



WHITESTONE
solar farm

WHITESTONE SOLAR FARM

Draft Environmental Statement

Volume 1, Chapter 4: Alternatives and Design Evolution

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whitstonesolarfarm.co.uk

DRAFT ENVIRONMENTAL STATEMENT

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Glossary

Term	Meaning
<i>Brinsworth B</i>	The new 400 kilovolt substation proposed on land immediately east of Long Lane, Brinsworth, S60 4JJ.
<i>Cable Corridor Options</i>	Corridors within which the high voltage cables would be constructed.
<i>Draft ES</i>	Draft Environmental Statement which presents the preliminary environmental information relating to the Proposed Development. The Draft ES has been prepared to present information for statutory consultation in accordance with current EIA regulation.
<i>ES</i>	Environmental Statement to be submitted as part of the Application.

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Term	Meaning
<i>National Grid Brinsworth Substation</i>	The existing 275 kilovolt substation at Brinsworth, located on Howarth Lane, Brinsworth, S60 5LW
<i>Non-statutory Consultation</i>	The first round of consultation held from 18 November 2024 to 31 January 2025
<i>Point of Connection</i>	The new National Grid substation at Brinsworth (Brinsworth B) where the Proposed Development would connect to the National Grid.
<i>Proposed Order Limits</i>	Total area comprising the Site and Cable Corridor Options.
<i>Stage 1</i>	First design which was held prior to the Non-statutory consultation
<i>Stage 2</i>	The second design relating to updates made in March 2025 following feedback from the Non-statutory Consultation
<i>Stage 3</i>	The third stage of design which is being presented in this Draft ES to inform the statutory consultation.
<i>The Applicant</i>	Whitestone Net Zero Ltd
<i>The Application</i>	The Application will be submitted to the Secretary of State for Energy Security and Net Zero for a Development Consent Order.
<i>The Proposed Development</i>	The proposed Whitestone Solar Farm.
<i>The Site</i>	The land planned to be used for solar PV array and associated infrastructure, BESS, substations, and landscaping and habitat enhancement. The Site is split into W1, W2, and W3.

Acronyms

Acronym	Meaning
<i>ALC</i>	Agricultural Land Classification
<i>BESS</i>	Battery Energy Storage Systems
<i>BMV</i>	Best and Most Versatile
<i>CNP</i>	Critical National Priority
<i>DESNZ</i>	Department for Energy Security and Net Zero
<i>Draft ES</i>	Draft Environmental Statement
<i>EIA</i>	Environmental Impact Assessment
<i>ES</i>	Environmental Statement
<i>NGR</i>	National Grid Reference
<i>NPS</i>	National Policy Statement
<i>NSIP</i>	Nationally Significant Infrastructure Project
<i>POC</i>	Point of Connection
<i>PRoW</i>	Public Right of Way
<i>PV</i>	Photovoltaic
<i>RMBC</i>	Rotherham Metropolitan Borough Council

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Acronym	Meaning
<i>SAC</i>	Special Area of Conservation
<i>SPA</i>	Special Protection Area
<i>SSSI</i>	Site of Special Scientific Interest
<i>UK</i>	United Kingdom
<i>W1</i>	Whitestone 1
<i>W2</i>	Whitestone 2
<i>W3</i>	Whitestone 3

Units

Units	Meaning
<i>GW</i>	Gigawatts
<i>MW</i>	Megawatts
<i>kV</i>	Kilovolts
<i>km</i>	Kilometres
<i>m</i>	Metres

4 ALTERNATIVES AND DESIGN EVOLUTION

4.1 Introduction

- 4.1.1 This chapter of the Draft Environmental Statement (Draft ES) outlines the alternatives considered in relation to the Proposed Development, and the evolution of the design to date.
- 4.1.2 This chapter is supported by the following Figures in **Volume 2: Figures**:
- **Figure 3.2: Site Referencing;**
 - **Figure 4.1: Constraints for Site Location; and**
 - **Figure 4.2: Alternate Site Options.**
- 4.1.3 This chapter is supported by the following Appendices in **Volume 3: Technical Appendices**:
- **Appendix 2.1: EIA Scoping Report;**
 - **Appendix 4.1: Legislation, Policy, and Guidance;**
 - **Appendix 4.2: Design Evolution; and**
 - **Appendix 5.1 Indicative Operation Masterplan.**
 - **Appendix 5.2: Indicative Construction Masterplan**
- 4.1.4 This chapter will be updated in the Environmental Statement (ES) and will be supported in the Application documents by a Site Selection Report, Statement of Need, and Design Approach Document.

4.2 Legislation, Policy, and Guidance

- 4.2.1 This chapter has been prepared in line with the following legislation, policy, and guidance:
- The EIA Regulations¹;
 - Overarching National Policy Statement (NPS) for Energy (EN-1) 2023 (designated in January 2024)²;
 - NPS for Renewable Energy Infrastructure (EN-3) 2023 (designated in January 2024)³; and

¹ UK Government (2017) *Infrastructure Planning (Environmental Impact Assessment) Regulations 2017*. Available at <https://www.legislation.gov.uk/uksi/2017/572> [Accessed June 2025]

² UK Government (2023) *Overarching National Policy Statement for energy (EN-1)*. Available at <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1> [Accessed June 2025]

³ UK Government (2023) *National Policy Statement for renewable energy infrastructure (EN-3)*. Available at <https://www.gov.uk/government/publications/national-policy-statement-for-renewable-energy-infrastructure-en-3> [Accessed July 2025]

- Planning Inspectorate Advice Note Seven⁴.

4.2.2 Sections of the above documents relating to the presentation of alternative options assessed have been provided in **Volume 3, Appendix 4.1: Legislation, Policy, and Guidance**.

4.2.3 As the Draft ES has been prepared to present information for formal consultation for the Proposed Development, a description of the alternatives considered and evolution of the Proposed Development to date is presented in this chapter. Considering relevant legislation, policy, and guidance, this chapter discusses:

- ‘Do Nothing’ scenario;
- Alternative locations;
- Alternative renewable technologies; and
- Design, size, and scale.

4.3 Need for the Proposed Development

4.3.1 The Climate Change Act 2008 (as amended 2019)⁵ requires “*the net UK carbon account for the year 2050 is at least 100% lower than the 1990 baseline*”. In addition, the United Kingdom (UK) government’s Clean Power 2030 Action Plan⁶ sets clear ambitions for energy generation and storage capacities, including:

- 45-47 gigawatts (GW) of solar power generation; and
- 23-27 GW of battery capacity.

4.3.2 The first design principle of the Proposed Development as listed in section 4.7 of this chapter is to maximise the amount of clean electricity exported to the grid. The Proposed Development would therefore contribute to the UK government targets as set out in the Clean Power 2030 Action Plan to increase the generation of clean, cheap, and secure energy in the UK.

4.3.3 The Department for Energy Security and Net Zero’s (DESNZ) Solar Roadmap⁷ projects ground mounted solar generation capacity to increase to between approximately 15 GW (business as usual) and approximately 29 GW (high end of current policy range) in order to meet generation targets. The UK’s 2030 projected rooftop solar generation of approximately 10 GW would be insufficient on its own to meet solar generation targets. This highlights that all three types of solar development (domestic rooftop, commercial rooftop, and large-scale ground-

⁴ Planning Inspectorate (2020) *Nationally Significant Infrastructure Projects – Advice Note Seven: Environmental Impact Assessment: process, preliminary environmental information and environmental statements*. Available at <https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an/nationally-significant-infrastructure-projects-advice-note-seven-environmental-impact-assessment-process-preliminary-environmental-information-an> [Accessed July 2025]

⁵ UK Government (2019) *Climate Change Act 2008 (as amended 2019)*. Available at <https://www.legislation.gov.uk/ukpga/2008/27/contents> [Accessed August 2025]

⁶ UK Government (2024) *Clean Power 2030 Action Plan: A new era of clean electricity*. Available at <https://www.gov.uk/government/publications/clean-power-2030-action-plan> [Accessed July 2025]

⁷ Department for Energy Security and Net Zero (2025) *Solar Roadmap: United Kingdom Powered by Solar*. Available at <https://www.gov.uk/government/publications/solar-roadmap> [Accessed July 2025]

mounted), along with wind, nuclear and hydrogen, will be required to meet the government's energy targets to decarbonise the power sector by 2030.

4.3.4 NPS EN-1² paragraphs 3.2.6 and 3.2.7 state that:

- *“The Secretary of State should assess all applications for development consent for the types of infrastructure covered by this NPS on the basis that the government has demonstrated that there is a need for those types of infrastructure which is urgent, as described for each of them in this Part.”; and*
- *“In addition, the Secretary of State has determined that substantial weight should be given to this need when considering applications for development consent under the Planning Act 2008.”*

4.3.5 Furthermore, EN-1 paragraph 4.2.4 and 4.2.5 identifies a critical national priority (CNP) for low carbon infrastructure, including *“for electricity generation, all onshore and offshore generation that does not involve fossil fuel combustion (that is, renewable generation...)”*

4.3.6 Paragraph 3.3.63 states *“Subject to any legal requirements, the urgent need for CNP Infrastructure to achieving our energy objectives, together with the national security, economic, commercial, and net zero benefits, will in general outweigh any other residual impacts not capable of being addressed by application of the mitigation hierarchy. Government strongly supports the delivery of CNP Infrastructure and it should be progressed as quickly as possible.”*

4.3.7 A detailed case for the need for the Proposed Development will be presented in the Statement of Need, to be submitted as part of the Application.

4.4 The ‘Do Nothing’ Alternative

4.4.1 The Applicant does not consider the 'Do Nothing' scenario as a reasonable alternative to the Proposed Development as it would not deliver the proposed renewable electricity generation and storage capacity which would undermine the Government's strategy to generate 45-47 GW of solar energy by 2030. The Proposed Development would make a critical and timely contribution to decarbonisation and the security of energy supply in the UK, whilst helping shield consumer bills from volatile energy prices and international supply markets.

4.4.2 In addition, NPS EN-1 paragraph 4.3.27 states that *“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”*

4.4.3 The same rationale has been applied to the alternative of a ‘smaller development’ than the Proposed Development. A smaller development would not maximise the grid agreement, contribute as significantly to national net zero goals for clean and secure energy, or meet the first design principle as outlined in section 4.3. This approach is in accordance with NPS EN-1 paragraph 4.3.23, in which the ‘Do Nothing’ alternative would not realistically deliver the same infrastructure capacity in the same timescale - *“The Secretary of State should be guided in considering alternative proposals by 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.”*

4.4.4 The Statement of Need to be prepared and submitted alongside the ES will present the need for the Proposed Development at the proposed scale.

4.5 Alternative Renewable Technologies

4.5.1 The Applicant has taken into consideration (and continues to consider) alternative technologies within the Proposed Development even though it is a solar developer. Solar energy has been identified as the most suitable technology for the scale of generation required to meet the capacity at Brinsworth B. However, the Applicant is cognisant that a large portion of the Site has been identified by Rotherham Metropolitan Borough Council (RMBC) as being suitable for wind development, and notes that there are wind turbines in the local area.

4.5.2 To generate a comparable amount of renewable energy through wind power that the Proposed Development seeks to generate would require in excess of 150 4.5 MW turbines (approximately 200 m tip height). The associated environmental impacts for a wind development of this scale would likely be greater than anticipated for a solar development.

4.5.3 Given the location of the point of connection (POC) at Brinsworth B (approximately 96 km from the nearest coast), offshore generation technologies such as tidal and offshore wind were not considered.

4.6 Consideration of Alternative Locations

4.6.1 This section describes the process for the consideration of alternative locations for the Proposed Development.

4.6.2 The Applicant secured an agreement with National Grid to export 750 MW of clean renewable energy to the existing National Grid Brinsworth Substation.

4.6.3 One of the site selection factors (see paragraph 4.6.12) for the location of the Proposed Development was to ensure it was located near the POC. This is because an agreed POC is essential for proceeding with a feasible solar development and is instrumental in defining the Study Area. This is because it allows the Proposed Development to export clean renewable energy into the National Grid infrastructure to then be distributed to homes and businesses for electricity.

4.6.4 Using the POC as a site selection factor, in accordance with NPS EN-3 paragraph 2.10.24, the Applicant sought to establish a Study Area for an initial search for suitable land to be included in the Site for the Proposed Development. How the Study Area was selected and the alternative sites considered is discussed in the proceeding paragraphs.

4.6.5 NPS EN-3 paragraph 2.10.24 sets out that the “*connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal.*” Paragraph 2.10.25 goes on to state that “*to maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs, applicants may choose a site based on nearby available grid export capacity.*”

4.6.6 It is noted that following the site selection process, National Grid proposed a new 400 kV substation, Brinsworth B, as part of their ‘Great Grid Upgrade’. Brinsworth B is located 800 m east of the National Grid Brinsworth Substation. National Grid

updated the Applicant's agreement to export 750 MW of renewable energy to Brinsworth B. As such Brinsworth B is the new POC for the Proposed Development (see **Volume 1, Chapter 5: The Proposed Development**). Brinsworth B is due to be completed and operational in time for the connection date of the Proposed Development in 2029.

- 4.6.7 As Brinsworth B is located close to the National Grid Brinsworth Substation, it still meets the POC site selection factor in paragraph 4.6.12 and supports the site selection for the Proposed Development. There have been no changes to the site selection factors or location of the Proposed Development as a result of the POC moving to Brinsworth B. Brinsworth B is closer to the Site than the National Grid Brinsworth Substation and as such reduces the length of the cable for the Proposed Development and is likely to reduce environmental impacts associated with the construction of the cable.

The Study Area

- 4.6.8 A 12 kilometre (km) Study Area from the National Grid Brinsworth Substation was selected as the maximum distance viable for the Proposed Development, acknowledging the construction of the cable route can lead to significant costs that increase with length. In addition, land that is further than 12 km from the POC has the potential to increase environmental impacts due to the increasing cable route length that would be required to connect the Proposed Development into the POC. The Study Area is shown in **Volume 2, Figure 4.2**.
- 4.6.9 The Applicant used the following site selection factors outlined in NPS EN-3 to identify a site within the 12 km Study Area:
- **Network connection** - the site selection focused on the area around National Grid Brinsworth Substation where there was an available connection, with preference given to sites in close proximity to the POC;
 - **Irradiance and site topography** – preference was given to land with a south facing aspect and flatter topography. Irradiance is sufficiently high in Doncaster and Rotherham to support solar development;
 - **Proximity of site to dwellings** – the site selection sought to avoid areas in close proximity to residential dwellings or where it would not be possible to appropriately mitigate visual amenity;
 - **Agricultural land classification and land type** – the site selection process sought to minimise the impact on Best and Most Versatile (BMV) land (land classified as Grade 3a and above);
 - **Accessibility** – the site selection considered the suitability of the access routes to the Proposed Development, during construction, operation and decommissioning;
 - **Public Rights of Way (PRoWs)** - the site selection process sought to avoid and minimise the visual impact from PRoWs; and
 - **Security and lighting** - the site selection considered the security of the site and sought to minimise the landscape and the visual impact of security measures.
- 4.6.10 In addition, the Applicant considered the following environmental designations:

- **Ecological and heritage (built and buried) assets** – the site selection process considered proximity to ecological and heritage assets and sought to avoid or minimise impacts on these assets;
- **Green Belt** –The site selection process considered the proximity to the Green Belt, potential impact and whether special circumstances exist that would justify development in the Green Belt; and
- **Flood risk** – the site selection process considered areas of Flood Zone 2 and Flood Zone 3, and sought to prioritise land within Flood Zone 1.

4.6.11 Given the location of the POC on the eastern edge of the urban areas of Sheffield and Rotherham, areas to the west of the POC were not considered feasible due to both the environmental and technical constraints of the urban areas. As such, the Study Area was refined to areas to the east and south of the POC as shown in **Volume 2, Figure 4.2**.

4.6.12 As shown in **Volume 2, Figure 4.1**, the South and West Yorkshire Green Belt extend to cover land up to 15 km east of the POC. Additionally, Natural England's Provisional Agricultural Land Classification (ALC) data showed a band of BMV land running north to south approximately 8 to 18 km east of the POC. Should the Proposed Development be sited outside of these constraints, it would require a cable length of at least 20 km to connect to the POC from the nearest point of a potential site, plus any additional interconnecting cables required. This cabling distance would result in greater environmental impacts and present considerable technical challenges to avoid residential and environmental constraints, reducing the constructability of the Proposed Development.

4.6.13 Following the agreement of the 12 km Study Area, the Applicant undertook a site selection process between November 2023 and January 2024, during which approximately 31 potential sites were identified for consideration as shown in **Volume 2, Figure 4.2**. Subsequently, the Applicant conducted a refined assessment which considered a range of environmental, planning, and technical factors, including:

- Site size;
- Provisional ALC land classification;
- Green Belt;
- Proximity to Scheduled Monuments, Listed Buildings, Archaeological designations and Registered Parks;
- Proximity to PRow;
- Proximity to Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), RAMSAR sites;
- Proximity to Tree Preservation Orders and Ancient Woodlands;
- Flood Risk;
- Local Nature Reserves, National Nature Reserves and National Landscapes;
- Minerals safeguarding;
- Areas of Great Landscape Value, Green Corridors, Character Sensitivity;
- Cumulative development in close proximity;
- Distance to POC;
- Proximity to residential receptors; and

- Access to site for construction and decommissioning.

4.6.14 Following this assessment, the Applicant engaged with landowners to explore the feasibility of securing the identified sites from this search. However, a significant number of landowners expressed a lack of interest in making their land available, resulting in the exclusion of those sites from further consideration in the site selection process for the Proposed Development. The remaining sites, which were not discounted, underwent a further assessment. The Proposed Order Limits were subsequently defined based on the outcomes of these assessments as described in Section 4.7.

Cable Corridor Options

4.6.15 The Cable Corridor Options have been identified to connect the Proposed Development to the POC. The Cable Corridor Options were developed by identifying the most direct reasonable route to connect, and rerouting to avoid residential areas where possible. The identification of Cable Corridor Options also aimed to minimise impacts on environmental assets including ecological and heritage designations, areas of woodland, and watercourses. Where appropriate, the Cable Corridor Options border natural borders such as field boundaries and roads, to minimise impacts to open fields and reduce impact to landowners.

4.6.16 While the previous points note an approach to avoidance, there has also been a philosophy applied to minimise the length of corridors as far as practicable based on the environmental assessments, as through assessment it has been seen that longer cables typically have more disturbance in this region. An overview of the assessment factors is as follows, and includes:

- Area available (e.g. sufficient space for trenchless crossings, construction compounds, access points, if and as required);
- Total length of route;
- Proximity to Scheduled Monuments, Listed Buildings, Archaeological designations and Registered parks;
- Crossings of Network Rail and National Highways assets;
- Crossings of buried utilities (electricity, high pressure gas, etc);
- Local Nature Reserves, National Nature Reserves;
- Proximity to residential receptors (as far as possible); and
- Access to site for construction and decommissioning.

4.6.17 (Note: points like ALC have not been considered in detail, as it has been expected that the cable works would be temporary, and reinstatement of soil post construction would allow return to original use, for agricultural areas).

4.6.18 The Cable Corridor Options identified following the steps above have been assessed for feasibility to be included as part of the Proposed Development. These options have been refined through the design process as discussed below.

4.7 Design Evolution

4.7.1 The Applicant aims to maximise the amount of clean energy generated to export to the National Grid, whilst designing both a socially and environmentally sensitive development. The Proposed Development has sought to embed good design from

the outset and has therefore been developed in line with preliminary design principles.

- 4.7.2 These design principles were developed in line with guidance published by the National Infrastructure Commission titled 'Design Principles for National Infrastructure'⁸, covering the key themes of climate, people, place, and value; reflecting the broad scope of design. The preliminary design principles will be reviewed and refined in response to consultation and continue to guide the refinement of the Proposed Development as it is developed throughout the pre-application phase. The preliminary design principles are as follows:
1. Maximise the amount of clean energy exported to the National Grid;
 2. Craft a project that is resilient to the impacts of climate change;
 3. Take opportunities to limit the amount of embodied carbon across the Proposed Development;
 4. Engage with stakeholders to develop the design;
 5. Support local ecology and enhance biodiversity, enriching ecosystems where possible;
 6. Find out what is important to people about the local area and seek to incorporate feedback;
 7. Consider how people engage with their local environment and retain these patterns and practices where possible;
 8. Enhance recreational access across the landscape;
 9. Respect landscape character and cultural heritage;
 10. Minimise visual impact;
 11. Contribute to the local economy; and
 12. Support research and development.
- 4.7.3 These preliminary design principles will evolve in time and be informed by feedback from the local community and other stakeholders.
- 4.7.4 The design and layout of the Proposed Development has formed part of an iterative process that has been informed by the ongoing environmental assessments, site selection assessment and taking into consideration the preliminary design principles, non-statutory consultation feedback and engagement with stakeholders and consultees.
- 4.7.5 The design process has been informed by engagement with stakeholders and consultees, which has included a series of internal technical design workshops, meetings with statutory consultees and meetings with the host local authorities and Members of Parliament. The feedback from the engagement undertaken to date (see **Volume 1, Chapter 2: EIA Methodology**) has informed the ongoing design layout.
- 4.7.6 The design of the Proposed Development will continue to evolve in response to the results of environmental and preliminary technical assessments, as well as feedback from the statutory consultation and further stakeholder engagement.

⁸ National Infrastructure Commission (2020) Design Principles for National Infrastructure. Available: <https://majorprojects.org/wp-content/uploads/2024/10/NIC-Design-Principles.pdf> [Accessed September 2025]

- 4.7.7 A Consultation Report will be submitted in the Application, which will provide a summary of consultation feedback, how the Applicant has had regard to the feedback, and if it has resulted in changes to the design. A Design Approach Document will also be prepared and submitted with the Application which will set out the evolution of the Proposed Development's design.
- 4.7.8 The layout and extent of the Proposed Development has been through three stages of design iterations to date. The first stage of design (Stage 1) was held prior to the Non-statutory Consultation and is presented in **Volume 3, Appendix 4.2: Design Evolution**. The second stage of design (Stage 2) relates to the updated design for the March 2025 Project Update and EIA Scoping Report submission and is presented in **Volume 3, Appendix 4.2: Design Evolution**. The third stage of design (Stage 3) relates to the design that has been presented within this Draft ES as part of the statutory consultation.

Stage 1 Design – April - September 2024

- 4.7.9 Following identification of the Proposed Order Limits as outlined in Paragraph 4.6.14 above, the land was subject to an initial assessment to identify within the Proposed Order Limits land suitable for solar PV arrays and associated infrastructure. The assessment focussed on the suitability of land parcels based on environmental, social and economic factors. Minimum offsets to environmental features were agreed by the design team to inform the design process. Potentially sensitive human receptors including residential properties and villages were identified. The design team sought to take a more bespoke approach to these receptors and identified areas surrounding these receptors as potential solar PV arrays to be designed in discussion with residents.

Solar PV array and associated infrastructure

- 4.7.10 Following the initial assessment, which included desktop assessments and site visits, the design team identified areas that were considered unsuitable for accommodating solar PV array and associated infrastructure and were therefore discounted.
- 4.7.11 Areas discounted from potentially accommodating solar PV arrays and associated infrastructure included:
- Land within 25 m of Ancient Woodland;
 - Land within 10 m of existing PRoWs;
 - Land containing existing hedgerows and vegetation; and
 - Land in close proximity to residential properties, including individual residential dwellings, and around settlements such as Brampton-en-le-Morthen, Hardwick, Ulley, Harthill, Woodall and High Moor.
- 4.7.12 The areas that were removed for solar PV arrays were retained within the Proposed Order Limits for potential landscape mitigation and enhancement, as shown in the Stage 1 design in **Volume 3, Appendix 4.2: Design Evolution**.
- 4.7.13 At Stage 1, the location of the Battery Energy Storage Systems (BESS) and on-site substations were still under consideration. At Stage 1 it was acknowledged that the Proposed Development would include BESS and that an on-site substation would be located within each of the three land areas (detailed in paragraph 4.7.14), in addition to a primary substation which would collect electricity from the other three substations.

- 4.7.14 After Stage 1, three distinct areas became apparent within the Site, and were named to allow for clearer discussion of the Site (**Volume 2, Figure 3.2**). These were:
- Whitestone 1 (W1), the northernmost area (centred on National Grid Reference (NGR) SK 503964);
 - Whitestone 2 (W2), the central area (centred on NGR SK 476875); and
 - Whitestone 3 (W3), the southern area (centred on NGR SK 481807).
- 4.7.15 Further information on W1, W2, and W3 is provided in **Volume 1, Chapter 3: The Site and Surrounding Area**.

Grid connection Cable Corridor Options

- 4.7.16 During Stage 1, the design team also carried out an assessment to identify potential underground cabling corridors to connect the land areas to each other and into the National Grid Brinsworth Substation.
- 4.7.17 **Volume 3, Appendix 4.2: Design Evolution** shows the indicative Cable Corridor Options that were under consideration at Stage 1. These routes were at a preliminary design phase and underwent careful planning and assessment as described above.
- 4.7.18 This design was presented in the first consultation (Non-Statutory Consultation) which occurred from 18 November 2024 to 31 January 2025.

Stage 2 Design – January - March 2025

- 4.7.19 In early 2025, the Applicant received an amended agreement to connect to Brinsworth B, rather than the National Grid Brinsworth Substation. Given the proximity of Brinsworth B to the National Grid Brinsworth Substation, the Site (when accounting for the new location of the POC) was still entirely within the 12 km Study Area that was set. On that basis, the Applicant considered that the site selection process and design evolution that was undertaken thus far was still valid.
- 4.7.20 After the first consultation period concluded, the Applicant reviewed and considered all the feedback that had been submitted. The Stage 2 design process involved targeted engagement with statutory consultees and stakeholders, as well as internal design workshops.

Solar PV array and associated infrastructure

- 4.7.21 Following the Stage 2 design process, a number of fields and partial fields have been discounted from the area of solar PV arrays and associated infrastructure. **Table 4.1** provides a summary of the design evolution. This updated design was presented to the community in March 2025 in the March 2025 Project Update.
- 4.7.22 The areas that were discounted for solar PV development have generally been retained within the Proposed Order Limits for potential landscape mitigation and enhancement.

Table 4.1: Stage 2 Design Evolution

Location	Design Evolution
Whitestone 1	
Conisbrough	Withdrew proposed solar by 300 m from southern edge of Conisbrough, reducing visual impact from the southern edge of the settlement and in views experienced when travelling along Sheffield Road.
Individual residential properties	Increased offset in proximity to individual residential properties including: <ul style="list-style-type: none"> • 255 m from Hill Top House • 250 m from Parks Farm Cottages • Removal of proposed panels on land south of Spring Bank Bungalow • Removal of proposed panels on land north of Hill Top Farm.
Firsby	Removal of proposed solar panels on land north, east and west of Firsby with offset ranging between 250 – 500 m in response to existing views and topography.
Wider land	Expansion of offsets from PRowS, maintaining one side open in several instances in response to feedback explaining the importance of the routes for recreation.
	Exclusion of proposed solar panels on land identified as having high potential for archaeological sensitivity.
Whitestone 2	
Treeton	Addition of solar PV array between B6067 and Burnt Wood.
Upper Whiston	Inclusion of 220 m offset across land south of Upper Whiston to minimise impact on setting.
Ulley	Removal of proposed solar panels north of Ulley to minimise impact on the setting and views from the village, and to fragment the Proposed Development across the wider landscape.
	Removal of proposed solar panels south of Ulley on at least one side of the PRow connecting to Aston to retain sense of openness.
Brampton en le Morthen	Incorporation of offset to the south, siting solar beyond landform and vegetation to minimise visual impact.
	Removal of proposed solar panels on land south west of village to preserve sense of arrival to village from the west.
Individual properties	Increase of offsets from residential properties including Meadow View where an offset of 245 m across land to the south was embedded.

Location	Design Evolution
Brampton Common	Removal of proposed solar panels on land at Brampton Common to retain open land between Whitestone and other solar developments to minimise cumulative impact.
Hardwick	Incorporation of offsets on land east of Hardwick to remove visual impact that would be experienced when travelling on local PRowS.
South of Turnshaw Plantation	Removal of proposed solar on land south of Turnshaw Plantation, preserving setting to South Yorkshire Woodland Burial Ground.
Whitestone 3	
High Moor	Increased offset from High Moor, siting solar beyond landform to minimise potential for visual impact from settlement.
Woodall	Increased offset from Woodall, siting solar beyond landform to minimise potential for visual impact.
Woodall and Harthill	Removal of proposed solar on land between Woodall and Harthill, north of Harthill Reservoir, to maintain openness between the two villages and reduce visual impact.

Grid connection cable route options

4.7.23 There were no changes to the grid connection Cable Corridor Options at Stage 2 of the design process.

Stage 3 design - April - August 2025

4.7.24 Since the submission of the EIA Scoping Report in April 2025, further environmental information has been collected through surveys and desk-based studies and will continue to be collected until submission of the Application. In conjunction with ongoing engineering works, this environmental information has informed the design evolution of the Proposed Development. The indicative design is presented in **Volume 3, Appendix 5.1: Indicative Operation Masterplan**. These changes include:

Solar PV array and associated infrastructure

4.7.25 No additional areas are proposed to be occupied by solar PV array and associated infrastructure. The overall extent of the solar PV array has been refined as the environmental surveys, preliminary assessments and land agreements have progressed.

BESS and on-site substations

4.7.26 Potential areas for the BESS have been identified in W2.

4.7.27 Potential areas for the primary substation have been identified in W2.

- 4.7.28 Potential areas for satellite substations have been identified in W1 and W2. Generation models indicated that the power generated in W3 would not be sufficient to require a satellite substation in W3.
- 4.7.29 The location for the BESS, primary substation, and satellite substations are discussed in **Volume 1, Chapter 5: The Proposed Development**.

Grid connection Cable Corridor Options

- 4.7.30 The Cable Corridor Options to the northwest of the M1 (now named CR2a and CR2b) have been added to minimise the likelihood of construction impacts on users of the M1 and M18 interchange. These Cable Corridor Options have been narrowed around Morthen and the southern extent of Wickersley in order to minimise potential construction impacts on residential properties. The Applicant is also having ongoing conversations with the developer for the Thurcroft Interchange Energy Park (RMBC Planning Reference: RB2025/0714) proposed within this area, in order to determine the optimal routing within these Cable Corridor Options. The Cable Corridor Option that did run through the M1/M18 junction has been removed as CR2a and CR2b connect the same areas of W2 and so serve the same purpose.
- 4.7.31 The Cable Corridor Option (now named CR2c) to connect into the National Grid has also been expanded at this stage to include flexibility to connect into Brinsworth B.
- 4.7.32 As discussed in **Volume 1, Chapter 3: The Site and Surrounding Area** and **Volume 1, Chapter 5: The Proposed Development**, the indicative design being presented for statutory consultation includes options for BESS, primary and satellite substations, and Cable Corridor Options. The Applicant is seeking feedback from statutory consultation and information from ongoing surveys and assessments to inform the final location of these elements of the Proposed Development.
- 4.7.33 It is important to note that the design of the Proposed Development will be further refined following statutory consultation. This refined design will inform the assessments to be presented in the ES.



WHITESTONE
solar farm

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