Rosefield Solar Farm

Environmental Statement

Volume 1
Chapter 4: Reasonable Alternatives Considered

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

EN010158/APP/6.1
September 2025
Rosefield Energyfarm Limited

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4. Reasonable Alternatives Considered

4.1. Introduction

4.1.1. This chapter outlines the reasonable alternatives that have been considered by the Applicant for the Proposed Development to date, including the initial selection of the Order Limits and the development of the design.

4.1.2. This chapter also details how the assessment of sites and design alternatives has been undertaken, and details the factors that have been considered, and the main reasons for discounting alternative design options. Further detail can be found in the **Site Selection Report** at **Appendix 1** of the **Planning Statement [EN010158/APP/5.7]** and the **Design Approach Document [EN010158/APP/5.8]**.

4.1.3. The **Statement of Need [EN010158/APP/5.6]** submitted in support of the Development Consent Order (DCO) Application sets out a detailed and compelling case as to why the Proposed Development is urgently required and at the proposed scale, reflecting the demonstrated urgent need set out in the Overarching National Policy Statement for Energy (NPS EN-1) **[Ref. 4-1]**. This assessment of alternatives is set in the context of the clear and urgent need for the Proposed Development.

4.2. Planning policy and legislation

4.2.1. **ES Volume 1, Chapter 1: Background and Context [EN010158/APP/6.1]** sets out the overarching planning policy relevant to the Proposed Development, comprising NPS EN-1 **[Ref. 4-1]**, National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) **[Ref. 4-2]** and the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) **[Ref. 4-3]**. These have been considered during the options appraisal process for the Proposed Development. Regarding the consideration of alternatives, paragraph 4.3.9 of NPS EN-1 states that:

"…the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to a proposed development is in the first instance a matter of law."

4.2.2. It goes on to state that "*This NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option from a policy perspective. Although there are specific requirements in relation to compulsory acquisition and habitats sites, the NPS does not change requirements in relation to compulsory acquisition and habitats sites*".

4.2.3. Regulation 14(2)(d) of the Environmental Impact Assessment (EIA) Regulations **[Ref. 4-4]** requires "*a description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment*".

4.2.4. Schedule 4 of the EIA Regulations **[Ref. 4-4]** requires "*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*".

4.2.5. Regarding the consideration of alternatives, paragraph 4.3.15 of NPS EN-1 states that:

"*Applicants are obliged to include in their ES, information about the reasonable alternatives they have studied. This should include an indication of the main reasons for the applicant's choice, taking into account the environmental, social and economic effects and including, where relevant, technical and commercial feasibility*."

4.2.6. This highlights that in addition to the requirement under the EIA Regulations set out above, which requires applicants to include information in the Environmental Statement (ES) on the reasonable alternatives studied, there are other specific legislative requirements and policy circumstances that may require the consideration of alternatives.

4.2.7. These include requirements (when triggered) under the Conservation of Habitats and Species Regulations 2017 **[Ref. 4-5]**, the requirements (when triggered) of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 **[Ref. 4-6]** and also in relation to avoiding significant harm to biodiversity and geological conservation interests, flood risk, and development within nationally designated landscapes set out in Sections 5.4, 5.8 and 5.10 of NPS EN-1.

4.2.8. NPS EN-1 states that given the level and urgency of need for new energy infrastructure, the Secretary of State should, subject to any relevant legal requirements which indicate otherwise, be guided by the following principles set out in NPS EN-1 when deciding what weight should be given to alternatives:

- The consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner;
- Only alternatives that can meet the objectives (see **Paragraph 4.3.1** below) of the proposed development need to be considered;

- Whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security, climate change, and other environmental benefits) in the same timescale as the proposed development;
- The Secretary of State should not refuse an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and it should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals;
- Alternatives not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the Secretary of State thinks they are both important and relevant to the decision;
- The Secretary of State must assess an application in accordance with the relevant NPS (subject to the exceptions set out in Section 104 of the Planning Act 2008), if the Secretary of State concludes that a decision to grant consent to a hypothetical alternative proposal would not be in accordance with the policies set out in the relevant NPS, the existence of that alternative is unlikely to be important and relevant to the Secretary of State's decision;
- Alternative proposals, which mean the necessary development could not proceed, for example, because the alternative proposals are not commercially viable or alternative proposals for sites would not be physically suitable, can be excluded on the grounds that they are not important and relevant to the Secretary of State's decision;
- Alternative proposals which are vague or immature can be excluded on the grounds that they are not important and relevant to the Secretary of State's decision; and
- Potential alternatives to a proposed development should, wherever possible, be identified before an application is made to the Secretary of State (so as to allow appropriate consultation and the development of a suitable evidence base in relation to any alternatives which are particularly relevant). Therefore, where an alternative is first put forward by a third party after an application has been made, the Secretary of State may place the onus on the person proposing the alternative to provide the evidence for its suitability as such, and the Secretary of State should not necessarily expect the applicant to have assessed it.

4.2.9. Considering the planning policy and legal requirements as well as the iterative approach to the design to date, the following alternatives have been considered for the Proposed Development and are discussed in this chapter:

- Alternative sites;
- Alternative renewable technologies;
- Alternative solar technologies; and
- Alternative development design, size and scale.

4.2.10. The consideration of 'no development' as an alternative to the Proposed Development has not been considered a reasonable alternative as it would not deliver the proposed renewable electricity generation capacity required to meet the United Kingdom (UK)'s net zero greenhouse gas emissions target by 2050, which was passed into law by Government in June 2019.

4.3. Approach to site selection

4.3.1. The Applicant undertook a systematic process to determine a suitable site. A range of technical, environmental, and economic factors are considered when investigating and assessing any potential site for large-scale solar developments. A **Site Selection Report** has been prepared and forms **Appendix 1** of the **Planning Statement [EN010158/APP/5.7]** to provide an overview of the site selection process undertaken by the Applicant to identify the location of the Proposed Development. The process of site selection is summarised below, in tandem with the project objectives. The Applicant sought to develop a single new Nationally Significant Infrastructure Project (NSIP) scale solar project generating up to 500 Megawatt (MW) (based on a site comprising minimum 1,000 acres) which:

- Would contribute to meeting the UK's urgent need for low carbon energy generation;
- Would be in close proximity to an available grid connection or part of the transmission network in which capacity exists;
- Would avoid impacts on sensitive landscapes and environmental features as far as practicable;
- Would be readily accessible from existing strategic road networks to facilitate construction access; and
- Would be delivered on land which could be acquired voluntarily thereby avoiding the need for large scale compulsory acquisition.

4.3.2. NPS EN-3 identifies three fundamental core attributes, amongst other considerations, which large scale solar developments require:

- Existence of sufficient land to deliver the project and meet the scale of the Proposed Development's aims;
- Availability and capacity of a suitable Point of Connection to the National Electricity Transmission System; and

- Solar irradiation levels to support the development's potential to produce an efficient and economic energy yield.

4.4. Alternative sites

4.4.1. There are limited locations in the UK that satisfy all three of the above core site selection requirements (land availability and suitability, feasible irradiation levels and grid connection availability). For example, the need for proximity to existing and available grid connection capacity may limit opportunities in areas where irradiation is at its highest.

4.4.2. Therefore, it cannot be expected that large-scale solar is located only where all three criteria are met in full. Developments will therefore be proposed at locations which have a blend of the required characteristics, albeit unlikely that each of the required characteristics will be at their most advantageous in a single location.

4.4.3. Buckinghamshire is crossed by a number of high voltage transmission lines. These lines are important arteries of the National Electricity Transmission System, located between the demand centres of the south and the midlands. The number of lines in Buckinghamshire is sufficient to continue distributing electricity reliably to users while also having capacity to connect large-scale generation facilities for transmission of power nationally. It is also in an area with relatively high levels of irradiation.

4.4.4. The Applicant engaged with National Grid to discuss potential opportunities for a connection offer within the Buckinghamshire area. In Early 2020 a grid connection offer was made for capacity in East Claydon, Buckinghamshire.

4.4.5. Against this background, the Applicant considered several important factors, as summarised below, before arriving at the preferred Site.

- **Irradiance and site topography** – Irradiance is sufficiently high in Buckinghamshire to support solar development. The general topography of the Order Limits is gently undulating, making it generally suitable for solar;
- **Network connection** – the site selection focused on a 10km radius around the National Grid East Claydon Substation (the search area) where there was an available point of connection. This radius was restricted by what was considered viable for this project, taking into account capacity, cable distance, capital costs and market conditions at the time. Within this radius, preference was given to sites in close proximity to the point of connection;
- **Proximity of site to dwellings** – the site selection sought to avoid sites in close proximity to residential dwellings or where it would not be possible to appropriately mitigate visual amenity and glint and glare.

Where residential dwellings are in close proximity to the Order Limits, set backs of infrastructure and screening have been designed to mitigate potential effects;

- **Agricultural land classification and land type** – the site selection sought to minimise the impact on best and most versatile agricultural land (land classified as Grade 3a and above). The Order Limits are located on land that is predominantly Grade 3b;
- **Accessibility** – the site selection considered the suitability of access routes within the search area. The Order Limits are accessible by the local road network and well serviced by the strategic road network by the A41 to the south, the A421 to the north and the A4146 to the east.

4.4.6. The **Site Selection Report** at **Appendix 1** of the **Planning Statement [EN010158/APP/5.7]** sets out in more detail the consideration of the above factors and provides further assessment on the balancing of the impacts of each.

4.4.7. As reported in the **Site Selection Report** at **Appendix 1** of the **Planning Statement [EN010158/APP/5.7]**, following a review to identify which of the land in proximity to the National Grid East Claydon Substation may be appropriate for Solar PV development from a technical, environmental and community perspective, the Applicant commenced discussions with landowners to identify where there was a willingness to enter into lease agreements. The search identified a single landowner, located directly adjacent to the National Grid East Claydon Substation, who was agreeable in principle to leasing sufficient land for a solar development that optimised the grid connection.

4.4.8. Given the urgent need for renewable energy to address to climate crisis, following consideration of the above factors, the Site location has been chosen as it is considered to have good potential for a large-scale solar site. The availability of significant capacity at National Grid East Claydon Substation was the primary driver in identifying a site in this part of Buckinghamshire.

4.5. Alternative renewable technologies

4.5.1. Alternative types of renewable energy generation technologies, such as wind and hydrogen, were not discounted by the Applicant.

4.5.2. Wind technology was not considered feasible as at the time of design development, onshore wind was banned and therefore was not achievable under the grid connection timescales. The Site is also not considered to be well suited for onshore wind energy generation due to the low, flat topography of the local area, which would likely give rise to greater landscape and visual effects in comparison to Solar PV development due to the height of the turbines. In addition, the proximity to residential

dwellings may result in adverse effects associated with shadow flicker and wind turbine noise.

4.5.3. It is also important to frame the consideration of alternative technologies in the context of UK Government policy around future energy generation. While recent policy changes to the National Planning Policy Framework have opened the door to potential onshore wind development, for example, that does not place a higher policy emphasis on the delivery of a specific type of generating station. Indeed, during the development of the Proposed Development, there was no realistic possibility of a proposal for onshore wind having sufficient support in policy terms to be considered a viable alternative technology.

4.5.4. Hydrogen, which is not a generation technology in its own right, was not considered suitable due to the commercial viability and environmental impacts for this type of energy generation in comparison to solar energy generation. It was therefore not considered to be a realistic alternative to the Proposed Development.

4.5.5. As set out in the **Planning Statement [EN010158/APP/5.7]**, the British Energy Security Strategy **[Ref. 4-7]** and Net Zero Strategy **[Ref. 4-8]** commit to delivering up to a fivefold increase in solar capacity in the UK by 2035 and, in its 2024 Manifesto, the Labour government has set out that it will work with the private sector to triple solar power by 2030. The Clean Power 2030 Action Plan **[Ref. 4-9]** published in December 2024 emphasises the need to accelerate the pace and scale of renewable energy development and outlines the Department for Energy Security and Net Zero's ambition for 45-47 GW of solar power by 2030 as part of a mix of technologies. While there is a requirement to bring forward multiple renewable technologies, it should be considered in the context of the infrastructure being delivered concurrently rather than as an alternative to another form of generation.

4.5.6. It is therefore considered that solar technology is the most suitable renewable energy generating solution for the Site.

4.6. Alternative solar technologies

4.6.1. The parameters of the DCO Application will maintain a degree of flexibility through the Rochdale Envelope approach to allow for the latest solar technology to be utilised at the time of construction. Further information can be found in **ES Volume 1, Chapter 3: Proposed Development Description [EN010158/APP/6.1]**.

4.6.2. Notwithstanding this, several alternative solar technologies and design options have been considered throughout the design process to date, with several options since discounted and the preferred options taken forward

for further consideration. The reasoning for discounting the solar technologies and design options is detailed in **Table 4.1** below.

Table 4.1: Alternative Solar PV configurations

Configuration type	Reason for discounting
Tracker panels	Tracker Panels have been discounted for this Site due to the commercial viability and landscape and visual impacts due to the increased height in comparison to fixed panels. Although small areas of the Site were considered suitable to support tracker panels, the majority of the Site was considered unsuitable due to anticipated visual effects. Consideration of the viability of Tracker Panels was also undertaken and they were not found to be commercially viable. As such, it was considered that installing tracker panels solely within these small areas, in comparison to a complete fixed panel installation across the entire Site would lead to greater environmental effects particularly from a landscape and visual and glint and glare perspective.
East-west fixed panels	East - west fixed panels have different energy production efficiencies compared to north – south fixed panels, with lower energy production during the middle of the day compared to north – south fixed panels, and higher energy production in the morning and evenings. Higher energy production in the morning and evening would not be a significant benefit for the Site as the inclusion of a Battery Energy Storage System (BESS) as part of the Proposed Development allows for the storage and distribution of energy when required throughout the day and during peak hours. East – west fixed panels have also been discounted as they reduce the potential for biodiversity net gain and enhancements due to the reduced space between the panels. The reduced space between the panels would significantly reduce the level of light reaching the ground and would limit any biodiversity planting beneath the panels. The increased coverage and decrease of spacing between the panels for east – west fixed panels in comparison to south facing fixed panels would also lead to an increase in water accumulation on a smaller area of the Site.

4.7. Alternative layouts and design evolution

4.7.1. The design and layout of the Proposed Development has been developed as part of an iterative process which has been informed by the ongoing environmental assessment process and taking into consideration the design principles and controls, feedback and engagement with stakeholders and consultees.

4.7.2. The layout of the Proposed Development was initially influenced by the land available with consideration towards proximity to residential properties, heritage receptors including Claydon Park Grade II Registered Park and Garden and Conservation Area and Claydon House Grade I listed building, sensitive habitats, public rights of way (PRoW) and landscape and visual. Further detail on the identification of the Site is detailed in the **Site Selection Report** at **Appendix 1** of the **Planning Statement [EN010158/APP/5.7]**.

4.7.3. Engagement has included two formal rounds of consultation, in parallel with ongoing engagement with relevant consultees, including:

- Buckinghamshire Council;
- Historic England;
- National Trust;
- Natural England;
- Environment Agency;
- National Highways;
- Berkshire, Buckinghamshire & Oxfordshire Wildlife Trust; and
- Buckinghamshire Fire and Rescue.

4.7.4. Further information on the consultation process and how it has informed the Proposed Development is provided in the **Consultation Report [EN010158/APP/5.1]**.

4.7.5. The layout of the Proposed Development and the extents of the Order Limits have undergone several stages of design changes, which are described below. This section should be read in conjunction with **ES Volume 3, Figure 2.4: Field Numbering System [EN010158/APP/6.3]**.

4.7.6. The design evolution described within this chapter outlines the reasoning for discounting an alternative design at each stage of the design process. This has comprised of three distinct stages:

- **Stage 1 Design** – Initial stage of the design following the identification of the Site and the Order Limits. Early plans and proposals showing the maximum possible area within which the Proposed Development would

be located (Stage 1 design) were published between September and November 2023 as part of the Phase One (non-statutory) Consultation and in the EIA Scoping Report in November 2023. These are illustrated in **ES Volume 3, Figure 4.1: Stage 1 Zonal Masterplan [EN010158/APP/6.3]**.

- **Stage 2 Design** – This stage of design was undertaken following the Phase One (non-statutory) Consultation to take account of the consultation feedback and the emerging results from ongoing environmental surveys. Updated plans and proposals showing the outcome of this stage of the design as illustrated in **ES Volume 3, Figure 4.2: Stage 2 Zonal Masterplan [EN010158/APP/6.3]** were published in September 2024 as part of a Phase Two (statutory) Consultation and informed the assessment detailed within the Preliminary Environmental Information Report (PEIR).
- **Stage 3 Design** – This stage of the design was undertaken following the Phase Two (statutory) Consultation held in September – December 2024 to take account of the consultation feedback, ongoing engagement and the findings of further environmental assessments. Further Targeted Consultation was undertaken 21 May–16 July 2025 which included consulting on amendments to the Stage 3 Design with relevant consultees, including Buckinghamshire Council.

4.7.7. Updated plans and proposals showing the outcome of this stage of the design form the basis of the ES and DCO Application as illustrated in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**.

4.7.8. It should be noted that this chapter describes the design of the Proposed Development in relation to the maximum parameters that were assessed within the Scoping, PEIR and ES as illustrated in **ES Volume 3, Figure 4.1: Stage 1 Zonal Masterplan**, **Figure 4.2: Stage 2 Zonal Masterplan** and **Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]**.

Stage 1 design

4.7.9. Following identification of the initial Order Limits, the available land within the Order Limits was subject to an initial assessment to identify suitability for Solar PV development and potentially suitable locations for the BESS and the Rosefield Substation. The assessment focussed on the suitability of land parcels based on environmental, social and economic factors. Minimum offsets to landscape and ecological features were agreed by the design team to inform the design process.

4.7.10. There are areas between Parcel 1, Parcel 2 and Parcel 3 that lie within the Order Limits but have not been considered for the location of Solar PV development or for the location of Collector Compound(s), BESS or Rosefield Substation. These are shown as grey areas within the Stage 1

Design (**ES Volume 3, Figure 4.1: Stage 1 Zonal Masterplan [EN010158/APP/6.3]**). These areas were not made available by the landowner to the Applicant for any development, apart from any required underground cabling and access routing.

Solar PV development

4.7.11. Following the initial assessment, which included desktop assessments and visits to the Site, the design team identified fields which were considered unsuitable for accommodating Solar PV development and were therefore discounted. The reasoning for discounting these fields during Stage 1 of the design is detailed within **Table 4.2**.

Table 4.2: Reasons for discounting fields at Stage 1

Field	Reason for removal
B17	This field comprises Knowl Hill and is elevated above the surrounding area. Potential for Solar PV development was removed from this field to reduce potential significant impacts on the setting and significance, and views from Claydon Park Grade II Registered Park and Garden and Conservation Area and Claydon House Grade I listed building.
D2, D5	Potential for Solar PV development was removed from the fields directly south of Botolph Claydon due to the proximity to residential properties and the setting of Botolph Claydon and the Botolph Claydon Conservation Area.

4.7.12. The areas that were removed from Solar PV development were retained within the Order Limits for potential mitigation, enhancement or retained agricultural use.

Battery Energy Storage System (BESS) and Rosefield Substation

4.7.13. During the Stage 1 initial appraisal, the design team also carried out an assessment to identify fields that would be suitable for the BESS and Rosefield Substation based on the information available at the time of assessment. The areas that were initially considered suitable for the BESS and Rosefield Substation were areas that could potentially accommodate infrastructure up to 7.6m and 15m respectively (as per Stage 1 design parameters).

4.7.14. The following factors informed the development of the design for the location of the BESS and Rosefield Substation during the Stage 1 Design:

- Proximity to the Grid Connection;
- Proximity and visual impact to the residential settlement of Botolph Claydon;

- Impact on the setting of Botolph Claydon Conservation Area;
- Views from Quainton Hill;
- Located outside areas of potential fluvial flood risk (Flood Zones 2 and 3);
- Proximity to and impacts on nearby dwellings; and
- Proximity to and locations of PRoW.

4.7.15. The fields identified as being suitable for BESS and/or Rosefield Substation were Fields E10, E11, E20, E21, E22, E23, D8, D9, D18 and D19.

Green and blue infrastructure

4.7.16. During the Stage 1 initial appraisal, certain fields were identified as being unsuitable for development or having a high environmental impact risk if developed as set out above is **Table 4.2**. These fields were excluded from development but kept in the Order Limits as ecological mitigation and enhancement areas. These fields were Fields B17, D2, D5, and sections of Fields B4, B5 B6, B22, B23 (North) and D1.

Stage 2 design

4.7.17. Following the Phase One Consultation held between 28 September – 10 November 2023, the Stage 1 Design was reviewed and revised to take account of the consultation feedback, the emerging results from environmental studies and ongoing technical work.

4.7.18. This Stage 2 Design process involved undertaking a detailed environmental appraisal, targeted engagement with statutory consultees and stakeholders, alongside several technical design workshops.

Solar PV development

4.7.19. As part of the Stage 2 Design process, a number of changes were made to the Proposed Development, including removal of fields and partial fields from Solar PV development and the Interconnecting Cable Corridor, and the addition of new areas for Interconnecting Cable Corridor, Internal Access Corridors and Construction Compounds (as shown on **ES Volume 3, Figure 4.2: Stage 2 Zonal Masterplan [EN010158/APP/6.3]**). **Table 4.3** provides a summary of the alternatives and design changes during the Stage 2 Design process.

Table 4.3: Reasons for changes at Stage 2 Design related to Solar PV development

Location	Reason for change
Field B9 (partial)	Eastern half of this field was no longer proposed for Solar PV development to improve impacts on the setting, and views from Claydon Park Grade II Registered Park and Garden and Conservation Area and Claydon House Grade I listed building.
Sections of particular fields were removed, including an area within the Fields B6, B5, B13, B22	Parts of these fields were no longer proposed for Solar PV development to provide larger setbacks from residential properties and PRoW. To reflect the outputs from initial Site visits and residential visual amenity assessments undertaken at nearby residential properties, bespoke offsets have been provided for each individual property.
Parcel 1a (Fields C1, C2 and C3)	These fields were no longer proposed for Solar PV development to allow for additional areas of ecological mitigation and enhancements between Sheephouse Wood and Romer Wood, to reflect importance of the connectivity between the woodlands for bats.
Fields D1, D3 (north)	These fields were no longer proposed for Solar PV development and no longer form part of the proposed Site area to increase the distance from Rosefield Solar Farm to residential developments and the setting of Botolph Claydon and the Botolph Claydon Conservation Area. These fields were identified as areas of concern in public feedback to the Phase One Consultation.
Fields D27, D30, D32, D33, D34, D35, D36, D37	These fields were no longer proposed for Solar PV development to the topography, ecological considerations and reduced visibility within the Area of Attractive Landscape (AAL) (local designation) and within the wider landscape.
Sections of particular fields were removed, including an area within the Fields D4, D11, D15, D14	Parts of the fields located to the east of the Bernwood Jubilee Way were no longer proposed for Solar PV development to reduce the impact on the landscape character and to retain views towards Quainton Hill and its landscape context from the Bernwood Jubilee Way.

4.7.20. Following the Stage 2 Design process, detailed above, the area proposed to accommodate Solar PV development reduced by approximately 40% compared to the Stage 1 Design. The areas that were removed from having the potential for development have largely been retained within the

Order Limits for potential mitigation, enhancement or retained agricultural use, while some areas around Botolph Claydon have been removed entirely from the Order Limits.

Battery Energy Storage System and Rosefield Substation

4.7.21. As part of the Stage 2 Design, a further assessment was carried out to review and identify suitable locations for the BESS and Rosefield Substation, taking into consideration the survey work to date, including landscape and visual assessments and noise modelling. Fields D8, D9 and E23 were considered suitable for siting of the BESS, as shown by the Stage 2 Masterplan presented in **ES Volume 3, Figure 4.3: Stage 2 Zonal Masterplan [EN010158/APP/6.3]**.

4.7.22. For the purposes of the preliminary assessment and as part of the Stage 2 Design, two scenarios were considered for the location of the BESS and Rosefield Substation due to the uncertainty of the location of the National Grid East Claydon Substation extension.

- Scenario 1: Rosefield Substation in Field E11 and BESS units located in Fields D8, D9 and E23 (outlined in ES Volume 3, **Figure 4.3: Zonal Masterplan Scenario 1**).
- Scenario 2: Rosefield Substation in Field E23 and BESS units located in Fields D8, D9 and E23 (outlined in ES Volume 3, **Figure 4.4: Zonal Masterplan Scenario 2**).

Interconnecting Cable Corridors and Internal Access Corridors

4.7.23. Further refinement of the Interconnecting Cable Corridors between Parcels 1 and 2 and between Parcels 2 and 3 was undertaken during the Stage 2 Design. This refinement was informed by environmental surveys, assessment and stakeholder feedback. This resulted in the discounting of several areas, identified below, that were not deemed suitable for the location of the Interconnecting Cable Corridors and Internal Access Corridors.

- Several fields that are located directly to the south of Orchard Way were discounted due to the proximity to Claydon House and Calvert Road, to minimise any landscape and visual and cultural heritage impacts and associated noise and air quality emissions.
- Fields located to the north of Balmore Wood and south of the Muxwell Brook were removed from the Order Limits to avoid the need to cross this watercourse, limiting any associated impacts to these habitats and any potential contamination to the watercourse.
- The fields that run between Balmore Wood, Runts Wood and Finemere Wood were removed to avoid any requirement for tree removal and to

avoid ecological, noise and air quality impacts that could impact ancient woodland and sensitive bat commuting and foraging corridors.

- Several fields located directly to the west of the area of Solar PV development in Parcel 3 were removed from the Order Limits as they were not required for the Interconnecting Cable Corridor or Internal Access Corridor.

4.7.24. Buffers from sensitive receptors, such as ancient woodlands, residential properties, hedgerows and trees were included in the design, which involved discounting these areas from the development of any cabling or access works to reduce the environmental impact to these sensitive receptors.

Grid Connection Cable Corridor

4.7.25. Following further engagement with National Grid on the proposed extension to the National Grid East Claydon Substation, the Order Limits were extended to the west of the existing National Grid East Claydon Substation to include six fields (Field SA51, SA52, SA53, SA57, SA58, SA59) to facilitate the Grid Connection Cable Corridor.

4.7.26. These fields were included to allow cabling to the point of connection at the National Grid East Claydon Substation and as the exact location of connection is unknown at this stage, a larger area than may be required has been included to allow flexibility.

Access to the Site

4.7.27. A small stretch of Snake Lane/Fiddler's Field was added into the Order Limits during the Stage 2 Design following further transport assessments and engagement with Buckinghamshire Council Highways Authority to allow for the potential requirement for road improvement works in this location.

4.7.28. For the Abnormal Indivisible Load Access Corridor into the Site, two fields (Fields SA55 and SA56) east of the National Grid East Claydon Substation were added into the Order Limits.

Collector Compounds

4.7.29. The potential areas for Collector Compounds were identified following an initial appraisal after the Stage 1 Design. The areas that were considered suitable for the Collector Compounds were areas that could potentially accommodate infrastructure up to 6m.

4.7.30. Following the initial appraisal, the location of the Main Collector Compound was considered suitable within Parcel 3 in Fields E20, E21, E22 and E23. The location of the Satellite Collector Compounds was

considered suitable within Parcel 2 in Fields D8, D9, and D17, and in Parcel 1 to Fields B10 and B23 (South).

Public rights of way

4.7.31. Following feedback from Phase One Consultation and further technical studies, the Applicant proposed a small number of changes to the PRoW network to improve accessibility in the area. These consisted of one new permissive footpath and two diversions of PRoW:

- A new footpath route across Parcel 1 connecting to the realigned PRoW SCL/13/2, before passing east to the south of Shrubs Wood, east across Knowl Hill (Field B17) and then north towards Three Points Lane;
- A diversion to the existing PRoW Footpath (reference 'ECL/4/2') to the north of Parcel 3 to align the PRoW with the field boundaries of Fields E10 and E11, rather than crossing Field E11; and
- Diversions to three existing PRoW Footpaths (references 'SCL/13/1', 'SCL/12/2' and a further diversion to 'SCL/13/2') to rationalise them into a single PRoW Footpath providing access between Pond Farm and Calvert Road.

Green and blue infrastructure

4.7.32. Following feedback from Phase One Consultation, further fields and buffer areas were included as areas for ecological mitigation and enhancement. The reason for their exclusion is set out in **Table 4.3**. The additional fields proposed for green infrastructure consist of Fields C1, C2, C3, D27, and D30-D37, and half of Field B5 and B9.

Stage 3 design

4.7.33. Following the Phase Two (statutory) Consultation held in September - December 2024, the design of the Proposed Development was reviewed and revised in light of the comments received from stakeholders. This process involved undertaking a detailed appraisal of feedback and engagement with statutory consultees, alongside several in-person technical design workshops. The findings of further environmental assessments were also taken into account.

4.7.34. The Stage 3 Design has informed the zonal masterplan for the Proposed Development provided in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured in the **Works Plans [EN010158/APP/2.3]**.

4.7.35. The layout of the Proposed Development has been designed to minimise adverse environmental impacts and maximise enhancements, where possible.

Solar PV development

4.7.36. The extent and layout of the Solar PV development has been refined during the Stage 3 Design. This refinement includes changes that sought to avoid/minimise environmental effects and respond to stakeholder engagement and feedback from Phase Two Consultation. A summary of the reasonable alternatives and changes that were made to the extent of Solar PV development during the Stage 3 Design are further detailed below.

4.7.37. Following feedback received at Phase Two Consultation, further visits to assess the residential visual amenity and discussions with the landowners were undertaken during the Stage 3 Design. This resulted in several locations of Solar PV development being removed as detailed in **Table 4.4**.

Table 4.4: Reasons for changes at Stage 3 related to Solar PV development

Location	Reason for change
Field B5	This field is no longer proposed for Solar PV development to reduce effects to Calvert Cottages.
Field B22 and Field B23 (North) (partial)	The north eastern corner of Field B22 and the north western corner of Field B23 (North) are no longer proposed for Solar PV development to provide an increased offset from the property to the north east.
Field B11 and Field B9 (partial)	Following further Site visits, modelling and engagement with National Trust and Historic England, the south east corner of Field B11 and north east corner of Solar PV development within Field B9, which sits adjacent to Knowl Hill, are no longer proposed for Solar PV development. This will result in reduced views of the development from Claydon House and therefore reduce the level of effect to Claydon Park Grade II Registered Park and Garden and Conservation Area and Claydon House Grade I listed building.
Field edges of Fields D28 and D29	The offset from the Solar PV development and the hedgerow corridor between Runts Wood and Finemere Wood within the northern boundaries of Field D28 and D29 has increased from 20m to 30m following feedback from statutory consultees. This will provide an enhanced biodiversity corridor to connect these woodlands, in particular for bats.

Location	Reason for change
Field edges of Fields B7, B8, B9, B10, and B11	The offset from Solar PV development and the hedgerow corridors between Sheephouse Wood, Shrubs Wood and Decoypond Wood within the boundaries of Fields B7, B8, B9, B10, and B11 have increased from 10m to 15m either side of the hedgerows following discussions with Natural England. This will provide enhanced biodiversity corridor to connect these woodland blocks.
Watercourses	Following ongoing discussions with the Local Lead Flood Authority and the Environment Agency, Solar PV development offsets from ditches have been increased from 6m-9m to 10m.
Trees	A minimum offset to the principal components of the Proposed to tree Root Protection Areas will be applied, as far as reasonably practicable. This will reduce the impact on trees and veteran trees in line with Natural England and Forestry Commission standing advice. These comprised minor adjustments which resulted in some loss of Solar PV development. No veteran trees would be lost as a result of the Proposed Development.

4.7.38. The proposed location of the Solar PV development is presented in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured by the **Works Plans [EN10158/APP/2.3]**.

Battery Energy Storage System siting

4.7.39. The BESS was proposed to be in Field E23 in Parcel 3 and/or Fields D8/D9 in Parcel 2 as part of the Stage 2 Design. In response to feedback received during the Phase Two Consultation, Field E23 has since been removed as an option for the location of the BESS. The BESS is now solely proposed to be located in Fields D8 and D9 in Parcel 2. This change was consulted on during a Targeted Consultation period between 21 May and 16 July 2025.

4.7.40. The siting zone of the BESS within Field D8 and Field D9 has been refined to account for the revised surface water flooding extents issued by the Environment Agency in January 2025. This involved discounting the area of medium and high risk surface water flooding adjacent to the south east of the fields from the proposed location of the BESS.

4.7.41. The proposed location of the BESS is presented in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured by the **Works Plans [EN10158/APP/2.3]**.

Rosefield Substation

4.7.42. At the Stage 2 Design, the siting of the Rosefield Substation was proposed for either Field E11 or Field E23 in Parcel 3. Following feedback from the Phase Two Consultation, the Rosefield Substation is now proposed to be sited in Fields E11 and/or E20 in Parcel 3. This change in design (amongst others) was consulted on during the Targeted Consultation undertaken between 21 May and 16 July 2025.

4.7.43. The removal of Field E23 as a potential siting zone for the Rosefield Substation would reduce the maximum possible length of the Grid Connection Cable Corridor between the Rosefield Substation and National Grid East Claydon Substation. Shorter distances have commercial and energy efficiency advantages and would also minimise environmental effects and temporary disruption associated with construction.

4.7.44. The location of the proposed Rosefield Substation is presented in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and is secured by the **Works Plans [EN10158/APP/2.3]**.

Collector Compounds

4.7.45. Field B10 was removed following stakeholder feedback and to reduce potential impacts to the bat commuting and foraging corridor between Sheephouse Wood and Shrubs Wood. This decision also took into account the topography of this field and potential cultural heritage and landscape and visual effects from Claydon House.

4.7.46. The location of the Satellite Collector Compound within Field B23 was reduced to take account of areas at medium and high risk of surface water flooding and reduce visibility from Claydon House following further engagement with National Trust and Historic England. The location of the transformers has been further modelled resulting in the potential siting area being reduced to the southern extent of the field to consider noise emissions to properties sited to the north.

4.7.47. The number of potential locations of the Main Collector Compound was reduced resulting in the removal of Field E23, as consulted on during the Targeted Consultation period between 21 May and 16 July 2025. Further refinement of the remaining fields under consideration for the Main Collector Compound in Parcel 3 has taken into account the landscape and visual effects and surface water flood risk so as not to encroach into areas of medium or high pluvial and/or fluvial flood risk.

4.7.48. The locations of the proposed Main and Satellite Collector Compounds are presented in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured by the **Works Plans [EN10158/APP/2.3]**.

Interconnecting Cable Corridors

4.7.49. The Interconnecting Cable Corridor between Parcel 1 and 2 has been refined further during the Stage 3 Design based on further environmental survey inputs, Site visits and stakeholder feedback. The potential location to the south of Home Wood was discounted to reduce the proximity to Knowlhill Farm, Home Wood and Romer Wood.

4.7.50. Fields SA10, SA11, SA18-25, SA27-32, and SA34 have therefore been removed from the Interconnecting Cable and Access Corridors and Order Limits as they are no longer required for cabling or access. Removal of these fields was preferable to reduce the environmental impact in the following ways:

- Crossing of Muxwell Brook would not be required, thus reducing any impacts to the watercourse and surrounding habitats.
- There would be fewer field boundaries (hedgerows) that would require crossing. Therefore, the proposed corridor reduces the length of hedgerow requiring removal and thus reducing risk on hedgerows, bat commuting and foraging corridors, bird nesting habitat, and black and brown hairstreak butterfly habitat.

4.7.51. The location of the Interconnecting Cable Corridors is presented in **ES Volume 3, Figure 3.5: Zonal Masterplan [EN010158/APP/6.3]** and secured by the **Works Plans [EN10158/APP/2.3]**.

Construction Compounds

4.7.52. The Construction Compound locations have been refined to be located within the areas of Solar PV development or in close proximity to an access point within the Order Limits to minimise the extent of ground disturbance outside the area of Solar PV development and extent of tracking across the Site. It is proposed that each Parcel has a Primary Construction Compound and a Secondary Construction Compound.

4.7.53. The location of the Construction Compounds is presented in **ES Volume 3, Figure 3.8: Indicative Location of Primary and Secondary Construction Compounds [EN010158/APP/6.3]** and secured by the **Works Plans [EN10158/APP/2.3]**.

Internal Access Corridors

4.7.54. The Internal Access Corridors will normally be located within the Interconnecting Cable Corridors described above.

4.7.55. Fields SA10, SA11, SA18-25, SA27-32, and SA34 have been removed from the Internal Access Corridor and Order Limits as they are no longer required for access, as described above in **Paragraph 4.7.50**.

4.7.56. The corridor between Parcels 1 and 1a, consisting of Fields SA1-8 and part of Field SA9, will provide access into Parcel 1a to undertake biodiversity and landscape mitigation and enhancement. As no Solar PV development is proposed here, cabling is not required within this corridor.

4.7.57. The Internal Access Corridor has been updated to incorporate the existing HS2 track which passes through Romer Wood. This will allow access into Parcel 1a without the requirement to create a new access track and therefore, reduce impact on surrounding habitats. The HS2 track will not require any work to be undertaken.

Access to the Site

4.7.58. At Stage 2 Design, a high-level understanding of the access locations indicated that there would be two main access points: one into the north of Parcel 3 and one off Claydon Road into Parcel 2. Internal access locations to each Parcel had not been developed at that stage.

4.7.59. Following further design and taking into consideration feedback, there are now five proposed access points into the Site, as shown on **ES Volume 3, Figure 3.9: Indicative Construction and Operational Access [EN010158/APP/6.3]**.

4.7.60. The main access to Parcel 1, Parcel 1a and Parcel 2 is via one single point of access located on Claydon Road to provide immediate access into Fields D7 and D8. The access location allows HGVs to access the Site via Snake Lane/Fiddler's Field and the A41 to the south, avoiding the local settlements of Botolph Claydon, Calvert and Steeple Claydon. A single point of access to these Parcels would reduce traffic movements related to the Proposed Development on local roads, minimising local disruption and associated noise and air quality impacts. As a result of this, the preferred location to access the Site is from Claydon Road.

4.7.61. A second access is located on Quainton Road[1] to the north of Parcel 2 between/along Fields D44 and D45. This provides a connection between Parcels 1, 1a and 2 and Parcel 3 via Claydon Road, and Granborough Road.

4.7.62. The third access is from Granborough Road, providing access to Parcel 3 into Field SA46. The fourth and fifth accesses would be provided for in proximity to one another on Three Points Lane to allow for east/west movements between Fields B23 (South) and SA12 to serve Parcels 1 and 1a.

[1] Road names at taken from https://www.findmystreet.co.uk/. Please note that road names on Google Maps may differ.

4.7.63. The location of the Rosefield Substation in Parcel 3 is located in close proximity to the National Grid East Claydon Substation, East Claydon and Granborough Road, which can be accessed via the A413. This ensures abnormal loads that would be required during construction and decommissioning of the Rosefield Substation and Grid Connection cabling would avoid the local settlements of East Claydon and Botolph Claydon, thereby minimising disruption.

4.7.64. The AIL Access Corridor is located to the east of the National Grid East Claydon Substation into Field SA55 and enters Field E10 in Parcel 3 from the other side of Claydon Brook. This corridor has been refined to reduce impact on trees and have minimal vegetation removal required. The AIL access to the Site located to the north of Parcel 3 would only be used for abnormal loads and would not be used for any other movements into Parcel 3 to avoid HGVs accessing the Site from the north, via Winslow.

Green and blue infrastructure

4.7.65. The Proposed Development has been designed to minimise the impacts on the PRoW network where possible by minimising the number and length of PRoW diversions. In addition, the Applicant has sought to deliver improvements to the accessibility and recreation by creating new Permissive Paths and PRoW diversions that increase connectivity in the local area. The proposals have been developed following feedback received during the Phase One and Two Consultations and with input from Buckinghamshire Council PRoW officers.

4.7.66. Following Phase Two Consultation, several changes related to permissive paths and PRoW were considered during Stage 3 of the design as detailed below.

4.7.67. The additional permissive footpaths proposed are:

- A new public route across Parcel 1 which connects the above permissive footpath beginning from the intersection between Fields B17, B20 and B21 which then runs north to the west of B21 and B22 to Calvert Road and onwards to PRoW Footpath (reference ‘MCL/13/1’) (approx. length 702m); and
- A new public route across Parcel 2 which connects the existing PRoW Footpath (reference ‘ECL/8/1’) before tracking west along the north of D3 (South) allowing a shortcut to the Bernwood Jubilee Way from Splash Lane (Three Points Lane Bridleway) (approx. length 448m) creating a new circular route.

4.7.68. The additional PRoWs that are proposed to be diverted are:

- A diversion to the existing PRoW Footpath (reference 'ECL/7/2') to the east of Parel 2 to align the PRoW Footpath with the field boundary of Field D19 (approx. length 274m).
- A diversion to the existing PRoW Footpath (reference 'SCL/13/2') to the south of Parcel 1 (between Shrubs Wood and Decoypond Wood) to align the PRoW Footpath with the field boundary of Field B7 (approx. length 410m).

4.7.69. The additional permissive paths and diverted PRoW are detailed and secured in the **Streets, Rights of Way and Access Plans [EN010158/APP/2.4]** which are submitted in support of the DCO Application.

4.7.70. Offsets from overhead lines were previously shown at Stage 2 Design however, due to the uncertainty about their location, they have been removed. Offsets to overhead lines be taken into account at detailed design and these offsets will add to the green infrastructure opportunities.

4.7.71. The landscape planting and ecological mitigation and enhancement proposals evolved in response to formal feedback from the Phase Two Consultation and further engagement with consultees. The main changes to the landscape and ecological proposals are detailed below:

- Pond creation, recreation of defunct ponds and restoration/enhancement of existing ponds.
- Woodland belts included to the south of Calvert Cottages along the boundaries of Field B4 and B5 to help screen views from the residential properties at Calvert Cottages.
- Further refinement of the proposals within Parcel 1a, including strengthening the planting implemented by HS2 between Romer Wood and Sheephouse Wood, and enhancement of woodland edges for bat habitat.
- Review of the treatment of the eastern edge of Shrubs Wood to retain the 'designed' appearance of the woodland whilst providing habitat enhancements.
- Review of the treatment of the corridor between Finemere Wood and Runt's Wood and around Runt's Wood, including enhancement of woodland edges for bat habitat.
- The offset from Solar PV development and the hedgerow corridors between Sheephouse Wood, Shrubs Wood and Decoypond Wood within the boundaries of Fields B7, B8, B9, B10, and B11 have increased from 10m to 15m either side of the hedgerows.

- The offset from the Solar PV development and the hedgerow corridor between Runts Wood and Finemere Wood within the northern boundaries of Field D28 and D29 has increased from 20m to 30m.
- Enhancement of field boundaries in Parcel 2, through planting of gaps and/or changes to management practices, to provide additional screening.
- Woodland belt included along the northern boundary of Field D3 (South) to help screen views from Botolph Claydon and the local PRoW network.
- Early planting/habitat management is proposed within Parcel 1 (hedgerows between Shrubs Wood and Sheephouse Wood), Parcel 1a, Parcel 2 (along the boundary of Fields D30, D29 and D28 and hedgerows along boundary of Fields D30, D34 and D37) ahead of construction.
- Management of grassland within the Order Limits will be undertaken by a combination of sheep and cattle grazing.
- Where overhead lines are located, beneath and the standard buffer of 15m from them will be applied with this land being used for ecological enhancement.

4.7.72. During the design development stages, and following engagement with statutory consultees, the Applicant identified opportunities to provide landscape and ecological enhancement in areas within the Site proposed for mitigation to provide biodiversity net gain. The extent of proposed planting is outlined and secured.

4.7.73. in the Green and Blue Infrastructure Plan presented in **Outline Landscape and Ecological Management Plan (LEMP), Appendix 1: Green and Blue Infrastructure Parameters [EN010158/APP/7.6]**. The **Biodiversity Net Gain Assessment** is provided in **ES Volume 4, Appendix 7.17 [EN010158/APP/6.4]**.

4.7.74. Green infrastructure, including strategic planting of hedgerows and trees, forms an inherent part of the Proposed Development as embedded mitigation to mitigate environmental impacts, particularly landscape and visual and cultural heritage impacts. Further detail on the proposed planting is detailed and secured in the **Outline LEMP [EN010158/APP/7.6]**. Embedded mitigation measures are detailed in **ES Volume 2, Chapters 6 to 16 [EN010158/APP/6.2]**.

4.8. Conclusion

4.8.1. In accordance with the EIA Regulations, this chapter has set out the reasonable alternatives studied by the Applicant in both the site selection process and in the design iteration process carried out in preparing this

DCO Application. It has set out the main reasons for selecting the chosen option and how the effects of the development on the environment have been taken into account. Further detail on the evolution of the design of the Proposed Development is detailed within the **Design Approach Document [EN010158/APP/5.8]**.

4.9. References

- **Ref. 4-1:** Department for Energy Security and Net Zero (2023). Overarching National Policy Statement for Energy (EN-1). Available online: https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1
- **Ref. 4-2:** Department for Energy Security and Net Zero (2023). National Policy Statement for Renewable Energy Infrastructure (EN-3). Available online: https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3
- **Ref. 4-3:** Department for Energy Security and Net Zero (2023). National Policy Statement for Electricity Networks Infrastructure (EN-5). Available online: https://www.gov.uk/government/publications/national-policy-statement-for-electricity-networks-infrastructure-en-5
- **Ref. 4-4:** UK Government. (2017a). The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online: The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (legislation.gov.uk)
- **Ref. 4-5:** UK Government. (2017b). The Conservation of Habitats and Species Regulations 2017. Available online: https://www.legislation.gov.uk/uksi/2017/1012/contents/made
- **Ref. 4-6:** UK Government. (2017c). The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. Available online: https://www.legislation.gov.uk/uksi/2017/407/contents/made
- **Ref. 4-7:** UK Government. (2022). British Energy Security Strategy. Available online: https://www.gov.uk/government/publications/british-energy-security-strategy/british-energy-security-strategy
- **Ref. 4-8:** Department for Energy Security and Net Zero, and Department for Business, Energy, and Industrial Strategy. (2021). Net Zero Strategy: Build Back Greener. Updated 2022. Available online: https://assets.publishing.service.gov.uk/media/6194dfa4d3bf7f0555071b1b/net-zero-strategy-beis.pdf
- **Ref. 4-9:** Department for Energy Security and Net Zero. (2024). Clean Power 2030 Action Plan: A new era of clean electricity. Available online: https://www.gov.uk/government/publications/clean-power-2030-action-plan

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