



NORTH
LINCOLNSHIRE
GREEN
ENERGY PARK

Supplementary
consultation booklet

SUMMER 2021



Introduction

Thank you for taking the time to read this supplementary booklet about our proposals for the North Lincolnshire Green Energy Park.

It has been published as part of a public consultation on our proposals that we are carrying out between 14 June and 25 July 2021. This booklet is designed to supplement the information published in the main Consultation Booklet.

It sets out additional detail about how we have assessed potential environmental impacts from the North Lincolnshire Green Energy Park and steps we are taking, where necessary, to address them.

For an overview of our proposals as a whole, the reasons they are needed, the benefits they could bring to the local area, the process we are going through to get development consent and how to take part in the consultation, please see the main Consultation Booklet.

This can be downloaded from our website, www.northlincolnshiregreenenergypark.co.uk. You can also request a hard copy by contacting us on 0800 130 3353 or info@northlincolnshiregreenenergypark.co.uk.

EIA process

Due to the nature and scale of the North Lincolnshire Green Energy Park, we are carrying out an Environmental Impact Assessment (EIA). This is in line with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. These govern the way that potential environmental impacts from infrastructure projects are assessed and reported as part of the pre-application process.

We are going through a formal process to assess the likely significant environmental effects that may result from our proposals and, where appropriate, propose mitigation. We have already sought advice from the Planning Inspectorate (PINS) and stakeholders on the main issues for the EIA and how they should be addressed.

PINS has set out the results of this process in a document called a Scoping Opinion. This is available online: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010116/EN010116-000013-NLGEP%20-%20Scoping%20Opinion.pdf>

We are now ready to present the preliminary results of our EIA as part of the current consultation. These are available in a technical document called the Preliminary Environmental Information Report (PEIR). This booklet provides a summary of the information in the PEIR.

The topics covered in the PEIR are:

- Chapter 1: Introduction
- Chapter 2: Policy and Legislative Context
- Chapter 3: Project Description
- Chapter 4: EIA Process and Assessment Methodology
- Chapter 5: Air Quality
- Chapter 6: Climate
- Chapter 7: Noise
- Chapter 8: Ground Conditions, Contamination and Hydrogeology
- Chapter 9: Water Resources
- Chapter 10: Ecology and Nature Conservation
- Chapter 11: Landscape and Visual Impact
- Chapter 12: Archaeology and Cultural Heritage
- Chapter 13: Traffic and Transport
- Chapter 14: Socioeconomic Characteristics
- Chapter 15: Waste
- Chapter 16: Health
- Chapter 17: Major Accidents and Disasters
- Chapter 18: Cumulative impacts

Following this consultation, we will finalise our assessments and report on them in a document called an Environmental Statement (ES). This will form part of our application for a Development Consent Order (DCO), which will be submitted to PINS.

Read the PEIR

You can view the PEIR electronically by going to our website: www.northlincolnshiregreenenergypark.co.uk.

If Government guidance on COVID 19 permits, we also hope to make physical copies of the PEIR available to read at the following locations in the local area:

- Fenestra Conference Centre, 24 High Street, Flixborough, Scunthorpe, DN15 8RL
- Scunthorpe Central Library, Carlton Street, Scunthorpe, North Lincolnshire, DN15 6TX
- Crowle Community Hub, The Market Hall, Market Place, Crowle, North Lincolnshire, DN17 4LA
- Winterton Library, 54 West Street, Winterton, Scunthorpe, North Lincolnshire, DN15 9QF

Please contact us for the latest information before making plans to visit one of these locations.

Technology

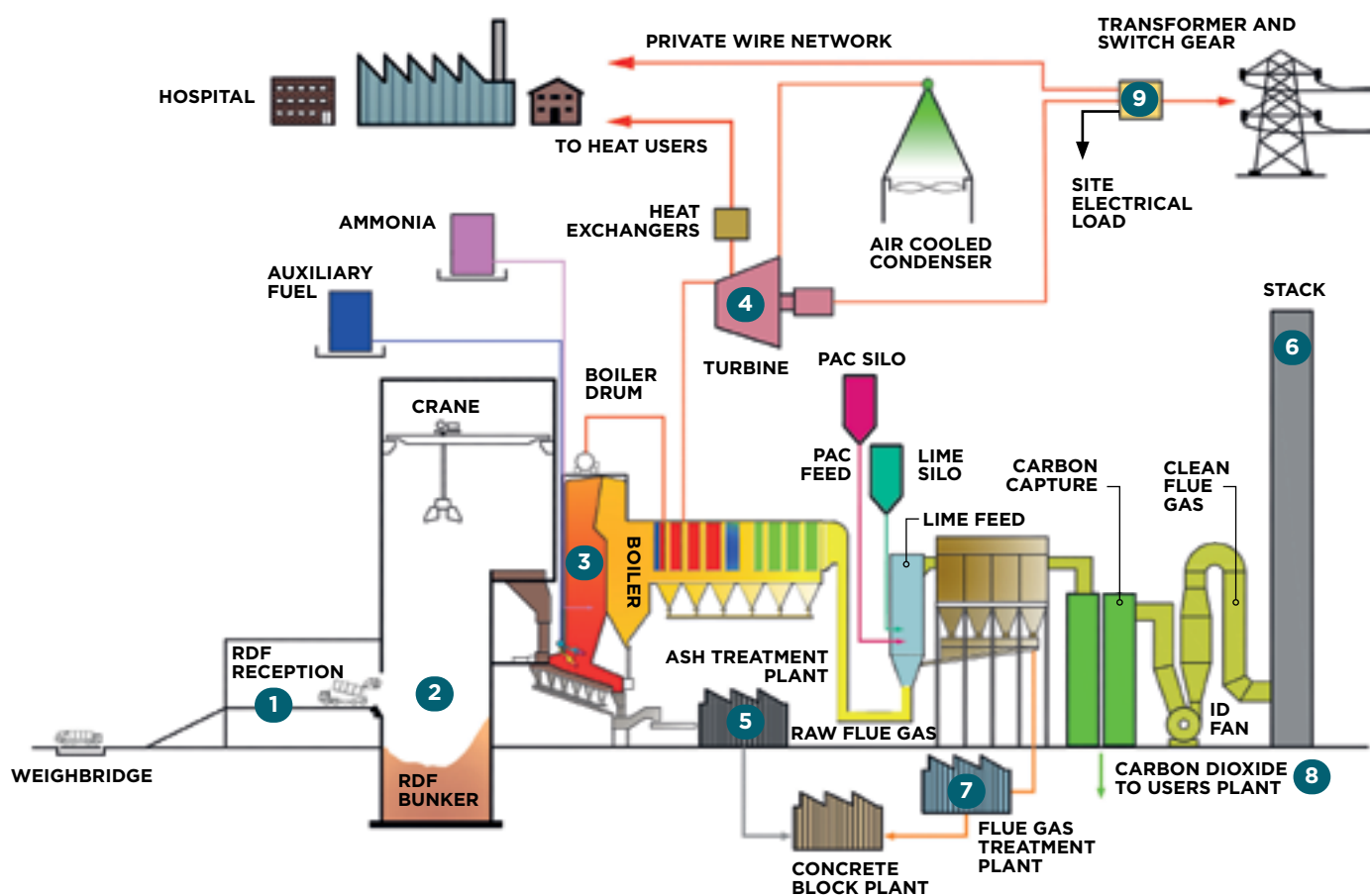
The Energy Recovery Facility (ERF) at the North Lincolnshire Green Energy Park will work like most others. It will burn a fuel to heat water into steam, which will pass through a turbine. This will be connected to a generator, which will produce electricity.

The difference is that we will make the process as efficient as possible by employing a variety of technologies to capture and use its by-products. We are also including a Plastic Recycling Facility in our proposals to treat products which can be recycled.

The fuel that the ERF will burn is Refuse-Derived Fuel (RDF). This is the final product that cannot be recycled or is not economically recyclable from municipal black bag waste.

The steps of the process are shown in the diagram on the opposite page:

1. RDF will be delivered in sealed containers to a reception area. It is then unloaded into a waste bunker.
2. From the waste bunker, the RDF will be lifted and fed into a chute by cranes. The chute will deliver the RDF to a furnace.
3. Within the furnace the RDF will be burned at a high temperature. The gases produced will be used to generate high temperature steam in a boiler.
4. The steam will then be used to drive a turbine. This will be connected to a generator producing electricity. Some steam will be used to provide heat to the district heating network and other parts of the North Lincolnshire Green Energy Park.
5. Ash will be produced in the furnace. This is called bottom ash. We will use this on site in the manufacture of concrete blocks.
6. The hot gases used to raise the steam will be treated and then cleaned before being released through a chimney – known as a ‘stack’.
7. More ash is produced from cleaning the gases. This is called fly ash – it will be treated on site to produce an aggregate.
8. Carbon Dioxide Capture technology will capture some of the carbon dioxide released during combustion for storage and utilisation.
9. The electricity generated will be used on site for battery storage, EV charging and to make green hydrogen. The remaining electricity will be sent on to the district network or to the National Grid.



Ash treatment

Ash will be treated on site to neutralise any heavy metals. Bottom ash will be matured, crushed and ground to separate metals and used to produce concrete blocks. Fly ash will be treated by carbonation. This involves mixing it with cement and a fine aggregate to remove heavy metals to produce another aggregate.

Carbon Dioxide Capture, Storage and Utilisation

Capture of carbon dioxide within the ERF will involve adding solvents to the flue gases produced by burning the RDF, which will separate the carbon from the gases. The captured carbon will either be used on site or transported offsite via trains or boats.

Hydrogen production and storage

We will use electricity to extract hydrogen from water. The technical name for this is Polymer Electrolyte Membrane (PEM) electrolysis. This process is containerised, with the hydrogen gas compressed and stored until it is needed.

Battery storage

We will use rechargeable batteries to take electricity when demand is low and release their charge rapidly at times of peak demand.

Air quality

We assess potential impacts on air quality in Chapter 5 of the PEIR.

Assessment

We have assessed impacts on air quality from a number of sources as part of the PEIR. This includes construction vehicles and dust, as well as vehicles travelling to and from the North Lincolnshire Green Energy Park and potential odours once it is operational.

We have also assessed potential impacts from gases produced as by-products of the energy recovery process. Managing these safely is a key part of the design of the ERF.

Our assessments looked at how emissions from these sources would disperse once released into the air. This uses a model which includes existing air quality and weather conditions to understand how emissions will behave, how they are likely to disperse and what impacts they may have.

The term we use for people, species or locations which may experience these impacts is 'receptors'.

Potential mitigation

Construction

Our initial assessment identified that some construction activities, particularly for the ERF and new access road, could create dust. We will put in place a Dust Management Plan while we are building the North Lincolnshire Green Energy Park. This is likely to include practices such as using water sprays to damp down dust while we are working.

Operations

The North Lincolnshire Green Energy Park will be designed to prevent and manage potential impacts on air quality.

Gases produced within the ERF will be treated within the facility to remove contaminants, before being released into the atmosphere through the chimney – known as a 'stack'. The height of the stack has been carefully considered to disperse the treated gases safely.

What we can release through the stack is strictly regulated and will be controlled through an Environmental Permit, issued by the Environment Agency. We will use a continuous, automatic monitoring system, which operates 24 hours a day, all year round. The monitoring results will be automatically recorded by the site and reported to the Environment Agency.

If, at any point, the North Lincolnshire Green Energy Park did not remain within the limits for emissions set by the Environment Agency, then appropriate enforcement action would be taken.

We will store and use the by-products from the gas treatment process on site to make concrete blocks and aggregates, ensuring they are not wasted.

Odour and dust will also be managed through the design of the North Lincolnshire Green Energy Park. The part of the ERF where waste is unloaded will be kept under negative pressure – meaning air will be drawn in through the process, destroying odours. Similarly, ash and flue gas residue will only be handled in enclosed buildings.

We will manage RDF carefully to reduce risks of odour. This includes storing RDF under cover and minimising the amount stored on site.

Effects

Based on implementing these mitigation measures, our assessment has predicted negligible impacts on sensitive human receptors and an insignificant impact on the majority of sensitive ecological receptors. The PEIR recommends further investigations around designated areas in the Humber Estuary and further development of the baseline air quality model.

Climate

We assess effects on climate change in Chapter 6 of the PEIR.

Assessment

We have assessed whether the North Lincolnshire Green Energy Park will contribute to climate change through the release of greenhouse gases. In particular, we have looked at the potential impacts of operating the ERF.

The ERF is designed to reduce greenhouse gas emissions by providing an alternative to more harmful forms of waste management. It will help divert waste away from landfill, where it would potentially release greenhouse gases such as methane. Our assessment considers the effects of the North Lincolnshire Green Energy Park against a scenario where the waste would be sent to landfill instead.

While the RDF processed by the ERF will be sorted before it arrives at the North Lincolnshire Green Energy Park, we assess a worst case scenario in the PEIR where there is potentially embedded carbon within waste material.

The ERF will also generate energy which can be used instead of fossil fuels. We consider the positive effect that this could have in terms of climate change in the PEIR.

Mitigation

We have included Carbon Capture, Storage and Utilisation as part of the proposals for the North Lincolnshire Green Energy Park. This helps to reduce the carbon dioxide emissions from the ERF by capturing carbon so it can be used in the manufacture of concrete blocks on site.

Effects

Compared to the alternative of managing waste through landfill, we expect operation of the North Lincolnshire Green Energy Park to result in an overall reduction in the release of the greenhouse gases which contribute to climate change.



Noise and vibration

We assess potential impacts on noise in Chapter 7 of the PEIR.

Assessment

Our assessments have involved comparing the noise which may be generated by both construction and operation of the North Lincolnshire Green Energy Park against the existing day time and night-time background noise levels and accepted noise criteria for protection of health and amenity.

Our model of existing noise conditions is called a 'baseline.' We developed this by taking background noise readings at a number of locations in the surrounding area chosen in consultation with North Lincolnshire Council which, taken together, represent the typical background noise environment. These locations are known as 'noise-sensitive receptors.'

We carried out noise surveys over a period of time, including weekends, to ensure that our baseline accurately reflected noise conditions.

The main sources of noise while we build the North Lincolnshire Green Energy Park are likely to be construction machinery and vehicles travelling to and from site. Once the North Lincolnshire Green Energy Park is up and running, potential sources of noise include plant machinery, road and rail traffic and unloading at the port and railhead.

Mitigation

Construction

We will mitigate noise from construction where possible by preventing it, by choosing quieter equipment and considering noise in planning where and when to work. Where the PEIR recommends additional mitigation measures, these could include selection of low-noise plant and noise screening between the source and sensitive receptors where impacts cannot be sufficiently addressed by other means.

We will prepare a Code of Construction Practice (CoCP) which will establish working hours. We will also monitor noise throughout the construction period and report on this to environmental health officers at North Lincolnshire Council.

Operations

We will mitigate noise during operations primarily through the design of the North Lincolnshire Green Energy Park. Plant machinery will be enclosed within buildings designed to contain noise. We will design the site to avoid vehicle reversing wherever practical and minimise the use of reversing alarms across the site. The wharfside crane and machinery will be fitted with noise mitigation such as insulation and silencers to further reduce noise levels. We will also formulate a noise management plan to keep delivery noise to a minimum.

We expect to agree a set of operational noise limits through the DCO. We will monitor compliance with these limits and report the results to environmental health officers at North Lincolnshire Council.

Effects

We do not expect there to be many significant effects from noise either during construction or operations once mitigation measures are in place. However, our initial assessment of construction noise and vibration from installing the district network indicates that whilst these works are only short term, further mitigation measures may need to be contemplated. For operation, further work is being undertaken to limit noise from unloading at the wharfside should operating at night be necessary.

This is based on our initial assessments. We will continue to develop the design and include further details of potential mitigation that may be required in this area, as well as a noise monitoring programme in the DCO application.

North Lincolnshire Green Energy Park

Figure 7.1 from the PEIR. This image shows the locations used for noise monitoring.





Client Information

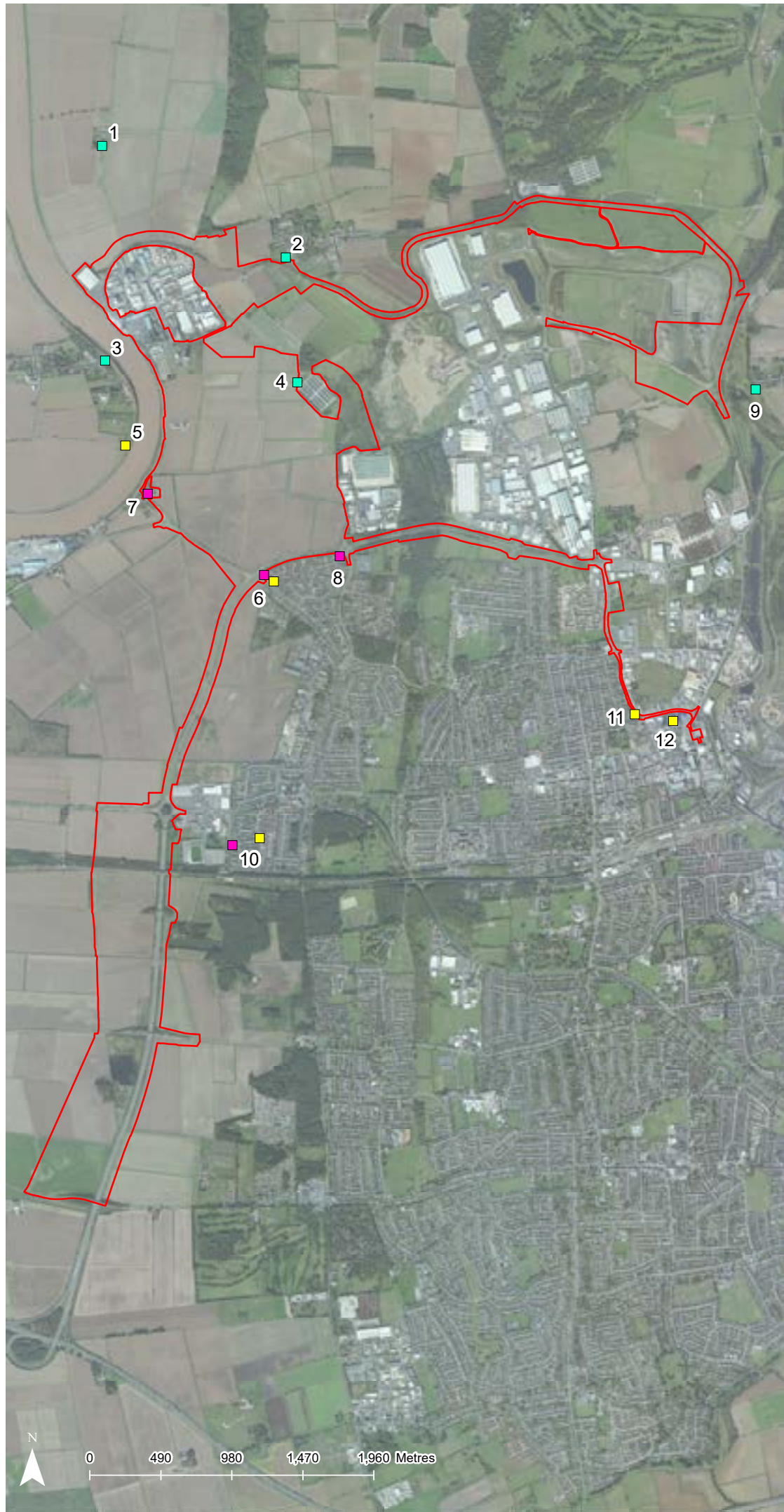
Client Solar 21
PINS Proj No 0046658
Date 19/05/2021
Drawn by MTC
Checked by JH
Version 1.0

Map Information

CRS EPSG 27700
CRS Name British National Grid
Scale 25,001
ArcMap File \\ukldcfs01\Data\London\Confidential Projects\0483091 Solar 21.HB\2. Working\6.

Legend

-  Noise Sensitive Receptor / Monitoring Location (Attended noise monitoring)
-  Noise Sensitive Receptor / Monitoring Location (Unattended noise monitoring)
-  Noise Sensitive Receptor (no monitoring carried out or monitoring carried out nearby)
-  Draft Order Limits



Layer Source Information

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

DO NOT SCALE THIS DRAWING

Ground conditions, contamination and hydrogeology

We assess effects on ground conditions, contamination and hydrogeology in Chapter 8 of the PEIR.

Assessment

This assessment looks at what is present in the ground underneath the land for the North Lincolnshire Green Energy Park. It then considers the effects that building and operating the North Lincolnshire Green Energy Park could have. The depth of the bunker hall in the ERF and the excavations required to build the district network are particularly relevant here.

We developed our understanding of what lies underneath the site by combining research into its history and condition with the findings from previous ground investigations undertaken at the site.

There are several potential sources of contamination. These include a former tank farm at the northern end of the site, the railway and railway sidings, historical landfills at the construction laydown area at Dragonby, fallout from the Flixborough disaster and the operations at Flixborough Industrial Estate and Flixborough Wharf.

Mitigation

During construction, we will avoid piling in a way that could create pathways for contaminated soil to impact on groundwater. We will also put in place a CoCP, which will set out measures to prevent contamination.

The North Lincolnshire Green Energy Park will be designed so that, once built, it will contain and control any releases of contaminants to the ground. Any chemicals, fuels and oils will be stored in a way that will similarly prevent the release of contaminants to the ground.

Effects

Following mitigation, we do not expect any significant effects on ground conditions or contamination of hydrogeology during either construction or operation.

North Lincolnshire Green Energy Park

Figure 8.1. from the PEIR. Study area for ground conditions, contamination and hydrogeology

























Client Information

Client	Solar 21
PINS Proj No	0046658
Date	07/06/2021
Drawn by	MTC
Checked by	SD
Version	1.0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
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Legend

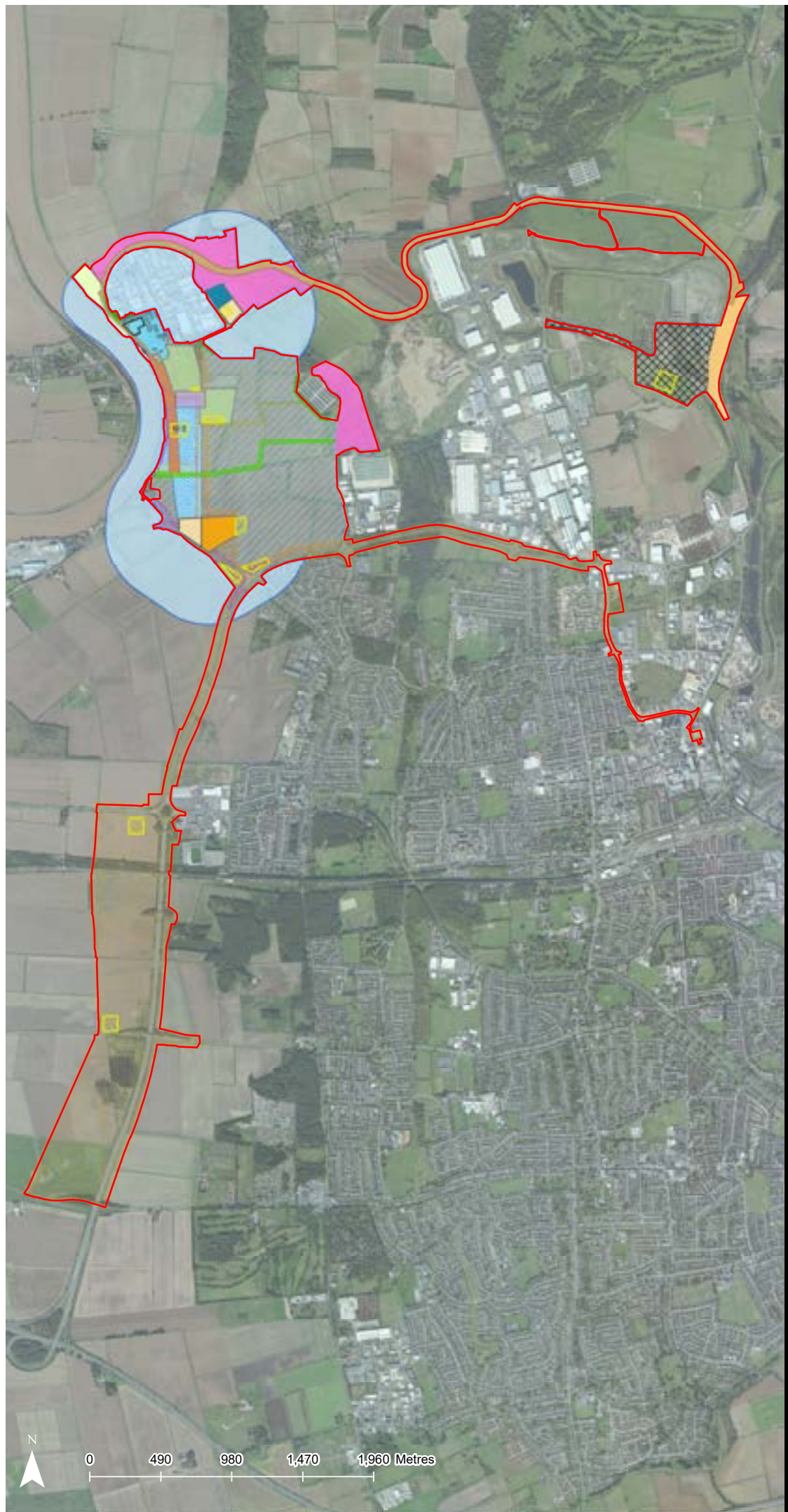
-  Additional study area outside the order limits
 -  Order Limits
 -  Demolition
 -  Existing Port
 -  Areas for Potential Future Mitigation
 -  Surface Access
 -  Utilities
 -  Temporary Construction Haul Road
 -  Non-motorised Paths with Landscape Planting
 -  Construction Laydown (Indicative Size / Location)*
 -  Construction Laydown Limits of Deviation
 -  Flood Management
 -  Wetland / SuDs
- Landuse**
-  Sub Station
 -  Carbon capture and associated curtilage landscape
 -  EFW and associated curtilage landscape
 -  Visitor Centre
 -  Concrete manufacturing and plastic recycling facility with associated curtilage landscape
 -  Gas AGI and associated curtilage landscape
 -  Energy storage and refueling station and associated curtilage landscape
 -  Flood Defence Bund
- Railway Reinstated**
-  Dragonby Siding Expansion
 -  Railhead
 -  Railspur Upgrade

*Not all laydown areas are shown on the plan. Where laydown areas would be located within the footprint of the building to be constructed, they have been omitted from the plan to improve clarity.

Layer Source Information

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

DO NOT SCALE THIS DRAWING



Water resources and flood risk

We assess impacts on water resources and flood risk in Chapter 9 of the PEIR. This includes water quality, water resources, hydromorphology, flood risk and drainage.

Assessment

Water resources

This assessment looks at all of the water courses and bodies that connect with the site where we are seeking permission to build the North Lincolnshire Green Energy Park. This is known as the 'study area'.

The study area stops at the point the rivers Trent and Humber meet. This is because the size and length of the River Trent means it is unlikely that water bodies downstream from it will be affected.

Water on the land for the North Lincolnshire Green Energy Park feeds three separate water bodies – Bottesford Beck, Winterton Beck and the River Trent. These are known as 'catchment areas'. Winterton Beck is the only one of these that connects directly with the site.

Flood risk

We have also defined a study area for flood risk. This is the area where the North Lincolnshire Green Energy Park has the potential to increase flooding to a significant level – known as a 0.5% annual exceedance probability (AEP) flood event. The AEP is a measure of how likely a flood of a certain size is to occur.

Our assessment shows that large parts of the land for the North Lincolnshire Green Energy Park are at a high risk of river flooding. These are defined as Flood Zone 3 by the Environment Agency. While the majority of this area is protected by flood defences, we need to address the risk that the project could flood.

We also need to ensure that the design of the North Lincolnshire Green Energy Park does not increase the risk of flooding elsewhere. Compared with current conditions, and without mitigation, the project could displace floodwater north of Ferry Road West and increase surface water runoff.

Mitigation

Water resources

During construction, we will use small amounts of water for daily practices such as wheel washing and suppressing dust, as well as potentially to mix concrete. We will either bring water from off-site in bowzers or use mains water supplies for this – so we will not put additional pressure on local water bodies.

We will also require contractors working on-site to follow the CoCP which will be developed in consultation with the Environment Agency. This will set out methods for disposing of water that do not cause harm to local water bodies – such as preventing contamination from soil piles.

Once operational, water will be required mainly by the ERF. It will also be used in the hydrogen production and storage facility, bottom ash and flue gas residue handling and treatment facility, plastic recycling facility and concrete block manufacturing plant. This will be sourced from the Anglian Water mains supply. We have received assurances that its network will be able to meet the additional demand for water.

All water used at the North Lincolnshire Green Energy Park will be discharged safely into the sewer network as trade effluent, in full accordance with a consent to discharge and any limits or conditions.

Flood risk

We have designed the North Lincolnshire Green Energy Park to reduce all potential impacts. Buildings are proposed at locations where they will not flood or risk creating flooding elsewhere and we will also build these on raised ground to reduce the risk of flooding. We will put in place bunds to prevent the risk of flood water being displaced elsewhere. We have used hydraulic modelling to identify the best position for the buildings and bunds.

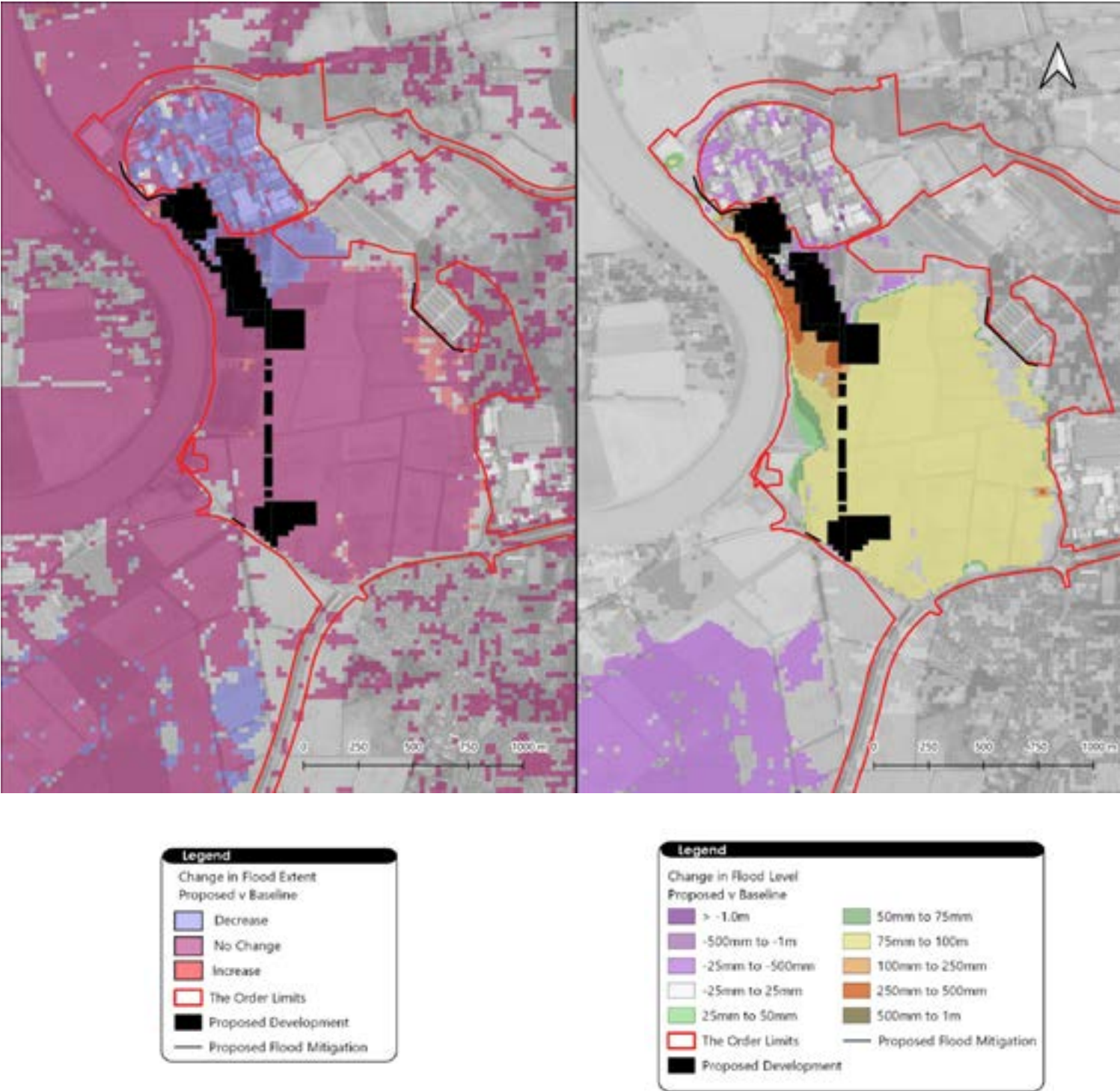
We will also install a surface water drainage system. This is likely to include a new surface water attenuation area, which will be located to the west of the access road and south of the railhead and visitor centre. This will collect all of the surface water runoff, from where it will be discharged in a way agreed with Scunthorpe & Gainsborough Water Management Board.

Effects

Our assessment shows that, after mitigation, there will be no significant effects on water resources and flood risk while the North Lincolnshire Green Energy Park is being built. Once it is operational, our assessment shows there will be no significant effects except at a single receptor – a commercial warehouse at the Flixborough Wharf.

We will put in place a flood management plan to address this risk. The detail of this plan will be agreed with the Environment Agency and secured through the DCO.

Figure 9.6. from the PEIR. Flood model results



Ecology and nature conservation

We assess potential impacts on ecology and nature conservation in Chapter 10 of the PEIR.

Assessment

As part of our assessment, we have considered effects on species and habitats that are important at a local, national and international level. This includes potential effects during the construction and operation of the North Lincolnshire Green Energy Park.

We have carried out surveys to understand the species and habitats present in and around the site as part of this process. We have also looked at whether there are sites with a protected legal conservation status which may be affected – these are known as ‘statutory sites.’

There are six statutory sites of international importance within 15km of the North Lincolnshire Green Energy Park. Two of these, the Humber Estuary Ramsar site and the Humber Estuary Special Area of Conservation, are adjacent to it. There are a further 13 nationally important wildlife sites within 2km of the North Lincolnshire Green Energy Park.

Our surveys identified a range of important habitats and species within 2km of the North Lincolnshire Green Energy Park. However, these are not generally present on the site itself – there are significant areas of hardstanding and other habitats which do not support a wide range of species.

There are some areas of semi-natural habitats and hedgerows included within the site. These are not covered by land proposed to be built on as part of the North Lincolnshire Green Energy Park and will be retained.

Mitigation

Any direct impacts on ecology are likely to be through the construction of the North Lincolnshire Green Energy Park – for example, through land use. Once it is built, the impacts would be addressed through measures designed to mitigate other effects – such as on noise or air quality.

Where possible, we will seek to avoid effects on ecology and nature conservation through design, for example by minimising the development footprint to avoid loss of habitat. Where this is not possible, we are proposing mitigation measures.

We will put in place a CoCP. This will set out the measures we will take during construction to mitigate potential effects on habitats and species. We will include a draft of the CoCP with our DCO application.

Where we are likely to have effects on habitats around the site, such as through the removal of scrub

and trees, we will put in place mitigation measures. These will include improving existing poor-quality habitats and, where this is not possible, providing new habitats in compensation. This will be set out as part of an Ecological Management Plan (EMP) – which will be included in draft as part of our DCO application.

There are two areas of potential woodland planting proposed to the north and east of Flixborough Industrial Estate. The proposed woodland planting will be a continuation of Burton Wood, along the Lincoln Edge, connecting through to an existing pocket of woodland to the north of the existing solar farm.

Woodland planting is also proposed along the railway corridor to the north of Flixborough Industrial Estate. This will create a natural edge to the industrial estate and provide improved connections for people and wildlife between the River Trent, railway corridor and Burton Wood.

We will also create a new wetland landscape as part of the development. This will provide a range of habitats, including reeds, rushes, lowland meadows and wet woodland. It will be designed to support protected and notable species including amphibians, birds, bats, water voles, otters, other small animals and invertebrates.

Effects

We will continue to incorporate ongoing ecological surveys into our proposals, to assess any effects connected to climate change and to consider effects in combination with other projects. However, with mitigation measures in place, our preliminary findings show that the residual effects on ecology are not expected to be significant. Further enhancement measures could deliver positive effects on ecology and nature conservation. We will set out the full results of our assessment of potential effects on ecology and nature conservation, as well as updated mitigation proposals, in the Environmental Statement that will form part of the DCO application.

North Lincs Green Energy Park

Figure 10.1. from the PEIR.
Phase 1 Habitat Map

Client Solar 21
BH Proj No 0046658
Date 2021-05-14

Version 1.0
CRS EPSG 27700
CRS Name British National Grid
Scale 1:35,084

Legend

Order Limits

Phase 1 Boundaries

- Running water
- Intact hedge - native species-rich
- Intact hedge - species-poor
- Defunct hedge - species-poor
- Hedge with trees - species-poor
- Fence
- Wall
- Dry ditch

Phase 1 Habitats

- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Coniferous woodland - plantation
- Scrub - dense/continuous
- Acid grassland - semi-improved
- Neutral grassland - semi-improved
- Calcareous grassland - semi-improved
- Poor semi-improved grassland
- Bracken - continuous
- Other tall herb and fern - ruderal
- Other tall herb and fern - non ruderal
- Swamp
- Marginal vegetation
- Standing water
- Running water
- Spoil/Rubble
- Cultivated/disturbed land - arable
- Cultivated/disturbed land - amenity grassland
- Cultivated/disturbed land - ephemeral/short perennial
- Introduced shrub
- Buildings
- Bare ground
- Other habitat - Gardens, allotments, landscaping
- Broadleaved tree

Map Information/Comments

This map was produced to show an overview of the habitats within the Order Limits of the Proposed Development.

Layer Source Information

Imagery: © Crown copyright and database rights 2021
Ordnance Survey 0100031673



Landscape and visual amenity

We assess potential impacts on landscape and visual amenity in Chapter 11 of the PEIR.

Assessment

Our assessments have involved looking at the impact of our proposals from a number of different viewpoints.

As a first step, we defined the area where development might, without any mitigation, be visible. This is called a Zone of Theoretical Visibility. We based this assessment on a facility with a 120 metre tall stack – which is larger than the stack height we are planning to have for the North Lincolnshire Green Energy Park.

We have looked at the impact of development in the context of the surrounding landscape. The site is in an existing industrial setting adjacent to the River Trent, surrounded by relatively flat land and near other industrial areas such as Keadby Power Station, and the Scunthorpe Steelworks.

We then looked at views from a range of locations, including Amcotts, Flixborough, Normanby, Keadby Village, Gunness, Althorpe, Luddington, Garthorpe, Burton upon Stather, Ealand, Dragonby and the north west edge of Scunthorpe.

Mitigation

This assessment has informed the design of the North Lincolnshire Green Energy Park. Where possible, we have sought to design the scheme to avoid impacts on views and mitigate any remaining effects.

Measures we have included in our proposals include:

- Introducing pockets of woodland at strategic locations around the edges of buildings to soften and integrate them into the landscape
- Extending Burton Wood to create a natural edge to the industrial estate
- Creating a wetland area with public access to enhance local landscape quality and recreational opportunities
- Introducing public access and links across the North Lincolnshire Green Energy Park site to increase its recreational value
- Introducing pockets of vegetation along the corridors of the A1077 and within the eastern extent of the site to help filter views
- Replacing existing vegetation where the railway is being reinstated to retain the perception of a wooded corridor

Effects

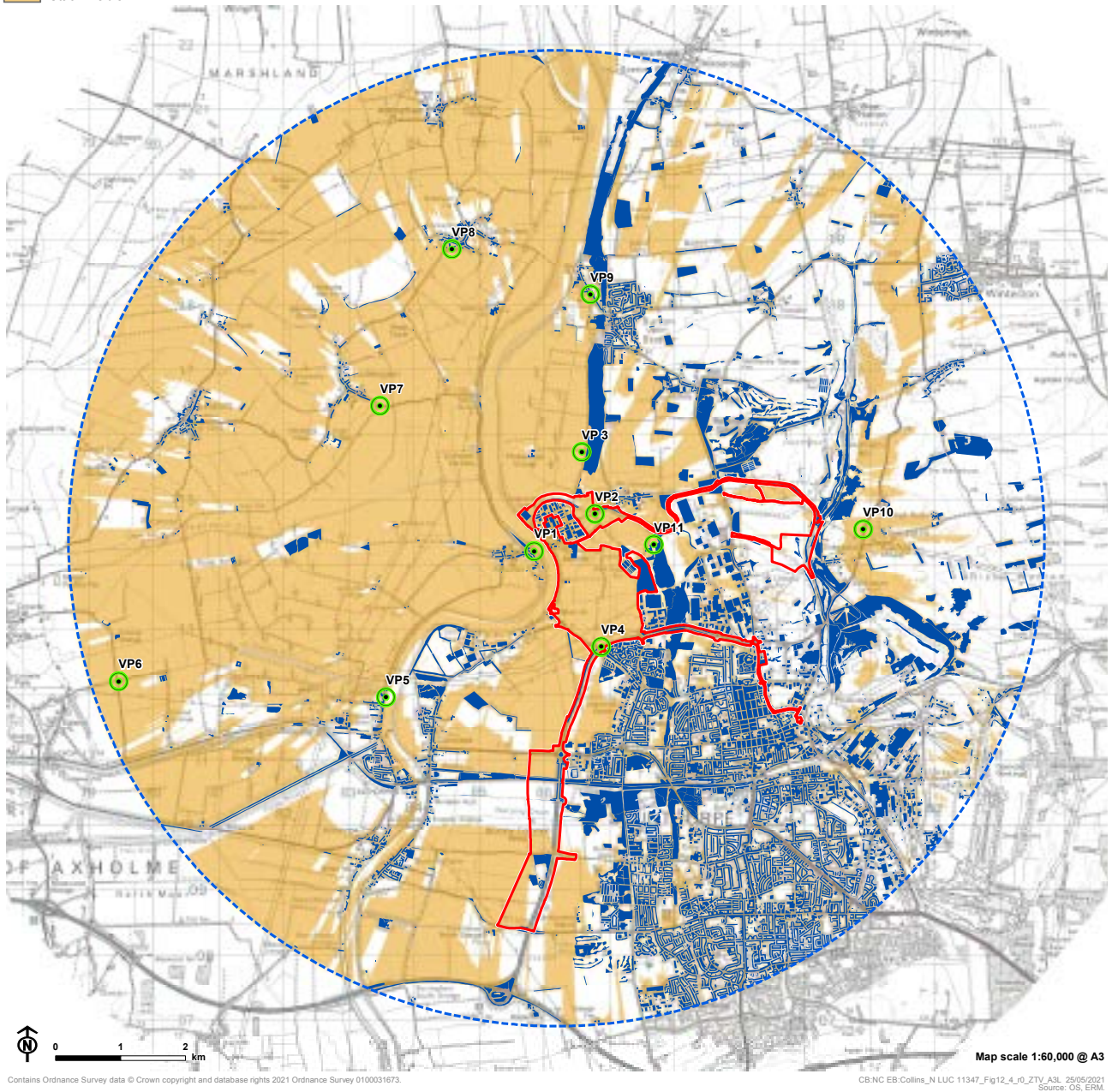
There will be different effects on landscape and visual amenity at different phases in the project lifetime. We have therefore looked at impacts during construction and then after the first year and first fifteen years of the project being operational.

Initially, we expect construction activity to have significant effects on landscape and visual amenity, particularly from viewpoints on Trentside in Amcotts and on Stather Road; however, these will be temporary and will only last as long as the construction period.

The effects on landscape and visual amenity from certain viewpoints are expected to continue as the project becomes operational, but will be mitigated over time as the landscape planting becomes more established.

- Site red line boundary
- Visual Study Area
- Screening Features
- Stack Visible

Chapter 11 Figure 4 from the PEIR. The Zone of Theoretical Visibility



Illustrative image of a view from Flixborough (1 year after construction)



Illustrative image of a view from Amcotts (1 year after construction)



Archaeology and cultural heritage

We assess potential effects on archaeology and cultural heritage in Chapter 12 of the PEIR.

Assessment

We have assessed the potential for effects on heritage assets, including buried archaeology, within 1km of the site boundary. This included buildings or other features which may have heritage value but have no designated status as such.

We also looked at a wider area for 'designated assets'. These are heritage assets such as listed buildings identified as having national or international significance.

Our surveys identified a total of 192 buried archaeological sites in this area, including 5 of high value. These are Roman, Saxon and medieval remains.

We also identified 126 heritage buildings – of which 3 are of high value. These are the Church of St Lawrence, the former Church of St John and Normanby Hall.

Mitigation

The project has been designed to avoid or reduce all potential effects on heritage assets as far as is reasonably practicable. This includes:

- avoiding direct impacts on designated assets through sensitive location of project elements
- avoiding changes to the setting of designated assets through sensitive design of the project and screen planting where appropriate
- avoiding direct impacts on non-designated assets where practicable

Effects

None of the predicted effects on either buried archaeology or the setting of heritage assets were assessed as being significant once mitigation has been applied. Given the potential for unknown buried archaeological remains to be present, further field surveys are proposed to inform the development of any further mitigation measures.

Figure 12.1 from the PEIR. (12.1) Designated Heritage Assets

Client Information

Client Solar 21
PINS Proj No 0046658
Date 04/06/2021
Drawn by MTC
Checked by JM
Version 1.0

Map Information

CRS EPSG 27700
CRS Name British National Grid
Scale 50,806
ArcMap File \\ukldcfs01\Data\London\Confidential
Projects\0483091 Solar 21.HB\2.
Working\6.

Legend

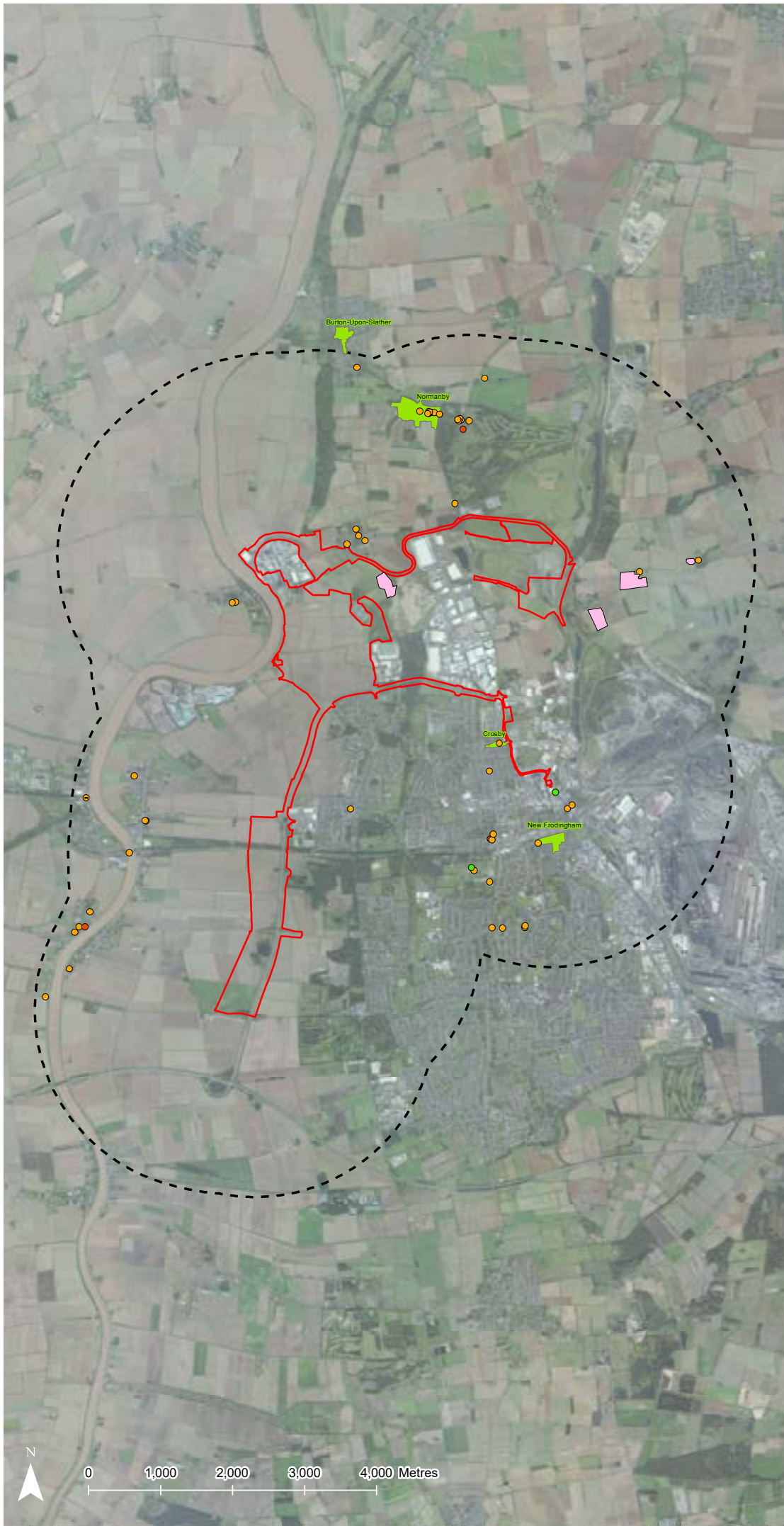
Listed Buildings

- Grade I Listed Building
- Grade II Listed Building
- Grade II* Listed Building

Scheduled Monuments

Conservation Area

2.5 km Buffer



Layer Source Information

Source: Esri, DigitalGlobe, GeoEye, Earthstar
Geographics, CNES/Airbus DS, USDA, USGS,
AeroGRID, IGN, and the GIS User Community

DO NOT SCALE THIS DRAWING

Traffic and Transport

We assess impacts on traffic and transport in Chapter 13 of the PEIR.

Assessment

As part of the PEIR, we look at the impacts of our proposals on transport – including road, river and rail. To do this, we compared the vehicles expected to go to and from the North Lincolnshire Green Energy Park with existing and expected future levels of traffic in the local area. Our assessment includes both the construction and operational phases of the scheme.

To support our assessments, we gathered information on the operation of the existing transport network. This has included traffic counts, accident data, sustainable transport measures and information on any highways improvement works. We also looked at how other developments, such as Lincolnshire Lakes, may contribute to traffic levels in the area. To support the assessment, we have provided reasonable worst case scenario assessments for road, rail and river transport. These take into account how much traffic each mode of transport into and out of the North Lincolnshire Green Energy Park can take. This has been defined by the capacity of the particular mode of transport into and out of the facility.

Construction

Construction will involve workers travelling to and from the site, deliveries of material and taking away excess material. While we are looking at maximising use where possible of river and rail transport to support this, we expect the majority of these journeys to be made by road during construction.

The number of vehicles involved will vary depending on the construction phase – some periods will be busier than others. During the busiest year, which we expect to be from 2024-2025, we expect there to be an average of between 15-75 delivery vehicles and 500-730 workforce vehicles travelling to and from the site every day. We have used this worst-case figure when looking at the impact of construction on local roads.

Operation

The main impacts on transport from the North Lincolnshire Green Energy Park once operational will be from freight transport and employees travelling to and from work. In assessing the worst case scenario for road, we expect there to be an average of 220 HGVs arriving at and departing from the site on days on which it is operating. In practice, this will be reduced by maximising use of river and rail where possible.

We have identified a particular risk around the Stather Road route to the Flixborough Industrial Estate via Neap House. This is too narrow for two HGVs to pass each other safely.

Mitigation

Construction

We will submit a draft CoCP as part of the DCO application. This will set out measures including:

- Putting in place a traffic management plan to define the routes of vehicles
- Providing a shuttle bus or park and ride facility during busy periods of construction to reduce the number of trips made by people working on site
- Putting in place a Construction Workers Travel Plan encouraging travel to and from the site by means other than cars
- Staggering arrival and departure times where possible to reduce journeys on local roads at busy times
- Beginning work on the new access road early during the construction period so it can be used by construction vehicles

Operations

Wherever possible, we plan to use the river and reinstated railway line for freight movements once the North Lincolnshire Green Energy Park is operational. However, we still expect some impacts on the local road network and have designed the scheme to mitigate them.

These measures include:

- A proposed new access road serving the existing Flixborough Industrial Estate and port area as well as the proposed development, which will remove any traffic from the existing Stather Road route via Neap House
- Closing the section of highway on Stather Road between Flixborough Industrial Estate and the existing surface water pumping station situated 160 metres north of Neap House
- A new 3m wide shared pedestrian / cycle footway along the eastern side of the carriageway of the link road. This will extend westbound along Stather Road and connect to the existing footways on Bellwin Drive, as well as along the northern side of the B1216 Ferry Road West, connecting westward
- A new toucan crossing facility at the A1077 / B1216 Ferry Road West signal junction to enable pedestrians and cyclists to cross the A1077. This will require some minor changes to the junction layout and signals
- Reinstating the railway – we are currently in dialogue with Network Rail regarding wider network requirements
- Working with both RMS Ports and the Humber Port Authority to determine and mitigate navigational risks

Taken together, these measures will help ensure the local road network can accommodate traffic generated by the North Lincolnshire Green Energy Park and make it safer for people travelling by foot or bicycle to travel in the local area.

Effects

We look at effects on the safety, journey time and routes taken for road users as part of the PEIR, as well as effects on foot, cycle, river and rail transport. In all cases, we do not expect there to be any significant effects from the North Lincolnshire Green Energy Park either during construction or operation.

Socioeconomic characteristics

We assess socioeconomic effects in Chapter 14 of the PEIR.

Assessment

We assessed the potential socioeconomic effects of the North Lincolnshire Green Energy Park by looking at the existing local, regional and national economy. This included data about local people from the Census, the work they do and the local housing market.

We then compared this with potential economic effects from the project. These included direct effects such as jobs created at the site and indirect effects such as spending on goods and services, as well as wider effects.

There will be some immediate effects on businesses currently located at the Flixborough Industrial Estate, which would need to relocate during construction. This means that an alternative location will need to be found for the 13 businesses whose premises will be affected during construction.

Beyond this, we expect to create significant numbers of jobs building and operating the North Lincolnshire Green Energy Park. This includes delivering a net increase of 319 jobs and £15.2million Gross Value Added (GVA) during the construction period. We expect to create the equivalent of 257 full-time jobs and £6.2 million GVA once the scheme is operational.

We have also considered potential impacts on community facilities such as Public Rights of Way (PRoW) as part of this assessment. We will temporarily divert some PRoW while building the North Lincolnshire Green Energy Park – but any necessary diversions to maintain public safety during construction will be short term and diversion distances will be minimised.

Mitigation

We plan to support North Lincolnshire Council's nearby 60-acre business park through the district heating network. This means re-location options for affected businesses could be available at this site within 2 miles of the Flixborough Industrial Estate. In addition, RMS Ports, which currently operates Flixborough Port, will be able to continue operating using alternative facilities during construction.

Effects

We expect the project to have a positive socioeconomic effect overall. This includes:

- investment of up to £1.5 billion
- reuse of previously developed land
- employment and expenditure in the local economy during construction
- job creation and skills development during operation
- provision of educational opportunities through the visitor centre
- economic benefits arising from direct and indirect expenditure, such as on goods and services
- an important contribution to the security of energy supply both regionally and nationally, supporting local economic activity

Waste

We assess the waste impacts in Chapter 15 of the PEIR.

Assessment

This assessment looks at waste that might be generated while we are building and operating the North Lincolnshire Green Energy Park. It considers the estimated volumes and the proposed options for recycling, recovery or disposal of waste in accordance with the current legal framework, the waste hierarchy and the capability of existing local and regional waste management facilities.

There is limited remaining capacity at waste management facilities in the region. There is a regional need for the ERF to intercept the volumes of RDF passing through the Humber Ports, as well as to manage the impact of landfill closure and tariffs imposed on exported waste following Brexit. A Fuel Availability and Waste Availability assessment will be submitted as part of the DCO.

There will be some need to manage waste that cannot be recycled during construction at existing facilities. This is expected to be minimal and within their capacity.

Mitigation

We will develop a Construction Waste Management Plan (CWMP) in consultation with North Lincolnshire Council and the Environment Agency. We will also minimise waste during construction wherever possible. This will include using spoil created by digging from construction within the site where possible.

During the operational phase, North Lincolnshire Green Energy Park is designed to capture and use as many of the by-products of the energy recovery process as possible. This reduces the level of waste from this process significantly.

Effects

We do not expect any significant long-term effects from waste generated by the project, either during construction or operation.

Health

We assess impacts on health in Chapter 16 of the PEIR.

Assessment

This assessment compares the existing health of people living locally with the potential impacts of the project. At the last Census, 43.6% of people said their health was 'very good' and 36.5% said it was 'good'.

Potential impacts on health from the project could include those from changes to the landscape, traffic, crime rates, accidents, fires, noise and social capital.

Mitigation

As set out in other sections of this document, these potential effects have been considered elsewhere in the PEIR. Where appropriate, mitigation has been proposed.

Effects

Our assessment has concluded that the North Lincolnshire Green Energy Park is not expected to lead to significant negative impacts on health or wellbeing.

Major accidents and disasters

We assess the potential for major accidents and disasters, along with any associated effects, in Chapter 17 of the PEIR.

Assessment

We assess the potential for major accidents and disasters through a Hazard Identification (HAZID) study methodology. This looks at:

- Identifying potential major accident hazards
- Evaluating the worst-case safety and environmental consequences
- Identifying measures to prevent or mitigate the major accident hazard
- Assessing risks before and after these measures are in place
- Identifying any specific requirements to achieve the risk mitigation

We considered potential risks from storing substances such as hydrogen, natural hazards like extreme weather and external hazards such as traffic incidents.

Mitigation

The North Lincolnshire Green Energy Park is designed to be safe and minimise the risk of accidents. This design has been informed and reinforced by the assessment of major accidents and disasters in the PEIR.

Effects

The risk of major accidents or hazards identified through the assessment is appropriately managed by the mitigation embedded within the scheme design.

Cumulative effects

We look at cumulative effects in Chapter 18 of the PEIR. These are the potential effects of the project taken together with other existing or planned developments in the area.

We defined an area of 15km around the site where the project may have an effect – known as a ‘zone of influence’. We then looked at existing and planned developments in this zone. There are three large, planned developments in this area – the new homes planned at Lincolnshire Lakes, Glanford Football Stadium and the proposed Keadby 3 combined cycle gas turbine power station.

We are currently gathering information on the potential impacts of these developments to inform the next stage of our assessment. We will report in full on cumulative effects in the ES.

Next steps

The results set out in the PEIR are only preliminary and represent the current stage of our EIA. Following the statutory consultation, we will consider all comments we receive, continue our ongoing assessment work and further develop proposed mitigation measures. We will report on our updated EIA, taking into account consultation responses, as part of the ES submitted with our DCO application.

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