Tillbridge Solar Project

Local Impact Report

EN-010142

West Lindsey District Council

November 2024

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1. Executive Summary

1.1. Tillbridge Solar Limited (TSL) has applied for a Development Consent Order (DCO) for the Tillbridge Solar Project.

1.2. The application is for the construction, operation and decommissioning of a solar photovoltaic (PV) electricity generating facility, energy storage facility and export connection to the National Grid.

1.3. The application for the DCO has been submitted to the Planning Inspectorate, with the decision on the DCO being made by the Secretary of State for Energy Security and Net Zero (SoS) under the Planning Act 2008.

1.4. As part of the process, West Lindsey District Council (WLDC) are invited to submit a Local Impact Report (LIR). The LIR provides details of the likely impacts of the proposed development on the authority's area and is given weight in the decision making process.

1.5. The proposed Tillbridge Solar Project will have a range of environmental, socio-economic and amenity impacts during the construction, operation and decommissioning phases of the project. Such impacts will be experienced as a consequence of the scheme alone (in solus) and cumulatively with other similar scale solar generating station NSIP projects.

1.6. This report constitutes WLDC's LIR. It provides details of the likely impact of the proposed development on the district of West Lindsey and will be submitted to inform the examination of the Tillbridge Solar Project application by the Examining Authority (ExA) on behalf of the SoS.

1.7. WLDC has significant concerns regarding the cumulative impact of the scheme with other NSIP solar generating station projects. The likely impacts experienced during construction, operation and decommissioning will have significant adverse impacts upon the natural environment, character and communities within the West Lindsey District.

1.8. The Tillbridge Solar Project on its own merits will also give rise to significant adverse impacts on the natural environment and the amenity and lives of communities living in the near and surrounding area to the scheme.

1.9. The key impacts identified and expanded upon in the LIR include:

- Cumulative impacts with other projects;
- Landscape and visual;
- Ecology;
- Biodiversity (including Biodiversity Net Gain);
- Socio-economic impacts;
- Cultural heritage;
- Agricultural land; and
- DCO 'requirements'.

1.10. Some of the impacts relating to the above are able to be resolved through clarifications and/or the provision of further information by the applicant. More significant impacts may require more material amendments and/or the submission of further information to enable the project to be determined with all required information before the examination.

1.11. Having identified the local impacts, WLDC maintain a commitment to engage with the applicant to seek to address the adverse impacts. Matters of agreement and disagreement will be set out in a Statement of Common Ground between the parties.

2. Terms of Reference

Introduction

2.1. This report comprises the Local Impact Report (LIR) of West Lindsey District Council (WLDC) for the Tillbridge Solar Project (hereafter referred to as the 'Scheme') that has been submitted by Tillbridge Solar Limited ('the Applicant').

2.2. WLDC have had regard to the purpose of LIRs as set out in s60(3) of the Planning Act 2008 (as amended) and the National Infrastructure Planning Guidance Portal; in particular the Nationally Significant Infrastructure Projects: Advice for Local Authorities Guidance and the Planning Act 2008: Examination stage for Nationally Significant Infrastructure Projects Guidance.

Tillbridge Solar Project: Description

2.3. The scheme seeks development consent under the Planning Act 2008 for the construction and operation for a solar electricity generating station. The scheme falls within the definition an onshore generating station exceeding 50MW generating capacity as defined by the Planning Act 2008. The scheme consequently qualifies as a Nationally Significant Infrastructure Project (NSIP).

2.4. The applicant's submitted Planning Statement and Environmental Statement (Chapter 3) both provide description of the Tillbridge Solar Project scheme. The project described in those documents are summarised below.

2.5. The scheme comprises the following principal areas/components:

- The Principal Site – solar PV arrays, electrical substations, grid balancing infrastructure, cabling and areas for landscaping and ecological enhancement;
- The Cable Route Corridor – 400kv underground corridor approximately 18.5km in length connecting the Principal Site to the National Electricity Transmission System (NETS) at the existing National Grid Cottam Substation. The scheme will import and export electricity to the NETS.

2.6. The scheme also includes 'associated development' that is able to be applied for alongside the principal development in accordance with the PA2008. Such works include:

- Battery Energy Storage System (BESS) and protective structures, monitoring and control systems and cooling systems;
- Substations (A and B) – comprising main components, buildings, hardstanding and water storage structures;
- High voltage electricity cables – including works to lay the 400kV cables, site clearance, access tracks, footpaths, hardstanding, fencing, security, maintenance, drainage, mitigation works and associated infrastructure;
- Works to the National Grid Substation (Cottam) – connection works to the NETS
- Construction and decommissioning compounds – including hardstanding, parking areas, site and welfare offices, security provision, storage areas, drainage and waste management infrastructure and service connections;
- Solar Farm Control Centre – including security, welfare facility parking and equipment storage;
- Habitat Management Areas – including landscape and biodiversity creation and enhancement areas, internal access tracks and watercourse crossings, permissive paths and fencing;
- Access points – creation of access to deliver specific works;
- Archaeological site protection and management – including habitat creation, management and fencing.

2.7. Section 3 of Chapter 3 of the ES also sets out the key components of the Scheme. These components are set out below and groups them according to the works number that they are associated to.

Ground mounted solar photovoltaic generating station with a gross electrical output capacity of over 50 megawatts (Work No.1)

2.8. The following components would be associated with the solar photovoltaic (PV) generating stations.

- Solar PV panels - Work 1(a):
    - Dimensions - Individual panels typically between a minimum of 2m and a maximum of 2.5m in length and a minimum of 1m and a maximum of 1.4m in width.
    - Scale – maximum total land area occupied by the Solar PV panels within the Principal Site will be up to 739.56ha.
    - Panel colour/frame type – black/dark blue with anti-reflective coating / anodised aluminium.
    - Panel orientation – installed in 'portrait' in the form of 'strings' secured on single axis trackers configured north-south with varying azimuths that will track 60 degrees east-west. Strings will vary in length between 15, 30, 60 or 90 panels in portrait.
- Solar PV panel mounting structures – Work 1(a);
    - Rack – each string of panels are mounted on a rack made with galvanised steel appearance.
    - Foundations – galvanised steel poles driven into the ground to a maximum depth of 4m (subject to ground conditions and/or archaeology). Concrete foundation or ballasts may be required.
    - Separation distance between row – minimum inter row distance will be between 1.6m and 3.8m.
    - Minimum height above ground level – minimum of 0.6m from ground level to the bottom of panels (full tilt). Maximum height of 1.5m above ground level when the panel is lying horizontal. Panels within fields 56, 57 and 51 not to be lower than 20.06m AOD to mitigate flood risk from Yewthorpe Beck (surface water ditch)
- Mounting Structures:
    - Whilst it is likely that the Scheme will utilise tracker solar panels, optionality is included within the application to be able to utilise fixed panels. Tracker panels have a maximum height parameter of 4.5m, whereas fixed panels are up to 3.5m.
- Conversion Units (inverters, transformers, switchgear, and monitoring and control systems):
    - Design Parameters of 15m in length by 5m in width and a maximum height of up to 3.5m in height (unless sited within a higher risk flood zone, in which case it could be up to 4.5 m in height).
- DC electrical ('combiner') boxes:
    - The Maximum width of the boxes is 0.55m, maximum length 0.65m and maximum height 0.26m.
- Inter Solar Panel Electrical Cabling.

Battery energy storage systems (Work No. 2)

2.9. Work No. 2— battery energy storage systems including—

(a) BESS;

(b) a structure protecting the BESS comprised in Work No. 2 (a) and ancillary equipment, being either one container or multiple containers within a larger building or buildings laid on a concrete slab or raft foundation located alongside Work No. 1(b);

(c) heating, ventilation and air conditioning (HVAC) or liquid cooling systems either housed within the containers comprised in Work No. 2(b), attached to the side or top of each of the containers, or located separate from but near to each of the containers;

(d) monitoring and control systems housed within the containers with the HVAC or liquid cooling systems in Work No. 2(c) or located separately in its own container or control room;

(e) battery management system to monitor and control the stage of charge, temperature, and the overall health of the batteries;

(f) DC/DC converter;

(g) fire safety infrastructure, mitigation and control measures including:

(i) fire service access,

(ii) fire compartmentation measures,

(iii) water storage tanks and hydrants,

(iv) impermeable membrane surrounding the BESS which directs fire water to a swale for containment and a sump and drain valve to allow the extraction of contaminated fire water,

(v) hard standing to accommodate emergency vehicles,

(vi) parking spaces; and

(h) electrical cables connecting to Work No. 1(b), and Work No. 3.

Development of onsite substations and associated works (Work No. 3)

(a) Works 3a - Substation

i) Substation comprising main components of 400kV Gas Insulated Switchgear, 400kV Cable Sealing End, 400kV Surge Arrester, 400kV Post-Insulator, 2 x 400/33kV, 150/75/75 MVA Transformers , 400kV shunt reactor, 400kV gas insulated bus duct, 33kV switchgear, 33kV Cabling and auxiliary equipment.

2.10. Substation buildings including building to accommodate 400kV switchgear, buildings to accommodation 33kV switchgear and associated control and protection equipment, control room building to accommodate protection and control cabinets and auxiliary boards and panels and a diesel generator.

2.11. Hardstanding, internal access road and parking areas; and

2.12. A water storage structure (swales) to collect and treat surface water before discharge.

(b) Works 3B – Substation B

i) Substation, comprising main components of 400kV Gas Insulated Switchgear, 400kV Cable Sealing End, 400Kv Surge Arrester, 400kV Post-Insulator, 2 x 400/33kV, 150/75/75MVA Transformers, 400kV gas insulated bus duct, 33kV Switchgear, 33kV Cabling and auxiliary equipment.

ii) Substation buildings including building to accommodate 400kV switchgear, buildings to accommodate 33kV switchgear and associated control and protection equipment, control room building to accommodate Protection and Control cabinets and auxiliary boards and panels and a diesel generator.

iii) Hardstanding, internal access road and parking areas; and

iv) A water storage structure (swales) to collect and treat surface water before discharge.

Works in connection with high voltage electrical cabling (Work No. 4)

(a) Work NO. 4A – works to lay high voltage electricity cables including-

(i) Connecting work No. 3A to Work No. 3B;

(b) Work No. 4B – works to lay high voltage electrical cables, access and construction compounds for the electrical cables including-

(i) Works to lay 400kV electrical cables connecting Work No. 4A;

(ii) Works to lay 400kV electrical cables connecting to work No. 4C;

(iii) Laying down of access tracks, ramps, footpaths, roads, including the laying and construction of drainage infrastructure, signage and information boards;

(iv) Joint bays, link boxes, cable ducts, cable protection, joint protection, manholes;

(v) Marker posts, underground cable marker, tiles and tape, communications chambers, fibre optic cables and lighting and other works associated with cable laying; and

(vi) Tunnelling, boring and drilling works.

(c) Work No. 4C – works to lay high voltage electrical cables, access and construction compounds for the electrical cables including –

(i) Works to lay 400kV electrical cables connecting to Work No. 4B

(ii) works to lay 400kV electrical cables connecting to Work No. 4D;

(iii) laying down of access tracks, ramps, footpaths, roads, including the laying and construction of drainage infrastructure, signage and information boards;

(iv) joint bays, link boxes, cable ducts, cable protection, joint protection, manholes;

(v) marker posts, underground cable marker, tiles and tape, communications chambers, fibre optic cables and lighting and other works associated with cable laying;

(vii) tunnelling, boring and drilling works;

(d) Work No. 4D – works to lay high voltage electrical cables, access and construction compounds for the electrical cables including –

(i) works to lay 400kV electrical cables connecting to Work No. 4C;

(ii) works to lay 400kV electrical cables connecting to Work No. 4E;

(iii) laying down of access tracks, ramps, footpaths, roads, including the laying and construction of drainage infrastructure, signage and information boards;

(iv) joint bays, link boxes, cable ducts, cable protection, joint protection, manholes;

(v) marker posts, underground cable marker, tiles and tape, communications chambers, fibre optic cables and lighting and other works associated with cable laying; and

(vi) tunnelling, boring and drilling works

Work No. 4E – works to lay high voltage electrical cables, access and construction compounds for the electrical cables including –

(i) works to lay 400kV electrical cables connecting to Work No. 4D;

(ii) works to lay 400kV electrical cables connecting to Work No. 5;

(iii) laying down of access tracks, ramps, footpaths, roads, including the laying and construction of drainage infrastructure, signage and information boards;

(iv) joint bays, link boxes, cable ducts, cable protection, joint protection, manholes

Work No. 5 – works to the National Grid Cottam substation to facilitate connection of the authorised development to the National Grid

Cottam substation including –

(a) busbars and connectors to connect to the existing busbar disconnectors at the National Grid substation;

(b) a 400kV 3phase circuit breaker for control and protection of the outgoing circuit serving the authorised development;

(c) a 3phase set of current transformers for protection of the new outgoing 400kV feeder circuit and the overlap with the National Grid

system;

(d) a 3phase high accuracy metering current and voltage transformer assembly for commercial metering of the connection;

(e) a 3phase 400kV line disconnector/earth switch for isolation and earthing of the outgoing 400kV feeder circuit;

(f) a 3phase set of 400kV high voltage cable sealing ends and cables connecting the National Grid substation with Work No. 4; and

(g) protection and control works in the existing relay room or erection of new building to house protection and control works apparatus.

Work No. 6 – works including –

(a) electrical cables, including but not limited to electrical cables connecting Works No. 1, 2 and 3 to one another, connecting solar

panels to one another, connecting the solar panels to the BESS, the solar stations and on-site substations, including tunnelling, boring and

drilling works for trenchless crossings; and open trench crossings;

(b) site establishments and preparation works, including site clearance (including vegetation removal, demolition of existing buildings

and structures); earthworks (including soil stripping and storage and site levelling) and excavations; the alteration of the position of

services and utilities; and works for the protection of buildings and land;

(c) laying down of permissive paths;

(d) hardstanding and parking areas;

(e) sustainable drainage systems including swales, runoff outfalls, general drainage and irrigation infrastructure, systems and improvements or extensions to existing drainage and irrigation systems;

(f) fencing, gates, boundary treatment and other means of enclosure;

(g) works for the provision of security and monitoring measures such as CCTV columns, cameras, lighting columns and lighting,

weather stations, perimeter fencing and communication infrastructure;

(h) improvement, maintenance and use of existing private tracks;

(i) works to maintain and repair streets and access roads;

(j) laying down of internal access tracks, ramps, means of access, footpaths, crossing of watercourses and roads, including the laying

and construction of drainage infrastructure, signage and information boards;

(k) electricity, water, waste water and telecommunications connections including pressurised water pipes; and

(l) other works to mitigate any adverse effects of the construction, maintenance, operation or decommissioning of the authorised

development.

Work No. 7 – construction and decommissioning compounds including—

(a) areas of hardstanding; compacted ground or track matting;

(b) parking areas;

(c) site and welfare offices, canteens and workshops;

(d) security infrastructure, including cameras, perimeter fencing and lighting;

(e) areas to store materials and equipment, waste skips and spoil;

(f) site drainage and waste management infrastructure (including sewerage); and

(g) electricity, water, waste water and telecommunications connections.

Work No. 8 – works to develop a solar farm control centre and equipment storage including –

(a) erection of a new building to accommodate the solar farm control centre including;

(i) Central Control Room;

(ii) Central CCTV and security control, including access gates to fenced areas;

(iii) welfare facility for staff and subcontractors;

(iv) parking area for staff and visitors;

(v) independent power supply including emergency power supply; and

(vi) equipment storage.

Work No. 9 – areas of habitat management and protection including —

(a) measures to enhance the existing woodland and hedgerows;

(b) landscape and biodiversity enhancement measures;

(c) habitat creation and management including earthworks and landscaping;

(d) construction of drainage infrastructure and means of access;

(e) laying down of internal access tracks, means of access and crossing of watercourses; and

(f) fencing gates boundary treatment and other means of enclosure.

Work No. 10 – works to facilitate access to Work No. 1 to 9 including —

(a) Work No. 10A— works to facilitate permanent access to Work Nos. 1 to 9 including;

(i) alteration and improvement of existing road layout;

(ii) creation of visibility splays; and

(iii) street works to facilitate the construction of proposed accesses.

(b) Work No. 10B— works to facilitate temporary construction and decommissioning access to Work Nos. 1 to 9 including:

(i) creation of new access or improvement of existing access from the public highway;

(ii) street works to facilitate the construction of proposed accesses and cable installation works;

(iii) alteration of road layouts, including modifications to road markings and temporary removal of signage to facilitate abnormal load manoeuvres;

(iv) alteration of road layout to facilitate localised carriageway widening for construction vehicles; and

(v) alteration of road layout to facilitate the construction of passing bays.

(c) Work No. 10C— works to facilitate permanent emergency access for fire service vehicles associated with Work No. 2 including:

(i) alteration of existing road layout to facilitate the creation of new emergency accesses from the public highway including the creation of visibility splays; and

(ii) street works to facilitate the construction of the proposed accesses.

3. Local Context

Central Lincolnshire and the West Lindsey district

3.1. West Lindsey is a district council located in Central Lincolnshire, a collective area that encompasses the City of Lincoln, North Kesteven and West Lindsey. The West Lindsey district covers an area of over 1,150km^2 and is located within Lincolnshire County Council who are the county council and are also impacted by the proposed solar farms.

3.2. Central Lincolnshire is characterised by a population that lives in a range of settlements that vary in size and character. Lincoln is the largest settlement with a population of approximately 110,000 living in the principle urban area. Lincoln acts as a service centre over a wide geographical area, with villages sourcing most services and employment requirements in the city, effectively extending its catchment population to around 165,000.

3.3. West Lindsey borders North Lincolnshire and North East Lincolnshire to the north; East Lindsey in the east; North Kesteven and the city of Lincoln in the south. The River Trent forms a natural boundary to the west where the district meets Bassetlaw District Council and Nottinghamshire County Council.

3.4. The West Lindsey district hosts main towns such as Gainsborough, Caistor and Market Rasen, which serve the northern and southern parts of the wider Central Lincolnshire area. Gainsborough experienced significant growth during the 19th century as an industrial and engineering centre, with a shift of focus to manufacturing on the 20th century. It now provides a thriving manufacturing/engineering sector with national and international companies headquartered in the town.

3.5. WLDC is predominantly rural and interspersed with settlements across the area. The district provides an attractive setting for its three market towns of Caistor, Gainsborough and Market Rasen. The district is the 13th most sparsely populated area in England with a population of 95,153 and a density of 82 people per km^2 based on 2021 census data from the Office of National Statistics (ONS). The population has increased by 6% since the last census in 2011. Over 23% of the population of West Lindsey in the census are over the retirement age compared to 19% in the rest of the United Kingdom

3.6. The remainder of Central Lincolnshire and the West Lindsey district is predominantly rural, characterised by a settlement pattern of villages as well as the smaller towns of Market Rasen and Caistor. The average population density is amongst the lowest in lowland England, with the majority of settlements not exceeding a few hundred people.

3.7. Collectively, the rural area nonetheless accounts for over half of Central Lincolnshire's population. Functionally, the rural villages typically operate as clusters that share key services, with larger villages acting as local service centres upon which communities rely for basic facilities and as social hubs.

3.8. The Ministry of Defence (MoD) has a strong presence in the West Lindsey District and the wider Central Lincolnshire area. The Royal Air Force (RAF) bases Waddington, Cranwell and Digby make a significant contribution to the area's demographic and economic make up. Former bases have been utilised to deliver new housing and employment development, with the Council . Following the closure of RAF Scampton and Home Office decision to end its plans to house asylum seekers, the Council has announced its plans to accelerate a £300 million regeneration plan, along with its development partner. Central Lincolnshire is home to the Red Arrows and its RAF heritage (including Lincolnshire's historic role as the centre of Bomber Command and the neighbouring base for the Battle of Britain Memorial Flight in East Lindsey) support the expansion for the area's existing visitor economy.

Landscape character

3.9. Central Lincolnshire's natural environment is varied and contrasting, characterised by gentle chalk and limestone uplands with low lying fens and fenland. The Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) falls partly in Central Lincolnshire, with its distinctive landscape of rolling hills and nestling villages.

3.10. The wider rural landscape of Central Lincolnshire comprises a sweeping character with big skies, and is a highly valued asset, making a significant contribution to local distinctiveness and attractiveness.

3.11. The escarpment of the Jurassic Lincolnshire Limestone, known locally as the Lincoln Edge, runs the full length of Central Lincolnshire, forming a unifying topographic feature and, as a key factor in the origins and historic development of Lincoln, makes a strong contribution to its present quality and character.

3.12. Outside of the urban areas, land use in Central Lincolnshire and West Lindsey in particular is predominantly agricultural with intensive arable crops dominating. Soils are typically fertile and of high quality for agriculture.

3.13. West Lindsey and the wider Central Lincolnshire area hosts a wide range of natural habitats, including wetland, woodland, calcareous grassland and remnants of heathland fen, which together provide ecological networks and nodes of sufficient scale to support wildlife adaptation and environmental resilience to climate change.

3.14. Biodiversity in the area is experiencing pressure from factors including climate change, habitat fragmentation, development and large scale intensive agriculture. Major landscape-scale initiation are proposed to restore and enhance the areas ecological networks and corridors.

Socio-Economic

3.15. As set out in the Central Lincolnshire Local Plan, which is the Local Plan adopted by West Lindsey, Central Lincolnshire is located within the Greater Lincolnshire Local Enterprise Partnership (GLLEP) area and represents roughly 30% of the GLLEP area's population, employment and business base. The draft Local Industrial Strategy (LIS) notes that Greater Lincolnshire has an economy of £20.7bn with an ambition to grow the Gross Value Added (GVA) by £3.2bn by 2030. The GLLEP area boasts a mix of traditional manufacturing, a comprehensive agri-food sector, energy and services, and is strong in health and care and the visitor economy. In these sectors and others the area benefits from a large number of small businesses – a distinctive feature of the economy.

3.16. The GLLEP's priority sectors include; agri-foods, energy and water, health and care, visitor economy and ports and logistics, but this should not diminish the important roles of other sectors, including manufacturing and engineering, to the local economy. The Central Lincolnshire Authorities will play a key role in the delivery of the vision for most of these sectors.

3.17. The Economic Needs Assessment (ENA) (2020) projects the economic growth and job growth to 2040, which in turn was influenced by the LIS and other work being produced by the GLLEP. The ENA highlights that there has been strong growth in recent years, outstripping anticipated growth, and projects forward a growth of approximately 992 jobs per year.

3.18. The visitor economy is a significant and growing sector within West Lindsey. The area is an attractive, peaceful rural area which combines an outstanding natural environment with historic villages in close proximity to the City of Lincoln. Lincolnshire's visitor economy is worth £2.4bn (STEAM data Lincolnshire County Council), with the sector supporting 30,000 jobs and a far reaching supply chain across the county. Food and drink spending alone generates £44m into the local economy, with recreation adding £18m and retail contributing £59m. The visitor economy is a significant sector for people's livelihoods.

3.19. The impact of Covid lockdowns has been severe. Lincolnshire has experienced a 52% reduction in all tourism spending (STEAM data 2020), with full time jobs being reduced by half from 2,500 jobs to just over 1,200. There has been a 52% reduction in visitor numbers and a 50% reduction on the number of visitor days. Food and drink spend feel from £44m to £21m (reduction of £13m) and retail spend fell from £59m to £29m 9a reduction of £20m). Recreational spend reduced by £10m to £8m. Overall, local tourism businesses have experienced a reduction of over £100m from their revenue.

3.20. Reflective of the defining agricultural character and culture of West Lindsey, one of the key tourist events is the Lincolnshire Show, held annually at the Lincolnshire Showground. The show is a flagship event for the area, with over 60,000 visitors and 500 exhibitors each year. The success of the Lincolnshire Show strongly relies upon the local tourism sector accommodating the visitor demand it creates.

3.21. Forecasts have predicted that it will take a timescale of up to 2025/26 for businesses in the sector to recover to pre-Covid levels, based on the assumption that no material externalities will compromise this recovery.

Site description and surroundings

3.22. The majority of the proposed Tillbridge Solar Project (hereafter referred to as 'the Scheme') is located within West Lindsey District Council (WLDC). The Scheme is located approximately 5km to the east of Gainsborough and approximately 13km to the north of Lincoln. The area within and surrounding the Order limits is a primarily rural setting, comprising open agricultural fields with sparse areas of woodland and villages.

3.23. There are two parcels that make up the Order limits:

a. 'the Principal Site', which is the location where ground mounted solar photovoltaic (PV) panels, electrical substations, and battery energy storage systems (BESS) will be installed; and

b. 'the Cable Route Corridor', which will comprise the underground electrical infrastructure required to connect the Principal Site to National Grid Cottam Substation.

3.24. The Principal Site is located to the south of Harpswell Lane (A631), to the west of Middle Street (B1398) and largely to the north of the unclassified Kexby Road and to the east of Springthorpe. The Principal Site covers an area of approximately 1,350ha and is located entirely within the administrative area of West Lindsey District Council.

3.25. Harpswell Lane (A631) and Middle Street (B1398) form the extent of the northern and eastern boundaries of the Principal Site respectively. A thin strip of land on the western side of Middle Street is included within the Order limits to allow for landscape screening. The Principal Site extends to the south of Kexby Road with the inclusion of field parcels that are located to the south of the road.

3.26. The Principle Site comprises numerous field parcels used for arable farming. The fields are large with limited hedgerows and trees. Where there are hedgerows, these generally form the boundaries of fields as they adjoin roads. There are also some small, scattered areas of woodland located within the Principal Site, along with some rural dwellings as well as agricultural buildings dispersed across the area.

3.27. Mature hedgerows and trees line the northern boundary of the Principal Site along the A631. To the west, the surrounding area is predominantly open fields with some defined hedgerows within these. To the east, the landscape is defined by a sharp slope referred to as the Lincoln Cliff. This area is relatively elevated compared to the general character of the area, which is characterised by its flat rural landscape.

3.28. Immediately surrounding the Principal Site are a series of villages interspersed along the B1398 Middle Street (east of the Principal Site) including Harpswell (to the north), Glentworth, Fillingham and Ingham (to the south). Springthorpe and Heapham are located to the west of the Principal Site. The surrounding area consists of predominantly flat, rural fields, some of which are used for farming.

3.29. The Principal Site will be connected to National Grid Cottam Substation located at the decommissioned Cottam Power Station in Cottam on the Nottinghamshire border.

3.30. The Cable Route Corridor is approximately 18.5km long (approximate distance between the Principal Site and National Grid Cottam Substation). The total area of the Cable Route Corridor outside of the Principal Site is approximately 318 ha. Heading south from the Principal Site, the cable route runs parallel to Glentworth Road and crosses Common Lane, Cow Lane, Kexby Road and Fillingham Lane, before turning to the west crossing South Lane, Stone Pit Lane and Normanby Road (B1241) (located to the south of Willingham by Stow). The Cable Route Corridor continues in a westerly direction before crossing the East Midlands Railway line that provides services between Doncaster and Lincoln and runs in a broad north-south direction to the west of Willingham by Stow and to the east of Gate Burton. The route then continues westwards crossing the A1500 (Stow Park Road), followed by the A156 (High Street) before crossing the River Trent to connect with the National Grid Cottam Substation.

4. Legislative & Policy Context

4.1. WLDC recognises the application as one made under the Planning Act 2008 (PA2008) for a Development Consent Order (DCO) for development that falls within the definition of energy generating stations set out in section 15 of the PA2008.

4.2. The proposed development comprises the construction, operation and decommissioning of solar arrays for the generation of electricity, also including a Battery and Energy Storage System (BESS), the import/export connection to the National Grid and onsite converter stations.

4.3. The Central Lincolnshire Local Plan (Local Plan) forms the adopted development plan for the West Lindsey district. The Local Plan was adopted in April 2023 and therefore represents a wholly 'up to date' statutory development plan. WLDC considers that the Local Plan should be considered 'important and relevant' for the purposes of section 104 and should be afforded significant weight in the decision making process.

Central Lincolnshire Local Plan (April 2023)

4.4. The Local Plan forms part of the development plan for West Lindsey (replacing the previous Central Lincolnshire Local Plan, adopted in 2017). The Local Plan was adopted in April 2023 and therefore represents an 'up to date' statutory development plan to which significant weight should be afforded in decision making under section 104 of the PA 2008. Relevant policies are included at Appendix A of this LIR.

4.5. The relevant policies and a brief summary of each are set out are set out below.

Table 4-1 – Central Lincolnshire Local Plan Policy

Policy	Summary
Policy S1: The Spatial Strategy and Settlement Hierarchy	The spatial strategy will focus on delivering sustainable growth for Central Lincolnshire that meets the needs for homes and jobs, regenerates places and communities, and supports necessary improvements to facilities, services and infrastructure. Development should create strong, sustainable, cohesive and inclusive communities, making the most effective use of previously developed land and enabling a larger number of people to access jobs, services and facilities locally.
Policy S2: Level and Distribution of Growth	The economic vision and strategy of this plan is to seek to facilitate the creation of 24,000 new jobs over the plan period, 2018-2040. To help facilitate that target and ensure the provision of new homes is in balance with job creation, this plan aims to facilitate the delivery of 1,325 dwellings per year, or 29,150 dwellings over the Plan period.
Policy S10: Supporting a Circular Economy	The Joint Committee is aware of the high energy and material use consumed on a daily basis, and, consequently, is fully supportive of the principles of a circular economy. Accordingly, and to complement any policies set out in the Minerals and Waste Development Plan, proposals will be supported, in principle, which demonstrate their compatibility with, or the furthering of, a strong circular economy in the local area (which could include cross-border activity elsewhere in Lincolnshire).
Policy S11: Embodied Carbon	All development should, where practical and viable, take opportunities to reduce the development's embodied carbon content, through the careful choice, use and sourcing of materials.
Policy S14: Renewable energy	All major development proposals should explicitly set out what opportunities to lower a building's embodied carbon content have been considered, and which opportunities, if any, are to be taken forward.

Policy S15: Protecting Renewable Energy Infrastructure	The Central Lincolnshire Joint Strategic Planning Committee is committed to supporting the transition to a net zero carbon future and will seek to maximise appropriately located renewable energy generated in Central Lincolnshire (such energy likely being wind and solar based). Proposals for renewable energy schemes, including ancillary development, will be supported where the direct, indirect, individual and cumulative impacts on the following considerations are, or will be made, acceptable. i. The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity; flood risk; townscape; heritage assets, their settings and the historic landscape; and highway safety and rail safety; and ii. The impacts are acceptable on aviation and defence navigation system/communications; and iii. The impacts are acceptable on the amenity of sensitive neighbouring uses (including local residents) by virtue of matters such as noise, dust, odour, shadow flicker, air quality and traffic. Permitted proposals will be subject to a condition that will require the submission of an End of Life Removal Scheme within one year of the facility becoming non-operational, and the implementation of such a scheme within one year of the scheme being approved. Such a scheme should demonstrate how any biodiversity net gain that has arisen on the site will be protected or enhanced further, and how the materials to be removed would, to a practical degree, be re-used or recycled.
Policy S16: Wider Energy Infrastructure	The Joint Committee is committed to supporting the transition to net zero carbon future and, in doing so, recognises and supports, in principle, the need for significant investment in new and upgraded energy infrastructure. Where planning permission is needed from a Central Lincolnshire authority, support will be given to proposals which are necessary for, or form part of, the transition to a net zero carbon sub-region, which could include: energy storage facilities (such as battery storage or thermal storage); and upgraded or new electricity facilities (such as transmission facilities, sub-stations or other electricity infrastructure.
Policy S17: Carbon Sinks	Existing carbon sinks, such as peat soils, must be protected, and where opportunities exist, they should be enhanced in order to continue to act as a carbon sink.
Policy S20: Resilient and Adaptable Design	Adaptable design Applicants should design proposals to be adaptable to future social, economic, technological and environmental requirements in order to make buildings both fit for purpose in the long term and to minimise future resource consumption in the adaptation and redevelopment of buildings in response to future needs.
Policy S21: Flood Risk and Water Resources	Flood Risk: All development proposals will be considered against the National Planning Policy Framework (NPPF), including application of the sequential and, if necessary, the exception test. Development proposals that are likely to impact on surface or ground water should consider the requirements of the Water Framework Directive.
Policy S28: Spatial Strategy for Employment	In principle, employment related development proposals should be consistent with meeting the following overall spatial strategy for employment. The strategy is to strengthen the Central Lincolnshire economy offering a wide range of employment opportunities focused mainly in and around the Lincoln urban area and the towns of Gainsborough and Sleaford, with proportionate employment provision further down the Settlement Hierarchy
Policy S29: Strategic Employment Sites (SES)	SES will meet large scale investment needs that requires significant land take. Proposals for the development of SES should be progressed through

	an agreed masterplan which includes a travel plan and associated infrastructure to promote sustainable modes of travel for the site as a whole wherever possible prior to or alongside a planning application. Small scale, ancillary and/or piecemeal development that prevents or otherwise detracts from the delivery of large scale investment on an SES will be refused.
Policy S31: Important Established Employment Areas (IEEA)	IEEA make a substantial contribution to the Central Lincolnshire economy. They are defined as sites located in tiers 1-4 of the Settlement Hierarchy in Policy S1 (Large Villages and above), on sites of 2ha or more and have at least 8,000sqm of ground floor space and with five or more units occupied by different businesses.
Policy S43: Sustainable Rural Tourism	Development proposals within villages named in the Settlement Hierarchy in Policy S1 that will deliver high quality sustainable visitor facilities including (but not limited to) visitor accommodation, sporting attractions, and also including proposals for temporary permission in support of the promotion of events and festivals.
Policy S45: Strategic Infrastructure Requirements	Infrastructure Planning permission will only be granted if it can be demonstrated that there is, or will be, sufficient infrastructure capacity to support and meet all the necessary requirements arising from the proposed development. Development proposals must consider all of the infrastructure implications of a scheme; not just those on the site or its immediate vicinity. Conditions or planning obligations, as part of a package or combination of infrastructure delivery measures, are likely to be required for many proposals to ensure that new development meets this principle. Consideration must be given to the likely timing of infrastructure provision. As such, development may need to be phased. Conditions or a planning obligation may be used to secure this phasing arrangement.
Policy S47: Accessibility and Transport	Development proposals which contribute towards an efficient and safe transport network that offers a range of transport choices for the movement of people and goods will be supported. All developments should demonstrate, where appropriate, that they have had regard to the following criteria: a) Located where travel can be minimised and the use of sustainable transport modes maximised; b) Minimise additional travel demand through the use of measures such as travel planning, safe and convenient public transport, car clubs, walking and cycling links and integration with existing infrastructure; c) Making allowance for low and ultra-low emission vehicle refuelling infrastructure.
Policy S53: Design and Amenity	All development, including extensions and alterations to existing buildings, must achieve high quality sustainable design that contributes positively to local character, landscape and townscape, and supports diversity, equality and access for all.
Policy S54: Health and Wellbeing	The potential for achieving positive mental and physical health outcomes will be taken into account when considering all development proposals. Where any potential adverse health impacts are identified, the applicant will be expected to demonstrate how these will be addressed and mitigated.
Policy S56: Development on Land Affected by Contamination	Development proposals must take into account the potential environmental impacts on people, biodiversity, buildings, land, air and water arising from the development itself and any former use of the site, including, in particular, adverse effects arising from pollution.
Policy S57: The Historic Environment	Development proposals should protect, conserve and seek opportunities to enhance the historic environment of Central Lincolnshire.
	Listed Buildings

	Permission to change the use of a Listed Building or to alter or extend such a building will be granted where the local planning authority is satisfied that the proposal is in the interest of the building's preservation and does not involve activities or alterations prejudicial to the special architectural or historic interest of the Listed Building or its setting.
	Conservation Areas Development within, affecting the setting of, or affecting views into or out of, a Conservation Area should preserve (and enhance or reinforce it, as appropriate) features that contribute positively to the area's character, appearance and setting.
	Archaeology Development affecting archaeological remains, whether known or potential, designated or undesignated, should take every practical and reasonable step to protect and, where possible, enhance their significance.
Policy S58: Protecting Lincoln, Gainsborough and Sleaford's Setting and Character	**Gainsborough** g) Take into account the Gainsborough Town Centre Conservation Area Appraisal and Gainsborough Town Centre Heritage Masterplan; h) Protect and enhance the landscape character and setting of Gainsborough and the surrounding villages by ensuring key gateways are landscaped to enhance the setting of the town, minimise impact upon the open character of the countryside and to maintain the setting and integrity of surrounding villages
Policy S59: Green and Blue Infrastructure Network	The Central Lincolnshire Authorities will safeguard green and blue infrastructure in Central Lincolnshire from inappropriate development and work actively with partners to maintain and improve the quantity, quality, accessibility and management of the green infrastructure network. Proposals that cause loss or harm to the green and blue infrastructure network will not be supported unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be supported if suitable mitigation measures for the network are provided.
Policy S60: Protecting Biodiversity and Geodiversity	All development should: a) protect, manage, enhance and extend the ecological network of habitats, species and sites of international, national and local importance (statutory and non-statutory), including sites that meet the criteria for selection as a Local Site; b) minimise impacts on biodiversity and features of geodiversity value; c) deliver measurable and proportionate net gains in biodiversity in accordance with Policy S61; and d) protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat. Mitigation of Potential Adverse Impacts Development should avoid adverse impact on existing biodiversity and geodiversity features as a first principle, in line with the mitigation hierarchy. Where adverse impacts are unavoidable, they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort where there is no alternative. Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable to the Local Planning Authority in terms of design and location

	and are secured for the lifetime of the development with appropriate funding mechanisms that are capable of being secured by condition and/or legal agreement. If significant harm to biodiversity resulting from development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission will be refused.
Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains	Following application of the mitigation hierarchy, all development proposals should ensure opportunities are taken to retain, protect and enhance biodiversity and geodiversity features proportionate to their scale, through site layout, design of new buildings and proposals for existing buildings with consideration to the construction phase and ongoing site management.
	Biodiversity Net Gain The following part of the policy applies unless, and until, subsequently superseded, in whole or part, by national regulations or Government policy associated with the delivery of mandatory biodiversity net gain arising from the Environment Act 2021. Where conflict between the policy below and the provisions of Government regulations or national policy arises, then the latter should prevail.
Policy S66: Trees, Woodland and Hedgerows	Development proposals should be prepared based on the overriding principle that: • the existing tree and woodland cover is maintained, improved and expanded; and • opportunities for expanding woodland are actively considered and implemented where practical and appropriate to do so.
	Hedgerows Proposals for new development will be expected to retain existing hedgerows where appropriate and integrate them fully into the design having regard to their management requirements. Proposals for new development will not be supported that would result in the loss of hedges of high landscape, heritage, amenity or biodiversity value unless the need for, and benefits of, the development clearly outweigh the loss and this loss can be clearly demonstrated to be unavoidable. Development requiring the loss of a hedgerow protected under The Hedgerow Regulations will only be supported where it would allow for a substantially improved overall approach to the design and landscaping of the development that would outweigh the loss of the hedgerow. Where any hedges are lost, suitable replacement planting or restoration of existing hedges, will be required within the site or the locality, including appropriate provision for maintenance and management.
Policy S67: Best and Most Versatile Agricultural Land	Proposals should protect the best and most versatile agricultural land so as to protect opportunities for food production and the continuance of the agricultural economy.

Neighbourhood Plans

4.6. Thirteen Neighbourhood Plans within the WLDC administrative area are either being prepared or adopted in close proximity to the Order Limits of the DCO application and/or are likely to experience impacts from the proposed development.

4.7. The following West Lindsey District Council Neighbourhood Plans are adopted and relate to areas affected by the proposal. Copies of relevant Neighbourhood Plans are included at Appendix B to this LIR.

Neighbourhood Plan	Summary
Glentworth Neighbourhood Plan 2018-2036 (adopted 04 November 2019)	This plan outlines six key community objectives which reflect Glentworth's vision of continuing to be a peaceful rural village, an enjoyable place to live with a thriving, safe community. Glentworth Parish will protect the highly valued features of the natural environment, such as green spaces and the open landscape, preserving the village atmosphere and character for future generations. Existing services and local facilities will be protected and improved to meet the needs of all ages. Any new housing would be sympathetic to the Parish's valued historic, rural and diverse character. The vision and objectives will be achieved through six key policies including maintaining Key Local Views, good design and character of development, and protecting local green spaces
Brattleby's Neighbourhood Development Plan 2016-2036 (adopted 13 November 2017)	This plan outlines four key community objectives which reflect the community vision of accepting high quality new housing to the village in suitable locations, whilst retaining its old historic core, preserving the rural character and protecting and enhancing its highly valued open spaces. The plan aims to help preserve Brattleby's quintessential rural English village character for current and future generations to live, work and visit the area. The vision and objectives will be achieved through seven key policies including protecting non-designated heritage assets, protecting designated local green spaces, and protecting public rights of way.
Hemswell Cliff Neighbourhood Plan 2021-2036 (adopted 06 November 2023)	This plan outlines eleven key community objectives which reflect Hemswell Cliff's vision of including all members of the Parish as a united community, without the divisions that currently exist. Community engagement will be encouraged, utilising existing and future facilities. Sensible development on appropriate sites will support the expanding economy, encourage enterprise, create new jobs and enable provision of community services such as a facility for a GP/health centre. Better connectivity will enable those residents without cars to access regular and reliable public transport, to increase people's opportunities and decrease isolation. The village will be a safe and resilient place to live in, presenting adaptive solutions in the face of climate change and related events. The vision and objectives will be achieved through nine key policies including delivering good design, protecting the significance of the historic environment, and ensuring sustainable development.
Hemswell and Harpswell Neighbourhood Plan 2022-2036 (adopted 06 March 2023)	The plan outlines ten key community objectives which reflect Hemswell and Harpswell's vision of retaining the unique old historic charm, setting and strong rural character of these settlements, in 20 years-time. The vision and objectives will be achieved through ten key policies including enhancing existing public rights of way, protecting non-designated heritage assets, and protecting the wider landscape character and setting of the neighbourhood plan area.
Sturton by Stow and Stow Neighbourhood Plan Minor Modifications Review (09 August 2024)	This plan outlines six key objectives which reflect Sturton by Stow and Stown's vision: *"We are strong, safe and thriving communities. We value and protect our historic, natural and rural environments, with development and amenities reflecting the needs of the communities. We value the distinctive*

	character of our various settlements. Our people love living here." The vision and objectives will be achieved through fifteen key policies including protecting local views, conserving or enhancing biodiversity or geodiversity, and ensuring local flood risk does not increase.
Willoughton (adopted 01 July 2019)	This plan outlines five key objectives which reflect Willoughton's vision for a thriving rural community that provides a range of homes, employment, education, open spaces and valued community facilities for its residents. New developments within the village should be designed to enhance and preserve the landscape character of Willoughton. The vision and objectives will be achieved through four key policies including preserving and enhancing green spaces, appreciating the site and surrounding area in relation to a proposed development, and preserving community services and facilities.

Supplementary Planning Documents (SPDs) and Guidance Notes

4.8. WLDC have prepared several Supplementary Planning Documents (SPDs) and guidance notes which provide further support to the consenting process together with adopted Central Lincolnshire Local Plan. SPDs of relevance to the Scheme include:

- Planning Obligations Supplementary Planning Document (adopted October 2023)
- Energy Efficient Design and Construction (guides, checklists, and FAQs)
- Biodiversity Net Gain Guidance Note
- Health Impact Assessment for Planning Applications Guidance Note (and checklist)

National Policy

4.9. National policy governing the principle of development for renewable energy proposals within its scope is the National Policy Statement (NPS) for renewables EN-3, which should be read together with the Overarching NPS for Energy, EN-1.

4.10. The energy NPSs were updated and designated in January 2024. The effect of the updated policy was the extension of coverage to include solar energy generation and the provision of explicit support for large scale, ground mounted solar generating stations.

4.11. The NPSs play a significant role in decision making on NSIPs. As NPSs that are relevant to solar energy development are adopted, the Tillbridge Solar Project will be determined in accordance with section 104 of the Planning Act 2008.

4.12. Section 104 of the Planning Act 2008 states:

> *"**104 Decisions in cases where national policy statement has effect***
>
> *(1) This section applies in relation to an application for an order granting development consent if a national policy statement has effect in relation to the development of the description to which the application relates.*
>
> *(2) In deciding the application, the Secretary of State must have regard to –*
>
> *(a) any national policy statement which has effect in relation to development of the description to which the application relates (a "relevant national policy statement"),*
>
> *(aa) the appropriate marine policy statements 9if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009;*

(b) *Any local impact report (within the meaning given by section 60(3) submitted to the Secretary of State before the deadline specified in a notice under section 60(2);*

(c) *Any matters prescribed in relation to development of the description to which the application relates, and*

(d) *Any other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision.*

(3) The Secretary of State must decide the application in accordance with any relevant national policy statement, except to the extent that one or more of subsection (4) to (8) applies.

(4) This subsection applies if the Secretary of State is satisfied that deciding the application in accordance with any relevant national policy statement would lead to the United Kingdom being in breach of any of its international obligations.

(5) This subsection applies if the Secretary of State in satisfied that deciding the application in accordance with any relevant national policy statement would lead to the Secretary of State being in breach of any duty imposed on the Secretary of State by or under any enactment.

(6) This subsection applies if the Secretary of State is satisfied that deciding the application in accordance with any relevant national policy statement would be unlawful by virtue of any enactment.

(7) This subsection applies if the Secretary of State is satisfied that the adverse impact of the proposed development would outweigh its benefits.

(8) This subsection applied if the Secretary of State is satisfied that any condition prescribed for deciding an application otherwise than in accordance with a national policy statement is met.

(9) For the avoidance of doubt, the fact that any relevant national policy statement identifies a location as suitable (or potentially suitable) for a particular description of development does not prevent one or more of subsections (4) to (8) from applying.

4.13. The Tillbridge Solar Park application is to be determined in accordance with the provisions of section 104 of the PA 2008 as set out above.

NPS EN-1 – Overarching Policy Statement for Energy

4.14. NPS EN-1 (January 2024) sets out the government's commitment to increasing renewable generation capacity. EN-1 establishes general principles relating to the need for all energy infrastructure, noting that there is an urgent need for new electricity generating capacity. This urgent need is expressed clearly in that *"…a secure, reliable, affordable, Net Zero consistent system in 2050 is likely to be composed predominantly of wind and solar".*

4.15. NPS En-1 recognises the strategic national importance of solar generation in the UK's energy generation 'mix' of technologies, requiring a sustained growth in the capacity of solar generation in the next decade. Solar generation is explicitly included with the scope of technologies as being required to mee the defined 'urgent need', and it recognises the contribution solar can make to achieving net zero, providing security of electricity supply and an affordable, reliable system.

NPS EN-3 – National Policy Statement for Renewable Energy Infrastructure

4.16. NPS EN-3 (January 2024) provides further policy specific to renewable electricity generating technologies.

4.17. NPS EN-3 provides technology specific policy relating to solar generating stations. It states the Government's commitment to sustained growth in solar development, including the benefits of the technology in relation to cost and speed of delivery.

4.18. The impacts of the scale of NSIP solar development in rural areas is recognised, and it sets out the key policy consideration such as irradiance, site topography, proximity to dwellings, capacity and the importance of a grid connection on the commercial viability of projects being promoted.

NPS EN-5 – National Policy Statement for Networks

4.19. Whilst providing policy for long-distance transmission systems (400kv and 275kv lines), NPS EN-5 (July 2011 and November 2023) also cover associated infrastructure such as substations and converter stations.

4.20. Due to the scope of the proposed development, WLDC consider NPS EN-5 to be an important and relevant matter with regard to the relevant associated development of the proposed application.

The National Planning Policy Framework

4.21. The National Planning Policy Framework (NPPF) sets out the governments planning policies for England. The NPPF does not include policies specific to NSIPs.

4.22. The NPPF nonetheless provides guidance on the requirement for good design, promoting healthier communities, conserving the historic environment, conserving the natural environment, sustainable transport and meeting the challenges of climate change. With due regard to the scope of the policy at a national level, WLDC consider the NPPF to be an important and relevant matter for the determination of the application under section 104 of the PA2008.

4.23. In relation to the delivery of renewable energy, the NPPF states (paragraph 160) that to help increase the use and supply of renewable and low carbon energy and heat, (development) plans should:

- *"provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts)";*
- *"consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and* "
- *"identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers."*

4.24. Section 15 of the NPPF provides key policy on 'Conserving and enhancing the natural environment'. It states that (para. 180) that ' *planning…decisions should contribute to the and enhance the natural and local environment by:*

a) Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);.

National Planning Practice Guidance

4.25. The Ministry of Housing, Communities and Local Government have published renewable and low carbon energy Planning Practice Guidance that details the planning considerations that relate to large scale ground-mounted solar photovoltaic farms. This guidance highlights the some of the factors a local planning authority will need to consider in an application for a large-scale solar farm.

- encouraging the effective use of land by focussing large scale solar farms on previously developed and non-agricultural land, provided that it is not of high environmental value;
- where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays. See also a speech by the Minister for Energy and Climate Change, the Rt Hon Gregory Barker MP, to the solar PV industry on 25 April 2013 and written ministerial statement on solar energy: protecting the local and global environment made on 25 March 2015.
- that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use;

- the proposal's visual impact, the effect on landscape of glint and glare (see guidance on landscape assessment) and on neighbouring uses and aircraft safety;
- the extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;
- the need for, and impact of, security measures such as lights and fencing;
- great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of proposals on views important to their setting. As the significance of a heritage asset derives not only from its physical presence, but also from its setting, careful consideration should be given to the impact of large scale solar farms on such assets. Depending on their scale, design and prominence, a large scale solar farm within the setting of a heritage asset may cause substantial harm to the significance of the asset;
- the potential to mitigate landscape and visual impacts through, for example, screening with native hedges;
- the energy generating potential, which can vary for a number of reasons including, latitude and aspect.

Other Relevant Policy

4.26. In addition to the above, WLDC consider the following policy to also be relevant and important for the determination of the application under section 104 of the PA2008:

Powering up Britain (March 2023)

4.27. This document published by the Department for Energy Security and Net Zero aims to quintuple the UK's current solar power capacity to 70GW by 2035, as part of ambitions to full decarbonise the power sector by this date. The plan emphasises ground-mounted solar schemes, given it is *"one of the cheapest forms of electricity generation and is readily deployable at scale".* The plan seeks large scale solar deployment across the UK, looking for development mainly on brownfield, industrial and low/medium grade agricultural land.

4.28. Solar and farming can be complementary, supporting each other financially, environmentally and through shared use of land. We consider that meeting energy security and climate change goals is urgent and of critical importance to the country, and that these goals can be achieved together with maintaining food security for the UK. We encourage deployment of solar technology that delivers environmental benefits, with consideration for ongoing food production or environmental improvement.

4.29. The Powering up Britain plan recognises that as with any new development, solar projects may impact on communities and the environment. The planning system allows all views to be taken into account when decision makers balance local impacts with national need.

The British Energy Security Strategy (2022)

4.30. The British Energy Security Strategy sets out the immediate need to manage the financial implications of soaring commodity prices in the near term, on households and businesses which are already feeling economic pain as the post-Covid cost of living has risen: "The first step is to improve energy efficiency, reducing the amount of energy that households and businesses need." (50p5].

4.31. In the near-term, the strategy sets out a high-level action plan to upgrade the energy efficiency of at least 700,000 homes in the UK by 2025, and to ensure that by 2050 all UK buildings will be energy efficient with low-carbon heating. Further, the strategy sets out an intent to phase out the sale of new and replacement gas boilers by 2035. [50, p12].

4.32. The Strategy aims to:

- Cut planning consent process time by over half through, among other measures, strengthening the Renewable National Policy Statements (EN-3) to reflect the importance of energy security and net zero;#

- Increase the pace of deployment of Offshore Wind by 25% to deliver up to 50GW by 2030, including up to 5GW of innovative floating wind. Wind will contribute over half the UK's renewable generation capacity by 2030. [50, p16];
- Consider all options including Onshore Wind through the improvement of national electricity network infrastructure and support of a number of new English projects with strong local backing, so prioritising "putting local communities in control" of local onshore solutions. Repowering of existing onshore wind sites is also under consideration. [50, p18];
- Support a 5-fold increase in deployment of solar technology by 2035, recognising the abundant source of solar energy in the UK and an 85% reduction in cost over the last ten years of solar power. For ground-mounted solar, the strategy indicates a future consultation on planning rules to strengthen policy in favour of development on non-protected land, while ensuring communities continue to have a say and environmental protections remain in place. [50, p19];
- Increase UK plans for deployment of civil nuclear to up to 24GW by 2050 – three times more than operational capacity in 2022 and representing up to 25% of our projected electricity demand. This includes the intention to take one project (Sizewell C) to FID during the current Parliament, and two projects to FID in the next Parliament, including Small Modular Reactors, subject to value for money and relevant approvals. [50, p21]. The selection process for further UK projects is anticipated to be initiated in 2023 [50, p22]; and
- Double the UK ambition for hydrogen production to up to 10GW by 2030, with at least half of this from electrolytic hydrogen [50, p22], facilitated by bringing forwards up to 1GW of electrolytic hydrogen into construction or operational status by 2025.

The National Infrastructure Strategy (2020)

4.33. The National Infrastructure Strategy (NIS) published in November 2020 sets out plans to transform the UK's infrastructure. The Strategy is the Government's response to recommendations made by the National Infrastructure Commission (NIC), which was set up to provide impartial, expert advice to the government on long-term infrastructure priorities. In July 2018, the NIC published a National Infrastructure Assessment which provided the foundation for many of the measures included within the NIS.

4.34. One of the aims of the NIS is to achieve net zero carbon emissions by 2050. The Government acknowledges in the NIS that to deliver net zero, the share of generation from renewables needs to dramatically increase. It identifies that this can be achieved by the provision of greater generation capacity from onshore wind and solar. As recommended by the NIC, the NIS sets out plans to include solar PV in the next auction round (2022) for Contracts for Difference (CfD), which is the Government's main mechanism for supporting low-carbon electricity generation. This incentivises investment in renewable energy by providing developers of projects with high upfront costs and long lifetimes with direct protection from volatile wholesale prices, and they protect consumers from paying increased support costs when electricity prices are high.

4.35. The NIS demonstrates the Government's commitment, including a financial commitment, to supporting solar generation now.

The Energy White Paper: Powering our Net Zero Future (2020)

4.36. The Energy White Paper published in December 2020 is one of the more recent Government policies setting out how the UK will reach net zero emissions by 2050.

4.37. The Paper explains that it is likely that overall demand for electricity will double by 2050 due to the electrification of other sectors such as transport heating. On page 42, it states that meeting this demand by 2050 would require "a fourfold increase in clean electricity generation with the decarbonisation of electricity increasingly underpinning the delivery of our net zero target".

4.38. It identifies the Government's aim for a fully decarbonised, reliable and low-cost power system by 2050 and that market conditions will determine the best solutions for very low emissions and reliable supply, at a low cost to consumers.

4.39. The Paper explains that the government is not targeting a particular generation mix but commits the government to maintaining the market conditions which stimulate the cost reductions that have been seen in the renewable energy market over the last five years. It does, however, state that it is possible to determine key characteristics of the future generation mix at this stage identifying on

page 43 that a “low-cost, net zero consistent system is likely to be composed predominantly of wind and solar”. It highlights that this will need to be complemented by technologies which provide power, or reduce demand, to manage intermittency. It states that currently this includes “nuclear, gas with carbon capture and storage and flexibility provided by batteries, demand side response, interconnectors and short-term dispatchable generation providing peaking capacity, which can be flexed as required”, thereby also highlighting the role of battery storage in the energy mix.

4.40. This Paper highlights the government’s commitment to solar to achieve net zero targets and the need to provide this urgently

A Green Future: Our 25-year Plan to Improve the Environment (2018)

4.41. The 25 Year Environment Plan published in 2018 sets out the government’s 25-year plan to improve the environment within a generation.

4.42. It sets out 10 goals which include the achievement of: clean air; clean and plentiful water; thriving plants and wildlife; reduced risk of harm from environmental hazards like flooding and drought; the more sustainable and efficient use of resources from nature; enhanced beauty, heritage and engagement with the natural environment; mitigation and adaption to climate change; minimisation of waste; management of exposure to chemicals; and enhanced biosecurity.

4.43. Six key areas of policy are set out in the plan and include:

- Using and managing land sustainably (including embedding an ‘environmental net gain’ principle for developing and measuring natural capital and reducing flood risk).
- Recovering nature and enhancing the beauty of landscapes (including developing a Nature Recovery Network and reviewing National Parks and AONBs).
- Connecting people (including children) with the environment to improve health and wellbeing (including encouraging children to be close to nature, both in and out of school and greening out cities).
- Increasing resource efficiency and reducing pollution and waste (including achieving zero avoidable plastic waste by end of 2042).
- Securing clean, productive and biologically diverse seas and oceans (including a post Brexit new sustainable fisheries policy).
- Protecting and improving the global environment (including providing ‘international leadership and leading by example’ and ‘leaving a lighter footprint on the global environment).

4.44. This plan highlights the Government’s support for the reduction in the UK’s carbon footprint; protection and enhancement of the natural environment; and ensuring land is managed with environmental gains which is of relevance to the Scheme.

Summary

4.45. There are a number of relevant local policies which the Examining Authority (ExA) and/or the Secretary of State (SoS) may consider relevant and important.

4.46. Each of the issue specific sections sets out an overview of key policies relevant to that topic.

5. Alternatives and Design Evolution

Summary

5.1. The list below outlines the main points arising from the review of Chapter 4: Alternatives and Design Evolution (EN010142/ APP/6.1) of the ES for the Tillbridge Solar Project, which relies upon the Outline Design Principles statement (EN010142/APP/7.4) and the Design and Access Statement (EN010142/APP/7.3).

- [ADE1] The Applicant has carried out an assessment of alternatives in accordance with legislative and policy requirements.
- [ADE2] The Applicant's approach and methodology has been set out and is easily followed.
- [ADE3] The Applicant has made amendments to the scheme during the pre-application process to remove impacts raised by stakeholders.
- [ADE4 WLDC are not clear as to why the proposed solar panels and associated infrastructure (BESS infrastructure and the substation in particular) extends to east as far its does, causing harm to The Cliff LCA and the AGLV designated by statutory development plan policy.

Legislation and Policy Context

There is a statutory requirement to provide an assessment of the alternative options considered by an applicant. Regulation 14(2) of the Infrastructure Planning (Environmental Impact Regulations) 2017 explains what an Environmental Statement (ES) must include. It refers to Schedule 4 of the EIA regulations which requires an ES to include:

"A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studies by the developer, which are relevant to the proposed projects and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

5.2. National policy does not require an applicant to consider alternatives. NPS EN-1 (paras. 4.3.9 & 4.3.22) states that:

"As in any planning case, the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to the proposed development is, in the first instance, a matter of law. This NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective…"

And

"…only alternatives that can meet the objectives of the proposed development need to be considered."

Applicant's Approach to Assessment

Approach to site selection and design

5.3. The applicant acknowledges that there is no standard methodology to be applied for the site selection of energy projects as stated in NPS EN-3 (para. 2.3.5), although there are general consideration relating to site selection. These considerations include impacts upon biodiversity, landscape and visual, and the need to demonstrate that any significant effect on the qualities for which the area has been designated are clearly outweighed by the urgent need for Scheme.

Principal Site

5.4. In considering these impacts, the applicant has carried out a staged and iterative methodology for the identification of the Principal Site:

Stage 1: Determining an Initial Area of Search

- mainly based upon technical considerations of irradiance, topography and the point of connection.

Stage 2: Refining the Area of Search

- Exclusion of potential sites within
  a) internationally and nationally designated ecological and geological sites such as Sites of Special Scientific Importance (SSSI) and Ancient Woodland;
  b) Designated heritage assets such as Scheduled Monuments, Registered Parks and Gardens, Grade I, II, II* Listed Buildings (50m buffer); and
  c) Flood Risk – Flood Zones 2 and 3 and land at higher risk of flooding.

This initial area of search subsequently did not contain:

a) Internationally and nationally designated ecological and geological sites – no Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar, National Nature Reserves, or proposed SPAs, SACs and listed Ramsar.
b) Nationally designated landscapes (AONBs or National Parks)
c) Designated heritage assets (no World Heritage Sites or registered battlefields); and
d) Green Belt – no Green Belt affected.

Further refinement was then undertaken to exclude the following land from the site selection process:

a) Agricultural land – exclusion of Best Most Versatile agricultural land (Grades 1, 2 and 3a);
b) Topography – all land above 2% gradient excluded for operational reasons;
c) Local landscape designations – excluded Areas of Great Landscape Value including the Lincolnshire Edge/Lincoln Cliff.
d) Urban Areas – exclusion of clusters of 10 or more buildings with a 100m buffer placed around them;
e) Previously developed land – consideration of land using the brownfield register. No sites of a suitable size identified (all less than 5ha) to deliver the project.

Stage 3 - identifying potential solar development zones.

- Assumption in favour of a contiguous site to allow cohesive design, to assist with operation and to derive a site sufficient to reflect the power output of the Bilateral Connection Agreement with National Grid and to secure commercial viability.
- Requirement for a gross site area of between 930ha and 1,700ha. This equates to 1.43ha and 1.7ha of land as a gross site are per MW of power output.
- Assumption 70% of the land would be developable with 30% non-developable.
- Area of contiguous land of at least 930ha was taken forward for the next stage of the process.

Stage 4 – Further evaluation of zones considered suitable for solar development.

- Desktop assessment of the zones identified at Stage 3;
- Development of a red, amber and green (RAG) criteria to measure and evaluate the suitability of each zone against the potential impacts associated with:
  a) Ecology and biodiversity;
  b) Landscape and visual
  c) Land use (including public rights of way;

d) Cultural Heritage;
e) Access for construction vehicles;
f) Field shading;
g) Deliverability of grid connection; and
h) Terrain.

- The assessment concluded that all zones performed well against the criteria and would be suitable, although some zones were more constrained that others.
- Zone A was identified as the least constrained and was taken forward for further consideration as the preferred location for the Scheme.

Stage 5 – Identification of Principal Site within Zone A to form the basis of the DCO application.

- Consideration of landownership and discussions with landowners;
- Identification of an initial area of approximately 2,600ha;
- Preliminary constraints mapping including a site walk-over to identify high-risk areas;
- High risk areas excluded;
- Application of buffers to sensitive receptors;
- Further RAG assessment considering visibility, roads and level of visibility, PROW, settlements and residential properties, consideration of Neighbourhood Plans, heritage assets, cumulative effects, topography (including the Lincolns Edge/The Cliff AGLV, key landscape elements that define character, access, and offsets for ecology, water and landscape features.
- The identified Principal Site was then taken forward as part of informal and statutory consultation and refined further in response to representations.
- The main reasons for selecting the Principal Site are:
  a) The Principal Site is within a suitable distance from the identified point of connection;
  b) Is not located within or close to internationally and nationally designated biodiversity sites and is not located within or close to areas of national designated landscape value;
  c) Is not located within designated Green Belt;
  d) Utilises significant amounts of non BMV agricultural land;
  e) Avoids direct physical impact on designated heritage assets;
  f) Is predominantly within Flood Zone 1 and at low risk of flooding;
  Has good transport access for construction being in close proximity to the A631 and B1398;
  g) Has topography which meets the requirements of the Scheme to efficiently generate significant amounts of electricity;
  h) Has limited land use conflicts in terms of displacement of existing non-agricultural businesses; and
  i) Is available to the Applicant during the period of construction and operation of the Scheme

Alternative Cable Routes

5.5. A methodology was applied considering a range of criteria to establish the cable corridor, including the shared route corridor with other solar projects.

5.6. Further consideration has been given to the refinement of cable routes within the Cable Route Corridor to define the preferred area.

Summary

5.7. The Applicant has carried out a logical assessment, based upon a clear methodology, that meets the requirements of legislation and policy

5.8. Alternative layouts for the solar panel areas, alternative substation locations and alternative cable routes have all been considered from the early scoping stages of the project through to submission of the DCO application. Matters raised by stakeholders in relation to alternatives at the EIA Scoping and Statutory Consultation Stages have helped to shape the development of the Scheme.

5.9. Whilst the methodology for identifying and assessing alternatives is clear, this does not mean that the chosen option is therefore acceptable in terms of its impacts

5.10. WLDC is unclear as to why the applicant has promoted a site layout that brings it into contact with the valued 'The Cliff' landscape character area, protected as an AGLV in the adopted local plan. Amendments to the scheme to increase the distance of the eastern edge of the project from the foot of the scarp slope where the 'Till Vale' transitions into the 'The Cliff' LCA.

5.11. It is also unclear why BESS and substation infrastructure is scattered throughout the development site, and close to the sensitive 'The Cliff' AGLV. The proposed main substation will have an imposing presence when viewed looking out from 'The Cliff' causing harm to the interpretation of the relationship between the LCAs.

Impacts and Issues

Positive

5.12. The methodology is clear and explains the decision making process.

5.13. The seeking of a contiguous site is considered the appropriate design objective.

Neutral

5.14. None.

Negative

5.15. The reasoning behind the encroachment of the Principal Site towards the sensitive 'The Cliff' AGLV is not adequately explained and this harm could readily be avoided through design and smaller site area that would not materially affect the project objectives.

6. Landscape and Visual Amenity

Summary

6.1.1. The list below outlines the main points arising from the review of Chapter 8: Landscape and Visual Impact Assessment of the ES (Doc. Ref. EN010132/APP/WB6.2.8) for the Tillbridge Solar Project:

- [LV1] The proposal will have significant adverse impacts upon 'The Cliff' LCA and designated AGLV in the adopted development plan
- [LV2] The effect on residential receptors are considered to be rated too low. This is due to the assessment of visual amenity.
- [LV3] The cumulative impacts with other projects on the landscape character and visual effects will be significant and adverse, causing material harm to the landscape character of West Lindsey and the interpretation of its distinct characteristics.
- [LV4] The site design process has resulted in associated development (substation and BESS infrastructure) being located towards the AGLV, having a material impact on the most sensitive landscape of the Principal Site. It is not understood why the design process has not mitigated this impact by locating such infrastructure away from the sensitive landscape constraints.
- [LV5] The proposal fails to protect key views identified in the Glentworth Neighbourhood Plan, which provide local detail to the adopted Local Plan policies.

Policy Context

National Policy

National Policy Statements

6.2. National Policy Statement (NPS) EN-1 states that the ExA needs to consider the design of a scheme carefully. They should have regard to siting, operational and other relevant constraints the aim should be to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.

6.3. For development in other areas, paragraph 5.10.35 of NPS EN-1 states that the SoS should '*judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project*'.

6.4. Para 5.10.36 sets out that the SoS should '*consider whether any adverse impact is temporary, such as during construction, and/or whether any adverse impact on the landscape will be capable of being reversed in a timescale that the SoS considers reasonable*'.

NPPF

6.5. The NPPF (para. 180) that ' *planning…decisions should contribute to the and enhance the natural and local environment by:*

b) Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);.

6.6. WLDC considers that para. 180 of the NPPF is wholly engaged, with The Cliff AGLV constituting a 'valued landscape' whose quality is clearly identified in the statutory development plan.

Local Policy

Central Lincolnshire Local Plan (2023)

6.7. The Central Lincolnshire Local Plan (CLLP) policies which are relevant to the scheme are set out below.

6.8. Policy S53 states all development must achieve high quality sustainable design which contributes positively to the local character and landscape. Development should

- Be based on a sound understanding of the context, integrating into the surroundings and responding to local history, culture and heritage.
- Relate well to the site.
- Protect any important local views into, out of or through the site.
- Reflect the identity of area and contribute to the sense of place.

6.9. Policy S62 (applies to western part of the Scheme) requires proposals within, or within the setting of, AGLV to:

- Conserve and enhance the qualities, character and distinctiveness of locally important landscapes.
- Protect, and where possible enhance, specific landscape, wildlife and historic features which contribute to local character and landscape quality.
- Maintain landscape quality and minimise adverse visual impacts through high quality building and landscape design.
- Demonstrate how proposals have responded positively to the landscape character in relation to siting, design, scale and massing and where appropriate have retained or enhanced important views, and natural, historic and cultural features of the landscape.
- Where appropriate, restore positive landscape character and quality.

Glentworth Neighbourhood Plan

6.10. The Glentworth Neighbourhood Plan 2018-2036 (GNP) sets the vision for the future of the neighbourhood and sets how that vision will be realised through planning and development. The GNP adds depth and local context to the CLLP.

6.11. The GNP sets out a number of objectives: including Objective 2 ‘to protect and where possible enhance the natural environment of the plan area, retaining the visual connections with the surrounding countryside’ and Objective 3 ‘to identify and protect specific assets and features of the natural environment valued by the local community’.

6.12. The GNP sets out that it is widely recognised that certain views are key in defining the character of the settlement. Such views involve the countryside surrounding the settlement as much as views toward the village or within the built environment.

Summary of impacts

6.13. The Scheme has been considered in assessing the likely impacts and effects of the Scheme, whilst taking into account the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

6.14. The LVIA chapter assesses two types of effects in terms of the Construction, Operation and Decommissioning stages of the Scheme:

- Assessment of landscape effects: assessing effects on the landscape as a resource in its own right
- Assessment of visual effects: assessing effects on specific views and on the general visual amenity experienced by people

Construction

Unmitigated impacts - assessed impacts

6.15. In terms of construction, no significant landscape effects during construction in relation to the Principal Site are expected for Local Landscape Character Areas (LLCA) other than 3A, 2B and 2C as per ES Chapter 12: Landscape and Visual Amenity [EN010142/APP/6.1]. Although construction will result in indirect impacts arising from perceptual influences outside the Principal Site boundary, the level of effect will be limited to minor at most, and not significant.

6.16. Furthermore, in terms of construction, no significant landscape effects are expected for LLCA in relation to construction of the Cable Route Corridor. The works will be of relatively limited extent and of a temporary, short-term duration, with very localised vegetation removal, plant and traffic movement, compounds and lighting. The level of effect is minor adverse at most, and not significant.

6.17. Significant visual effects during construction in relation to the Principal Site for assessed representative viewpoints range from moderate adverse to major adverse across eleven viewpoints. Significant visual effects during construction in relation to the Cable Route Corridor for assessed representative viewpoints are likely to be moderate adverse across two viewpoints.

Proposed mitigation

6.18. The Scheme has undergone a series of iterations to embed mitigation measures into the Scheme design. Whilst long term, the residual significant landscape and visual effects will be temporary, it will not be possible to fully mitigate every adverse effect due to the requirements of the Scheme. As such, no additional mitigation is proposed.

Residual impacts with mitigation

6.19. In terms of landscape effects, once embedded mitigation measures are in place, the construction of the Principal Site will likely have a moderate adverse residual effect on three LLCA receptors, with a low to medium magnitude of impact. There are no significant residual landscape effects reported for construction in relation to the Cable Route Corridor.

6.20. In terms of visual effects, once embedded mitigation measures are in place, the construction of the Principal Site will likely have a moderate or major adverse residual effect on eleven LLCA receptors, with a low to high magnitude of impact. The construction of the Cable Route Corridor will likely have a moderate adverse residual effect on two LLCA receptors, with a medium magnitude of impact.

Cumulative

6.21. In terms of cumulative landscape effects, the construction of cumulative schemes is likely to have slight to large adverse cumulative effects, or no significant cumulative effects, on six LLCA of low to high sensitivity.

6.22. In terms of cumulative visual effects, the construction of cumulative schemes is likely to have slight to large adverse cumulative effects, or no significant cumulative effects, on twenty-three LLCA of low to high sensitivity.

Operation

Unmitigated impacts - assessed impacts

6.23. In terms of operation, no significant landscape effects at Operation Year 1 in relation to the Principal Site are expected for any other LLCA other than 3A and 2B noted as per ES Chapter 12: Landscape and Visual Amenity [EN010142/APP/6.1]. Based on a combination of the magnitude of change and sensitivity, the level of effect for these other LLCA is minor adverse at most, and not significant. No significant landscape effects at Operation Year 15 (summer) in relation to the Principal Site are expected for LLCA other than 3A noted as per ES Chapter 12: Landscape and Visual Amenity [EN010142/APP/6.1]. Based on a combination of the magnitude of change and sensitivity, the level of effect is minor adverse at most, and not significant.

6.24. Furthermore, in terms of operation, no significant landscape effects are expected for the LLCA at Operation Year 1 in relation to the Cable Route Corridor. Based on a combination of the magnitude

of change and sensitivity, the level of effect is minor adverse at most, and not significant. No significant landscape effects are expected for LLCA at Operation Year 15 (summer) in relation to construction of the Cable Route Corridor. Landscape effects are minor adverse at most. Based on a combination of the magnitude of change and sensitivity, the level of effect is minor adverse at most, and not significant.

6.25. Significant visual effects during Operation Year 1 in relation to the Principal Site for assessed representative viewpoints range from moderate adverse to major adverse across eleven viewpoints. In relation to the Cable Route Corridor, no significant effects are expected for the Operation Year 1 stage. Significant visual effects at Operation Year 15 in relation to the Principal Site for assessed representative viewpoints range from moderate adverse to major adverse across three viewpoints. In relation to the Cable Route Corridor, no significant visual effects are expected at Operation Year 15.

Proposed mitigation

6.26. The Scheme has undergone a series of iterations to embed mitigation measures into the Scheme design. Whilst long term, the residual significant landscape and visual effects will be temporary, it will not be possible to fully mitigate every adverse effect due to the requirements of the Scheme. As such, no additional mitigation is proposed.

Residual impacts with mitigation

6.27. In terms of landscape effects, once embedded mitigation measures are in place, the Operation Year 1 of the Principal Site will likely have a moderate adverse residual effect on two LLCA receptors, with a low to high magnitude of impact. At Operation Year 15, the significant residual effect on one receptor after embedded mitigation measures are in place is moderate adverse with high magnitude of impact. There are no significant residual landscape effects reported for operation in relation to the Cable Route Corridor.

6.28. In terms visual effects, once embedded mitigation measures are in places, the Operation Year 1 of the Principal Site will likely have a moderate to major adverse residual effect on eleven LLCA receptors, with a low to high magnitude of impact. At Operation Year 15, the significant residual effect on three receptors after embedded mitigation measures are in place is moderate or major adverse with low to medium magnitude of impact. There are no significant residual visual effects reported for operation in relation to the Cable Route Corridor.

6.29. With regard to landscape character and visual effects, WLDC considers the scheme to have significant adverse impact in planning terms, especially upon ‘The Cliff’ AGLV and the ‘spring line’ villages including the village of Glentworth (located within the AGLV).

6.30. The encroachment of the scheme (including panels and associated infrastructure such as substations and the BESS) towards the AGLV fails to protect its character, causing material harm to this sensitive and important landscape feature in the district. This material harm is demonstrated through the viewpoint analysis carried out by the applicant, including viewpoints 1, 2a/ 2b, 4, 5 6, 7, 11, and 15.

6.31. The GNP sets out a number of viewpoints that important to the setting and character of the village (Policy Map 1(a). View 10 aligns with application LVIA viewpoint 7, and its importance is described as ‘*glimpses of the church, Glentworth Hall and the characteristic pantile roofs, softened and harmonised by the trees. Emphasises the discrete rural setting’*. This viewpoint is located within the AGLV looking down towards Glentworth and wider large scale landscape. The GNP states that development proposals will be supported where they take account of Key Local Views and have demonstrated how they are maintaining and responding positively to such views.

6.32. WLDC consider that the Tillbridge Solar Park fails to maintain and responds positively to the key views identified in the GNP, which serve to underpin statutory development plan policy and ‘The Cliff’ AGLV.

Cumulative

6.33. In terms of cumulative landscape effects, the Operation Year 1 of cumulative schemes is likely to have slight or large adverse cumulative effects, or no significant cumulative effects, on four LLCA of

low to high sensitivity. The Operation Year 15 of cumulative schemes is likely to have slight or large adverse cumulative effects on four LLCA of low to high sensitivity.

6.33.1. In terms of cumulative visual effects, the Operation Year 1 of cumulative schemes is likely to have slight to large adverse cumulative effects, or no significant cumulative effects, on seventeen LLCA of low to high sensitivity. The Operation Year 15 of cumulative schemes is likely to have slight to large adverse cumulative effects on ten LLCA of low to high sensitivity.

6.33.2. The cumulative impacts of the Tillbridge Solar Project with the other consented solar NSIPs Gate Burton and Cottam, and the West Burton project (awaiting decision) is deemed wholly unacceptable in planning terms. The unprecedented circumstance of delivering potentially four NSIP large scale solar projects within the rural district of West Lindsey will have significant adverse impacts upon the rural landscape character of the Till Vale and The Cliff LCAs (The Cliff protected as an AGLV). The magnitude and rapid pace of this character change will adversely affect the interpretation, appreciation and culture of the landscape and communities in West Lindsey.

6.33.3. The lifespan of the projects up to 60 years does not represent temporary impacts. These are inter-generational and will be experienced as effectively permanent features in the landscape.

6.33.4. The cumulative construction of the project, all of which could occur for around a decade depending on the commencement of works and the speed of construction, will cause material harm to the rural landscape of West Lindsey, adversely affecting communities and visitors through disruption, noise, construction traffic congestion/management and the impact on the landscape as construction takes place.

Decommissioning

Unmitigated impacts - assessed impacts

6.34. In terms of decommissioning effects on the landscape activities relating to decommissioning are likely to be similar to construction for the Principal Site as a worst-case scenario, including the temporary, short-term presence of plant and traffic movement and earthworks. No significant landscape effects are expected to arise from the decommissioning phase; based on a combination of the magnitude of change and sensitivity, the level of effect is minor adverse at most, and not significant. No significant landscape effects are expected for LLCA at decommissioning (winter) of the Cable Route Corridor.

6.35. In terms of decommissioning visual effects, activities relating to decommissioning in relation to the Principal Site are likely to be similar to those at construction as a worst-case scenario. The majority of the Scheme will revert to agriculture, reflecting the wider baseline context. No significant visual effects are expected to arise for the Principal Site at the decommissioning phase. No significant visual effects are expected for visual receptors during decommissioning stage of the Cable Route Corridor.

Proposed mitigation

6.36. The Scheme has undergone a series of iterations to embed mitigation measures into the Scheme design. Whilst long term, the residual significant landscape and visual effects will be temporary, it will not be possible to fully mitigate every adverse effect due to the requirements of the Scheme. As such, no additional mitigation is proposed.

Residual impacts with mitigation

6.37. In terms of landscape effects, once embedded mitigation measures are in place, the decommissioning of the Principal Site will likely have no significant residual effects on LLCA receptors. There are no significant residual landscape effects reported for decommissioning in relation to the Cable Route Corridor.

6.38. In terms of visual effects, once embedded mitigation measures are in place, the decommissioning of the Principal Site will likely have no significant residual effects on LLCA receptors. The decommissioning of the Cable Route Corridor will likely have no significant residual visual effects on LLCA receptors.

Cumulative

6.39. In terms of cumulative landscape effects, the decommissioning of cumulative schemes is likely to have slight or moderate adverse cumulative effects on two LLCA of low or medium sensitivity.

6.40. In terms of cumulative visual effects, the decommissioning of cumulative schemes is likely to have slight or moderate adverse cumulative effects on two LLCA of low or medium sensitivity.

Requirements

Requirement 5 – Detailed design approval

6.41. This requirement stipulates the details that must be submitted to and approved by the Relevant Planning Authority before the authorised development may commence. The details submitted must be in accordance with the concept design parameters and principles (CDPP).

Requirement 7 – Landscape and ecological management plan

6.42. The LEMP will be substantially in accordance with the OLEMP.

6.43. The overall objective of the landscape design is to integrate the Scheme into its landscape setting and avoid or minimise adverse landscape and visual effects as far as practicable. Despite this claim, the Landscape and Visual Impact Assessment chapter of the ES states the scheme would result in major and moderate adverse impacts on the landscape.

6.44. The structure, scope and current detail within the CEMP is considered to be sufficient for decision making purposes and for securing through the proposed DCO Requirement. WLDC does however maintain concerns around the cumulative approach and impacts upon the successful implementation of the OLEMP (e.g. within the cable corridor). More detail around how projects will be phased and mitigation delivered is required to avoid abortive implementation of measures, which could elongate the time period for when mitigation is delivered.

Requirement 9 – Fencing and other means of enclosure

6.45. The undertaker is required to obtain the written approval from the relevant planning authority for any proposed temporary or permanent fences, walls or other means of enclosure, for each part in question. The written details of permanent fencing must be substantially in accordance with the relevant CDPP.

Requirement 12 – Construction environmental management plan

6.46. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the outline construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

6.47. The Outline Landscape and Ecological Management Plan (OLEMP) (accompanies the Application and sets out the measures proposed to mitigate the potential impacts and effects on landscape (and ecological) features, and to enhance the landscape and biodiversity value of the Sites (i.e. the Green Infrastructure). The Landscape and Ecological Management Plan (LEMP), which takes into account and is prepared in accordance with the principles of the OLEMP, will be submitted to and approved by the relevant planning authority or authorities pursuant to a Requirement under the DCO.

Requirement 13 – Operational environmental management plan

6.48. Requirement 14 – Operational environmental management plan: Before the date of final commissioning of the authorised development, an operational environmental management plan (which must substantially accord with the outline operational environmental management plan) must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

6.49. The OLEMP sets out the measures proposed to mitigate the potential impacts and effects on landscape (and biodiversity) features, and to enhance the landscape and biodiversity value of the

Order limits (i.e. the Green Infrastructure). A detailed LEMP will be prepared in accordance with the principles of the OLEMP and will be submitted to and approved by the relevant planning authority or authorities. This will include measures to ensure landscape mitigation and enhancements are established and maintained into and throughout the operational phase. No visible lighting will be utilised at the Order limits perimeter.

Requirement 20 – Decommissioning and restoration

6.50. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan for that part which substantially accords with the decommissioning statement. No decommissioning works must be carried out until the relevant planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

7. Ecology and Nature Conservation

Summary

7.1.1. The list below outlines the main points arising from the review of Chapter 9: Ecology and Biodiversity of the ES (Doc. Ref. EN010132/APP/WB6.2.9) for the Tillbridge Solar Project.

- [EC1] No significant residual effects on ecology will occur as a consequence of the project.
- [EC2] The study area is clearly set out in the assessment, however, most of the surveys appear to cease at the site boundary whereas, in general surveys would be expected to extend beyond the site boundary to fully understand the ecological baseline within the site and its immediate surrounds.
- [EC3] It appears that no tree or structure surveys for bat roosts were undertaken, as the assessment states that 'All roosts and potential roost features identified are outside the current footprint of the Scheme' and will therefore not be impacted. However, the plans show suitable features (trees and woodland blocks) within the site boundary and there is no evidence to back up the statement that any potential roosts are outside the zone of influence of the works
- [EC4] It is not apparent that the otter and water vole surveys were undertaken outside of the site boundary which would not be compliant with current guidance.
- [EC5] The Construction Environmental Management Plan (CEMP) sets out measures to deal with the risk of encountering great crested newts, however, it does not detail what will happen if they are encountered;
- [EC6] The assessment states that there may be indirect impacts to bats, however, these would be avoided through a precautionary working method statement. However, no presence/ absence surveys have been undertaken of these structures/ trees to determine if roosts are present and if so the type and size. It is stated that a 15 m buffer would be placed around all potential roosts to avoid impacts, however, it could be questioned that without survey data it is not possible to determine if 15 m would be an appropriate buffer.
- [EC7] The assessment concludes that there will be a minor beneficial impact on non-breeding birds through habitat creation. However, species including golden plover and skylark require open habitats which are being lost and therefore a claim that there will be minor beneficial impacts is debatable.

Policy Context

National Policy

7.2. Section 5.4 of NPS (EN-1) states that '*development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives (…); where significant harm cannot be avoided, then appropriate compensation measures should be sought*'.

7.3. NPS (EN-1) notes (see paragraph 5.4.52) that due consideration should also be given to regional and local biodiversity and geological designations this is because these sites have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community; and in supporting research and education.

7.4. NPS (EN-3) also highlight that solar farms have the potential to increase the biodiversity value of a site, especially if the land was previously intensively managed. In some instances, this can result in significant benefits and enhancements beyond Biodiversity Net Gain, which result in wider environmental gains which is encouraged.

Local Policy

7.5. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

7.6. Policy S14: Renewable Energy states that proposals for ground based photovoltaics should be accompanied by evidence demonstrating how opportunities for delivering biodiversity net gain will

be maximised in the scheme taking account of soil, natural features, existing habitats, and planting proposals accompanying the scheme to create new habitats linking into the nature recovery strategy.

7.7. Policy S59: Green and Blue Infrastructure Network sets out where new green infrastructure is proposed, the design and layout should take opportunities to deliver biodiversity net gain and support ecosystem services.

7.8. Policy S60: Protecting Biodiversity and Geodiversity requires development proposals will be considered in the context of the relevant Local Authority's duty to promote the protection and recovery of priority species and habitats. If the proposals do cause adverse impacts, then the benefit of the scheme will need to provide benefits the clearly outweigh the harms. Development will only be supported where the proposed measures for mitigation and/or compensation along with details of net gain are acceptable. All development will also need to meet the following tests:

- Protect, manage, enhance and extend the ecological network of habitats, species and sites of international, national and local importance.
- Minimise impacts on biodiversity and features of geodiversity value.
- Deliver measurable and proportionate net gains in biodiversity.
- Protect and enhance the aquatic environment within or adjoining the site, including water quality and habitat.

7.9. If the above tests cannot be met, development will be refused.

7.10. Policy S61: Biodiversity Opportunity and Delivering Measurable Net Gains requires development to deliver at least a 10% measurable biodiversity net gain attributable to the development. The net gain for biodiversity should be calculated using Natural England's Biodiversity Metric.

7.11. Policy S66: Trees, Woodland and Hedgerows requires proposals to provide evidence that they have been subject to adequate consideration of the impact of the development on any existing trees and woodland. New developments will also be expected to retain existing hedgerows where appropriate and integrate them fully into the design having regard to their management requirements.

Summary of impacts

7.12. The Scheme has been considered in assessing the likely impacts and effects of the Scheme, whilst taking into account the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

7.13. Prior to the implementation of any mitigation, the Scheme has the potential to affect biodiversity (positively or negatively), during construction, operation and decommissioning.

Construction

Unmitigated impacts - assessed impacts

7.14. Given embedded mitigation measures, during the construction phase there are likely impacts on sites (statutorily and non-statutorily) designated for their biodiversity importance. In term of designated sites, there is the potential for impacts to occur on three important ecological features (IEFs) during the construction phase. For habitats and species, the potential for an effect to occur is relevant to four IEFs during construction. Given the temporary and permanent loss to habitat, farmland for Skylark and Quail, tree and hedgerow IEFs identified during construction, these have been assessed further (with avoidance and mitigation measures accounted for), and are considered to result in minor adverse or negligible (not significant) effects.

7.15. The study area is clearly set out in the assessment, however, most of the surveys stopped at the site boundary whereas, in general surveys would be expected to extend beyond the site boundary to fully understand the ecological baseline within the site and its immediate surrounds.

7.16. The supporting appendices clearly set out the phase 2 surveys undertaken to inform the assessment in the main Environmental Statement chapter. The surveys appear to have been carried out at the correct times of the year, however, this is not readily apparent for all species.

7.17. No tree or structure surveys for bat roosts were undertaken, as the assessment states that 'All roosts and potential roost features identified are outside the current footprint of the Scheme' and will

therefore not be impacted. However, the plans show suitable features (trees and woodland blocks) within the site boundary and there is no evidence to back up the statement that any potential roosts are outside the zone of influence of the works;

7.18. It is not apparent that the otter and water vole surveys were undertaken outside of the site boundary which would not be compliant with current guidance.

7.19. The Construction Environmental Management Plan (CEMP) sets out measures to deal with the risk of encountering great crested newts, however, it does not detail what will happen if they are encountered;

7.20. The assessment states that there may be indirect impacts to bats, however, these would be avoided through a precautionary working method statement. However, no presence/ absence surveys have been undertaken of these structures/ trees to determine if roosts are present and if so the type and size. It is stated that a 15 m buffer would be placed around all potential roosts to avoid impacts, however, it could be questioned that without survey data it is not possible to determine if 15 m would be an appropriate buffer;

7.21. The assessment concludes that there will be a minor beneficial impact on non-breeding birds through habitat creation. However, species including golden plover and skylark require open habitats which are being lost and therefore a claim that there will be minor beneficial impacts is debatable.

Proposed mitigation

7.22. The Scheme design has evolved to avoid all sites statutorily designated for their biodiversity importance and to avoid or minimise impacts on sites that are non-statutorily designated for their biodiversity importance. Measures embedded within the Scheme design will ensure that designated sites are not adversely impacted during construction.

7.23. Embedded mitigation includes habitat avoidance measures, framework CEMP, measures for ground-nesting birds, vegetation clearance, security perimeter fencing, construction lighting, methods for watercourse crossing, drainage strategy and wildlife legislation compliance.

7.24. In terms of additional mitigation, the assessment of likely impacts and effects identified no significant effects on important ecological features. Therefore, no additional mitigation is required.

Residual impacts with mitigation

7.25. With the application of these mitigation measures, no significant residual effects on Ecology and Nature Conservation have been identified during construction of the Scheme.

Cumulative

7.26. Given identified residual effects on important ecological features during construction, for the Scheme and other solar DCOs (Gate Burton, Cottam and West Burton), the cumulative effects on ground-nesting birds and overwintering birds (low/local/district), it is assessed that it is unlikely that this will generate an adverse effect beyond the local level and therefore, is not significant, especially given the extensive areas of higher quality habitats (than the existing arable farmland) being delivered across the four solar DCOs.

7.27. Given, the spatial separation of the PV and BESS areas and absence of overlapping features (outside the Cable Corridor Route), the isolated populations of reptiles and amphibians across all four solar DCOs will benefit from the habitat creations generated by the projects. However, given the low sensitivity/importance of the identified populations, it is unlikely that this will generate an effect beyond the local level and therefore, is not significant.

Operation

Unmitigated impacts - assessed impacts

7.28. Given embedded mitigation measures and in term of designated sites, there is the potential for impacts to occur on zero important ecological features (IEFs) during the operation phase. For habitats and species, the potential for an effect to occur is relevant to one IEF during operation. Given the potential impact of solar PV panels on the displacement of bats, identified during

operation, this has been assessed further (with avoidance and mitigation measures accounted for), and is considered to result in a negligible (not significant) effect.

7.29. The approach of assuming future grassland in the array's area is modified grassland and not a more diverse habitat appears appropriate given the effects of the array on vegetation beneath it.

7.30. The assessment noted the presence of irreplaceable habitat (veteran trees). It is good that these are to be retained and protected. It is essential that this commitment is delivered during construction as part of achieving BNG.

The assessment states that some areas within the Order limits have been excluded from calculations. This approach has been used on others that, like the scheme, were not covered by the mandatory requirement, but such deviations from standard practice still require agreement with decision makers.

Proposed mitigation

7.31. The Scheme design has evolved to avoid all sites statutorily designated for their biodiversity importance and to avoid or minimise impacts on sites that are non-statutorily designated for their biodiversity importance. Measures embedded within the Scheme design will ensure that designated sites are not adversely impacted during operation.

7.32. In terms of embedded mitigation during the operational phase, activity within the Scheme will be minimal and will be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components that fail, solar PV panel cleaning and monitoring. There will also be a requirement once a year for the washing of the solar panels. During operation the number of access points will be reduced from construction, with removal of track materials and re-instatement of vegetation at locations no longer required during operation. Along the cable route, operational activity will consist of routine inspections (schedule to be determined) and any reactive maintenance such as where a cable has been damaged.

7.33. The Framework OEMP [EN010142/APP/7.9] includes measures required to minimise operational impacts, including no part of the Scheme being continuously lit, following a Scheme drainage strategy which includes measures to manage surface water runoff, creation and management of habitats as per Framework LEMP [EN010142/APP/7.17], managing vegetation within the Order limits in accordance with breeding birds legislation, and a programme of monitoring established prior to operation to ensure that biodiversity measures are implemented according to plan with necessary remediation.

7.34. In terms of additional mitigation, the assessment of likely impacts and effects identified no significant effects on important ecological features. Therefore, no additional mitigation is required.

Residual impacts with mitigation

With the application of these mitigation measures, the Scheme will result in significant moderate beneficial effects to broad-leaved woodland, running water, hedgerows and breeding birds, particularly farmland birds associated with hedgerows and field margins, during the operational phase.

Cumulative

7.35. The Scheme will deliver at least 10% biodiversity net gain (BNG), and once operational there will be extensive green infrastructure and ecological enhancements. It is also assumed that all other developments would follow good industry practice in terms of operational management and maintenance works, and that any operation related impacts would be mitigated on site to avoid residual effects on ecological features. No adverse operational effects on important ecological features have been reported for the Scheme. Habitat losses and habitat creation have been considered as construction impacts and the other solar DCOs do not report any further significant effects during operation. Therefore, no cumulative effects arise.

Decommissioning

Unmitigated impacts - assessed impacts

7.36. Given embedded mitigation measures and in term of designated sites, there is the potential for impacts to occur on zero important ecological features (IEFs) during the decommissioning phase. In term of designated sites, there is the potential for impacts to occur on zero important ecological features (IEFs) during the decommissioning phase. For habitats and species, the potential for an effect to occur is relevant to zero IEFs during decommissioning.

7.37. The effects of decommissioning of the Scheme are likely to be similar to those for construction, but with recognition that many of the potential impacts associated with the creation of internal accesses will not be relevant during decommissioning. No potential impacts and effects from decommissioning have been identified at this stage. Habitats and protected or notable species are likely to be subject to temporary damage of habitats and disturbance to species during decommissioning activities, however, the significance of any effects can only be fully determined once the baseline conditions at the time of decommissioning are known.

Proposed mitigation

7.38. The Scheme design has evolved to avoid all sites statutorily designated for their biodiversity importance and to avoid or minimise impacts on sites that are non-statutorily designated for their biodiversity importance. Measures embedded within the Scheme design will ensure that designated sites are not adversely impacted during decommissioning.

7.39. In terms of embedded mitigation during the decommissioning phase, the Framework DEMP [EN010142/APP/7.10] sets out measures to mitigate any decommissioning related effects on biodiversity. Whilst the majority of mitigation measures will be similar to those during construction, pre-decommissioning surveys will be required to inform any mitigation and protected species licensing, as required at the time of decommissioning.

7.40. In terms of additional mitigation, the assessment of likely impacts and effects identified no significant effects on important ecological features. Therefore, no additional mitigation is required.

Residual impacts with mitigation

7.41. With the application of these mitigation measures, no significant residual effects on Ecology and Nature Conservation have been identified during decommissioning of the Scheme.

Cumulative

7.42. As the Scheme has an operational life of 60 years, it is not possible to state for certain which developments would be constructed or decommissioned at the same time as the Scheme is being decommissioned. However, it is considered likely that the other solar DCOs would be decommissioned around the same time as the Scheme. As such, the effects of decommissioning are likely to be similar to those or less than during construction. The cumulative effects on important ecological features during decommissioning would therefore not be significant.

Requirements

Requirement 7 - Landscape and Ecological Management Plan

7.43. This requirement stipulates that no part of the authorised development may commence until a written landscape and ecological mitigation plan (substantially in accordance with the outline landscape and ecological mitigation plan) has been submitted to and approved by the relevant planning authority. The landscape and ecological mitigation plan must be implemented as approved.

Requirement 8 – Biodiversity Net Gain

7.44. This requirement stipulates that no part of the authorised development may commence until a biodiversity net gain strategy has been submitted to and approved by the relevant planning authority, in consultation with the relevant statutory nature conservation body.

Requirement 12 – Construction environmental management plan

7.45. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the outline construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

7.46. A pre-construction site walkover will be undertaken in advance of mobilisation/any potential advance works to reconfirm the ecological baseline conditions and to identify any new ecological risks.

7.47. Updated species surveys would be completed as appropriate to reconfirm the status of protected species identified, to inform mitigation requirements and support protected species licence applications, if required by the council(s) and EcoCoW.

Requirement 13 – Operational environmental management plan

7.48. Requirement 14 – Operational environmental management plan: Before the date of final commissioning of the authorised development, an operational environmental management plan (which must substantially accord with the outline operational environmental management plan) must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

Requirement 20 – Decommissioning and restoration

7.49. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan for that part which substantially accords with the decommissioning statement. No decommissioning works must be carried out until the relevant planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

8. Socioeconomics and Land Use

Summary

8.1. The list below outlines the main points arising from the review of Chapter 18: Socio Economics, Tourism and Recreation of the ES (Doc. Ref. EN010132/APP/WB6.2.18) for the Tillbridge Solar Project:

- [SETR1] It is recognised that there are some financial benefits as a result of the Scheme. When considering that there are potentially four solar schemes located within West Lindsey it is questioned how the Scheme will identify the required workforce given the level of resource needed to deliver all the schemes at the same time.
- [SETR2] WLDC considers that there will be a long-term impact on tourism as a result of the Scheme during the construction phase. There is a potential for the Scheme to reduce the desirability of the Local Impact Area for tourism. It is therefore questioned that once the operation period has started, whether it has been assessed about the loss in long-term loss for the tourism economy. Impacts to the tourism economy have implications for compliance with Policy S42: Sustainable Rural Tourism in the Central Lincolnshire Local Plan.

  [SETR3] There does not appear to be an assessment of the loss of agricultural land to the agricultural sector, including the loss of employment over the operational period of the Scheme.
- [SETR4] There is the potential for 'a fire could occur at any location within the development during the site construction, operational and decommissioning phases'. It is noted that the Outline Battery Storage Safety Management Plan outlines the key fire safety provisions for the BESS.
- [SETR5] The loss of agricultural land for food production represents a significant adverse impact. This impact is exacerbated by the cumulative effects of the loss of this land with other large scale solar NSIPs located within the West Lindsey District

National Policy

8.2. Paragraph 5.13.9 of the NPS [EN-1] states that the ExA '*should have regard to the potential socio-economic impacts of new energy infrastructure identified by the applicant and from any other sources that the SoS considers to be both relevant and important to its decision*'.

8.3. The NPS goes on to say the ExA '*should consider whether mitigation measures are necessary to mitigate any adverse socio-economic impacts of the development'*.

Local Policy

8.4. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

8.5. Policy S10: Supporting a Circular Economy recognises the high energy and material use consumed on a daily basis, and, consequently, is fully supportive of the principles of a circular economy. As such, proposals will be supported, in principle, which demonstrate their compatibility with, or the furthering of, a strong circular economy in the local area.

8.6. Policy S20: Resilient and Adaptable Design requires design proposals to be adaptable to future social, economic, technological and environmental requirements in order to make buildings both fit for purpose in the long term and to minimise future resource consumption. The relevant tests to this Scheme must be met for proposals to be deemed acceptable:

- Allow for future adaptation.
- Be resilient to flood risk, from all forms of flooding.

8.7. Policy S28: Spatial Strategy for Employment requires employment related proposals to be consistent with meeting the following overall spatial strategy for employment. The strategy is to strengthen the Central Lincolnshire economy offering a wide range of employment opportunities focused mainly in and around the Lincoln urban area and the towns of Gainsborough and Sleaford, with proportionate employment provision further down the Settlement Hierarchy (see Policy S1).

8.8. Policy S45: Strategic Infrastructure Requirements states that development proposals will only be granted if it can be demonstrated that there is, or will be, sufficient infrastructure capacity to support and meet all the necessary requirements arising from the proposed development.

8.9. Policy S54 notifies applicants that the potential for achieving positive mental and physical health outcomes will be taken into account for all schemes. Where any potential adverse health impacts are identified, the applicant will be expected to demonstrate how these will be addressed and mitigated.

Summary of impacts

8.10. The Scheme has been considered in assessing the socio-economic and land use impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures. WLDC hold significant concerns about the short and long-term harm that the Scheme will have on the tourism sector.

Construction

Unmitigated impacts - assessed impacts

8.11. Given embedded mitigation measures, during the construction phase there are likely to be impacts on the net construction employment, leakage, displacement, multiplier effect, local accommodation facilities and gross value added (GVA) of net construction employment within the Order limits.

8.12. In terms of the Principal Site area, the effect of the Scheme on PRoWs and local community severance is assessed to be negligible. The effects of the Scheme on land used for agricultural production arising during construction at the Principal Site would be minor adverse. There is likely to be no effect on local land use and amenity receptors within the Principal Site as a result of construction.

8.13. The effect of the Scheme on PRoWs and local community severance in the Cable Route Corridor is assessed to be negligible. There would be no effect of the Scheme on agricultural production within the Cable Route Corridor. Furthermore, there would be no effect of the Scheme on local land use and amenity receptors during construction, within the Cable Route Corridor.

8.14. Notwithstanding the applicant's assessment, WLDC has significant concerns regarding the potential impact upon the tourism industry, which would begin got be impacted through the influx of workers employed on a number of projects over a significant period of time (up to a decade).

Proposed mitigation

8.15. The Scheme design included embedded mitigation measures to reduce construction phase impacts on sensitive receptors. The Scheme has also been designed to take into account sensitive receptors, including by positioning infrastructure to avoid receptors such as Best and Most Versatile (BMV) land and PRoWs, as far as possible.

8.16. In terms of embedded mitigation, the Framework CEMP [EN010142/APP/7.8] sets out measures to reduce amenity impacts on sensitive receptors during the construction phase. These include the implementation of a stakeholder communications plan, recording all dust and air quality complaints, planning site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.

8.17. No additional mitigation is required with respect to socio-economic and land use effects arising from the Scheme.

Residual impacts with mitigation

8.18. With the application of these mitigation measures, no significant residual effects on Socio-economics and Land Use are anticipated to occur during construction of the Scheme. Residual effects during construction on the Order Limits are minor beneficial or negligible, negligible, minor adverse or no effect on the Principal Site, and minor adverse, negligible or no effect on the Cable Route Corridor.

Cumulative

8.19. In terms of construction, the applicant considered that there will be a cumulative moderate beneficial effect on net construction employment, neutral effect on gross value added, neutral cumulative effect on accommodation facilities, neutral cumulative effect on local community severance and PRoW, neutral effect on agricultural production and a neutral cumulative effect on local land use and amenity.

8.20. WLDC has significant concerns regarding the cumulative impact of a significant influx of workers, which would saturate the existing tourism accommodation in the area.

Operation

Unmitigated impacts - assessed impacts

8.21. Given embedded mitigation measures, during the operation phase there are likely to be impacts on existing employment and total net operational employment within the Order limits.

8.22. In terms of the Principal Site area, there is likely to be no effect of the Scheme on PRoWs or local community severance. The addition of the new permissive pathways results in a minor beneficial (not significant) effect. There is likely to be no effect on local land use and amenity receptors within the Principal Site during operation.

8.23. No socio-economic or land use impacts are anticipated to be associated with the Cable Route Corridor Route during the operational phase. There may be occasional requirements for maintenance to cabling, however, no open excavation or disturbance is expected. As such, there would be no effect.

8.24. There are no significant effects on socio-economics or land use expected during the operational phase of the Scheme.

Proposed mitigation

8.25. The Scheme design included embedded mitigation measures to reduce operational phase impacts on sensitive receptors. The Scheme has also been designed to take into account sensitive receptors, including by positioning infrastructure to avoid receptors such as Best and Most Versatile (BMV) land and PRoWs, as far as possible.

8.26. In terms of embedded mitigation during the operation phase, the Framework OEMP sets out measures to reduce amenity impacts on sensitive receptors during the operational phase. These include the specification of plant machinery with low noise emission, reusing suitable solar infrastructure and resources where possible, and additional hedge planting to replace lost hedge boundaries within the Order limits.

8.27. No additional mitigation is required with respect to socio-economic and land use effects arising from the Scheme.

Residual impacts with mitigation

8.28. With the application of these mitigation measures, no significant residual effects on Socio-economics and Land Use are anticipated to occur during operation of the Scheme. Residual effects during operation include no effect on the Order Limits, no or minor beneficial effects on the Principal Site, and no effect on the Cable Corridor.

Cumulative

8.29. In terms of operation, there are likely to be a cumulative neutral effects on net operational employment local community and PRoW, agricultural production and local land use and amenity.

Decommissioning

Unmitigated impacts - assessed impacts

8.30. Given embedded mitigation measures, the temporary impact of decommissioning employment generation from the Order limits is assessed as minor beneficial effect at the West Lindsey and Bassetlaw scale, and a negligible effect at the regional scale. The effects are not significant.

8.31. In terms of the Principal Site area, the effect of the Scheme on PRoWs and local community severance is assessed to be negligible (not significant) during decommissioning. There is likely to be no effect on local land use and amenity receptors within the Principal Site during decommissioning.

8.32. There are no local land use and amenity receptors along the Cable Route Corridor that would experience a significant effect on their amenity during decommissioning activities either, and so there would therefore be no effect.

8.33. There are no significant effects on socio-economics or land use expected during the decommissioning phase of the Scheme.

Proposed mitigation

8.34. The Scheme design included embedded mitigation measures to reduce decommissioning phase impacts on sensitive receptors. The Scheme has also been designed to take into account sensitive receptors, including by positioning infrastructure to avoid receptors such as Best and Most Versatile (BMV) land and PRoWs, as far as possible.

8.35. In terms of embedded mitigation during the decommissioning phase, the Framework DEMP [EN010142/APP/7.10] sets out measures to reduce amenity impacts on sensitive receptors during the decommissioning phase. The Framework DEMP also includes measures that will ensure the restoration of agricultural land and soils to its existing use, following decommissioning. The DEMP includes measures such as implementing a Dust Management Plan (DMP) (which will be produced post consent), ensuring noise and vibration are controlled at source (where reasonably practicable), and developing a Decommissioning Traffic Management Plan (DTMP).

8.36. No additional mitigation is required with respect to socio-economic and land use effects arising from the Scheme.

Residual impacts with mitigation

8.37. With the application of these mitigation measures, no significant residual effects on Socio-economics and Land Use are anticipated to occur during decommissioning of the Scheme. Residual effects during decommissioning include a local minor beneficial effect on net decommissioning employment, with this reducing to a negligible effect at a regional and national level. In terms of Principal Site and Cable Route Corridor there is to be a negligible residual effect on local community severance and PRoW, with no effect on local land use and amenity both within the Principal Site and Cable Route Corridor.

Cumulative

8.38. It is considered likely that the other solar DCOs would be decommissioned around the same time as the Scheme. As such, the effects of decommissioning are likely to be similar to those during construction and would be expected to be beneficial. There is potential for adverse cumulative socio-economic and land use effects during decommissioning of other solar DCOs and the Scheme, with respect to community severance, PRoW users, land use and amenity, should impacts occur at the same time. The duration of the construction periods of all cumulative projects will put significant strain on the capacity of the West Lindsey District and wider are to accommodate workers, which will have a consequential impact upon the tourist industry.

Requirements

Requirement 4 – Community liaison group

8.39. This requirement provides that the undertaker must establish a community liaison group prior to commencement of the authorised development, in order to facilitate liaison between representatives of people living in the vicinity of the Order limits, and other relevant organisations in relation to the construction of the authorised development.

8.40. This would be welcomed by WLDC in order to maintain communication with representatives of local people living within the locality of the Scheme, however clarity on arrangement to set-up such a group and how it would be managed is required.

Requirement 19 – Skills, supply chain and employment

8.41. The requirement stipulates that no part of the authorised development may commence until a skills, supply chain and employment plan (which must be substantially in accordance with the outline skills, supply chain and employment plan) in relation to that part has been submitted to and approved by the relevant planning authority. The skills and employment plan must identify opportunities for individuals and businesses to access employment and supply chain opportunities associated with the construction, operation and maintenance of the authorised development, and the means for publicising such opportunities. The skills and employment plan must be implemented as approved.

8.42. The Outline Skills, Supply Chain and Employment Plan (OSSCEP) does not take into account the impact on the loss of agricultural income for local farms and farmers who have been producing for multiple generations. It is likely a 60 year hiatus will end this practice and lead to a loss of employment in farming in West Lindsey. WLDC is concerned as to who will be available when the scheme is decommissioned, when the scheme is eventually decommissioned, to simply pick up and begin farming the land once again. The impact on agricultural land tenant farmers should also be considered in the wider context of the four proposed solar NSIPs.

9. Transport and Access

Summary

9.1. The list below outlines the main points arising from the review of Chapter 14: Transport and Access of the ES (Doc. Ref. EN010132/APP/WB6.2.14) for the Tillbridge Solar Project.

- [TT1] No data has been provided regarding potentially sensitive receptors in the Study Area, including no analysis of whether the links assessed have current driver delay issues in the baseline scenario.
- [TT2] The lack of baseline data for pedestrians, cyclists and pedestrians prevents an understanding of the impact of severance, delay and amenity impacts to non-motorised highway users.
- [TT3] Clarification is required to confirm the application of the IEMA guidance to giving 'special consideration' to non-motorised users with regard to fear and intimidation.
- [TT4] With regards to the Outline Construction Traffic Management Plan), WLDC wishes the applicant to provide, within the Outline Construction Traffic Management Plan, the measures to be adopted in event two or more projects are being constructed simultaneously. The approach should then be replicated in the control document for each cumulative project to enable communities to understand the traffic related activities in the area and how developers have sought to minimise impacts during the construction phase.
- [TT5] Further mitigation is sough with regard to minimising impacts at the B1241 (ATC 23) located close to a Primary School (assessed as 'moderate adverse (significant).
- [TT6] The potential cumulative construction traffic could give rise to significant disruption to local communities, requiring significant traffic management causing delays to journeys over a number of years.

Policy Context

National Policy

9.2. Para 5.14.18 of the NPS (EN-1) sets out the that the SoS should ensure that the applicant has sought to mitigate the impact of energy NSIPs on the surrounding transport infrastructure

Local Policy

9.3. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

9.4. Policy S45: Strategic Infrastructure Requirements states that development proposals will only be granted if it can be demonstrated that there is, or will be, sufficient infrastructure capacity to support and meet all the necessary requirements arising from the proposed development.

9.5. Policy S47: Accessibility and Transport requires development to contribute towards an efficient and safe transport network. Proposals should demonstrate, where appropriate, that they have had regard to the following criteria:

- Minimise additional travel demand through the use of measures such as travel planning, safe and convenient public transport, car clubs, walking and cycling links and integration with existing infrastructure.

9.6. Policy S59: Green and Blue Infrastructure Network states that proposals that cause loss or harm to the green and blue infrastructure network will not be supported unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be supported if suitable mitigation measures for the network are provided.

Summary of impacts

9.7. The Scheme has been considered in assessing the socio-economic and land use impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to

this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

9.8. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. One significant effect on transport and access across the construction phase has been identified as a result of the Scheme (a moderate adverse (significant) effect on severance/ pedestrian delay/ NMU amenity on the B1241 (ATC 23).

9.9. All other effects have been categorised as either Minor Adverse or Negligible (not significant) including the impact on PRoW. It should be noted that the significant effect on the B1241 (ATC 23) is forecast during the peak period of construction which is short-term and temporary.

9.10. WLDCs concerns, notwithstanding the applicant's assessment are:

Driver Delay

9.11. No data is provided regarding the potentially sensitive receptors within the Study Area, and no analysis is provided to indicate which of the links assessed have current driver delay issues in the baseline scenario. The IEMA Guidance states that driver delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. Values for delay should be obtained through junction models, or mobile network data (or similar). This would improve the Baseline understanding on Driver Delay in the Study Area. It is noted that the assessment of driver delay will normally be based on the technical work reported within the Transport Assessment (Appendix 16-2). However, in this case the Transport Assessment also relies on an assessment of percentage impacts.

Severance, Pedestrian Delay and Non-motorised User Amenity

9.12. Table 16-19 details the sensitivity of each link. However, the basis of the approach is unclear. In the methodology (para 16.4.64) the Applicant states that *"the road links within a reasonable walking/ cycling distance of the Principal Site and Cable Route Corridor will be used as receptors, as well as any road links which are expected to provide a main vehicular route to/ from the Principal Site/ Cable Route Corridor accesses and contain pedestrian/ cycle facilities"*. This approach is unclear and there appears to be no distinction between the Severance, Pedestrian delay and non-motorised user amenity. As discussed, the lack of Baseline data for pedestrians, cyclists and equestrians makes it very difficult to assess the effects on Non-Motorised Users.

Fear and Intimidation

9.13. The Applicant states that the *"highway link receptors and receptor sensitivities have been determined using the same criteria as severance, pedestrian delay and non-motorised user amenity"*. However, the IEMA guidance states that *"special consideration should be given to areas where there are likely to be particular problems, such as high-speed sections of road, locations of turning points and accesses, and the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping*
further away from moving vehicles. In addition, locations where people may be unfamiliar with the locale (e.g. beauty spots or heritage/tourist attractions) need a judgement to be applied to determine the degree of impact. The movement of hazardous/large loads will heighten people's perception of fear and intimidation". These special considerations are not included in the Applicant's assessment. For example, the Applicant proposed to increase the daily HGVs at ATC23 from 195 HGVs to 739 HGVs (an additional 544 HGVs). ATC23 is located adjacent to Sturton by Stow Primary School, but no consideration of the effects on that receptor has been provided. The Applicant relies on the Further, no assessment in the IEMA guidance (Table 3-1 to Table 3-3), however, the guidance states that these are a weighting system to provide a first approximation and that the scoring system should be adapted to local conditions.

Proposed mitigation

9.14. The Scheme design included embedded mitigation measures to reduce construction phase impacts on sensitive receptors. Measures include implementation of a Framework CTMP [[EN010142/APP/7.11] and Framework Construction Environmental Management Plan (CEMP) [EN010142/APP/7.8], providing suitable points of access and providing sufficient protection/ separation between existing PRoW and construction routes where necessary.

9.15. No additional mitigation measures are proposed for the construction phase in addition to the embedded design mitigation measures described above. Measures to address the significant effect on the highway are incorporated within the Framework CTMP [EN010142/APP/7.11].

9.16. The Applicant has identified one significant effect on transport and access across the construction phase. A moderate adverse (significant) effect on severance/ pedestrian delay/ NMU amenity on the B1241 (ATC 23). This is the site located close to a Primary School. No mitigation is proposed. All other effects have been categorised as either Minor Adverse or Negligible (not significant). Further mitigation should be sought.

9.17. The potential adverse traffic and transport effects during construction are proposed to be minimised through measures identified in Framework CTMP and an outline Construction Workforce Travel Plan. For these to be effective and achieve the claimed benefits, it will be necessary for the commitments contained in them to be secured under the DCO.

Residual impacts with mitigation

9.18. Following the assessment of impacts for the Principal Site and Cable Route Corridor, one significant moderate adverse residual effect on Transport and Access has been identified during the construction phase as a result of the Scheme: severance/ pedestrian delay/ NMU amenity on the B1241 (ATC 23).

9.19. The effect on the B1241 would only occur for a short period if activity on the construction of the Cable Route Corridor is concentrated in that particular area with works being carried out at multiple Cable Route Corridor sites accessed via the B1241. Any overlap of such works would be for a very short period (several weeks, to be defined within the Detailed CTMP), and traffic flows (including construction traffic) would not exceed the existing network AM and PM peak hour flows, therefore showing a worst case scenario impact on the highway receptor.

Cumulative

9.20. Although the cumulative increase in traffic flows on School Lane, Cow Lane, Fillingham Lane, the B1241, Headstead Bank and Cottam Road is greater than 30% and noteworthy, the effects will be temporary in nature and will occur on receptors with a low or very low sensitivity. The significance category is therefore Slight Adverse (not significant). The effect category on other links is Neutral (not significant).

9.21. Cumulative effects may occur on PRoW impacted by the solar DCOs and the Scheme. In all cases it is considered that any cumulative effects on PRoW users would be avoided through the implementation of the Framework Construction Traffic Management Plan (CTMP) [EN010142/APP/7.11].

9.22. Temporary full closures are only anticipated to be required on minor unclassified roads with relatively low traffic flows. As both the partial and full temporary closures will be for very short periods within the construction phase and in all circumstances alternative routes will be provided, the cumulative effects on driver and passenger delay and severance are considered not significant.

Operation

Unmitigated impacts - assessed impacts

9.23. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. There are no significant effects on transport and access expected during the operational phase of the Scheme.

Proposed mitigation

9.24. The Scheme design included embedded mitigation measures to reduce operational phase impacts on sensitive receptors. Measures include providing suitable access points for operational vehicles, maintaining access to all existing PRoW within the Scheme, and controlling areas where the internal maintenance routes cross any existing PRoW or local access roads (such as providing gates).

9.25. No additional mitigation measures are proposed for the operational phase in addition to the embedded design mitigation measures described above.

Residual impacts with mitigation

9.26. With the application of these mitigation measures, no significant residual effects on Transport and Access are anticipated to occur during operation of the Scheme.

Cumulative

9.27. Cumulative effects during the operational phase of the Scheme have been scoped out of this assessment as the number of trips associated with the Scheme is minimal and therefore, the Scheme's contribution to any cumulative effects would be limited. No significant cumulative effects are therefore expected during operation.

Decommissioning

Unmitigated impacts - assessed impacts

9.28. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. There are no significant effects on transport and access expected during the decommissioning phase of the Scheme.

Proposed mitigation

9.29. The Scheme design included embedded mitigation measures to reduce decommissioning phase impacts on sensitive receptors. The implementation of a Framework DEMP [EN010142/APP/7.10] which includes measure such as preparing a Dust Management Plan (DMP) prior to decommissioning, minimising noise and vibration through adopting Best Practicable Means (BPM) during decommissioning, and a Decommissioning Worker Travel Plan (DWTP).

9.30. No additional mitigation measures are proposed for the decommissioning phase in addition to the embedded design mitigation measures described above.

Residual impacts with mitigation

9.31. With the application of these mitigation measures, no significant residual effects on Transport and Access are anticipated to occur during decommissioning of the Scheme.

Cumulative

9.32. As the Scheme has an operational life of 60 years, it is not possible to state for certain which developments would be constructed or decommissioned at the same time as the Scheme is being decommissioned. However, it is considered likely that the other solar DCOs would be decommissioned around the same time as the Scheme. As such, the effects of decommissioning are likely to be similar to those or less than during construction.

Requirements

Requirement 14 – Construction traffic management plan

9.33. Under this requirement, no part of the authorised development may commence until a construction traffic management plan (which must substantially accord with the outline construction traffic management plan) has been submitted to and approved by the relevant planning authority, in consultation with the relevant highways authority. All construction works associated with the

authorised development must be carried out in accordance with the approved construction traffic management plan.

9.34. With regard to the structure, scope and current level of detail of the Outline Construction Traffic Management Plan insofar as it relates solely to the Tillbridge project, WLDC considers the document to be sufficient for decision making purposes and delivery through a DCO Requirement. With regard to the mechanisms used to control construction traffic cumulatively with other projects however, WLDC has significant concerns regarding the lack of detail on how such impacts will be controlled.

Requirement 15 – Permissive paths

9.35. This requirement ensures that Work No. 11 must be provided and open to the public before the date of final commissioning of Work No. 1B. It further stipulates that the permissive path must be maintained and accessible by the public for 364 days a year, except where closure is required for maintenance or an emergency. This requirement remains in place until the commencement of decommissioning of the authorised development.

Requirement 16 – Public rights of way

9.36. This requirement stipulates that no part of the authorised development may commence until a public rights of way management plan (substantially in accordance with the outline public rights of way management plan) for any sections of public rights of way to be temporarily closed has been submitted to and approved by the relevant planning authority for that part. The public rights of way management plan must be implemented as approved.

Requirement 17 – Operational noise

9.37. This requirement stipulate that Work Nos. 1, 2 or 3 may not commence until an operational noise assessment has been submitted to and approved by the relevant planning authority. The design in the operational noise assessment must be implemented as approved.

10. Cultural Heritage

Summary

10.1. The list below outlines the main points arising from the review of Chapter 13: Cultural Heritage of the ES (Doc. Ref. EN010132/APP/WB6.2.13) for the Tillbridge Solar Project:

- [CH1] There are no significant impacts caused as a consequence of the project with mitigation applied.
- [CH2] WLDC defers to Lincolnshire County Council with regard to archaeological impacts and mitigation.

National Policy

10.2. Section 5.9 of the National Policy Statement for Energy (NPS) (EN-1) states that the decision maker should consider the impact of a proposed development on any heritage assets. They should take into account the particular nature of the significance of the heritage assets and the value that they hold for this and future generations. This understanding should be used to avoid or minimise conflict between conservation of that significance and proposals for development.

Local Policy

10.3. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

10.4. Policy S57: The Historic Environment states that development should '*protect, conserve and seek opportunities to enhance the historic environment*. *In instances where a development proposal would affect the significance of a heritage asset (whether designated or non-designated), including any contribution made by its setting, the applicant will be required to undertake and provide the following, in a manner proportionate to the asset's significance:*

a) describe and assess the significance of the asset, including its setting, to determine its architectural, historical or archaeological interest; and

b) identify the impact of the proposed works on the significance and special character of the asset, including its setting; and

c) *provide a clear justification for the works, especially if these would harm the significance of the asset, including its setting, so that the harm can be weighed against public benefits.'*

Summary of impacts

10.5. The Scheme has been considered in assessing the cultural heritage impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

10.6. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. Impacts include temporary short-term impacts to the setting of heritage assets affecting their value from construction activities; permanent long-term impacts to the setting of assets affecting their value; physical impacts to the historic landscape and features as a consequence of construction and permanent irreversible truncation, compaction or loss of archaeological remains or deposits caused by intrusive groundworks. The Scheme is assessed as having the potential to result in significant adverse effects to six non-designated archaeological assets.

Proposed mitigation

10.7. Heritage mitigation measures which have been embedded into the design of the Scheme include avoidance, where possible, of heritage assets or archaeological remains. Embedded mitigation measures during construction as set out within the Framework Construction Environmental

Management Plan (CEMP) [EN010142/APP/7.8], include, but are not limited to, siting haulage and access routes away from sensitive receptors, use of low noise generators, placement of security and work lights to minimise light spill with sympathetic screening of works. The Framework LEMP [EN010142/APP/7.17] also includes mitigation such as planting and reinstating hedgerows. In respect of surface earthworks and buried archaeological remains, embedded mitigation within the Principal Site includes the establishment of 26 Sensitive Archaeology Sites.

10.8. Where embedded mitigation or design measures cannot be employed to avoid or protect these heritage assets, and where reasonably practicable, significant adverse effects should be offset through the implementation of an Archaeological Mitigation Strategy. This features additional mitigation measures which would comprise archaeological excavation and recording (strip, map and sample excavation) of the archaeological remains prior to construction.

Residual impacts with mitigation

10.9. With the application of these mitigation measures, no significant residual effects on Cultural Heritage are predicted during construction of the Scheme.

Cumulative

10.10. With reference to the other developments, there is potential for cumulative impacts to non-designated archaeological remains. The use of a shared Cable Route Corridor, where possible, will minimise the land take required and the physical impacts to heritage assets during cable installation. Similarly, a coordinated programme of archaeological investigation and mitigation is planned. The proposed archaeological investigation and mitigation will be submitted for approval and secured through the requirements of the respective DCOs for the Scheme and each of the overlapping solar DCOs. These measures will reduce the construction impacts across the cumulative developments and the Scheme, will minimise cumulative effects on archaeology during construction. Consequently, these are not anticipated to be significant.

10.11. The hydrocarbon wellsite in Glentworth (ID 135) may also give rise to cumulative effects on heritage assets identified within the Principal Site. These will be limited to additional changes within their setting, which will not be significant when considered cumulatively taking into account the presence of another hydrocarbon wellsite already in operation in the vicinity.

10.12. The Cable Route Corridor has the potential to be shared along various stretches of its length by the other solar DCOs. No significant cumulative effects are considered likely during the construction of the Scheme.

Operation

Unmitigated impacts - assessed impacts

10.13. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. No impacts to heritage assets are identified from lighting, traffic movements or glint and glare during the operational phase of the Scheme. No long-term setting impacts from noise intrusion is predicted on these heritage assets.. The effect of the physical presence of the Scheme within an asset's setting or planned view, and within the historic landscape, identified during the construction phase will remain in place throughout the lifespan of the Scheme. No additional, or increase of, significant effects are identified through the operational phase.

10.14. It is not expected that the operation of the Scheme will result in any further intrusive ground activities. As such, no further physical impact to the archaeological resource is identified during the operational phase of the Scheme.

Proposed mitigation

10.15. The Scheme design does not include embedded mitigation measures to reduce operational phase impacts on sensitive receptors.

10.16. No additional mitigation measures are proposed for the operational phase.

Residual impacts with mitigation

10.17. With the application of these mitigation measures, no significant residual effects on Cultural Heritage are predicted during operation of the Scheme.

Cumulative

10.18. In terms of buried archaeology, impacts are limited to the construction phase, therefore there is no potential for significant cumulative effects during operation.

10.19. In terms of built heritage, a review of the cumulative schemes suggests it is possible that cumulative effects during operation may arise due to the increased number of solar schemes, but cumulative impacts would not exceed those already assessed as not significant. While non-significant effects may be caused on an individual basis through changes to the setting of assets, the minor level of these effects and the wide geographical spread of the schemes means that these will not cumulatively increase the effects to such a level as to make them significant. As such, no significant cumulative effects on built heritage are considered likely during the operation of the Scheme.

Decommissioning

Unmitigated impacts - assessed impacts

10.20. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. Landscape restoration and remediation to suitable surfaces would be undertaken, reinstating the rural landscape to its former aesthetic prior to construction.

10.21. It is considered that decommissioning activities will have no direct physical impact upon archaeological remains, deposits or features. Buried archaeological remains already removed during construction would not experience any further affects as a result of decommissioning.

10.22. Decommissioning impacts on a heritage asset's setting would be temporary and the duration would likely be shorter than those during construction.

10.23. Upon completion of decommissioning, the long-term adverse effects from the Scheme infrastructure will have been reversed and will no longer exist. The setting of cultural heritage assets which have been impacted by the Scheme will be restored to the current baseline conditions, other than those where planting will remain as a permanent fixture in the landscape.

Proposed mitigation

10.24. Heritage mitigation measures which have been embedded into the design of the Scheme include avoidance, where possible, of heritage assets or archaeological remains. Embedded mitigation measures during decommissioning as set out within the Framework Decommissioning Environmental Management Plan (DEMP) [EN010142/APP/7.10], include, but are not limited to, siting haulage and access routes away from sensitive receptors, use of low noise generators, placement of security and work lights to minimise light spill with sympathetic screening of works. The Framework LEMP [EN010142/APP/7.17] also includes mitigation such as planting and reinstating hedgerows. In respect of surface earthworks and buried archaeological remains, embedded mitigation within the Principal Site includes the establishment of 26 Sensitive Archaeology Sites.

10.25. No additional mitigation measures are proposed for the decommissioning phase in addition to the embedded design mitigation measures described above.

Residual impacts with mitigation

10.26. With the application of these mitigation measures, no significant residual effects on Cultural Heritage are predicted during decommissioning of the Scheme.

Cumulative

10.27. It is considered likely that the other solar DCOs would be decommissioned around the same time as the Scheme. As such, the effects of decommissioning are likely to be similar to those or less than during construction.

10.28. In terms of buried archaeology, it is not anticipated that decommissioning would have any impact beyond the already-disturbed footprint of the Scheme. As such, there is no potential for cumulative effects during decommissioning.

In terms of built heritage, there is the potential for temporary setting impacts during the removal of the solar infrastructure. Once decommissioning is complete, the long-term adverse effects from the Scheme will have been reversed and will no longer exist due to the removal of solar infrastructure and retention of landscaping. It is therefore anticipated that the cumulative effects on built heritage during decommissioning would be not significant.

Requirements

Requirement 11 – Archaeology

10.29. This requirement stipulates that the authorised development must be implemented in accordance with the written scheme of investigation.

Requirement 12 – Construction environmental management plan

10.30. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the outline construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

10.31. Provision for archaeological mitigation and monitoring is detailed in the Written Scheme of Investigation (WSI). The WSI must be adhered to during constructional phases. Areas where concrete feet are required will be laid out by a surveyor in line with the requirements of the WSI.

11. Soils and Agriculture

Summary

11.1. The list below outlines the main points arising from the review of Chapter 19: Soils and Agriculture of the ES (Doc. Ref. EN010132/APP/WB6.2.19) for the Tillbridge Solar Project:

- [AG1] Clearer definition of the Principal Site and Cable Route Corridor Study Areas is required.
- [AG2] The Cable Route Corridor has not been subject to a soil survey
- [AG3] The assessment of the effects on farming circumstances is unsatisfactory as there is insufficient baseline information for a detailed assessment to be made and an established methodology has not been used.
- [AG4] It is not clear why information from 12 farm businesses affected by the Scheme have not been included in the assessment.
- [AG5] Precise details of the Study Area for each aspect assessed and an explanation of the off-site buffer should be provided.
- [AG5] WLDC considers the cumulative impacts on soils to be 'negligible' at the very least. The cumulative assessment provided is high-level and lacks detail, being based on assumption that other developments will operate to a similar level of good practice.

National Policy

11.2. Paragraph 5.11.12 of the NPS (EN-1) outlines that applicants should '*seek to minimise impacts on the best and most versatile agricultural land (defined as land in grades 1, 2 and 3a of the Agricultural Land Classification) and preferably use land in areas of poorer quality (grades 3b, 4 and 5) except where this would be inconsistent with other sustainability considerations*'.

11.3. Under Paragraph 5.11.34 of the NPS (EN-1), the decision maker should ensure that '*applicants do not site their scheme on the best and most versatile agricultural land without justification* The SoS should also '*take into account the economic and other benefits of that land*'.

11.4. The NPPF also states that BMV is land in grades 1, 2 and 3a of the Agricultural Land Classification and recognises the economic and other benefits of such land (para. 180). Footnote 62 states that where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality. It furthermore states that "the availability of agricultural land used for food production should be considered, alongside the other policies in this Framework, when deciding what sites are most appropriate for development"

11.5. In view of the above, it is expected that the loss of both BMV and poorer quality land should be taken into account. This is particularly true given the agriculture lands contribution to the quality and character of the environment or the local economy.

Local Policy

11.6. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

11.7. Policy S67: Best and Most Versatile Agricultural Land states that significant development resulting in the loss of the best and most versatile agricultural land will only be supported if:

- The need is clearly established;
- The benefits outweigh the need to protect such land, when taking into account the economic and other benefits of the best and most versatile agricultural land;
- The impacts of the proposal upon ongoing agricultural operations have been minimised through the use of appropriate design solutions; and
- Once the development has ceased its useful life then the land should be returned to its former use.

11.8. The council expects all these tests to be met, particularly in relation to the economic value of the land to WLDC and its inhabitants which is in line with national policy. Moreover, it is expected that

the land would be restored to its former use. This is particularly important as the agricultural land is an important contributor to the local economy and culture of the region.

Key Impacts

Summary of impacts

11.9. The Scheme has been considered in assessing the soils and agriculture impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Study Area

11.10. Reference is made to different areas of the Scheme within the assessment including the Principal Site and the Cable Route Corridor, but the Study Area for these two areas has not been clearly defined in the ES chapter.

11.11. The assessment for the agricultural land quality and soil resources aspects of the EIA has been undertaken for the Principal Site. The Cable Route Corridor has not been subject to a soil survey, as the location of this area of the site was not known when the EIA was undertaken (see paragraph 15.3.1).

11.12. The farming circumstances assessment has been based on information obtained from nine farm businesses operating within the Principal Site, including interviews from five farms. Twelve farm businesses are affected by the Scheme and the boundaries of these will extend beyond the actual Scheme boundary. It is not clear why these additional farms have not been included within the assessment area and whether the assessment has considered areas outside of the site boundary. Additional farm businesses will also occupy land crossed by the Cable Route Corridor which have not been assessed.

11.13. Precise details of the Study Area for each aspect assessed and an explanation of any off-site buffer should be provided. Further justification should be provided as to why areas of the Scheme have not been included within the Study Area with details of additional assessment that may be required to be undertaken.

Desk Study Surveys and Scope

11.14. The agricultural land quality and soil resources assessments are based on ALC surveys completed to collect detailed soil data for the Scheme. The ALC assessment does not extend to the Cable Route Corridor, as the location of this area of the site was not known when the EIA was undertaken.

11.15. The ALC surveys have been carried out following the MAFF ALC guidelines and are based on the required one auger bore per hectare, supported by trial pits. Adequate reference is made to published geological, soil and climatic data to inform the ALC survey and these support the conclusions of the ALC grading and soil data presented in the ES chapter.

11.16. The survey details are reported in full within the ALC Baseline Report which is included in ES Appendix 15-2 [EN010142/APP/6.2]. The soil descriptions follow the Soil Survey Field Handbook which is the standard reference. A summary of each auger bore is provided, with calculations to justify the ALC assessment. Maps show the ALC grades of the surveyed land. The results of the ALC survey appear to correctly reflect what is known of the soils in this locality.

11.17. A Framework SMP [EN010142/APP/7.12] has been developed for the Scheme to set out the proposed approach to soil management during the construction, operation and decommissioning phases to support the preservation of the soil resource. The Framework SMP has been based on appropriate guidance including the Defra Code of Practice for the Sustainable Use of Soils on Construction Sites and Institute of Quarrying Good Practice Guide for Handling Soils. The content of the Framework SMP is sufficiently comprehensive. It will be replaced with a detailed SMP during detailed design as a requirement of the DCO

11.18. The assessment of farming circumstances is less satisfactory. The farming circumstances assessment is based on farm interviews and reports on the types of land use of each farm. Twelve farm businesses currently occupy the Principal Site. Information on the size and nature of nine of

these farm businesses has been obtained from the occupants, and of these, interviews have been conducted for five farm businesses. Therefore, the farm assessments are incomplete, but no explanation is given for this. Additional farm businesses will also occupy land crossed by the Cable Route Corridor which have not been assessed.

For a Scheme of this nature, the EIA should contain a description of the size, nature and occupancy (whether owned or tenanted) of each farm enterprise. No information is provided on farm size and the description of land use is not sufficiently detailed. For example paragraph 15.6.13 just states: *'Land is predominantly in standard arable rotations of cereals and break crops, with some energy crops grown for Anaerobic Digester substrate and bio-ethanol production'.*

11.19. The farming circumstances assessment is mainly based on personal judgement without a proper supporting farm impact assessment. For example, paragraph 15.8.22 states: '*This diversified enterprise may also enable managers of farm businesses that are currently too small to be economically viable, to wind up the farm business'.* Small agricultural businesses are not necessarily unviable; it depends on the nature of the enterprise and personal circumstances of the occupier.

11.20. Without a map of individual farm boundaries and a breakdown of size, occupancy and land use, it is not possible to verify the basis for the assessments of significance, magnitude of change and residual effect. No real evidence is provided to support the conclusions of the farming circumstances assessment, apart from the judgement of the assessor, which states that: '*No significant residual effects are anticipated to occur during construction, operation or decommissioning of the Scheme'.*

Construction

Unmitigated impacts - assessed impacts

11.21. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. Impacts on agricultural land quality include effects which are minor adverse and negligible which are not significant. The construction phase will involve trafficking the land, resulting in a temporary and negligible effect on Soil Resource, which is not significant. The start of construction work will mark the beginning of the temporary curtailment of arable management within the Principal Site. While construction work is taking place the land will not be available for grazing livestock or equestrian use either. This will result in a temporary and negligible effect on Farming Circumstances, which is not significant.

Proposed mitigation

11.22. The Scheme design included embedded mitigation measures to reduce construction phase impacts on sensitive receptors. Measures include modifying the Order limits have been modified to remove some BMV land from the Scheme. Furthermore, the Framework SMP [EN010142/APP/7.12] aims to indicate measures for the preservation of the soil resource within the Order limits. It provides guidance to achieve this aim through the construction phase of the development, covering the appropriate selection of plant, physical characteristics of the soil and safe removal of all below ground features (including piles and cables) at decommissioning that could interfere with subsequent cultivation.

11.23. No significant adverse effects have been identified for Agricultural Land Quality, Soil Resource or Farming Circumstances; therefore, no additional mitigation measures are proposed.

Residual impacts with mitigation

11.24. With the application of these mitigation measures, no significant residual effects on Soils and Agriculture are predicted during construction of the Scheme.

Cumulative

11.25. With regards to the loss of agricultural land and soil resource, all solar DCOs on agricultural land will be temporary and decommissioned, with no significant effect with regards to the loss of agricultural land extent, degradation of quality or loss of soil resource. In addition, cropland would be converted to grassland underneath the solar PV panels that can be used for grazing. Therefore, the residual effect of each of the developments is predicted to be not significant. The cumulative effect is also assessed to be not significant, considering the vast arable landscape that these

developments sit within. Although interactions between farm businesses of cumulative developments may not be apparent, significant adverse cumulative effects resulting from such an interaction are unlikely. The cumulative effects with regards to soils and agriculture during the construction phase are therefore assessed as neutral (not significant).

Operation

Unmitigated impacts - assessed impacts

11.26. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. The operational phase of the Scheme will not result in loss of agricultural land. Therefore, there is no operational effect further to that from construction.

11.27. While the Scheme is operational, the soil resource at the Principal Site will remain under a perennial grass cover which facilitates a recovery in topsoil organic matter. The benefit of this on agricultural production is of moderate beneficial effect which is significant. During operation, landowning farm businesses will receive income from the Scheme's occupation of their land, a new diversified enterprise which will provide a new income stream. This is a temporary moderate (beneficial) effect, which is significant.

11.28. It is not, however, clear what assessment criteria used to determine the sensitivity and magnitude of impact for soil resources has been based on. It is noted that the IEMA guidance provides a methodology for assessment the sensitivity/resilience of soil to structural damage, based on texture, wetness class and field capacity days.

11.29. The assessment of effects on agricultural land quality and soil resources is satisfactory, with no adverse significant effects identified. However, it is noted that the significance effects matrix provided in Table 15-7 does not precisely follow the IEMA significance matrix1. This recognises very large, large, moderate, slight and neutral effects rather than the major, moderate, minor and negligible effects included within Table 15-7. The IEMA methodology which has been used for this assessment, should be followed precisely.

11.30. The loss of agricultural land available for the production of food is a significant impact on the District, especially when considered cumulatively with other large scale solar NSIPs nearby

Farming Circumstances

11.31. With regard to farming circumstances, the applicant states in Chapter 15 'Soils and Agriculture' in aragraph 15.4.14 states that '*There is no current guidance on the assessment of Farming Circumstances. The approach taken for this EIA broadly follows the guidance from the now superseded Planning Policy Guidance Note 7 (PPG7) Annex B which has remained a common approach for EIA in England and was for a time included in the Design Manual for Roads and Bridges.'*

11.32. WLDC considers that statements to be inaccurate.. The Design Manual for Roads and Bridges (DMRB) LA112 Population and Human Health[2] provides an approved methodology for assessing impacts associated with construction and improvement projects (such as direct land take and severance) that may affect land use including agricultural land holdings. The DMRB guidance provides clear guidance and set criteria for assigning receptor sensitivity, magnitude of change and significance of effect.

11.33. The assessment criteria used in Chapter 15 for the farming circumstances assessment to determine the sensitivity, magnitude and significance of effect are vague and rely on the assessor's personal judgement, as opposed to the set criteria of DMRB LA112. For example, paragraph 15.4.24 states: *'Sensitivities of various agricultural enterprises vary markedly between different effects, for instance a breeding livestock enterprise may have very high sensitivity to trespass with dogs in contrast to an arable enterprise. Assessors experience and judgement is required to identify the agricultural activities that are sensitive to the likely effects, then determine the appropriate sensitivity and magnitude of change'.*

1 IEMA (2022) A New Perspective on Land and Soils in Environmental Impact Assessment.

2 Highways England (2020) DMRB LA112 – Population and Human Health.

11.34. This approach lacks the objectivity of the precise guidance offered by DMRB, which is less open to the influence of personal judgement.

11.35. Agricultural land (together with its landowners, tenants and workers) is considered to be a key receptor of the Scheme and one which is likely to experience the most changes. The EIA process should be seen to be objective and requires an established methodology to demonstrate that this is the case.

Proposed mitigation

11.36. The Scheme design included embedded mitigation measures to reduce operational phase impacts on sensitive receptors. Measures include the Framework SMP [EN010142/APP/7.12] which aims to indicate measures for the preservation of the soil resource within the Order limits. It provides guidance to achieve this aim through the operational phase of the development, covering the appropriate selection of plant, physical characteristics of the soil and safe removal of all below ground features (including piles and cables) at decommissioning that could interfere with subsequent cultivation.

11.37. No significant adverse effects have been identified for Agricultural Land Quality, Soil Resource or Farming Circumstances; therefore, no additional mitigation measures are proposed.

Residual impacts with mitigation

11.38. With the application of these mitigation measures no significant residual adverse effects on Soils and Agriculture are anticipated to occur during operation of the Scheme. There are two moderate beneficial (significant) residual effects anticipated to occur during operation, relating to the recovery of the soil functional capacity and sensitivity of farm businesses to the creation of a new diversified farm enterprise.

Cumulative

11.39. There is no further land take of agricultural land in addition to that assessed for construction across the cumulative developments, and as such there are no additional cumulative effects with regards to agricultural land and farming circumstances.

11.40. Soil resources remain in place and undisturbed for all of the agricultural land used by the solar DCOs. The residual effect of each of the cumulative developments on the soil resource is predicted to be a moderate beneficial effect (significant), which is accrued through the operational phase, as for the Scheme. The cumulative effect is assessed to be not significant, considering the vast arable landscape that these developments sit within.

11.41. WLDC consider that, whilst assessment of the cumulative effects in combination with other developments has been carried out,the cumulative effect of all impacts on soils and agriculture arising from the Scheme is not assessed. In addition, no Zone of Influence is provided and the assessment only includes other solar farms and does not consider other developments in the area. No justification is provided for this methodology.

11.42. The cumulative effects chapter deals with the same impacts as those detailed in the soils and agriculture chapter and includes an assessment of effects during construction, operation and decommissioning. Cumulative effects are assessed as neural (not significant). Following the significance effects matrix provided in Table 15-7, this should be negligible rather than neutral. The assessment is high-level and lacks detail. In addition, the outcomes are based on assumptions that the other developments will operate to a similar level of good practice.

Decommissioning

Unmitigated impacts - assessed impacts

11.43. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. Decommissioning work will allow the land to be managed for arable production again with the decommissioning phase of the Scheme not resulting in loss of agricultural land. Therefore, there is no decommissioning effect further to that from construction. Decommissioning will involve trafficking the land in a similar manner to the current arable land use, resulting in a temporary negligible effect (not significant). Decommissioning of the Scheme will allow a return to current agricultural management options for the land within the Principal Site, with the resulting permanent effect being be minor (beneficial) which is not significant.

Proposed mitigation

11.44. The Scheme design included embedded mitigation measures to reduce decommissioning phase impacts on sensitive receptors. Measures include the Framework SMP [EN010142/APP/7.12] which aims to indicate measures for the preservation of the soil resource within the Order limits. It provides guidance to achieve this aim through the decommissioning phase of the development, covering the appropriate selection of plant, physical characteristics of the soil and safe removal of all below ground features (including piles and cables) at decommissioning that could interfere with subsequent cultivation.

11.45. No significant adverse effects have been identified for Agricultural Land Quality, Soil Resource or Farming Circumstances; therefore, no additional mitigation measures are proposed.

Residual impacts with mitigation

11.46. With the application of these mitigation measures, no significant residual effects on Soils and Agriculture are predicted during decommissioning of the Scheme.

Cumulative

11.47. As set out within Chapter 15: Soils and Agriculture [EN010142/APP/6.1], in a worst-case scenario, the Scheme could result in the loss of approximately 2.5 ha of non-BMV agricultural land, if substations are retained on site post-decommissioning.

Requirements

Requirement 12 – Construction environmental management plan

11.48. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the outline construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

11.49. Site inspections by a suitably experienced soil scientist to ensure compliance with the Soil Management Plan and identify any emerging issues.

Requirement 13 – Operational environmental management plan

11.50. Requirement 14 – Operational environmental management plan: Before the date of final commissioning of the authorised development, an operational environmental management plan (which must substantially accord with the outline operational environmental management plan) must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

11.51. A Soil Resource Management Plan (SRMP), in accordance with the Outline Soil Management Plan will detail how the risk of causing surface compaction can be minimised and how to remove compaction if it has occurred.

Requirement 18 – Soils management

11.52. This requirement stipulates that no part of the authorised development may commence until a soils resource management plan (substantially in accordance with the outline soils resource management plan) for that part has been submitted to and approved by the relevant planning authority. The soils resource management plan must be implemented as approved.

Requirement 20 – Decommissioning and restoration

11.53. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan for that part which substantially accords with the decommissioning statement. No decommissioning works must be carried out until the relevant

planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

12. Climate Change

Summary

12.1. The list below outlines the main points arising from the review of Chapter 7: Climate Change of the ES for the Tillbridge Solar Project:

- [CC1] It is unclear how the temporal scope of the assessment has been established. Clarification on whether it relates to market uncertainty, technological development or asset degradation etc is required. This extends to the consideration of multiple future projections on the project lifecycle.
- [CC2] It is not clear how the replacement of infrastructure (project components) has been accounted for in the assessment. The assessment does not justify or reason the degradation rates or whether degradation could be accelerated by climate change.
- [CC3] There are aspects of the assessment that require clarification (see further explanation in the text below.
- [CC4] the decommissioning risk assessment is unsatisfactory. The likelihood and consequences of impacts will change with the baseline and this has not been addressed (e.g. warmer winters and wetter summers).
- [CC5] It appears that no decarbonisation rate is applied for GHG emissions that would occur as a result of low-carbon electricity from the scheme replacing electricity generated by natural gas-fuelled CCGT.
- [CC6] The residual impact summary, Table 7-21, should include a summary for the CCR and ICCI assessment, not just cross references back to the main assessment. For example, identifying that no significant residual impacts were identified, the number of low significant impacts, and including the residual consequences of these.

National Policy

12.2. Section 4.10 of NPS EN-1 addresses climate change adaptation in energy infrastructure development. It notes that the decision maker should take the effects of climate change into account when developing and consenting infrastructure, referring also to the potential long-term impact of climate change.

12.3. EN-1 focuses on climate change adaptation and reiterates the need to minimise the most dangerous impacts of climate change

12.4. NPS (EN-3) requires the applicant to consider the design life of solar panel efficiency over time when determining the period for which consent is required. An upper limit of 40 years is typical, although applicants may seek consent without a time-period or for differing time-periods of operation.

Local Policy

12.5. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

12.6. Policy S11: Embodied Carbon requires developments to reduce the development's embodied carbon content, through the careful choice, use and sourcing of materials.

12.7. The SoS is reminded that from the 1 January 2025, there will be a requirement for a development proposal to demonstrate how the design and building materials to be used have been informed by a consideration of embodied carbon, and that reasonable opportunities to minimise embodied carbon have been taken.

12.8. Policy S14: Renewable Energy sets out the position that renewable energy schemes will be supported where the direct, indirect, individual and cumulative impacts on the following considerations are, or will be made, acceptable. To determine whether it is acceptable, the following tests will have to be met:

- The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity;

flood risk; townscape; heritage assets, their settings and the historic landscape; and highway safety and rail safety.

- The impacts are acceptable on aviation and defence navigation system/communications.
- The impacts are acceptable on the amenity of sensitive neighbouring uses (including local residents) by virtue of matters such as noise, dust, odour, shadow flicker, air quality and traffic.

12.9. Policy S16: Wider Energy Infrastructure states that WLDC will proposals which are necessary for, or form part of, the transition to a net zero carbon. However, proposals should take all reasonable opportunities to mitigate any harm arising from such proposals.

12.10. Policy S20: Resilient and Adaptable Design requires design proposals to be adaptable to future social, economic, technological and environmental requirements in order to make buildings both fit for purpose in the long term and to minimise future resource consumption. The relevant tests to this Scheme must be met for proposals to be deemed acceptable:

- Allow for future adaptation.
- Be resilient to flood risk, from all forms of flooding.

Key Impacts

Climate Vulnerability

CCR Method of assessment

12.11. Section 7.4.12 identifies that the assessment is undertaken in accordance with IEMA Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation. This is in accordance with expected best practice.

12.12. The assessment considers impacts related to extreme weather as well as gradual slow onset changes to our climate which is in accordance with best practice.

12.13. The assessment methodology for defining significance is in accordance with best practice.

ICCI Method

12.14. It is assumed from the text in Section 7.4.19, but not specifically defined, that the ICCI assessment follows IEMA Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation.

Study Area

12.15. Temporal scope

12.16. It is unclear how the temporal scope of the assessment has been established. For example, is it to do with market uncertainty, expected technological development or asset degradation? Any uncertainty in the lifetime of the project should be accounted for by assessing impacts relevant to multiple future projection horizons. There is a discussion of the project operating for 60 years (Section 7.3.7), however, Section 7.3.24 indicates that the assets with the longest design life are the transformers and cables that will be replaced twice based on a replacement time of 25-30 years – this would create an operation period of at least 75 years. In Table 7-7, Glentworth Parish Council refer to a 40-year lifetime. If all assets are expected to be replaced during the design life of the project it is not clear what the factor is that has been used to define the design life. Some commentary on the uncertainty in the design life would be useful when considering impacts against projections for specific future time horizons.

12.17. Geographic scope

12.18. The geographic study area for the CCR assessment is in line with current best practice guidance.

12.19. The geographic study area for the ICCI assessment is in line with current best practice guidance.

Desk Study Surveys and Scope

12.20. It is best practice for the current baseline for the CCR and ICCI assessment to include a review of extreme weather events that have affected the study area/region. This information is not included in the ES.

12.21. The UKCP18 data and RCP scenario selected for the future projections are in accordance with best practice.

12.22. Concerning the earlier comments made about the design life of the project, it is noted that projections up to 2099 are presented (no projections beyond this are available from UKCP18) and that this mitigates the uncertainty in the assessment concerning the length of the design life of the project. Section 7.6.11: “It is noted that the UKCP18 data to cover this period runs to 2099, beyond the 60-year lifespan, however, this approach is considered conservative to allow flexibility in the length of the Scheme’s lifetime.”It is not clear from the methodology presented so far in the report if each impact will be separately assessed against each of the three future projection periods that are presented in the baseline. Following a review of the assessment section, it remains unclear which future period the impacts were assessed against. I would assume conservatively that 2070-2099 was used but since this is not explicitly stated it cannot be confirmed that the assessment demonstrates resilience to the period 2020-2049, 2050-2079 or 2070-2099.

General assessment of effects

12.23. Section 7.4.14 implies that only potential impacts relating to higher temperatures and more extreme weather have been included. This is less than would be expected and less than is required based on the scoping opinion. The climate parameters listed in 7.4.16 indicate a wider range of potential impacts might be addressed, e.g. flood risk which may trigger consideration of sea level rise and extreme weather which may trigger assessment of transient overvoltage protection (protection from lightning strikes being sufficient for more stormy future weather. The assessment’s scope should be defined more clearly in Section 7.

12.24. The ES states that the outputs of PV panels are assumed to degrade by 2% in the first year and 0.45% per year thereafter. The ES does not set out the reason for the degradation or assess if the rate of degradation could be accelerated by climate change, for example how projections showing increasing temperatures and more sunny days per year might affect this. It is also noted that changes in humidity could affect the life cycle of electrical equipment. It is noted that in the CCR this is assessed as not significant; it would be useful to cross ref this here.

12.25. It is noted that climate change may reduce the GHG benefit related to land use change since hotter drier summers will increasingly restrict growth, reducing the carbon sequestration value of grassland. The value of this benefit may therefore be overstated as it may decline over time. It is however, noted that this benefit has been omitted from the GHG lifecycle assessment on the assumption that it is expected that the land will return to its original use upon decommissioning of the Scheme, with any carbon stored in soil or vegetation re-released to the atmosphere. This will therefore not affect the assessment.

Review of Climate Change Resilience Assessment

12.26. This section reviews the CCR assessment presented in Table 7-19 of the ES. Review findings are bulleted below:

- Table 7.19 includes the assessment of a wider range of impacts than was implied in Section 7.4.14.

- The potential climate hazards for construction are all long-term, slow-onset changes to met conditions. These hazards are unlikely to affect the construction window. The baseline is unlikely to change significantly between now and construction. It is extreme weather and changes to the climate that are already part of the baseline that will affect construction. This does not affect the impacts that are assessed, i.e. extreme weather can cause heatwaves, it is just noted that in the future, during operation, heatwaves may be more intense and frequent.

- Impacts are assessed in sufficient detail and specific mitigation is provided for each potential impact (noted this addresses earlier comment about the breadth of embedded mitigation presented, the earlier section should cross ref this tale).

- Concerning reduced cell efficiency, earlier in the ES there is a discussion of replacement cycles for key assets. Even though the impact is low that is a key piece of mitigation that is relevant but is not listed here. The consequence is just that those mitigation cycles may have to shorten, by an insignificant amount.

- The consequence of surface water flooding on the site after mitigation is Minor. The actual consequence is not defined (for any of the impacts in the table) so it is not clear what it is. If the site is expected to remain operational then even if there is flooding the consequences could be negligible, not minor.

- As demonstrated in the above bullet; it would be useful to have a comment in the likelihood and consequence columns defining and justifying the assessment score for each impact.

- Earlier in the Chapter, mitigation for impacts on landscape assets is discussed but this impact is not assessed in this table.

- The decommissioning risk assessment is not satisfactory. For decommissioning, the baseline will not be the same as during construction. The potential impacts might be the same, but their likelihood and consequences would be expected to have changed since the climate will have changed. For example, winters will be warmer and wetter, whilst summers will be hotter and drier and there will be more extreme weather during decommissioning than during construction. Impacts may still be insignificant but the assessment as it stands does not demonstrate this following best practice.

Review of In-Combination Climate Change Assessment

12.27. This section reviews the ICCI assessment presented in Table 7-20 of the ES. Review findings are bulleted below:

- Increased stress on drainage system due to higher rainfall is not an ICCI impact. It does not have an environmental receptor. An ICCI impact could, for example, be increased climate change induced discharge rates to a local watercourse affecting its geomorphology.

- The significance levels stated in this table are not fully defined, they should for example say “Low (Not Significant)” rather than just “Not significant”. It is noted that this is done in Table 7-19.

- The ICCI assessment should confirm that all operational impacts assessed by the other chapters in the ES have been reviewed to assess how they could be affected by climate change. Currently, it is not clear if or how this has been done.

Carbon Emissions

Study Area

12.28. The study area for the assessment considers all GHG emissions arising over the lifecycle of the Scheme. This is in line with best practice and guidance.

Desk Study Surveys and Scope

12.29. It is best practice for the baseline section to include reference to existing and future emissions at the site under a business-as-usual approach. This has been completed and assumes zero GHG emissions in both scenarios as a worst-case approach. This is in line with the IEMA guidance.

12.30. The Scheme has been considered in assessing the climate change impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

General assessment of effects

12.31. The assessment quantifies the GHG emissions of the Scheme for the construction, operation and decommissioning phases of the Scheme. The quantification of these GHG emissions is appropriate and follows the GHG Protocol and IEMA guidance adequately.

12.32. However, no decarbonisation rate is applied for GHG emissions from the replacement of materials and components (specifically the BESS and solar panels).

12.33. The assessment also quantifies the GHG emissions offset that would occur as a result of the generation of low-carbon electricity from the Scheme replacing electricity generated by natural gas-fuelled CCGT. Whilst a hybrid mix of fossil fuels could have been chosen, natural gas accounts for approximately 80% of yearly emissions from electricity generation in the UK so it is an appropriate choice for the Scheme to offset against.

12.34. The assessment compares the GHG emissions of the Scheme against the UK Government Carbon Budgets (legally binding) and Electricity generation carbon budgets (sectoral, non-legally binding). This assessment is appropriate and completed in line with the IEMA guidance. The overall conclusion that the Scheme will have a significant, beneficial impact on climate is a fair assessment.

Construction

Unmitigated impacts - assessed impacts

12.35. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. GHG impacts during the construction phase consist primarily of the embodied carbon associated with the manufacture of battery and solar PV components. Total GHG emissions impacting the climate from the construction phase are estimated to equate to 910,126tCO_2e.

Proposed mitigation

12.36. A range of mitigation measures have been embedded into the Scheme to mitigate the impacts of the Scheme on the climate. Measures contained within the Framework CEMP [EN010142/APP/7.8] include constructing the Scheme in such a way as to minimise the creation of waste and maximise the use of alternative materials with lower embodied carbon.

12.37. Embedded mitigation measures have been incorporated to mitigate the impacts of climate change on the Scheme and the in-combination impacts on nearby receptors. The Framework CEMP [EN010142/APP/7.8] sets out measures for the management of activities within floodplain areas during construction (i.e. to be kept to a minimum) and incorporates measures to prevent an increase in flood risk during construction, including monitoring weather forecasts on a monthly, weekly and daily basis, and planning works accordingly.

12.38. No additional mitigation or enhancements beyond the measures already described above are proposed during construction, as no significant adverse effects have been identified.

Residual impacts with mitigation

12.39. With the application of these mitigation measures, no significant residual effects on Climate Change are predicted during construction of the Scheme.

12.40. The GHG emissions that occur during construction are not able to be removed through mitigation, and are therefore considered minor adverse (not significant). The overall beneficial GHG impact of the operational phase is considered to offset the negative effects of these emissions.

Cumulative

12.41. It is not possible to define a study area for the assessment of cumulative effects of GHG emissions, nor to undertake an all-encompassing cumulative effects assessment, as the identified receptor is the global climate and effects are therefore not geographically constrained. The Scheme will deliver a beneficial, significant effect on GHG emissions, due to the substantial emissions reductions the Scheme will achieve in comparison to the without-project baseline. Therefore, the Scheme will not contribute to any significant adverse effect on climate change.

Operation

Unmitigated impacts - assessed impacts

12.42. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. GHG emissions sources within the scope of the operational emissions include operational energy use, fuel used for the transportation of workers to the Order limits, and maintenance activities. Total operational emissions impacting the climate over the design life of the Scheme are estimated at 2,470,621tCO2e. Over 99% of these emissions are associated with the materials and transport of the replacement components required throughout operation.

12.43. The ongoing operation of the Scheme will inevitably result in some residual emissions by 2050, however the vast majority of these are operational emissions. The Scheme will achieve substantial emissions reductions compared to the without-project baseline. As this Scheme demonstrates significant carbon saving, it is therefore beneficial (significant) and will have a positive impact on the climate.

Proposed mitigation

12.44. A range of mitigation measures have been embedded into the Scheme to mitigate the impacts of the Scheme on the climate. Measures contained within the Framework CEMP [EN010142/APP/7.8] include switching vehicles and plant off when not in use.

12.45. Embedded mitigation measures have been incorporated to mitigate the impacts of climate change on the Scheme and the in-combination impacts on nearby receptors. The Flood Risk Assessment [EN010142/APP/6.2] details mitigation measures to manage flood risk during operation.

No additional mitigation or enhancements beyond the measures already described above are proposed during operation, as no significant adverse effects have been identified.

Residual impacts with mitigation

12.46. With the application of these mitigation measures, no significant residual effects on Climate Change are predicted during operation of the Scheme. There is one beneficial (significant) residual effect anticipated to occur during operation, relating to the Scheme providing significant carbon savings in energy generation and contributing to the transition to net zero.

Cumulative

12.47. It is not possible to define a study area for the assessment of cumulative effects of GHG emissions, nor to undertake an all-encompassing cumulative effects assessment, as the identified receptor is the global climate and effects are therefore not geographically constrained. The Scheme will deliver a beneficial, significant effect on GHG emissions, due to the substantial emissions reductions the Scheme will achieve in comparison to the without-project baseline. Therefore, the Scheme will not contribute to any significant adverse effect on climate change.

Decommissioning

Unmitigated impacts - assessed impacts

12.48. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. GHG emissions from the decommissioning phase are subject to a high degree of uncertainty, as the conditions that will apply in 2088 cannot be described with any confidence. For the purposes of this report, it is assumed that decommissioning emissions from the use of plant, worker travel and waste replicate the emissions produced during the construction phase. This is likely to be a conservative estimate as the emissions associated with these activities

are anticipated to decrease into the future. Total GHG emissions impacting the climate from the decommissioning phase are estimated to equate to 11,853tCO_2e.

Proposed mitigation

12.49. A range of mitigation measures have been embedded into the Scheme to mitigate the impacts of the Scheme on the climate. Measures contained within the Framework DEMP [EN010142/APP/7.10] include increasing recyclability by segregating decommissioning waste to be re-used and recycled where reasonably practicable.

12.50. Embedded mitigation measures have incorporated to mitigate the impacts of climate change on the Scheme and the in-combination impacts on nearby receptors. The Framework CEMP [EN010142/APP/7.8] incorporates measures to prevent an increase in flood risk during construction, including monitoring weather forecasts on a monthly, weekly and daily basis, and planning works accordingly.

12.51. No additional mitigation or enhancements beyond the measures already described above are proposed during decommissioning, as no significant adverse effects have been identified.

Residual impacts with mitigation

12.52. With the application of these mitigation measures, no significant residual effects on Climate Change are predicted during decommissioning of the Scheme.

12.53. The GHG emissions that occur during decommissioning are not able to be removed through mitigation, and are therefore considered minor adverse (not significant). The overall beneficial GHG impact of the operational phase is considered to offset the negative effects of these emissions.

Cumulative

12.54. It is not possible to define a study area for the assessment of cumulative effects of GHG emissions, nor to undertake an all-encompassing cumulative effects assessment, as the identified receptor is the global climate and effects are therefore not geographically constrained. The Scheme will deliver a beneficial, significant effect on GHG emissions, due to the substantial emissions reductions the Scheme will achieve in comparison to the without-project baseline. Therefore, the Scheme will not contribute to any significant adverse effect on climate change.

Requirements

12.55. There are no requirements specifically related to climate change in the draft Development Consent Order.

13. Noise and Vibration

Summary

13.1.1. The list below outlines the main points arising from the review of Chapter 13: Noise and Vibration of the ES for the Tillbridge Solar Project:

- [NV1] Cumulative noise impacts during construction require a firm and enforceable commitment to joint working between developers to minimise impacts.
- [NV2] WLDC consider that, although effect on users of PROW have been scoped out of EIA, the commitment in the CEMP to minimise the impact on such users is welcome and must be implemented.
- [NV3] Clarification on the conditions that triggered the removal of noise data is required.
- [NV4] It appears that no production of construction vibration impacts are presented. Clarification of the reason why is required (e.g. distances from receptors are sufficient.).

Policy Context

National Policy

13.2. National Policy Statement (NPS) EN-1 states that should demonstrate good design through selection of the quietest cost-effective plant available; optimisation of plant layout to minimise noise emissions; and, where possible, the use of landscaping, bunds or noise barriers to reduce noise transmission.

13.3. The NPS also states that the SoS should not grant development consent unless it is satisfied that the proposals will meet the following aims:

- Avoid significant adverse impacts on health and quality of life from noise.
- Mitigate and minimise other adverse impacts on health and quality of life from noise.
- Where possible, contribute to improvements to health and quality of life through the effective management and control of noise.

13.4. Moreover the SoS should consider if mitigation methods needed for construction and operational noise over and above any which may form part of the project application. The mitigation methods may include:

- Engineering: reduction of noise at point of generation and containment of noise generated.
- Lay-out: adequate distance between source and noise-sensitive receptors; incorporating good design to minimise noise transmission through screening by natural barriers, or other buildings.
- Administrative: restricting activities allowed on the site; specifying acceptable noise limits; and taking into account seasonality of wildlife in nearby designated sites

Local Policy

13.5. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

13.6. There is no specific local policy that relates to noise; however, Policy S47: Accessibility and Transport requires development should not result in adverse noise and vibration taking into account surrounding uses of the application site.

Summary of impacts

13.7. The Scheme has been considered in assessing the noise and vibration impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Method of Assessment

Construction Noise and Vibration

13.8. Construction noise has been predicted in accordance with BS 5228:2009+A1:2014 '*Code of practice for noise and vibration control on construction and open sites*' and assessed against noise and vibration assessment criteria based on the BS 5228 example thresholds and those adopted on other nationally significant infrastructure projects. The assessment methodology does not consider the existing baseline noise levels, which does present a worst-case assessment, particularly at any receptors that may already experience higher levels of baseline noise.

13.9. The assessment of construction and decommissioning has been based on reasonable worst-case scenarios using assumptions from previous experience of similar schemes and professional judgement. It is acknowledged that noise predictions may overestimate construction and decommissioning noise levels. Plant lists are summarised in the Appendix which seem appropriate for the scale of development and uncertainties at this stage of assessment.

13.10. It is stated that piling methods are unknown and an augered method has been assumed as a worst-case based on experience on similar schemes. It is worth noting that any driven piling, although not assessed, would result in higher levels of vibration than augered methods. This may be applicable where ground conditions are hard.

Operational Noise and Vibration

13.11. Noise modelling has been undertaken assuming reasonably worst-case assumptions (i.e. plant operating at maximum during all times of day) which is acknowledged as a conservative approach as some plant (e.g. BESS cooling fans) will operate dependant on ambient temperatures. Plant assumptions presented in the report seem reasonable at this stage of assessment but will carry some level of uncertainty as based on AECOM library data or manufacturers' data that is not presented to enable verification.

13.12. Assessments at residential receptors are made in accordance with BS 4142:2014+A1:2019 '*Methods for rating and assessing industrial and commercial sound'* which is appropriate for the assessment of such developments. Additional guidance from Association of Noise Consultants (ANC) guidance, Planning Practice Guidance and BS 8233:2014 '*Guidance on sound insulation and noise reduction for buildings'* are referenced to determine the assessment criteria which are considered appropriate and following common industry practice. The rationale for the selected night-time LOAEL (Lowest Observed Adverse Effect Level) minimum of 30 dB $L_{Aeq,Tr}$ is not presented, however, is deemed reasonable.

13.13. Assessments for non-residential receptors are made in accordance with guidance in BS 8233. It should be noted that a less conservative assumption on noise reductions from partially open windows (15 dB) is assumed compared to the residential assessment criteria (10 dB). The BS 8233 L_{Aeq} criteria are relevant for 'anonymous' noise sources that would not contain any specific character to attract attention, whilst it is stated that overall plant noise emissions "will likely be perceived as a distinctive and continuous hum". However, it is presumed that it is the rating level (penalised for acoustic character) which has used to assess against this criterion.

13.14. Operational vibration is scoped out of the assessment which is reasonable considering the anticipated operational plant.

13.15. Operational road traffic noise has been scoped out as being minimal using traffic numbers from 'Chapter 3 – Scheme Description of the ES' as justification, which appears reasonable.

Baseline Conditions

Study Area

13.16. For construction noise, a study area of 300m from the order limits of the Principal Site and Cable Route, and 50m from construction traffic routes have been adopted in line with relevant standards and common industry practice. An operational study area of 500m from the Principal Site has been adopted based on preliminary modelling results. Whilst the results of preliminary modelling are not presented to justify this study area selection, the results of the assessment corroborate this selection and the study areas are therefore considered to be appropriate.

13.17. Detailed noise effects on users of Public Rights of Way (PRoW) have been scoped out, which given the rationale presented in the report, is considered to be justifiable. However, it is noted that a commitment in the CEMP will be maintained to minimise the effects of noise on PRoW users.

Desk Study Surveys and Scope

13.18. Baseline surveys were undertaken in July 2022 and are deemed to be representative of baseline levels in the future baseline scenario year 2028.

13.19. Baseline noise surveys were undertaken in the area surrounding the Principal Site only, as the Cable Route presents no operational noise risks and the construction noise assessments are not dependent on baseline levels. This is considered acceptable as a proportional approach to baseline data collection.

13.20. Measurements were undertaken at eight monitoring locations deemed representative of the operational noise-sensitive receptor locations. Measurements were undertaken for one week at each location with associated weather data collected. Data during periods of weather that were deemed not suitable for noise measurements have been omitted from the results, however, it is not stated what conditions this specifically relates to. It is noted that no weather data was available for surveys between 15-22 July 2022 due to equipment damage, however, the impact on the results would appear to be negligible based on stated weather observations.

13.21. Average measured noise levels are presented in the Appendix for various periods. There is no derivation of typical background sound levels as normally required by BS 4142, however, it is acknowledged that the assessments of both construction noise and operational noise do not rely on the baseline survey data in any case.

13.22. Measurement uncertainty has been acknowledged, along with some steps that have been taken to reduce the measurement uncertainty.

13.23. Overall, the survey methodology is considered to be appropriate and in line with the relevant standards and industry common practice. The results are likely to be representative of baseline conditions.

Assessment of Effects

Construction Noise and Vibration

13.24. Worst-case daytime construction noise levels are predicted to be below the SOAEL (Significant Observed Adverse Effect Level) at all receptors and are therefore not significant. General Best Practicable Means (BPM) are presented to reduce noise as far as reasonably practicable for any predicated LOAEL exceedances in line with relevant noise policy. Trenchless methods of cable route construction may occur during the night time, and an exceedance of SOAEL, indicating a significant effect, could occur at receptors within 200m of this activity (encompassing receptors R29 and R30). A range of mitigation measures are presented to reduce this potential impact and the residual effect is stated as not significant, thereby implying that these measures can be implemented. It is noted that whilst no temporal thresholds for significant effects are adopted as a result of the scoping opinion response, the duration of this activity is relatively short, at less than three days, and this additional context could be used to justify the context of a reduced impact in any case.

13.25. No predictions of construction vibration are presented, however, based on a literature review the assessment concludes no significant effects and possible short-duration LOAEL exceedances. Based on the distances to receptors and anticipated activities this approach is deemed realistic and proportionate. Noting that the requirement for any driven piling could result in greater impacts.

13.26. Detailed information to assess the cumulative construction noise impact of multiple solar DCOs occurring at the same time are not available at this stage to provide a robust assessment, however, it is assumed that where other schemes are required to implement Best Practicable Means and comply with the same relevant limits that cumulative effects would be not significant. Engagement with other cumulative developments is a commitment in the CEMP and this is generally an acceptable approach to dealing with potential cumulative effects from construction.

13.27. Due to the location of construction compounds, possible impacts from construction traffic are stated to only occur for up to two months in any given location. Road traffic noise level changes are

predicted to be not significant on the majority of roads, with the exception of receptors along two road sections (B1241, North of Fleets Road, and Cottam Road, East of Westbrecks Lane) which could experience significant effects for a duration of approximately two months. Cumulative construction traffic assessments have also been undertaken which demonstrate an additional potential significant effect on Stow Park Road East of Adams Way when considering other DCO solar schemes in the locality. Where traffic flows were too low to enable calculations, average hourly HGV movements have been presented and stated as significant for Fillinham Road and Headstead Bank, however, the rationale for the significant effect based on these numbers is not clear. These are worst-case impacts that do not take into account phasing of construction which is later relied on as a method to mitigate potential significant effects.

Operational Noise and Vibration

13.28. Night-time levels are presented as the worst case as providing the most onerous assessment criteria. The assessment results in no significant effects at any receptors. No predicted rating levels are above the minimum 40 dB SOAEL threshold. Whilst there is no presented comparison between background sound and rating levels where results are above the LOAEL minimum level, it is considered that this has little bearing on the outcome of the assessment. All measures to reduce LOAEL exceedances as far as reasonably practicable are stated as being embedded in the design. The assessment appears to be robust.

13.29. The operational cumulative effects from other schemes in the vicinity are not expected to result in any significant effects as cumulative noise levels will be below the SOAEL threshold, and based on the presented noise levels the worst-case increase in operational noise is anticipated to be less than 3 dB which is not considered to be a perceptible change. This rationale is acceptable.

Mitigation Measures

Construction Noise and Vibration

13.30. General BPM, including requirements for noise monitoring, are provided to reduce noise as far as reasonably practicable. Specific measures have been specified for trenchless construction methods, which include a hierarchy of mitigation measures that are necessary to avoid potential significant effects from this activity.

13.31. Significant construction road traffic noise effects are anticipated to be avoided through construction phasing and implementation of construction team traffic scheduling so that there would be limited overlap of teams along the local highway network. A method of scheduling construction traffic from different work teams so they do not overlap is secured in the framework CEMP and DEMP. This approach seems reasonable subject to detailed sequencing to be confirmed by the principal contractor and engagement between the multiple DCO schemes in the locality to ensure that significant effects are avoided and potential adverse effects are reduced as far as reasonably practicable. It is recommended that this controlled through relevant conditions or reserved matters.

13.32. The project requirement for Section 61 (S61) applications for prior consent under the Control of Pollution Act 1974 are unclear. These are stated as both “where necessary” and “for works outside core hours”. It is recommended that the consents approach is fully agreed with the local planning authority, however, a proportional approach will be to require S61 consents only for high risk works, i.e. outside of core working hours, on the basis that the CEMP/DEMP will otherwise demonstrate the BPM being applied.

Operational Noise and Vibration

13.33. A commitment is made that should the indicative plant locations change that the operational noise levels as presented in the assessment will not be exceeded. This is stated as being secured through a requirement of the draft DCO. This is considered to be a slightly onerous commitment as other revised layouts could still result in the same assessment outcome even if exceeding the previously predicted noise levels.

13.34. Low-frequency noise from on-site substations has not been assessed, however, an additional commitment in the draft DCO will be to consider and mitigate low-frequency noise throughout the detailed design, where appropriate.

Construction

Unmitigated impacts - assessed impacts

13.35. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. In terms of effects of construction on receptors within the Principal Site and Cable Route Corridor, all predicted noise levels remain below the daytime SOAEL (75dB LAeq,T) for all daytime construction scenarios and are therefore not significant. Noise from trenchless activities at two receptor locations would reduce to below the night-time SOAEL of 55dB LAeq,T and noise effects be not significant.

13.36. At this stage, it is anticipated that all construction and decommissioning vibration effects at nearby sensitive receptors would be not significant.

13.37. Temporary changes in noise due to construction traffic at the majority of roads are identified as ranging from Negligible to Minor Adverse and not significant, with the exception of two receptors which are predicted to experience temporary Moderate Adverse effects for a duration of approximately two months, which are significant. Construction traffic on all other low-flow roads is not sufficient enough to be considered significant.

Proposed mitigation

13.38. A range of mitigation measures have been embedded into the Scheme to mitigate the noise and vibration impacts of the Scheme. Measures contained within the Framework CEMP [EN010142/APP/7.8] include off-site pre-fabrication where reasonably practicable, and all construction plant and equipment is to be properly maintained, silenced where appropriate, operated to prevent excessive noise and switched off when not in use. Where practicable, trenchless methods will be avoided within 200m (the distance at which significant effects are predicted at night) of residential receptors. Management of construction traffic on the highway network will be managed through the Framework Construction Traffic Management Plan (CTMP) [EN010142/APP/7.11].

13.39. No additional measures are proposed to mitigate noise and vibration emissions during the construction phase following the above embedded measures, given that there are not expected to be any significant effects.

Residual impacts with mitigation

13.40. With the application of these mitigation measures, no significant residual effects on Noise and Vibration are predicted during construction of the Scheme.

Cumulative

13.41. By following the proposed method and noise reducing interventions set out in the Section 61 application, the cumulative effects of construction noise and vibration along the Cable Route Corridor would be neutral (not significant).

13.42. For all other identified cumulative developments, the precise scale of additional noise and vibration effects with the Scheme will depend on the exact works taking place at each location at any one time. It is assumed that noise and vibration levels of those other developments will comply with set limits in accordance with the applicable guidance. The cumulative effects of construction noise and vibration with the Scheme would therefore be neutral (not significant). With mitigation in place where appropriate, the residual effect of cumulative construction traffic noise at all roads is considered to be neutral (not significant). Cumulative construction traffic on low-flow roads is considered to have a residual cumulative neutral effect which is not significant.

Operation

Unmitigated impacts - assessed impacts

13.43. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. There is not anticipated to be any noticeable impulsive or intermittent characteristics from plant noise emissions experienced at the surrounding receptors.

13.44. Reasonable steps to reduce noise have been applied in noise predictions. Consequently, although adverse levels of noise are identified at some receptors, NPSE requirements are complied with through provision of embedded mitigation.

Proposed mitigation

13.45. A range of mitigation measures have been embedded into the Scheme to mitigate the noise and vibration impacts of the Scheme. Measures include plant selection (noise emissions will be one of the criteria evaluated when procuring equipment for use on the site).

13.46. Low frequency noise can be very difficult to predict with a high level of certainty and similarly hard to identify and resolve if present. This issue of low frequency noise will be eliminated through design or appropriately mitigated (isolation and attenuation measures) where appropriate.

13.47. No additional mitigation measures are proposed for the operational phase following the above embedded measures, given that there are not expected to be any significant effects.

Residual impacts with mitigation

13.48. With the application of these mitigation measures, no significant residual effects on Noise and Vibration are predicted during operation of the Scheme.

13.49. No exceedances of the SOAEL are predicted during the operational phase and therefore residual effects remain as in the assessment of likely effects (not significant).

Cumulative

13.50. It is identified that operational noise from the Scheme and cumulative developments may influence noise at two identified sensitive receptors. As the predicted levels of noise would not have an effect on health and quality of life, cumulative operational noise will remain unchanged from the residual effects and would therefore be neutral (not significant).

Decommissioning

Unmitigated impacts - assessed impacts

13.51. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. In terms of effects of decommissioning on receptors within the Principal Site and Cable Route Corridor, it is noted that trenchless method operations will only occur during the construction phase (cable installation) and will not occur during decommissioning.

13.52. At this stage, it is anticipated that all decommissioning vibration effects at nearby sensitive receptors would be not significant.

Proposed mitigation

13.53. A range of mitigation measures have been embedded into the Scheme to mitigate the noise and vibration impacts of the Scheme. Measures contained within the Framework DEMP [EN010142/APP/7.10] include plant and vehicles to be sequentially started up rather than all together, and the use of screening locally around significant noise producing plant and activities. Appropriate routing of decommissioning traffic on public roads and along access tracks will be pursuant to the Framework Construction Traffic Management Plan (CTMP) [EN010142/APP/7.11].

Residual impacts with mitigation

13.54. With the application of these mitigation measures, no significant residual effects on Noise and Vibration are predicted during decommissioning of the Scheme.

13.55. No exceedances of the SOAEL are predicted during the decommissioning phase and therefore residual effects remain as in the assessment of likely effects (not significant).

Cumulative

13.56. Mitigation measures for managing noise and vibration during decommissioning are documented within the Framework DEMP [EN010142/APP/7.10] and it assumed that any nearby decommissioning sites would operate to a similar level of good practice in accordance with their own CEMPs/DEMPs. The cumulative effects of noise and vibration during decommissioning would therefore be neutral (not significant).

Requirements

13.57. A construction noise monitoring scheme shall be developed and agreed with appropriate stakeholders following appointment of a contractor and prior to commencement of construction works. The CEMP would also set out a scheme for the provision of monthly reporting information to and from local residents to advise of potential noisy works that are due to take place and for monitoring of noise complaints and reporting to the Applicant for immediate investigation and action.

Requirement 12 – Construction environmental management plan

13.58. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the outline construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

13.59. It is expected that construction works will be undertaken in accordance with the best practicable means (as defined in Section 72 of the Control of Pollution Act 1974 (Ref 2-1)), to minimise noise and vibration effects. Noise control measures will be consistent with the recommendations of the current version of BS 5228 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' – 'Part 1: Noise' and 'Part 2: Vibration' (BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014) (Ref 2-2 and Ref 2-3).

Requirement 13 – Operational environmental management plan

13.60. Requirement 14 – Operational environmental management plan: Before the date of final commissioning of the authorised development, an operational environmental management plan must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

Requirement 17 – Operational noise

13.61. This requirement stipulates that Work Nos. 1, 2, 3 or 4 may not commence until an operational noise assessment has been submitted to and approved by the relevant planning authority. The design in the operational noise assessment must be implemented as approved.

14. Water Environment

Summary

14.1. The list below outlines the main points arising from the review of Chapter 10: Water Environment of the ES for the Tillbridge Solar Project:

- [HFD1] There are several impacts on the water environment as a result of the Scheme. This includes increased flood risk, pollution from surface water runoff, increased water volume discharge and inappropriate wastewater disposal, among others.
- [HFD2] The risk of flooding and drainage remain key concerns for WLDC. The preparation and implementation of mitigation measure to a high quality is required.

Policy Context

National Policy

14.2. NPS [EN-1] (Section 5.16) states that the SoS '*should consider whether appropriate requirements should be attached to any development consent and/or planning obligations entered into to mitigate adverse effects on the water environment*'.

Local Policy

14.3. The Central Lincolnshire Local Plan policies which are relevant to the scheme are set out below.

14.4. Policy S21: Flood Risk and Water Resources requires all proposals that are likely to impact on surface or ground water should consider the requirements of the Water Framework Directive. The development should demonstrate:

- That water is available to support the development proposed.
- The surface water hierarchy has been followed.
- No surface water connections are made to the foul system.
- The development contributes positively to the water environment and its ecology where possible and does not adversely affect surface and ground water quality in line with the requirements of the Water Framework Directive.
- Proposals with the potential to pose a risk to groundwater resources are not located in sensitive locations to meet the requirements of the Water Framework Directive.
- Relevant site investigations, risk assessments and necessary mitigation measures for source protection zones around boreholes, wells, springs and water courses have been agreed with the relevant bodies.

14.5. Policy S59: Green and Blue Infrastructure Network states that proposals that cause loss or harm to the green and blue infrastructure network will not be supported unless the need for and benefits of the development demonstrably outweigh any adverse impacts. Where adverse impacts on green infrastructure are unavoidable, development will only be supported if suitable mitigation measures for the network are provided.

Summary of impacts

14.6. The Scheme has been considered in assessing the water environment impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

14.7. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. In terms of effects during construction of the Principal Site, all effects on fifteen identified receptors are negligible, minor adverse or neutral, which are not significant.

14.8. Notwithstanding the ES conclusion, WLDC considers the risk of flooding and the robustness of drainage provisions to be a key impact, that requires the proposed mitigation to be detailed and implemented to a high quality.

14.9. In terms of effects during construction of the Cable Route Corridor, all effects on nine identified receptors are negligible, minor adverse or neutral, which are not significant.

Proposed mitigation

14.10. A range of standard mitigation measures have been embedded into the Scheme to mitigate the water environment impacts of the Scheme. The Framework CEMP [EN010142/APP/7.8] details the measures that will be undertaken during construction to mitigate temporary effects on the water environment. The measures within the Framework CEMP focus on managing the risk of pollution to surface waters and the groundwater environment. It also considers the management of activities within floodplain areas (i.e. kept to a minimum and with temporary land take required for construction to be located out of the floodplain as far as reasonably practicable). The final CEMP will be supported by a Water Management Plan (WMP) that will provide greater detail regarding the mitigation to be implemented to protect the water environment from adverse effects during construction.

14.11. In terms of additional mitigation, no mitigation over and above that already set out in Chapter 10: Water Environment [EN010142/APP/6.1] is proposed.

Residual impacts with mitigation

14.12. With the application of these mitigation measures, no significant residual effects on Water Environment are predicted during construction of the Scheme.

14.13. Across sixteen receptors within the Principal Site and Cable Route Corridor, all residual effects after mitigation are predicted to be negligible, minor adverse, neutral or no change, none of which are significant.

Cumulative

14.14. The mitigation measures for the Scheme are documented within the Framework CEMP [EN010142/APP/7.8] and it is assumed that the other developments will operate to a similar level of good practice in accordance with their own CEMPs. The cumulative effects on the water environment during construction are therefore likely to be neutral (not significant).

14.15. The Cable Route Corridor has been refined to align as closely as possible with the Cable Route Corridors of the solar DCOs in the area, in order to reduce the overall working area and potential impacts. It is therefore considered that the cumulative effects during construction would be neutral (not significant).

Operation

Unmitigated impacts - assessed impacts

14.16. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. In terms of effects during operation from the Principal Site, all effects on seventeen identified receptors are negligible, minor adverse or neutral, which are not significant.

14.17. The operational Cable Route Corridor has not been assessed as the whole cable will be installed beneath ground level with no impact on the water environment following completion of construction and reinstatement.

14.18. WLDC consider that, noting that the cable route corridor has not been assessed for operational effects, with justification provided '*The operational Cable Route Corridor has not been assessed as*

the whole cable will be installed beneath ground level with no impact on the water environment following completion of construction and reinstatement". Although the justification seems reasonable it would have been good to include details of how the above ground routes will be restored to their baseline conditions within the cable route corridor, to make the reader confident that there will be no impacts during operation

Proposed mitigation

14.19. A range of standard mitigation measures have been embedded into the Scheme to mitigate the water environment impacts of the Scheme. The Framework Operational Environmental Management Plan (OEMP) [EN010142/APP/7.9] will include measures to regulate the environmental effects of the operational phase of the Site, and to ensure any maintenance activities take place in a way to avoid and minimise any potential environmental impacts. This will include measures to manage the risk from pollution from small leaks and spillages from proposed infrastructure and maintenance activities. It is important that during the operation of the Scheme there is regular inspection and maintenance of the drainage systems, proposed SuDS and watercourse crossings.

14.20. In terms of additional mitigation, no mitigation over and above that already set out in Chapter 10: Water Environment [EN010142/APP/6.1] is proposed.

Residual impacts with mitigation

14.21. With the application of these mitigation measures, no significant residual effects on Water Environment are predicted during operation of the Scheme.

14.22. Across six receptors within the Principal Site, all residual effects after mitigation are predicted to be negligible or neutral, none of which are significant.

Cumulative

14.23. It is assumed that all other developments, including the solar DCOs, will include an appropriate drainage design/strategy to manage and treat surface water runoff, as set out in their Outline, and Framework, Environmental Management Plans, and the Glentworth Oil Planning Application Hydrogeological Risk Assessment and Flood Risk Assessment document which includes measures to protect the water environment during operation. These ensure there is no increase in flood risk, as would be required by planning policy and the Lead Local Flood Authority. It is therefore considered that the cumulative effects during operation would be neutral (not significant).

Decommissioning

Unmitigated impacts - assessed impacts

14.24. The effects of the Scheme have been assessed following consideration of the embedded mitigation measures as detailed below. Potential impacts from the decommissioning of the Scheme are similar in nature to those during construction, as some ground works will be required to remove infrastructure installed. It is considered the decommissioning impacts and effects will be no worse than those of the construction phase.

Proposed mitigation

14.25. A range of mitigation measures have been embedded into the Scheme to mitigate the impacts of the Scheme on the climate. At the decommissioning stage the potential impacts to the water environment would be controlled by a Framework DEMP [EN010142/APP/7.10]. This would ensure that potential impacts are considered and controlled within the decommissioning process.

14.26. In terms of additional mitigation, no mitigation over and above that already set out in Chapter 10: Water Environment [EN010142/APP/6.1] is proposed.

Residual impacts with mitigation

14.27. With the application of these mitigation measures, no significant residual effects on Water Environment are predicted during decommissioning of the Scheme.

14.28. Decommissioning effects are considered to be no worse than those assessed for the construction phase.

Cumulative

14.29. Mitigation measures for managing impacts to surface water and groundwater during decommissioning are documented within the Framework DEMP [EN010142/APP/7.10] and it is assumed that any nearby construction/decommissioning sites would operate to a similar level of good practice in accordance with their own CEMPs/DEMPs. The cumulative effects on the water environment during decommissioning would therefore be neutral (not significant).

Requirements

Requirement 10 – Surface and foul water drainage

14.30. This requirement stipulates that no part of the authorised development may commence until the details of the surface water drainage and (if any) foul water drainage system (substantially in accordance with the outline drainage strategy) for that part has been submitted to and approved by the relevant planning authority. The approved scheme must be implemented.

Requirement 12 – Construction environmental management plan

14.31. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the framework construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

14.32. Temporary drainage will be monitored throughout construction. Specific details will be confirmed in the CEMP. A Water Management Plan (which will form part of a detailed CEMP) will include details of pre, during and post-construction water quality monitoring. This will be based on a combination of visual observations and reviews of the Environment Agency's automatic water quality monitoring network.

15. Ground Conditions

Summary

15.1. The list below outlines the main points arising from the review of Chapter 17: Other Environmental Topics of the ES for the Tillnridge Solar Project:

- [GC1] The assessment methodology in the ES chapter requires clarification. It does not appear to refer to Government or DMRB guidelines or assessment methodologies
- [GC2] The ES Chapter considers only potential impacts from land contamination and does not describe the methodology for assessment and how it is appropriate for the scheme.
- [GC3] Potential effects on mineral resources or geologically sensitive receptors, such as SSSIs, do not seem to have been explained or considered.
- [GC4] The two study areas (Principal Site and Cable Route Corridor) have not been defined in the ES chapter.
- [GC5] For the majority of assessment topics, there are very limited references to the sources provided. Further information from the Applicant would be welcomed.

Policy Context

National Policy

15.2. Section 5.11.17 of the NPS EN-1 states that “applicants should ensure that a site is suitable for its proposed use, taking into account of ground conditions and any risks arising from land instability and contamination.”.

Local Policy

15.3. Policy S56: Development on Land Affected by Contamination states that where proposals are known to be or has the potential to be affected by contamination, a preliminary risk assessment should be undertaken by the developer and submitted to the relevant Central Lincolnshire Authority as the first stage in assessing the risk of contamination. Proposals will only be permitted if layout and drainage have taken adequate account of ground conditions, contamination and gas risks arising from previous uses and any proposed sustainable land remediation.

Summary of impacts

15.4. The Scheme has been considered in assessing the ground conditions and contamination impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

15.5. The effects of the Scheme include hazards to human health, controlled waters, ecological receptors and properties, in addition to impact on mining and mineral sites in terms of a loss of resource.

15.6. An assessment of the potential severity, likelihood of occurrence and potential risk associated with each contaminant linkage is included in Section 10 of Appendix 17-3: Ground Conditions Principal Site PRA and Appendix 17-4: Ground Conditions Cable Route Corridor PRA of this ES [EN010142/APP/6.2]. All contamination linkages were assessed to result in very low to low risk of impacting on human health or controlled waters receptors, with the introduction of the Scheme.

15.7. The ES chapter states that an assessment of potential likely effects has been undertaken by considering the sources of possible contaminant risks and the presence of any plausible pathways or receptors as outlined in the Environmental Protection Act 1990 (Part 2A). The chapter presents the assessed risk rating but no details or explanation is provided and the text refers back to the PRA in the appendix for details. No anticipated significant residual effects are reported in the ES

chapter. A more detailed summary should be provided in the ES chapter to justify the conclusion with reference back to the PRA in the appendix for detail. In addition, the assessment does not clearly separately consider effects which may occur during all phases of development – i.e. construction, operation and decommissioning. The mitigation mentions construction and operational activities together.

Proposed mitigation

15.8. Prior to work commencing, a health and safety risk assessment will be carried out in accordance with current health and safety regulations and based on ground investigation findings. Based on the findings of this risk assessment, appropriate mitigation measures will be implemented during the course of any works, including use of appropriate Personal Protective Equipment (PPE) for construction workers and use of appropriate site control measures to minimise the migration of contaminated dusts and soils.

15.9. Bespoke design mitigation measures include plant being installed with suitable bunding and surface water drainage.

15.10. A Framework CEMP [EN010142/APP/7.8] sets out measures to be implemented during construction to reduce nuisance impacts from dust generation, soil removal and waste generation.

Residual impacts with mitigation

With the proposed mitigation in place, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

15.11. It has been identified that there will be no significant effects in relation to ground conditions as a result of the Scheme, with mitigation in place as set out within the Framework CEMP [EN010142/APP/7.8]. Similarly, provided that the requirements of relevant policies and legislation relating to land contamination and remediation are integrated within the design and appropriate mitigation measures are applied during the construction phase of each and every cumulative scheme, it is considered that the cumulative effect on ground conditions will be not significant.

Operation

Unmitigated impacts - assessed impacts

15.12. The effects of the Scheme include hazards to human health, controlled waters, ecological receptors and properties, in addition to impact on mining and mineral sites in terms of a loss of resource.

15.13. An assessment of the potential severity, likelihood of occurrence and potential risk associated with each contaminant linkage is included in Section 10 of Appendix 17-3: Ground Conditions Principal Site PRA and Appendix 17-4: Ground Conditions Cable Route Corridor PRA of this ES [EN010142/APP/6.2]. All contamination linkages were assessed to result in very low to low risk of impacting on human health or controlled waters receptors, with the introduction of the Scheme.

Proposed mitigation

15.14. Prior to work commencing, a health and safety risk assessment will be carried out in accordance with current health and safety regulations and based on ground investigation findings. Based on the findings of this risk assessment, appropriate mitigation measures will be implemented during the course of any works, including use of appropriate Personal Protective Equipment (PPE) for construction workers and use of appropriate site control measures to minimise the migration of contaminated dusts and soils.

15.15. Bespoke design mitigation measures include plant being installed with suitable bunding, surface water drainage and, during the operational phase, on-site activity will be minimal and would be restricted principally to vegetation management, equipment maintenance and servicing, replacement of any components that fail, and monitoring to ensure the continued effective operation of the Scheme.

15.16. A Framework OEMP [EN010142/APP/7.9] sets out measures to be implemented during operation to reduce nuisance impacts from dust generation, soil removal and waste generation.

Residual impacts with mitigation

15.17. With the proposed mitigation in place, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

15.18. It has been identified that there will be no significant effects in relation to ground conditions as a result of the Scheme, with mitigation in place as set out within the Framework OEMP [EN010142/APP/7.9]. Similarly, provided that the requirements of relevant policies and legislation relating to land contamination and remediation are integrated within the design and appropriate mitigation measures are applied during the operation phase of each and every cumulative scheme, it is considered that the cumulative effect on ground conditions will be not significant.

Decommissioning

Unmitigated impacts - assessed impacts

15.19. The effects of the Scheme include hazards to human health, controlled waters, ecological receptors and properties, in addition to impact on mining and mineral sites in terms of a loss of resource.

15.20. An assessment of the potential severity, likelihood of occurrence and potential risk associated with each contaminant linkage is included in Section 10 of Appendix 17-3: Ground Conditions Principal Site PRA and Appendix 17-4: Ground Conditions Cable Route Corridor PRA of this ES [EN010142/APP/6.2]. All contamination linkages were assessed to result in very low to low risk of impacting on human health or controlled waters receptors, with the introduction of the Scheme.

15.21. Potential impacts from the decommissioning of the Principal Site are similar in nature to those during construction, as some groundwork would be required to remove infrastructure installed. A Decommissioning Environmental Management Plan (DEMP) will be prepared prior to construction to identify required measures to prevent pollution during this phase. As a result, it is considered the decommissioning impacts and effects would mirror those of the construction phase.

Proposed mitigation

15.22. Prior to work commencing, a health and safety risk assessment will be carried out in accordance with current health and safety regulations and based on ground investigation findings. Based on the findings of this risk assessment, appropriate mitigation measures will be implemented during the course of any works, including use of appropriate Personal Protective Equipment (PPE) for construction workers and use of appropriate site control measures to minimise the migration of contaminated dusts and soils.

A Framework DEMP [EN010142/APP/7.10] sets out measures to be implemented during decommissioning to reduce nuisance impacts from dust generation, soil removal and waste generation.

Residual impacts with mitigation

15.23. With the proposed mitigation in place, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

15.24. It has been identified that there will be no significant effects in relation to ground conditions as a result of the Scheme, with mitigation in place as set out within the Framework DEMP [EN010142/APP/7.10]. Similarly, provided that the requirements of relevant policies and legislation relating to land contamination and remediation are integrated within the design and appropriate mitigation measures are applied during the decommissioning phase of each and every cumulative scheme, it is considered that the cumulative effect on ground conditions will be not significant.

15.25. The ES cumulative effects chapter states that, as reported in the Ground Conditions chapter, following mitigation, no significant effects are anticipated from the Scheme. The chapter assumes that similar requirements for mitigation would be applied to other proposed developments and therefore cumulative effects would not be significant. The assessment is high-level with an absence

of detail and is based on assumptions; it is not evident that the ES assessment documents for the adjacent developments have been reviewed in making this conclusion.

Requirements

Requirement 12 – Construction environmental management plan

15.26. Under this requirement, no part of the authorised development may commence until a construction environmental management plan has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

15.27. Ground investigation works will be undertaken prior to commencing construction works. Results would be reviewed by the appointed contractor.

Requirement 13 – Operational environmental management plan

15.28. Before the date of final commissioning of the authorised development, an operational environmental management plan must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

15.29. The design of the Scheme has included measures to avoid and minimise the risk of pollution to the ground and water during its operation.

Requirement 18 – Soils management

15.30. This requirement stipulates that no part of the authorised development may commence until a soils resource management plan for that part has been submitted to and approved by the relevant planning authority. The soils resource management plan must be implemented as approved.

Requirement 20 – Decommissioning and restoration

15.31. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan. No decommissioning works must be carried out until the relevant planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

16. Glint and Glare

Summary

16.1. The list below outlines the main points arising from the review of Chapter 17: Other Environmental Topic (Glint and Glare section) of the ES for the Tillbridge Solar Project:

- [GG1] WLDC would welcome clarification as to whether consideration has been given to views from upper floors of properties. It in unclear as to whether they have been considered.

National Policy

16.2. Paragraph 2.10.102 of NPS (EN-3) states that '*solar panels may reflect the sun's rays at certain angles, causing glint and glare. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. Glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor*'.

16.3. Moreover, when a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels.

Summary of impacts

16.4. The Scheme has been considered in assessing the glint and glare impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

16.5. Glint and glare effects were only derived from the operational phase of the Scheme.

Proposed mitigation

16.6. Embedded design mitigation for glint and glare, including landscaping to screen the Scheme from view of receptors to glint and glare, as well as landscape and visual impacts, is included in the design of the Scheme.

16.7. Embedded mitigation measures include careful siting of the Scheme in the landscape, conserving existing vegetation patterns, creating new Green Infrastructure, anti-reflective coating (ARC) to reduce reflective properties of the panels.

16.8. No additional mitigation is required due to glint and glare effects only being derived from the operational phase of the Scheme.

Residual impacts with mitigation

16.9. With the proposed embedded design mitigation, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

16.10. The assessment presented in Chapter 17: Other Environmental Topics of this ES [EN010142/APP/6.1] identified that there will be no receptors which will experience significant effects as a result of the Scheme. Additionally, it is expected that the cumulative solar DCOs will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments, as set out within their respective applications. Therefore, no cumulative effects are considered to arise for glint and glare.

Operation

Unmitigated impacts - assessed impacts

16.11. It is unlikely that adverse effects will be experienced from glint and glare due to the nature of the solar PV panels. Glint and glare effects were only derived from the operational phase of the Scheme. There are considered to be no impacts on residential or road receptors. Impacts on aviation receptors are assessed as low (not significant).

Proposed mitigation

16.12. Embedded design mitigation for glint and glare, including landscaping to screen the Scheme from view of receptors to glint and glare, as well as landscape and visual impacts, is included in the design of the Scheme.

16.13. Embedded mitigation measures include careful siting of the Scheme in the landscape, conserving existing vegetation patterns, creating new Green Infrastructure, anti-reflective coating (ARC) to reduce reflective properties of the panels.

16.14. No additional mitigation is required due to no impacts found for the residential and road receptors. Also, no mitigation is required for aviation receptors as there is only a low impact.

Residual impacts with mitigation

16.15. With the proposed embedded design mitigation, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

16.16. The assessment presented in Chapter 17: Other Environmental Topics of this ES [EN010142/APP/6.1] identified that there will be no receptors which will experience significant effects as a result of the Scheme. Additionally, it is expected that the cumulative solar DCOs will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments, as set out within their respective applications. Therefore, no cumulative effects are considered to arise for glint and glare.

Decommissioning

Unmitigated impacts - assessed impacts

16.17. Glint and glare effects were only derived from the operational phase of the Scheme.

Proposed mitigation

16.18. Embedded design mitigation for glint and glare, including landscaping to screen the Scheme from view of receptors to glint and glare, as well as landscape and visual impacts, is included in the design of the Scheme.

16.19. Embedded mitigation measures include careful siting of the Scheme in the landscape, conserving existing vegetation patterns, creating new Green Infrastructure, anti-reflective coating (ARC) to reduce reflective properties of the panels.

16.20. No additional mitigation is required due to glint and glare effects only being derived from the operational phase of the Scheme.

Residual impacts with mitigation

16.21. With the proposed embedded design mitigation, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

16.22. The assessment presented in Chapter 17: Other Environmental Topics of this ES [EN010142/APP/6.1] identified that there will be no receptors which will experience significant effects as a result of the Scheme. Additionally, it is expected that the cumulative solar DCOs will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments, as set out within their respective applications. Therefore, no cumulative effects are considered to arise for glint and glare.

Requirements

Requirement 13 – Operational environmental management plan

16.23. Before the date of final commissioning of the authorised development, an operational environmental management plan (which must substantially accord with the framework environmental management plan) must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

17. Air Quality

Summary

17.1. The list below outlines the main points arising from the review of Chapter 6: Air Quality of the ES () for the Tillbridge Solar Project:

- [AQ1] The main risk to air quality will arise during construction of the Scheme on its own. The impact will the multiplied on a cumulative level in the event the other solar schemes were granted development consent.

Policy Context

National Policy

17.2. NPS [EN-1] states that the SoS '*should generally give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area or leads to a new area where air quality breaches any national air quality limits*'.

17.3. In all cases the SoS must take account of any relevant statutory air quality limits.

17.4. The UK Air Quality Strategy (AQS) identifies nine ambient air pollutants that have the potential to cause harm to human health and two for the protection of vegetation and ecosystems. The AQS defines objectives for these pollutants that aim to reduce the impacts of these pollutants to negligible levels. The objectives are not mandatory but rather targets that local authorities should try to achieve.

Local Policy

17.5. Policy S14: Renewable Energy states that whilst renewable energy scheme will be supported, the impacts of the development are deemed acceptable on the amenity of sensitive neighbouring uses by virtue of matters such as air quality.

17.6. Policy S53: Design and Amenity requires that all development will not result in adverse noise and vibration taking into account surrounding uses nor result in adverse impacts upon air quality from odour, fumes, smoke, dust and other sources.

Summary of impacts

17.7. The Scheme has been considered in assessing the air quality impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

17.8. The assessment considers the potential dust risk across a set of pre-defined zones, up to 250m from the Scheme. The dust risk assessment is provided in Appendix 6-2: Dust Risk Assessment of this ES [EN010142/APP/6.2].

17.9. The Scheme will not require any demolition during the construction phase. Demolition has therefore been scoped out and will not be considered further within this assessment. Potential dust emissions magnitude associated with earthworks is considered to be small. With the implementation of good practice measures the risk of dust impact during construction and for earthworks activities is classified as a low risk to human health and dust soiling.

17.10. Due to the use of unpaved routes, the potential dust emissions magnitude for trackout is assumed to be large. With the implementation of good practice measures, the risk of dust impacts due to trackout is low risk to human health.

17.11. The overall risk from dust for the Scheme to be identified as low risk. With the implementation of the recommended level of good practice, the overall significance of effect will be negligible to minor adverse (not significant).

17.12. The predicted change in concentration as a result of increased construction traffic from the Scheme is estimated to be negligible at all modelled receptors. As such the increased construction traffic will have no effect on air quality in the areas surrounding the Order limits and no mitigation is required.

Proposed mitigation

17.13. Embedded design mitigation for air quality during construction are contained within Framework CEMP [EN010142/APP/7.8]. Mitigation measures for a high-risk site ensuring all vehicles switch off engines when stationary. Activity-specific mitigation measures include ensuring vehicles entering and leaving sites are covered to prevent escape of materials during transport.

17.14. Chapter 6: Air Quality [EN010142/APP/6.1] considered the possible impacts of the Scheme on air quality in the area. No mitigation over and above that already set out in that assessment will be required for air quality.

Residual impacts with mitigation

17.15. Following implementation of the Framework CEMP [EN010142/APP/7.8], which will incorporate the mitigation measures outlined above, the effect on dust deposition and human health is anticipated to be not significant. No significant residual effects on Air Quality are predicted during construction of the Scheme.

Cumulative

17.16. Mitigation measures for managing dust emissions from the Scheme during construction are documented within the Framework CEMP [EN010142/APP/7.8]. These will ensure that off-site impacts are not significant. The cumulative effects of dust generation during construction would therefore be neutral (not significant).

17.17. The predicted change in concentration as a result of increased cumulative traffic is estimated to be negligible at all modelled receptors. As such the cumulative traffic will have no effect on air quality within the ZoI of the Scheme.

Operation

Unmitigated impacts - assessed impacts

17.18. No impacts during operation are assessed as part of Chapter 6: Air Quality [EN010142/APP/6.1).

Proposed mitigation

17.19. There are no distinct embedded design mitigation measures proposed within Chapter 6: Air Quality [EN010142/APP/6.1] for the operational phase of the Scheme.

17.20. Chapter 6: Air Quality [EN010142/APP/6.1] considered the possible impacts of the Scheme on air quality in the area. No mitigation over and above that already set out in that assessment will be required for air quality.

Residual impacts with mitigation

17.21. With the proposed design mitigation, no significant residual effects on Air Quality are predicted during operation of the Scheme.

Cumulative

17.22. There are not anticipated to be any cumulative effects on air quality during operation of the Scheme. This is due to the solar farm components not emitting atmospheric pollutants, and also due to a small number of staff working during operation.

17.23. An operational assessment of air quality has therefore been scoped out of the EIA for the Scheme and there is no potential for significant cumulative effects.

Decommissioning

Unmitigated impacts - assessed impacts

17.24. The assessment presented above for construction traffic is considered to represent the worst case effects during decommissioning. As such, effects from decommissioning traffic are also considered to be not significant.

Proposed mitigation

17.25. Decommissioning is assumed to generate similar effects to those anticipated during the construction phase, and therefore the mitigation measures proposed for implementation during the construction phase will be appropriate for application to decommissioning. Recommended measures are included within the Framework DEMP [EN010142/APP/7.10].

17.26. Chapter 6: Air Quality [EN010142/APP/6.1] considered the possible impacts of the Scheme on air quality in the area. No mitigation over and above that already set out in that assessment will be required for air quality.

Residual impacts with mitigation

17.27. Following implementation of the Framework DEMP [EN010142/APP/7.10], which will incorporate the mitigation measures outlined above, the effect on dust deposition and human health is anticipated to be not significant. No significant residual effects on Air Quality are predicted during decommissioning of the Scheme.

Cumulative

17.28. Mitigation measures for managing dust emissions during decommissioning are documented within the Framework DEMP [EN010142/APP/7.10] and it assumed that any nearby construction/decommissioning sites would operate to a similar level of good practice in accordance with their own CEMPs/DEMPs. The cumulative effects of dust generation during decommissioning would therefore be neutral (not significant).

Requirements

Requirement 12 – Construction environmental management plan

17.29. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the framework construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

17.30. Measures in the CEMP will include the implementation of inspection procedures at the Order limits to periodically visually assess any dust and air pollution which may be generated; inspection of maintenance schedules for construction vehicles, plant and machinery; and inspection and recording procedures relating to the level of traffic movements, use and condition of haul routes.

Requirement 20 – Decommissioning and restoration

17.31. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan for that part which substantially accords with the decommissioning statement. No decommissioning works must be carried out until the relevant planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

17.32. A dust management plan may be required as part of the DEMP and would detail any dust monitoring required prior to and during decommissioning, including any relevant baseline dust monitoring to be undertaken before activities commence. Records will be kept of all dust and air

quality complaints, cause(s) will be identified and appropriate measures to reduce emissions will be taken in a timely manner. A further record will be kept of the measures taken.

18. Materials and Waste

Summary

18.1. The list below outlines the main points arising from the review of Chapter 17: Other Environmental Topics (Materials and Waste) of the ES for the Tillbridge Solar Project:

- [W1] The Scheme will generate substantial quantities of both construction materials and wastewater. Employee activity will generate commercial, food and sewage waste.
- [W2] WLDC notes concerns over the Scheme complying with Policy S10: Supporting a Circular Economy of the Central Lincolnshire Local Plan, due to the replacement and disposal of solar panels and other associated infrastructure that will be required during the Scheme's operation.
- [W3] WLDC has concerns regarding the method for recycling materials as a consequence of maintenance (replacement) and decommissioning of panels, BESS and substation infrastructure. WLDC understands that there is insufficient capacity within the District, the Region and the UK as a whole to deal with the waste.

Policy Context

National Policy

18.2. Section 5.15.14 of the NPS [EN-1] requires the SoS to take into account the extent to which the applicant has proposed an effective system for managing hazardous and non-hazardous waste arising from the construction, operation and decommissioning of the proposed development. The SoS should be satisfied that:

- Any such waste will be properly managed, both on-site and off-site.
- The waste from the proposed facility can be dealt with appropriately by the waste infrastructure which is, or is likely to be, available.
- Adequate steps have been taken to minimise the volume of waste arisings, and of the volume of waste arisings sent to disposal, except where that is the best overall environmental outcome.

18.3. Furthermore, the NPS [EN-1] should ensure that appropriate measures for waste management are applied through the use of obligations and requirements.

Local Policy

18.4. West Lindsey do not have any specific policies relating exclusively to waste management. Lincolnshire County Council is responsible for minerals and waste planning in the County. The Lincolnshire Minerals and Waste Local Plan is formed of two parts: the Core Strategy and Development Management Policies and the Site Locations.

- The Core Strategy and Development Management Policies outlines the principles for the future winning and working of minerals and the form of waste management. It also provides the criteria under which we consider minerals and waste development applications.
- Site Locations includes specific proposals and policies for the provision of land for mineral and waste.

18.5. Notwithstanding the above, West Lindsey do have policies in the Central Lincolnshire Local Plan that relate to the minimisation and management of waste.

18.6. Policy S10: Supporting a Circular Economy states that a key principle of a circular economy is the design out of waste and pollution. The principle requires businesses and organisations to rethink their supply chain and identify ways that they can avoid creating waste and pollution through their operations The policy also aims to support proposals which incorporate sustainable waste management onsite.

18.7. Policy S11: Embodied Carbon states that assessing the embodied carbon of a project can contribute to other sustainability targets and priorities beside carbon. For example, use of recycled content, recyclability of building materials, and reduced waste materials to landfill can all result from a focus on reducing embodied carbon and also contribute to waste reduction targets.

18.8. Policy S20: Resilient and Adaptable Design sets out that adaptable building design avoids, or at least minimises, waste, reduces the use of materials, and reduces overall emissions from the demolition and redevelopment of buildings that are no longer fit for purpose or incapable of being easily changed.

Summary of impacts

18.9. The Scheme has been considered in assessing the materials and waste impacts and effects of the Scheme, whilst considering the embedded mitigation measures which are relevant to this chapter and have already been incorporated into the Scheme design, in addition to additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

18.10. The Scheme has the potential to affect materials and waste during construction via changes in demand for construction materials; and changes in available landfill void capacity.

18.11. Construction materials required to construct the Scheme are unlikely to be required in large quantities e.g., more than 1% of regional or national construction material availability. Therefore, no significant effects are anticipated.

18.12. With the embedded mitigation measures in place, the overall quantities of construction waste are anticipated have a negligible magnitude of impact and a slight effect which is not significant. Waste recovery (landfill diversion) for the Scheme is likely to be above 90% for the majority of construction wastes. Therefore, the magnitude of impact is negligible, and the effect is slight, which is considered to be not significant.

18.13. Considering the above, it is concluded that significant waste effects are not expected during construction of the Scheme.

Proposed mitigation

18.14. An embedded mitigation/mitigation by design approach has been taken into account when evaluating the significance of the potential impacts of the Scheme in terms of materials and waste.

18.15. During construction, the Scheme will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill.

18.16. All management of waste will be in accordance with the relevant regulations (as outlined Appendix 17-1: Other Environmental Topics Legislation, Policy and Guidance of this ES [EN10142/APP/6.2]) and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.

18.17. Construction will be subject to measures and procedures defined within a Framework CEMP [EN010142/APP/7.8] which includes measures such as to the control of dust and the approach to material and waste management on-site.

18.18. As no significant materials and waste effects have been identified, no further or additional mitigation or monitoring of significant effects is proposed.

Residual impacts with mitigation

18.19. As no significant effects were identified in the assessment, the residual effects remain as outlined in the assessment. All effects are not significant.

Cumulative

18.20. No significant cumulative material and waste effects have been identified for the construction phase of the Scheme.

Operation

Unmitigated impacts - assessed impacts

18.21. The Scheme has the potential to affect materials and waste during operation via changes in demand for construction materials; and changes in available landfill void capacity.

18.22. Materials required to operate the Scheme are unlikely to be required in large quantities e.g., more than 1% of regional or national construction material availability. Therefore, no significant effects are anticipated.

18.23. With the embedded mitigation measures in place, the overall quantities of construction waste are anticipated have a negligible magnitude of impact and a slight effect which is not significant. Waste recovery (landfill diversion) for the Scheme is likely to be above 90% for the majority of construction wastes. Therefore, the magnitude of impact is negligible, and the effect is slight, which is considered to be not significant.

18.24. Considering the above, it is concluded that significant waste effects are not expected during operation of the Scheme.

Proposed mitigation

18.25. An embedded mitigation/mitigation by design approach has been taken into account when evaluating the significance of the potential impacts of the Scheme in terms of materials and waste.

18.26. During operation, the Scheme will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill.

18.27. All management of waste will be in accordance with the relevant and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them. These measures are set out in the Framework OEMP [EN010142/APP/7.9].

18.28. As no significant materials and waste effects have been identified, no further or additional mitigation or monitoring of significant effects is proposed.

Residual impacts with mitigation

18.29. As no significant effects were identified in the assessment, the residual effects remain as outlined in the assessment. All effects are not significant.

Cumulative

18.30. The cumulative effects of operational replacement of solar farm specific elements (e.g. solar panels) are considered separately at a high level and the ZoI for cumulative effects associated with solar farm specific wastes is Lincolnshire.

18.31. Since waste solar panels are unlikely to be disposed of to landfill, then in accordance with the assessment methodology in Chapter 17: Other Environmental Topics of this ES [EN010142/APP/6.1], the effects are anticipated to be not significant. Therefore, no significant cumulative materials and waste effects have been identified for the Scheme.

Decommissioning

Unmitigated impacts - assessed impacts

18.32. The Scheme has the potential to affect materials and waste during decommissioning via changes in demand for construction materials; and changes in available landfill void capacity.

18.33. The overall recovery rate of Scheme components and solar panels is expected to be greater than 60% (and potentially greater than 90%). Therefore, the magnitude of impact is minor or negligible, which is considered to be not significant.

18.34. The overall quantities of decommissioning waste sent to landfill are anticipated to be below 1% of regional inert (320,000 m3) and non-hazardous (516,000 m3) landfill capacity and less than 0.1% of national hazardous (7,900 m3) landfill capacity. Therefore, the magnitude of impact is negligible, and the effect is slight, which is considered to be not significant.

Proposed mitigation

18.35. An embedded mitigation/mitigation by design approach has been taken into account when evaluating the significance of the potential impacts of the Scheme in terms of materials and waste.

18.36. During decommissioning, the Scheme will aim to prioritise waste prevention, followed by preparing for reuse, recycling and recovery and lastly disposal to landfill.

18.37. All management of waste will be in accordance with the relevant regulations and waste will be transported by licensed waste hauliers to waste management sites which hold the necessary regulatory authorisation and/or permits for those wastes consigned to them.

18.38. As no significant materials and waste effects have been identified, no further or additional mitigation or monitoring of significant effects is proposed

Residual impacts with mitigation

18.39. As no significant effects were identified in the assessment, the residual effects remain as outlined in the assessment. All effects are not significant.

Cumulative

18.40. The cumulative effects of decommissioning solar farm specific elements (e.g. solar panels) are considered separately at a high level and the ZoI for cumulative effects associated with solar farm specific wastes is Lincolnshire.

18.41. Since waste solar panels are unlikely to be disposed of to landfill, then in accordance with the assessment methodology in Chapter 17: Other Environmental Topics of this ES [EN010142/APP/6.1], the effects are anticipated to be not significant. Therefore, no significant cumulative materials and waste effects have been identified for the Scheme.

Requirements

Requirement 12 – Construction environmental management plan

18.42. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the framework construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

Requirement 13 – Operational environmental management plan

18.43. Requirement 14 – Operational environmental management plan: Before the date of final commissioning of the authorised development, an operational environmental management plan (which must substantially accord with the framework operational environmental management plan) must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

18.44. A register of waste loads leaving the Order limits would be maintained to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste types, quantities, and management methods.

Requirement 20 – Decommissioning and restoration

18.45. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan.. No decommissioning works must be carried out until the relevant planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

19. Other Environmental Matters

Summary

19.1. Chapter 21: Other Environmental Matters of the ES (Doc. Ref. EN010132/APP/WB6.2.21) describes and assesses the potential effects of the Scheme on:

- Electric and Electro-Magnetic Fields (17.9);
- Telecommunications, Television Reception and Utilities;
- Human Health; and
- Major Accidents and Disasters.

19.2. The list below outlines the main points arising from the review of Chapter 21: Other Environmental Matters:

- [OEM1] The Scheme is questionably not in accordance with Policy S54: Health and Wellbeing, as the Scheme does not take into account achieving positive mental and physical health outcomes.
- [OEM2] WLDC considers that the ES does not directly address a number of health determinants including: health-related behaviours, social environments and bio-physical environment

Policy Context

National Policy

Electromagnetic Fields

19.3. Paragraph 2.9.54 of NPS EN-5 states that the *'National Radiological Protection Board (NRPB) (now part of HPA CRCE), published advice on limiting public exposure to electromagnetic fields. The advice recommended the adoption in the UK of the EMF exposure guidelines published by ICNIRP in 1998. These guidelines also form the basis of a 1999 EU Recommendation on public exposure and a Directive on occupational exposure. Resulting from these recommendations, Government policy is that exposure of the public should comply with the ICNIRP (1998) guidelines in terms of the EU Recommendation. The electricity industry has agreed to follow this policy'*.

Light Pollution

19.4. Paragraph 191(c) of the NPPF 2023 states that decisions should *'limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation'*.

Human Health

19.5. The NPPF supports the role of planning to create healthy, inclusive communities and recognises that the design and use of the built and natural environment are major determinants of health and wellbeing. The impact of development on human health and wellbeing is therefore a material consideration in the determination of planning applications.

19.6. The Central Lincolnshire Local Plan has produced a Supplementary Planning Document (SPD) to help guide developers and decision makers on the implementation of policy S54 Health and Wellbeing in the Central Lincolnshire Local Plan. S54 sets out a requirement for developers to submit a Health Impact Assessment (HIA) for non-residential development proposals, 5ha or more.

19.7. The adopted SPD defines Health as a *"state of complete physical, mental and social wellbeing. As well as access to good quality healthcare services and lifestyle choices, there are many factors that affect health and wellbeing. These include the physical and social conditions in which people live, culture, education, housing, transport, employment, crime, income, leisure, and other services. These all influence health in either a positive or negative way, both directly and indirectly. These factors are commonly known as the wider determinants of health."* (page 2).

Major Accidents and Disasters

19.8. The EIA Regulations require consideration to be given to the risks of major accidents and disasters.

Local Policy

19.9. The 4th Lincolnshire Local Transport Plan (LTP4) covers the period 2013/14-2022/23. At the time of writing, this is in the process of being replaced by the 5th Local Transport Plan (LTP5). Theme 4 'Supporting safety, security and a healthy lifestyle' states that there is a need to reduce the impacts of air quality, noise and light pollution.

19.10. Policy S54 of the Central Lincolnshire Local Plan notifies applicants that the potential for achieving positive mental and physical health outcomes will be taken into account for all schemes. Where any potential adverse health impacts are identified, the applicant will be expected to demonstrate how these will be addressed and mitigated.

Summary of impacts

19.11. The Scheme has been considered in assessing the impacts and effects of the Scheme in terms of electromagnetic fields; telecommunications, utilities and television; human health; and major accidents and disasters. Alongside this is a consideration for the relevant embedded mitigation measures which have already been incorporated into the Scheme design, in addition to any additional mitigation measures.

Construction

Unmitigated impacts - assessed impacts

19.12. There are no residential properties within the Order limits. The nearest properties are immediately adjacent to the Order limits, however it is unlikely that cables will be installed within 10m of any property due to the need for construction vehicles to manoeuvre both sides of the trench within the working width. Therefore, no significant effects to residential receptors are predicted to occur in terms of electromagnetic fields. Some PRoW do cross over the proposed Principal Site and Cable Route Corridor. PRoW are The presence of the public either directly above or adjacent to underground cables associated with the Scheme would be transient, with the individuals using the PRoW exposed to electro-magnetic fields from the cables for only very short periods of time. Therefore, no significant effects to users of PRoW are predicted to occur.

19.13. In terms of telecommunications, the Scheme is unlikely to interfere with telecommunications infrastructure as typically structures need to be more than 5m in height to interfere with telecommunication signals. No such effects are anticipated in the construction phase. The Scheme consists of fixed low-lying infrastructure and is therefore unlikely to interfere with digital television signals. No effects on television reception are anticipated in the construction phase. The potential exists for utilities to be affected during the construction of the Scheme through inadvertent damage caused as a result of excavation and engineering operations. Without any precautionary measures to avoid damage to utilities, this could lead to a short-term adverse effect.

19.14. In terms of human health, the assessment of effects on healthcare infrastructure reflects impacts related to increasing demand on GP services. For the general population, this would result in a Minor Adverse effect (not significant). For the over 65s and more vulnerable sub-populations, this is also considered a Minor Adverse (not significant) effect. The likely effect on human health arising from impacts on community connectivity and access to services during the construction phase of the Scheme is assessed to be Minor Adverse (not significant). The likely effect on human health arising from impacts on prioritisation of walking and cycling during the construction phase of the Scheme is assessed to be Minor Adverse (not significant). The likely effect on human health arising

from impacts on road and route safety during the construction phase of the Scheme is assessed to be Negligible (not significant). The likely effect on human health arising from impacts on employment and income during the construction phase of the Scheme is assessed to be Minor Beneficial (not significant). The likely effect on human health arising from impacts on air quality during the construction phase of the Scheme is assessed to be Negligible (not significant). The likely effect on human health arising from impacts on noise and vibration, impacts on GHG emissions, and impacts on landscape and visual amenity during the construction phase of the Scheme, are all assessed to be Minor Adverse (not significant).

19.15. With the implementation of mitigation measures contained within the Framework CEMP [EN010142/APP/7.8], the risk of a fire occurring during the construction of the Scheme is considered to be not significant. Given the cable route will be within a trenchless crossing in this location and the design for the trenchless crossing will be agreed with Network Rail as part of the detailed design development, the Scheme is not expected to have an effect on the risk of a rail accident occurring.

Proposed mitigation

19.16. Mitigation measures to control the effect of electro-magnetic fields (EMFs) on workers for the Scheme include Control of Electromagnetic Fields at Work Regulations 2016 which sets out the duties of employers in relation to controlling the risks of electro-magnetic fields to employees. In terms of impacts of electro-magnetic fields on fish, mitigation includes a combination of sealed cabling and a buried depth of at least 5 m below the bed of the River Trent which is considered sufficient to reduce EMF to levels that are unlikely to be perceivable to fish species transiting along the River Trent.

19.17. In terms of telecommunications, television reception and utilities, embedded mitigation to prevent damage to utilities during construction includes locating the Scheme infrastructure outside of utilities protected zones; deploying ground penetrating radar before excavation to identify any unknown utilities; consultation and agreement with relevant utility operators regarding construction/demobilisation methods prior to works commencing. Therefore, no adverse effects are expected during construction. The risk of damage to utilities during construction will be minimised through measures set out within the Framework CEMP [EN010142/APP/7.8], which would involve those measures listed above and mapping infrastructure that crosses the Scheme and avoiding it through design.

19.18. In terms of human health, embedded design mitigation includes a Framework CEMP [EN010142/APP/7.8]. Relevant measures include ensuring that all appropriate measures are in place to minimise noise before works begin and throughout the construction programme. The Framework CTMP [EN010142/APP/6.1] sets out the Applicant's proposals to manage construction traffic and staff vehicles within the vicinity of the Scheme along the local highway network during the construction period. The Framework PRoWMP [EN010142/APP/7.16] outlines the current PRoW which pass through or run adjacent to the Scheme and demonstrates how safe access will be maintained along and across these PRoW during the construction of the Scheme. No additional mitigation is required with respect to human health effects arising from the Scheme.

19.19. Health and safety on-site would be managed by the contractor during construction to mitigate the risk of fire in accordance with relevant legislation and guidance, as set out within the Framework CEMP [EN010142/APP/7.8]. Minimising the risk of major accidents during construction will be addressed through appropriate risk assessments and measures as required in the Framework CEMP [EN010142/APP/7.8].

Residual impacts with mitigation

19.20. No significant residual effects were identified in the assessment for electromagnetic fields.

19.21. With the proposed mitigation, no significant residual effects are anticipated as a result of the Scheme in terms of telecommunications, television reception and utilities.

19.22. No significant residual effects are anticipated to occur during construction of the Scheme in terms of human health.

19.23. In terms of major accidents and disasters, given the nature of these events, there is the potential for significant effects if an event does occur. However, the assessment has concluded that the risk of

such events occurring is low for the Scheme and significant effects on the environment are therefore not anticipated. The focus is on prevention of major accidents and disasters, and mitigation if an event does occur. With the proposed mitigation in place, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

19.24. The solar DCOs that share the cable corridor with the Scheme would not change the conclusions of this assessment, as such no significant cumulative effects have been identified.

19.25. It is expected that the other developments included within the cumulative schemes shortlist would also have no effect on telecommunications and television reception and would adhere to the same mitigation to reduce the risk of damaging utilities. Therefore, no cumulative effects are expected on telecommunications, television reception, or utilities.

19.26. The cumulative effects associated with human health are covered in the air quality; climate change; noise and vibration; socio-economics and land use; and transport and access sections of this chapter and not duplicated here.

19.27. With mitigation in place, no residual significant effects with regards to major accidents and disasters were identified in relation to the Scheme. Provided that the requirements of relevant policies and legislation relating to safety and major accidents and disaster risks are integrated within the design and appropriate mitigation measures are applied during the construction phase of each and every cumulative scheme, as set out in their respective applications, it is considered that the cumulative effect with regards to major accidents and disasters will be not significant.

Operation

Unmitigated impacts - assessed impacts

19.28. There are no residential properties within the Order limits. The nearest properties are immediately adjacent to the Order limits, however it is unlikely that cables will be installed within 10m of any property due to the need for construction vehicles to manoeuvre both sides of the trench within the working width. Therefore, no significant effects to residential receptors are predicted to occur in terms of electromagnetic fields. Some PRoW do cross over the proposed Principal Site and Cable Route Corridor. PRoW are The presence of the public either directly above or adjacent to underground cables associated with the Scheme would be transient, with the individuals using the PRoW exposed to electro-magnetic fields from the cables for only very short periods of time. Therefore, no significant effects to users of PRoW are predicted to occur.

19.29. The vast majority of the Scheme consists of fixed low-lying infrastructure less than 5m from ground level and is therefore unlikely to interfere with telecommunications infrastructure. No effects on telecommunications are anticipated in the operational phase. The Scheme consists of fixed low-lying infrastructure and is therefore unlikely to interfere with digital television signals. No effects on television reception are anticipated in the operational phase. No effects on utilities are predicted as a result of the operational phase of the Scheme because no below-ground works will be required during operation.

19.30. In terms of human health, for the general population (with a medium sensitivity), the assessed adverse impacts are judged to result in a Negligible effect (not significant). For the over 65s and other more vulnerable sub-populations, which have a high sensitivity, this is also judged to result in a Negligible (not significant) effect. Given the very low level of traffic movements expected during the operational phase and the addition of the two new permissive pathways, the overall magnitude of change anticipated to community connectivity to be Negligible. The likely effect on this during the operation phase of the Scheme is therefore assessed to be Negligible (not significant). Give that very limited transport and access impacts expected during the operational phase and the addition of the two new permissive pathways, overall, the magnitude of change anticipated on human health arising from prioritisation of walking and cycling during the operation of the Scheme is assessed to be Low (beneficial). The likely effect is assessed to be Minor beneficial (not significant). The magnitude of change anticipated on human health arising from road and route safety during the operation of the Scheme is assessed to be Very Low. The likely effect is assessed to be Negligible (not significant). Overall, given that no net new jobs would be created, the magnitude of change anticipated with respect to employment and income during the operation of the Scheme is therefore assessed to be Negligible. The likely effect is assessed to be Negligible (not significant). The magnitude of change anticipated with respect to air quality impacts on human health during the operation of the Scheme is assessed to be Negligible. The likely effect is assessed to be Negligible (not significant). The magnitude of change anticipated with respect to noise impacts on human health during the operational phase is therefore assessed to be Low. Therefore, the likely effect on human health arising from impacts on noise during the operation of the Scheme is assessed to be Minor Adverse (not significant). The overall likely effect on human health arising from impacts on GHG emissions during the operation of the Scheme is assessed to be Minor Beneficial (not significant). The likely effect on human health arising from impacts on landscape and visual amenity during the operational phase of the Scheme is assessed to be Minor Adverse (not significant).

19.31. With the embedded mitigation discussed below, significant effects on the risk of fire would be unlikely as a result of the Scheme. In the unlikely event that a fire was to break out in a single cell or module, it is considered very unlikely, given the control measures, that the fire would spread to the rest of the BESS. The operation of the crossing of the Cable Route Corridor over the railway line connecting Gainsborough to Saxilby and Lincoln will be managed to the specific requirements of Network Rail in line with the Framework OEMP [EN010142/APP/7.9], and therefore the risk of a rail accident as a result of the crossing will be minimised. Significant effects on rail accidents are not anticipated.

19.32. With regard to human health, it does not appear that the ES has directly address the following health determinants:

Health-Related Behaviors

- Risk-taking behaviour

- Diet and nutrition

Social Environment

- Housing
- Relocation
- Community identity, culture, resilience, and influence

Bio-Physical Environment

- Water quality or availability
- Land quality
- Radiation
- Institutional and Built Environment
- Wider societal infrastructure and resources

19.33. The rationale for scoping these determinants out of the assessment has not been provided.

Proposed mitigation

19.34. Mitigation measures to control the effect of electro-magnetic fields (EMFs) on workers for the Scheme include Control of Electromagnetic Fields at Work Regulations 2016 which sets out the duties of employers in relation to controlling the risks of electro-magnetic fields to employees. In terms of impacts of electro-magnetic fields on fish, mitigation includes a combination of sealed cabling and a buried depth of at least 5 m below the bed of the River Trent which is considered sufficient to reduce EMF to levels that are unlikely to be perceivable to fish species transiting along the River Trent.

19.35. In terms of telecommunications, television reception and utilities, no embedded or additional mitigation has been identified for the operational phase within ES Chapter 17: Other Environmental Topics.

19.36. In terms of human health, embedded design mitigation includes a Framework OEMP [EN010142/APP/7.9]. Relevant measures include ensuring vehicles entering and leaving sites are covered to prevent escape of materials during transport to protect air quality, and liaising with operational personnel for potential to implement staff minibuses and car sharing options to mitigate the effects on the Scheme's operation on climate change and human health. The Framework PRoWMP [EN010142/APP/7.16] outlines the current PRoW which pass through or run adjacent to the Scheme and demonstrates how safe access will be maintained along and across these PRoW during the operation of the Scheme. No additional mitigation is required with respect to human health effects arising from the Scheme.

19.37. Embedded design mitigation measures include battery cooling systems for the BESS, which are designed to regulate temperatures to within safe conditions to minimise the risk of fire. Within the Framework Battery Safety Management Plan (FBSMP) [EN010142/APP/7.13] safety measures include suitable access roads for emergency services vehicles and a fire detection and fire alarm system. The design of the BESS includes mitigation measures to prevent a fire such as the use of batteries that are sealed by design so do not vent when in normal use. Minimising the risk of major accidents during operation will be addressed through appropriate risk assessments and measures as required in the Framework OEMP [EN010142/APP/7.9].

Residual impacts with mitigation

19.38. No significant residual effects were identified in the assessment for electromagnetic fields.

19.39. With the proposed mitigation, no significant residual effects are anticipated as a result of the Scheme in terms of telecommunications, television reception and utilities.

19.40. No significant residual effects are anticipated to occur during operation of the Scheme in terms of human health.

19.41. In terms of major accidents and disasters, given the nature of these events, there is the potential for significant effects if an event does occur. However, the assessment has concluded that the risk of such events occurring is low for the Scheme and significant effects on the environment are therefore not anticipated. The focus is on prevention of major accidents and disasters, and

mitigation if an event does occur. With the proposed mitigation in place, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

19.42. The solar DCOs that share the cable corridor with the Scheme would not change the conclusions of this assessment, as such no significant cumulative effects have been identified.

19.43. It is expected that the other developments included within the cumulative schemes shortlist would also have no effect on telecommunications and television reception and would adhere to the same mitigation to reduce the risk of damaging utilities. Therefore, no cumulative effects are expected on telecommunications, television reception, or utilities.

19.44. The cumulative effects associated with human health are covered in the air quality; climate change; noise and vibration; socio-economics and land use; and transport and access sections of this chapter and not duplicated here.

19.45. With mitigation in place, no residual significant effects with regards to major accidents and disasters were identified in relation to the Scheme. Provided that the requirements of relevant policies and legislation relating to safety and major accidents and disaster risks are integrated within the design and appropriate mitigation measures are applied during the operation phase of each and every cumulative scheme, as set out in their respective applications, it is considered that the cumulative effect with regards to major accidents and disasters will be not significant.

Decommissioning

Unmitigated impacts - assessed impacts

19.46. There are no residential properties within the Order limits. The nearest properties are immediately adjacent to the Order limits, however it is unlikely that cables will be installed within 10m of any property due to the need for construction vehicles to manoeuvre both sides of the trench within the working width. Therefore, no significant effects to residential receptors are predicted to occur in terms of electromagnetic fields. Some PRoW do cross over the proposed Principal Site and Cable Route Corridor. PRoW are The presence of the public either directly above or adjacent to underground cables associated with the Scheme would be transient, with the individuals using the PRoW exposed to electro-magnetic fields from the cables for only very short periods of time. Therefore, no significant effects to users of PRoW are predicted to occur.

19.47. In terms of telecommunications, the Scheme is unlikely to interfere with telecommunications infrastructure as typically structures need to be more than 5m in height to interfere with telecommunication signals. No such effects are anticipated in the decommissioning phase. The Scheme consists of fixed low-lying infrastructure and is therefore unlikely to interfere with digital television signals. No effects on television reception are anticipated in the decommissioning phase. The potential exists for utilities to be affected during the construction and of the Scheme through inadvertent damage caused as a result of excavation and engineering operations. Without any precautionary measures to avoid damage to utilities, this could lead to a short-term adverse effect.

19.48. Drawing on the assessments set out in Chapter 6: Air Quality, Chapter 7: Climate Change, Chapter 13: Noise and Vibration Chapter 14: Socio-economics and Land Use, Chapter 12: Landscape and Visual Amenity; and Chapter 16: Transport and Access of this ES [EN010142/APP/6.1], effects on human health during the decommissioning of the Scheme are anticipated to be in line with or no worse than effects during the construction phase of the Scheme.

19.49. With the implementation of mitigation measures contained within the Framework DEMP [EN010142/APP/7.10], the risk of a fire occurring during the construction of the Scheme is considered to be not significant. Given the cable route will be within a trenchless crossing in this location and the design for the trenchless crossing will be agreed with Network Rail as part of the detailed design development, the Scheme is not expected to have an effect on the risk of a rail accident occurring.

Proposed mitigation

19.50. Mitigation measures to control the effect of electro-magnetic fields (EMFs) on workers for the Scheme include Control of Electromagnetic Fields at Work Regulations 2016 which sets out the duties of employers in relation to controlling the risks of electro-magnetic fields to employees. In

terms of impacts of electro-magnetic fields on fish, mitigation includes a combination of sealed cabling and a buried depth of at least 5 m below the bed of the River Trent which is considered sufficient to reduce EMF to levels that are unlikely to be perceivable to fish species transiting along the River Trent.

19.51. In terms of telecommunications, television reception and utilities, embedded mitigation to prevent damage to utilities during decommissioning includes locating the Scheme infrastructure outside of utilities protected zones; deploying ground penetrating radar before excavation to identify any unknown utilities; consultation and agreement with relevant utility operators regarding construction/demobilisation methods prior to works commencing. Therefore, no adverse effects are expected during decommissioning. The risk of damage to utilities during decommissioning will be minimised through measures set out within the Framework DEMP [EN010142/APP/7.10], which would involve those measures listed above and mapping infrastructure that crosses the Scheme and avoiding it through design.

19.52. In terms of human health, embedded design mitigation includes a Framework DEMP [EN010142/APP/7.10]. Relevant measures include temporary site lighting during decommissioning for working in hours of darkness being designed so as not to cause a nuisance outside of the Order limits and to minimise light spill and glare. The Framework PRoWMP [EN010142/APP/7.16] outlines the current PRoW which pass through or run adjacent to the Scheme and demonstrates how safe access will be maintained along and across these PRoW during the operation of the Scheme. No additional mitigation is required with respect to human health effects arising from the Scheme. The Framework PRoWMP [EN010142/APP/7.16] outlines the current PRoW which pass through or run adjacent to the Scheme and demonstrates how safe access will be maintained along and across these PRoW during the decommissioning of the Scheme. No additional mitigation is required with respect to human health effects arising from the Scheme.

19.53. Health and safety on-site would be managed by the contractor during decommissioning to mitigate the risk of fire in accordance with relevant legislation and guidance, as set out within the Framework DEMP [EN010142/APP/7.10]. Minimising the risk of major accidents during decommissioning will be addressed through appropriate risk assessments and measures as required in the Framework DEMP [EN010142/APP/7.10].

Residual impacts with mitigation

19.54. No significant residual effects were identified in the assessment for electromagnetic fields.

19.55. With the proposed mitigation, no significant residual effects are anticipated as a result of the Scheme in terms of telecommunications, television reception and utilities.

19.56. No significant residual effects are anticipated to occur during decommissioning of the Scheme in terms of human health.

19.57. In terms of major accidents and disasters, given the nature of these events, there is the potential for significant effects if an event does occur. However, the assessment has concluded that the risk of such events occurring is low for the Scheme and significant effects on the environment are therefore not anticipated. The focus is on prevention of major accidents and disasters, and mitigation if an event does occur. With the proposed mitigation in place, no significant residual effects are anticipated as a result of the Scheme.

Cumulative

19.58. The solar DCOs that share the cable corridor with the Scheme would not change the conclusions of this assessment, as such no significant cumulative effects have been identified.

19.59. It is expected that the other developments included within the cumulative schemes shortlist would also have no effect on telecommunications and television reception and would adhere to the same mitigation to reduce the risk of damaging utilities. Therefore, no cumulative effects are expected on telecommunications, television reception, or utilities.

19.60. The cumulative effects associated with human health are covered in the air quality; climate change; noise and vibration; socio-economics and land use; and transport and access sections of this chapter and not duplicated here.

19.61. With mitigation in place, no residual significant effects with regards to major accidents and disasters were identified in relation to the Scheme. Provided that the requirements of relevant policies and legislation relating to safety and major accidents and disaster risks are integrated within the design

and appropriate mitigation measures are applied during the decommissioning phase of each and every cumulative scheme, as set out in their respective applications, it is considered that the cumulative effect with regards to major accidents and disasters will be not significant.

Requirements

Requirement 12 – Construction environmental management plan

19.62. Under this requirement, no part of the authorised development may commence until a construction environmental management plan (which must substantially accord with the framework construction environmental management plan) has been submitted to and approved by the relevant planning authority. All construction works associated with the authorised development must be carried out in accordance with the approved construction environmental management plan.

Requirement 13 – Operational environmental management plan

19.63. Requirement 14 – Operational environmental management plan: Before the date of final commissioning of the authorised development, an operational environmental management plan (which must substantially accord with the outline operational environmental management plan) must be submitted to and approved by the relevant planning authority. The operational environmental management plan must be implemented as approved.

19.64. A register of waste loads leaving the Order limits would be maintained to provide a suitable audit trail for compliance purposes and to facilitate monitoring and reporting of waste types, quantities, and management methods.

Requirement 20 – Decommissioning and restoration

19.65. This requirement provides that within 12 months (or such longer period as agreed with the relevant planning authority) of the date the undertaker decides to decommission any part of the authorised development, the undertaker must submit to the relevant planning authority for its approval a decommissioning environmental management plan for that part which substantially accords with the decommissioning statement. No decommissioning works must be carried out until the relevant planning authority has approved the plan submitted in relation to such works. The plan submitted must be implemented as approved. This requirement is without prejudice to any other consents or permissions which may be required to decommission any part of the authorised development.

20. Conclusion and Summary

Conclusion

20.1. The key topics that are considered to be of particular concern area set in the subheadings below and provides a brief description of the key impacts which will affect West Lindsey. WLDC will reserve providing their position on the Scheme and will provide it as part of the Written Representation.

Summary

20.2. Table 0-1 below provides a tabulated form of all the impacts by topic, including the cumulative impacts related with that topic.

Table 0-1 – Impacts Summary Table (assessed impacts with embedded design mitigation in place)

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
Landscape and Visual Amenity	Positive	Landscape effects: No positive significant or non-significant effects expected. Visual effects: No positive significant or non-significant effects expected.	Landscape effects (Year 1): No positive significant or non-significant effects expected. Landscape effects (Year 15): No positive significant or non-significant effects expected. Visual effects (Year 1): No positive significant or non-significant effects expected. Visual effects (Year 15): No positive significant or non-significant effects expected.	Landscape effects: No significant landscape effects are expected for LLCA at decommissioning (winter) of the Cable Route Corridor. Visual effects: No significant visual effects are expected to arise for the Principal Site at the decommissioning phase. No significant visual effects are expected for visual receptors during decommissioning stage of the Cable Route Corridor.	Landscape: there is considered to be no positive cumulative landscape effects. Visual amenity: there is considered to be no positive cumulative landscape effects.
	Neutral	Landscape effects: No neutral significant or non-significant effects expected. Visual effects: No neutral significant or non-significant effects expected.	Landscape effects (Year 1): No neutral significant or non-significant effects expected. Landscape effects (Year 15): No neutral significant or non-significant effects expected. Visual effects (Year 1): No neutral significant or non-significant effects expected. Visual effects (Year 15): No neutral significant or non-significant effects expected.	Landscape effects: No significant landscape effects are expected for LLCA at decommissioning (winter) of the Cable Route Corridor. Visual effects: No significant visual effects are expected to arise for the Principal Site at the decommissioning phase. No significant visual effects are expected for visual receptors during decommissioning stage of the Cable Route Corridor.	Landscape: There is considered to be no significant cumulative landscape effects on two LLCA receptors during construction, on two receptors during operation, and on zero receptors during decommissioning. Visual amenity: There is considered to be no significant cumulative landscape effects on ten LLCA receptors during construction, on eighteen receptors during operation. The effects of decommissioning are likely to be similar to those or less than during construction.
	Negative	Landscape effects: Significant moderate adverse impacts on LLCA 3A, LLCA 2C, LLCA 2B in relation to Principal Site; no significant landscape effects in relation to the Principal Site are expected for any other LLCA (minor adverse at most). No significant landscape (minor adverse at most) effects expected for LLCA in relation to construction of Cable Route Corridor. Visual effects: Moderate adverse and major adverse (significant) impacts on viewpoint receptors in relation to Principal Site and Cable Route Corridor. *Regional Landscape Character Area 4a Unwooded Vales and visual effects on viewpoint receptors, transport receptors and PROW receptors are likely during the construction stage.*	Landscape effects (Year 1): Significant moderate adverse impacts on landscape receptors LLCA 3A, Till Vale – Open Farmland and LCCA 2B Lincoln Cliff – Harpswell; no significant landscape effects in relation to the Principal Site are expected for any other LLCA (minor adverse). No significant landscape effects are expected for the LLCA in relation to the Cable Route Corridor (minor adverse) Landscape effects (Year 15): Significant moderate adverse impacts on LLCA 3A, Till Vale – Open Farmland. No significant landscape effects relation to the Principal Site are expected for any other LLCA (minor adverse); no significant landscape effects are expected for LLCA in relation to Cable Route Corridor (minor adverse). Visual effects (Year 1): Moderate adverse and major adverse (significant) impacts on viewpoint receptors in relation to Principal Site. In relation to the Cable Route Corridor, no significant effects are expected for the Operation Year 1 stage. Visual effects (Year 15): Moderate adverse and major adverse (significant) impacts on viewpoint receptors in relation to Principal	Landscape effects: No significant landscape effects are expected for LLCA at decommissioning (winter) of the Cable Route Corridor (minor adverse at most). Visual effects: No significant visual effects are expected to arise for the Principal Site at the decommissioning phase. No significant visual effects are expected for visual receptors during decommissioning stage of the Cable Route Corridor.	Landscape: There is considered to be moderate and large adverse (significant) cumulative landscape effects on three LLCA receptors during construction, on two receptors during operation, and on one receptor during decommissioning. There is considered to be slight adverse (not significant) cumulative landscape effects on one LLCA receptor during construction, on three receptors during operation, and on one receptor during decommissioning. Visual amenity: there is considered to be moderate and large adverse (significant) cumulative landscape effects on eight LLCA receptors during construction, on six during operation. The effects of decommissioning are likely to be similar to those or less than during construction. There is considered to be slight adverse (not significant) cumulative landscape effects on four LLCA receptor during construction, on two during operation. The effects of decommissioning are likely to be similar to those or less than during construction.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
			Site. In relation to the Cable Route Corridor, no significant effects are expected at Operation Year 15. *haracter and adverse visual effects on viewpoint receptors, transport receptors and PROW receptors are likely at the start of operation. Visual impacts will reduce towards year 15 as proposed mitigation planting becomes established.*		
Ecology and Nature Conservation	Positive	No significant positive effects on ecology and conservation are considered to arise from construction of the Scheme.	No significant positive effects on ecology and conservation are considered to arise during operation of the Scheme.	At this stage, no significant positive effects on ecology and conservation are considered to arise during decommissioning of the Scheme.	No significant positive cumulative effects are expected during construction. No significant positive cumulative effects are expected during operation. No significant positive cumulative effects are expected during decommissioning.
	Neutral	No significant neutral effects on ecology and conservation are considered to arise from construction of the Scheme. Given the temporary and permanent loss to habitat, farmland for Skylark and Quail, tree and hedgerow IEFs identified during construction, these have been assessed further (with avoidance and mitigation measures accounted for), and are considered to result in negligible (not significant) effects on habitats within Cow Pasture Lane Drains LWS.	No significant neutral effects on ecology and conservation are considered to arise during operation of the Scheme. Given the potential impact of solar PV panels on the displacement of bats, identified during operation, this has been assessed further (with avoidance and mitigation measures accounted for), and is considered to result in a negligible (not significant) effect.	At this stage, no significant neutral effects on ecology and conservation are considered to arise during decommissioning of the Scheme. The effects of decommissioning of the Scheme are likely to be similar to those for construction, but with recognition that many of the potential impacts associated with the creation of internal accesses will not be relevant during decommissioning. No potential impacts and effects from decommissioning have been identified at this stage. Habitats and protected or notable species are likely to be subject to some temporary damage of habitats and disturbance to species during decommissioning activities, however, the significance of any effects can only be fully determined once the baseline conditions at the time of decommissioning are known.	No significant neutral cumulative effects are expected during construction. The cumulative effects on ground-nesting birds and overwintering birds (low/local/district), is not significant, especially given the extensive areas of higher quality habitats (than the existing arable farmland) being delivered across the four solar DCOs. The isolated populations of reptiles and amphibians across all four solar DCOs will benefit from the habitat creations generated by the projects. However, given the low sensitivity/importance of the identified populations, it is unlikely that this will generate an effect beyond the local level and therefore, is not significant. No significant neutral cumulative effects are expected during operation. The Scheme will deliver at least 10% biodiversity net gain (BNG), and once operational there will be extensive green infrastructure and ecological enhancements. No adverse operational effects on important ecological features have been reported for the Scheme. Habitat losses and habitat creation have been considered as construction impacts and the other solar DCOs do not report any further significant effects during operation. Therefore, no cumulative effects arise. The effects of decommissioning are likely to be similar to those or less than during construction. The cumulative effects on important ecological features during decommissioning would therefore not be significant.
	Negative	No significant negative effects on ecology and conservation are considered to arise from construction of the Scheme. Given the temporary and permanent loss of habitat, farmland for Skylark and Quail, tree and hedgerow IEFs identified during construction,	No significant negative effects on ecology and conservation are considered to arise during operation of the Scheme.	At this stage, no significant negative effects on ecology and conservation are considered to arise during decommissioning of the Scheme.	No significant negative cumulative effects are expected during construction. No significant negative cumulative effects are expected during operation. No significant negative cumulative effects are expected during decommissioning.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
		these have been assessed further (with avoidance and mitigation measures accounted for), and are considered to result in minor adverse (not significant) effects on habitat associated with Upton Grange Road Verges LWS and Willingham to Fillingham Road Verges LWS, veteran trees, hedgerows within the Order limits and farmland for breeding Skylark and Quail.			
Socioeconomics and Land Use	Positive	No significant effects on socio-economics or land use are considered to arise from construction of the Scheme. Other positive non-significant impacts are identified in Section 14.8 of the Tillbridge ES Chapter 14: Socio-Economics and Land Use.	No significant effects on socio-economics or land use are expected during the operational phase of the Scheme. Other positive non-significant impacts are identified in Section 14.8 of Tillbridge ES Chapter 14: Socio-Economics and Land Use.	No significant effects on socio-economics or land use are expected during the decommissioning phase of the Scheme. Other positive non-significant impacts are identified in Section 14.8 of Tillbridge ES Chapter 14: Socio-Economics and Land Use.	Cumulative temporary moderate beneficial effect (significant) on net construction employment during construction.
	Neutral	No significant effects on socio-economics or land use are considered to arise from construction of the Scheme. Other non-significant (negligible and no effect) impacts are identified in Section 14.8 of Tillbridge ES Chapter 14: Socio-Economics and Land Use.	No significant effects on socio-economics or land use are expected during the operational phase of the Scheme. Other non-significant (negligible and no effect) impacts are identified in Section 14.8 of Tillbridge ES Chapter 14: Socio-Economics and Land Use.	No significant effects on socio-economics or land use are expected during the decommissioning phase of the Scheme. Other non-significant (negligible and no effect) impacts are identified in Section 14.8 of Tillbridge ES Chapter 14: Socio-Economics and Land Use.	Cumulative neutral effect (not significant) on Gross Value Added during construction. Neutral (not significant) cumulative effect on accommodation facilities during construction. Neutral (not significant) cumulative effect on local community severance and PRoW during construction. Neutral (not significant) cumulative effect on agricultural production during construction. Neutral (not significant) cumulative effect on local land use and amenity during construction. Neutral (not significant) cumulative effect on net operational employment during operation. Neutral (not significant) cumulative effect on local community and PRoW during operation. Neutral (not significant) cumulative effect on agricultural production during operation. Neutral (not significant) cumulative effect on local land use and amenity during operation. There is potential for adverse cumulative socio-economic and land use effects during decommissioning of other solar DCOs and the Scheme, with respect to community severance, PRoW users, land use and amenity, should impacts occur at the same time. However, these effects are not likely to exceed those assessed during construction and therefore, are likely to be neutral (not significant).
	Negative	No significant effects on socio-economics or land use are considered to arise from construction of the Scheme. Other negative non-significant impacts are identified in Section 14.8 of the Tillbridge ES Chapter 14: Socio-Economics and Land Use.	No significant effects on socio-economics or land use are expected during the operational phase of the Scheme.	No significant effects on socio-economics or land use are expected during the decommissioning phase of the Scheme.	No significant negative cumulative effects expected during construction, operation and decommissioning.
Transport and Access	Positive	No significant positive effects on transport and access are considered to arise from construction of the Scheme.	No significant positive effects on transport and access are considered to arise during the operational phase of the Scheme.	No significant positive effects on transport and access are considered to arise during the decommissioning phase of the Scheme.	No significant positive cumulative effects are expected during construction. No significant positive cumulative effects are expected during operation. The cumulative effects of decommissioning are likely to be similar to those or less than during construction.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
	Neutral	No significant neutral effects on transport and access are considered to arise from construction of the Scheme. Other non-significant (negligible) impacts are identified in Section 14.8 of Tillbridge ES Chapter 16: Transport and Access.	No significant neutral effects on transport and access are considered to arise during the operational phase of the Scheme.	No significant neutral effects on transport and access are considered to arise during the decommissioning phase of the Scheme.	No significant neutral cumulative effects are expected during construction. No significant neutral cumulative effects are expected during operation The cumulative effects of decommissioning are likely to be similar to those or less than during construction.
	Negative	One significant negative effect on transport and access during the construction phase has been identified as a result of the Scheme (a moderate adverse (significant) effect on severance/ pedestrian delay/ NMU amenity on the B1241 (ATC 23)). This is forecast during the peak period of construction which is short-term and temporary. Other negative non-significant impacts are identified in Section 14.8 of Tillbridge ES Chapter 16: Transport and Access.	No significant negative effects on transport and access are considered to arise during the operational phase of the Scheme.	No significant negative effects on transport and access are considered to arise during the decommissioning phase of the Scheme.	No significant negative cumulative effects are expected during construction. Other cumulative effects are slight adverse (not significant). No significant negative cumulative effects are expected during operation. The cumulative effects of decommissioning are likely to be similar to those or less than during construction.
Cultural Heritage	Positive	No significant positive effects on cultural heritage are considered to arise from construction of the Scheme.	No significant positive effects on cultural heritage are considered to arise during the operational phase of the Scheme.	No significant positive effects on cultural heritage are considered to arise during the decommissioning phase of the Scheme.	No significant positive cumulative effects are considered likely during construction. No significant positive cumulative effects are considered likely during operation. No significant positive cumulative effects are considered likely during decommissioning.
	Neutral	No significant neutral effects on transport and access are considered to arise from construction of the Scheme. Other non-significant neutral impacts are identified in Section 8.9 of Tillbridge ES Chapter 8: Cultural Heritage.	No significant neutral effects on cultural heritage are considered to arise during the operational phase of the Scheme.	No significant neutral effects on cultural heritage are considered to arise during the decommissioning phase of the Scheme.	Cumulative effects during construction are not anticipated to be significant. Cumulative effects during operation are not anticipated to be significant. In terms of buried archaeology, there is no potential for cumulative effects during decommissioning. It is anticipated that the cumulative effects on built heritage during decommissioning would be not significant.
	Negative	Moderate adverse (significant) effects are predicted at five non-designated heritage assets. Other negative non-significant (negligible and minor adverse) impacts are identified in Section 8.9 of Tillbridge ES Chapter 8: Cultural Heritage.	No lighting impacts, long-term setting impacts on heritage assets from noise intrusion, impacts from traffic movements during operation or impacts from glint and glare during operation are identified. No additional, or increase of, significant effects of the physical presence of the Scheme within an asset's setting or planned view, and within the historic landscape, are identified through the operational phase. No further physical impact to the archaeological resource is identified during the operational phase of the Scheme.	It is considered that decommissioning activities will have no direct physical impact upon archaeological remains, deposits or features. Buried archaeological remains already removed during construction would not experience any further affects as a result of decommissioning. Decommissioning impacts would be temporary and the duration would likely be shorter than those during construction, with a worst case 24-month decommissioning period assumed. Upon completion of decommissioning, the long-term adverse effects from the Scheme infrastructure will have been reversed and will no longer exist.	No significant negative cumulative effects are considered likely construction. No significant negative cumulative effects are considered likely during operation. No significant negative cumulative effects are considered likely during decommissioning.
Soils and Agriculture	Positive	No significant positive effects on soils and agriculture are considered to arise from construction of the Scheme.	While the Scheme is operational the soil resource at the Principal Site will remain under a perennial grass cover which among other benefits, helps the recovery of topsoil organic matter to a higher equilibrium. This will result in a temporary Moderate (beneficial) effect which is significant. Adoption of minimum tillage arable	No significant positive effects on soils and agriculture are considered to arise from decommissioning of the Scheme. Other non-significant (minor beneficial) impacts are identified in Section 15.8 of Tillbridge ES Chapter 15: Soils and Agriculture.	No significant positive cumulative effects are considered likely during construction. No significant positive cumulative effects are considered likely during operation. No significant positive cumulative effects are considered likely during decommissioning.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
			management (conserving the recovered soil health) offers the potential to extend the temporary benefit indefinitely. During operation, grass below and between the solar panels will need to be managed. This management can include grazing by livestock where appropriate. Landowning farm businesses will receive income from the Scheme's occupation of their land, a new diversified enterprise. For the operational phase there will be a temporary moderate (beneficial) effect, which is significant.		
	Neutral	In terms of agricultural land quality, soil resource and farming circumstances, no significant neutral effects on soils and agriculture are considered to arise from construction of the Scheme. Other non-significant (negligible) impacts on all three are identified in Section 15.8 of Tillbridge ES Chapter 15: Soils and Agriculture.	In terms of agricultural land quality, the operational phase of the Scheme will not result in loss of agricultural land. Therefore, there is no operational effect further to that from construction.	Decommissioning work will allow the land to be managed for arable production again after an extended fallow period of low input grassland. In terms of agricultural land quality, as for the operational phase the decommissioning phase of the Scheme will not result in loss of agricultural land. Therefore, there is no decommissioning effect further to that from construction. In terms of soil resource, no significant neutral effects on soils and agriculture are considered to arise from decommissioning of the Scheme. Other non-significant (negligible) impacts are identified in Section 15.8 of Tillbridge ES Chapter 15: Soils and Agriculture.	The cumulative effects with regards to soils and agriculture during the construction phase are assessed as neutral (not significant). Soil resources remain in place and undisturbed for all of the agricultural land used by the solar DCOs. The cumulative effect during operation is assessed to be not significant, considering the vast arable landscape that these developments sit within. It is assumed that similarly to the Scheme, the majority of the agricultural land used by the solar DCOs would be reverted back to agricultural land. As such, no significant cumulative effects with regards to agricultural land, soil resource and farming circumstances have been identified during the decommissioning phase.
	Negative	In terms of agricultural land quality, no significant negative effects on soils and agriculture are considered to arise from construction of the Scheme. Loss of agricultural land that would otherwise be available for the production of food.	No significant or non-significant negative effects on soils and agriculture are considered to arise during operation of the Scheme. Loss of agricultural land that would otherwise be available for the production of food.	No significant or non-significant negative effects on soils and agriculture are considered to arise during decommissioning of the Scheme in terms of the physical process of decommissioning. Loss of agricultural economy/sector to enable the re-establishment of viable farming for the production of food.	No significant negative cumulative effects are considered likely during construction. Significant loss of agricultural land currently available for the production of food.
Climate Change	Positive	This Scheme demonstrates significant carbon saving, it is therefore beneficial (significant) and will have a positive impact on the climate.	This Scheme demonstrates significant carbon saving, it is therefore beneficial (significant) and will have a positive impact on the climate.	This Scheme demonstrates significant carbon saving, it is therefore beneficial (significant) and will have a positive impact on the climate.	The cumulative effect of other solar projects (Cottam, Gate Burton, West Burton) will be major beneficial in terms of climate change resilience given that the combined effect of the renewable energy will serve to counter the effects of climate change. While the impact of any individual scheme may be limited, it is the cumulative impact of many schemes over time that could have a significant impact on climate change.
	Neutral	No significant neutral effects on climate change are considered to arise from construction of the Scheme.	No significant neutral effects on climate change are considered to arise during operation of the Scheme.	No significant neutral effects on climate change are considered to arise during decommissioning of the Scheme.	No significant neutral cumulative effects are considered likely during construction, operation or decommissioning.
	Negative	GHG impacts during the construction phase consist primarily of the embodied carbon associated with the manufacture of battery and solar PV components. GHG emissions saving are expected to be achieved throughout the lifetime of the Scheme compared to other fossil fuel energy	GHG emissions will be generated as a result of operational activities, mostly from the materials and transport of replacement components required throughout operation which contain embodied carbon. Operational energy emissions will therefore be highest in	It is assumed that decommissioning emissions from the use of plant, worker travel and waste replicate the emissions produced during the construction phase, and that the main source will be from worker transportation. The ES admits a "*GHG emissions from the decommissioning phase are subject to a high*	No significant negative cumulative effects are considered likely during construction, operation or decommissioning.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
		generation types. Therefore, the GHG emissions during construction of the Scheme can be considered to be 'offset' by the net positive impact of the Scheme on GHG emissions.	year one of operation, and decrease thereafter. GHG emissions saving are expected to be achieved throughout the lifetime of the Scheme compared to other fossil fuel energy generation types. Therefore, the GHG emissions during operation of the Scheme can be considered to be 'offset' by the net positive impact of the Scheme on GHG emissions.	*degree of uncertainty, as the conditions that will apply in 2088 cannot be described with any confidence."*. The SoS is therefore minded to keep this in mind during their assessment of the Scheme. Whilst a calculation of 11,853 tCO_2e has been provided, there is a possibility that emissions could be different. GHG emissions saving are expected to be achieved throughout the lifetime of the Scheme compared to other fossil fuel energy generation types. Therefore, the GHG emissions during decommissioning of the Scheme can be considered to be 'offset' by the net positive impact of the Scheme on GHG emissions.	
Noise and Vibration	Positive	No significant positive effects of noise and vibration are considered to arise from construction of the Scheme in terms of the Principal Site and Cable Route Corridor	No significant positive effects of noise and vibration are considered to arise during operation of the Scheme.	No significant positive effects of noise and vibration are considered to arise from decommissioning of the Scheme.	No significant negative cumulative effects are considered likely during construction, operation or decommissioning.
	Neutral	No significant neutral effects of noise and vibration are considered to arise from construction of the Scheme in terms of the Principal Site and Cable Route Corridor. Other non-significant (negligible) effects are identified in Section 10.8 of Tillbridge ES Chapter 10: Water Environment.	At nine receptors, operational noise in below the LOAEL, indicating no adverse impact.	No significant neutral effects of noise and vibration are considered to arise from decommissioning of the Scheme.	By following the proposed method and noise reducing interventions set out in the Section 61 application, the cumulative effects of construction noise and vibration along the Cable Route Corridor would be neutral (not significant). For all other identified cumulative developments, the precise scale of additional noise and vibration effects with the Scheme will depend on the exact works taking place at each location at any one time. The cumulative effects of construction noise and vibration with the Scheme would be neutral (not significant). In terms of temporary changes in noise due to cumulative construction traffic the cumulative traffic noise effects are considered to be neutral (not significant) with mitigation in place. Cumulative construction traffic on low-flow roads - the level of effect is equivalent to identified residual effects of the Scheme and therefore cumulative construction traffic noise effects would be neutral (not significant). The predicted levels of noise would not have an effect on health and quality of life. Consequently, cumulative operational noise will remain unchanged from the residual effects and would therefore be neutral (not significant). Mitigation measures for managing noise and vibration during decommissioning are documented within the Framework DEMP [EN010142/APP/7.10] and it assumed that any nearby construction/decommissioning sites would operate to a similar level of good practice in accordance with their own CEMPs/DEMPs. The cumulative effects of noise and vibration during decommissioning would therefore be neutral (not significant).
	Negative	One significant negative effect of construction traffic noise has been identified as a result of the Scheme (a temporary moderate adverse	At all other receptors, the LOAEL is exceeded, however, the SOAEL is not exceeded at any location, indicating non-	See Construction. Noise and vibration effects during the decommissioning phase assumed to be similar to	No significant negative cumulative effects are considered likely during construction, operation or decommissioning.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
		(significant) effect on noise receptors along the B1241, North of Fleets Road and Cottam Road, East of Westbrecks Lane). Another has been identified as a result of construction traffic noise on Fillingham Lane, East of Farm Track and Headstead Bank, South of Broad Lane (temporary moderate adverse (significant)). Other non-significant effects of noise and vibration are identified in Section 13.8 of Tillbridge ES Chapter 13: Noise and Vibration.	significant adverse impacts. Although adverse levels of noise are identified at some receptors, NPSE requirements are complied with through provision of embedded mitigation. Thus, no significant impacts are predicted.	the noise and vibration effects during the construction phase.	
Water Environment	Positive	No significant positive effects on the water environment are considered to arise during construction of the Principal Site or Cable Route Corridor.	No significant positive effects on the water environment are considered to arise during operation from the Principal Site. The operational Cable Route Corridor has not been assessed as the whole cable will be installed beneath ground level with no impact on the water environment following completion of construction and reinstatement.	See Construction It is considered the decommissioning impacts and effects will be no worse than those of the construction phase.	With the embedded mitigation in place, and considering there are no significant effects identified for the individual Principal Site and Cable Route Corridor elements, it is considered that there are no cumulative overall effects on the water environment receptors.
	Neutral	No significant neutral effects on the water environment are considered to arise during construction of the Principal Site or Cable Route Corridor. Other non-significant (negligible and neutral) effects are identified in Section 10.8 of Tillbridge ES Chapter 10: Water Environment.	No significant neutral effects on the water environment are considered to arise during operation from the Principal Site. Other non-significant (negligible and neutral) effects are identified in Section 10.8 of Tillbridge ES Chapter 10: Water Environment. The operational Cable Route Corridor has not been assessed as the whole cable will be installed beneath ground level with no impact on the water environment following completion of construction and reinstatement.	See Construction It is considered the decommissioning impacts and effects will be no worse than those of the construction phase.	With the embedded mitigation in place, and considering there are no significant effects identified for the individual Principal Site and Cable Route Corridor elements, it is considered that there are no cumulative overall effects on the water environment receptors.
	Negative	No significant negative effects on the water environment are considered to arise during construction of the Principal Site or Cable Route Corridor. Other non-significant negative effects are identified in Section 10.8 of Tillbridge ES Chapter 10: Water Environment.	No significant negative effects on the water environment are considered to arise during operation from the Principal Site. Other non-significant negative effects are identified in Section 10.8 of Tillbridge ES Chapter 10: Water Environment. The operational Cable Route Corridor has not been assessed as the whole cable will be installed beneath ground level with no impact on the water environment following completion of construction and reinstatement.	See Construction It is considered the decommissioning impacts and effects will be no worse than those of the construction phase.	With the embedded mitigation in place, and considering there are no significant effects identified for the individual Principal Site and Cable Route Corridor elements, it is considered that there are no cumulative overall effects on the water environment receptors.
Ground Conditions	Positive	No significant negative effects of contaminant linkages related to ground conditions are considered to arise during construction of the Scheme..	No significant negative effects of contaminant linkages related to ground conditions are considered to arise during operation of the Scheme.	No significant negative effects of contaminant linkages related to ground conditions are considered to arise during decommissioning of the Scheme.	No significant positive cumulative effects are considered likely during construction, operation or decommissioning.
	Neutral	No significant neutral effects of contaminant linkages related to ground conditions are considered to arise during construction of the Scheme.	No significant neutral effects of contaminant linkages related to ground conditions are considered to arise during operation of the Scheme.	No significant neutral effects of contaminant linkages related to ground conditions are considered to arise during decommissioning of the Scheme.	Provided that the requirements of relevant policies and legislation relating to land contamination and remediation are integrated within the design and appropriate mitigation measures are applied during the construction, operation and decommissioning phases of each and every cumulative, it is considered that the cumulative effect on ground conditions will be not significant.
	Negative	For the Principal Site, the risk of contaminant linkages related to ground conditions on	For the Principal Site, the risk of contaminant linkages related to ground conditions on	Potential impacts from the decommissioning of the Principal Site are similar in nature to those	No significant negative cumulative effects are considered likely during construction, operation or decommissioning.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
		human health, controlled waters/water environment, property and buildings and infrastructure receptors from seven identified sources is deemed to be low to very low. For the Cable Corridor, the risk of contaminant linkages related to ground conditions on human health, controlled waters/water environment, and buildings and infrastructure receptors from eight identified sources is deemed to be low to very low.	human health, controlled waters/water environment, property and buildings and infrastructure receptors from seven identified sources is deemed to be low to very low. For the Cable Corridor, the risk of contaminant linkages related to ground conditions on human health, controlled waters/water environment, and buildings and infrastructure receptors from eight identified sources is deemed to be low to very low.	during construction, as some groundwork would be required to remove infrastructure installed. As a result, it is considered the decommissioning impacts and effects would mirror those of the construction phase. In terms of the Cable Route Corridor, potential impacts from the decommissioning of the Site are similar in nature to those during construction, as some ground work would be required to remove infrastructure installed. As a result, it is considered the decommissioning impacts and effects would mirror those of the construction phase.	
Glint and Glare	Positive	No effects assessed during construction of the Scheme.	No positive effects of glint and glare are considered to arise during operation of the Scheme.	No effects assessed during decommissioning of the Scheme.	It is expected that the cumulative solar DCOs will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments. Therefore, no positive cumulative effects are considered to arise for glint and glare.
	Neutral	No effects assessed during construction of the Scheme.	The magnitude of impact of glint and glare on residential and road receptors is none, and there are considered to be no impacts on residential receptors and road receptors which is neutral.	No effects assessed during decommissioning of the Scheme.	It is expected that the cumulative solar DCOs will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments. Therefore, no neutral cumulative effects are considered to arise for glint and glare.
	Negative	No effects assessed during construction of the Scheme.	Only Green Glare impacts, i.e. those predicted with a low potential for temporary after-image, were predicted for Runway 27 at Sturgate Airfield, which is an acceptable impact upon runways according to FAA guidance (Ref. 17-1). Overall aviation impacts are therefore assessed as low (not significant).	No effects assessed during construction of the Scheme.	It is expected that the cumulative solar DCOs will be designed to ensure that there will be effective screening to prevent glint and glare effects from the individual proposed developments. Therefore, no negative cumulative effects are considered to arise for glint and glare..
Air Quality	Positive	No positive effects on air quality are considered to arise during construction of the Scheme.	No positive effects on air quality are considered to arise during operation of the Scheme. As per Planning Inspectorate Scoping Opinion, the Applicant proposes to scope out air quality impacts associated with the operational phase on the basis that traffic movements would be minimal, limited to maintenance activities and infrequent heavier traffic movements associated with repairs or replacements of infrastructure. The operation of the Scheme does not involve any significant emissions of NO2 or PM10 on-site as operational traffic generated by the Scheme will be so small that the emissions to air will be negligible. As such no effects are anticipated due to the low number of vehicle movements anticipated to be required for operation and maintenance.	See Construction. The duration of, and operations required for, decommissioning are similar to those required for construction and consequently the effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects. Therefore, the assessment of construction phase effects on air quality also represents the likely significant worst-case effects which would be experienced at decommissioning. For example, the assessment for construction traffic is considered to represent the worst case effects during decommissioning. As such, effects from decommissioning traffic are also considered to be not significant.	No significant positive cumulative effects are considered likely during construction. No significant positive cumulative effects are considered likely during operation. No significant positive cumulative effects are considered likely during decommissioning.
	Neutral	No significant neutral effects on air quality are considered to arise during construction of the Scheme. Other non-significant (negligible)	No neutral effects on air quality are considered to arise during operation of the Scheme.	See Construction. The duration of, and operations required for, decommissioning are similar to those required for	No significant neutral cumulative effects are considered likely during construction.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
		effects are identified in Section 6.8 of Tillbridge ES Chapter 6: Air Quality. The predicted change in concentration as a result of increased construction traffic from the Scheme is estimated to be negligible at all modelled receptors. As such the increased construction traffic will have no effect on air quality in the areas surrounding the Order limits and no mitigation is required.	As per Planning Inspectorate Scoping Opinion, the Applicant proposes to scope out air quality impacts associated with the operational phase on the basis that traffic movements would be minimal, limited to maintenance activities and infrequent heavier traffic movements associated with repairs or replacements of infrastructure. The operation of the Scheme does not involve any significant emissions of NO2 or PM10 on-site as operational traffic generated by the Scheme will be so small that the emissions to air will be negligible. As such no effects are anticipated due to the low number of vehicle movements anticipated to be required for operation and maintenance.	construction and consequently the effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects. Therefore, the assessment of construction phase effects on air quality also represents the likely significant worst-case effects which would be experienced at decommissioning. For example, the assessment for construction traffic is considered to represent the worst case effects during decommissioning. As such, effects from decommissioning traffic are also considered to be not significant.	There is no potential for significant cumulative effects during operation. This is because the solar farm components (i.e. solar panels, cable infrastructure) will not emit atmospheric pollutants. In addition, the number of staff working during operation is relatively small (10- 12 people) and HGV and transit van deliveries to Site will be managed in line with the Framework Operational Management Plan (OEMP) [EN010142/APP/7.9]. No significant neutral cumulative effects are considered likely during decommissioning.
	Negative	No significant negative effects on air quality are considered to arise during construction of the Scheme. Other non-significant negative effects are identified in Section 10.8 of Tillbridge ES Chapter 10: Water Environment. The risk of dust impact for earthworks activities, during construction and due to trackout is deemed to be low risk for human health. The overall risk from dust for the Scheme is identified as low risk. With the implementation of the recommended level of good practice, the overall significance of effect will be negligible to minor adverse (not significant).	No negative effects on air quality are considered to arise during operation of the Scheme. As per Planning Inspectorate Scoping Opinion, the Applicant proposes to scope out air quality impacts associated with the operational phase on the basis that traffic movements would be minimal, limited to maintenance activities and infrequent heavier traffic movements associated with repairs or replacements of infrastructure. The operation of the Scheme does not involve any significant emissions of NO2 or PM10 on-site as operational traffic generated by the Scheme will be so small that the emissions to air will be negligible. As such no effects are anticipated due to the low number of vehicle movements anticipated to be required for operation and maintenance.	See Construction. The duration of, and operations required for, decommissioning are similar to those required for construction and consequently the effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects. Therefore, the assessment of construction phase effects on air quality also represents the likely significant worst-case effects which would be experienced at decommissioning. For example, the assessment for construction traffic is considered to represent the worst case effects during decommissioning. As such, effects from decommissioning traffic are also considered to be not significant.	No significant negative cumulative effects are considered likely during construction. No significant negative cumulative effects are considered likely during operation. No significant negative cumulative effects are considered likely during decommissioning.
Materials and Waste	Positive	No significant positive effects on materials and waste are considered to arise during construction of the Scheme. WLDC have concerns on the amount of waste to be generated through ‘maintenance’, how frequent and the actual quantity (amount) of waste to be produced and the approach to disposal.	No significant positive effects on materials and waste are considered to arise during operation of the Scheme.	No significant positive effects on materials and waste are considered to arise during decommissioning of the Scheme. Other non-significant minor effects are identified in Section 17.8.30 of Tillbridge ES Chapter 17: Other Environmental Topics, associated with recovery rate of solar panels potentially being greater than 90%.	Significant potential cumulative impacts for the disposal of waste generated through the replacement of infrastructure such as panels, BESS and substation infrastructure.
	Neutral	No significant neutral effects on materials and waste are considered to arise during construction of the Scheme. Construction is anticipated to result in waste generation, including general waste from site offices and other waste from supporting infrastructure. It is concluded that significant waste effects are not expected during construction of the Scheme. Other non-significant negligible effects are identified in Section 17.8.30 of Tillbridge ES Chapter 17: Other Environmental Topics, associated with	No significant neutral effects on materials and waste are considered to arise during operation. Operation is anticipated to result in waste generation, including welfare facility waste and general waste but the magnitude of impact of this is negligible, and the effect is slight, which is considered to be not significant. Other non-significant negligible effects are identified in Section 17.8.30 of Tillbridge ES Chapter 17: Other Environmental Topics, associated with materials required to operate the Scheme,	No significant neutral effects on materials and waste are considered to arise during decommissioning of the Scheme. Other non-significant negligible effects are identified in Section 17.8.30 of Tillbridge ES Chapter 17: Other Environmental Topics, associated with quantities of decommissioning waste sent to landfill.	No significant neutral cumulative materials and waste effects have been identified for the Scheme during construction, operation or decommissioning.

Topic	Impact	Construction	Operation	Decommissioning	Cumulative Impacts
		quantities of construction materials used, quantities of construction waste, and construction waste recovery.	quantities of operational waste, and operational waste recovery.		
	Negative	No significant negative effects on materials and waste are considered to arise during construction of the Scheme. .	No significant negative effects on materials and waste are considered to arise during operation of the Scheme.	No significant negative effects on materials and waste are considered to arise during decommissioning of the Scheme.	No significant negative cumulative materials and waste effects have been identified for the Scheme during construction, operation or decommissioning.

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