f area 27 (e.g. m ton). As such, th	reas 27 and 28. This is rom the boatyard at Stalham, rventions and intrusions odern settlement edges in le landscape of the two areas of perception and experience.
5.Historic landscape character	both areas 27 Potter's Grove rectilinear graz medieval broad solar PV as this of historic land indicators whice	and 28. For example, plus areas of the plus areas of the plus and areas of the plus	xample ancient w freshwater fen ar f often small scal f freshwater fen v he coherence of s er in area 28 are onsitive to solar PV	cape types is apparent in coodland within area 27 at and 17 <sup>th</sup> century and later e. Within area 28, the would also be sensitive to such features. Other aspects closely related to human scale to the coordinate of the coordinate
6.Visual sensitivities and intervisibility	define much of PV in visual tell higher intervis (North Norfolk and the Low Pl of area 28 whi Settled Fen (al sensitive. This	f areas 27 and rms. However ibility with adjate landscape chate ains Farmland chare intervisities SF1) and Lawould particutin these areas	28 would have the property of the case of the west type to the west of the wes	ntained visual character which the lowest sensitivity to solar area 27 and which have beyond the Executive Area al Plain CP1/CP2 to the east — area LP1), and small parts orfolk District landscape types d (area LP3), would be more where the skyline is formed a moderate overall sensitivity

# Discussion on landscape sensitivity

Areas 27 and 28 have a high overall landscape sensitivity to solar PV development in general. This is due to the representation of special qualities in the areas which would be sensitive to such development. Also the landscape pattern and scale, historic character and integrity, the sense of remoteness, and the areas of vernacular settlement in area 28 which would be sensitive to such modern development.

Land within the character areas		Land outside the Executive Area	
Roof mounted requiring planning permission	Н	Roof mounted requiring planning permission	М
Roof mounted - < 1 hectare	Н	Roof mounted - < 1 hectare	М-Н
Field mounted: Small - < 1 hectare	н	Field mounted: Small - < 1 hectare	н
Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н

#### Commentary:

Character areas 27 and 28 would have a high sensitivity to roof mounted solar PV irrespective of size, due to the potential prominence of such structures and potential effects on vernacular settlement character. As such, sensitivity of both character areas to all types of solar PV would be high overall in landscape terms.

# Sensitivity to different sizes of solar PV development

# Landscapes outside the Executive Area:

Relevant character areas and sensitivities are:

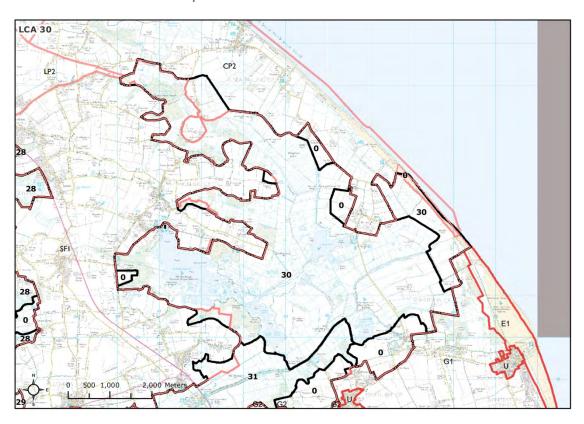
North Norfolk -

CP1/CP2 Coastal Plain: Open, undeveloped skylines are sensitive. LP1 Edingthorpe to Honing Area: Evidence of some intervisibility with the Broads although some larger woodlands provide screening (Bacton and Honing Hall).

LP3 Worstead, Coltishall, Hoveton and Smallburgh: The area is intervisible with the Broads landscape with views available from rising valley landform. SF1 Stalham, Ludham and Potter Heigham: Sense of enclosure is increased by the woodland fringe of adjoining Broads.

Landscape sensitivity to roof mounted soar PV (which requires planning permission) would be moderate, whilst that to small scale roof mounted solar PV would be moderate high, although this would depend on siting and orientation in relation to the Broads. Due to the visual prominence of the valley landform and topographic features noted above in relation to the Broads, landscape sensitivities to larger scale solar PV are otherwise the same as for the Broads.

# LCA 30: Upper Thurne Open Marsh, Broads and Fens



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	BILIVILY ASSES.		orar i v Bov		
Criteria	Lower sensitiv	vity	<b></b>	Higher sensitivity	′
1.Scenic and special qualities	A considerable number of special qualities sensitive to solar PV development are presented in this area. These are namely the sense of tranquillity and wildness created by open marshes and coastal landscapes, and wide open landscape and sense of space evident at Hickling Broad and associated eastern marshes. Perception of tranquillity would be vulnerable to solar PV. Similarly the perception of the wide, open landscape and sense of space would be potentially vulnerable to such structures, hence the high sensitivity rating.				
2.Sense of openness / enclosure	sensitive to sola development we landscape. Whi	ar PV developm ould have on th ilst localised en eral impression	ent, due to the ne perception of closure is provic is of openness,	andscape would be extrootential impact such this characteristic of the led by carr woodland ar which results in a high	e
3.Landscape and land cover pattern and scale	network and the fields, reed rone a landscape ser potential impac	e mix of land conds, rush pasturnsitive to solar that land take	over elements so e and areas of re PV development e and footprint c	y the intricate, fine grain uch as grazing marsh, a eed fringed open water This is in light of the could have on such elem opment in these terms.	create ents,
4.Perception and experience of the landscape	This landscape is sensitive to solar PV in perceptual terms. This is due to the tranquil rural and part coastal character of this landscape, and the scant presence of modern human development and influence, save for localised intrusions such as Somerton Windfarm and perception of settlement edges in southernmost parts of the area. This is due to the potential of solar PV to introduce further intrusion.				
5.Historic landscape character	Hickling and un landscape mosa footprint and th	improved fresh aic which would be effect that so pes). This resu	water fen (include be sensitive to blar PV would ha	ne types such as peat briding associated small so solar PV, due to develope on the coherence of a sitivity to solar PV in hi	cale pment such
6.Visual sensitivities and intervisibility	This is a landscape of mostly open visual character, with expansive views across the more locally elevated 'holmes' and from the Winterton Dunes, and with intervisibility both with the coast and adjacent character areas in Great Yarmouth Borough (G1: East Flegg Settled Farmland) and North Norfolk District (Coastal Plain landscape type – area CP2), with more filtered and framed views into the North Norfolk District Settled Fen landscape type (area SF1). Given the above, the landscape of this area is sensitive in visual terms to solar PV.				
Discussion on landscape sensitivity	development in sensitive to sola wildness create	general. This ar PV in the are d by grazing m	is due to the divergence is a, notably the search, fen and co	pe sensitivity to solar Poresity of special qualities ense of tranquillity and astal landscapes, and topiated sense of space.	es he

factors which are important in contributing to this sensitivity judgement are elements of historic landscape character such as freshwater fens and windmills, the coherence of which would potentially be vulnerable to introduction of solar PV development footprints. These could also potentially affect elements of landscape pattern in general, such as the intricacy of the dyke pattern. Also the visual character and the extent of visibility across the area and intervisibility with adjacent landscape character areas within Great Yarmouth Borough and North Norfolk District.

Land within the character areas		Land outside the Executive Area		
Roof mounted requiring planning permission	н	Roof mounted requiring planning permission	М-Н	
Roof mounted <1 hectare	Н	Roof mounted <1 hectare	Н	
Field mounted: Small - <1 hectare	н	Field mounted: Small - <1 hectare	М-Н	
Field mounted: Medium - 1 to 5 hectares	н	Field mounted: Medium - 1 to 5 hectares	н	

# Commentary:

Within the character area, overall landscape sensitivity remains high to all the solar PV typologies defined in this assessment, due to the potential impact of development footprints on intricate landscape patterns and due to the open visual character of the area. This sensitivity judgement is particularly the case in relation to roof mounted solar PV of any scale, due to these reasons and particularly the potential for visual prominence.

# Sensitivity to different sizes of solar PV development

# Landscapes outside the Executive Area

Relevant character areas and sensitivities are:

### Great Yarmouth Borough

G1: East Flegg Settled Farmland: Fieldwork confirmed that the wooded landscape of the Broads, notably the carr woodlands at Ormesby Broad, form a prominent backdrop which contains views.

#### North Norfolk District

Coastal Plain CP2: Open, undeveloped skylines are sensitive.

Settled Fen SF1: Fieldwork confirmed that filtered views between this area and the Broads are sensitive.

The landscape has a marginally lower sensitivity (moderate-high) in relation to the Executive Area for small scale roof mounted solar PV requiring planning permission, although this is dependent on siting and orientation in relation to intervisibility with the Executive Area. In addition, the landscape has a moderate-high sensitivity to small (sub 1 hectare) field scale solar PV, where this could be contained within field boundaries and in areas of stronger landscape structure, counteracting intervisibility issues. For all other typologies outside the Executive Area, overall landscape sensitivity remains high, due to potential intervisibility and perception issues.