

The Keadby 3 Low Carbon Gas Power Station Project

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The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order

Land at and in the vicinity of the Keadby Power Station site, Trentside, Keadby, North Lincolnshire

Environmental Statement Volume II - Appendix 14C: Landscape Character

The Planning Act 2008
The Infrastructure Planning (Environmental Impact Assessment)
Regulations 2017

Applicant: Keadby Generation Limited

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GLOSSARY

Abbreviation	Description	
ES	Environmental Statement	
NCA	National Character Area	
LCA	Landscape Character Area	
LCT	Landscape Character Type	
LNR	Local Nature Reserve	
SSSI	Site of Special Scientific Interest	



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1.0 INTRODUCTION LANDSCAPE CHARACTER

1.1 Overview

1.1.1 This Technical Appendix supplements **Chapter 14**: Landscape and Visual Amenity (Environmental Statement (ES) Volume I - **Application Document Ref. 6.2**) and describes the additional details for the landscape character of the study area.

1.2 National

National Character Area Profiles

- 1.2.1 The study area contains two National Character Areas (NCA) Profiles:
 - NCA 39: Humberhead Levels (Natural England, 2014a); and
 - NCA 45: Northern Lincolnshire Edge with Coversands (Natural England, 2014b).
- 1.2.2 The relevant characteristics of these NCA's are summarised in Table 1, below.



Table 1: NCA Summary Table

National Character Area	Key Characteristics
NCA 39: Humberhead Levels.	"A low-lying, predominantly flat landscape, with large, regular and geometric arable fields without hedges but divided by ditches and dykes, many of which form important habitats and key corridors for species movement;
	Much of the land is at or below mean high-water mark and maintained by drainage, with fertile soils giving rise to one of the most productive areas for root crops and cereals;
	Variations in underlying deposits create differences within the overall flat farmed landscape, including lowland raised mires and lowland heathland, many of which are of international ecological and historical importance;
	Sandy deposits give rise to lowland heath, which in places supports remnant birch and oak woodlands, with some conifer plantations; Heavier soils around Fishlake and Sykehouse result in a smaller scale pastoral landscape, with small, thickly hedged fields, ditches and ponds, and a network of small lanes; Important historic landscapes include the Isle of Axholme, with evidence of mediaeval open fields, the warps (land enriched by regular silting) near Goole and cables (long thin strip fields) around Thorne;
	Widespread evidence of drainage history, in particular the extensive drainage from the 17th century, revealed through canalised rivers, dykes, old river courses, canals, bridges and pumping stations;
	Views to distant horizons are often long and unbroken, with big expansive skies, and vertical elements like water towers, power stations and wind turbines are very prominent;
	Floodplains, washlands and traditionally grazed alluvial flood meadows (or ings) associated with the major rivers and canals that cross the Levels give rise to



National Character Area	Key Characteristics
	important wetland habitats, supporting large numbers of wetland birds and wildfowl, especially over winter;
	The waterlogged soils hold internationally important archaeological and palaeo- archaeological deposits; and
	Despite settlements, motorways and main roads, there is still a sense of remoteness to be experienced on the Levels, in particular on Thorne and Hatfield Moors and along the Lower Derwent Valley."
NCA 45 Northern Lincolnshire Edge with Coversands.	"Elevated arable landscape with a distinct limestone cliff running north–south, the scarp slope providing extensive long views out to the west;
	Double scarp around Scunthorpe of ironstone, and extensive areas of wind-blown sand, the Coversands, giving rise to infertile soils supporting heathland, acid grassland and oak/birch woodlands;
	Underlying limestone supporting small areas of calcareous grassland;
	Few watercourses on the plateau, which lies between the rivers Trent and Ancholme which flow into the Humber, and is cut through in the south by the River Witham;
	Productive soils on limestone plateau giving rise to a large-scale landscape of arable cultivation with extensive rectilinear fields and few boundaries of clipped hedges or rubble limestone;
	Semi-natural habitats of acid and calcareous grassland and broadleaved woodland are small and fragmented, and often associated with disused quarries;
	Limited woodland cover, with patches of both broadleaves and conifers associated with infertile sandy soils, elsewhere occasional shelterbelts;
	Long, straight roads and tracks, often with wide verges;
	Nucleated medieval settlement patterns following major routes;



National Character Area	Key Characteristics
	Other development comprises the major settlements of Lincoln and Scunthorpe, with their prominent landmarks of the cathedral and steelworks, and several active and re-used airfields prominent on the ridgetop; and
	Vernacular architecture and walling, especially in villages, of local warm-coloured limestone with dark brown pantile.



1.3 Local character assessments

- 1.3.1 The study area is covered by four Landscape Character Assessments at a county level:
 - North Lincolnshire Landscape Character Assessment and Guidelines (Estell Warren Landscape Architects, 1999);
 - East Riding of Yorkshire Council Landscape Assessment (AECOM, 2018);
 - Doncaster Landscape Character Assessment and Capacity Study (ECUS Ltd 2007); and
 - West Lindsey Landscape Character Assessment (Environment Resource Management, 1999).

North Lincolnshire Landscape Character Assessment and Guidelines

- 1.3.2 The North Lincolnshire Landscape Character Assessment and Guidelines divides the landscape into broad landscape character areas. The Proposed Development Site lies within the Trent Levels Landscape Character Area (LCA). To the east of the study area lies Lincolnshire Edge LCA.
- 1.3.3 Trent Levels and Lincolnshire Edge LCA are further subdivided into local landscape character types (LCT). Within the study area seven LCT lie within the Trent Levels LCA and eight LCT within the Lincolnshire Edge LCA. These are:
 - Trent Levels LCA:
 - Flat Drained Treed Farmland LCT;
 - Flat Drained Farmland;
 - Open Island Farmland;
 - Industrial Landscapes;
 - Flat Wooded Farmland;
 - Wooded Springline Farmland;
 - Flat Open Remote Farmland;
 - Lincolnshire Edge LCA:
 - Elevated Wooded Farmland:
 - Elevated Open Farmland;
 - Steep Wooded Scarp Slope;
 - Despoiled Landscape;
 - Heathy Woodland;
 - Industrial Landscape;
 - Wooded Scarp Slope;
 - Wooded Undulating Farmland;
 - Farmed Urban Fringe; and
 - Open Undulating Farmland.
- 1.3.4 The relevant characteristics of these LCA's are summarised in Table 12, below.



Table 2: LCA Summary Table

Local Character Type		Key Characteristics
	Flat Drained Treed Farmland	"Level, open and expansive arable landscape, largely the product of recent enclosure;
		Views are generally open with localised enclosure around settlement and farmstead areas. The gently rising land in the east gives a sense of distant enclosure;
		Large regular field structure with little hedgerow planting but relatively frequent boundary and field trees and woodland copses. Small pockets of early enclosed land and turbary landscape;
Trent Levels LCA		Occasional small woodland blocks, predominantly of deciduous species. The wooded area of Hatfield Moor to the west of the area lends a strong influence local; Distinctive long straight roads, slightly elevated, with drainage ditches running parallel, often on both sides of the road;
		Field boundaries generally indistinct or defined by ditches, occasionally more visibly defined by unmanaged gapped hedgerows, field boundary trees and raised berms associated with drainage dikes;
		A limited number of farmsteads are scattered throughout the area, often combined with large agro-industrial buildings of a prefabricated design;
		Some aggregate extraction sites, often well screened by tree and shrub cover; and
		A small area of heathland is present at the southern end of the area. In this area there is a distinct change in tree species with silver birch becoming dominant."
	Flat Drained Farmland	"Expansive, open and level, low-lying farmland. Raised levees flank the River Trent. Intensively farmed arable crops dominate the majority of the area;
		Very few boundary hedgerows, where hedgerows occur they have a tendency to be tightly clipped and fragmented. Frequent dikes and drain, dividing fields;



Local Character Type	Key Characteristics	
	Pockets of strip farming survive on the Trent levees to the west of the river, characteristically open as these areas have never been hedged;	
	Tree cover is very limited with small enclosures and shelterbelts surrounding farmsteads and settlements. Occasional field trees have a large impact, breaking the expansive views across the landscape;	
	Away from the banks of the River Trent, settlements are mostly well treed; from a distance it is the tree cover that is that marks the presence of settlements within the open landscape, rather than the buildings themselves;	
	A small number of large farmsteads puncture the open views across the heart of the floodplain;	
	The area is bisected by the M180 offering distant enclosure with its raised embankments; and	
	Transmission lines are a dominant feature of the floodplains, particularly where several runs converge on the Power Station at Keadby. Areas of industrial and wharfside development lend an influence to the landscape."	
Open Island Farmland	"Open arable fields flowing across a gently undulating, rounded landform with localised hillocks and ridges, creating an island of elevated land within the flat landscape;	
	The area is probably the most diverse local landscape type within the Trent Levels, combining open elevated views across the arable landscape with more intimate enclosed pockets of historically important land surrounding the settlements;	
	There is visual evidence of the medieval strip farming system common to the land surrounding many of the elevated settlements although much of the structure of these systems has been lost to farm intensification and e.g. fencing of strips to provide pastures for horses;	



Local Character Type	Key Characteristics	
	Linear strips of deciduous and often inappropriate evergreen planting highlight the route of a former railway; inappropriate plantings of e.g. Leylandii are also found along the boundaries of individual strip fields;	
	Church towers, windmills and water towers are repeating structures within this area, puncturing the mostly unbroken skyline;	
	Aggregate extraction and waste disposal sites have been located in areas of topographical depression keeping their visual intrusion to a minimum; and The sandy free draining land does not require the intricate drainage systems common in the surrounding areas, their absence contributing to the distinctive character of the Isle."	
Industrial Landscapes	"The riverside industrial areas are well defined and visually prominent marking an abrupt transition from the open agricultural landscape. The associated wharves and shipping provide close range interest and dockside cranes are visible at a distance; The industrial character of the area is strengthened by the convergence of several transmission lines on Keadby Power Station north of Althorpe; A hard, enclosed landscape with a distinct change in scale and height of structures has been created with few softening features. Views from within industrial areas are generally confined by adjacent structures, however where views out are available the tend to be open, helping to break down the confinement of this claustrophobic landscape; and The use of building materials such as concrete, prefabricated steel and wire mesh	
	fencing contribute to the industrial feel."	
Flat Wooded Farmland	"Enclosed farmland area dominated by small, linear pockets of predominantly deciduous woodland;	



Local Character Type	Key Characteristics
	Medium sized arable fields with little hedgerow planting; where occurring hedges have a tendency to be tightly clipped and patchy, or overgrown and unmanaged with intermittent tree cover;
	Tree lined avenues are a distinctive feature of the area, flanking roads, major drainage channels and former railway corridors;
	Areas of parkland at Hirst Priory and Temple Bellwood lend a strong influence to this local landscape type. In such areas tree cover includes a wider variety of species; and
	Pine and birch planting on motorway embankments to the south of the area is inconsistent with the landscape character."
Wooded Springline Farmland	"Well defined woodland blocks, principally of pine and birch, breaking down into more fragmented areas of tree cover intermixed with heathland scrub;
	Farmland is of a similar open nature to the landscape to the west, a mixture of arable and pasture, with boundaries defined by wooded areas, characteristic drainage ditches and occasional low clipped gapped hedgerows;
	There is little tree cover within open arable areas creating a contrast with fringe woodland cover;
	Views are short and enclosed to the east by the rising land of the chalk escarpment and wooded blocks, to the west broad, expansive views are available between areas of woodland across the low-lying floodplain areas;
	The area is scattered with small pockets of open water, the presence of which has attracted recreation and conservation land uses i.e. nature reserves, fishing lakes, and caravan sites;
	There are very few farmsteads or areas of built development, those that occur have a tendency to be screened from open areas by woodland planting; and



Local Character Type	Key Characteristics
	An urban fringe characteristic encroaches the land adjacent to Scotter Road defining the eastern edge of suburban Scunthorpe. In this area woodland is used for informal recreation and has suffered from the impacts of erosion and littering. Land uses in this area include garden centres, mobile home parks and retail developments."
Flat Open Remote Farmland	"An open area of mostly large arable fields, offering expansive views across a low- lying, level landscape with tree and hedge cover almost completely absent over much of the landscape;
	The woodland of Crowle Waste or Moors turbary landscape to the west and the settlement of Crowle in the south east offer some enclosure to views in these directions;
	The landscape has a distinct feeling of remoteness. Only in the peripheral areas of Crowle does the landscape begin to become more enclosed and intimate;
	Areas of the medieval strip farming system, forming part of the Moorland Allotments (known as the Crowle Ribbons) can be seen in areas surrounding Crowle and Crowle Common. This farming system in which areas of former peat extraction were converted to strip farming is associated with the edge of raised mires (in this case Crowle Waste or Moors) and results in a characteristic landscape;
	Elsewhere the landscape has been subject to early and recent enclosure, but has suffered of hedgerow removal, mainly due to the intensification of agricultural practice with the result that fields lack boundary definition;
	In the south of the local landscape type tree cover is limited to small fragmented copses with associated unmanaged hedgerows and intermittent tree cover; Characteristic well-maintained drainage ditches follow the line of roads and form intricate networks throughout the fields, but do not have a strong visual presence;



Local Character Type		Key Characteristics	
		There are very few roads crossing the area, adding to the remote character, only a few tracks cross the open fields offering limited access;	
		A water treatment works and large prefabricated agro-industrial barns are found in the areas surrounding Crowle. Some tree planting (often pine) has been used to screen these structures, however they still combine with the backdrop of the predominantly modern settlement to create visually intrusive features; and	
		Telegraph poles and farmsteads with associated tree planting, add height to the low-lying landscape in which horizontal elements tend to dominate."	
	Elevated Wooded Farmland	"Rolling upland landscape consisting of mainly arable farmland with a strong sense of unity;	
ge LCA		Large scale fields well contained by deciduous and coniferous woodland blocks and hedgerows with trees. However, some evidence of hedgerow loss through field enlargement;	
Lincolnshire Edge LCA		Extensive views to the east and north west over the River Trent and Humber Estuary;	
		Settlements have a strong, rural character with use of traditional building materials, predominantly local brick and limestone with both pantile and slate roofs;	
Linco		Conservation Areas designated in Alkborough, Burton upon Stather and Normanby; and	
		Local interest and contrast at Normanby Hall Country Park which is a site of Nature Conservation Interest and Scawby Park."	



Local Character Type	Key Characteristics	
Elevated Open Farmland	"Exposed, open landscape with gently undulating terrain dipping to the east Extensive views to the east emphasised by open character of farmland; Arable farmland with large scale, open fields; Lack of field boundaries due to severe hedgerow loss in places; Limited tree cover and intensively clipped hedgerow remnants give a 'fragmented' feel to the area, further exacerbated by its windswept look and exposed nature; Local settlements contain a mixture of local building materials and styles deriving from a diversity of building periods; and	
	The Roman road, Ermine Street, is a prominent feature within the landscape with its associated ancient settlements."	
Steep Wooded Scarp Slope	"Prominent, steep scarp slope rising from vale lowlands; Extensively wooded slope, west facing, interspersed with small areas of pasture, scrub and rough grass;	
	Long-ranging views across the Trent Lowlands from the top of the slope and where vegetation is more limited;	
	Landscape is generally of intimate scale and well enclosed by vegetation; Ecologically rich slope with a good range of species diversity and evidence of regenerating woodland and thicket.	
	Ancient semi-natural woodland at Burton Wood; and Settlement edges of Burton upon Stather and Alkborough provide visual interest where houses, interspersed with vegetation, cling to the top of the slope face."	
Despoiled Landscape	"A mixture of mostly reclaimed and some derelict land arising from the historically and economically important extraction of ironstone during the Victorian era;	



Local Character Type		Key Characteristics	
		Typically characterised by a mixture of reclaimed farmland with no distinguishing field boundaries and patches of regenerating woodland and scrub.	
		Local and ecological interest provided by a number of attractive waterbodies designated as Local Nature Reserves with recreational potential. Dominant species birch and willow; and	
		Area dominated by large number of surrounding visually intrusive features such as adjacent industry and high rise blocks of flats on the edge of Scunthorpe, which have not been screened or integrated into the landscape."	
Hea	athy Woodland	"Elevated, gently undulating landscape of deciduous and coniferous woodland containing areas of open scrub and heathland;	
		Attractive character, intimate and enclosed, within the woodland contrasting with more open heath areas;	
		Contains three SSSIs (Broughton Far Wood, Broughton Alder Wood and Risby Warren) and is designated as an Area of High Landscape Value. Ancient replanted woodland at Far Wood, West Wood and Spring Wood;	
		Views to the west towards Scunthorpe restricted by vegetation; and	
		Local historical interest provided by Ermine Street, a Roman road that bisects the woodland."	
Ind	ustrial Landscape	"Flat, bleak, predominantly hard landscape overwhelmed by large scale industry and derelict land;	
		Areas of high enclosure provided by density and scale of industry, ranging to openness with views across expanses of derelict land; and	
		Complex, chaotic character exaggerated by lack of cohesive structure and little, or insignificant landscape improvements. Area dominated by industry and associated infrastructure, i.e. roads, security fencing, electricity poles, etc."	



Local Character Type	Key Characteristics
Wooded Scarp Slope	"Sinuous scarp slope overlain by coversands and designated as an Area of High Landscape Value; West facing slopes are extensively wooded with small areas of arable farmland, pasture, scrub and rough grass; Where vegetation is limited, views towards Scunthorpe are extensive, otherwise the landscape is well enclosed and of intimate scale;
	Significant areas have been left to nature, resulting in mainly deciduous woodland with birch, pine, larch, oak, gorse and rhododendron; and Ecologically important area, with three sites of Nature Conservation Interest."
Wooded Undulating Farmland	"Rolling, mainly arable farmland of open, rural character; Enclosure of medium sized fields provided by mixed woodland blocks and shelterbelts; Field boundaries defined by hedgerows, both maintained and overgrown with hedgerow trees. However, evidence of some loss and neglect in places due to field enlargement; Evidence of farm diversification with presence of pig and poultry farms; and Ecological interest, with three sites of Nature Conservation Interest within the area, one of which is the flooded sand and gravel extraction pits, to the south east of Messingham."
Farmed Urban Fringe	"Farmed, flat landscape adjacent to urban conurbation dominated by associated urban elements such as pylons, roads and close range views of housing and industry; Intimate scale landscape, with small fields scattered with derelict farm buildings and untidy sheds and fences;



Local C	Character Type	Key Characteristics
		Vegetation sparse, field boundaries defined by intermittent and overgrown hedgerows and scrubby trees; and
		Dominant elements and features are outweighed by complexity of landscape."
	Open Undulating Farmland	"Broad, gently undulating landscape, including a shallow scarp slope;
		Mainly arable farmland with pasture areas and some evidence of farm diversification, e.g. pig farming, poultry farming;
		Evidence of hedgerow loss giving rise to an overall lack of cohesive field boundaries;
		Enclosure provided by shelterbelts, woodland copses and hedgerow remnants;
		Traditional farm buildings scattered throughout area;
		Settlements consist of local stone and red brick mixed; and
		Evidence of ditches for land drainage purposes."



East Riding of Yorkshire Council Landscape Assessment

- 1.3.5 A total of 23 LCT have been identified in East Riding. The north of the study area falls within LCT 9 Drained Open Farmland and LCT 23 Humber Banks.
- 1.3.6 The relevant characteristics of the LCTs are summarised in Table 3, below.

Table 3: LCT Summary Table

Key Characteristics
"Low lying flat intensively farmed arable landscape;
Sparse settlement concentrated along the river corridor;
Scattered farmsteads and villages;
Windmill towers are visible in several villages on the south bank of the River Ouse;
Open large scale landscape with very few trees and woodland;
Generally large fields south of the river;
Combination of fragmented hedgerow and ditch field boundaries;
Long linear field pattern unique to Goole Fields reflects past farming Method;
Extensive views across the flat open landscape; and
Large scale wind development present and visible within the landscape."
"Flat low lying flood plain of the River Humber with man-made river banks to defend neighbouring farmland from flooding;
Grassed banks grazed by livestock;
Reed beds are a unique feature;
Extensive views across the river and
neighbouring low lying farmland, particularly from top of river bank; and
Diversity of river habitat."

Doncaster Landscape Character Assessment and Capacity Study

- 1.3.7 The study identifies eight LCT in Doncaster and further divides the LCT into LCA of similar character. The west of the study area lies within G-Peat Moorlands LCT and Thorne and Hatfield Peat Moorland LCA.
- 1.3.8 The relevant characteristics of the LCT's are summarised in Table 4, below.



Table 4: LCA Summary Table

Local Character Area	Key Characteristics
Thorne and Hatfield Peat Moorland	"Large scale, open, flat and low-lying. Areas of dark peat exposed on Thorne and Hatfield Moors where there has been former peat extraction along with regenerating heathland;
	Empty and remote feeling landscape on the Moors. Moors surrounded by area of scrubby woodland and a blocks of more mature deciduous trees which restrict views from the landscape beyond;
	Limited access with no roads and few public footpaths onto the Moors;
	Areas beyond the Moors are mainly arable farming with turf grown as a crop in some fields and occasional pasture;
	Large geometric fields in a regular grid pattern bounded by straight ditches and occasional hedges and mature trees.;
	Scattered farmsteads surrounded by large sheds and shelterbelt trees.
	Single built up area in the north west of the LCA at Thorne and Moorends; and
	Intrusive motorways, straight roads and a railway line on elevated embankments and a canal cut across the landscape beyond the Moors."

West Lindsey Landscape Character Assessment

1.3.9 The study area falls within the Laughton Woods LCA. The relevant characteristics of the LCA are summarised in Table 5, below.

Table 5: LCA Summary Table

Local Character Area	Key Characteristics
Laughton Woods	"Flat, open agricultural landscape dominated by large conifer plantations;
	Large, smooth textured fields, with few hedgerow or boundary fences, subdivided by a grid of drainage ditches;
	Small blocks of deciduous woodland shelter belts and occasional individual oaks;

Key Characteristics
Settlements are 'islands' of buildings and trees in the flat landscape; churches are landmarks;
String of small settlements along the River Trent with few trees and no churches; and Panoramic views and big skies."



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