DESIGN AND ACCESS STATEMENT

SOUTHLANDS SOLAR FARM AND BATTERY STORAGE
LAND SOUTH OF RUNWELL ROAD (A132), RUNWELL, WICKFORD
P19-DAS FEBRUARY 2023

CONTENTS:

1. INTRODUCTION

1.1 This Design and Access Statement (DAS) has been prepared to support an application made to Chelmsford City Council (CCC) and Rochford District Council (RDC) seeking Planning Permission for the proposed installation of a solar farm and battery storage facility with associated infrastructure ("the Proposed Development") on land south of Runwell Road (A132), Runwell, Wickford ("the Site").

1.2 This DAS first provides an overview of the Site (Section 2), before detailing the Proposed Development (Section 3) and outlining the design principles which have informed the proposals (Section 4). Matters of use (Section 5), layout (Section 6), amount and scale (Section 7), appearance (Section 8) and landscaping (Section 9) are then summarised to provide information on how these matters have been considered in the preparation of the application. Considerations given to designing out crime (Section 10) are also explained. The DAS continues to detail the proposed means of access (Section 11) before an overview of the construction, operation and decommissioning stages are outlined (Section 12, 13 and 14). The purpose of this document is to demonstrate how matters of design and access have been considered and how they have informed the development of application submitted.

1.3 This document has been prepared in line with Article 9 of the Town and Country Planning (Development Management Procedure) (England) Order 2015, which sets out the required contents of a DAS. This DAS is prepared pursuant to Part 9(1)(a) as a 'major' development.

1.4 The Planning Practice Guidance (PPG) sets out that a DAS should be a "*concise report*" and that "*level of detail in a Design and Access Statement should be proportionate to the complexity of the application*" ('Making an application' Paragraph: 029 Reference ID: 14-029-20140306).

1.5 This DAS should be read alongside the plans and documents forming the application.

2. THE SITE

2.1 The Southlands Solar Farm is located on land south of Runwell Road (A132), Runwell, Wickford.

2.2 The solar farm site comprises land, totalling approximately 64.9 ha and will be connected via an underground cable route to the Point of Connection at Rayleigh Substation where the renewable energy generated will be exported to the electricity grid.

2.3 The Site and surrounding area is a mix or rural character elements with localised man-made influences and features. These include the 132kV overhead transmission lines and pylons that cross the Site; the A130 and associated interchange with the A132; the railway line to the south-east of the Site; Wickford Sewage Works; agricultural buildings with access tracks; and residential dwellings.

2.4 The field network within the Site is characterised by irregularly shaped fields with well-established hedgerows and significant amounts of tree planting within and surrounding the Site.

2.5 The Site is in the Green Belt. The Site is located approximately 200m to the north-east of Wickford. Battlesbridge is located approximately 500m to the east of the Site. The larger settlements of Basildon and Southend-on-Sea are located to the south of the Site. The Rayleigh Substation is located approximately 3 km to the south. A Site Location Plan accompanies the application and shows the site it the surrounding context.

2.6 The Site is currently accessed via the Runwell Road (A132). A Public Right of Way (footpath 231-8) intersects the Site in an east-west orientation.

2.7 The Site is not covered by any statutory or non-statutory designations or assets that relate to biodiversity, landscape and cultural heritage.

2.8 The Site is within the administrative area of Chelmsford City Council and Rochford District Council and the Parishes of Runwell PC and Rettendon PC.

3. PROPOSED DEVELOPMENT

3.1 The proposal is for the construction, operation, maintenance and decommissioning of a ground mounted solar farm which will generate electricity for distribution to the national grid. Provision is also made for a battery storage facility which would be utilised to reinforce the power generation of the solar farm. All associated plant and equipment, together with associated development (such as CCTV and fencing) is included within the proposals. The proposal would operate for a temporary time period of up to 40 years.

3.2 The description of development for the application is:

> "*The proposed installation of a solar farm and battery storage facility with associated infrastructure*"

3.3 The main components of the proposal comprise:

- Solar photovoltaic panels, ground mounted to a piled frame made of galvanized steel or aluminium. The posts would be pile-driven (like a fence post) into the ground to a suitable depth based on site ground conditions to secure the framework without the need for concrete foundations. The framework is designed to hold panels secure in high winds and will be designed according to the relevant codes and standards. The solar panels are of a 'single axis tracker' design. This means that the arrays are arranged in long linear rows north-south and small motors at the end of each row slowly rotate the arrays through each day, facing east in the morning as the sun rises and west in the evening as the sun sets. This maximises the renewable energy generated and significantly increases the efficiency of the solar arrays. The panel framework at its highest point (when tilted at 60^{o}) is up to 3 m above existing ground levels. No concrete foundations are required to hold the supporting framework to the panels in place having been driven into the ground;

- Inverter, transformer and switchgear stations are distributed evenly across the solar arrays housed within green metal containers. The containers measure 12.2 m (L) x 2.4 m (W) x 2.9 m (H). The inverter, transformer and switchgear stations are essential pieces of infrastructure required to convert the electricity generated by the solar array from direct current (DC) to alternating current (AC), increasing the electricity voltage thereby minimising losses and ensure the on-site electrical system operates safely. Combiner boxes are placed at the end of solar array rows;

- The battery storage facility comprises a series of linked batteries housed in shipping containers (or similar structures in appearance). Adjacent to the batteries, also enclosed within containers, are inverters, transformers, cooling systems and other electrical plant and equipment required. These will typically also be housed within (or externally on) containers. The containers measure 12.2 m (L) x 2.4 m (W) x 2.9 m (H) and are placed within a compound. The compound forms crushed aggregate to the same specification of the access roads and substation compound. Safety systems, including automatic shut off and temperature monitoring of battery units are built into the battery storage facility which are designed to the same electrical safety standards as the solar farm and other high voltage electrical equipment;

- A 2.4 m high metal weld mesh security-fenced encloses the battery compound and its associated plant;

- Adjacent to the battery storage facility are a series of buildings and electrical infrastructure, forming the substation, control room, auxiliary transformer and storage containers, within a fenced crushed aggregate compound. The buildings and electrical infrastructure comprise the plant and equipment necessary to export the electricity generated (or stored) onsite to the electricity network. The substation building measures 11.7 m (L) x 4 m (W) x 3.9 m (H). The control room measures 6 m (L) x 3 m (W) x 3 m (H) and has a single 5.7 m high weather station and communications satellite dish. The storage containers measure 12.2 m (L) x 2.4 m (W) x 2.9 m (H). The auxiliary transformer is enclosed in 2.2 m high fencing, has a footprint of 4.1 m (L) x 4.1 m (W);

- Underground cabling to connect the panels, inverters/transformer stations and battery storage facility to the proposed on-site substation and control room;

- Underground cabling to link the proposed substation to the existing Rayleigh National Grid Substation form part of the application;

- Security deer type fencing with gates at necessary locations, up to 2.1 m in height, enclose the perimeter of the solar farm;

- Security and monitoring CCTV/infra-red cameras mounted on posts up to 3 m high along the internal perimeter of the Site;

- Weather station poles, up to 3 m in height, are located around the site perimeter, typically including at least one in each parcel of land;

- Site access from the public highway off Runwell Road (A132), together with the required access improvement works and visibility splays, are included within the site and proposals;

- Compacted internal crushed aggregate tracks to allow vehicular access between fields are to be laid having a width between 3.5 m and 6 m. These connect the associated plant and equipment onsite; and

- Landscape planting, biodiversity enhancements and surface water attenuation measures are included in the scheme having been designed as part of the evolving proposals.

3.4 Individual elevations and component parts of the proposals described above are shown on the supporting drawings to the application.

3.5 While the Site extends to 64.9 ha only a small portion of this land will be "developed" by the proposals. Grassland habitats will be established and/or remain and improved underneath and between the solar panel rows. The establishment and careful management of the land between and around the solar arrays will lead to significant biodiversity and ecology improvements.

3.6 The relevant planning policies for design matters are addressed within the accompanying Planning Statement to the application.

4. DESIGN PRINCIPLES

4.1 The overarching design principles of the development is to maximise the generation of renewable energy within the site and thereby tackle climate change, improve energy security while also providing farm diversification for the landowners and ensure ecological improvements for the next 40 years (during the operational life of the Proposed Development).

4.2 While several factors have influenced the design, the development is of functional appearance. The proposals have been refined because of the advice received from the consultant team and site surveys undertaken, alongside comments made in the pre-application consultation discussions with residents and use of best available technology. The scheme design is also influenced by the site selection process.

Site Selection

4.3 There are several considerations which apply to the site selection process Enso follow for all sites, including Southlands Solar Farm.

4.4 The first step, and requirement, is for the identification of suitable and a secured grid connection point which has spare capacity to enable a connection to be made and allow the export of renewable energy generated. As short a cable route as possible is required to allow the Proposed Development to be economically viable as well as to minimise energy losses in the cabling which will be wasted ('transmission losses') for sites located further away from the grid connection point.

4.5 Enso propose to connect to the transmission rather than distribution network. As such potential sites are required to be proximate to National Grid substations with spare connection capacity.

4.6 In 2020 the Applicant engaged with National Grid to identify substations within England and Wales which had spare capacity. Rayleigh Substation was one of those identified and the Applicant signed a Bilateral Connection Agreement and Construction Agreement with National Grid allowing connection for a future intended solar and battery project to the point of connection at Rayleigh Substation. This secures the capacity available on the grid at the substation for a fixed period of years.

4.7 On securing the connection at the National Grid substation, a 5km radius is mapped from the Point of Connection. Within this search area the Applicant considers environmental and planning constraints, such as landscape designations, sensitive

habitats, archaeological and heritage issues. They also consider geographical and topographical considerations such as slope and aspect, access etc.

4.8 Once potentially suitable locations have been identified the Applicant engages with the landowners in the area, to ascertain their interest in being involved with a potential solar scheme. These conversations involve landowners having the ability and desire to lease their land and having sufficient area of land to host a viable development either on its own or in combination with other nearby landowners. If this exercise is successful, the Applicant will progress with preparing the planning application.

4.9 Where necessary the 5 km radius is increased on a site-by-site basis with careful consideration given to ensure the cabling costs associated with the grid connection remains viable over an increased distance.

4.10 Once grid capacity is secured, a site identified and agreement with landowner(s) reached within a viable distance of a National Grid substation all achieved, an application is begun to be prepared. As an application is progressed the site identified will be further refined to take account of studies and surveys undertaken to form the 'developable site' which forms the red line extent of this application.

Constraints

4.11 The site selection process, described above, has meant the Proposed Development is located outside of statutory environmental designations which would form a constraint to the scheme and the land available has been refined to the most suitable site developable upon consideration of the expert advice received in the development of the scheme. Not all of the land available, or offered to the Applicant, is taken forward to form an application. A site refinement process is undertaken.

4.12 Careful consideration has been given to the site surrounding context and, where suitable, mitigation developed or land initially considered removed to address constraints to the Proposed Development in this location. Such constraints generally include:

- Green Belt;
- Public Rights of Way through the site or on land nearby;
- Buried or above ground services and utilities within the site;

- Field boundaries with very limited vegetation
- High number of drainage ditches or ponds within the site;
- Unsuitable points of access by HGVs or other vehicles;
- Unstable ground conditions;
- Offsets to ecology species (where present, including badgers, bird nest and bat roost) and features (such as trees with suitable nesting features and ponds). Such considerations are set out in the accompanying ecology reports and surveys; and
- Significant changes in topography within the site.

Opportunities

4.13 Aside from the generation of renewable energy and contributions towards the achievement of net zero, the Proposed Development provides opportunities for:

- Improvement of field boundaries;
- Increases in the ecological value of the site;
- Management of the site to provide considerable 'net gains' to biodiversity;
- Allowing the intensively managed agricultural land to 'rest', thereby improving soil quality;
- Continued use of the land for sheep grazing and other, non-crop, agriculture activities;
- Other community benefits and the payment of business rates; and
- Increased awareness of climate change and the energy system within the wider public.

Increased awareness

4.14 This scheme, in raising the profile of renewable energy in the local community, may encourage greater take up of solar power on domestic properties as the benefits are seen and understood.

4.15 In addition, it is considered that increased education and exposure to renewable energy generation would improve understanding of climate change issues. To

significantly increase the supply of renewable energy required to achieve the legally binding 'net zero' target on climate change and achieve the necessary reductions in CO_2 emissions, there will need to be greater understanding of how projects such as this can serve local communities without causing unacceptable harm. It is considered where the development is seen within the wider surroundings, it will increasingly be seen as a feature that people will recognise for its positive contribution towards mitigating climate change.

5. USE

5.1 The current use of the site is agricultural.

5.2 The site is proposed to be used for the generation and storage of renewable energy for a 40-year period. The solar panels together with the associated plant and equipment necessary for the Proposed Development to function for this use is set out within this report.

5.3 The use is proposed for a time limited period. Upon cessation of the generation of renewable energy, or the end of the 40-year operational life, the Proposed Development will be removed and the land will revert to an agricultural use.

5.4 The scheme has been designed to accommodate a continued agricultural use, specifically sheep grazing, during the operational period thereby retaining an agricultural function while generating significant amounts of renewable energy.

5.5 This Design and Access Statement, and the accompanying documents forming the application, set out the relevant considerations for why this site well suited to accommodate the proposed use.

6. LAYOUT

6.1 The proposed layout of the scheme is fully detailed on the accompanying drawings to this application. The site layout proposed has been refined since the site was initially identified to maximise the renewable energy generated while responding to site specific considerations which have been identified as the application has been progressed.

6.2 The identification of such constraints, and opportunities to improve the site, have been identified from several sources. These include assessments made by the Applicant, and their consultant team (both as part of desk and site studies and survey), comments received by the Applicant as part of the public consultation and in other feedback received from informal discussions with statutory consultees and the landowner.

Design Evolution

6.3 A concept layout was prepared in July 2022 and formed part of the community consultation leaflets delivered as part of the public consultation undertaken.

Figure 1: Concept Site Proposals

6.4 Details of how the design have been amended to respond to the consultation are further set out within the Statement of Community Involvement which accompanies the application.

6.5 As shown on the accompanying plans, the scheme proposes tracker arrays within enclosed deer fencing around the site. The arrays follow the existing ground levels north-south. Combiner boxes are located at the end of row.

6.6 The battery storage facility forming part of the proposal is located adjacent to the fenced substation compound and is detailed on the accompanying plans. This location, at the north-eastern corner of the Site was selected as it is in Flood Zone 1 and away from residential properties at Runwell, in a location of higher background noise due to the A130 / A132, with a suitable existing farm access point.

7. AMOUNT AND SCALE

7.1 The solar farm site (excluding cable route to Rayleigh Substation) is approximately 59 hectares. Land between and beneath the panels would be used for biodiversity enhancements and sheep grazing.

7.2 Although the development requires a relatively large area of land, in terms of physical intrusion the development would only impact a small proportion of the site. The arrays are spaced so to avoid overshadowing. There is limited direct ground disturbance required to support the solar panels above-ground framework. The overall extent of ground disturbance onsite would be limited to areas excavated for the underground cabling, internal access tracks, inverter/transformer stations, fencing posts and substation and battery storage facility.

7.3 All of the Proposed Development is easily reversible at the end of the operational life.

7.4 The scale of development on site has been determined by the equipment necessary to efficiently generate renewable energy and form a viable scheme to connect with the National Grid. The associated plant and equipment, including the inverter/transformers units and battery storage facility, have been designed to be as small as possible while being capable of undertaking their required functions safely within the site.

8. APPEARANCE

8.1 The development is of functional appearance. The proposed solar panels and all associated plant and equipment are shown on the accompanying drawings to the application.

8.2 The appearance of the Proposed Development is fully assessed within the Landscape and Visual Impact Assessment (LVIA) which accompanies the application. This report concludes that from a landscape and visual perspective, any notable effects on landscape character or visual receptors as a result of the proposed development would be confined to surrounding local areas with visual effects reduced by the retention of the existing vegetation, the proposed mitigation and the context of surrounding developments. Overall, and despite the extent of the proposed development, the total extent of the landscape and visual effects would be localised and limited in nature.

8.3 The effects would be reversible with the removal of the Proposed Development at the end of the 40-year period for which planning permission is sought.

9. LANDSCAPING

9.1 A scheme of landscaping has been developed which is prepared to deliver biodiversity improvements and screen the Proposed Development from localised views. A Detailed Landscape Design accompanies the application, which includes:

- retention, protection and enhancement of the existing network of trees and hedgerows along field boundaries, including aligning Runwell Road, the A130 and the railway line;
- provision of new native infill planting where gaps are present in the existing field boundary hedgerows, to define site boundaries and provide additional visual enclosure;
- provision of new native hedgerow with tree planting adjacent to the Public Right of Way through the Site;
- provision of new native tree planting adjacent to existing field boundaries to improve visual enclosure;
- provision of native woodland to screen views towards the proposed substation and battery storage areas from nearby roads;
- all existing and proposed native hedgerows managed to a height of 3m or over to enhance visual enclosure;
- enhancement of site boundary margins and areas underneath solar panels, through proposed species rich grassland in line with ecological requirements; and
- ongoing landscape management of planting during the life of the solar farm.

9.2 The landscape mitigation proposals include measures that aim to avoid, reduce, or remedy significant adverse impacts on the landscape by ensuring that the scheme has a good fit within the landscape setting. It also includes measures that would reduce the visual prominence of the solar arrays in local views by enhancing the condition of field boundaries on the perimeter of the Site.

9.3 The Detailed Landscape Design has set out how the land would be managed throughout the operational phase of the development. It is demonstrated that the site would be managed in such a way as to deliver significant biodiversity net gains and landscape improvements.

10. CRIME

10.1 Rural crime, and concerns of increased crime, because of solar farm developments are common concerns raised during public consultation. In the past decade, in which large scale ground mounted solar farms have been common in the UK, while such developments have been targeted by criminal gangs and opportunistic thieves (typically during construction) solar farms are generally not considered to cause increase in crime rates in a locality.

10.2 The perimeter of the site will be fenced deer fence and will be a minimum of 2 m high (2.1 m including posts), with any entrance secured by gates of similar strength and construction secured with padlocks meeting BS EN 12320 (Grades 56). The perimeter of the battery storage facility will be a 2.4 m high welded steel wire mesh (SR2) coloured green.

10.3 The site will be secured with a full CCTV and intrusion system manned 24 hours a day by personnel contractually committed to act promptly on the site in case of an alarm.

10.4 During construction valuable plant and materials will be stored in a secured construction compound with a security team undertaking regular daily inspections. Other measures, as appropriate, will be employed to reduce the risk of crime and deter criminal activity from occurring during this period.

11. ACCESS

11.1 The site is to be accessed from Runwell Road (A132). Site access arrangements are fully detailed within the Construction Traffic Management Plan (CTMP).

11.2 It is considered the access proposed is suitable and would provide for a safe means of access to the site. Temporary signage will be placed in the locality of the site and the construction route to indicate that heavy construction vehicles are turning and using the route.

11.3 Once vehicles are within the site there is sufficient space, including during construction within a construction compound to be created, that will enable vehicles to exit site in forward gear. The accompanying details set out how the access is to be achieved. The compound will provide all necessary parking for visitors to the site and provide space for the secure storage of materials, plant and welfare facilities during the construction period.

11.4 Access tracks within the site are proposed to be between 3.5 m to 6 m in width enabling movements within the site to access the inverter/transformer station, substation compound and battery compound locations.

11.5 Once operational the same access would be used for maintenance purposes.

11.6 PRoWs within the site will remain open and available at all times during construction, operation and decommissioning. Where necessary during construction banksmen will be employed to ensure users of the PRoW network can continue to use the definitive route without being impeded by the ongoing works. There will be no impact on offsite PRoWs.

12. CONSTRUCTION

12.1 The construction of the proposal would take place over approximately 6 months, with construction vehicles accessing the site via Runwell Road (A132).

12.2 A CTMP has been prepared and is submitted with the planning application. The aim of the CTMP is to reduce the effect of the construction phase on the highway network. It contains all of the required information for the construction phase, as well as suggested mitigation measures which can be controlled by a suitably worded planning Condition.

12.3 It is set out that that there will be an average of approximately nine HGVs per day accessing the Site over the construction period. The level of traffic expected during the time limited construction period is not of a nature which would have an adverse or material effect on the safety or operation of the local highway network.

13. OPERATION

13.1 Once operational there would be limited vehicle visits each month comprising a transit style van, accessing the Site via the existing access from Runwell Road (A132). Such visit would undertake ground maintenance in accordance with the Detailed Landscape Design maintenance schedule, ensure the solar farm and battery storage facility continues to operate efficiently and (when required) undertake repairs as required.

13.2 During the operational phase, as detailed within the Planning Statement, the solar farm would generate renewable energy for the equivalent of more than 6,098 average homes in England a year and compared to other forms of energy generation by non-renewable sources save 5,130 tonnes of CO_2 per annum, the equivalent of 1,680 cars on the road every year. The proposal would make a valuable contribution to achieving energy targets, offsetting greenhouse gas emissions and help tackle climate change.

14. DECOMMISSIONING

14.1 After a 40-year period the proposal would be decommissioned with all electricity generating equipment and built structures associated with the development removed from the Site and the land returned to agricultural use.

14.2 It is considered a suitably worded Condition can ensure the removal of the Proposed Development within a fixed period of the end of the operational lifetime.

14.3 Suitably worded planning Conditions are commonly attached to such development to ensure decommissioning takes place in accordance with a scheme of decommissioning agreed with the Local Planning Authority, typically, just before the commencement of decommissioning activities. The proposed means of construction and limited nature of the intrusion required mean the development can be easily removed and land returned to an agricultural use.

15. CONCLUSION

15.1 This Design and Access Statement has been prepared to support an application made to Chelmsford City Council and Rochford District Council seeking Planning Permission for Southlands Solar Farm. This DAS should be read alongside the plans and documents forming the application and has taken a proportionate approach having considered the relatively uncomplex nature of the application in line with the requirements of the Planning Practice Guidance.

15.2 This DAS has provided an overview of the Site and the Proposed Development, outlined the design principles on matters of use, layout, amount, scale, appearance, landscaping, crime and access, that have informed the developed proposals. It has also provided a summary of the site selection process and the construction, operation and decommissioning stages. The design and access issues associated with the Proposed Development have been assessed in the context of the scheme as submitted.

15.3 While the appearance of the solar panels and the associated plant and equipment are dictated by their functional requirement the infrastructure is the minimum required for the operation of the solar farm and battery storage facility at the site. Measures to retain the agricultural use of the land in sheep grazing, significantly increase biodiversity and improve boundary vegetation are proposed as part of the scheme. The document has demonstrated how matters of design and access have been considered and how they have informed the refinement of application submitted.

15.4 It is concluded the proposal is appropriate in terms of design and access matters and therefore such matters should not be a reason for refusal.

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