



Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

Preliminary Environmental Information Report

Chapter 4 – Site Description

March 2025



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4. Site Description

4.1. Introduction

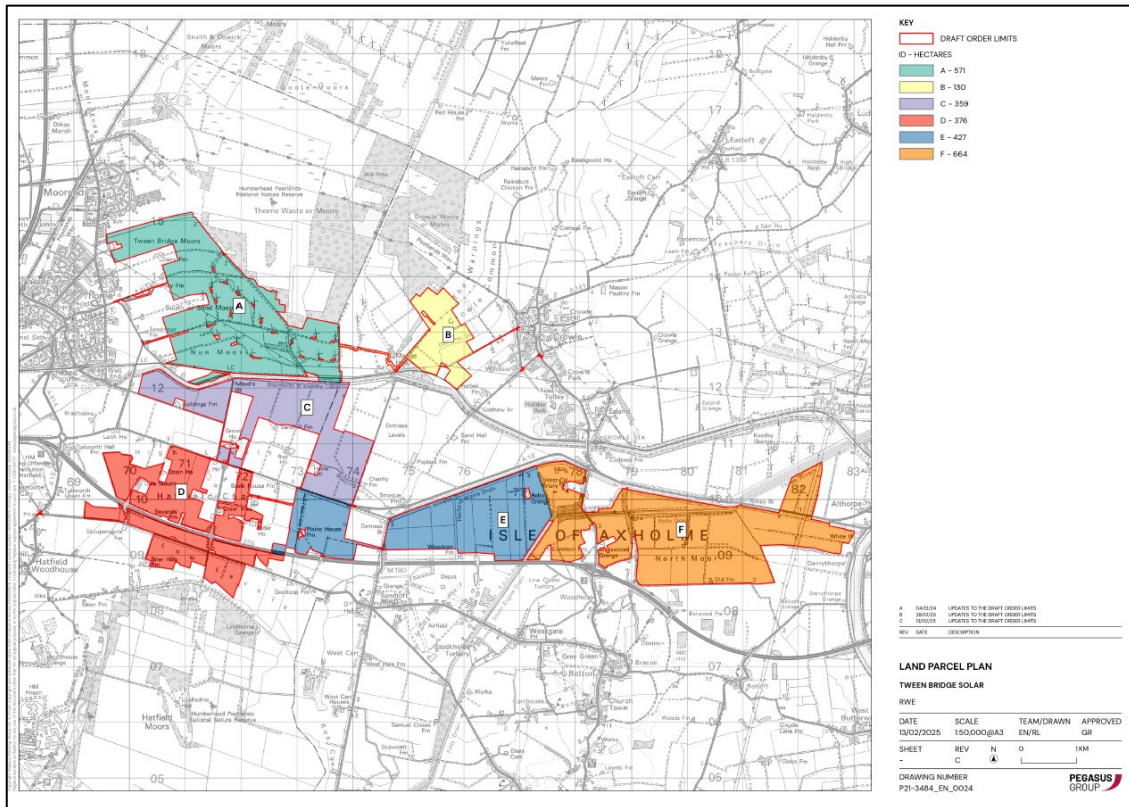
- 4.1.1. This chapter of the PEIR provides a description of the site and its surrounds. Detailed topic specific descriptions are expanded upon in the supporting technical chapters and technical appendices.

4.2. Site Description

- 4.2.1. The Draft Order Limits extends to approximately 2527 hectares of land, presented in Figure 1.1 Draft Order Limits. The draft Order Limits is made up of six Land Parcels (described as Land Parcels A to F) as shown on the Land Parcel Plan provided at Figure 1.2, and shown in illustration 4.1 below, with each parcel further described in Table 1.2.
- 4.2.2. The Draft Order Limits represent the anticipated maximum area of land that maybe required to facilitate the construction, operation (including maintenance) and decommissioning of the Scheme pursuant to the DCO. The draft Order Limits may be subject to change in response to the statutory consultation process and as the design of the Scheme progresses ahead of the ES and submission of the DCO application to the Planning Inspectorate. .In particular, the Applicant has included an area within the draft Order Limits where it is thought that the National Grid substation (which does not form part of this Scheme) will be located and therefore where the underground connection export cable (to be provided as part of this Scheme) will be located in order to connect the Scheme to the National Grid Substation. See also Chapter 2 (Scheme Description). This area land known as the "*National Grid Substation and RWE Underground Export Cable Route Assessment Area*" is the area of land identified as Land Parcel F on the Land Parcel Plan provided at Figure 1.2.
- 4.2.3. Land Parcel F delineates the search area of the potential location of the underground export cable and so does not represent the total area required for installation, but rather shows the extent of land under consideration at this stage within which the cables would be installed.

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Illustration 4.1: Land Parcel Plan¹



- 4.2.4. The Scheme broadly lies between the settlements of Thorne and Crowle, occupying separate parcels of land within a relatively flat agricultural landscape predominantly in arable use for the cultivation of cereal crops with some areas of modified grassland and short rotation coppice. Many of the field boundaries are subdivided into rectilinear parcels by long linear drainage ditches, some with partial or sporadic hedgerows. The draft Order Limits is dissected by several major roads and routes, including the M180 motorway, the A18, the South Humberside Main Line railway route and Stainforth & Keadby Canal.
- 4.2.5. Numerous other minor roads cross the landscape connecting scattered residential properties and farmsteads, many of which lie adjacent or in proximity to the site. Tween Bridge Wind Farm and substation is situated in the northern part of the site². Overhead power lines and lattice pylons runs across the northern part of the Scheme which creates other vertical elements within the landscape. There are wooden pole lines and masts within the Draft Order Limits.
- 4.2.6. Bar the two areas of significant woodland to the north and south of the site associated with former peat extraction at Hatfield Moors and Thorn Moors, the landscape contains relatively limited areas of vegetation, largely limited to field boundaries in the form of hedgerows, which many are

¹ Source Please refer to PEIR Chapter 1, Figure 1.2.

² Tween Bridge wind farm, also known as Tween Bridge Moor, was commissioned in 2012. It consists of 22 Vestas V90/2000 wind turbines with a combined rated output of 44 MW.

incomplete and gappy. There are occasional scattered trees or groups of trees and some small woodland copses.

- 4.2.7. There are a number of Public Rights of Way (PRoW) that are located within or close to the Scheme. (See Figure 6.4 Recreation Plan). Public Footpath FP19 (Thorne) lies in the central northern part of the site and forms part of the access to the Scheme. Public Footpath FP15 (Thorne) lies just beyond the most north western boundary of the Scheme. In the north eastern part of the Scheme Public Right of Way (Footpath 17) lies beyond the Draft Order Limits forming a continuation of an unnamed north-east/south west Byway. Footpath 18 runs from the unnamed Byway south eastwards into the western side of Crowe.

4.3. Landform and Topography

- 4.3.1. Landform within the Draft Order Limits is predominantly flat and open in nature. The Draft Order Limits is traversed by a network of network of watercourses and drainage ditches of varying scales and depths which form the field pattern and their boundaries.
- 4.3.2. The Stainforth and Keadby Canal runs through part of the Draft Order Limits, which provides opportunity for recreation for walkers, cyclists and boat users. There is limited visibility to the north of Draft Order Limits due to woodland and tree planting which borders the northern boundaries of the Draft Order Limits. The topography of the wider area surrounding the Scheme is generally low lying and displays similar characteristics to that found within the Draft Order Limits. There are a number of drainage ditches and waterbodies scattered throughout the study areas as well as the wetland areas of Humberhead Peatlands National Nature Reserve, located to the north and south of the Draft Order Limits.

4.4. Land use, Buildings and Infrastructure

- 4.4.1. The Draft Order Limits is predominantly used for arable farming, which creates a low level patchwork appearance within the landscape. The land is made up of large scale agricultural fields often separated by drainage ditches of varying scales and depths. Some of the drainage ditches contain reed beds and associated field boundary vegetation.
- 4.4.2. Occasional hedgerows and woodlands define field boundaries or surrounding local farmsteads. In the northern part the Draft Order Limits, at Parcel A there is woodland vegetation which separates the Scheme and the Humberhead Peatlands National Nature Reserve at Thorne Moors. There are also occasional isolated trees along field boundaries throughout the Draft Order Limits.
- 4.4.3. Tween Bridge Windfarm and an overhead powerline and lattice pylons are located within the northern part of the Draft Order Limits, in Parcel A. Both these features create tall vertical structures that contrast with the low lying landscape.
- 4.4.4. The Stainforth and Keadby Canal crosses through part of the Draft Order Limits, at Land Parcel A, with both the northern and southern part of the Draft Order Limits running along the edge of the canal, at Land Parcels A, B, and C.
- 4.4.5. The M180 motorway and the A18 cross the landscape in a predominantly north westerly to south easterly direction. The Draft Order Limits run alongside these major routes and a network of minor roads which provide local access between settlements and to individual properties and farmsteads.

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- 4.4.6. Humberside Main Line Railway line runs through the northern part of the Scheme, adjacent to the Draft Order Limits.
- 4.4.7. Urban development is largely limited to the settlements of Thorne and Crowle, with other areas predominantly consisting of isolated properties and farmsteads. There are some areas of industry located in proximity to the M180 motorway and the nearby Sandtoft Airfield.
- 4.4.8. To the north of the Draft Order Limits, beyond Land Parcel A and to the east of the housing area of Moorends at Thorne, is an existing solar farm on part of the former Thorne Colliery.
- 4.4.9. The Humberhead Peatlands National Nature Reserve is located to the north of the Draft Order Limits; and, to the south is the Hatfield Moors which provide large areas of wetland and wooded areas.

4.5. Landscape Character of the Site

- 4.5.1. The Scheme is located within a landscape that is characterised by open, generally low lying fields that are often bound by drainage ditches and vary in size from collections of small strip fields through to larger consolidated areas, the shapes of which reference collections of earlier groups of rectangular fields. Much of the land is characterised by arable farmland. In addition, there are woodlands and woodland blocks of varying sizes within the study area which assist in limiting visibility particularly to the north and south of the Scheme. There are scattered trees and the occasional hedgerows which are often gappy and incomplete. The Humberhead Peatlands National Nature Reserves to the north and south of the Scheme provide ecological habitats for birds and animals and public access for recreation. Both areas are bound by woodland and include water bodies.
- 4.5.2. There is the prominence of tall vertical features which include wind turbines associated with the Tween Bridge Wind Farm located within part of the Draft Order Limits (within Land Parcel A) and exerting a visual influence across much of the remainder of the Draft Order Limits plus a significant network of overhead power lines, their associated lattice pylons and more local power lines.
- 4.5.3. Transport corridors of the M180 and A18 dissect the Scheme which run on a west to east axis. There are a network of A and B minor roads which run through or close to the Draft Order Limits. The Stainforth and Keadby Canal cuts through the northern part of the Scheme. The canal provides opportunity for recreational users as well as boat users of the canal. Humberside Main Line Railway line is situated north of the Stainforth and Keadby Canal and runs in a west to east direction dissecting through the site.

4.6. Landscape Designations

- 4.6.1. The land within the Draft Order Limits is not covered by any designation at a national, regional or local level that recognises it as having specific landscape importance. An area of Special Landscape Value is located to the north west of Thorne, within the Doncaster district, but there is no intervisibility with this area located beyond the M18 and the site area. An Area of Historic Landscape Interest, (The Isle of Axhole) is located to the south west of the extent of the Draft Order Limits.

4.7. Registered Common Land

- 4.7.1. Directly adjoining and outside the northern boundary of the Draft Order Limits is an area of Registered Common Land, identified as Thorne Moors or Thorne Waste. There is another small area to the south east of the Draft Order Limits, identified as Low Closes Turbary.

4.8. Statutory Designated Sites for Nature Conservation

- 4.8.1. The Draft Order Limits are situated outside of any statutory designated sites for nature conservation with the exception of a small 0.53ha area of Thorne & Hatfield Moors Special Protection Area (SPA), Thorne Moor Special Area of Conservation (SAC), Thorne, Crowle and Goole Moors Site of Special Scientific Interest (SSSI) and Hatfield Chase Ditches SSSI. Whilst the Moors SPA/SAC/SSSI lies within the Draft Order Limit, they are outside the development footprint and therefore no work is scheduled within these designated sites.
- 4.8.2. A further four international statutory designated sites occur within 10km of the Draft Order Limits boundary and eight national statutory designated sites occur within 5km of the Draft Order Limits, including Local Nature Reserves (LNR) and SSSI's The Humberhead Peatlands National Nature Reserve (NNR) is also located directly adjacent to the Draft Order Limits boundary.

4.9. Non-Statutory Designated Sites for Nature Conservation

- 4.9.1. Fourteen non-statutory designated sites fall within the Draft Order Limits, including 10 Local Wildlife Sites (LWS) and four Candidate Local Wildlife Sites (CLWS). These are all associated with 'drain' watercourses within the Draft Order Limit, except for Whittaker's Plantation CLWS which related to plantation woodland.
- 4.9.2. A further two LWS, one CLWS and a Lincolnshire Wildlife Trust Reserve (LWT) are located directly adjacent to the Draft Order Limits boundary, with a further 19 LWS, five CLWS and one Local Geological Site (LGS) situated within 2km.

4.10. Habitats

- 4.10.1. Habitats within the Draft Order Limits predominantly comprise arable fields (82.52% of the total area) that are bounded by a combination of deep drains and ditches with some hedgerows, tree lines, grassland field margins. A small woodland copse called Whittaker's Plantation is present within the centre of the Draft Order Limit. Eight ponds are located within the Draft Order Limit, one of which was found to be dry during surveys in spring 2023. A further 33 ponds have been identified within 250m of the Draft Order Limits.

4.11. Cultural Heritage

- 4.11.1. There are no scheduled monuments or conservation areas located within the Draft Order Limits. The nearest scheduled monument is the Peel Hill motte and bailey castle located circa 1.3km west of the Draft Order Limits. Much of the central core of Thorne town, to the west of the site, is within a conservation area. The appearance of the area is established by a predominance of small scale residential and commercial properties in the main from the 18th and 19th century, although there are a few significant buildings surviving from earlier. Within the conservation area there are 14 listed structures. There are 23 Grade II listed buildings located within close proximity to the Draft Order Limits.

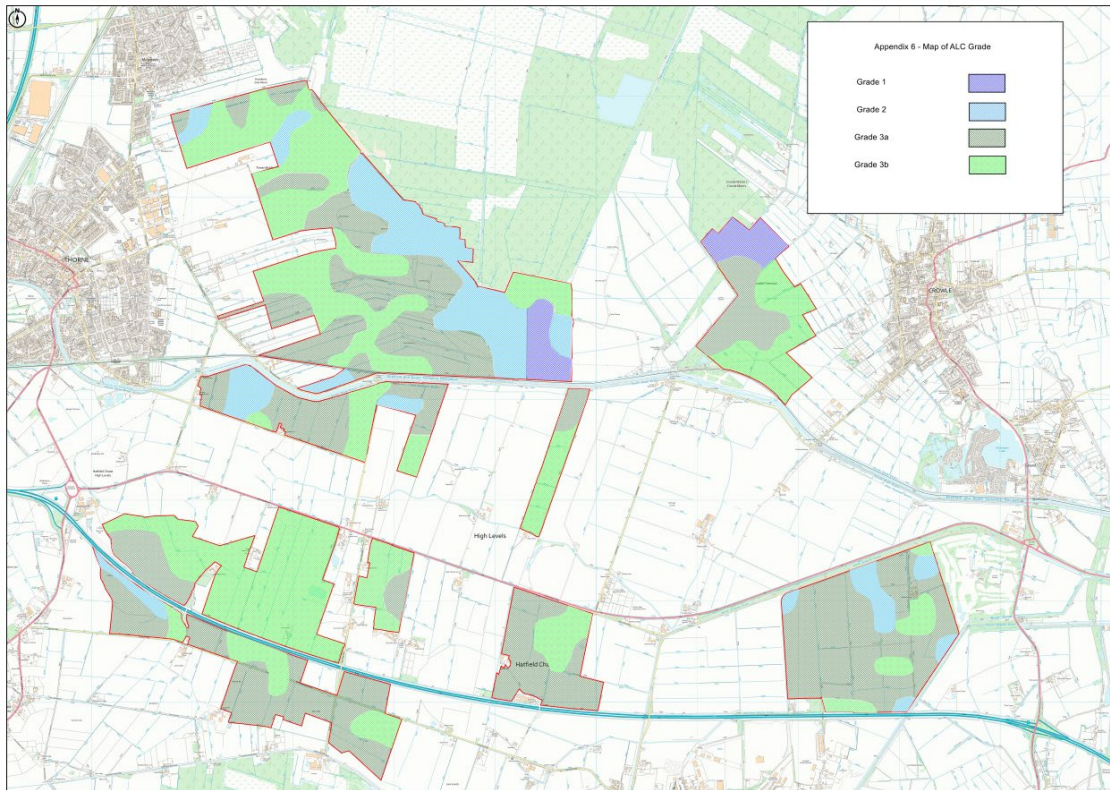
4.12. Agricultural Land

- 4.12.1. The land within the Draft Order Limits is mostly level, agricultural land in arable farming use.

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4.12.2. To date, Agricultural land Classification (ALC) surveys have taken place over 1,260 ha. Some of the land previously surveyed has been removed from the Scheme and as such is not within the current Draft Order Limits. Additional surveys are programmed to assess the land quality of the areas not yet surveyed. Samples were taken on a regular 200m grid, such that the survey is described as a “semi-detailed” survey. The soils across the site include some sandy and loamy medium sands, and areas where soils are clayey. The ALC classification has identified soils limited by droughtiness and soils limited by wetness. The ALC of the areas surveyed to date is presented in **Figure 4.1**.

Figure 4.1: ALC Results to Date



4.12.3. The ALC data is set out in **Appendix 15.2**. The surveys are ongoing and will be reported within the ES.

4.13. Hydrology

4.13.1. The Flood Map for Planning³ identifies that the majority of the Draft Order Limits is located within Flood Zone 3, at High risk of flooding, impacted by a 1 in 200 year tidal flood event and 1 in 100 fluvial (river) event. Tidal flood risk at the site is associated with the tidally influenced River Trent. The Flood Map for Planning also highlights flood defences at the site and defines the site as an area that benefits from a ‘reduction in risk of flooding from rivers and sea due to defences. Ground levels on site as defined by the topographic survey are generally in the approximate range of -0.2mAOD and 2.6mAOD.

³ <https://flood-map-for-planning.service.gov.uk/>

4.14. Geology and Ground Conditions

- 4.14.1. The area is underlain by thick sequences of complex superficial deposits including former lake laminated silt/clay deposits, sands and gravels and infill sediments to deep glacial period channels. Thick alluvial clay and silt blankets these and overlaps marginal peat deposits. The old rivers have been historically diverted and artificial alluvium (floodwarp) deposited to provide better draining agricultural soils.
- 4.14.2. Surface soils are loamy or clayey, slowly to moderately permeable, or relatively impermeable and seasonally wet with impeded drainage. This helps maintain a naturally high groundwater table. There are no bog peat soils mapped. The Scheme area lies beyond the Hatfield Moors gasfield and two Petroleum Exploration and Development Licence areas cover parts of the western Draft Order Limits. The area has a prolonged agricultural history with isolated farmsteads. Peat working is not specifically mapped but has likely occurred historically, with peat works beyond the boundaries.
- 4.14.3. Former landfills at Tudworth and a waste transfer station at Brier Hills lie adjacent to the western and southern boundaries respectively. Two past pollution incidents within the Draft Order Limits are considered as plausible contaminant sources and a Contaminated Land Determination 600m west has been considered within the conceptual modelling.

