

1 INTRODUCTION

1.1 INTRODUCTION

1.1.1 JBM Solar Projects 6 Ltd (the "Applicant") is seeking to obtain planning permission for the Cotmoor Solar Farm (the "Proposed Development") on land north of the village of Halloughton, Southwell, Nottinghamshire (the "Application Site"). The Application Site lies within the administrative area of Newark and Sherwood District Council (N&SDC). The location of the **Application Site is shown on Figure 1.1**.

1.2 EIA REGULATIONS AND PROCEDURES

1.2.1 In August 2019 the Applicant submitted a Screening Request to Newark and Sherwood District Council under Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended), Regulation 6 to determine if an EIA was deemed necessary by the Council. Through this process it was determined by N&SDC that it did not need to be accompanied by an Environmental Statement. A copy of this Screening Response can be found in **Appendix 1.1** of this Environmental Statement.

1.2.2 Due to this decision the planning application which was submitted, considered and refused by N&SDC was not accompanied by an Environmental Statement (ES) (ref:20/01242/FULM).

1.2.3 The Applicant then appealed the refusal of planning consent to the Planning Inspectorate. The appeal has then been screened by the Secretary of State's (SoS) own volition under Regulation 5(6)(a) of the EIA Regulations.

1.2.4 The SoS has in turn issued a Screening Direction. This determined that an EIA was required and should be prepared to accompany the planning application documentation. A copy of this Screening Direction can be found at **Appendix 1.2**. This Direction was issued on the 9th November 2021.

1.2.5 Due to its scale, nature and location, the Proposed Development is considered to constitute 'Environmental Impact Assessment (EIA) development under the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the "EIA Regulations").

1.2.6 The Proposed Development falls within Schedule 2 development, which is development likely to have significant effects on the environment by virtue of factors such as its nature, size of location under the category of "Industrial installations for the production of electricity, steam, and hot water" (Schedule 2,3a) as described in the EIA Regulations.

1.2.7 EIA is the process of collection, publication and consideration of environmental information in the determination of a planning application. Where an application is made for planning permission for EIA development the planning authority is not permitted under the EIA Regulations to grant planning permission unless they have first taken environmental information into consideration. Consequently, information required to assess the likely significant effects of the Proposed Development on the environment during construction and on completion, as required by Regulation 2(1) and Schedule 4 of the EIA Regulations has been compiled and is presented in this document, the Environmental Statement (ES).

1.3 STRUCTURE OF THE ENVIRONMENTAL STATEMENT

1.3.1 This ES comprises studies on each of the aspects of the environment identified as likely to be significantly affected by the Proposed Development, which are supported with technical appendices where appropriate. The ES is structured as follows:

- Environmental Statement: Comprises the main volume of the ES including Technical Appendices;
- The Non-Technical Summary (NTS) provides a concise summary of the ES identifying the likely significant environmental effects and the measures proposed to mitigate or avoid adverse effects of the Proposed Development.

1.4 ENVIRONMENTAL STATEMENT AVAILABILITY AND COMMENTS

1.4.1 This ES has been submitted as part of the appeal documentation to the Planning Inspectorate and the N&SDC. All documentation relating to the planning appeal (including this ES) can be viewed on N&SDC website. <https://publicaccess.newark-sherwooddc.gov.uk/online-applications/>

1.4.2 When seeking to access this ES the planning application reference number of 20/01242/FULM should be used.

1.4.3 This ES is also available for public viewing during normal office hours at the N&SDC Planning Department. Comments on planning application should be forward to the Planning Inspectorate via the following email address. environmentalservices@planninginspectorate.gov.uk.

1.4.4 When submitting comments to the Planning Inspectorate please use their appeal reference number (Ref: APP/B3030/W/21/3279533) rather than the application number allocated by the Local Planning Authority. Upon the submission of the ES to the Planning Inspectorate the consultation period is 30-days. The inquiry will not close until this consultation period has expired.

1.4.5 The ES may be purchased in Volumes, for the costs that are set out below:

- Non-Technical Summary- Free of Charge
- Environmental Statement - £100

1.4.6 Copies of all documents can be obtained on a CD for £10. For copies of the above please contact Pegasus group at the following address and quote reference P18-2917:

Pegasus Group
Pegasus House
Querns Business Centre
Whitworth Road
Cirencester
Gloucestershire
GL7 1RT
Tel: 01285 641717

1.5 ASSESSMENT METHODOLOGY

1.5.1 This chapter explains the methodology used to prepare each chapter of this ES and describes its structure and content. In particular, it sets out the process of identifying and assessing the likely significant environmental effects of the Proposed Development.

1.5.2 In accordance with the EIA Regulations, this ES comprises the following information:

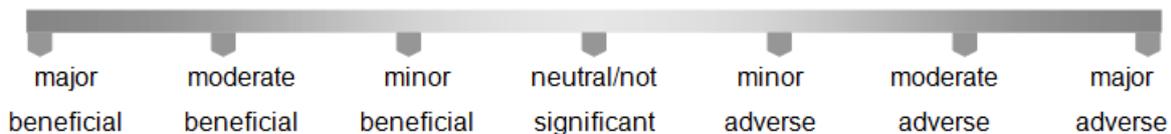
- A description of the development proposed comprising information about the site including the nature, size and scale of the development;
- The data necessary to identify and assess the main effects which the development is likely to have on the environment;
- A description of the likely significant effects of the Proposed Development covering, direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects, explained by reference to the Proposed Development’s possible effect on: human beings, flora, fauna, soil, water, air, climate, cultural and archaeological heritage, landscape and the interaction between any of the foregoing material assets (as appropriate);
- Where significant adverse effects are identified with respect to any of the foregoing, mitigation measures will be proposed in order to avoid, reduce or remedy those effects;
- A summary in non-technical language of the information specified above; and
- A statement outlining the relevant expertise or qualifications of the experts involved in the preparation of the ES.

1.6 DETERMINING SIGNIFICANCE

1.6.1 The purpose of the EIA is to identify the likely ‘significance’ of environmental effects (beneficial or adverse) arising from a Proposed Development. In broad terms, environmental effects are described as:

- Adverse – detrimental or negative effects to an environmental resource or receptor;
- Beneficial – advantageous or positive effect to an environmental resource or receptor; or
- Neutral – a neutral effect to an environmental resource or receptor.

1.6.2 It is proposed that the significance of environmental effects (adverse, negligible/neutral or beneficial) would be described in accordance with the following 7-point scale:-



- 1.6.3 Significance reflects the relationship between two factors:
- The magnitude or severity of an effect (i.e. the actual change taking place to the environment); and
 - The sensitivity, importance or value of the resource or receptor.

1.6.4 The broad criteria for determining magnitude are set out in **Table 1.2**.

Table 1.2: Degrees of Magnitude and their Criteria

Magnitude of Effect	Criteria
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High	Total loss or major/substantial alteration to elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed.
Medium	Loss or alteration to one or more elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Low	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible / detectable but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.
Neutral	Very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable, approximating to a 'no change' situation.

1.6.5 The sensitivity of a receptor is based on the relative importance of the receptor using the scale in **Table 1.3**.

Table 1.3: Degrees of Sensitivity and their Criteria

Sensitivity	Criteria
High	The receptor / resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Medium	The receptor / resource has moderate capacity to absorb change without significantly altering its present character, or is of high and more than local (but not national or international) importance.
Low	The receptor / resource is tolerant of change without detrimental effect, is of low or local importance.
Neutral	The receptor / resource can accommodate change without material effect, is of limited importance.

1.6.6 Placement within the 7-point significance scale would be derived from the interaction of the receptor’s sensitivity and the magnitude of change likely to be experienced (as above), assigned in accordance with **Table 1.4**, whereby effects assigned a rating of Major or Moderate would be considered as 'significant'.

Table 1.4: Degrees of Significance

Magnitude of Change	Sensitivity of Receptor				
		High	Medium	Low	Neutral
High		Major	Major	Moderate	Neutral
Medium		Major	Moderate	Minor to Moderate	Neutral
Low		Moderate	Minor to Moderate	Minor	Neutral
Neutral		Neutral	Neutral	Neutral	Neutral

1.6.7 The above magnitude and significance criteria are provided as a guide for specialists to categorise the significance of effects within the ES. Where discipline-

specific methodology has been applied that differs from the generic criteria above, this is clearly explained within the given chapter under the heading of Assessment Approach.

1.6.8 As can be seen from **Table 1.4** when an environmental effect is assessed as having a major or moderate degree of significance it is deemed to be "significant". These are the shaded cells in **Table 1.4**. When such a significant effect occurs consideration of mitigation solutions or enhancements to minimise the effect (which can include design alterations) will be considered. Once these mitigations and enhancements have been assessed the degree of significance may decrease to minor/moderate, minor or negligible.

1.7 MITIGATION

1.7.1 Standard measures and the adoption of construction best practice methods to avoid, minimise or manage adverse environmental effects, or to ensure realisation of beneficial effects, are assumed to have been incorporated into the design of the Proposed Development and the methods of its construction from the outset. Further information on the standard measures and construction best practice.

1.7.2 Where the assessment of the Proposed Development has identified potential for significant adverse environmental effects, the scope for mitigation of those effects has been considered and is outlined in the appropriate technical chapter. It is assumed that such measures would be subject to appropriate planning conditions or obligations.

1.7.3 Where the effectiveness of the mitigation proposed has been considered uncertain, or where it depends upon assumptions of operating procedures, then data and/or professional judgment has been introduced to support these assumptions.

1.8 SCREENING

1.8.1 As outlined in section 1.2 a screening request was submitted to N&SDC in August 2019 and it determined that an EIA was not required. Under Regulation 5(6) of the EIA Regulations SoS issued a Screening Direction on the 9th November 2021. This Direction determined that an EIA was required for the Proposed Development.

1.8.2 As required under Regulation 14(7) the Applicant has advised the SoS in writing that an EIA will be prepared prior to the determination of the planning application.

1.8.3 The Screening Direction (Appendix 1.2) details the environmental topics where the SoS has determined that there may be a significant environmental impact assessment.

1.9 SCOPING

1.9.1 In order to determine the scope of an EIA, the EIA Regulations make provision for, but do not statutorily require, an applicant to request that the local planning authority (LPA) provide a written opinion as to the information to be provided within the ES.

1.9.2 No formal scoping exercise was carried out for this ES, with no Scoping Opinion being submitted to N&SDC or the Planning Inspectorate. It has been determined that this ES will address the environmental impacts matters raised in the Screening Direction. The Proposed Development and the findings of the submitted Environmental Reports for the planning application have also been considered as the known baseline environment and Schedule 4 of the EIA Regulations. The EIA focuses on the potentially

likely significant effects of the Proposed Development during the construction and operational phases only.

1.9.3 Accordingly, the environmental themes for EIA as defined in Schedule 4(4) have been used to determine the topics that will be scoped into the assessment and are presented in Table 1.1. Where a topic has been scoped out of the ES the reasoning is provided.

Table 1.1: Environmental Themes Scoped In/Out

EIA Topic	Scoped In / Out	How/Where addressed/Reason for Scoping Out
Population	Scoped out	<p>During construction, it is considered unlikely that the proposals will result in a significant change in population as workers are unlikely to relocate to the area on a permanent basis. Construction will have a temporary effect on employment provision through the creation of construction jobs. A minor beneficial effect is therefore anticipated.</p> <p>Once operational, the proposed development does not provide any permanent residential accommodation and accordingly will not have a significant effect on population. The only vehicle movements will be from the occasional maintenance vehicle that would have negligible influence on the surrounding population.</p> <p>Matters relating to visual amenity will be assessed in the Landscape and Visual Chapter of the ES.</p> <p>Details relating to noise were included within the Noise Assessment and determined that any noise generated from the inverters would represent the lowest observed adverse effect level and was therefore not unacceptable.</p> <p>Details in relation to construction traffic has been presented in a Construction Transport Management Plan (CTMP). This report has been considered by the Highways department and deemed acceptable for the development and that there are no significant issues of access or traffic follows that require off site mitigation.</p>
Human Health	Scoped out	<p>During the construction phase there would be some potential for minor pollution or nuisance consistent with construction works, i.e. lighting of external works, dust/noise from vehicles/construction processes, surface water run-off from bare earth/stockpiles, plant noise etc. Construction activities would be appropriately controlled to an acceptable level through the adoption of construction best practice and appropriate safety measures.</p> <p>During operation there would be no unusual risk to human health. The development relies on well-established, safe modern technology and correct Health and Safety signage</p>

		<p>will be displayed on the site to inform of the potential risk from working near electrical equipment and to discourage trespass.</p> <p>A noise assessment was provided as part of the planning application bundle and determined that the design of the Solar Farm would not result in any noise impacts that would cause unacceptable effects to the local community.</p>
Biodiversity	Scoped Out	<p>The planning application documentation contained a series of ecological assessments that considered the effects of the Proposed Development on the Site. They also considered the ecological gains that would be made to the Site through altering from agricultural monoculture to other habitats and increased hedgerow planting etc. The Biological Net Gain of the refused application was 36.78%. These reports and the consultation responses from Natural England (NE) determined that the effect on the ecological resource from the Proposed Development was acceptable and not deemed to be significant.</p>
Land	Scoped In	<p>Assessed in the Agricultural Resources Chapter (Chapter 4)</p>
Soil	Scoped In	<p>Due to the nature of solar farms, it is unlikely that the construction of the proposed development would lead to the loss of soils as appropriate construction techniques will be implemented to reduce below ground works and as such significant effects are not considered likely.</p> <p>The soil has no known history to indicate there would be any form of contamination present, yet if found, any contamination will be controlled during construction through the imposition of appropriate planning conditions to ensure any contamination risks are addressed. No significant effects are therefore anticipated. These elements are scoped out of the EIA.</p> <p>The Agricultural Quality of the soil has been scoped into the EIA and is included within Agricultural Resources Chapter (Chapter 4)</p>
Water	Scoped Out	<p>The whole of the site is Flood Zone 1. Due to the scale of the site a Flood Risk Assessment was completed and submitted as part of the planning application. This assessment determined the risks of flooding and their mitigations. It determined that the risk of flooding downstream from the Site will be reduced due to the proposed development. The design of the site has created a bunded storage area that will reduce the potential risk of flooding in an extreme weather event. Mitigation through design has therefore been applied and offered a design solution which has resolved any potential significant effect to an acceptable level for development.</p>

<p>Air</p>	<p>Scoped Out</p>	<p>Whilst there may be dust generated during construction, this can be reduced using construction management measures. Therefore, it is considered unlikely that the proposals will have a significant effect on air quality during construction. The only vehicle movements in operation would be from the occasional maintenance vehicle that would not give rise to a significant effect on air quality.</p> <p>Due to the nature of the development, once operational there would be no emissions generated by the development. The submitted planning documentation has determined that there are no significant effects on air quality from this Proposed Development.</p>
<p>Climate</p>	<p>Scoped In</p>	<p>It is acknowledged that construction of the proposed development will result in the gaseous emissions associated with construction vehicles. Although, considering the temporary nature of construction it is considered that these emissions are unlikely to be complex or significant.</p> <p>Due to the nature of the development, once operational the facility will be generating energy from renewable sources. A positive effect is therefore, anticipated through reducing the requirement for fossil fuel-based energy production facilities.</p> <p>Climatic factors have been considered accordingly within the standalone FRA submitted alongside the planning application and as such the proposed development is unlikely to have a significant effect.</p> <p>The SoS Screening Direction has referenced climate change, but only in relation to the possible implications from major accidents and disasters. This topic will therefore be considered in Chapter 3: Health and Safety of the ES.</p>
<p>Material Assets</p>	<p>Scoped out</p>	<p>Construction would require the use of natural resources as is standard with construction works, i.e., power/water/construction materials. This is not considered to be an unusual or complex operation and accordingly, no significant effects are anticipated. Due to the nature of the development, no natural resources would be required for the operation of the facility once constructed.</p> <p>It is not considered there are any further 'material assets' to those already addressed within other EIA topics.</p>
<p>Cultural Heritage (including Architectural and Archaeological aspects)</p>	<p>Scoped Out</p>	<p>A detailed Heritage Assessment and Geophysical Survey was submitted as part of the planning application. Comments from the Heritage advisor to N&SDC was that there was a low level of development impact on any below ground heritage features and any further investigation could be achieved through planning condition.</p> <p>The Heritage Assessment determined that there would</p>

		<p>be a 'less than substantial harm' to the Halloughton Conservation Area and that there would be no impact on the setting of any Heritage Features from this development.</p> <p>It is therefore concluded that the possible heritage implications from this Proposed Development are not significant in terms of EIA and have been scoped out of this assessment.</p>
Landscape	Scoped In	Assessed in the Landscape and Visual Chapter (Chapter 2).
Risks of Major Accidents and Disasters	Scoped In	<p>The nature and location of the development is not considered to be vulnerable to or give rise to significant impacts in relation to the Risk of Accidents and Major Disasters.</p> <p>However, the Screening Direction has stated that an EIA is 'required to consider the risks of, and vulnerability to, major accidents or disasters (including due to climate change) that are relevant to the development e.g. for project components such as battery storage or in relation to future flood risk.' These areas are included in Chapter 3 Health and Safety.</p>
Interrelationship between above factors	Scoped out	Through consultation with S&NDC and the determination and refusal of the Proposed Development it was concluded that there were no other developments that needed to be considered within the cumulative assessment.

1.10 THE EIA CONSULTANT TEAM

1.10.1 To ensure the completeness and quality of this ES it has been prepared by Pegasus Group. Pegasus Group is one of the founding members of the Institute of Environmental Management and Assessment (IEMA) Quality Mark which is a mark of excellence in EIA Co-ordination and management. Pegasus Group has obtained, and retained since inception, its EIA Quality Mark status which is assessed by IEMA.

1.10.2 The consultants and their qualifications, which have contributed to the preparation of this ES are reflected in the project directory at the front of this document.

1.11 THE ENVIRONMENTAL STATEMENT

1.11.1 As defined earlier in this chapter no official Scoping Request has been made of N&SDC. Instead, the scope and content on the ES is based on the following:

- Review of the baseline situation through existing information, including data, reports, surveys and desk-top studies;
- Consideration of relevant National and Development Plan policies;
- Consideration of potential sensitive receptors;
- Identification of likely significant environmental effects and an evaluation of their duration and magnitude;
- Expert opinion;
- Modelling;
- Use of relevant technical and good practice guidance; and
- Specific consultations with the appropriate bodies.

Structure of the Environmental Statement

1.11.2 This ES is structured as follows:

- **Environmental Statement Main Text** - Comprises the main volume of the ES, including 'general chapters' that describe the EIA context, provide a description of the Application Site and Proposed Development, and set out the scope of the ES, followed by the technical chapters with the associated figures and concluding with a summary.
- **Environmental Statement Technical Appendices** - Comprises the technical appendices supporting the main report.
- **Environmental Statement: Non-Technical Summary (NTS)** - this provides a concise summary of the ES identifying the likely significant environmental effects and the measures proposed to mitigate or to avoid adverse effects of the Proposed Development.

1.11.3 The content of the ES comprises:

- Chapter 1 Introduction
- Chapter 2 Landscape and Visual Impact Assessment
- Chapter 3 Health and Safety
- Chapter 4 Agriculture
- Chapter 5 Summary

1.11.4 For continuity, the figures and appendices are arranged and presented using the same reference numbers as the chapters as a means of providing supportive background and technical information.

1.12 CUMULATIVE AND INTERACTIVE EFFECTS

1.12.1 Within EIA, cumulative effects are generally considered to arise from the combination of effects from the Proposed Development and from other proposed or permitted schemes in the vicinity, acting together to generate elevated levels of effects.

1.12.2 During the assessment process and determination and refusal of the scheme it was determined with N&SDC that there were no schemes that needed to be considered from a cumulative perspective.

1.13 GENERAL ASSUMPTIONS AND LIMITATIONS

1.13.1 The principal assumptions that have been made and any limitations that have been identified in preparing this ES are set out below:

- Information received from third parties is complete and up to date; and
- The design, construction and completed stages of the Proposed Development will satisfy legislative requirements

1.14 APPLICATION SITE

1.14.1 The Site comprises of thirteen agricultural fields to the north of the village of Halloughton. A separate area of woodland, which will be unaffected by the development proposals, but improved for biodiversity lies to the west of the Site.

1.14.2 The Site lies within both the parish of Halloughton and the parish of Southwell.

1.14.3 The southern portion of the Site is located to the north of Halloughton within the Parish of Halloughton. This section of the Site comprises of five large linear fields with boundaries at their edge, including copses at the western and part of the southern

boundary. Overhead electricity lines and pylons cross this parcel in an east-west direction. The built-up area of Halloughton lies close to the southern boundary of the parcel and the A612 Highcross Hill forms part of the eastern boundary. Agricultural land surrounds the parcel in other directions.

1.14.4 The northern section of Site is located further from Halloughton and largely lies within the parish of Southwell, comprising seven separate fields of various sizes. The parcel includes buildings associated with New Radley Farm, which has its own access track from the north. Bridleway (BW74) runs from the north-eastern edge of Halloughton Wood in a broadly east to west direction through a small portion of the Site. An overhead electricity line runs east to west through the southern section of the Site and Westhorpe Dumble crosses the Site in the same direction just to the north of this.

1.14.5 The whole of the Site is outside any of the defined settlement areas and is therefore defined as being within the open countryside for the purpose of planning.

1.14.6 Within the Development Plan for Newark and Sherwood, there is a Site of Interest in Nature Conservation running in a broad east to west direction through the northern part of the Site. Additional Sites of Interest in Nature Conservation are located in close proximity to the western boundary of the Site.

1.14.7 An area of Ancient Woodland 'Halloughton Wood' is located c150m to the west of the Site at its closet point.

1.14.8 The built-up area of Halloughton lies close to the southern boundary and the eastern site boundary lies adjacent to Highcross Hill (A612) and Stubbins Lane. A number of isolated properties are located in close proximity to the application boundary including; New Radley Farm and Stubbins Farm.

1.14.9 With regard to nearby designations, much of Halloughton is defined as a Conservation Area, including four Grade II and one Grade II* Listed Buildings. Further Grade II Listed Buildings are located to the east. Southwell to the north-east of the proposed Site contains a large Conservation Area and numerous Listed Buildings.

1.14.10 All these designations and landscape assets can be seen on the **Environmental Designations Plan Figure 1.2.**

1.15 PROPOSED DEVELOPMENT

1.15.1 This application seeks planning consent for the following scheme.

“Construction of a solar farm and battery stations with all associated works, equipment and necessary infrastructure.”

1.15.2 This development would have the capacity of a 49.9MW scheme for a temporary period of 40 years. The exception to this is the DNO substation that would remain on the Site permanently.

1.15.3 The proposed solar farm will involve the temporary change of use of the land due to the time restricted nature of the development, the agricultural use will be retained in the long term. The Site will also be capable to dual use farming during its operational period, with small livestock able to graze the land between and amongst the panels.

1.15.4 In addition, the minimal physical intrusion of the development itself will mean that the panels can be removed after their 40-year lifetime and the land will revert to full agricultural use. The inclusion of battery storage within the development will increase the effectiveness of the Proposed Development, balancing the release of electricity produced from a renewable source to the grid.

Access

1.15.5 The proposed site access is located off Bridle Road Farm in the south-eastern corner of the Site. The access connects into the wider highway network via Highcross Hill Road. The proposed site access will serve the whole of the Proposed Development and will be connected to the internal access track on the Site. Following completion of construction, a double width farm gate will be installed at the access point that adjoins the public highway in order to retain the traditional feel in Halloughton village. The solar farm security gate will be set back from the public highway and so any views of this gateway will be very limited.

1.15.6 There is Public Bridleway (BW74) which broadly run through a small portion of the centre of the Site in an east-west direction. This bridleway commences at the north-eastern edge of Halloughton Wood and continues towards Southwell. Additionally, a public footpath runs along the northern site boundary and in close proximity to the western site boundary (Ref: Southwell FP43). It is proposed to retain both of the existing Public Rights of Way (PRoW) in their current locations.

Tracks and Fencing

1.15.7 A network of internal access tracks around the solar farm will be laid to allow vehicle access to the supporting equipment to allow for maintenance. The layout and the extent of the roads is limited to that which is necessary to provide access and maximise efficiency. The tracks will have a width of 3.5m and will be constructed with crushed aggregate.

1.15.8 The perimeter fencing and pole-mounted CCTV system serves an important purpose in protecting the valuable equipment on the Site. The fence height will be 2m in height with CCTV cameras located on poles (3m in height) at suitable locations along the perimeter fence.

Solar Arrays and Supporting Equipment

1.15.9 The solar panels will be placed in rows, allowing for boundary landscaping, perimeter fencing and access across the Site. The PV panels will be laid out in rows across the Site in an east-west orientation and face to the south at a maximum 25 degrees from the horizontal to maximise efficiency, with a maximum height of less than 3m. The arrays are spaced out to avoid any shadowing effect from one panel to another with topography dictating exact row spacing that can range between approximately 4m and 6.5m. The arrangement of the solar PV panels on the frames will either be 3 panels in portrait or 6 panels in landscape. The foundations to the solar panels will be a piled foundation, the depth of each of these piles will depend on the exact soil conditions.

1.15.10 Plant and other equipment will be located around the Site to support the generation of electricity. These items are located next to the internal access tracks to ensure that they can be maintained. The supporting equipment includes inverter stations positioned around the Site.

1.15.11 Underground cabling will be placed around the Site connecting the development to the proposed substation which is located towards the south-eastern section of the Site.

Battery Stations

1.15.12 The battery stations will be located throughout the Site. Each station comprises of a containerised battery unit/inverter, DC-DC converter boxes and ancillary equipment.

DNO Substation

1.15.13 A 132kV substation will be required in order to connect the Proposed Development to the local electricity grid which will be operated by the DNO. This will remain on the Site after the lifetime of the solar farm. The location of the substation is shown on **Figures 1.3 and 1.4**. The 132kV substation will become part of the local electricity distribution network. There will be a need for one new overhead pylon for the connection to the DNO substation. The pylon will be of a similar size and scale to the pylon already present at the substation.

Landscaping

1.15.14 The layout of the development ensures that there will be minimal works to or loss of the existing trees and hedgerow within the Site. The layout of the Site has been designed to incorporate the existing trees and boundary vegetation into the scheme, as a result no trees, tree groups or hedgerows will require to be removed in their entirety. The removals that are required are located at the site access and for the access tracks within the Site where there were no existing gaps that could be utilised.

1.15.15 Where required gaps in hedgerows will be repaired with appropriate native hedgerow species supplemented with native tree planting to reflect the local landscape character.

Site Design

1.15.16 This ES will assess two different site designs/layouts. These are as follows:

- Site Layout (P18-2917_12 REV L) Figure 1.3 Cotmoor Solar Farm Refused Scheme
- Site Layout (P18-2917_12 REV M) Figure 1.4 Cotmoor Solar Farm Alternative Scheme

1.15.17 The differences between the 'Refused Scheme' and the 'Alternative Scheme' can be summarised as follows:

- Removal of Solar Panels in the central field
- Planting of additional areas of native hedgerows with trees within them will be planted along the northern boundary of the Site adjacent to the existing PRoW (Ref: Southwell FP43);
- Fencing and solar panels pulled back from the northern most field, to facilitate the 're-wilding' of this area (adjacent to Public Right of Way Ref: Southwell FP43); and
- Reinforcement of existing hedgerows with a belt of trees on the south-western most corner of the Site.

1.15.18 There are two schemes that are to be assessed in this ES as the Applicant has submitted an 'Alternative Scheme' as part of the Planning Appeal under the 'Wheatcroft Principle', and which has been consulted on. The Council accepts that that the appeal can be decided on that basis, but the Planning Inspector has yet to rule if this alternative design will be accepted for consideration in the Appeal and therefore, the ES will consider both schemes to ensure the ES remains robust for the assessment of the design used for the Appeal determination.

Construction Processes

1.15.19 During the construction period the following activities will be undertaken:

- Site preparation will involve mowing the site if required and marking out the site;
- Erecting the security fence and internal fencing to protect trees, hedges and field margins;
- Track construction;
- Piling the frames into the ground;
- Affixing the panels to the mounting frames;
- Trenching for the cable runs, and laying cables;
- Pouring the concrete bases for the cabinets and substations;
- Installation of the Inverters and Transformer cabinets;
- Connecting all the cables up and backfilling the cable trenches; and
- Removal of temporary surfaces.

Waste

1.15.20 The potential waste generated during the construction process will primarily be related to packaging, and will include:

- The pallets that the solar panels are packaged in. These will be either wood crates, or cardboard boxes. These will be removed from the site on a regular basis. If they arrive on wooden pallets – then these will be returned to the manufacturers. If they arrive packaged in cardboard boxes, then these will be removed from site on a regular basis, either through a hired skip, or through trips to the local recycling station.
- Packing materials for various components, such as screws, cabling, and mounting frames. Any non-recyclable waste will be stored in a skip for regular removal to an appropriate landfill.
- Food waste from workers. Personal rubbish will be collected along with non-recyclable packaging materials, for disposal at an appropriate landfill.
- Portable toilets will be hired for the duration of the construction period; therefore, there will be no human waste issues.
- The Site involves some minor ground works. Excavated soil will be used for backfilling activities. However, if the level of excavated ground exceeds the backfilling requirements, then this soil will be removed and reused at another site or landholding where they require additional soil.

1.15.21 The contractor will ensure that all waste is disposed of responsibly from the Site.

Security

1.15.22 It is intended that the security fence that will surround the Solar Farm for the duration of its life will be erected prior to the construction phase of the Solar Farm, thus ensuring the site is secure during this phase.

1.15.23 A Health and Safety board identifying potential hazards will be updated daily, with all visitors required to sign in and adhere to on-site Health and Safety practices. All personnel working on site will be required to wear a high visibility vest or jacket, steel cap boots, and a hard hat as well as any other activity-specific safety wear.

Storage

1.15.24 No long-term on-site storage is required as the HGVs and other vehicles will provide materials at regular intervals throughout construction period as construction progresses, rather than being delivered all in one go.

Noise Management

1.15.25 Contractors will be required to conform to the construction noise code of practice BS 5228.

1.15.26 Construction and decommissioning works shall be undertaken between 0730 and 1800 Monday to Friday, and 0730 to 1300 on Saturdays, with no works to be undertaken outside of those hours.

Air Quality and Dust Management

1.15.27 Given the nature of the site, greenfield, we do not anticipate any significant dust issues to arise.

Decommissioning

1.15.28 When the proposed development ceases operation, all major equipment and structures would be removed from the site over a six-month period. The DNO substation will remain in place on the Site after the removal of the solar farm.

1.16 ALTERNATIVES

1.16.1 The EIA Regulations (Schedule 4, Part I (2)) require for inclusion in an ES: "A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects".

1.16.2 In response to the above, the alternatives to the Proposed Development which the Applicant has considered include:

- No Development Alternative; and
- Alternative Designs.

No Development Alternative

1.16.3 The no development alternative would result in the Application Site being maintained in its current state and the existing baseline conditions prevailing. It is considered that the no development alternative would result in the loss of an opportunity to provide a new renewable energy development and contribute to sustainable development in accordance with local and national policy.

1.16.4 The selection of the site is based on a number of factors which identify the site as suitable for accommodating a solar farm. These include:

- Available grid connection and capacity;
- Topography;
- Potential for screening by existing vegetation;
- Location in relation to environmental designations;
- Located on lower grade agricultural land (Grade 3b);

- Located on land with a low probability of flooding;
- Site or adjacent features provide opportunities to improve the ecological value of the site; and
- Location set back from nearby settlements and properties to reduce potential effects on visual amenity, with potential views for individual residences /property groupings considered in the landscape and visual assessment and detailed design.

1.16.5 As a result of the iterative process, the Proposed Development, is confined to locations where effects have been limited as far as possible. This is also considered in the context of the scheme benefits, including to support the UK's renewable energy increase and CO₂ reduction legally binding targets. Consideration of the planning balance which weighs up all material factors associated with the planning application is contained within the accompanying **Planning Statement**.

Alternative Designs

1.16.6 When the application was first submitted to N&SDC in July 2020 consideration had been made of the various design constraints that effect solar farm design. These items include, but are not limited to, the topography of the landscape, the existing field boundaries, proximity to heritage features, proximity to Public Rights of Way (PRoW), proximity to roads, streams, access point to the fields etc as well as the connection point to the National Grid. This design can be seen as **Figure 1.5**.

1.16.7 Through initial consultation comments from the LPA and the consultees an amended design was developed which can be viewed as **Figure 1.6**. This was submitted in December 2020 as amendment to the design for consideration by N&SDC. The main alteration of this design was that it has removed an area of panels from the southern section of a central field and proposed the planting of a new hedgerow with mature trees within in it along the new boundary of the Site, to offer visual screening of the solar farm.

1.16.8 As the planning determination progressed the applicant submitted a further amended design. This can be seen as **Figure 1.3**. This amendment formed the design that was refused by the LPA. This amended design had removed panels from a further two fields, that of a central field and an area of field to the south-eastern end of the development. The removal of panels from the south-eastern section of the Site and the planting of new native hedgerow along the new solar farm boundary line, was offered as a design mitigation to elevate the concerns raised on the possible impact on the Halloughton Conservation Area.

1.16.9 In the process of preparing for the Planning Appeal, the applicant has prepared a further scheme design (**Figure 1.4**) which is being known as the 'Alternative Design' within this Environmental Statement.

1.16.10 The amendments to the design within the Alternative Design to the Refused Design are as follows:

- Removal of panels and associated infrastructure from a central field
- Belt of new trees are proposed within an existing hedgerow which encloses a section of the Site boundary to the southwest.
- Additional native hedgerow with semi-mature hedgerow trees is proposed between the northern extent of the Proposed Development and PRoW FP43.
- Removing panels and associated infrastructure from the north-eastern corner of the northern most field to facilitate the 're-wilding' of this area.

1.16.11 These changes were presented to try and reduce the visual effects upon receptors at the western extent of Halloughton and users of the PRow Bridleway (Ref Halloughton BW3) and to pull the development back from the Halloughton Conservation Area. The new tree planting was included in the design to aid in the filtering and obscuring views of the Proposed Development from locations on PRow footpath (Ref: Southwell FP42) to the southwest of the Site.

