



**Little Crow**  
*Solar Park*

*Little Crow Solar Park, Scunthorpe*

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## **DESIGN AND ACCESS STATEMENT**

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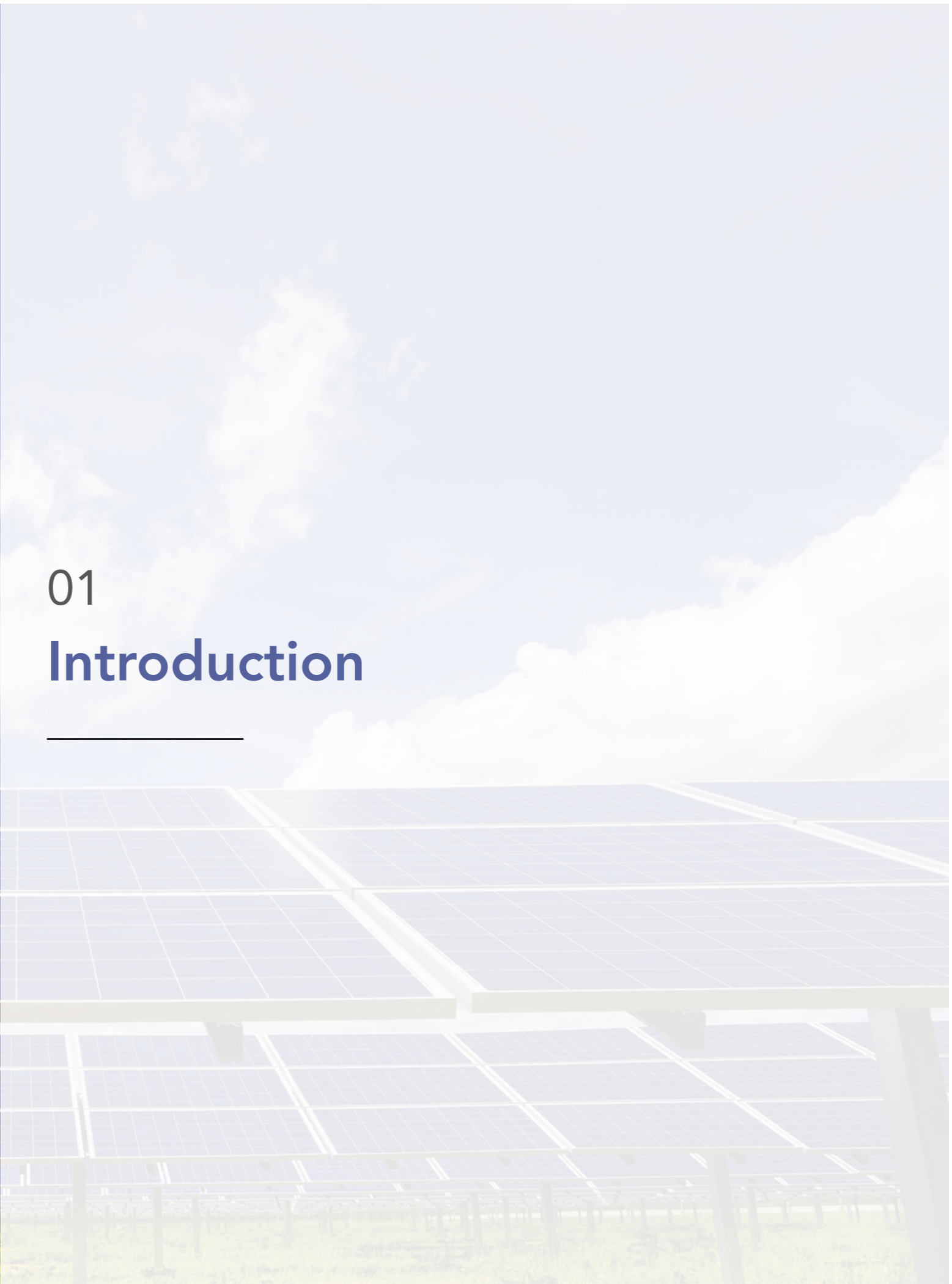




01

# Introduction

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1.1 This Design and Access Statement supports an application for Development Consent Order ["DCO"] for the construction, operation, maintenance and decommissioning of a ground mounted solar park with an intended design capacity of over 50MWp (megawatts peak) with associated development. The development is located to the east of the Scunthorpe Steelworks and is known as Little Crow Solar Park ["the Development"]. The Application is being submitted by Pegasus Group on behalf of INRG Solar (Little Crow) Ltd ["the Applicant"]. An operational lifespan of 35 years would be sought linked to the first export date from the development.

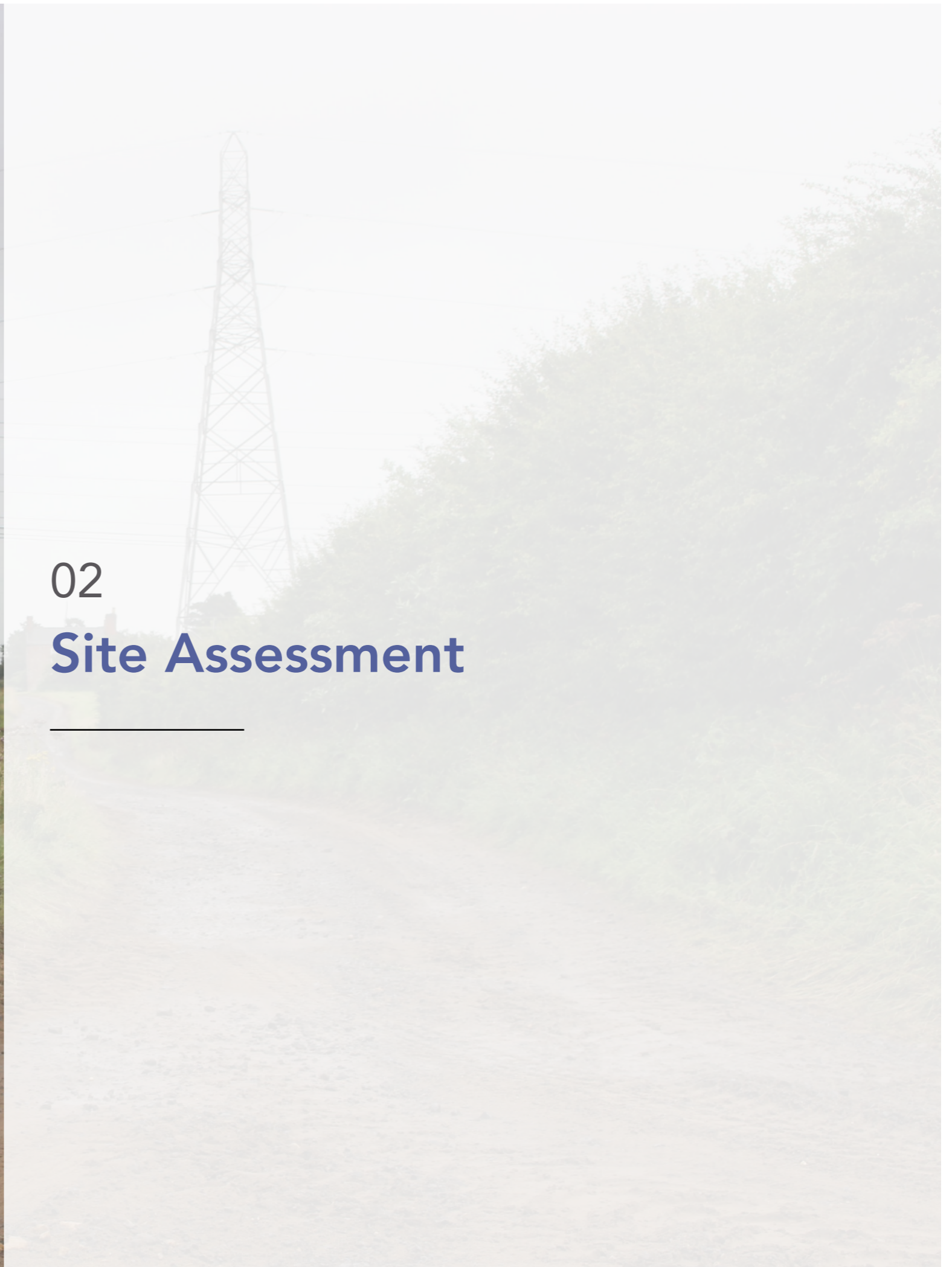
1.2 The Application for a DCO must be submitted to and determined by the Secretary of State for Business, Energy and Industry Strategy because the Development is classified as a Nationally Significant Infrastructure Project ["NSIP"] under the Planning Act 2008, with a total capacity exceeding 50 MW.

1.3 The proposal would provide a clean, renewable and sustainable form of electricity and will also make a valuable contribution to the generation of electricity at a local level. The scheme would add to North Lincolnshire Council's progress in meeting its renewable energy target and would also assist in meeting national targets for both energy supply and low carbon energy development.

1.4 This Design and Access statement should be read in conjunction with the accompanying Planning Statement which sets out the planning policy context relating to the design and access issues of the application proposal. Notwithstanding the above, this design and access statement is designed to be read as a standalone document if required.

1.5 The overarching objectives of the development proposal are to meet the objectives of climate change, energy security and farm diversification for the benefit of the landowners. The landowners do not have the expertise in renewable energy development and as such formed a partnership with INRG Solar (Little Crow) Ltd in order to progress the proposals.





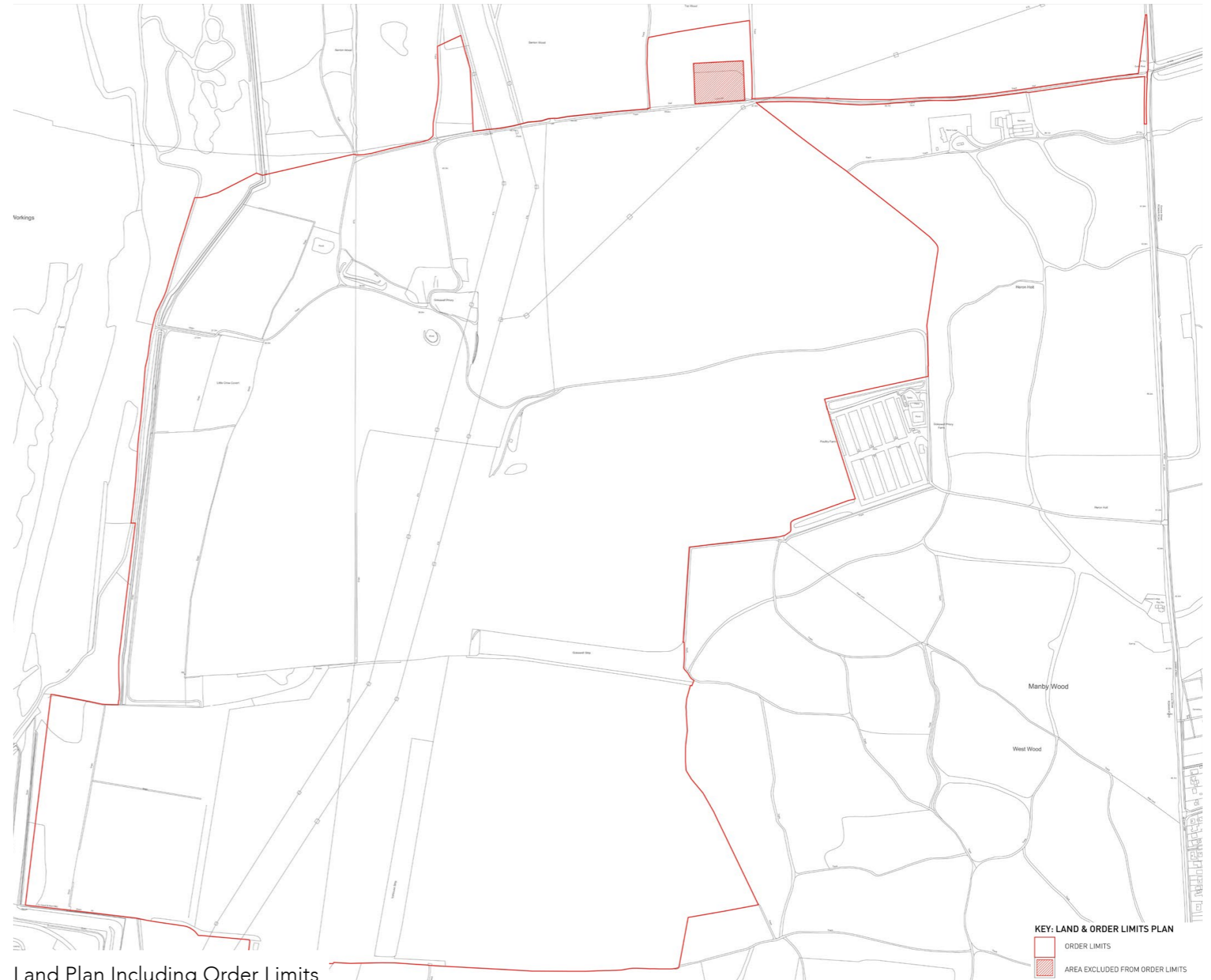
02

## Site Assessment

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2.1 The development site is located on a localised ridge between the settlements of Scunthorpe to the west and Broughton to the east. The village of Broughton is separated from the site by an extensive area of dense forestry and woodland. Between the main residential and commercial areas of Scunthorpe, directly adjacent to the western boundary of the site, lies the extensive industrial complex of the Scunthorpe Steel Works. To the north the ridge continues approximately 11km to the banks of the Humber Estuary. Also to the north is an area of heathland known as Risby Warren. To the south the ridge runs approximately 35km to the City of Lincoln. A Roman Road, Ermine Street runs adjacent to Broughton to the east of the site.



Land Plan Including Order Limits



2.2 A secondary scarp slope known locally within Scunthorpe as 'The Cliff' lies to the west. Away from Scunthorpe the landscape is largely rural. The development site (excluding the area identified for the temporary construction compound) extends to approximately 225 hectares and is comprised largely of arable fields which are bounded and heavily contained by dense woodland to the north, east and south which serve to provide significant screening of the site from the wider landscape. Phased forestry operations take place in the surrounding woodland and this matter is discussed in the supporting Woodland Management Plan.

2.3 Adjacent to the north east corner of the development site is a former conventional oil well compound, known as Broughton B1. This was sunk in 1984 by BP Petroleum Development Limited. The oil well compound is demarked by perimeter fencing and lies outside the order limits of the development proposal. The Phase I Ground Conditions Desk Study provides additional information regarding the former oil well. The former oil well is set within a single field that will house the temporary construction compound for the development. The former oil well area is excluded from the order limits.

2.4 Land use across the site is predominantly agricultural with fields laid down to a mixture of arable and managed grassland. Some forestry operations are being undertaken within the surrounding woodland resulting in the storage of logs in piles next to the main access track through the site. There is no building within the site. A poultry unit is located adjacent to the east of the site, whilst to the west lies the vast expanse of industrial development associated with the Scunthorpe steel industry. The steelworks area extends for more than 2km, beyond which lies the urban area of Scunthorpe. Various utilities cut through the site and these include a water main; 33kV overhead power lines; and, a double row of 132kV overhead pylons. The lines pass through the adjacent woodland without opening up large gaps in which the site can be seen.



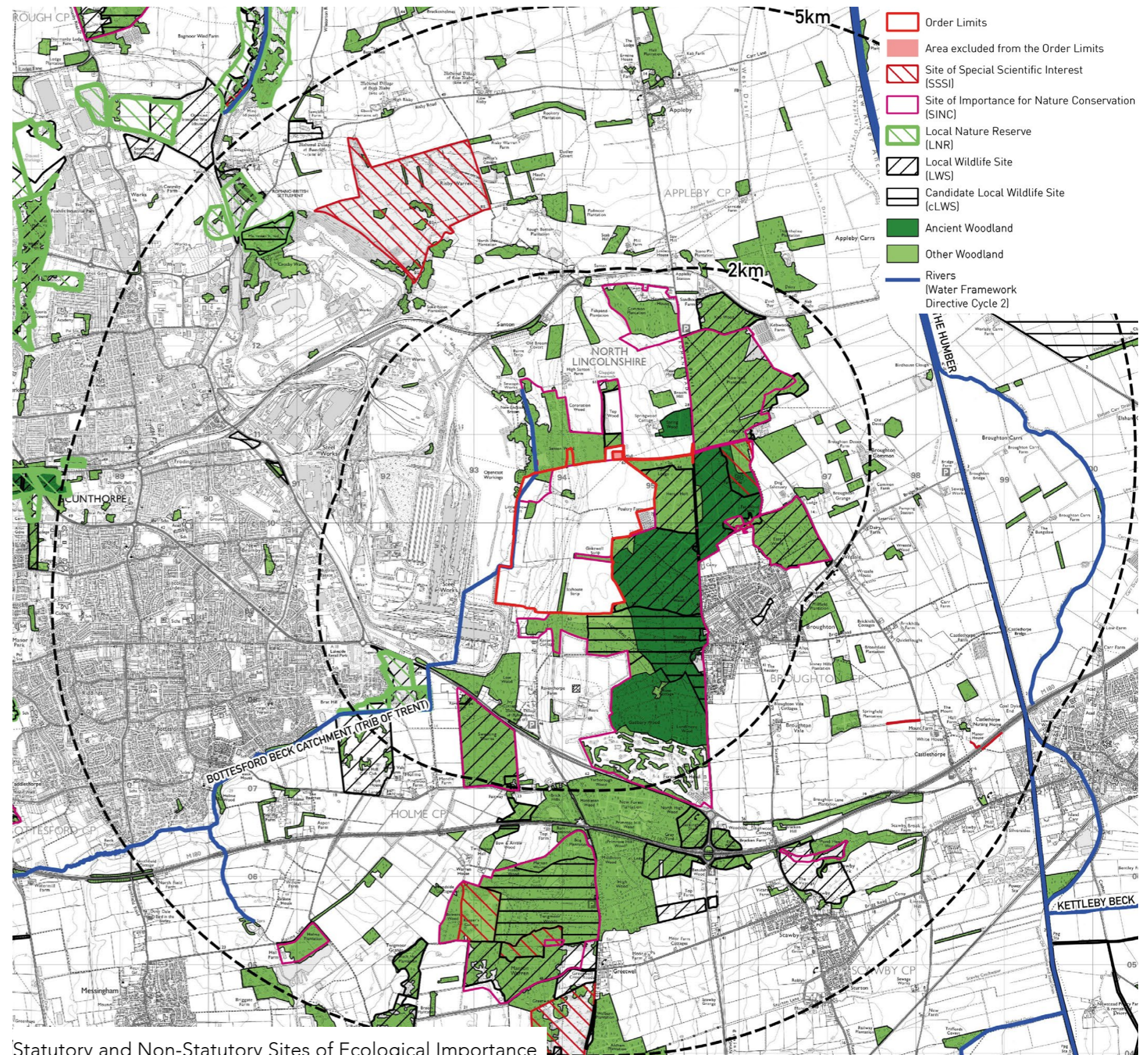
## BIODIVERSITY FEATURES AND ENVIRONMENTAL DESIGNATIONS

2.5 The site generally comprises open arable farmland, which is surrounded by a network of hedgerows and ditches as well as extensive woodland plantations. The most frequently encountered habitat at the site consists of open arable farmland. The arable fields comprised a mixture of spring-sown cereals and oilseed rape, as well as game cover crops at the edge of some fields. Field margins are characterised by coarse, semi-improved grassland. This habitat is also encountered alongside farm tracks and in some areas of fields which had been left fallow.

2.6 Field boundary hedgerows are generally species-poor although the hedgerows vary in height, length, condition and management.

2.7 The northern, western and southern boundaries are bordered by woodland, mainly comprising semi-mature to mature plantation broadleaved woodland but with some coniferous elements and semi-natural woodland also present. Small pocket broadleaved woodland are also present in the west of the site. Broughton Far Wood Site of Special Scientific Interest (SSSI) and Broughton Alder Wood SSSI are located 820m and 920m east of the order limits respectively. Broughton West Wood Local Wildlife Site (LWS) partially borders the east of the site, and is designated for its woodland habitat.

2.8 The proposed development site is a considerable distance from the Humber Estuary a Special Protection Area (SPA), Special Conservation Area (SAC) and Ramsar site. The area encompassing the SPA is situated approximately 11km north of the site at the closest point, whilst the SAC and Ramsar site is located 9km west at the closest point. It primarily receives its designation for its estuarine habitats, which support a range of associated species including internationally important assemblages of wintering and migratory birds.



Statutory and Non-Statutory Sites of Ecological Importance



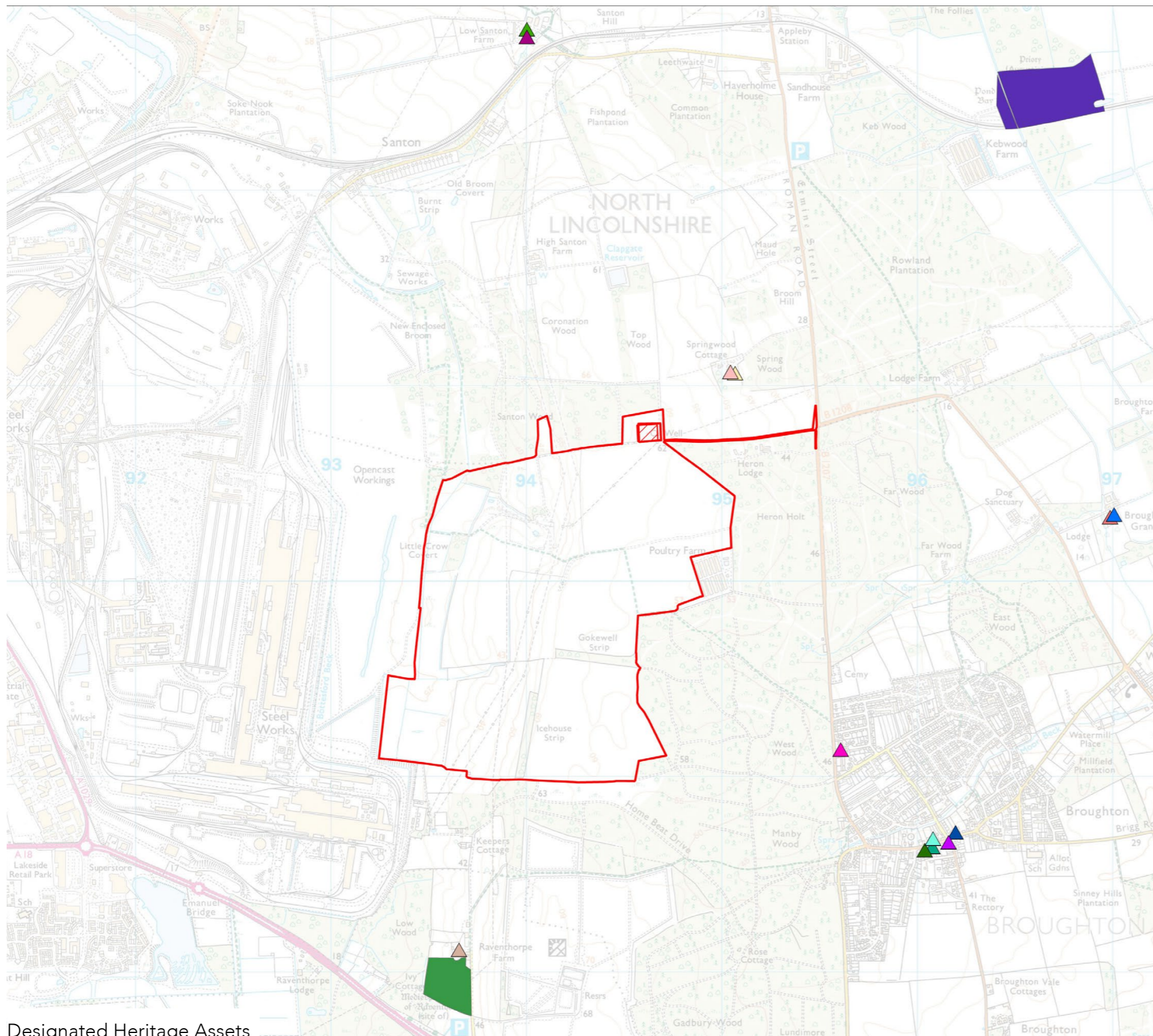
## CULTURAL HERITAGE

2.9 The site of the former medieval Gokewell Priory (NLHER ref. MLS1805) is located within the northern area of the site. This is a non-designated site and survives as above-ground remnant earthworks and potential belowground archaeological remains.

2.10 The landscape surrounding the site of the former medieval priory has undergone extensive change since the medieval period. The medieval field systems are no longer extant, and the surrounding area is now made up of very large, modern blocks of agricultural land. The agricultural regimes have also changed noticeably since the medieval period, with more intensive ploughing and use of the land.

2.11 The designated heritage assets located within the 2km study area are set out below:

- Scheduled Earthworks of Raventhorpe Medieval Settlement, located c.940m south of the Site (NHLE Ref: 1016426);
- Grade II Raventhorpe House, located c. 900m south of the Site (NHLE Ref: 1346807);
- Grade II Listed Springwood Cottage, located c.450m northeast of the Site (c.315m north of the access track (NHLE Ref: 1083734));
- Grade II Listed Stable Northeast of Springwood Cottage, located c.450m northeast of the Site (NHLE Ref: 1310038);
- Grade II Listed Stone Cottage and Adjoining Outbuildings, Broughton, located c.900m southeast of the Site (NHLE Ref: 1310013);
- Grade II Listed 66 High Street, Broughton, located c.1.5km southeast of the Site (NHLE Ref: 1083740);
- Grade I Listed Church of St Mary Broughton and the Grade II Listed Church Gates, located c.1.4km southeast of the Site (NHLE Refs: 1161801 and 1083741);
- Grade II Listed The Hollies, Broughton, located c.1.4km southeast of the Site (NHLE Ref: 1309931);
- Grade II Listed Broughton War Memorial, located c.1.5km southeast of the Site (NHLE Ref: 1391424);
- Grade II Listed Broughton Grange Farmhouse, located 1.9km east of the Site (NHLE Ref: 1083736); and
- Grade II Listed Coach House/Stable approximately 10m east of Broughton Grange Farmhouse, located 1.9km east of the Site (NHLE Ref: 1346496).



- Order Limits
- Area Excluded From Order Limits
- Scheduled Monuments**
- 1016426 - Raventhorpe medieval settlement earthworks immediately south west of Raventhorpe Farm
- 1017821 - Thornholme Augustinian Priory
- Listed Buildings**
- ▲ 1083740 - Grade II - 66, HIGH STREET
- ▲ 1310004 - Grade II - BARN APPROXIMATELY 30 METRES NORTH OF LOW SANTON FARMHOUSE
- ▲ 1083736 - Grade II - BROUGHTON GRANGE FARMHOUSE
- ▲ 1391424 - Grade II - BROUGHTON WAR MEMORIAL
- ▲ 1161801 - Grade I - CHURCH OF ST MARY
- ▲ 1083741 - Grade II - CHURCHGATES
- ▲ 1346496 - Grade II - COACH HOUSE/STABLES APPROXIMATELY 10 METRES EAST OF BROUGHTON GRANGE FARMHOUSE
- ▲ 1346494 - Grade II - LOW SANTON FARMHOUSE
- ▲ 1346807 - Grade II - RAVENTHORPE FARMHOUSE
- ▲ 1083734 - Grade II - SPRINGWOOD COTTAGE
- ▲ 1310038 - Grade II - STABLE APPROXIMATELY 20 METRES NORTH EAST OF SPRINGWOOD COTTAGE
- ▲ 1310013 - Grade II - STONE COTTAGE AND ADJOINING OUTBUILDINGS
- ▲ 1309931 - Grade II - THE HOLLIES

Designated Heritage Assets



## HYDROLOGY

2.12 The site is located in Flood Zone 1, at low risk of flooding, according to the Environment Agency Flood Map for Planning, consistent with its elevated location.

2.13 There are isolated pondings within the order limits – indicative of the generally free-draining nature of the soil. In the west of the site the water is shown to issue from a spring line and flows westwards.

2.14 The site contains a number of watercourses, generally running north south along the slope, and linked by watercourses flowing down the slope. A detailed topographic survey has been undertaken of the site, and shows that the channels are well-defined and approximately 1m deep.

2.15 Localised areas up to 50m wide appear to have a very gentle fall to the east, and, leading through woodland. There are no evident watercourses or signs of surface water flows to the east, indicating that the rainfall infiltrates into the ground where it lands, i.e. the shallow gradient allows infiltration.

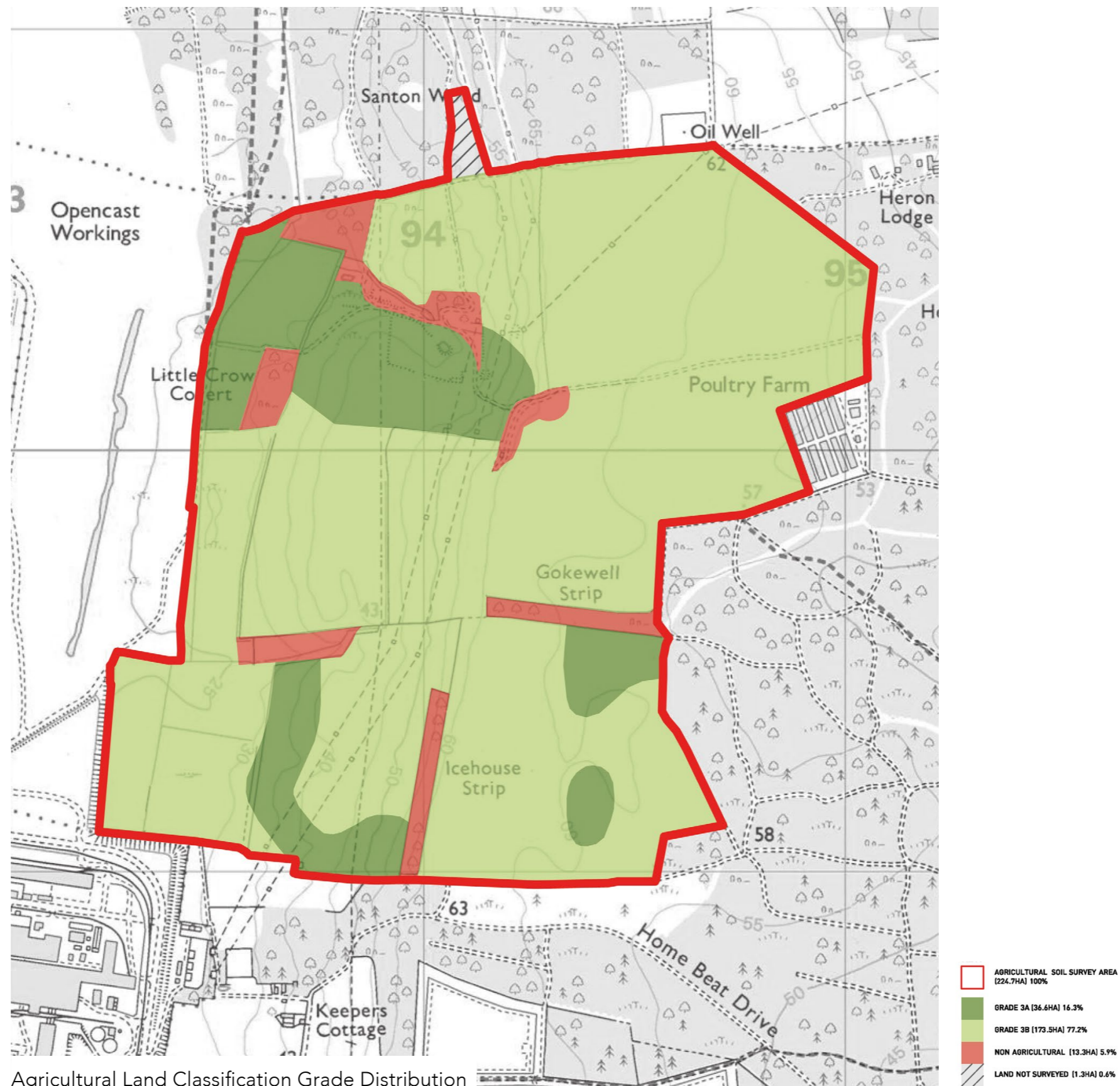
## GROUND CONDITIONS

2.16 The complete site area is classified as underlain by freely draining slightly acid sandy soils. These have typically low fertility arable land cover and drain to groundwater. The complete site area is underlain by Newport 1 Type Soils. These are deep well drained sandy and coarse loamy soils. They are free draining and permeable in unconsolidated sands or gravels, which have a relatively high permeability and high storage capacity. They have a very low potential for ground movement (shrinkage or swelling). These soils will, by nature of their high permeability, readily transmit a wide range of pollutants because of the rapid drainage and low attenuation potential. The uppermost 300mm of the soil profile is sandy and 'light'.

## AGRICULTURAL LAND

2.17 The agricultural land classification distribution within the site was found that the majority of the site, at circa. 77% is deemed to be Grade 3b agricultural land. The areas not surveyed as part of the oily survey comprised the existing access track; the area proposed for the temporary construction / decommissioning compound; and, the proposed battery storage area.









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## Design Solution

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3.1 The remainder of this section details how the development addresses the site context in respect of its use, location, materials, appearance, landscaping and access.

### USE

3.2 The main element of the proposal is the construction, operation, maintenance and decommissioning of a ground mounted solar park with an intended design capacity of over 50MWp (megawatts peak) with associated development.

3.3 An operational lifespan of 35 years would be sought linked to the first export date from the development. The development will progress in accordance with a phasing plan. A single substation compound will serve the whole development and this will be required for the duration of the development and retained thereafter. The substation compound would be located near the northern boundary of the application site and to the east of the existing double row of 132kV overhead electricity pylons which traverse the site.

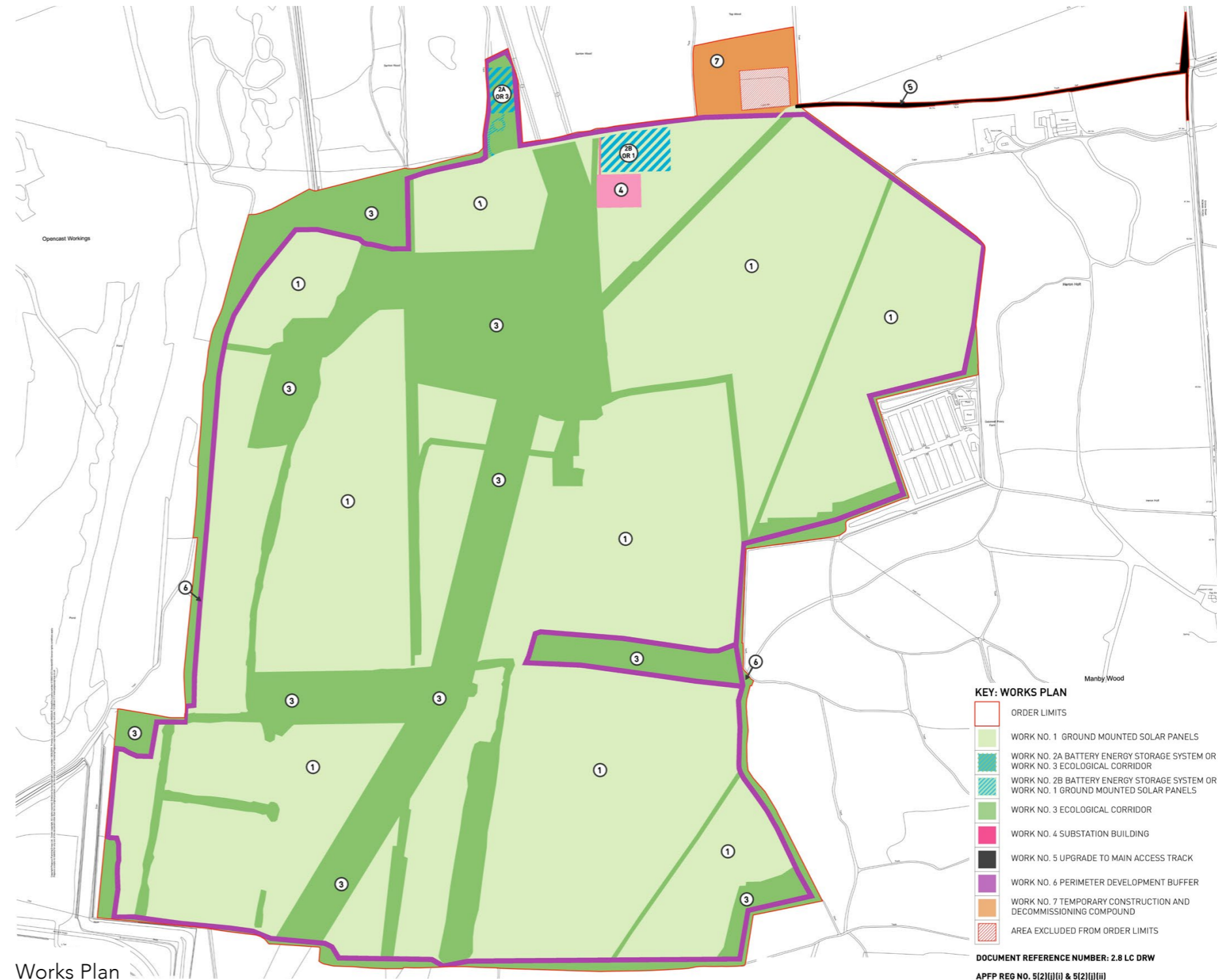
3.4 The need for flexibility in design, layout and technology is identified in a number of National Policy Statements to address uncertainties inherent to the Development. This is very pertinent to solar and battery industries due to the rapid pace of change in technology. Accordingly, the ability of the applicant to micro-site during the construction phase is an important consideration and this could be a requirement to reflect any technological advancement or changes in plant design or shape. In this regard, the applicant proposes the imposition of a pre-commencement requirement for the submission of a phasing plan and detailed design plan to the Local Planning Authority for approval. The purpose of this submission would be to:

- Clarify the construction & operational sequencing of the development; Demonstrate compliance with the requirements included in the DCO; and
- Demonstrate that the final detailed design remains within the parameters of the design principles presented within the accompanying Environmental Statement and repeated in this Design and Access Statement.

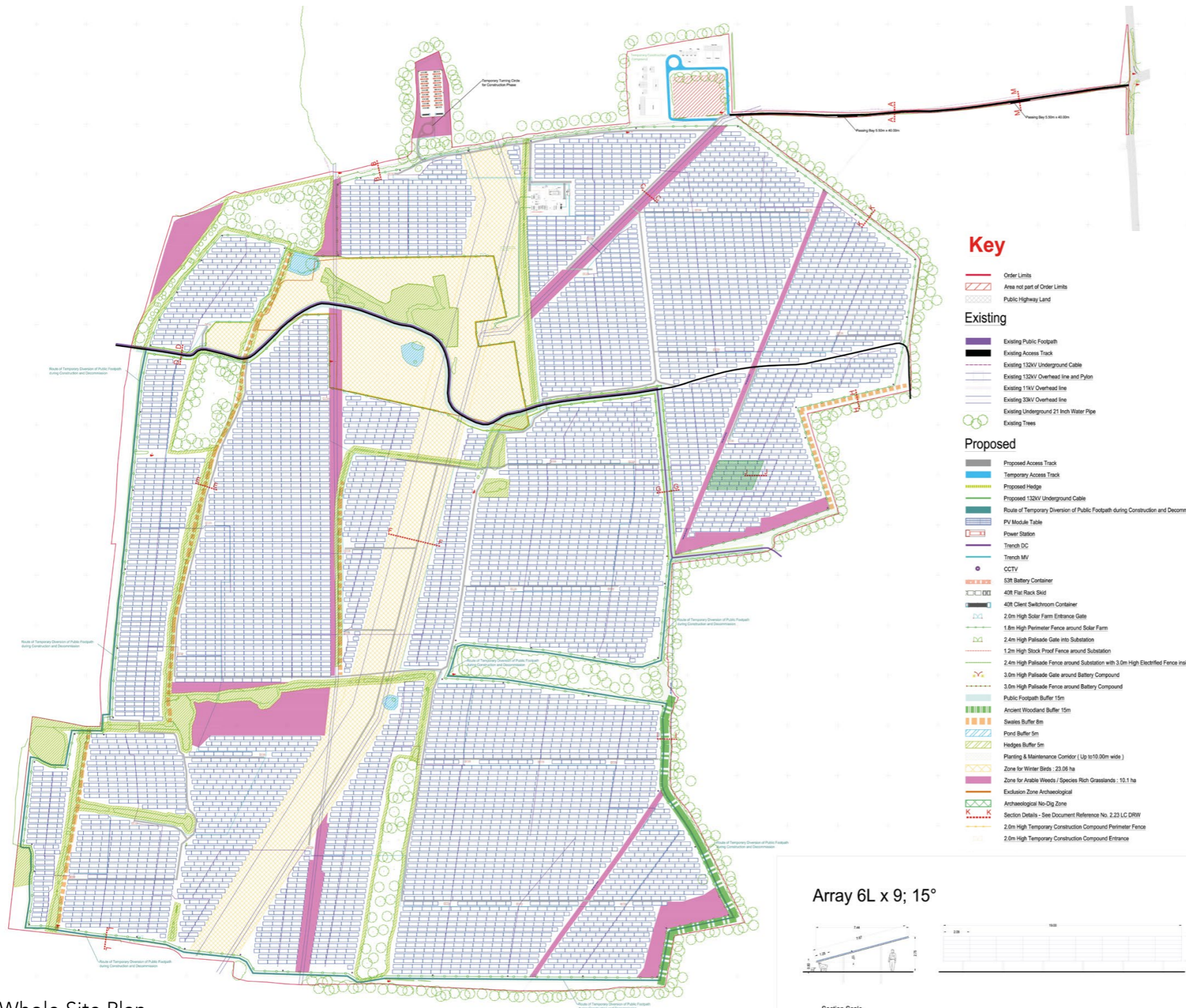
### THE WORKS

3.5 The proposal comprises seven land use zones or works zones, these are:

- Work No. 1: Arrays of Ground Mounted Solar Panels;
- Work No. 2A: Battery Energy Storage System;
- Work No. 2B: Battery Energy Storage System (alternative location);
- Work No. 3: Formation of Ecological Corridors;
- Work No. 4: Substation Building and Compound;
- Work No. 5: Upgrade to Main Access Track;
- Work No. 6: Perimeter Development Buffer; and
- Work No. 7: Temporary Construction and Decommissioning Compound.







### WORK NO. 1: ARRAYS OF GROUND MOUNTED SOLAR PANELS

- 3.6 The design principles of the solar panels are:
- A generating station comprising arrays of ground-mounted solar panels with a gross electrical output of over 50 megawatts peak;
  - All solar panels will be located within the Work No. 1 area as defined on the Works Plan;
  - Total land coverage of the solar panels would be c800,00sq m. Subject to the wattage output of the solar panel selected for construction the potential maximum range for energy generation is between 150MWp and 200MWp;
  - An array is a galvanised steel and anodised aluminium mounting structure with the solar panels attached to it;
  - The maximum top height of the arrays will be 3.5m;
  - The minimum height of the lowest part of the arrays will be 0.7m;
  - All solar panels will be south facing;
  - Solar panels will be dark blue, grey or black in colour;
  - Indicative slope of the solar panels from horizontal would be 15 degrees;
  - Internal access track of permeable construction;
  - Typical minimum distance between edge of the arrays to the 1.8m high perimeter fencing would be 3m;
  - Biodiversity would be promoted within and around the arrays;
  - CCTV positioned along the perimeter of the arrays on 3m high poles; and
  - Planting and ecological works incorporating the biodiversity objectives and management prescriptions in accordance with the Outline LEMP.

Whole Site Plan



3.7 The solar panels would convert solar irradiance into direct current (DC) electricity. A solar panel consists of a layer of silicon cells, an anodised aluminium frame and various wiring to allow current to flow from the silicon cells. Silicon is a non-metal with conductive properties that allow it to absorb and convert sunlight into electricity. When light interacts with a silicon cell, it causes electrons to be set into motion, which initiates a flow of electric current<sup>1</sup>. The solar panels are connected in series and set out on south facing arrays. The arrays will be laid out in multiple parallel rows running east to west across the various field enclosures. The mounting structure and solar panels will be static. The distance between the arrays would respond to topography but would typically be between 3.5 metres to 6 metres. Land between and beneath the arrays will be used for biodiversity enhancements and seasonal sheep grazing. If sheep grazing is not possible then grassland will be managed through a grass cutting regime.

3.8 The mounting structure will be supported at intervals by double mounted posts set approximately 3.75m apart. The posts will be pushed into the ground with a small plant rig to depths between 1m to 2m and this will be guided by localised ground conditions. The exception to this is within areas of archaeological interest where the posts will be fixed into concrete pads resting on top of the ground.

3.9 For archaeological interests, an archaeological exclusion zone has been provided around the area containing the former Gokewell Priory<sup>2</sup>. No arrays or cable runs will go through this area. The area will be used to provide biodiversity measures and will be delineated with a 1.8m high perimeter fence. The existing public right of way running through this area will be retained.

3.10 The design shows six rows of panels (in landscape alignment) and the design principle is set by the overall length of the solar panels, which is set at 7.67m as shown on illustration 4.3.

3.11 The insulated DC cables from the solar panels will be routed in channels fixed on the underside of the mounting structure. The DC string cables will run along the entire underside of each row. The electrical cabling from each array will be concealed through shallow trenches linking the solar panels to the inverters and transformers and then to the main substation. The cable trench will typically be between 0.5m to 1.1m in depth and up to 1.0m wide. The cable trench may also carry earthing and communications cables and will be backfilled with fine sands and excavated materials to the original ground level.

3.12 Cable trenching will not take place through any archaeological sensitive areas.

3.13 The inverters, transformers and associated switch gear are required to convert the DC energy produced by the arrays into AC energy, these will be located across the Works area as shown on Works Details – Whole Site Plan (Document Ref 2.10 LC DRW). The AC cable will also be laid in trenches and would run directly to the main substation compound.

3.14 The arrays would be set within perimeter fencing up to 1.8m in height with wooden supporting posts placed at intervals of c. 3.5m.

3.15 The perimeter fencing would be either green or galvanised aluminium in finish and would typically follow the outer field boundaries containing the solar panels. The minimum distance between the edge of the arrays and the perimeter fence would be 3m. A CCTV system mounted on poles will be positioned at intervals along the inside face edge of the perimeter fencing (between the fence and the arrays).

3.16 This Work zone also provides an alternative location for the battery energy storage system (Work No. 2B shown on Document Ref. 2.36 LC DRW) which is positioned to the north of the proposed substation compound. The alternative location may be utilised if, for example, technological advances with solar which allow the overall footprint of the development to be reduced, thus the battery energy storage system can be relocated amongst the solar panels.

1. It was first discovered in 1839 by Edmond Becquerel and can be generally thought of as a characteristic of certain materials (known as semiconductors) that allows them to generate an electric current when exposed to sunlight.

2. Further details of the former Gokewell Priory is contained within the Cultural Heritage Baseline Study (Environmental Statement Technical Appendices 8.1).



## WORK NO. 2A: BATTERY ENERGY STORAGE SYSTEM & WORK NO. 2B BATTERY ENERGY STORAGE SYSTEM

3.17 Two alternative locations are presented for the associated battery energy storage system these are Work No. 2A and Work No. 2B. If Work No.2A is constructed the area identified in the works plan for Work No. 2B will be used to house solar panels (as part of Work No.1). If, however, Work No. 2B is constructed, the area identified in the works plan for Work No. 2A will be used for the ecological corridor (as part of Work No. 3).

3.18 The design principles of the battery energy storage system for either location, namely Work No. 2A or Work No. 2B are:

- A battery energy storage system;
- The candidate storage capacity is 90MW;
- Total land coverage of the battery energy storage system compound would not exceed 11,200 m sq;
- The system would be made secure by a 3m high gated palisade fence;
- Battery containers would have a maximum length of 17m, maximum width of 3m and a maximum height of 4m. The maximum storage capacity of a single battery container would be 6MW; and
- The battery containers would be dark green in colour.

3.19 The battery energy storage system consists of containerised battery units that can store energy and are able to release or absorb energy from the power network. Being able to absorb and release energy, the battery energy storage system at Little Crow can be used to contribute towards the frequency balancing services, where the power is being generated or absorbed statically or dynamically depending on the system frequency. When there is not enough power, batteries are discharged to balance under frequency preventing black and brown outs. To balance over frequency batteries are charged to prevent dangerous spikes across electricity infrastructure<sup>3</sup>.

3.20 The maximum development footprint of the battery energy storage system will be 70m by 160m and will be surfaced with stone chippings. Under normal conditions, the development will be unmanned. Visual checks will be undertaken during maintenance visits to the development.

3.21 The candidate equipment to be installed at the battery energy storage system include:

- Security fencing – 3m high palisade fencing;
- Internal access tracks;
- Vehicular parking within a gated compound;
- 16 no. containerised battery units;
- 18 no. skid mounted transformers and inverters;
- Cable circuits connecting to the substation compound;
- 2 no. client switchroom containers housing the switchgear;
- Earthing and communication circuits; and
- 6 no. CCTV on 3m pole mountings.

3. The National Electricity Transmission System is an islanded network with no AC connections to other networks. In order to manage the system frequency within the normal operating range 49.5Hz to 50.5Hz, National Grid relies on frequency balancing service providers to modulate their active power output or consumption in order to minimise the imbalance between generation and demand on the system. The extent of the required modulation is determined by the deviation of the system frequency from 50Hz. A change in grid frequency is caused by an imbalance of supply and demand.



### WORK NO 3: FORMATION OF ECOLOGICAL CORRIDORS

3.22 Ecological and biodiversity measures are promoted across the entire Order Limits area and this is enhanced within Work No 3.

3.23 Within this area, a number of measures and features are proposed for the benefit of biodiversity. This includes the planting of new hedgerows and bolstering of existing field boundaries to increase coverage of this habitat, provide effective landscape screening, and to improve connectivity of the hedgerow and woodland network across and beyond the order limits.

3.24 Several measures have been designed specifically for the benefit of wildlife species which are targeted for conservation both locally and nationally. Circa 10 ha of the Work area will be cultivated annually to promote suitable conditions for uncommon and declining arable plants to thrive. An area totalling approximately 23 ha within the Work area will be managed under a seasonal grazing regime with the aim of providing optimal conditions for ground-nesting farmland birds during the breeding season. Field margins and easements spread across the work area will be sown with a species-rich acid grassland seed mix, which will contain larval food plants and nectar sources for several pollinating invertebrate species of conservation importance, which are present locally. A considerable number of features for nesting birds and roosting bats, as well as hibernation/sheltering sites for various species, will be installed at the field boundaries.

3.25 The described measures will be managed and maintained for the benefit of the respective target ecological features for the lifespan of the scheme.

3.26 Other key development within this work area include:

- Planting and ecological works incorporating the biodiversity objectives and management prescriptions in accordance with the outline LEMP;
- Internal access tracks;
- Fencing archaeological exclusion zone;
- Swale buffer;
- Temporary diversion of public footpath;
- Underground connection to the electricity network; and
- Cable trenches.



#### WORK NO 4: SUBSTATION BUILDING AND COMPOUND

3.27 A single substation compound will be required for the development and this will likely be constructed at the start of the development. Following construction and commissioning the substation compound will be adopted and become the property of the District Network Operator, who will maintain the compound throughout the lifetime of the development. The decommissioning of the substation is not considered as part of the application as this will be the property of the DNO and as such would be outside the gift of the developer to decommission.

3.28 The function of the new substation will be to take power from the solar arrays and connect this to the existing 132kV underground cable that runs through the order limits.

3.29 The maximum development footprint of the substation compound will be 80m by 80m and will be surfaced with stone chippings. Under normal conditions, the development will be unmanned. Visual checks will be undertaken on a monthly inspection visit to the development. Whilst external lighting will be installed at the substation for emergency work during hours of darkness, the substation will not normally be lit.

3.30 The candidate equipment to be installed at the substation would include:

- Security fencing – 2.4m high palisade fencing with an electrical fence backing of 3m high from ground level;
- Car parking;
- NPG Control Room – A small single-story amenities building housing the main control systems and welfare unit with WC. The building would have a maximum height of 8m;
- Customer Switchroom – A small single storey building housing the switchgear for controlling the power flows from the solar park and battery storage. The building would have a maximum height of 5m;
- 1 No. NPG 11KV pad-mounted transformer (provides standby LVAC supplies in event of power failure);
- 2 no. Flood light columns at a maximum height of 5m;
- Gantry with voltage and current transformers;
- Circuit breakers;
- Earthing circuits;
- Cable circuits;
- Cable trenches;
- Access track with separate access provision for the District Network Operator to access its substation;
- Cess pit;
- Sealing end structures;
- High level 132kV busbars; and
- Low level disconnectors.

3.31 The initial preparatory work would comprise the temporary removal and storage of topsoil and the installation of a temporary stone capping in the substation construction area to provide a clean and stable working platform. Where required, excavations and concrete foundations will be provided for the substation electrical equipment.

3.32 An earth grid would be installed below the ground to create an 'earth mat' to make the compound electrically safe. The substation support structures and electrical equipment then would be erected.

3.33 Following construction of the substation compound by the Independent Connection Provider ('ICP') the ICP will request Northern Power Grid ('NPG') to review the substation compound and confirm it meets with their requirements. The ICP will also complete a Connection Agreement requesting NPG to connect the substation to their network. Once this review is completed and NPG are satisfied that the substation compound meets their requirements NPG will proceed to connect the substation to their network. NPG will also issue an Adoption Agreement to be completed by the ICP. The Adoption Agreement when completed transfers the ownership of the substation compound to NPG. Electrification of the fence would take place when the substation has been connected to the electricity.



### WORK NO 5: UPGRADE TO MAIN ACCESS TRACK

3.34 The existing access track fronting the B1207 will be used for the development for all phases, namely, construction, operation & maintenance and subsequent decommissioning. The unbound granular track, with 2 No. passing bays, will be upgraded with similar materials and drainage channels where required. Vegetation will be removed in order to achieve visibility splay at the site access for construction and this would be maintained during the operational period. The vegetation management requirements would be set out in the LEMP in accordance with the outline LEMP.

### WORK NO. 6: PERIMETER DEVELOPMENT BUFFER

3.35 For the outer edge of the development, a typical development buffer of 10m would be provided between the edge of the order limits and the perimeter fencing. This allows the provision of future mitigation planting should it be required during the lifetime of the development. The provision of any additional mitigation planting would be assessed as part of the ongoing yearly management of the LEMP and submitted to and approved by the Local Planning Authority before its implementation. The buffer area would also accommodate a temporary diversion to the Public Right of Way footpath that would be implemented during the construction and decommissioning periods. The temporary diversion follows the southerly outer edge of the fields containing the solar panels. The purpose of the temporary diversion is to provide clear separation between construction workers and any members of the public using the public right of way footpath. Development within Work No. 6 include:

- Security fencing, boundary treatment and other means of enclosure and internal access;
- Bunds, embankments and swales;
- Temporary diversion of public footpath during construction and decommissioning;
- Ancient woodland buffer;
- Public footpath buffer;
- Pond buffer;
- Hedge buffer;
- Swale buffer;
- Mitigation planting and maintenance corridor; and
- Planting and ecological works incorporating the biodiversity objectives and management prescriptions in accordance with the Outline LEMP.



## WORK NO. 7: TEMPORARY CONSTRUCTION AND DECOMMISSIONING COMPOUND

3.36 If all elements were constructed as at the same time, then the construction period will take approximately 11 months (up to 47 weeks).

3.37 The supporting Outline Construction Traffic Management Plan (Document Ref 7.36 LC TA9.2) assumes the worst-case scenario whereby the entire development is constructed in a single phase. Details of the expected traffic movements are considered in detail through Chapter 9 and the Outline CTMP which includes the maximum expected number of vehicle movements.

3.38 Prior to commencement of any phase of development a Construction Environmental Management Plan, which build upon the Outline CEMPs (Document Refs 7.8 LC TA4.1 & 7.27 LC TA7.7) and a detailed Construction Traffic Management Plan for that phase of development would be submitted to and approved by the relevant planning authority and this will be secured by requirements of the DCO.

3.39 Construction activities will be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays. Where possible, construction deliveries will be coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

3.40 During the construction phase (or phases) one main construction compound will serve the development and this will be located off the main site entrance, thus reducing the distance delivery vehicles will need to travel after reaching the site's entrance.

3.41 The temporary construction / decommissioning compound would comprise:

- Temporary portacabins providing office, canteen, and welfare facilities for construction operatives (the dimension of the portacabins would vary and the maximum size for individual units is expected to be 10m by 3m with a maximum height of 3m);
- Parking area for construction and workers vehicles;
- Secure compound for storage;
- Temporary hardstanding;
- Wheel washing facilities;
- Temporary gated compound; and
- Storage bins for recyclables and other waste.

3.42 All construction vehicles will exit through the wheel wash area in order to reduce the spread of mud and dirt onto the local highway network. Temporary roadways may be utilised to access parts of the development site and this would be guided by weather conditions at time of construction. The objective would be to use temporary matting to avoid excessive soil disturbance or compaction. The temporary construction compound would be removed within three months after the completion of work or each phase of work if development is constructed in phases.



## OUTLINE LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN

3.43 The development proposal is an example of a development which presents considerable opportunity for landscape and biodiversity mitigation and enhancement. The Landscape and Biodiversity proposal are discussed in detail in the supporting Outline Landscape and Ecological Management Plan (Document Ref 7.28 LC TA7.8). The objectives are:

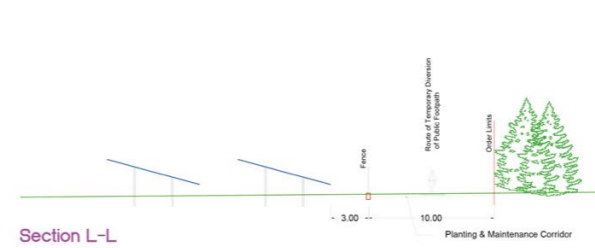
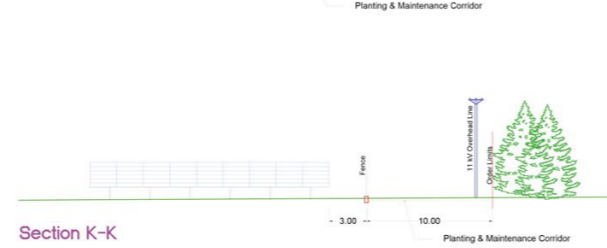
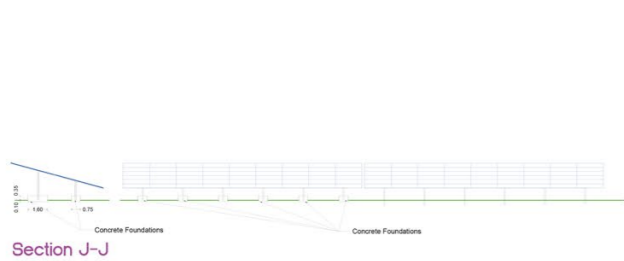
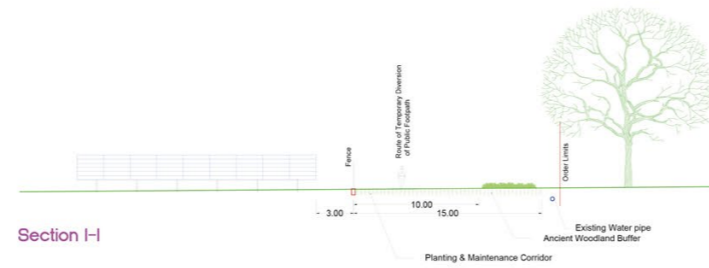
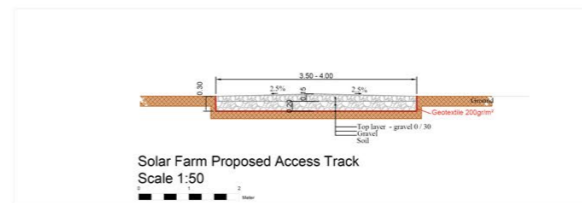
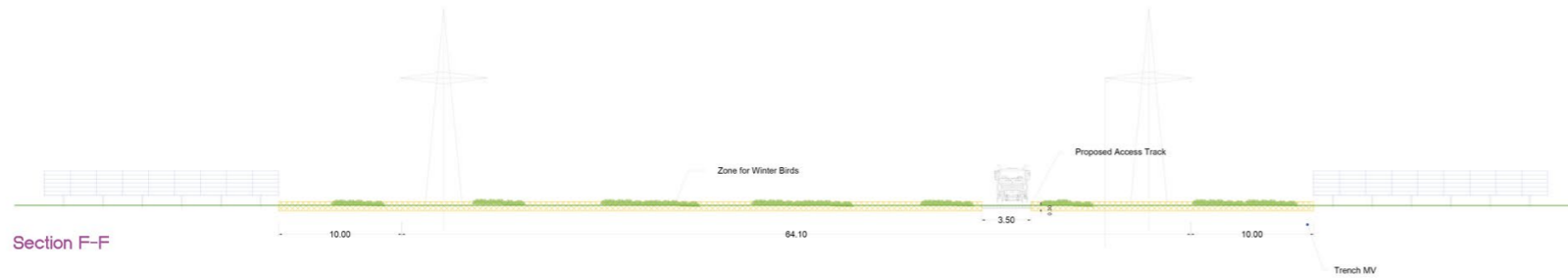
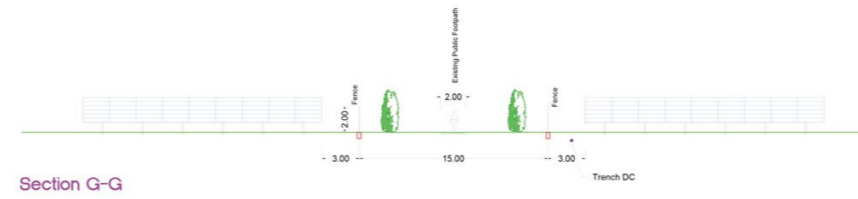
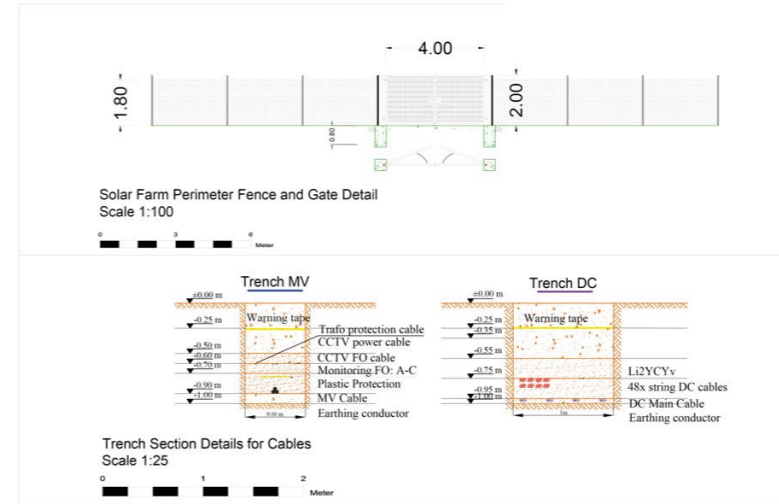
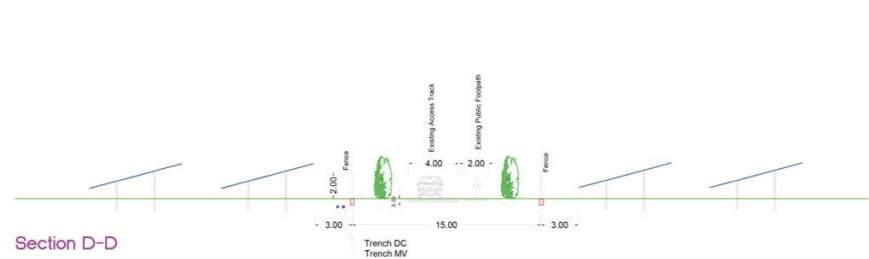
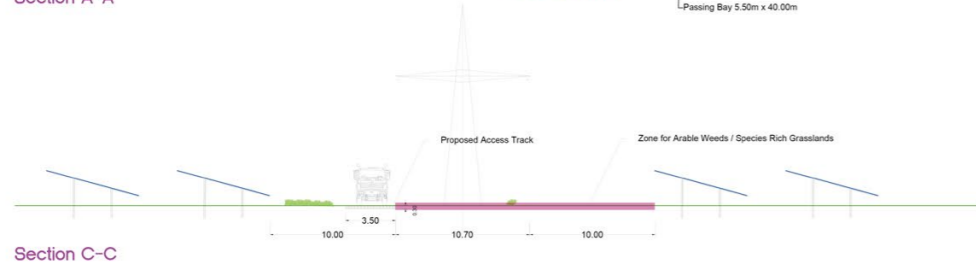
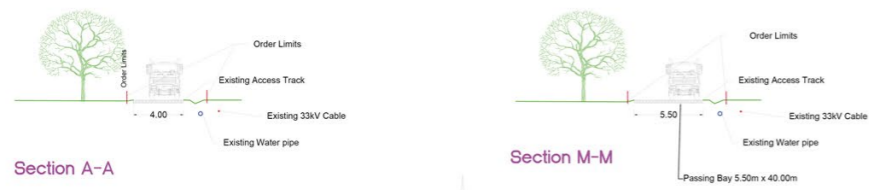
- To create new grassland habitats through seeding existing arable land with of locally appropriate native species;
- Hedgerow planting;
- To manage the grassland to establish a diverse sward beneath the arrays;
- To manage grassland outside the array for wildlife;
- To manage areas to provide suitable conditions for arable flora;
- To manage hedgerows to provide habitat for a range of species and ensure visual screening of the site from the footpath;
- To manage aquatic habitats as necessary;
- To provide sheltering features around the site for nearby populations of bats, birds and other notable faunal species;
- To assess the need and implement any additional planting required along the outer edge of the development resulting from any significant felling of woodland located outside the boundary of the site;
- To monitor the site and assess the success of management and adherence to the prescribed management; and
- Provision of 15m where the development site adjoins Scheduled Ancient Woodland.

3.44 Ecological and biodiversity measures are promoted across the entire site and this is enhanced within Work No. 3. Following construction, land between and beneath the panels, namely Work No. 1, would be used for biodiversity enhancements and seasonal sheep grazing. Tree planting would be introduced along the north east section of the development boundary. The field boundary hedgerows located within the Order Limits will be managed in accordance with the Landscape and Ecological Management Plan.

3.45 The woodland located to the north, east and west of the order limits are not under the control of the applicant and as such will continue to be managed by the respective landowners. The buffer zone located around the inner periphery of the order limits allows for the provision of future mitigation planting should it be required during the lifetime of the development.

3.46 In terms of requirements, prior to commencement of each phase of the authorised development, a LEMP covering that phase of authorised development and in accordance with the outline LEMP would be submitted to and approved by the local planning authority.

# LITTLE CROW SOLAR PARK



- Order Limits
  - Area not part of Order Limits
  - Public Highway Land
- Existing**
- Existing Public Footpath
  - Existing Access Track
  - Existing 132kV Underground Cable
  - Existing 132kV Overhead line and Pylon
  - Existing 11kV Overhead line
  - Existing 33kV Overhead line
  - Existing Underground 21 Inch Water Pipe
  - Existing Trees
- Proposed**
- Proposed Access Track
  - Proposed Hedge
  - Proposed 132kV Underground Cable
  - Route of Temporary Diversion of Public Footpath during Construction and Decommission
  - PV Module Table
  - Power Station
  - Trench DC
  - Trench MV
  - CCTV
  - 53R Battery Container
  - 40R Flat Rack Skid
  - 40R Client Switchroom Container
  - 2.0m High Solar Farm Entrance Gate
  - 1.8m High Perimeter Fence around Solar Farm
  - 2.4m High Palisade Gate into Substation
  - 1.2m High Stock Proof Fence around Substation
  - 2.4m High Palisade Fence around Substation with 3.0m High Electrified Fence inside
  - 3.0m High Palisade Gate around Battery Compound
  - 3.0m High Palisade Fence around Battery Compound
  - Public Footpath Buffer: 15m
  - Ancient Woodland Buffer: 15m
  - Swales Buffer: 8m
  - Pond Buffer: 5m
  - Hedges Buffer: 5m
  - Planting & Maintenance Corridor (Up to 10.00m wide)
  - Zone for Winter Birds: 23.06 ha
  - Zone for Arable Weeds / Species Rich Grasslands: 10.1 ha
  - Exclusion Zone Archaeological
  - Archaeological No-Dig Zone
  - 2.0m High Temporary Construction Compound Perimeter Fence
  - 2.0m High Temporary Construction Compound Entrance



### OPERATIONAL LIFESPAN

3.47 An operational lifespan of 35 years would be sought, starting from the first export date of the development.

3.48 During the operational phase, the activities on site would amount to servicing and maintenance of plant and equipment associated with the development, including solar panels, inverters, transformers, battery energy storage system, substation compound and vegetation management in accordance with the Outline LEMP.

### STATUTORY UNDERTAKERS

3.49 The provision of easements for the existing services that traverse the site, such as overhead powerlines and the 21 inch iron water main, are incorporated into the candidate layout design (Document Ref 2.10 LC DRW). No arrays will be erected within the agreed easements and thus unrestricted access will be available to the statutory undertakers at all times. Concrete cross-overs will be provided where the internal access tracks cross any existing underground services.

### RENEWABLE ENERGY AND CARBON DISPLACEMENT<sup>4</sup>

3.50 Based on the candidate design varying between 150MWp to 200MWp, the solar park would generate clean renewable energy for the equivalent of between 45,000 and 60,000 homes a year. The anticipated CO<sub>2</sub> displacement is between 64,500 and 86,000 tonnes per annum. There could also be additional carbon displacement linked to the associated battery storage if these were charged by renewable energy.

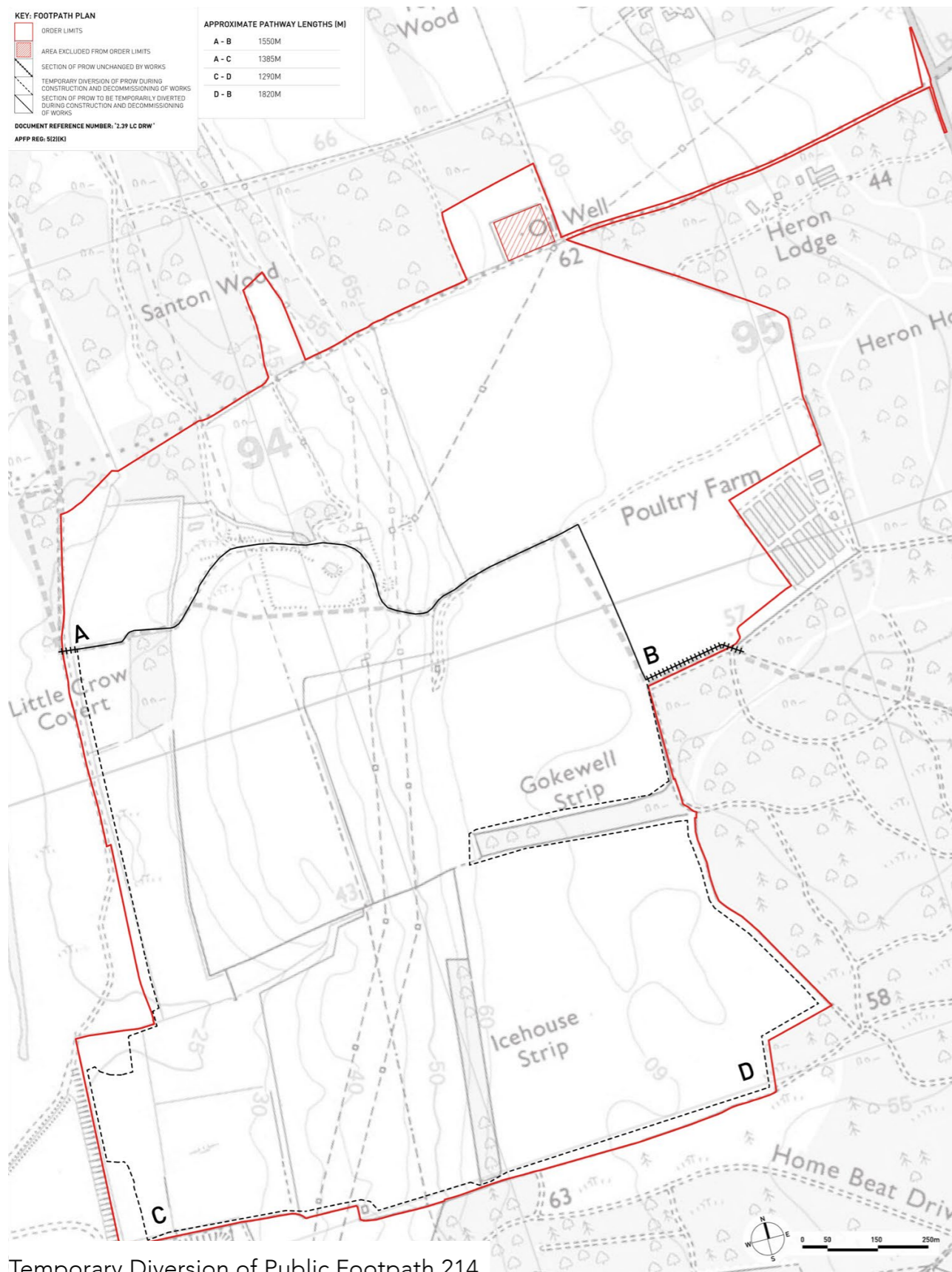
3.51 The proposal would provide a clean, renewable and sustainable form of electricity. It would make a valuable contribution to the generation of electricity at a local level. The scheme would add to the Council's progress in meeting its renewable energy target. It would also assist in meeting national targets.

### ROUTING

3.52 It is proposed that construction traffic will arrive from the M180 junction 4, the A15, the A18, the B1208 and B1207 to the site access. From the M180 junction 4 vehicles will use the A15 northbound to the Briggate Lodge Roundabout and then travel east along the A18 towards Brigg. From the A18, vehicles will turn left onto the B1208. The B1208 measures between approximately 5.5 and six metres wide. Vehicles will travel along the B1208 to the junction with the B1207 and then continue straight ahead into the site access.

3.53 No construction vehicles associated with the development proposal would travel through Broughton.

2. For every 5MW installed, a solar farm will power over 1,500 homes annually (based on an average annual consumption of 3,300 kWh of electricity for a house) and save 2,150 tonnes of CO<sub>2</sub>, source the Solar Trade Association [www.solar-trade.org.uk/solar-farms/](http://www.solar-trade.org.uk/solar-farms/)



Temporary Diversion of Public Footpath 214

### TEMPORARY DIVERSION OF PUBLIC RIGHTS OF WAY FOOTPATH DURING CONSTRUCTION AND DECOMMISSIONING

3.54 Temporary diversion of a section of footpath 214 a public right of way ('PRoW') traversing the Order Limits will be required only during the construction period of the arrays and substation.

3.55 The temporary closure will be secured through the DCO and during the duration of the temporary closure the existing footpath will be diverted along an alternative temporary path which will run around the southern perimeter of the site until it re-joins the existing PRoW at the site boundary.

3.56 The temporary diversion will only be required to allow the build out of the solar park and main substation compound and this will be for approximately 11 months. No construction works would be carried out with regards to the solar park and main substation compound until the provision for the temporary footpath has been made available within the site. The temporary diversion will cease following the energisation of the solar panels and the substation compound. Temporary diversion of the footpath would also take place during decommissioning. The temporary diversion is shown on Proposed Temporary Diversion of Public Footpath 214 (Document Ref 2.39 LC DRW).



## DECOMMISSIONING

3.57 Following a 35 year generation period, the development would then enter a single decommissioning stage.

3.58 Within six months of cessation a decommissioning strategy would be submitted to the relevant planning authority for approval. The decommissioning strategy would detail how plant and machinery located within the Order Limits would be removed. The decommissioning strategy will follow the principles laid out in the Outline Decommissioning Strategy (Document Ref 7.9 LC TA4.2).

3.59 The exception to this is the substation and DNO access track which will remain in perpetuity or until such time as it is decommissioned by the DNO.

3.60 Temporary diversion of the footpath would also take place during decommissioning.

## ALTERNATIVE DESIGN

3.61 Over the course of the design process, the project team have continuously refined the scheme's design to encompass the Council and other stakeholders' feedback at numerous junctures together with specialists' advice. At the preliminary stage of the development, the applicant considered the suitability of a wider parcel of land inbetween the steelworks and the B1207 that extended to the north up to Higher Stanton. Following preliminary assessment, the northern area was dismissed for reasons that included its proximity to human receptors from Higher Stanton and its predicted higher quality land. Key changes to the design introduced during the non-statutory consultation period included the introduction of a development exclusion zone extending around the former Gokewell Priory; a temporary diversion of the public right of way during the construction period and the refinement to the approach towards biodiversity mitigation and enhancement measures. The biodiversity measures were refined during the statutory consultation period and other alterations for this stage of development included the provision of concrete shoes for the modules located within another area of archaeological interest.

## REQUIREMENTS

3.62 The application includes various outline management plans and documents that are intended to be detailed and finalised post-consent and these would be secured through the discharge of various proposed requirements. The suggested requirements are laid out in the draft Development Consent Order (Document Ref 3.1 LC DCO), these cover:

- Time limit to implement development;
- Expiry of development consent;
- Decommissioning and site restoration;
- Phases of authorised development – The authorised development must not be commenced until a written scheme setting out the phases of construction of the authorised development has been submitted to and approved by the local planning authority;
- Detailed Design Approval – No phase of the authorised development may be commenced until written details of the following for that phase have been submitted to and approved by the local planning authority;
- Battery Safety Management Plan (BSMP);
- Construction Environmental Management Plans (CEMPs);
- Construction Traffic Management Plan (CTMP);
- Landscape and Ecological Management Plan (LEMP);
- Construction hours;
- Surface and foul water drainage details;
- Archaeology;
- Protected Species – No work to commence in any phase until final pre-construction survey work has been carried out for that phase to establish whether a protected species is present on any of the land affected, or likely to be affected, by the authorised development or in any of the trees to be lopped or felled as part of that state of the connection works; and
- Temporary diversion to public footpath – Not to commence the authorised development or any decommissioning until a public rights of way management plan for any sections of the public rights of way footpath 214 proposed to be temporarily closed and diverted on the temporary diversion of public footpath plan has been submitted to and, approved by the local planning authority.





04

## Crime Impact Assessment

4.1 This section of the Design and Access Statement deals with the issue of crime. The Crime Impact Assessment process involves identifying, evaluating and mitigating the crime and disorder effects of a development proposal early in the design process.

4.2 The goal is to reduce the developments vulnerability to crime by taking into account the analysis of the development context and the crime issues in the area.

4.3 The [www.police.uk](http://www.police.uk) website provides data on street-level crime and anti-social behaviour.

4.4 Between the period of December 2018 and November 2019 the following crime were recorded within the locality of the development site:

Crime	No.	Overall (%)
Anti-social behaviour	9	20.00%
Bicycle theft	3	6.67%
Burglary	6	13.33%
Criminal damage and arson	3	6.67%
Drugs	0	0.00%
Other crime	2	4.44%
Other theft	10	22.22%
Possession of weapons	0	0.00%
Public order	2	4.44%
Robbery	0	0.00%
Shoplifting	0	0.00%
Theft from the person	0	0.00%
Vehicle crime	4	8.89%
Violence and sexual offences	6	13.33%

### GENERAL RISK ASSESSMENT

4.5 The typical security issues for a development of this nature are:

- Acts of criminal damage during the construction period;
- Theft of components during the construction phase;
- Criminal damage during operational phase;
- Theft of components during the operational phase;
- Theft of components during site restoration.

### CONSTRUCTION SITE RISK ASSESSMENT

4.6 A secure temporary compound will be used to store materials and ancillary welfare facilities during the construction periods. A night watchman may also be detailed to the construction compound.

### DESIGN, LAYOUT AND SECURITY REQUIREMENTS

4.7 Taking into account the low level of recorded crime for the locality, the following security measures are considered to be appropriate to combat potential criminal activity and unauthorised access into the arrays:

- A 2.0 m high stock fence will encompass the fields containing the solar panels;
- Palisade fencing for the substation and battery compounds;
- Cameras positioned at appropriate intervals along the stock fence.





05

## Construction and Vehicular Movements

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5.1 The solar and battery elements could either be constructed and connected to the electricity network independently of each other or at the same time. Construction of the proposal could therefore be carried out in one single phase or a number of phases. If all elements were constructed as at the same time then the construction period would take approximately 11 months (up to 47 weeks).

5.2 Prior to commencement of any phase of development a Construction Environmental Management Plan and Construction Traffic Management Plan for that phase of development would be submitted to and approved by the relevant planning authority and this will be secured by requirements of the DCO.

5.3 Construction activities will be carried out Monday to Friday 07:00-18:00 and between 08:00 and 13:30 on Saturdays. Where possible, construction deliveries will be coordinated to avoid HGV movements during the traditional AM peak hour (08:00-09:00) and PM peak hour (17:00-18:00).

5.4 During the construction phase (or phases) one main construction compound will serve the development and this will be located off the main site entrance, thus reducing the distance delivery vehicles will need to travel after reaching the site's entrance.

5.5 The temporary construction / decommissioning compound would comprise:

- Temporary portacabins providing office and welfare facilities for construction operatives;
- Parking area for construction and workers vehicles;
- Secure compound for storage;
- Temporary hardstanding;
- Wheel washing facilities;
- Temporary gated compound; and
- Storage bins for recyclables and other waste.

5.6 All construction vehicles will exit through the wheel wash area in order to reduce the spread of mud and dirt onto the local highway network. Temporary roadways may be utilised to access parts of the development site and this would be guided by weather conditions at time of construction. The objective would be to use temporary matting to avoid excessive soil disturbance or compaction. The temporary construction compound would be removed within three months after the completion of works or each phase of works if development is constructed in phases.





06

## Conclusions

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6.1 The proposal is for the installation of ground mounted solar arrays to provide over 50MWp, equating to the annual energy consumption of approximately 40,000 households and with an anticipated CO<sub>2</sub> displacement following one year of generation is circa 50,000 tonnes. Overall, the proposals are entirely suitable to the site and its surrounds; consistent with planning policy and all relevant material planning considerations; and will achieve a high-quality design as envisaged by planning policy.

6.2 The selected site is appropriate in that it can accommodate the proposed solar park without significantly affecting the landscape character of the wider countryside or any amenities of residents in the vicinity. The temporary and reversible nature of the development, together with the measures that are to be taken to enhance and encourage the ecological diversity of the site, will ensure that in the long term the site can not only be restored to its current use, but will also have been improved. The wider environmental benefits and sustainability credentials associated with the increased production of energy from renewable sources represents a significant case in favour of the development proposals.

6.3 The cessation of intensive agricultural practices within the development site, which is partly located within the development boundary, will in turn allow the introduction of ecological enhancement that will benefit a range of native wildlife for the entire generation period of 35 years.

6.4 With regards to community benefits, INRG Solar (Little Crow) Ltd have pledged a fund of £250,000.00 which North Lincolnshire Council have agreed to administer for distribution to the local areas of Broughton, and Appleby. In terms of mechanisms, a representative from each of the three parish councils will be involved in the governance of the fund. The developer contribution will be made upon completion of construction and connection to the grid.



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DESIGN



ENVIRONMENT



PLANNING



ECONOMICS



HERITAGE

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