

Rosefield Solar Farm

Preliminary Environmental Information Report

Volume 1
Chapter 13: Population

September 2024



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13. Population

13.1. Introduction

13.1.1. This chapter presents a preliminary assessment of the likely significant effects arising from the construction, operation (including maintenance) and decommissioning of Rosefield Solar Farm upon population and should be read in conjunction with the following figures in **Volume 2**:

- **Figure 3.3a: Indicative Green Infrastructure Parameters Key Plan;** and
- **Figure 13.1: Study Area for Population**

13.1.2. There is no standard definition of what ‘population’ is; however, in this chapter the term population relates primarily to socio-economic effects on the local population as a result of Rosefield Solar Farm.

13.2. Stakeholder engagement

13.2.1. The views of stakeholders have been taken into account through formal responses to the EIA Scoping report via the EIA Scoping Opinion and non-statutory consultation. No specific consultation has been undertaken to inform this preliminary assessment. However, engagement with Buckinghamshire Council, related to the population assessment, will be undertaken in order to inform the ES.

13.3. Legislative framework, planning policy and guidance

13.3.1. This preliminary assessment has been undertaken with regard to the following legislation, planning policy and guidance.

Legislation

13.3.2. There is no legislation of relevance to the population assessment.

National planning policy

- Overarching National Policy Statement for Energy (NPS EN-1) (2023)¹ – Section 3.3 is of relevance for a population assessment as it outlines the need to secure sufficient energy that meets the demands of the population and the targets of businesses and consumers alike. Section 4.4 is also of relevance as, whilst the Section is specific to health, the

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>

considerations are also appropriate for population. Section 5.13 details the planning policy for assessing socio-economic impacts;

- National Policy Statement for Renewable Energy Infrastructure (NPS EN-3) (2023)² – Section 2.10 gives specific consideration to solar development including recognition of how solar sites are likely to be large and typically of a rural nature and may therefore suffer from suitability of access issues which can impact on population;
- National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) (2023)³ – Section 1.1 details that new network infrastructure should balance community impacts, for example, against decarbonisation targets; and
- National Planning Policy Framework (NPPF) (2023)⁴ includes an overarching presumption in favour of sustainable development. This is achieved through the delivery of interdependent social, economic and environmental objectives.

Local planning policy

- Vale of Aylesbury Local Plan (VALP) 2013 – 2033 Adopted Plan (2021)⁵, specifically Policies S1 ‘Sustainable development for Aylesbury Vale’, T1 ‘Delivering the sustainable transport vision’, C3 ‘Renewable Energy’, C4 ‘Protection of public rights of way’, T7 ‘Footpaths and cycle routes’, ‘BE3 ‘Protection of the amenity of residents’ and I1 ‘Green Infrastructure’.

Guidance

- 13.3.3. There is no statutory guidance for the assessment of likely significant effects relating to population. However, in order to make this preliminary assessment as robust as possible, Design Manual for Roads and Bridges

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>

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>

⁴ Ministry of Housing, Communities and Local Government and Department for Levelling Up, Housing and Communities. (2023). ‘National Planning Policy Framework’. Available online: <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

⁵ Vale of Aylesbury Local Plan (VALP) 2013 – 2033 Adopted Plan (2021). Available online: https://buckinghamshire-gov.uk.s3.amazonaws.com/documents/Aylesbury_local_plan_L46JWaT.pdf

(DMRB) LA 112 population and human health⁶ (hereafter referred to as 'DMRB LA 112') has been used.

- 13.3.4. Whilst DMRB relates to schemes promoted by National Highways, the assessment methodology within DMRB LA 112 provides a recognised method of assessing the likely significance of effects anticipated in relation to population in the absence of any other industry recognised guidance.
- 13.3.5. In addition, Succeeding as a Place: Achieving our Shared Vision for Buckinghamshire to 2050⁷ (version produced for the Buckinghamshire Growth Board) has been taken into account. It collectively prioritises improving the economic, environmental and social well-being of the local population, fostering sustainable growth, strategic planning and regional identity development, thereby aiming to enhance overall socio-economic conditions for the local population.

13.4. Study area

- 13.4.1. In accordance with DMRB LA 112, the Study area includes land within the Site boundary plus all receptors within 500 m of the Site boundary in all directions. The Study area for population is shown in **Figure 13.1** in **Volume 2**.

13.5. Establishing baseline conditions

- 13.5.1. A desk-based review of the Study area has been undertaken and captures all potential receptors. Receptors can be any existing dwellings, buildings, agricultural holdings/operations, community assets or users of public rights of way (PRoW).
- 13.5.2. A desktop review has been undertaken to inform this preliminary assessment in order to identify any planning applications that are currently being determined or have been recently consented within the Study area that would introduce employment opportunities, community assets or dwellings to the Study area (i.e., new developments that would introduce new receptors).
- 13.5.3. The following data sources have been used to understand the existing population conditions:

⁶ Design Manual for Roads and Bridges. (2019). LA 112 Population and Human Health. Available online: <https://www.standardsforhighways.co.uk/tses/attachments/1e13d6ac-755e-4d60-9735-f976bf64580a?inline=true>

⁷ Buckinghamshire Council. (2021). 'Succeeding as a Place: Achieving our Shared Vision for Buckinghamshire to 2050'. Available online: https://buckinghamshire-gov-uk.s3.amazonaws.com/documents/Bucks_Strategic_Vision_-_accessible.pdf

- Buckinghamshire Council – Public Rights of Way Map⁸;
- Buckinghamshire Council – Aylesbury Vale Area Planning Application Search⁹;
- Buckinghamshire Council – Community Right to Bid: assets of community value¹⁰; and
- Freely available digital maps – Google Maps.

13.6. Environmental baseline

Private property and housing

- 13.6.1. The village of Calvert is located immediately adjacent to the western most boundary of the Site. The hamlet of Botolph Claydon is located approximately 170 m north of Parcel 2.
- 13.6.2. There are also a number of interspersed properties around the edges of the Site boundary, but not located within named settlements.
- 13.6.3. Therefore, within the Study area, there are a number of private properties of which most are assumed to be residential dwellings.

Community land and assets

- 13.6.4. DMRB LA 112 defines community land as ‘common land, village greens, open green space, allotments, sports pitches etc.’ and community assets as ‘e.g. village halls, healthcare facilities, education facilities, religious facilities etc’. St Mary’s Church is located 450 m west of Parcel 3, in the village of East Claydon, and could be considered a community asset.
- 13.6.5. No other community land or assets are present within the Study area.

Agricultural land holdings

- 13.6.6. There are currently fifteen agricultural operations within the Study area, with seven being within the Site boundary and eight being outside of the Site boundary.

⁸ Buckinghamshire Council. (2024). Public Rights of Way Map. Available online: <https://prow.buckscc.gov.uk/standardmap.aspx>

⁹ Buckinghamshire Council. (2024). Aylesbury Vale Area planning portal. Available online: <https://publicaccess.aylesburyvaledc.gov.uk/online-applications/search.do?action=simple&searchType=Application>

¹⁰ Buckinghamshire Council. (2024). Community Right to Bid: assets of community value. Available online: <https://www.buckinghamshire.gov.uk/community-and-safety/community-right-to-bid-assets-of-community-value/>

- 13.6.7. The eight farming operations outside of the Site boundary are not expected to have any land included in Rosefield Solar Farm, nor are they expected to experience any changes to their ongoing operations during any phase of Rosefield Solar Farm.

Development land and business

- 13.6.8. There are 17 businesses present within the Study area aside from agricultural land holdings. A brief summary of the nature of these businesses and their location in relation to the Site boundary is presented below:

- Hogshaw Farm & Wildlife Park is located approximately 250 m east of the Site boundary. The farm is open to the public throughout the day from 10am till 5:30pm (excluding Mondays and Tuesdays) and is used for children's birthday parties and after school activities as well as housing an onsite cafe;
- Bunsoy Services Ltd. is located approximately 325 m from the Site boundary. The business is a parcel delivery service warehouse that operates between 9am and 5pm, Monday to Friday;
- TCS Biosciences has offices located approximately 430 m north of the Site boundary in the village of Botolph Claydon. The offices are open generally from 8.30am to 5pm Monday to Friday. TCS Biosciences manufactures and distributes laboratory reagents, test kits and quality control reagents;
- Claydon Clocks is located approximately 455 m west of the Site boundary, in the village of East Claydon. The business provides clock repair services and operates between 9am and 5pm, Monday to Friday;
- Mutts and Mogs is a pet store located approximately 490 m east of the Site boundary and operates from 8am to 5pm, Monday to Friday;
- The Mushroom Village Bar is located approximately 490 m north of the Site boundary in the village of Botolph Claydon. The bar is located in the old village hall and is also used as an events space. It is open on Thursdays and Saturdays 8pm till 11pm and Fridays 6pm till 11pm;
- Star Massage Ltd. is located approximately 500 m west of the Site boundary in the village of Calvert. The business offers massage services and operates throughout the day from 9am till 5pm;
- The Claydon Estate is a National Trust property and visitor attraction located north of the Site boundary. The Claydon Estate encompasses Claydon House which is an 18th Century country house and a number of supporting businesses that offer refreshments and leisure opportunities to visitors. The Estate is open to visitors on selected days, mainly Friday, Saturday and Sundays from approximately 10am to 4pm;
- Loved Before is located on the Claydon Estate north of the Site boundary. The business is a soft toy shop that restores old toys and resells them;

- Featherstone Jewellery is located north of the Site on the Claydon Estate. The business is an independent jewellery shop and is open Thursday to Sunday from 10.30am till 2pm and Tuesday to Friday, 9am to 4pm;
- Signature Flowers is located north of the Site on the Claydon Estate. The business is a florist that also provides flower arranging classes and is open Monday and Saturday from 10am till 2pm and Tuesday to Friday, 9am to 4pm;
- The Flying Fox is located on the Claydon Estate, north of the Site boundary. The Flying Fox showroom is located on the Claydon Estate and sells home interior and gifts. The business is open Monday, Friday and Saturday from 10am till 5pm and on Thursdays and Sundays from 10am till 4pm. The business is also open on Tuesdays and Wednesdays by appointment;
- The Braided Rug Company is located on the Claydon Estate north of the Site boundary. The business sells handmade rugs and is open Monday, Thursday, Friday and Saturdays and by appointment on Tuesdays and Wednesdays. The opening hours vary;
- The Spa @ The Courtyard is a spa offering various spa and beauty treatments, located on the Claydon Estate, north of the Site boundary. The business is open Mondays and Tuesdays from 12pm till 8pm and Wednesdays, Fridays, Saturdays and Sundays from 9.30am till 5.30pm;
- New Aura is located on the Claydon Estate, north of the Site boundary. The business offers hair dressing services and specialises in the fitting of hair extensions. The business operates by appointment only from Wednesday to Sundays;
- The Stables is located on the Claydon Estate to the north of the Site boundary. The business is a venue that can accommodate up to 40 guests for sit down dining, the venue is often used for business and networking events and private functions. The business operates on a by hire basis; and
- Phoenix Kitchen is located on the Claydon Estate, north of the Site boundary. The business is a restaurant open Thursday to Mondays, from 10am till 4pm.

13.6.9. There is no land allocated for employment use, and there are no planning applications yet to be determined that might generate employment opportunities within the Study area.

Walkers, cyclists and horse riders

13.6.10. The following PRoWs are within, adjacent to, or intersect the Site and allow movement across the Site for walkers, cyclists and, where permitted, horse riders. (Note: Footpaths are paths that allow users to walk on said paths whilst Bridleways also allow users to ride bicycles and horses. All distances below reflect the length of each respective PRoW in its entirety):

- SCL/12/1, Steeple Claydon, Footpath, 608 m
- SCL/13/2, Steeple Claydon, Footpath, 1,331 m;
- SCL/12/2, Steeple Claydon, Footpath, 579 m;
- MCL/15/1, Middle Claydon, Footpath, 1,096 m;
- MCL/16/1, Middle Claydon, Footpath, 94 m;
- ECL/9/1, East Claydon, Footpath, 830 m;
- ECL/9/2, East Claydon, Footpath, 515 m;
- QUA/41/1, Quainton, Footpath, 340 m;
- QUA/38/1, Quainton, Footpath, 387 m;
- ECL/8/2, East Claydon, Footpath, 614 m;
- ECL/7/2, East Claydon, Footpath, 1,311 m;
- ECL/8/1, East Claydon, Footpath, 1,079 m;
- ECL/6/1, East Claydon, Footpath, 807 m;
- ECL/4/2, East Claydon, Footpath, 463 m;
- ECL/3/2, East Claydon, Footpath, 280 m;
- ECL/3A/1, East Claydon, Footpath, 495 m;
- MCL/20/2, Middle Claydon, Bridleway, 712 m;
- MCL/18/2, Middle Claydon, Bridleway, 855 m;
- GUN/33/1, Grendon Underwood, Bridleway, 314 m;
- GUN/33/2, Grendon Underwood, Bridleway, 1,022 m;
- MCL/17/1, Middle Claydon, Bridleway, 1,550 m;
- ECL/10/1, East Claydon, Bridleway, 327 m;
- ECL/10/2, East Claydon, Bridleway, 812 m;
- MCL/19/1, Middle Claydon, Bridleway, 908 m;
- ECL/10/4, East Claydon, Bridleway, 307 m;
- ECL/10/3, East Claydon, Bridleway, 56 m;
- ECL/10/5, East Claydon, Bridleway, 141 m;
- QUA/42/2, Quainton, Bridleway, 524 m;
- QUA/40/1, Quainton, Bridleway, 223 m;
- QUA/40/2, Quainton, Bridleway, 362 m;
- QUA/39/1, Quainton, Footpath, 1,806 m;
- QUA/40/3, Quainton, Bridleway, 510 m; and
- ECL/5/1, East Claydon, Bridleway, 1,203 m.

- 13.6.11. There are two long distance paths within the Study area, these being: Midshires Way and Bernwood Jubilee Way. Midshires Way runs for 230 miles from Chiltern Hills to Stockport and intersects Parcel 3 east of the Site. Bernwood Jubilee Way runs 61 miles as a circular route within south Buckinghamshire. The route crosses the Site in a north/south alignment through the centre of the Site.

Future baseline

- 13.6.12. For the purposes of this preliminary assessment, the future baseline in which Rosefield Solar Farm does not take place is expected to remain the same as the current baseline i.e., the existing properties would remain, businesses would continue to operate as they currently do, and the PRow network would likely continue to be used to a similar level. Over time, these buildings may be replaced, businesses may alter or close, new businesses may start trading and PRow may be used more or less frequently.

13.7. Mitigation embedded into the design

- 13.7.1. This preliminary assessment has been based on the principle that measures have been ‘embedded’ into the design of Rosefield Solar Farm to remove potential likely significant environmental effects as far as practicable, for example by the considered placement of infrastructure. Embedded (primary) environmental mitigation measures that are considered to be an inherent part of Rosefield Solar Farm are detailed within **Chapter 5: Approach to the EIA**.
- 13.7.2. Such measures have been identified in order to remove or minimise the potential for impacts to the receptors within the Study area. Those embedded mitigation measures relevant to population comprise the following:
- A minimum 55 m offset to Bernwood Jubilee Way from the fence line;
 - A minimum 20 m offset to Midshires Way from the fence line;
 - All other PRow will have a minimum 10 m offset from the fence line;
 - A minimum 250 m offset from the fence line around ITS, BESS, Rosefield Substation and Collector Compounds to residential properties determined on a case by case basis; and
 - Offsets from the fence line around the Solar PV development to residential properties will be determined on a case by case basis.

13.8. Optionality

- 13.8.1. **Chapter 5: Approach to the EIA** sets out those elements of Rosefield Solar Farm for which optionality is present within the current design and sets out the scenarios assessed for the purpose of this PEIR.

13.8.2. The preliminary design principles as outlined in **Chapter 5: Approach to the EIA** and preliminary parameter plans (**Figures 3.1 to 3.5 in Volume 2**) set out the reasonable ‘worst case scenario’ that has been assessed within this chapter. The ‘worst case scenario’ options in relation to this preliminary population assessment are described in **Table 13.1** below

Table 13.1 – Optionality scenarios assessed

Project element	Scenario assessed for this preliminary assessment
Satellite Collector Compounds	<p>This preliminary assessment assumes that the Satellite Collector Compound in Parcel 1 would be located within Field B10. Field B10 is located 40 m east of a PRoW and is near to residential properties within the village of Calvert, which is why it is considered a reasonable worst case.</p> <p>This preliminary assessment assumes that the Satellite Collector Compound in Parcel 2 would be located within Field D9. This location would impact a PRoW which directly crosses the width of the field. Therefore, there may be a requirement to divert this PRoW should this option be taken forward, and this is why this scenario has been chosen for assessment as a reasonable worst case.</p>
Main Construction Compounds and Satellite Construction Compounds	<p>This preliminary assessment assumes that for Parcel 1, the Main Construction Compound would be situated in Field B23 South and the Satellite Construction Compound would be located in Field B6. This scenario is worst case as Field B23 South is located in closer proximity to residential receptors and a PRoW crosses Field B6.</p> <p>This preliminary assessment assumes that for Parcel 2, the Main Construction Compound would be situated in Field D7 and the Satellite Construction Compound will be located in Field D27. This scenario is worst case as Field D7 is approximately 426 m from a cluster of residential receptors surrounding Botolph Clayton and a PRoW runs adjacent to the field.</p> <p>This preliminary assessment assumes that for Parcel 3, the Main Construction Compound would be situated in either Field E23, E22 or E21 and the Satellite Construction Compound would be situated in Field E11. A PRoW runs adjacent to the field boundaries of Fields E23, E22 and E21 and a PRoW traverses Field E11.</p> <p>The above scenarios are anticipated to have the worst case effects in relation to population because of the need for PRoW diversions and the proximity to existing residential receptors.</p>

Project element	Scenario assessed for this preliminary assessment
BESS	<p>This preliminary assessment assumes that the BESS would be located in accordance with Scenario 1, with the Rosefield Substation located within Field E11 and the BESS units located within Fields D8, D9 and D23. There is a PRoW that crosses the width of Field E11 and this is expected to be diverted as a result of the Rosefield Solar Farm. Scenario 1 is anticipated to have the worst case effects in relation to population because of the need for a diversion in Field E11, with Scenario 2 having no such diversions.</p>
Rosefield Substation	<p>This preliminary assessment assumes that, in accordance with Scenario 1, Rosefield Substation would be located within Field E11. As above, there is a PRoW that crosses the width of the field and this is expected to be diverted as a result of Rosefield Solar Farm. Scenario 1 is anticipated to have the worst case effects in relation to population because of the need for a diversion in Field E11, with Scenario 2 having no such diversions.</p>
Cable route to connect the Solar PV Modules, BoSS, Collector Compounds, Rosefield Substation and BESS	<p>The indicative location of the main cable route between the Parcels and the potential routing options detailed below and presented in Figure 3.2: Indicative Cable Route Location in Volume 2.</p> <ul style="list-style-type: none"> • Option A – Indicative cable route to the north of Home Wood, connecting Parcel 1 and 2 • Option B – Indicative cable route to the south of Home Wood, connecting Parcel 1 and 2 <p>For the purposes of this preliminary assessment, Option B has been assessed as this is considered to be the worst case scenario.</p>

Preliminary assessment assumptions

13.8.3. For the purposes of this preliminary assessment, it has been assumed that during the construction, operational (including maintenance) and decommissioning phases, the worst case scenario with regards to potential impacts to population receptors has been chosen.

13.9. Approach to the preliminary assessment

13.9.1. As described above, in the absence of statutory guidance for the assessment of likely significant effects on population receptors, the assessment methodology described in DMRB LA 112 has been followed.

- 13.9.2. In accordance with DMRB LA 112, this preliminary assessment has considered the likelihood of significant effects for land use and accessibility relating to the following five receptor groups:
- Private property and housing;
 - Community land and assets;
 - Development land and businesses;
 - Agricultural land holdings; and
 - Walkers, cyclists and horse riders.
- 13.9.3. This preliminary assessment has considered likely significant effects during the construction and operation (including maintenance) phases of Rosefield Solar Farm. As the level of effects during decommissioning is expected to be similar to or less than those during construction, the decommissioning phase has not been considered further within this preliminary assessment.
- 13.9.4. Through each of the five receptor groups outlined above, consideration has been given to the presence and number of receptors as described in **Section 13.6** above. Where receptors are absent from the Study area, no further consideration has been given to the potential for likely significant effects.
- 13.9.5. For each receptor that is present, professional judgement has been used to consider the likely significant effects that Rosefield Solar Farm would have and whether any likely significant effect is likely to be beneficial, neutral or adverse.
- 13.9.6. The receptor value (sensitivity) detailed in DMRB LA 112 has been used to determine the sensitivity of each receptor to change, as presented in **Table 13.2** below.

Table 13.2 – Environmental value (sensitivity) and descriptions

Receptor value (sensitivity)	Description
Very high	<p>Private property and housing:</p> <p>1) existing private property or land allocated for housing located in a local authority area where the number of households are expected to increase by >25% by 2041 (ONS data); and/or</p> <p>2) existing housing and land allocated for housing (e.g. strategic housing sites) covering >5 ha and/or >150 houses.</p> <p>Community land and assets where there is a combination of the following:</p> <p>1) complete severance between communities and their land/assets, with little/no accessibility provision;</p>

Receptor value (sensitivity)	Description
	<p>2) alternatives are only available outside the local planning authority area; 3) the level of use is very frequent (daily); and 4) the land and assets are used by the majority ($\geq 50\%$) of the community.</p> <p>Development land and businesses: 1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering >5 ha.</p> <p>Agricultural land holdings: 1) areas of land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on a frequent basis (daily).</p> <p>Walkers, cyclists and horse riders: 1) national trails and routes likely to be used for both commuting and recreation that record frequent (daily) use. Such routes connect communities with employment land uses and other services with a direct and convenient walkers, cyclists and horse riders route. Little/no potential for substitution; 2) routes regularly used by vulnerable travellers such as the elderly, school children and people with disabilities, who could be disproportionately affected by small changes in the baseline due to potentially different needs; and 3) rights of way for walkers, cyclists and horse riders crossing roads at grade with $>16,000$ vehicles per day.</p>
High	<p>Private property and housing: 1) private property or land allocated for housing located in a local planning authority area where the number of households are expected to increase by 16-25% by 2041 (ONS data); and/or 2) existing housing and land allocated for housing (e.g. strategic housing sites) covering $>1-5$ ha and/or $>30-150$ houses.</p> <p>Community land and assets where there is a combination of the following: 1) there is substantial severance between community and assets, with limited accessibility provision; 2) alternative facilities are only available in the wider local planning authority area;</p>

Receptor value (sensitivity)	Description
	<p>3) the level of use is frequent (weekly); and 4) the land and assets are used by the majority ($\geq 50\%$) of the community.</p> <p>Development land and businesses: 1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering $>1 - 5$ ha.</p> <p>Agricultural land holdings: 1) areas of land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on a frequent basis (weekly).</p> <p>Walkers, cyclists and horse-riders: 1) regional trails and routes (e.g. promoted circular walks) likely to be used for recreation and to a lesser extent commuting, that record frequent (daily) use. Limited potential for substitution; and/or 2) rights of way for walkers, cyclists and horse riders crossing roads at grade with $>8,000 - 16,000$ vehicles per day.</p>
Medium	<p>Private property and housing: 1) houses or land allocated for housing located in a local authority area where the number of households is expected to increase by $>6-15\%$ by 2041 (ONS data); and/or 2) existing housing and land allocated for housing (e.g. strategic housing sites) covering <1 ha and/or <30 houses.</p> <p>Community land and assets where there is a combination of the following: 1) there is severance between communities and their land/assets but with existing accessibility provision; 2) limited alternative facilities are available at a local level within adjacent communities; 3) the level of use is reasonably frequent (monthly); and 4) the land and assets are used by the majority ($\geq 50\%$) of the community.</p> <p>Development land and businesses: 1) existing employment sites (excluding agriculture) and land allocated for employment (e.g. strategic employment sites) covering <1ha.</p> <p>Agricultural land holdings:</p>

Receptor value (sensitivity)	Description
	<p>1) areas of land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly).</p> <p>Walkers, cyclists and horse riders 1) public rights of way and other routes close to communities which are used for recreational purposes (e.g. dog walking), but for which alternative routes can be taken. These routes are likely to link to a wider network of routes to provide options for longer, recreational journeys; and/or 2) rights of way for walkers, cyclists and horse riders crossing roads at grade with >4,000 – 8,000 vehicles per day.</p>
Low	<p>Private property and housing: 1) proposed development on unallocated sites providing housing with planning permission/in the planning process.</p> <p>Community land and assets where there is a combination of the following: 1) limited existing severance between community and assets, with existing full Disability Discrimination Act (DDA) DDA 1995 [Ref 2.N] compliant accessibility provision; 2) alternative facilities are available at a local level within the wider community; 3) the level of use is infrequent (monthly or less frequent); and 4) the land and assets are used by the minority (>=50%) of the community.</p> <p>Development land and businesses: 1) proposed development on unallocated sites providing employment with planning permission/in the planning process.</p> <p>Agricultural land holdings: 1) areas of land which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and 2) access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less frequent).</p> <p>Walkers, cyclists and horse riders: 1) routes which have fallen into disuse through past severance, or which are scarcely used because they do not</p>

Receptor value (sensitivity)	Description
Negligible	<p>currently offer a meaningful route for either utility or recreational purposes; and/or</p> <p>2) rights of way for walkers, cyclists and horse riders crossing roads at grade with <4,000 vehicles per day.</p> <p>Private property and housing:</p> <p>1) N/A.</p> <p>Community land and assets where there is a combination of the following:</p> <p>1) no or limited severance or accessibility issues;</p> <p>2) alternative facilities are available within the same community;</p> <p>3) the level of use is very infrequent (a few occasions yearly); and</p> <p>4) the land and assets are used by the minority (>=50%) of the community.</p> <p>Development land and businesses:</p> <p>1) N/A.</p> <p>Agricultural land holdings:</p> <p>1) areas of land which are infrequently used on a non-commercial basis.</p> <p>Walkers, cyclists and horse riders</p> <p>1) N/A.</p>

13.9.7. The magnitude of impact from DMRB LA 112 has been used to consider the likely magnitude of impact to each key receptor, as presented in **Table 13.3**.

Table 13.3 – Magnitude of impact and typical descriptions

Magnitude of impact (change)	Typical description
Major	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <p>1) loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. e.g. direct acquisition and demolition of buildings and direct development of land to accommodate highway assets; and/or</p> <p>2) introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision.</p> <p>Walkers, cyclists and horse riders:</p>

Magnitude of impact (change)	Typical description
Moderate	<p>>500 m increase (adverse)/decrease (beneficial) in walkers, cyclists and horse riders journey length.</p> <p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <p>1) partial loss of/damage to key characteristics, features or elements, e.g. partial removal or substantial amendment to access or acquisition of land compromising viability of property, businesses, community assets or agricultural holdings; and/or</p> <p>2) introduction (adverse) or removal (beneficial) of severe severance with limited/moderate accessibility provision.</p> <p>Walkers, cyclists and horse riders:</p> <p>>250 m – 500 m increase (adverse) or decrease (beneficial) in walkers, cyclists and horse riders journey length.</p>
Minor	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <p>1) a discernible change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements, e.g. amendment to access or acquisition of land resulting in changes to operating conditions that do not compromise overall viability of property, businesses, community assets or agricultural holdings; and/or</p> <p>2) introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.</p> <p>Walkers, cyclists and horse riders:</p> <p>>50 m - 250 m increase (adverse) or decrease (beneficial) in walkers, cyclists and horse riders journey length.</p>
Negligible	<p>Private property and housing, community land and assets, development land and businesses and agricultural land holdings:</p> <p>1) very minor loss or detrimental alteration to one or more characteristics, features or elements. e.g. acquisition of non-operational land or buildings not directly affecting the viability of property, businesses, community assets or agricultural holdings; and/or</p> <p>2) very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision.</p> <p>Walkers, cyclists and horse riders:</p> <p><50 m increase (adverse) or decrease (beneficial) in walkers, cyclists and horse riders journey length.</p>

Magnitude of impact (change)	Typical description
No change	No loss or alteration of characteristics, features, elements or accessibility; no observable impact in either direction.

13.9.8. The significance of effect has then been derived by combining the value (sensitivity) of the receptor with the magnitude of impact as a result of Rosefield Solar Farm as presented in **Table 13.4**, and as described in DMRB LA 112. Effects can be either adverse or beneficial. An effect of ‘**moderate**’, ‘**very large**’ or ‘**large**’ is deemed to be **significant**. A ‘**neutral**’ or ‘**slight**’ effect is deemed **not significant**.

13.9.9. Where the significance matrix indicates a range for the effect significance (e.g. ‘slight or moderate’), professional judgement can be applied to select one option (which would be justified by evidence, as appropriate) or an effect significance range can be applied. If a significance of effect is assigned as ‘slight or moderate’, this would be considered significant unless further information could be provided to downgrade the significance effect to ‘slight’.

Table 13.4 – Significance of effect matrix

Sensitivity	Magnitude of impact				
	No change	Negligible	Minor	Moderate	Major
Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight
Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
Very high	Neutral	Slight	Slight or Moderate	Large or Very Large	Very Large

13.10. Assessment of likely effects (without additional mitigation)

13.10.1. This section considers the likely effects that may arise during the construction, operation (including maintenance) and decommissioning phases of Rosefield Solar Farm in the absence of additional mitigation, taking into account the above embedded mitigation measures outlined in **Section 13.7** and assessing the reasonable worst case scenarios as outlined in **Table 13.1**.

Private property and housing

13.10.2. No properties or houses would need to be demolished to facilitate the construction and/or operation (including maintenance) of Rosefield Solar Farm.

- 13.10.3. None of the land that would be used to construct, operate and decommission Rosefield Solar Farm is allocated for residential development and no new planning applications have been submitted for housing development within the Site boundary at the time of writing this preliminary assessment. Therefore, there will be no population based impacts on private property or housing during construction, operation (including maintenance) or decommissioning and this element is not considered further within this preliminary population assessment. Other potential impacts to private property and housing are considered within the respective Air Quality (**Chapter 6**), Noise and Vibration (**Chapter 12**) and Landscape and Visual (**Chapter 11**) chapters in this PEIR.

Community land and assets

- 13.10.4. Rosefield Solar Farm would cover land that is presently used as agricultural land. A church is located within the Study area, to the north but outside of the Site boundary. Based on the location of the church and the nature of Rosefield Solar Farm, impacts to its use are not expected to be experienced at this community asset and therefore it can continue to operate as it currently does.
- 13.10.5. There are no other community assets or land within the Study area and therefore potential effects to community land and assets are not considered further within this preliminary assessment.

Agricultural land holdings, development land and business

- 13.10.6. Potential impacts in relation to the seven agricultural operations within the Site boundary will be subject to full assessment in the ES in accordance with the approach and methods outlined in this chapter. Based on a preliminary assessment and assuming adequate mitigation measures are in place, no significant effects on the agricultural operations are considered likely. However, without mitigation there could be a significant adverse effect on agricultural businesses.
- 13.10.7. The eight farm operations situated beyond the Site boundary but within the Study area will not have any land included within Rosefield Solar Farm. During the construction phase, there may be a short term increase in the number of vehicles within the area. This increase in traffic numbers may have a negative impact on agricultural businesses when trying to access their properties or whilst moving livestock. However, any such impacts would be short term and temporary in their nature. During the operational (including maintenance) phase, the volume of traffic is unlikely to be noticeably different from current levels and therefore no such likely effects are anticipated for farming operations. As no land outside of the Site boundary is being used for Rosefield Solar Farm, there are not expected to be any long term impacts relating to severance, access or long term viability of farm holdings to these agricultural operations as a result of any phases of Rosefield Solar Farm. As such, no significant likely effects are

expected for agricultural land holdings and these receptors are not considered further within this preliminary assessment.

- 13.10.8. Beyond farming operations, there are 17 other businesses present within the Study area which provide employment opportunities for local people and some that live further away. All of the businesses are outside of the Site boundary.
- 13.10.9. The nature of the majority of these businesses is not expected to be sensitive to the construction or operational (including maintenance) phases of Rosefield Solar Farm and therefore it is unlikely that any jobs will be at risk in these businesses.
- 13.10.10. **Chapter 9: Cultural Heritage** concluded that Claydon House and, gardens associated with the estate, may be subject to adverse significant impacts to setting as a result of the loss of designed views from this heritage asset. It is possible that the impact to setting may adversely affect the visitor experience and therefore lead to a reduction in visitor numbers to Claydon House and the associated gardens. As a result there may then be less footfall in the locality and therefore there is potential for reduced revenue for the businesses located inside the grounds of Claydon House.
- 13.10.11. The increase in construction staff during the construction phase has the potential to increase spend at nearby cafes and restaurants including Phoenix Kitchen. The increase in footfall has the potential to lead to increased spend at these local businesses. Any beneficial significant effects would be short term and will be assessed within the ES.
- 13.10.12. There is likely to be an increase in the volume of traffic during the construction phase which may prevent some customers accessing local businesses. However, any such effects would be short term and temporary. During the operational (including maintenance) phase, there are no proposed diversions to local roads and therefore, it is not expected that any customers would be prevented or discouraged from accessing the businesses as normal. As these impacts would only occur during the short term and temporary construction period, it is unlikely any businesses would have to close and therefore it is unlikely there would be any job losses as a result of Rosefield Solar Farm.
- 13.10.13. Preston Farms Limited occupies land within the Site boundary, some of which is used for grazing of horses and sheep associated with TCS Biosciences. The development of Rosefield Solar Farm may present a challenge to the business in how they continue to provide grazing land for horses and sheep.

Walkers, cyclists and horse riders

- 13.10.14. The 'worst case' scenario with regards to PRow is expected to arise from Rosefield Solar Farm infrastructure being placed across an existing PRow route at Field E11, and therefore a permanent diversion is expected to be

required. This diversion would move the existing PRoW by less than 100 m to the north to follow the existing wall on the northern extent of Field E11, a diversion of approximately 115 m. This can be seen in **Figure 3.3a** in **Volume 2**.

- 13.10.15. A footpath diversion is being proposed west of Shrubs Wood and east of Field B4. This would run for approximately 870 m which is a decrease in the existing length of the PRoW of 312 m as can be seen in **Figure 3.3a** in **Volume 2**.
- 13.10.16. A new permissive footpath is proposed following the northern boundary of Field B20, then the perimeters of B17, B11 and B10 as seen in **Figure 3.3a** in **Volume 2**. This is a new footpath, not a diversion, and as such forms an additional and beneficial enhancement to the existing PRoW network. The approximate length of the newly proposed footpath is 1.9 km and would allow walkers only to cross the field and continue to Knowl Hill before joining the existing PRoW network near Shrubs Wood. However, given the location of this new footpath and the relative number of other PRoW in the area, it is unlikely to be a significant benefit and therefore it is not considered further within this preliminary assessment.
- 13.10.17. Where reasonably practicable, existing PRoWs would be retained in their current locations during the construction and operation (including maintenance) phases. Any diversions required during the construction phase could lead to temporary impacts to users of PRoWs.
- 13.10.18. If any permanent changes to the routing of PRoWs are required, it is expected that the new route would be the shortest feasible route and would aim to provide a suitable replacement route with similar characteristics to that being lost.

13.11. Additional mitigation

Walkers, cyclists and horse riders

- 13.11.1. The details and management of any changes to the PRoW network would be provided in an Outline Public Rights of Way Management Plan, which will be submitted in support of the DCO application. The Outline Public Right of Way Management Plan will describe the planned approach to the management of PRoWs during the construction, operational (including maintenance) and decommissioning phases of Rosefield Solar Farm. The key principles of the Outline Public Rights of Way Management Plan will be to demonstrate how the existing PRoW network would remain available for use or, where diversions are required, how they would minimise impacts to PRoW users whilst maintaining safety for all.
- 13.11.2. Any changes to PRoW will be discussed with Buckinghamshire Council in order to ensure there are suitable diversions or replacements in place.

Agricultural land holdings, development land and business

13.11.3. **Chapter 9: Cultural Heritage** has concluded that an Outline Operational Environmental Management Plan will be written and this will include mitigation to minimise the risk of potential impacts to the settings of heritage assets during the operational (including maintenance) phase. This will include design measures to minimise impacts to settings attributes that may arise from security lighting, operational noise and associated traffic and the installation of educational boards within the Development Order Limits.

13.12. Assessment of residual effects (with additional mitigation)

Walkers, cyclists and horse riders

13.12.1. As discussed in **Section 13.10**, it is proposed there will be a change to the alignment of the PRoW running through Field E11 which would result in an increased travel distance for users of the PRoW of a distance of approximately 155 m. The sensitivity of the receptor is **medium**. In accordance with DMRB LA 112, any increase in length of a PRoW that is less than 200 m but more than 50 m is deemed to have a **minor** magnitude of impact. Therefore, the significance of effect is **slight adverse**, which is considered **not significant**.

13.12.2. An additional footpath diversion is proposed west of Shrubs Wood and east of Field B4. This runs for approximately 870 m which is a decrease in length of 312 m compared with the existing length of the PRoW. The sensitivity of the receptor is **medium**. In accordance with DMRB LA 112, any increase in length of a PRoW that is between 250 m and 500 m in length is deemed to have a **moderate** magnitude of impact. However, as this change is a decrease in the length of the PRoW this will be a beneficial change for users of PRoW. Therefore, the significance of effect is **moderate** which is **significant but beneficial**.

13.12.3. The implementation of the Outline Public Right of Way Management Plan would help to minimise effects to users of the PRoW beyond the increase in length of the PRoW discussed above.

13.12.4. No other PRoWs are expected to be diverted temporarily or permanently based on the current design layout.

Agricultural land holdings, development land and business

13.12.5. There is the potential for adverse effects to the setting of Claydon House as a result of the construction and operational phase of Rosefield Solar Farm (see **Chapter 9: Cultural Heritage**). Per **Chapter 9**, the value of the receptor is **high** and the magnitude of change is **minor**. Therefore the

significance of effect is **slight or moderate adverse** which **are considered to be significant or potentially significant**.

- 13.12.6. On a precautionary basis this preliminary assessment assumes that there may be less footfall in the locality as a result of potential effects to the setting of Claydon House and that, therefore, there is potential for reduced revenue for the businesses located inside the grounds of Claydon House. Per LA 112, the sensitivity value of the businesses in this area is **medium**. On the basis that there may be a discernible adverse change to the setting of Claydon House, and assuming a worst case scenario that these businesses are reliant on custom from visitors that are mainly in the local area to visit Claydon House, along with consideration of embedded mitigation and the distance of over 500 m from Claydon House to the Solar PV development, the magnitude of impact is expected to be **minor** or **moderate**. Combining the value of the receptor and the magnitude of effect would give a **slight** and **not significant** effect or **moderate** and **significant** effect. A further assessment of the significance of effect will be undertaken within the ES and this will consider the conclusions of the Cultural Heritage assessment. The potential for adverse effects to these businesses is highlighted at this stage only as a precaution as the preliminary heritage assessment has concluded there may or may not be significant effects to setting. Should the heritage assessment within the ES identify there are likely significant adverse effects to setting; further assessment work will be undertaken to inform the population assessment in the ES. Should the heritage assessment in the ES conclude there are no likely significant effects, it is expected that the population assessment will also conclude there will not be any likely significant effects to businesses located inside the grounds of Claydon House.

13.13. Opportunities for enhancement

- 13.13.1. Opportunities exist to improve the accessibility and connectivity of existing PRoW by implementing measures such as enhanced signage or maintenance or upgrades to the surface. These enhancements could facilitate safer and more convenient passage for users and also cultivate a heightened sense of connectivity within the broader network of public pathways.

13.14. Difficulties and uncertainties

- 13.14.1. The information provided in this PEIR is preliminary and is based on the information available at the time of writing. As a result of the statutory consultation process, it is expected that the design and layout of Rosefield Solar Farm may change. Such alterations may influence the receptors and PRoW pertinent to Rosefield Solar Farm, as well as the nature of the impact upon them. A full assessment of likely significant effects will be reported in the ES.

13.15. Further work required to inform the ES

13.15.1. To form a robust ES, the following work is proposed so that all aspects will be suitably considered:

- A further review of the number of residential properties within the Study area will be undertaken and reported in the ES;
- The continuation of design work to inform the DCO application, together with any relevant feedback received during the statutory consultation process, which may require further population assessment work to be undertaken;
- Further consultation will take place with Buckinghamshire Council with regards to further assessment and the design of Rosefield Solar Farm, and evidence of agreement with Buckinghamshire Council will be included in the ES chapter; and
- Further information relating to job creation and loss, agricultural businesses and economic benefits/negatives resulting from Rosefield Solar Farm will be included within the ES. These effects are not expected to be significant; however, they will be considered in order to give a comprehensive assessment of the potential for population and socio-economic effects.



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