



# Botley West Solar Farm

Preliminary Environmental Information Report

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**Volume 1**

**Chapter 17: Agricultural Land Use and Public Rights of Way**

30 November 2023

## Approval for issue

Christopher Leconte

30 November 2023

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## Contents

<b>17</b>	<b>AGRICULTURAL LAND AND PUBLIC RIGHTS OF WAY</b>	<b>1</b>
17.1	Introduction	1
17.2	Legislation and policy context	2
17.3	Consultation and engagement	8
17.4	Baseline methodology	11
17.5	Baseline environment	13
17.6	Key parameters for assessment	24
17.7	Mitigation measures intended to be adopted as part of the Project	27
17.8	Impact assessment methodology	31
17.9	Assessment of effects	37
17.10	Cumulative effect assessment methodology	45
17.11	Cumulative effects assessment	50
17.12	Transboundary effects	54
17.13	Inter-related effects	54
17.14	Summary of impacts, mitigation measures and monitoring	55
17.15	Next steps	59
17.16	References	59

## Tables

Table 17.1:	Summary of designated and draft NPS document requirements relevant to agricultural land and PRoW	3
Table 17.2:	Summary of NPPF requirements relevant to this chapter	6
Table 17.3:	Summary of local planning policy relevant to this chapter	7
Table 17.4:	Summary of scoping responses	9
Table 17.5:	Issues considered within this assessment	12
Table 17.6:	Summary of desk study sources used	13
Table 17.7:	Agro-climatic data at seven locations within the Study Area	15
Table 17.8:	Provisional ALC Mapping for Oxfordshire and England	17
Table 17.9:	Predictive ALC Grades within the Study Area	18
Table 17.10:	Statistical data for agricultural land use	18
Table 17.11:	ALC Site survey results according to survey work undertaken to date	20
Table 17.12:	PRoWs and other promoted routes located within or adjacent to the Study Area	21
Table 17.13:	Key receptors taken forward to assessment	22
Table 17.14:	Maximum design scenario considered for the assessment of potential impacts	25
Table 17.15:	Mitigation measures intended to be adopted as part of the Project	29
Table 17.16:	Sensitivity criteria	31
Table 17.17:	Impact magnitude criteria	33
Table 17.18:	Duration of impacts	35
Table 17.19:	Assessment matrix	35
Table 17.20:	List of other Projects, plans and activities considered within the CEA	46
Table 17.21:	Maximum design scenario for the assessment of cumulative effects	49
Table 17.22:	Summary of potential environmental effects, mitigation and monitoring	56
Table 17.23:	Summary of potential cumulative environmental effects, mitigation and monitoring	57

## Figures (See Volume 2, Figures)

Figure Number	Figure Title
17.1	Published ALC Data
17.2	Predictive BMV Land Assessment
17.3	Surveyed ALC Grades
17.4	Land Holdings
17.5	PRoW and Other Promoted Routes

## Appendices (See Volume 3, Appendices)

Appendix Number	Appendix Title
17.1	Soil Survey Auger Boring and Soil Pit Information

## Glossary

Term	Meaning
Agricultural Land Classification	Agricultural Land Classification is a grading system used to assess and compare the quality of agricultural land in England and Wales. ALC agricultural land is graded from 1, the highest quality land to 5, the lowest quality land.
Agricultural land holding	Land used for horticulture, livestock, grazing and various other uses, which are commercial in nature.
Best and Most Versatile	Agricultural land that is the best and most versatile for growing crops. ALC Grades 1 to 3a are classed as Best and Most Versatile agricultural land.
Field Capacity Days	The period when the soil moisture deficit is zero. Soils usually return to field capacity during the autumn and early winter and the field capacity period, measured in days, ends in spring when evapotranspiration exceeds rainfall and a moisture deficit begins to accumulate.

## Abbreviations

Abbreviation	Meaning
ALC	Agricultural Land Classification
AOD	Above Ordnance Datum
BGS	British Geological Survey
BMV	Best and Most Versatile
CEA	Cumulative Effects Assessment
CoCP	Code of Construction Practice
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
Defra	Department for Environment, Food & Rural Affairs
DESNZ	Department for Energy and Net Zero
DMPO	Development Management Procedure
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
IEMA	Institute of Environmental Management and Assessment
MAFF	Ministry of Agriculture, Fisheries and Food
MAGIC	Multi-agency Geographic Information for the Countryside
MDS	Maximum Design Scenario
NCR	National Cycle Routes

Abbreviation	Meaning
NPPF	The National Planning Policy Framework
NPS	National Policy Statements
NPS EN-1	Overarching NPS for Energy
NPS EN-3	NPS for Renewable Energy Infrastructure
NPS EN-5	NPS for Electricity Networks Infrastructure
OS	Ordnance Survey
PEIR	Preliminary Environmental Information Report
PPG	Planning Practice Guidance
PRoW	Public Rights of Way
PV	Photovoltaic
SMS	Soil Management Strategy
TIN	Technical Information Note

## Units

Unit	Meaning
m <sup>2</sup>	Square metres
m	Metres
cm	Centimetres
ha	Hectares
°C	Degrees Celsius
MWe	Megawatt electrical
%	Percentage

## 17 Agricultural Land and Public Rights of Way

### 17.1 Introduction

#### 17.1.1 Overview

17.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) has been prepared by RPS on behalf of Photovolt Development Partners GmbH. (PVDP) for the Applicant, SolarFive Ltd. (SolarFive). SolarFive is a licence holder under the Electricity Act 1989. SolarFive is also a company registered in England and Wales (company no. 12602740).

17.1.1.2 PVDP intends to submit an application on behalf of SolarFive for development consent to the Planning Inspectorate (PINS) under the Planning Act 2008. The proposal is to install and operate approximately 840MWe of solar generation in parts of West Oxfordshire, Cherwell and Vale of White Horse Districts (the Project). The application will be accompanied by an Environmental Statement (ES) prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended (the EIA Regulations), and other required documents including a statement on pre-application consultation.

17.1.1.3 This PEIR summarises preliminary results of the assessment to date, before being further refined and reported within the Environmental Statement. The assessment was carried out in accordance with the approach set out in the Scoping Report. The purpose of the PEIR is to inform the statutory consultation process, enabling consultees to understand and comment on the likely significant effects of the Project.

17.1.1.4 Specifically, this chapter considers the potential effects of the Project on agricultural land, including agricultural land quality, soils and farm holdings, together with potential effects on Public Rights of Way (PRoW).

17.1.1.5 The assessment presented is informed by the following technical chapters of the PEIR:

- Chapter 7 – Historic Environment;
- Chapter 8 – Landscape and Visual Resources;
- Chapter 13 – Noise and Vibration;
- Chapter 15 – Socio-Economics; and
- Chapter 16 – Human Health.

17.1.1.6 This chapter also draws upon information contained within the following technical appendix:

- Appendix 17.1: Soil Survey Auger Boring and Soil Pit Information.

17.1.1.7 The PEIR will inform pre-application consultation. Following consultation, comments on the PEIR will be reviewed and taken into account, where appropriate, in preparation of the ES that will accompany the application to the Planning Inspectorate for development consent.

## 17.2 Legislation and policy context

### 17.2.1 Legislative context

17.2.1.1 There is no legislation that specifically relates to the assessment of agricultural land and ProW. However, national and local planning policies relevant to the assessment of agricultural land and ProW have been identified and explained in **section 17.2** below.

### 17.2.2 Planning policy context

17.2.2.1 The Botley West Solar Farm (Botley West) Project (the Project) will be located in the county of Oxfordshire, across an area of approximately 1,300 hectares (ha). The Project extends from an area of land in the north, situated between the A4260 and the Dorn River Valley near Tackley and Wootton, through a central section, situated broadly between Bladon and Cassington, and connecting to a section further south near to Farmoor Reservoir and north of Cumnor, where the Project will connect to the National Grid transmission network. The name 'Botley West' is derived from the location of the grid connection point.

17.2.2.2 The Project lies within the administrative areas of Cherwell, West Oxfordshire and Vale of White Horse District Councils, and Oxfordshire County Council. Most of the Project lies within the administrative area of West Oxfordshire.

#### National Policy Statements

17.2.2.3 There are currently six energy National Policy Statements (NPSs). The following are relevant to this chapter of the PEIR:

- Overarching NPS for Energy (NPS EN-1) which sets out the UK Government's policy for the delivery of major energy infrastructure (Department of Energy and Climate Change (DECC) 2011a);
- NPS for Renewable Energy Infrastructure (NPS EN-3) (DECC, 2011b); and
- NPS for Electricity Networks Infrastructure (NPS EN-5) (DECC, 2011c).

17.2.2.4 NPS-EN1, NPS-EN3 and NPS-EN5 are currently being updated and draft versions were published by the Department for Energy and Net Zero (DESNZ) for consultation in March 2023 (DESNZ, 2023a; DESNZ, 2023b; DESNZ, 2023c).

17.2.2.5 For any application accepted for examination before designation of the 2023 amendments, the 2011 suite of NPSs should have effect in accordance with the terms of those NPS. The 2023 amendments will therefore have effect only in relation to those applications for development consent accepted for examination, after the designation of those amendments. However, any emerging draft NPSs (or those designated but not yet having effect) are potentially capable of being important and relevant considerations in the decision-making process and therefore have also been reviewed in preparation of this chapter.



17.2.2.6 **Table 17.1** sets out a summary of the policies within these NPSs, relevant to this chapter of the PEIR. Where policy provided in the adopted and draft NPSs are similar (or the same), the Draft NPS has been used, as to avoid unnecessary duplication of text.

**Table 17.1: Summary of designated and draft NPS document requirements relevant to agricultural land and PRoW**

Summary of NPS requirement	How and where considered in the PEIR
<b>NPS EN-1</b>	
.The Environmental Statement should identify existing and proposed land uses near the Project and assess the effects of replacing an existing land use or preventing a use from continuing (paragraph 5.10.5 of NPS EN-1).	The baseline environment with respect to agricultural land and PRoW has been identified and is presented in <b>section 17.5</b> of this chapter of the PEIR. The effects of the Project on agricultural land and PRoW have been considered and are presented in <b>section 17.9</b> of this chapter of the PEIR.
Pre-application discussions between the Applicant and Local Authorities should identify any concerns regarding land use, having regard to the development plan and other relevant applications (paragraph 5.10.7 of NPS EN-1).	Consultation activities undertaken to date relevant to the assessment of agricultural land and PRoW are presented in <b>section 17.3</b> of this chapter of the PEIR.
Applicants should seek to minimise effects on 'best and most versatile' agricultural land except where this would be inconsistent with other sustainability considerations. Applicants should preferably use land in areas of poorer quality and should also identify any effects and seek to minimise impacts on soil quality (paragraph 5.10.8 of NPS EN-1).	This chapter of the PEIR considers the potential effects of the Project on agricultural land, including BMV agricultural land. The effects of the Project on agricultural land are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on soil quality are set out in <b>section 17.7</b> of this chapter.
The examining authority should ensure that developments are not located on the best and most versatile agricultural land without justification. It should give little weight to the loss of poorer quality agricultural land except in areas where agricultural practices contribute to the quality and character of the environment or economy (paragraph 5.10.15 of NPS EN-1).	This chapter of the PEIR considers the potential effects of the Project on agricultural land, including BMV agricultural land. The effects of the Project on agricultural land are presented in <b>section 17.9</b> of this chapter of the PEIR. The measures adopted as part of the Project to minimise impacts on agricultural land are set out in <b>section 17.1</b> of this chapter of the PEIR.
Applicants should include appropriate mitigation measures to address adverse effects on coastal access, National Trails, and other Public Rights of Way (PRoW) (paragraph 5.10.24 of NPS EN-1).	This chapter of the PEIR considers the potential effects of the Project on PRoW and other promoted routes. The effects of the Project on PRoW and other promoted routes are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on PRoW and other promoted routes are set out in <b>section 17.1</b> of this chapter.

Summary of NPS requirement	How and where considered in the PEIR
<b>Draft NPS EN-1</b>	
<p>Applicants are encouraged to develop and implement a Soil Management Plan which could help minimise potential land contamination. The sustainable reuse of soils needs to be carefully considered in line with good practice guidance where large quantities of soils are surplus to requirements or are affected by contamination (paragraph 5.11.14 of draft NPS EN-1).</p>	<p>The Applicant intends to submit an Outline Soil Management Plan for the Project at the ES stage. The Outline Soil Management Plan will contain measures to minimise potential land contamination and ensure the sustainable reuse of soils in line with good practice guidance. The measures adopted as part of the Project to minimise adverse effects on soils, including measures to be set out in the Outline Soil Management Plan are set out in <b>section 17.1</b> of this chapter of the PEIR.</p>
<p>Although in the case of most energy infrastructure there may be little that can be done to mitigate the direct effects of an energy Project on the existing use of the proposed site (assuming that some of that use can still be retained post Project construction) applicants should nevertheless seek to minimise these effects and the effects on existing or planned uses near the site by the application of good design principles, including the layout of the Project and the protection of soils during construction (paragraph 5.11.23 of draft NPS EN-1).</p>	<p>This chapter of the PEIR considers the potential effects of the Project on agricultural land and PRoW in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on land use and soils are set out in <b>section 17.1</b> of this chapter of the PEIR.</p>
<b>Draft NPS EN-3</b>	
<p>Where possible, ground mounted Solar PV projects should utilise previously developed land, brownfield land, contaminated land, industrial land, or agricultural land preferably of classification 3b, 4, and 5 (avoiding the use of “Best and Most Versatile” cropland where possible). However, land type should not be a predominating factor in determining the suitability of the site location (paragraph 2.48.13 of draft NPS EN-3).</p>	<p>The need for the Project and main alternatives considered by the Applicant are set out in Volume 1, Chapter 5: Need, National Planning Policy, and Alternatives Considered of the PEIR. <b>Section 5.4</b> of Volume 1, Chapter 5: Need for the Project and alternatives of the PEIR provides a description of the design and environmental constraints considered when identifying the location and extent of the Project, including the objective to utilise low-productivity land of low ecological value.</p>
<p>The Agricultural Land Classification (ALC) is the only approved system for grading agricultural quality in England and Wales and should be used to establish the ALC and identify the soil types to inform soil management at the construction, operation, and decommissioning phases. This should be extended to the underground cabling and access routes. The soil survey may also inform the suitable beneficial use of the land during the operational phase (paragraph 2.48.14 of draft NPS EN-3).</p>	<p>The quality of agricultural land likely to be affected by the Project was determined using published ALC data and subsequent site specific soils surveys, as set out in <b>section 17.4</b> of this chapter of the PEIR. This chapter of the PEIR considers the potential effects of the Project on agricultural land in accordance with the ALC system in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on agricultural land and soils are set out in <b>section 17.1</b> of this chapter of the PEIR.</p>

Summary of NPS requirement	How and where considered in the PEIR
<p>Whilst the development of ground mounted solar arrays is not prohibited on sites of agricultural land classified 1, 2 and 3a , the impacts of such are expected to be considered and are discussed. It is recognised that at this scale, it is likely that applicants' developments may use some agricultural land, however applicants should explain their choice of site, noting the preference for development to be on brownfield and non-agricultural land (paragraph 2.48.14 of draft NPS EN-3).</p>	<p>The need for the Project and main alternatives considered by the Applicant are set out in Volume 1, Chapter 5: Need, National Planning Policy, and Alternatives Considered of the PEIR. <b>Section 5.4</b> of Volume 1, Chapter 5: Need, National Planning Policy, and Alternatives Considered of the PEIR provides a description of the design and environmental constraints considered when identifying the location and extent of the Project, including the objective to utilise low-productivity land of low ecological value.</p>
<p>The assessment should consider earthworks associated with construction compounds, access roads and cable trenching. Where such soil stripping occurs topsoil and subsoil should be stripped, stored, and replaced separately to minimise soil damage and to provide optimal conditions for site restoration. Soil handling may be informed through a soil and Agricultural Land Classification (ALC) survey, with detailed guidance available in Defra's guidance on Construction Code of Practice for the Sustainable Use of Soils on Construction Sites or any subsequent updates (paragraph 2.50.3 of draft NPS EN-3).</p>	<p>The Applicant intends to submit an Outline Soil Management Plan for the Project at the ES stage. The Outline Soil Management Plan will contain measures to minimise potential land contamination and ensure the sustainable reuse of soils in line with good practice guidance. The measures adopted as part of the Project to minimise adverse effects on soils, including measures to be set out in the Outline Soil Management Plan are set out in <b>section 17.1</b> of this chapter of the PEIR.</p>
<p><b>Draft NPS EN-5</b></p>	
<p>Developers should:</p> <ul style="list-style-type: none"> <li>• consider the land use effects of the proposal when planning the siting of substations or extensions; and</li> <li>• consider the options available for terminal towers, equipment, buildings and ancillary development appropriate to individual locations, seeking to keep effects to a reasonably practicable minimum.</li> </ul> <p>(paragraph 2.11.12 of Draft NPS EN-5).</p>	<p>The potential effects of the Project on agricultural land use is considered in <b>section 17.9</b> of this chapter of the PEIR. The measures adopted as part of the Project to minimise impacts on agricultural land use are set out in <b>section 17.1</b> of this chapter of the PEIR.</p>
<p>Developers should use space effectively to limit the area required for development consistent with appropriate mitigation measures and to minimise the adverse effects on existing land use and rights of way, whilst also having regard to future extension of the substation (paragraph 2.11.12 of Draft NPS EN-5).</p>	<p>This chapter of the PEIR considers the potential effects of the Project, including existing land use and PRoW likely to be affected. The effects of the Project on existing land use and PRoW are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise adverse effects on existing land use and PRoW are set out in <b>section 17.1</b> of this chapter of the PEIR.</p>

## The National Planning Policy Framework

17.2.2.7 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019 and 2023 (Department for Levelling Up, Housing and Communities, 2023). The NPPF sets out the Government’s planning policies for England.

17.2.2.8 **Table 17.2** sets out a summary of the NPPF policies relevant to this chapter.

**Table 17.2: Summary of NPPF requirements relevant to this chapter**

Policy	Key provisions	How and where considered in the PEIR
8. Promoting healthy and safe communities	Planning decisions should protect and enhance PRoW and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails (paragraph 100 of NPPF).	This chapter of the PEIR considers the potential effects of the Project on PRoW and other promoted routes.  The effects of the Project on PRoW and other promoted routes are presented in <b>section 17.9</b> of this chapter.
9. Promoting sustainable transport	Applications for development should give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas (paragraph 112 of NPPF).	The measures adopted as part of the Project to minimise impacts on PRoW and other promoted routes are set out in <b>section 17.7</b> of this chapter.
15. Conserving and enhancing the natural environment	Planning decisions should contribute to and enhance the natural and local environment by recognising the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland (paragraph 174 of NPPF). The NPPF defines best and most versatile agricultural land as “Land in grades 1, 2 and 3a of the Agricultural Land Classification” (Appendix 2: Glossary of NPPF).	This chapter of the PEIR considers the potential effects of the Project on agricultural land, including BMV agricultural land.  The effects of the Project on agricultural land are presented in <b>section 17.9</b> of this chapter.  The measures adopted as part of the Project to minimise impacts on soil quality are set out in <b>section 17.7</b> of this chapter.
15. Conserving and enhancing the natural environment	Planning decisions should contribute to and enhance the natural and local environment by protecting and enhancing valued soils (in a manner commensurate with their statutory status or identified quality in the development plan) (paragraph 174 of NPPF).	The Applicant intends to submit an Outline Soil Management Plan as part of the Outline Code of Construction Practice for the Project.  The measures adopted as part of the Project to minimise adverse effects on soils, including measures to be set out in the Outline Soil Management Plan are set out in <b>section 17.7</b> of this chapter.

17.2.2.9 The Planning Practice Guidance (PPG) (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2021) supports the NPPF and provides guidance across a range of topic areas.

17.2.2.10 The PPG provides guidance with respect to open space, sports and recreation facilities, PRoWs and the new Local Green Space Designation, and reiterates the importance of these features to maintaining the health and wellbeing of

people living and/or working nearby. In addition, the PPG states that PRoWs form an important component of sustainable transport links and should be protected or enhanced.

- 17.2.2.11 The PPG also provides guidance regarding agricultural land, including the ways in which the planning process can take account of the quality of agricultural land and safeguarding of soils.

### Local planning policy

- 17.2.2.12 The relevant local planning policies applicable to agricultural land and PRoW based on the extent of the study areas for this assessment are summarised in **Table 17.3**.

**Table 17.3: Summary of local planning policy relevant to this chapter**

Policy	Key provisions	How and where considered in the PEIR
<b>West Oxfordshire Local Plan 2031 (West Oxfordshire Council, 2018)</b>		
Policy EH6: Decentralised and renewable or low carbon energy development.	Renewable or low-carbon energy development should be located and designed to minimise any adverse impacts.  Any proposals for a solar farm involving best and most versatile agricultural land would need to be justified by the most compelling evidence which demonstrates why poorer quality land has not been used in preference to best and most versatile agricultural land.	The effects of the Project on agricultural land, including BMV soils are assessed in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on agricultural land are set out in <b>section 17.1</b> of this chapter.
Policy EH4: Public Real and green infrastructure	Includes requirements for the protection and enhancement of existing of green infrastructure, including PRoW.	This chapter of the PEIR considers the potential effects of the Project on PRoW and other promoted routes. The effects of the Project on PRoW are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on PRoW are set out in <b>section 17.1</b> of this chapter.
<b>Vale of White Horse Local Plan Parts 1 and 2 (Vale of White Horse District Council, 2016)</b>		
Core Policy 43: Natural Resources	Effective use of natural resources including, the avoidance of development of the best and most versatile agricultural land, unless it is demonstrated to be the most sustainable choice from reasonable alternatives, by first using areas of poorer quality land in preference to that of a higher quality	This chapter of the PEIR considers the potential effects of the Project on BMV agricultural land. The effects of the Project on BMV agricultural land are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on BMV agricultural land are set out in <b>section 17.1</b> of this chapter.



Policy	Key provisions	How and where considered in the PEIR
Core Policy 41: Renewable Energy	Includes requirements for applications for renewable and low carbon energy generation not to cause significant adverse effects on the safe movement of traffic and pedestrians.	This chapter of the PEIR considers the potential effects of the Project on PRoW and other promoted routes. The effects of the Project on PRoW and other promoted routes are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on PRoW and other promoted routes are set out in <b>section 17.1</b> of this chapter.
Core Policy 35: Promoting Public Transport, Cycling and Walking	Includes objectives to promote more sustainable modes of transport (e.g. public transport, walking and cycling) and safeguard accessibility.	The measures adopted as part of the Project to minimise impacts on PRoW and other promoted routes are set out in <b>section 17.1</b> of this chapter.
<b>Cherwell Local Plan Part 1 (Cherwell District Council, 2015)</b>		
Policy ESD 5: Renewable Energy	Paragraph B.201 The effects of large solar Photovoltaic (PV) arrays on the BMV agricultural land.	This chapter of the PEIR considers the potential effects of the Project on BMV agricultural land. The effects of the Project on BMV agricultural land are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on BMV agricultural land are set out in <b>section 17.1</b> of this chapter.
Policy ESD: 17: Green Infrastructure	Includes requirements for maintaining and enhancing existing of green infrastructure, including PRoW.	This chapter of the PEIR considers the potential effects of the Project on PRoW and other promoted routes. The effects of the Project on PRoW and other promoted routes are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on PRoW and other promoted routes are set out in <b>section 17.1</b> of this chapter.

## 17.3 Consultation and engagement

- 17.3.1.1 On 15 June 2023, the Applicants submitted a Scoping Report to the Planning Inspectorate (Botley West Solar Farm Scoping Report, 2023), which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operation and maintenance and decommissioning phases. It also described those topics or sub-topics which are proposed to be scoped out of the EIA process and provided justification as to why the Project would not have the potential to give rise to significant environmental effects in these areas.
- 17.3.1.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 24 July 2023 (Botley West Solar Farm Scoping Opinion, 2023). Key issues raised during the scoping process specific to agricultural land and PRoW are listed in **Table 17.4**, together with details of how these issues have been addressed within the PEIR.

17.3.1.3 Note that **Table 17.4** provides a high level summary of key issues raised in the Scoping Opinion (Botley West Solar Farm Scoping Opinion, 2023). Following submission of the PEIR, further work will be undertaken to address all stakeholder comments relevant to the assessment of agricultural land and PRow.

**Table 17.4: Summary of scoping responses**

Comment	How and where considered in the PEIR
<b>Planning Inspectorate</b>	
<p>The Scoping Report proposes to scope decommissioning effects out on the basis that effects from the decommissioning phase will be similar to, or of a lower magnitude than, the construction phase. No evidence has been provided to support this and the extent of impacts during construction are currently unknown. Due to the lack of information provided, the Inspectorate does not agree to scope this matter out. The Inspectorate would expect to see a Decommissioning Plan, agreed with the Local Authority, secured through the inclusion of an Outline Decommissioning Plan or similar with the Application. This should include consideration of how the land will be reinstated and to what standard and how/where infrastructure will be removed. The ES should clearly set out if and how impacts to agricultural land are to be assessed for the decommissioning phase (ID 3.11.1 of the Scoping Opinion for Botley West Solar Farm).</p>	<p>The potential effects arising from decommissioning of the Project are considered in <b>section 17.9</b> of this chapter of the PEIR.</p>
<p>The Applicant has stated that they will conduct a 'semi-detailed' ALC survey at the site based on 1 auger boring every 2ha and the excavation of soil pits. The Applicant should ensure that any approach is justified, aligns with relevant guidance and/or standards (e.g., Natural England Technical Information Note TIN049, 2012), and/or is agreed with the relevant consultees (ID 3.11.2 of the Scoping Opinion for Botley West Solar Farm).</p>	<p>The description of the survey work undertaken to date to inform the assessment of agricultural land and PRow is provided in <b>section 17.4</b> of this chapter of the PEIR. Detailed Agricultural Land Classification (ALC) surveys have not yet been undertaken for PEIR but will be completed to inform the ES.</p>
<p>The Scoping Report states that an outline Soil Management Strategy (SMS) will be produced, detailing measures to reduce or avoid damage to soils. For clarity, this should be provided with the application and detail how this is secured through the DCO (ID 3.11.3 of the Scoping Opinion for Botley West Solar Farm).</p>	<p>The Applicant intends to submit an Outline Soil Management Plan as part of the Outline CoCP for the Project. The measures adopted as part of the Project to minimise adverse effects on soils, including measures to be set out in the Outline Soil Management Plan are set out in <b>section 17.7</b> of this chapter.</p>
<p>The ES should provide a regional assessment of the loss of BMV land and assess any significant effects where they are likely to occur (ID 3.11.3 of the Scoping Opinion for Botley West Solar Farm).</p>	<p>This chapter of the PEIR considers the potential effects of the Project on BMV agricultural land. The effects of the Project on BMV agricultural land are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on BMV agricultural land are set out in <b>section 17.1</b> of this chapter.</p>
<b>Natural England</b>	
<p>We consider the retention and safeguarding of Best and Most Versatile Agricultural Land to be an</p>	<p>This chapter of the PEIR considers the potential effects of the Project on BMV agricultural land. The</p>

Comment	How and where considered in the PEIR
<p>important consideration for this Project. It is recognised that due to the nature of the development a good proportion of the agricultural land affected by the development will not be permanently lost. However, the large development area and 42 year development lifetime give rise to additional concern with regard to agricultural productivity.</p>	<p>effects of the Project on BMV agricultural land are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on BMV agricultural land are set out in <b>section 17.1</b> of this chapter.</p>
<p>The ES should consider potential impacts on access land, common land and public rights of way where appropriate. It should assess the scope to mitigate for any adverse impacts. Rights of Way Improvement Plans (ROWIP) can be used to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.</p>	<p>This chapter of the PEIR considers the potential effects of the Project on PRoW and other promoted routes. The effects of the Project on PRoW and other promoted routes are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on PRoW and other promoted routes are set out in <b>section 17.1</b> of this chapter.</p>
<p>The following issues should be considered and, where appropriate, included as part of the Environmental Statement (ES):</p> <ul style="list-style-type: none"> <li>• The degree to which soils would be disturbed or damaged as part of the development.</li> <li>• The extent to which agricultural land would be disturbed or lost as part of this development, including whether any best and most versatile (BMV) agricultural land would be impacted.</li> <li>• This may require a detailed Agricultural Land Classification (ALC) survey if one is not already available.</li> <li>• Where an ALC and soil survey of the land is required, this should normally be at a detailed level, e.g. one auger boring per hectare, (or more detailed for a small site) supported by pits dug in each main soil type to confirm the physical characteristics of the full depth of the soil resource, i.e. 1.2 metres. The survey data can inform suitable soil handling methods and appropriate reuse of the soil resource where required (e.g. agricultural reinstatement, habitat creation, landscaping, allotments and public open space).</li> <li>• The ES should set out details of how any adverse impacts on BMV agricultural land can be minimised through site design/masterplan.</li> <li>• The ES should set out details of how any adverse impacts on soils can be avoided or minimised and demonstrate how soils will be sustainably used and managed, including consideration in site design and master planning, and areas for green infrastructure or biodiversity net gain. The aim will be to minimise soil handling and maximise the sustainable use and management of the available soil to achieve successful after-uses and minimise off-site impacts.</li> </ul>	<p>This chapter of the PEIR considers the potential effects of the Project on BMV agricultural land. The effects of the Project on BMV agricultural land are presented in <b>section 17.9</b> of this chapter. The measures adopted as part of the Project to minimise impacts on BMV agricultural land are set out in <b>section 17.1</b> of this chapter.</p> <p>The description of the survey work undertaken to date to inform the assessment of agricultural land and PRoW is provided in <b>section 17.4</b> of this chapter of the PEIR. Detailed ALC surveys have not yet been undertaken for PEIR but will be completed to inform the ES.</p> <p>The Applicant intends to submit an Outline Soil Management Plan as part of the Outline CoCP for the Project. The measures adopted as part of the Project to minimise adverse effects on soils, including measures to be set out in the Outline Soil Management Plan are set out in <b>section 17.7</b> of this chapter.</p>



17.3.1.4 An initial meeting has also been held with Natural England on 16<sup>th</sup> October 2023 to discuss the assessment approach to the ALC and soil survey work undertaken to date and mitigation measures to be incorporated into the Outline Soil Management Plan, Outline CoCP and Outline PRoW Management Plan.

17.3.1.5 A summary of the key issues raised during consultation activities undertaken at the point of application will be presented in the ES, together with how these issues have been considered in the production of Chapter 17 – Agricultural land and PRoW.

## 17.4 Baseline methodology

### 17.4.1 Relevant guidance

17.4.1.1 The assessment of agricultural land and PRoW has been undertaken in accordance with the methodology set out in Volume 1, Chapter 4 – Approach to Environmental Assessment of the PEIR, in addition to the following guidance documents, where appropriate:

- Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils (Highways England *et al.*, 2020a);
- DMRB LA 112 Population and Human Health (Highways England *et al.*, 2020b);
- Agricultural Land Classification: protecting the best and most versatile agricultural land (TIN049) (Natural England, 2012);
- IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment (IEMA, 2022);
- Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009); and
- Natural England Guide to assessing development proposals on agricultural land (Natural England, 2018).

### 17.4.2 Scope of the assessment

17.4.2.1 The scope of this PEIR has been developed in consultation with relevant statutory and non-statutory consultees as detailed in **Table 17.4**.

17.4.2.2 Taking into account the scoping and consultation process, **Table 17.5** summarises the issues considered as part of this assessment.

**Table 17.5: Issues considered within this assessment**

Activity	Potential effects scoped into the assessment
<b>Construction phase</b>	
Construction of the solar PV array and associated infrastructure.	The permanent and temporary loss of agricultural land, including BMV land.
	The temporary disruption and reduced access to agricultural land, including BMV land.
	The temporary disruption or reduced access to PRow and other promoted routes.
<b>Decommissioning phase</b>	
Decommissioning of the solar PV array and associated infrastructure.	The temporary loss of agricultural land, including BMV land.
	The temporary disruption and reduced access to agricultural land, including BMV land.
	The temporary disruption or reduced access to PRow and other promoted routes.

### 17.4.3 Study area

- 17.4.3.1 The study area for this chapter is shown in Volume 2, Figures, Figures 17.1 to 17.5 of this chapter of the PEIR and includes the land within the DCO boundary (Study Area).
- 17.4.3.2 The Study Area was selected on the basis that it presents the maximum area within which potential impacts to agricultural land and PRow were considered likely to occur during construction, operation and maintenance and decommissioning of the Project.

### 17.4.4 Methodology for baseline studies

#### Desk studies

- 17.4.4.1 The desk study was used to identify of the following baseline information within the Study Area:
  - soil types and patterns of soils;
  - the quality of agricultural land;
  - nature and pattern of agricultural land holdings, including the type, purpose, composition, and distribution of agricultural land;
  - PRow and other promoted routes, including National Trails, National Cycle Routes (NCR) and Long Distance Paths; and
  - The users of PRow and other promoted routes, including pedestrians, cyclists, and equestrians.
- 17.4.4.2 Soil types and patterns of soils were derived from a variety of published soils data. The quality of agricultural land has been classified in accordance with the Ministry of Agriculture, Fisheries and Food (MAFF) Agricultural Land

Classification (ALC) of England and Wales Revised guidelines and criteria for grading the quality of agricultural land (MAFF, 1988).

- 17.4.4.3 The Agricultural Land Classification system is based on the long-term physical limitations of land for agricultural use. Factors affecting grade are the climate, site, soil characteristics, and the interactions between them. The ALC system is concerned with the inherent potential of land across a variety of different farming systems. The current agricultural use does not affect the ALC grade.
- 17.4.4.4 Desk information on the patterns of agricultural land use is derived from government farming statistical datasets that provide data at a district, county and national level.

### Site-specific surveys

- 17.4.4.5 An ALC and soil survey has been undertaken by Reading Agricultural Consultants Ltd across the majority of the agricultural land within the Project. Areas where the survey has not been completed so far include areas where dry soil conditions have limited the ability to survey certain areas or crop conditions have prevented survey access. The areas of not-surveyed land are shown on Figure 17.3.
- 17.4.4.6 The survey has been undertaken with samples taken with a dutch hand auger to a maximum depth of 1.2 m taken at 1 boring per 2 ha of land. In addition, soil pits have been excavated by hand within identified soil units to determine soil characteristics relevant to the classification of the land.

## 17.5 Baseline environment

### 17.5.1 Desk study

- 17.5.1.1 Information on agricultural land and PRow within the Study Area was collected through a detailed review of existing studies and datasets. These are summarised at **Table 17.6**.

**Table 17.6: Summary of desk study sources used**

Title	Source	Year	Author
Agricultural Land Classification Grades – Post 1988 (England).	Natural England	2017	Natural England
Agricultural Land Classification, Provisional Sheets 145 Banbury (1974) and 158 Oxford & Newbury (1971) 1:63,360	Ministry of Agriculture Fisheries and Food	1971 and 1974	Ministry of Agriculture Fisheries and Food
BGS Sheet 236 Witney 1:63:360	British Geological Survey	1972	British Geological Survey
British Geological Survey Geology Viewer	British Geological Survey	2023	British Geological Survey

Title	Source	Year	Author
British Geological Survey Sheet 218 Chipping Norton 1:63,360, published in 1968.	British Geological Survey	1968	British Geological Survey
Defra – Agricultural Annual Statistics on structure of the agricultural industry at 1 June 2021.	Defra	2022	Defra
Meteorological Office Climatological Data for ALC. Gridpoint datasets of climatic variables, at 5 kilometre (km) intervals for England and Wales.	The Meteorological Office	1989	The Meteorological Office Soil Survey and Land Research Centre
Multi-agency Geographic Information for the Countryside (MAGIC).	MAGIC	2023	Defra
National Soil Map of England and Wales, Sheet 6 (Eastern England), 1:250,000 and accompanying Regional Bulletin	Soil Survey of England and Wales	1984	Soil Survey of England and Wales
National Trails mapping data.	National Trails	2023	National Trails
NCR map data of signed paths and routes for walking, wheeling, cycling and exploring outdoors.	Sustrans	2023	Sustrans
Oxfordshire County Council Countryside Access Map for PRow and other promoted routes	Oxfordshire County Council	2023	Oxfordshire County Council
Provisional ALC (England).	Natural England	2017	Natural England

## Agricultural Land Quality and Soils

### Location and Site

17.5.1.2 The Study Area comprises approximately 1,265 ha of agricultural land within three broad locations:

- land between Wootton and Tackley;
- land west of Yarnton and north of Cassington; and
- land west of Botley at Oxford.

- 17.5.1.3 The land within the study is predominantly utilised for arable cultivation. The main areas of grassland within the Study Area are located adjacent to the River Dorn and around Burleigh Wood.
- 17.5.1.4 Across the Study Area, the overall topography is gently undulating at altitudes between around 65 m and 120 m Above Ordnance Datum (AOD). The altitude generally falls with distance south, other than into the river valleys. The slopes are shallow and are not limiting to agricultural land quality.
- 17.5.1.5 Drainage within the Study Area is currently achieved via a combination of the slopes and field ditches, which act to direct water into the valleys of the River Dorn, River Evenlode and River Thames.

**Agro-climatic conditions**

- 17.5.1.6 Agro-climatic data for the Study Area have been interpolated from the Meteorological Office’s standard 5 km grid point dataset at seven representative points and altitudes and are presented in **Table 17.7** below.
- 17.5.1.7 Agro-climatic data indicates that the Study Area is moderately warm with moderate rainfall. Moisture deficits are moderate to moderately large. The number of Field Capacity Days (the number of days where the soil is above field capacity) is about average for lowland England (150) and is favourable for providing opportunities for agricultural field work. There is no overriding climatic limitation to agricultural land quality.

**Table 17.7: Agro-climatic data at seven locations within the Study Area**

Parameter	Locations						
	1	2	3	4	5	6	7
Easting	445679	445533	446186	444715	443878	443121	445925
Northing	220800	219000	217800	213720	213011	212275	205378
Altitude	110 m	95 m	98 m	85 m	68 m	75 m	75 m
Average Annual Rainfall	701 mm	691 mm	685 mm	682 mm	668 mm	673 mm	646 mm
Accumulated Temperatures >0°C	1,383 day°	1,400 day°	1,397 day°	1,414 day°	1,434 day°	1,427 day°	1,427 day°
Field Capacity Days	153 days	151 days	149 days	148 days	146 days	146 days	136 days
Average Moisture Deficit, wheat	99 mm	102 mm	102 mm	104 mm	106 mm	105 mm	110 mm
Average Moisture Deficit, potatoes	89 mm	92 mm	92 mm	95 mm	99 mm	97 mm	103 mm

## Soil parent material and soil type

- 17.5.1.8 The underlying geology (provided by the British Geological Survey) across most of the Study Area, from Burleigh Wood and south, comprises the Oxford Clay Formation and the West Walton Formation mapped together as one unit.
- 17.5.1.9 The Oxford Clay Formation includes grey silicate mudstone with sporadic limestone nodules. The West Walton Formation includes calcareous mudstone, silty mudstone, and siltstone, with some fine-grained sandstones and limestone or siltstone nodules.
- 17.5.1.10 Narrow bands of mudstone and sandstone of the Kellaways Formation mark the boundary to separate units of the Forest Marble Formation and the Cornbrash Limestone Formation which occur north, west and south of Burleigh Wood and generally west of the River Evenlode where the topography is flatter. The Forest Marble Formation has variably calcareous silicate-mudstone with cross-bedded limestone units, with some parts dominated by the limestone. The Cornbrash Formation is characterised by fine- to medium-grained limestone.
- 17.5.1.11 In the northern part of the Study Area, between Wootton and Tackley, the bedrock is predominantly a mix of the Forest Marble Formation and the Cornbrash Formation, with the addition of the White Limestone Formation in the west, comprising pale grey to off-white or yellowish limestone with localised variations in composition. A small area of the Hampen Formation limestone is mapped at Sansom's Platt.
- 17.5.1.12 Superficial deposits mainly comprise pockets of sand and gravel formations mapped between Cassington and Burleigh Road. Superficial deposits of alluvium are mapped in conjunction with the River Evenlode. A small pocket of head deposits is mapped on the north side of the B4027, east of Stratford Lane.
- 17.5.1.13 Soil mapping (1:250,000 scale) (Soil Survey of England and Wales, 1984), indicates that the Study Area comprises the following soil associations:
- Elmton 1 association (343a), which is located across much of the northern part of the Study Area and is characterised by shallow, well drained, brashy, calcareous fine loamy soils over limestone;
  - Aberford association (511a), which is located across the remainder of the northern part of the Study Area and includes soils similar to the Elmton 1 association but is only locally brashy;
  - Denchworth association (712b), which forms most of the central part of the Study Area, between Yarnton and Cassington in the south at Farmoor and characterised by seasonally waterlogged, clayey soils;
  - Essendon association (714d), which is located around Bladon Heath and comprises seasonally waterlogged, coarse loamy over clayey soils;
  - Badsey 1 association (511h), which is located west of Cassington and west of Lower Road and characterised by well drained, calcareous and non-calcareous, fine loamy soils over limestone gravel; and

- Fladbury 1 association (813b), which is located in the valley of the River Evenlode, comprising stoneless, clayey soils variably affected by groundwater.

### Published ALC Data

17.5.1.14 Volume 2, Figures, Figure 17.1 contains two sources of published data on ALC, including:

- MAFF Provisional ALC mapping; and
- Sites where post-1988 ALC revision surveys have been undertaken by Defra.

17.5.1.15 The provisional mapping shows the distribution of ALC grades 1 to 5 but is based on reconnaissance survey work and was produced prior to the comprehensive revision of the ALC system in 1988. Although the provisional mapping provides an indication of the likely relative grading of areas of agricultural land, it cannot be used to accurately identify the detailed grading of individual areas and does not provide a subdivision of Grade 3 land into Subgrades 3a best and most versatile land and Subgrade 3b, which comprises lower quality land.

17.5.1.16 Based on the provisional ALC mapping, the percentages of the ALC grades (1-5) within Oxfordshire compared to England are presented in **Table 17.8** below.

**Table 17.8: Provisional ALC Mapping for Oxfordshire and England**

ALC Grade	Agricultural Land - Oxfordshire (%)	Agricultural land - England (%)
1	0.7	3.3
2	20.2	16.7
3	58.5	54.0
4	20.1	15.7
5	0.5	10.3

17.5.1.17 Provisional ALC mapping indicates that land within the Oxfordshire comprises a similar area of Grades 1, 2 and 3 land to England as a whole, but with a slightly higher percentage of Grade 2 land.

17.5.1.18 Detailed ALC survey work carried out by Defra, more recently, applying the post-1988 ALC Guidelines, only comprises a small area of land within the Project which has been graded a mixture of mainly lower quality Subgrade 3b land, together with smaller areas of Grade 2 and 3b land.

17.5.1.19 In addition, in 2017 Natural England produced predictive BMV land assessment maps, showing the potential location of areas of best and most versatile land. These maps divided the potential for BMV agricultural land into three distinct categories:

1. Low likelihood of BMV land (<20% area BMV);
2. Moderate likelihood of BMV land (20-60% area BMV); and



3. High likelihood of BMV land (>60% area BMV).

17.5.1.20 Volume 2, Figures, Figure 17.3 shows the distribution of categories across the area of the Project.

17.5.1.21 The area and percentage of predictive ALC grades of agricultural land within the Study Area, according to the predictive BMV land assessment maps (Natural England, 2017) are provided in **Table 17.9** below.

**Table 17.9: Predictive ALC Grades within the Study Area**

ALC Predictive Grade	Area (ha)	Percentage (%)
Low likelihood of BMV land (<20% area BMV)	865.2	59
Moderate likelihood of BMV land (20-60% area BMV)	583.0	40
High likelihood of BMV land (>60% area BMV)	18.0	1

17.5.1.22 If the highest potential percentages of BMV agricultural land are assumed for each the ALC predicative grade (i.e. 20% for low, 60% for moderate and 100% for high), the area of BMV agricultural land within the Study Area is predicted to be approximately 541 ha.

### Agricultural Land Use

17.5.1.23 The Defra geographical breakdown series dataset for England (Defra, 2021) provides local authority statistical data for agricultural land use. The agricultural land within the Study Area comprises land within the districts of West Oxfordshire, Vale of White Horse and Cherwell.

**Table 17.10: Statistical data for agricultural land use**

Districts	Cereals		Fruit and Vegetables		Grassland		Total Farmed Area
	Area (ha)	Coverage (%)	Area (ha)	Coverage (%)	Area (ha)	Coverage (%)	Area (ha)
Cherwell	18,131	49	1,346	4	17,488	47	<b>47,507</b>
Vale of White Horse	18,552	57	120	<1	13,697	42	<b>43,378</b>
West Oxfordshire	21,825	54	80	<1	18,132	45	<b>53,974</b>
Total for three Districts	58,508	54	1,546	1	49,137	45	<b>144,859</b>
England	2,691,749	38	119,104	2	4,313,954	60	<b>8,975,549</b>



- 17.5.1.24 The statistical data indicates that the land within the three districts within the Study Area comprises a higher percentage of cereal cropping than the England average. The area of land within the Project is predominantly in arable cropping.
- 17.5.1.25 Section 2.1.6 of the United Kingdom Food Security Report 2021 (Defra, 2021) at section 2.1.6 estimates that domestic wheat production is of the order of 15 million tonnes per year, at approximately 8 tonnes per hectare.
- 17.5.1.26 On the assumption that approximately 1292 ha of the Project comprises agricultural land that is used predominantly for arable cultivation, at 8 tonnes per hectare, this would produce in the order of 10,336 tonnes of wheat/annum.
- 17.5.1.27 The agricultural land within the Project forms part of four land holdings as shown on Volume 2, Figures, Figure 17.4. Most of the land within the Project forms part of Blenheim Estate (Holding 1), which is a substantial land holding comprising a total of approximately 4900 ha (12,000 acres) of land. The land affected within the Study Area comprises predominantly arable land, with the majority of it farmed on contract farming agreements, with two small areas still operating on farm business tenancy agreements that end by the middle of 2025.
- 17.5.1.28 The area identified as Holding 2, comprises approximately 55.5 ha of land and forms part of a larger land holding of approximately 285 ha that is all within the ownership of one farmer and situated across several land parcels remote from Holding 2. Holding 2 is used for an arable based enterprise, which is run by the main owner with assistance from two further employees.
- 17.5.1.29 The area identified as Holding 3, comprises approximately 80.5 ha of arable land and forms part of a larger land holding of approximately 215 ha of land within the ownership of the holding. The holding is a family operated enterprise run by the father with part time assistance from his two sons. The father is considering retirement and the holding would be passed to his two sons to operate it at that point. The holding is predominantly farmed on an arable rotation including wheat, maize and beans.

## 17.5.2 Site-specific surveys

- 17.5.2.1 The Soil Survey Auger Boring and Soil Pit Information (see Volume 3, Appendices, Appendix 17.1) results of the ALC survey work undertaken to date, including auger boring and soil pit surveys Site-specific surveys of the entire Study Area are yet to be completed. Notwithstanding, the distribution of ALC grades, based on the survey work undertaken to date is presented in **Table 17.11**.

**Table 17.11: ALC Site survey results according to survey work undertaken to date**

ALC Grade	Area (ha)	Percentage%
1	2.1	<1
2	94.0	7
3a	381.7	31
3b	781.0	62
Non Agricultural	1.6	<1
Total Surveyed	1260.4	100
Not Surveyed	31.6	

17.5.2.2 The ALC survey work that has been undertaken to date has identified that:

- approximately 38% of the land surveyed to date comprises land within the category of BMV agricultural land (ALC Grades 1-3a); and
- approximately 62% of the land surveyed to date comprises lower quality Subgrade 3b agricultural land.

17.5.2.3 The results of the ALC survey work carried out to date are generally consistent with the patterns of soil types and ALC gradings indicated by the published ALC data with a higher percentage of lower quality Subgrade 3b land across the Study Area. In addition, the majority of land that is identified as BMV agricultural land is graded as being in the lowest quality of that category i.e Subgrade 3a land.

### 17.5.3 Public Rights of Way

17.5.3.1 PRoW and other promoted routes, including National Cycle Routes (NCRs), Long Distance Paths, footpaths and bridleways located within Study Area that could be affected during the construction, operation and maintenance and decommissioning of the Project are set out in **Table 17.12**.

17.5.3.2 The location and geographic extent of PRoW and other promoted routes are presented in Volume 2, Figures, Figures 17.5 of the PEIR.

**Table 17.12: PRowS and other promoted routes located within or adjacent to the Study Area**

Type	Land Reference(s)	Description
Bridleways	124/4/10, 132/5/10, 206/11/40, 206/23/10, 206/23/20, 206/23/30, 206/8/20, 206/8/30, 342/1/10, 342/1/20, 342/2/10, 342/2/20, 342/3/40, 379/19/20, 379/23/10, 413/5/10, 413/5/20, 413/5/40, 413/5/50, 416/11/20, 416/11/30, 416/11/40, 416/21/10, 416/21/20	Several designated public bridleways intersect the Study Area, which provide connectivity to wider PRow network.
Footpath	124/12/10, 124/5/10, 132/1/10, 132/10/10, 132/2/10, 132/3/10, 132/4/10, 132/6/10, 152/6/10, 152/7/10, 152/8/10, 184/15/20, 184/15/30, 184/16/20, 184/22/20, 184/29/10, 184/30/40, 184/34/10, 184/36/10, 184/37/10, 184/46/10, 184/50/10, 206/5/10, 206/6/20, 238/1/10, 238/2/10, 238/2/20, 238/4/10, 238/5/20, 265/24/10, 265/24/20, 265/25/10, 265/26/10, 265/34/10, 342/4/10, 342/5/10, 342/5/20, 342/6/10, 379/1/30, 416/24/10, 416/5/10, 416/5/20, 420/14/10, 420/14/20, 420/15/20, 420/15/30	Several designated public footpaths intersect the Study Area, which provide connectivity to wider PRow network.
NCR	NCR 5	NCR 5 begins in Reading and follows the northern half of the Thames Valley cycle route as it crosses the Chiltern Hills. NCR 5 then passes through Wallingford, Didcot, and Abingdon on the way to Oxford.
Long Distance Path	Oxford Greenbelt Way	Oxford Greenbelt Way is a 50 mile circular path exploring the countryside around the city of Oxford. The route also connects four of Oxford's Park and Ride sites and intersects with several public bus routes.
	Shakespeare Way	Shakespeare Way is a 146 mile long distance path between Stratford-upon-Avon and Shakespeare's Globe in London. This long distance route utilises existing PRow and minor roads.

## 17.5.4 Future baseline conditions

- 17.5.4.1 A report prepared for Defra and the Welsh Government 2014, based on research undertaken by Cranfield University and ADAS (Keay et al., 2014) considers the impact of climate change on the capability of land for agriculture. In terms of the quality of agricultural land and the proportions on BMV land, the findings of the report 'suggest that the greatest impact on the proportion of BMV in England and Wales will take place after 2030'.
- 17.5.4.2 For sites which are affected by soil wetness, the report concluded that the quality of the land would be 'Largely unaffected over most of England and Wales mainly because, even though the start and end dates of field capacity are likely to change, the duration remained constant'. Where droughtiness is the main limitation, the retention of high quality land would be likely to become

more dependent on the use of irrigation to maintain productivity and versatility in agricultural land use.

- 17.5.4.3 The report concludes that ‘the findings of this Project do not undermine the current use of the ALC system within land use planning’. In this case therefore, where soil wetness is the main limiting factor, the quality of the land would, based on this recent research, be unlikely to be significantly affected by climate change.
- 17.5.4.4 Section 6.5.1 of the IEMA Guide: A New Perspective on Land and Soil in Environmental Impact Assessment (IEMA, 2022) notes that changes to weather patterns associated with climate change will have different effects across the UK. There will be an increase in extreme events, shifts in temperature and variations in rainfall.
- 17.5.4.5 This could directly affect many soil properties including drainage, soil moisture content, nutrient cycling rates, carbon sequestration and emission rates, and changes in soil leaching, erosion, and run-off. It could also affect soil biodiversity and stability through clay shrinking. There will also be indirect effects due to land use changes, together with socio-economic consequences.
- 17.5.4.6 Section 6.5, Table 1 of the IEMA guidance (IEMA, 2022) notes that “for natural and undisturbed agricultural soils, drier conditions could affect their quality and capability, with currently droughty soils being downgraded but wet soils potentially upgraded (with respect to ALC).”
- 17.5.4.7 Based on the information available to date and the fact that the 1988 ALC Guidelines are still those currently applied for future planning purposes , no significant changes to the baseline conditions are anticipated with respect to agricultural land and PRow. Although additional PRow may be created in the future, the location and nature of these cannot be accurately predicted for the purposes of the assessment.
- 17.5.4.8 With regard to future land use, some areas of land within the Study Area are allocated for future development. The potential cumulative effects between the Project and other proposed developments are considered in **section 17.11** of this chapter of the PEIR.

## 17.5.5 Key receptors

- 17.5.5.1 **Table 17.13** identifies the key receptors taken forward into the assessment of agricultural land and PRow.

**Table 17.13: Key receptors taken forward to assessment**

Receptor	Description	Sensitivity/value
<b>Agricultural land quality</b>		
BMV agricultural land	Area classified as ALC Grade 1 agricultural land within the land use and recreation Study Area.	Very high
	Area classified as ALC Grade 2 agricultural land within the land use and recreation Study Area.	
	Area classified as ALC Grade 3a agricultural land within the land use and recreation Study Area.	High

Receptor	Description	Sensitivity/value
Other ALC Grades	Area classified as ALC Grade 3b agricultural land within the land use and recreation Study Area.	Medium
	Area classified as ALC Grade 4 agricultural land within the land use and recreation Study Area.	Low
	Area classified as ALC Grade 5 agricultural land within the land use and recreation Study Area.	Negligible
<b>Agricultural land holdings</b>		
Agricultural land holdings	Agricultural land holding(s) where the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and access between land and key agricultural infrastructure is required on a frequent basis (daily).	Very high
	Agricultural land holding(s) where land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and access between land and key agricultural infrastructure is required on a frequent basis (weekly).	High
	Agricultural land holding(s) where land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure; and access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly).	Medium
	Agricultural land holding(s) where land in which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less).	Low
<b>PRoW and other promoted routes</b>		
NCR 5	NCR 5 begins in Reading and follows the northern half of the Thames Valley cycle route as it crosses the Chiltern Hills. NCR 5 then passes through Wallingford, Didcot, and Abingdon on the way to Oxford.	Very High
Oxford Greenbelt Way Long Distance Path	Oxford Greenbelt Way is a 50 mile circular path exploring the countryside around the city of Oxford. The route also connects four of Oxford's Park and Ride sites and intersects with several public bus routes.	High
Shakespeare Way Long Distance Path	Shakespeare Way is a 146 mile long distance path between Stratford-upon-Avon and Shakespeare's Globe in London. This long distance route utilises existing PRoW and minor roads.	High
PRoW, including bridleways and footpaths	Multiple designated PRoW, (public footpaths) intersect the Study Area.	Medium

## 17.6 Key parameters for assessment

### 17.6.1 Maximum design scenario

- 17.6.1.1 The maximum design scenarios identified in **Table 17.14** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 6: Project Description of the PEIR. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different infrastructure layout), to that assessed here be taken forward in the final design scheme.

**Table 17.14: Maximum design scenario considered for the assessment of potential impacts**

C=construction, O=operational and maintenance, D=decommissioning

Potential impact	Phase			Maximum Design Scenario	Justification		
	C	O	D				
The temporary loss of agricultural land, including BMV land and land from landholdings.	✓	×	✓	<p><b>Construction phase</b></p> <ul style="list-style-type: none"> <li>Construction of the Project is anticipated to last up to approximately 24 months.</li> <li>The maximum total area of agricultural land within the DCO boundary is approximately 1,300 ha.</li> <li>The maximum total developable area for the solar PV arrays is 956 ha, which is divided into the following: <ul style="list-style-type: none"> <li>Northern site is approximately 266 ha;</li> <li>Central site is approximately 572 ha; and</li> <li>Southern site is approximately 51 ha.</li> </ul> </li> <li>156 Power Converter Stations (1 per 7ha), each with a footprint area measuring approximately 12 m x 3 m.</li> <li>8 HV Transformers, each with a footprint area measuring approximately 15 m x 5 m</li> </ul>	<p>The maximum design scenario (MDS) considers the greatest geographical area and longest duration of temporary and permanent loss agricultural land during construction, operation and decommissioning of the Project.</p>		
The permanent loss of agricultural land, including BMV land and land from landholdings.	✓	✓	✓				
The temporary disruption and reduced access to agricultural land, including BMV land.	✓	×	✓			<ul style="list-style-type: none"> <li>DC Cables from Solar PV Modules to Inverters would be buried up to approximately 40-80 cm below ground.</li> <li>AC Cables from Transformers to Secondary Substation would be buried up to 101 cm (good agricultural land).</li> <li>1 main substation – footprint approximately 1ha</li> <li>1 NGET substation with a site area measuring up to approximately 3.8 ha.</li> <li>Four main temporary construction compounds and three temporary field compounds located within the DCO boundary.</li> </ul>	<p>The MDS considers the greatest geographical area and longest duration of temporary and permanent disruption and reduced access to agricultural land during construction, operation and decommissioning of the Project.</p>
The temporary disruption or reduced access to PRoW and other promoted routes.	✓	×	✓			<p><b>Operation and maintenance phase</b></p> <ul style="list-style-type: none"> <li>The Project will have a 35 year lease , with the option to extend to 42 years.</li> <li>The maximum total developable area for the solar PV arrays is 956 ha, which is divided into the following: <ul style="list-style-type: none"> <li>Northern site is approximately 266 ha;</li> </ul> </li> </ul>	<p>The MDS considers the greatest geographical area and longest duration of temporary and permanent disruption and reduced access to PRoW and other promoted routes during construction, operation and</p>



Potential impact	Phase			Maximum Design Scenario	Justification
	C	O	D		
				<ul style="list-style-type: none"> <li>– Central site is approximately 639 ha; and</li> <li>– Southern site is approximately 51 ha.</li> <li>• 156 Power Converter Stations (1 per 7ha), each with a footprint area measuring approximately 120 m x 3 m.</li> <li>• 8 HV Transformers, each with a footprint area measuring approximately 15 m x 5 m.</li> <li>• 1 main substation – footprint approximately 1ha</li> <li>• 1 NGET substation with a site area measuring up to approximately 3.8 ha.</li> </ul> <p><b>Decommissioning phase</b></p> <ul style="list-style-type: none"> <li>• Decommissioning of the Project would start two years before the end of the lease and is anticipated to last up to approximately 24 months.</li> <li>• The maximum total developable area for the solar PV arrays is 956 ha, which is divided into the following: <ul style="list-style-type: none"> <li>– Northern site is approximately 266 ha;</li> <li>– Central site is approximately 639 ha; and</li> <li>– Southern site is approximately 51 ha.</li> </ul> </li> <li>• 156 Power Converter Stations (1 per 7ha), each with a footprint area measuring approximately 120 m x 3 m.</li> <li>• 8 HV Transformers, each with a footprint area measuring approximately 15 m x 5 m.</li> <li>• 1 main substation – footprint approximately 1ha.</li> <li>• 1 NGET substation with a site area measuring up to approximately 3.8 ha.</li> </ul>	decommissioning of the Project.



## 17.7 Mitigation measures intended to be adopted as part of the Project

- 17.7.1.1 For the purposes of the EIA process, the term ‘Measures adopted as part of the Project’ is used to include the following types of mitigation measures (adapted from IEMA, 2016):
- Primary (inherent) mitigation - measures included as part of the Project design. IEMA describes these as ‘*modifications to the location or design of the development made during the pre-application phase that are an inherent part of the Project and do not require additional action to be taken*’. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the Project and the parameters secured in the DCO and/or marine licences. For example, a reduction in footprint or height.
  - Secondary (foreseeable) mitigation. IEMA describes these as ‘*actions that will require further activity in order to achieve the anticipated outcome*’. These include measures required to reduce the significance of environmental effects (such as lighting limits) and may be secured through environmental management plan.
  - Tertiary (inexorable) mitigation. IEMA describes these as ‘*actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects*’. It may be helpful to secure such measures through a CoCP or similar.
- 17.7.1.2 For the purposes of this PEIR, mitigation measures set out are those considered to be appropriate for the Project at this time. They may evolve and/or be refined in response to the statutory consultation process and/or other considerations.
- 17.7.1.3 Where relevant, measures have been identified that may result in enhancement of environmental conditions. The mitigation measures relevant to this chapter are summarised in **Table 17.15**.
- 17.7.1.4 Primary and tertiary measures that are intended to form part of the final design (and/or are established legislative requirements/good practice) have been taken into account as part of the initial assessment presented in **section 17.9** below (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures that the Applicants are intending to commit to, are taken into account in the assessment of effects.
- 17.7.1.5 Where an assessment identifies likely significant adverse effects, further mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by IEMA as actions that will require further activity in order to achieve the anticipated outcome and may be imposed as part of the planning consent, or

through inclusion in the Environmental Statement (referred to as secondary mitigation measures in IEMA, 2016). For further or secondary measures both pre-mitigation and residual effects are presented.

**Table 17.15: Mitigation measures intended to be adopted as part of the Project.**

Mitigation number	Measure adopted	How the measure will be secured
<b>Primary Mitigation</b>		
17.1	Disturbance to PRowWs will be temporary where reasonably practicable and PRowWs will be reinstated as soon as reasonably practical. PRowW Management will be developed in accordance with the Outline PRowW Management Plan. The Outline PRowW Management Plan will include details of temporary and permanent diversions, closures, gated crossings, and signage to be provided during construction.	This mitigation measure would be developed in accordance with the Outline PRowW Management Plan, which is to be submitted with the ES. The PRowW Management Plan would be implemented via an Outline CoCP, which forms a requirement of the DCO application for the Project.
17.2	Where PRowWs are required to be closed during the construction Project, they will not be closed for any longer than is necessary to complete the construction activity.	This mitigation measure would be developed in accordance with the Outline PRowW Management Plan, which is to be submitted with the ES. The PRowW Management Plan would be implemented via an Outline CoCP, which forms a requirement of the DCO application for the Project.
<b>Tertiary Mitigation</b>		
17.3	<p>A Soil Management Plan to ensure the conservation of soil resources; avoidance of damage to soil structures; maintenance of soil drainage; and the reinstatement, where required, of soil profiles as near as possible to their former condition. To maintain the quality of agricultural land temporarily affected by disturbance during the construction and decommissioning period. The following measures would be included in the Soil Management Plan for the Project:</p> <ul style="list-style-type: none"> <li>• Separate stripping and storage of identified topsoil and subsoil resources to prevent mixing of soil materials which can reduce overall soil quality.</li> <li>• Location of topsoil and subsoil heaps to avoid cross-contamination of materials and the trafficking of soil heaps by construction traffic.</li> <li>• Maintenance of topsoil and subsoil heaps to reduce potential losses of soil materials throughout the duration of storage.</li> <li>• Control of the timing of soil handling operations to reduce potential soil damage through handling in unsuitable conditions.</li> </ul>	These mitigation measures would be included in the Outline Soil Management Plan and implemented via an Outline CoCP, which forms a requirement of the DCO application for the Project.

Mitigation number	Measure adopted	How the measure will be secured
	<ul style="list-style-type: none"> <li>Choice of soil handling machinery and method for its use, to reduce potential for soil compaction and soil damage.</li> <li>Implementation of appropriate soil aftercare following reinstatement of land in accordance with the Outline Soil Management Strategy.</li> <li>Careful supervision of soil handling operations on site to ensure that recognised good practice is effectively implemented on site.</li> </ul>	
17.4	Farm access routes between fields within a farm holding will be maintained (where reasonably practicable), or alternative routes agreed with the land holder to enable the continued operation of agricultural land holdings during the construction phase.	These mitigation measures would be developed in line with the Outline CoCP, which is to be submitted alongside the ES. The Outline CoCP would form a requirement of the DCO application for the Project.
17.5	PRoWs affected during construction of the Project will be reinstated following completion of the works to ensure that no permanent effects remain and to maintain the connectivity of the wider PRoW network.	

## 17.8 Impact assessment methodology

### 17.8.1 Overview

17.8.1.1 The significance of an effect is determined based on the sensitivity of a receptor and the magnitude of an impact. This section describes the criteria applied in this chapter to characterise the sensitivity of receptors and magnitude of potential impacts. The terms used to define magnitude and sensitivity are based on and have been adapted from those used in the DMRB methodology (Highways England *et al.*, 2020).

17.8.1.2 The approach to determining the significance of effects is a two-stage process that involves defining the magnitude of the impact and the sensitivity of the receptor. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in Volume 1, Chapter 5: Need, National Planning Policy, and Alternatives Considered.

17.8.1.3 The criteria for defining magnitude in this chapter have been taken from DMRB LA 109 Geology and Soils (Highways England *et al.*, 2020a) and DMRB LA 112 Population and Human Health (Highways England *et al.*, 2020b).

### 17.8.2 Receptor sensitivity/value

17.8.2.1 The criteria for defining sensitivity in this chapter are outlined in **Table 17.16** below.

**Table 17.16: Sensitivity criteria**

Sensitivity	Sub-topic	Definition
Very High	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>• ALC Grade 1 (excellent quality) agricultural land; and</li> <li>• ALC Grade 2 (very good quality) agricultural land.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• land in which the enterprise is wholly reliant on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on a frequent basis (daily).</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>• National trails and other linear 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 route. Little/no potential for substitution.</li> <li>• 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.</li> <li>• Rights of way crossing roads at grade with &gt;16,000 vehicles per day.</li> </ul>

Sensitivity	Sub-topic	Definition
High	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>• ALC Grade 3a (good quality) agricultural land.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• land in which the enterprise is dependent on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on a frequent basis (weekly).</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>• regional trails and routes likely to be used for recreation and to a lesser extent commuting, that record frequent (daily) use;</li> <li>• Limited potential for substitution; and</li> <li>• rights of way crossing roads at grade with &gt;8,000 – 16,000 vehicles per day.</li> </ul>
Medium	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>• ALC Grade 3b (moderate quality) agricultural land.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• land in which the enterprise is partially dependent on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on a reasonably frequent basis (monthly).</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>• PRoW and other routes close to communities which are used for recreational purposes, but for which alternative routes can be taken;</li> <li>• these routes are likely to link to a wider network of routes to provide Options for longer recreational journeys; and</li> <li>• rights of way crossing roads at grade with &gt;4,000 – 8,000 vehicles per day.</li> </ul>
Low	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>• ALC Grade 4 (poor quality) agricultural land; and</li> <li>• ALC Grade 5 (very poor quality) agricultural land.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>• land in which the enterprise is not dependent on the spatial relationship of land to key agricultural infrastructure; and</li> <li>• access between land and key agricultural infrastructure is required on an infrequent basis (monthly or less).</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>• routes which have fallen into disuse through past severance, or which are scarcely used because they do not currently offer a meaningful route for utility/recreational purposes; and</li> <li>• rights of way crossing roads at grade with &lt;4,000 vehicles per day.</li> </ul>
Negligible	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>• previously developed land with little potential to return to agriculture.</li> </ul>

Sensitivity	Sub-topic	Definition
		<b>Agricultural land holdings:</b> <ul style="list-style-type: none"> <li>• areas of land which are infrequently used on a non-commercial basis.</li> </ul>
	PRoW and other promoted routes	<b>Walkers, cyclists, and equestrians:</b> <ul style="list-style-type: none"> <li>• N/A.</li> </ul>

### 17.8.3 Magnitude of impact

17.8.3.1 The criteria for defining magnitude in this chapter are outlined in **Table 17.17** below.

**Table 17.17: Impact magnitude criteria**

Magnitude of impact	Sub-topic	Definition
High	Agricultural land use	<b>Soils:</b> <ul style="list-style-type: none"> <li>• physical removal or permanent sealing of more than 20 hectares (ha) of agricultural land.</li> </ul> <b>Agricultural land holdings:</b> <ul style="list-style-type: none"> <li>• 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</li> <li>• introduction (adverse) or removal (beneficial) of complete severance with no/full accessibility provision.</li> </ul>
	PRoW and other promoted routes	<b>Walkers, cyclists, and equestrians:</b> <ul style="list-style-type: none"> <li>• &gt;500m increase (adverse) or decrease (beneficial) in journey length.</li> </ul>
Medium	Agricultural land use	<b>Soils:</b> <ul style="list-style-type: none"> <li>• physical removal or permanent sealing on 1 to 20 ha of agricultural land; and</li> <li>• permanent loss/reduction of one or more soil function(s) and restriction to current or approved future use.</li> </ul> <b>Agricultural land holdings:</b> <ul style="list-style-type: none"> <li>• partial loss of/damage to key characteristics, features, or elements (e.g. partial removal or substantial amendment to access or acquisition of land compromising the viability of agricultural holdings); and</li> <li>• introduction (adverse) or removal (beneficial) of severe severance with limited/moderate accessibility provision.</li> </ul>
	PRoW and other promoted routes	<b>Walkers, cyclists, and equestrians:</b> <ul style="list-style-type: none"> <li>• &gt;250m-500m increase (adverse) or decrease (beneficial) in journey length.</li> </ul>

Magnitude of impact	Sub-topic	Definition
Low	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>temporary loss/reduction of one or more soil function(s) and restriction to current or approved future use.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>a discernible change in attributes, quality or vulnerability, or alteration to one (maybe more) key characteristics, features, or elements (e.g. amendment to access or acquisition of land resulting in changes to the operating conditions that do not compromise overall viability of agricultural holdings); and</li> <li>introduction (adverse) or removal (beneficial) of severance with adequate accessibility provision.</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>&gt;50 m-250 m increase (adverse) or decrease (beneficial) in journey length.</li> </ul>
Negligible	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>no discernible loss/reduction in soil function(s) that restrict current or approved future use.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>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 agricultural holdings); and</li> <li>very minor introduction (adverse) or removal (beneficial) of severance with ample accessibility provision.</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>&lt;50 m increase (adverse) or decrease (beneficial) in journey length.</li> </ul>
No change	Agricultural land use	<p><b>Soils:</b></p> <ul style="list-style-type: none"> <li>no loss/reduction of soil function(s) that restrict current or approved future use.</li> </ul> <p><b>Agricultural land holdings:</b></p> <ul style="list-style-type: none"> <li>no loss or alteration of characteristics, features, or elements or accessibility; no observable impact in either direction.</li> </ul>
	PRoW and other promoted routes	<p><b>Walkers, cyclists, and equestrians:</b></p> <ul style="list-style-type: none"> <li>no loss or alteration of characteristics, features, elements, or accessibility; no observable impact in either direction.</li> </ul>



## Duration of impacts

17.8.3.2 The criteria for describing the duration of impacts in this chapter are outlined in **Table 17.18** below.

**Table 17.18: Duration of impacts**

Definition	Duration of impact	Definition
Temporary	Short term	Period of months, up to one year
	Medium term	Period of more than one year, up to five years
	Long term	Period of greater than five years
Permanent	Operational lifetime	An impact that occurs throughout the operational lifetime of permanent above ground infrastructure, including substation, relocated access routes and potentially landscaping areas where recontouring takes place.

## 17.8.4 Significance of effect

17.8.4.1 The significance of the effect upon agricultural land and PRow has been determined by taking into account the sensitivity of the receptor and the magnitude of the impact. The method employed for this assessment is presented in **Table 17.19**. Where a range of significance levels is presented, the final assessment for each effect is based upon expert judgement.

17.8.4.2 In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.

17.8.4.3 For the purpose of this assessment, any effects with a significance level of minor or less are not considered to be significant in terms of the EIA Regulations.

**Table 17.19: Assessment matrix**

Sensitivity of Receptor	Magnitude of Impact			
	Negligible	Low	Medium	High
Negligible	Negligible	Negligible or Minor	Negligible or Minor	Minor
Low	Negligible or Minor	Negligible or Minor	Minor	Minor or Moderate
Medium	Negligible or Minor	Minor	Moderate	Moderate or Major
High	Minor	Minor or Moderate	Moderate or Major	Major
Very High	Minor	Moderate or Major	Major	Major

17.8.4.4 Where the magnitude of impact is 'no change', no effect would arise.

17.8.4.5 The definitions for significance of effect levels are described as follows

- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. Effects upon human receptors may also be attributed this level of significance.
- Moderate: These beneficial or adverse effects have the potential to be important and may influence the key decision-making process. The cumulative effects of such factors may influence decision-making if they lead to an increase in the adverse or beneficial effect on a particular resource or receptor.
- Minor: These beneficial or adverse effects are generally, but not exclusively, raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the Project.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
- No change: No loss or alteration of characteristics, features or elements; no observable impact in either direction.

## **17.8.5 Assumptions and limitations of the assessment**

- 17.8.5.1 For the preparation of this PEIR, the ALC survey of the agricultural land affected by the Project has been undertaken at a semi-detailed scale. Where this survey work has identified isolated auger boring observations that are ALC Grades 1,2, or 3a (potentially BMV agricultural land) further survey work may be required in the area immediately surrounding the observation to determine whether an area of best and most versatile land should be mapped to include land at this location or whether these are single observations in a larger area of lower quality land.
- 17.8.5.2 Approximately 31.6 ha of agricultural land within the Study Area has not yet been surveyed due to ground conditions and cropping restrictions at the time of survey. These areas are shown as non-surveyed on Volume 2, Figures, Figure 17.3 and the ALC of these areas will be included in the ES.
- 17.8.5.3 The omission of these areas for the PEIR does not affect the assessment of the likely effects of the Project on agricultural land and soils as the survey carried out to date includes over 95% of the Study Area and provides representative data on soil types and ALC grades across the Project as a whole.
- 17.8.5.4 Natural England will be consulted on the scope of any further ALC survey work required to provide baseline information for the ES.

## 17.9 Assessment of effects

- 17.9.1.1 The impacts of the construction and decommissioning phases of the Project have been assessed. The potential impacts arising from the construction and decommissioning phases of the Project are listed in **Table 17.22** along with the maximum design scenario against which each impact has been assessed.
- 17.9.1.2 A description of the potential effect on receptors caused by each identified impact is given below.

### 17.9.2 Agricultural Land Quality

#### Construction phase

##### Sensitivity of the receptor

- 17.9.2.1 The ALC survey work undertaken for the Project has identified the Project to comprise a mixture of mainly Subgrades 3a and 3b land with smaller areas of Grade 2 land and a small pocket of Grade 1 land. On this basis the sensitivity of the agricultural land quality and soils receptor lies within a range between **medium** (Subgrade 3b land) to **very high** (Grade 1 and Grade 2 land).

##### Magnitude of impact

##### Permanent impacts on agricultural land

- 17.9.2.2 The permanent loss of agricultural land as a result of the Project would occur during the construction period. This would include areas of land where the substations are located, including the National Grid substation, together with the main and small substations. Although whilst it is proposed that the power converter stations would be removed during decommissioning, on a precautionary basis it is assessed that there could be some permanent effects on agricultural land quality in these areas and therefore these are also included within the area of potential permanent sealing of soils and loss of agricultural land quality. The areas of permanent loss are therefore as follows:
- Maximum of 8 small substations (75m<sup>2</sup>). Total of approximately 0.1ha
  - Main substation - approximately 1ha
  - National Grid Substation – approximately 3.8ha
  - PCS locations – 156 locations x approximately 50m<sup>2</sup>. Total of approximately 0.78ha
- 17.9.2.3 The total of the areas permanently affected here is assessed to be approximately 5.7 ha of agricultural land. The design of the Project is subject to further refinement at this stage, but on a precautionary basis that the areas of permanent loss would comprise best and most versatile land, the magnitude is assessed as **medium** on the basis that there would be a permanent loss of between 1 and 20ha of land .

## Temporary impacts on agricultural land.

- 17.9.2.4 The potential for additional adverse effects on agricultural land quality and soils, in addition to the permanent losses could also occur in association with activities during the construction period including:
- establishment of construction compounds which would require topsoil stripping and storage during the period of construction.
  - installation of the PV panels on mounted structures which are attached to the ground via legs. It is assumed that the legs would be piled into the ground, except where concrete shoes are required in areas of high archaeological sensitivity. The implementation of piles or shoes would not involve soil removal or the potential for mixing of materials, but rather would involve the long term temporary displacement of small areas of soil material.
  - Installation of cable routing within the construction area.
  - Installation of unbound stone maintenance tracks which would require the stripping and storage of topsoils either alongside the tracks or in larger consolidated bunds around the margins of the array.
- 17.9.2.5 The construction would take place within the developable areas as identified in the Project Description, totalling an area of approximately 1,000ha.
- 17.9.2.6 In order to limit, wherever possible, the potential to reduce the quality of soils and agricultural land quality during the period of the temporary works, the Project includes the commitment to the development of a Soil Management Plan which would be implemented as part of the CoCP.
- 17.9.2.7 An Outline Soil Management Plan would be included as part of the Environmental Statement and would be based on the following principles:
- The conservation of soil resources;
  - The avoidance of damage to soil structures;
  - The maintenance of soil drainage; and
  - The reinstatement of disturbed soils to as near as possible its former condition.
- 17.9.2.8 The Outline Soil Management Plan would be developed in accordance with recognised best practice guidance provided in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra, 2009) and applying best practice soil handling methods for soil handling provide in the Institute of Quarrying Good Practice Guide for Handling Soils 2021.
- 17.9.2.9 The successful implementation of the Outline Soil Management Plan would ensure that the quality of the soils and agricultural land can be maintained through the construction period.
- 17.9.2.10 Natural England, in the response to the scoping report for this Project identified that due to the nature of the Project a good proportion of the agricultural land affected by the Project will not be lost.

- 17.9.2.11 This view is consistent with the stakeholder input that NE have recently provided in relation to other large scale DCO solar Projects. For example, the Statement of Common Ground between the applicant and NE, in relation to the Longfield solar farm which comprises 150ha of bmv land, stated in respect to the loss of bmv that:
- 17.9.2.12 *“We consider that the proposed development, if temporary as described, is unlikely to lead to significant permanent loss of BMV agricultural land, as a resource for future generations. This is because the solar panels would be secured to the ground by steel piles with limited soil disturbance and could be removed in the future with no permanent loss of agricultural land quality likely to occur, provided the appropriate soil management is employed and the development is undertaken to high standards”*
- 17.9.2.13 This Project proposes to develop and implement a comprehensive Outline Soil Management Plan to reduce, as far as possible, the potential for permanent impacts to the quality of agricultural land. Based on the implementation of a robust Outline Soil Management Plan during the construction period therefore, the magnitude of temporary impacts on agricultural land quality and soils is assessed to be up to medium term **negligible**, where there would be no discernible loss/reduction in soil function(s) that would restrict the approved future use.

### **Significance of the effect**

#### **Permanent effects**

- 17.9.2.14 The construction of the Project would lead to the permanent loss of small areas of agricultural land that could potentially comprise the best and most versatile land. In total these losses are assessed to comprise approximately 5.7ha of the best and most versatile land. The magnitude of this loss is therefore assessed to be of medium adverse impact on a receptor of up to very high sensitivity The significance of this loss is therefore assessed to be of **moderate adverse** significance.
- 17.9.2.15 In terms of the significance of this loss of a small area of 5.7ha BMV, this comprises considerably less than the area of 20ha of best and most versatile which would be considered to be significant in terms of the Town and Country Planning (Development Management Procedure (England) Order) (DMPO) 2015 that requires that planning authorities must consult Natural England on all non-agricultural applications that result in the loss of more than 20 hectares (ha) of BMV land if the land is not included in a development plan.
- 17.9.2.16 Applying this recognised procedural 20ha threshold for the assessment of a significant permanent loss of BMV land, the loss of approximately 5.7ha of such land is not considered to be significant in EIA terms.

#### **Temporary effects**

- 17.9.2.17 The implementation of the Outline Soil Management Plan as part of the Project would ensure that further effects on the quality of agricultural land and soil is reduced, as far as possible. It is therefore assessed that based on a negligible magnitude of impact on a receptor of very high sensitivity that there would be

a medium term temporary **minor adverse** significance of effect on agricultural land quality and soils during the construction period.

### Operation and maintenance

17.9.2.18 No further effects on agricultural land quality and soils are assessed during the operational period of the Project.

### Decommissioning

17.9.2.19 The decommissioning phase would include the removal of the solar infrastructure and restoration of maintenance tracks within the area of the Project. The potential effects on agricultural land quality and soils are assessed to be the same as for the construction phase on the basis that:

- The removal of the infrastructure could lead to the temporary disturbance to agricultural land in a similar way to during the initial installation phase.
- On a precautionary basis, it is assumed that the areas of permanent loss associated with the substations would remain, as the quality of the final reinstatement and intended final land use of these areas is uncertain.

## 17.9.3 Agricultural Land Use

### Construction Phase

17.9.3.1 The installation of the Project will lead to the removal of land from intensive agricultural use during the construction period.

17.9.3.2 Opportunities are being considered to maintain agricultural productivity in area of the Project, including the potential for sheep grazing and also community based agricultural production. However, for the purposes of this PEIR assessment, this assessment considers the potential effects on agricultural land use and farm holdings across the entire agricultural area of the Project, approximately 1300 ha.

17.9.3.3 The potential economic effects of the reduction in agricultural land use are considered in Chapter 15 Socio-Economics. The potential effects of the reduction in areas of land within individual farm holdings is considered here.

### Sensitivity of the receptor

17.9.3.4 The predominantly arable based landholdings that form part of the Project are considered to be of **medium** sensitivity where the agricultural operation requires regular require access between the farm infrastructure and the land and where severance to land and loss of certain areas and facilities as part of the holding during the construction phase can cause effects to the operation of the wider holding.



## Magnitude of Impact

### Permanent effects on agricultural land holdings

- 17.9.3.5 The location of the substations as part of the scheme could affect a maximum of approximately 5.76ha of agricultural land. The loss of this area from any of the farm holdings affected is assessed to have a permanent **negligible** impact on the holdings where the amount of land lost is small in comparison to the size of these landholdings and would not affect the viability of the remaining area of the landholdings..

### Temporary impacts on agricultural land holdings

- 17.9.3.6 The holdings affected by the Project includes three land holdings of which Blenheim Estate is a substantial estate holding (Holding 1) where the majority of the Project infrastructure is located. The implementation of the Project would not affect the continued operation of this significant estate which comprises a total of approximately 12,500 acres.
- 17.9.3.7 The other two holdings (2 and 3) affected both comprise large farming enterprises and these would remain as large commercial farming enterprises, taking the implementation of the Project into account. Indeed, the diversification of land within these holdings for the implementation of the solar array would provide additional income that can support the future viability of the remaining agricultural enterprises.
- 17.9.3.8 The magnitude of impact on these holdings is therefore assessed to be of a **low** magnitude where there would be a discernible change in attributes, quality or vulnerability, or alteration to one (maybe more) key characteristics, features, or elements (e.g. amendment to access or acquisition of land resulting in changes to the operating conditions that do not compromise overall viability of agricultural holdings).

## Significance of Effect

### Permanent effects on agricultural land holdings

- 17.9.3.9 Based on the assessment of a **negligible** magnitude of impact on farm holdings of a **medium** sensitivity, it is assessed that the small areas of permanent land lost would have a permanent **negligible adverse** significance of effect on the land holdings that form part of the Project.

### Temporary effects on agricultural land holdings

- 17.9.3.10 Based on the assessment of a **low** magnitude of impact on farm holdings of a **medium** sensitivity, it is assessed that the loss of land during construction would have a long term temporary **minor adverse** significance of effect on the land holdings that form part of the Project.

## Operation and maintenance

- 17.9.3.11 No further effects on farm holdings beyond those assessed during the construction are assessed during the operational period of the Project.



## Decommissioning

- 17.9.3.12 The successful reinstatement of the land to agricultural use following the removal of the solar infrastructure would enable the land to be returned to the current land holdings and the long term minor temporary effects identified during the construction phase would cease following decommissioning.
- 17.9.3.13 On a precautionary basis, it is assessed that the small areas of land affected by the national grid, main and small substations may not be returned to the original agricultural use, depending on the quality of the restoration and land use requirements of the individual land holdings and therefore that the **negligible adverse** permanent effects on land holdings, arising from the installation of the substation areas may remain during the decommissioning period.

## 17.9.4 PRow and Other Promoted Routes

### Construction Phase

#### PRow

##### Sensitivity of the receptor

- 17.9.4.1 The sensitivity of PRow (footpaths) located within the Study Area is assessed as **medium**. This is because most of the public footpaths identified in the Study Area are used by the local community primarily for recreation and alternative routes are available within the wider PRow network.
- 17.9.4.2 The sensitivity of PRow (bridleways) located within the Study Area is assessed as **high**. This is because there are limited alternative routes available for public bridleways identified in the Study Area within the wider PRow network.

##### Magnitude of Impact

- 17.9.4.3 The magnitude of the temporary impact on the use of PRow (footpaths and bridleways) located within the Study Area is assessed to be up to **medium**, where potential diversions of PRow may be required during the construction phase. PRow are expected to remain in situ or close to their current alignments wherever possible during construction of the Project and measures to be included in the CoCP would minimise the potential impacts of construction works and the duration of the temporary impact of disruption during construction of the Project. However, on a conservative basis it is assessed that disruption could take place across the 24 month construction period.

##### Significance of effect

- 17.9.4.4 Based on the **medium** sensitivity and **medium** magnitude of impact, the effect on PRow (footpaths) during construction of the Project is assessed to medium term temporary **moderate adverse**, which is significant in EIA terms.

- 17.9.4.5 Based on the **high** sensitivity and **negligible** magnitude of impact, the effect on PRoW (bridleways) during construction of the Project is assessed to medium term temporary **moderate adverse**, which is significant in EIA terms.

### **Oxford Greenbelt Way Long Distance Path**

#### **Sensitivity of the receptor**

- 17.9.4.6 The sensitivity of Oxford Greenbelt Way Long Distance Path as a regional trail is assessed as **high**. This is because Oxford Greenbelt Way Long Distance Path is likely to be used frequently by local communities for both commuting and recreation and there is little to no potential for substitution.

#### **Magnitude of Impact**

- 17.9.4.7 The magnitude of the temporary impact on the use of Oxford Greenbelt Way Long Distance Path during construction of the Project is assessed as **low**. This is because Oxford Greenbelt Way Long Distance Path would remain in situ or close to existing alignment during construction of the Project and measures to be included in the CoCP would minimise the potential impacts of construction works and the duration of the temporary impact of disruption during construction of the Project. However, on a conservative basis, it is assessed that disruption could take place across the 24 month construction period.

#### **Significance of Effect**

- 17.9.4.1 Based on the **high** sensitivity and **low** magnitude of impact, the effect on Oxford Greenbelt Way Long Distance Path during construction of the Project is assessed to temporary **minor adverse**, which is not significant in EIA terms.

### **Shakespeare Way Long Distance Path**

#### **Sensitivity of the receptor**

- 17.9.4.2 The sensitivity of Shakespeare Way Long Distance Path as a regional route is assessed as **high**. This is because Shakespeare Way Long Distance Path is likely to be used frequently by local communities for both commuting and recreation and there is little to no potential for substitution.

#### **Magnitude of Impact**

- 17.9.4.3 The magnitude of the temporary impact on the use of Shakespeare Way Long Distance Path during construction of the Project is assessed as **low**. This is because Shakespeare Way Long Distance Path would remain in situ or close to the existing alignment during construction of the Project and measures to be included in the CoCP would minimise the potential impacts of construction works and the duration of the temporary impact of disruption during construction of the Project. However, on a conservative basis it is assessed that disruption could take place across the 24 month construction period.

### Significance of Effect

- 17.9.4.4 Based on the **high** sensitivity and **low** magnitude of impact, the effect on Shakespeare Way Long Distance Path during construction of the Project is assessed to temporary **minor adverse**, which is not significant in EIA terms.

### NCR 5

#### Sensitivity of the receptor

- 17.9.4.5 The sensitivity of NCR 5 as a national route is assessed as **very high**. This is because NCR 5 is likely to be used frequently by local communities for both commuting and recreation and there is little to no potential for substitution.

#### Magnitude of Impact

- 17.9.4.6 The magnitude of the temporary impact on the use of NCR 5 during construction of the Project is assessed as **negligible**. This is because NCR 5 would remain in situ or close to its existing alignment during construction of the Project, measures to be included in the CoCP would minimise the potential impacts of construction works and the duration of the temporary impact of disruption during construction of the Project. However, on a conservative basis it is assessed that disruption could take place across the 24 month construction period.

### Significance of Effect

- 17.9.4.7 Based on the **very high** sensitivity and **negligible** magnitude of impact, the effect on NCR 5 during construction of the Project is assessed to temporary **minor adverse**, which is not significant in EIA terms.

### Operational Phase.

- 17.9.4.8 No additional effects on PRow are assessed during the operational phase of the Project.

## Decommissioning Phase

- 17.9.4.9 No additional effects, beyond those already identified with respect to construction, have been identified during the decommissioning phase of the Project. Therefore, no further effects on PRoW and other promoted routes have been assessed in this chapter of the PEIR.

## 17.10 Cumulative effect assessment methodology

- 17.10.1.1 The agricultural land and PRoW CEA methodology has followed the methodology set out in Volume 1, Chapter 4: Approach to Environmental Assessment. As part of the assessment, all Projects and plans considered alongside the Project have been allocated into 'tiers' reflecting their current stage within the planning and development process.

- Tier 1
  - Under construction
  - Permitted application
  - Submitted application
  - Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact
- Tier 2
  - Scoping report has been submitted
- Tier 3
  - Scoping report has not been submitted
  - Identified in the relevant Development Plan
  - Identified in other plans and programmes.

- 17.10.1.2 This assessment is followed by all other relevant Projects, identified by tier. This tiered approach is adopted to provide a clear assessment of the Project alongside other Projects, plans and activities.

- 17.10.1.3 The specific Projects, plans and activities scoped into the CEA, are outlined in **Table 17.20**.

**Table 17.20: List of other Projects, plans and activities considered within the CEA**

Project/Plan	Status	Distance from the Project (nearest point, km)	Description of Project/plan
<b>Tier 1</b>			
20/01734/OUT	Pending	Adjacent	Salt Cross Garden Village, 2,200 dwellings and 40 ha of employment land. 215 ha in size on arable fields.
16/01364/OUT	Under construction	Adjacent	Land east of Woodstock, 300 residential dwellings, up to 1100sqm of A1/A2/B1/D1 floorspace. 17ha in size.
21/00189/FUL	Pending	1.0	Land north of Hill Rise, Woodstock. 180 dwellings. 10.7 ha in size.
21/00217/OUT	Pending	0.3	Land north of Banbury Road, Woodstock. 225 dwellings. 16.9ha in size.
22/01330/OUT	Permitted	2.2	Land North of Witney Road, Long Hanborough. 150 dwellings. 10.3ha in size.
19/02516/FUL	Permitted	2.5	Twelve Acre Solar Farm. 63.4ha in size.
20/01817/FUL	Permitted	Adjacent	Land Between Woodstock Sewage Works and B4027 Solar. 11ha in size.
22/0074/OUT	Pending	3.0	Land at Bicester Road, Kidlington. 370 homes. 27.8ha in size.
21/03522/OUT	Pending	Adjacent	West of Rutten Lane, Yarnton. 540 dwellings. 59.3ha in size.
22/01715/OUT	Pending	Adjacent	Land south of Perdiswell Farm, Shipton Road. Up to 500 dwellings. 48.8ha in size.
<b>Tier 2</b>			
P23/V0306/SCR	Screening	1.5	Cumnor Solar Farm. 31 ha in size.

Project/Plan	Status	Distance from the Project (nearest point, km)	Description of Project/plan
P22/V2581/SCO	Scoping	Adjacent	Land West of Red House Farm, Botley. 63ha in size.

## 17.10.2 Maximum design scenario – cumulative effects assessment

- 17.10.2.1 The maximum design scenarios identified in **Table 17.21** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been selected from the Project Design Envelope provided in Volume 1, Chapter 6: Project Description, of the PEIR as well as the information available on other Projects and plans, in order to inform a ‘maximum design scenario’. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different foundation type or substation layout), to that assessed here, be taken forward in the final design scheme.



**Table 17.21 Maximum design scenario for the assessment of cumulative effects**

Potential cumulative effect	Phase <sup>a</sup>			Maximum Design Scenario	Justification
	C	O	D		
The permanent loss of agricultural land including BMV land and land from landholdings.	✓	x	x	<p>The MDS as described in <b>Table 17.14</b> of this chapter of the PEIR for the Project has been assessed cumulatively with the following other projects/plans:</p> <p><b>Tier 1</b></p> <ul style="list-style-type: none"> <li>• 20/01734/OUT</li> <li>• 16/01364/OUT</li> </ul>	<p>The MDS presented in <b>Table 17.14</b> above considers the largest spatial and temporal extent of potential impacts during construction, operations and maintenance and decommissioning of the Project. Therefore, this MDS provides the greatest potential for spatial and temporal cumulative effects to occur between the Project and other projects/plans with respect to agricultural land and PRow.</p>
The temporary impact on PRow and other promoted routes.	✓	x	x	<ul style="list-style-type: none"> <li>• 21/00189/FUL</li> <li>• 21/00217/OUT</li> <li>• 22/01330/OUT</li> <li>• 19/02516/FUL</li> <li>• 20/01817/FUL</li> <li>• 22/0074/OUT</li> <li>• 22/01715/OUT</li> <li>• 21/03522/OUT</li> </ul> <p><b>Tier 2</b></p> <ul style="list-style-type: none"> <li>• P23/V0306/SCR</li> <li>• P22/V2581/SCO</li> </ul>	

<sup>a</sup> C=construction, O=operational and maintenance, D=decommissioning

## 17.11 Cumulative effects assessment

17.11.1.1 A description of the significance of cumulative effects upon agricultural land and PRow receptors arising from each identified impact is given below.

### 17.11.2 Agricultural Land Quality

17.11.2.1 Cumulative effects could occur where areas of BMV land are permanently affected by other proposed developments or plans within the Study Area that have been screened into the CEA.

### 17.11.3 Agricultural Land Use – Farm Holdings

17.11.3.1 Cumulative effects could occur where farm holdings within the Study Area are also affected by other proposed developments or plans that have been screened into the CEA.

### 17.11.4 Public Rights of Way and other promoted routes

17.11.4.1 Cumulative effects could occur where PRow and other promoted routes affected within Study Area are also affected by other proposed developments or plans that have been screened into the CEA.

#### Tier 1 Projects

#### Construction phase – Agricultural Land Quality

##### Sensitivity of the receptor

17.11.4.2 The sensitivity of the agricultural land quality receptor is assessed to be **very high** due to the presence of Grade 1 and 2 land.

##### Magnitude of impact

17.11.4.3 The developments screened in to the assessment are likely to affect areas of BMV land in addition to the areas permanently affected by the Project. There is potential that these areas could comprise more than 20 ha of agricultural land threshold (per Town and Country Planning (Development Management Procedure (England) Order) (DMPO) 2015) and the magnitude is therefore assessed to be **high**.

##### Significance of effect

17.11.4.4 The significance of the effect in the cumulative scenario on the permanent loss of agricultural land would be of up to **major** permanent adverse significance, based on a high magnitude of impact on a receptor of high sensitivity. This is significant in EIA terms.

## Further mitigation and residual effect

- 17.11.4.5 Mitigation has been identified in **Table 17.15**. These measures will further control the impacts on land used temporarily during the construction phase. However, they will not materially reduce the permanent loss of agricultural land that is likely to occur cumulatively, particularly with the residential developments included in the CEA. Although opportunities have been explored during the design process to reduce, as far as practicable, the size of the substations, some permanent loss of agricultural land is an unavoidable consequence of the construction of the permanent infrastructure. Therefore, at this stage the residual effect on areas of permanent land take, combined with other Projects, would remain as **major** adverse significance.

## Construction phase – Agricultural Land Use

### Sensitivity of the receptor

- 17.11.4.6 The sensitivity of the farm holdings that may be permanently affected by the cumulative schemes is assessed to be **up to medium**, where access between the land and infrastructure is required on a reasonably frequent basis (monthly). This is based on the presence of a number of discrete areas of agricultural holdings affected by the cumulative schemes, that are largely arable based with some areas of grassland livestock use.

### Magnitude of impact

- 17.11.4.7 In relation to the farm holdings that form part of the Project, the Woodstock Solar (20/01817/FUL) and Land South of Perdiswell (22/01715/OUT) cumulative schemes would affect land within Blenheim Estate. On the basis that the cumulative schemes would be unlikely to impact the operation or viability of the farm holdings included within this Project, taking into account the size and operation of these holdings, the magnitude of the permanent impact on the operation of farm holdings is assessed as **low**.

### Significance of effect

- 17.11.4.8 The cumulative permanent loss of land from farm holdings is assessed to be of permanent **minor adverse** significance based on a low magnitude of impact on a receptor of low to medium sensitivity.

## Construction phase – PRow and other promoted routes

### Sensitivity of the receptors

- 17.11.4.9 As previously stated in **section 17.9.4** above, the sensitivity of PRow, including footpaths and bridleways located within the Study Area are assessed as **medium** and **high** respectively. The sensitivity of Oxford Greenbelt Way and Shakespeare Way Long Distance Paths are both assessed as **high**. The sensitivity of NCR 5 is assessed as **very high**.

### Magnitude of Impact

- 17.11.4.10 The magnitude of the temporary cumulative impact on the use of PRow (footpaths and bridleways) is assessed as being up to **medium**, if diversions are required during the construction period.
- 17.11.4.11 For long Distance Paths (Oxford Greenbelt Way and Shakespeare Way) and NCR 5 during construction of the Project is assessed as **negligible**. This is because PRow and other promoted routes would remain in situ during construction of the Project and measures to be included in the CoCP would minimise the potential impacts of construction works. However, on a conservative basis it is assessed that disruption could take place across the 24 month construction period.
- 17.11.4.12 With a PRow management plan in place to ensure that the connectivity of the network remains in place during the construction period, it is considered that there is minimal potential for additional cumulative impacts to occur between the Project and other projects/plans during the construction phase.

### Significance of effect

- 17.11.4.13 Based on the high to very high sensitivity of the promoted routes and NCR 5 respectively, and **negligible** magnitude of impact, the cumulative effect on these resources during construction of the Project is assessed to temporary **minor adverse**, which is not significant in EIA terms.
- 17.11.4.14 For other PRow including footpaths and bridleways, it is assessed that there would be a medium term **moderate adverse** significance of effect on these resources within the Project based on up to a medium magnitude of impact on PRow of medium to high sensitivity. It is assessed that this could lead to a similar **moderate adverse** cumulative effect arising from arising from the construction of the Project together with adjacent schemes, which is significant in EIA terms.

## Tier 2 Projects

### Construction phase – Agricultural Land Quality

#### Sensitivity of the receptor

- 17.11.4.15 The sensitivity of the agricultural land quality receptor is assessed to be very high due to the presence of Grade 1 and 2 land.

#### Magnitude of impact

- 17.11.4.16 The developments screened in to the assessment are likely to permanently affect only small areas of BMV land in addition to the areas permanently affected by the Project as the effects are predominantly temporary in nature and it is unlikely that these would exceed more than 20ha in total. The magnitude is therefore assessed to be medium.

### Significance of effect

- 17.11.4.17 The significance of the effect in the cumulative scenario on the permanent loss of agricultural land would be of moderate adverse significance. On the basis that this comprises less than the 20ha threshold, as discussed in paragraph 17.9.2.15-17.9.2.16 of this chapter, this loss is not considered to be significant in EIA terms.

### Construction phase – Agricultural Land Use

#### Sensitivity of the receptor

- 17.11.4.18 The sensitivity of the farm holdings that may be permanently affected by the cumulative schemes is assessed to be medium, based on the presence of a number of discrete areas of agricultural holdings affected by the cumulative schemes, that are largely arable based.

#### Magnitude of impact

- 17.11.4.19 On the basis that the cumulative schemes would be unlikely to impact the operation or viability of the farm holdings included within this Project, taking into account the size and operation of these holdings, the magnitude of the permanent impact on the operation of farm holdings is assessed as low.

### Significance of effect

- 17.11.4.20 The cumulative permanent loss of land from farm holdings is assessed to be of permanent minor adverse significance based on a low magnitude of impact on a receptor of medium sensitivity.

### Construction phase – PRoW and other promoted routes

#### Sensitivity of the receptors

- 17.11.4.21 As previously stated in **section 17.9.4** above, the sensitivity of PRoW, including footpaths and bridleways located within the Study Area are assessed as **medium** and **high** respectively. The sensitivity of Oxford Greenbelt Way and Shakespeare Way Long Distance Paths are both assessed as **high**. The sensitivity of NCR 5 is assessed as **very high**.

#### Magnitude of Impact

- 17.11.4.22 The magnitude of the temporary cumulative impact on the use of PRoW (footpaths and bridleways) is assessed as being up to **medium**, if diversions are required during the construction period.
- 17.11.4.23 For long Distance Paths (Oxford Greenbelt Way and Shakespeare Way) and NCR 5 during construction of the Project is assessed as **negligible**. This is because PRoW and other promoted routes would remain in situ during construction of the Project and measures to be included in the CoCP would minimise the potential impacts of construction works. However, on a

conservative basis it is assessed that disruption could take place across the 24 month construction period.

- 17.11.4.24 With a PRow management plan in place to ensure that the connectivity of the network remains in place during the construction period, it is considered that there is minimal potential for additional cumulative impacts to occur between the Project and other projects/plans during the construction phase.

#### Significance of effect

- 17.11.4.25 Based on the high to very high sensitivity of the promoted routes and NCR 5 respectively, and **negligible** magnitude of impact, the cumulative effect on these resources during construction of the Project is assessed to temporary **minor adverse**, which is not significant in EIA terms.
- 17.11.4.26 For other PRow including footpaths and bridleways, it is assessed that there would be a medium term **moderate adverse** significance of effect during the construction period on these resources within the Project based on up to a medium magnitude of impact on PRow of medium to high sensitivity. It is assessed that this could lead to a similar **moderate adverse** cumulative effect arising from arising from the construction of the Project together with adjacent schemes, which is significant in EIA terms.

#### Sensitivity of the receptors

#### Significance of effect

- 17.11.4.27 Based on the **medium** to **very high** sensitivity and **negligible** magnitude of impact, the cumulative effect on PRow and other promoted routes during construction of the Project is assessed to temporary **minor adverse**, which is not significant in EIA terms.

### Tier 1 and 2 Projects

#### Decommissioning phase

- 17.11.4.28 No further effects, beyond those experienced during the construction phase, are likely to occur during decommissioning of the Project. Therefore, no cumulative effects for agricultural land and PRow are likely to occur during the decommissioning phase.

## 17.12 Transboundary effects

- 17.12.1.1 As per the scoping report, it was concluded that the proposed development is unlikely to have a significant effect either alone or cumulatively on the environment in a European Economic Area State (EEA states) and therefore a transboundary assessment is not proposed in the ES

## 17.13 Inter-related effects

- 17.13.1.1 Inter-relationships are the impacts and associated effects of different aspects of the Project on the same receptor. These are as follows.

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases (e.g., construction noise effects from piling, operational substation noise, and decommissioning disturbance).
- Receptor led effects: Assessment of the scope for all effects (including inter-relationships between environmental topics) to interact, spatially and temporally, to create inter-related effects on a receptor.

- 17.13.1.2 A description of the likely interactive effects arising from the Project on agricultural land and PRow is provided in Volume 1, Chapter 18: Cumulative Effects and Inter-relationships of the PEIR.
- 17.13.1.3 The assessment of effects on agricultural land set out in this chapter does not include the assessment of the economic effects of the loss of agricultural land use during the operational period of the Project. These effects are assessed in Volume 1: Chapter 15, Socio Economics.
- 17.13.1.4 The PRow resources set out in this chapter does not include any effects on the amenity of those resources as a result of changes to the visual and acoustic environments arising from the Project construction, operation and decommissioning. These are assessed, where relevant, in Volume 1: Chapter 8: Landscape and Visual and Volume 1: Chapter 13: Noise and Vibration.
- 17.13.1.5 Inter-related effects methodology is provided in Chapter 19: Cumulative Effects and Inter-relationships of the PEIR and will be assessed further at the ES stage.

## 17.14 Summary of impacts, mitigation measures and monitoring

- 17.14.1.1 **Table 17.22** presents a summary of the potential impacts, mitigation and Project and residual effects in respect to agricultural land and PRow. The impacts assessed are loss of agricultural land; impacts on farm holdings and impacts on PRow. It is concluded that there will be no significant effects on agricultural land, arising from the construction, operation and decommissioning of the Project. There would be medium term temporary significant effects on local PRow during the construction period only, where temporary PRow diversions may be required.
- 17.14.1.2 **Table 17.23** presents a summary of the potential cumulative impacts, mitigation measures and residual effects. The cumulative impacts assessed are loss of agricultural land quality; impacts on farm holdings and impacts on recreational resources. It is concluded that there will be significant adverse cumulative effects as a result of the permanent loss of BMV agricultural land during construction of the Project. A Moderate adverse was also identified for the temporary disruption or reduced access to PRow (footpaths and bridleways).
- 17.14.1.3 No potential transboundary impacts have been identified in regard to effects of the Project.



**Table 17.22: Summary of potential environmental effects, mitigation and monitoring.**

Description of impact	Phase <sup>a</sup>			Mitigation number	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
The temporary loss of agricultural land, including BMV land.	✓	✗	✓	17.3, 17.4	C: Medium D: Medium	C: Medium to Very High D: Medium to Very High	C: Minor adverse D: Minor adverse	No further mitigation measures are proposed beyond those adopted as part of the Project.	C: Minor adverse D: Minor adverse	No further monitoring is proposed with respect to agricultural land and PRoW.
The permanent loss of agricultural land, including BMV land.	✓	✓	✓	17.3, 17.4	C: Medium	C: Medium to Very High	C: Moderate adverse (not significant in EIA terms)		C: Moderate adverse (not significant in EIA terms)	
The temporary disruption and reduced access to agricultural land, including BMV land.	✓	✗	✓	17.3, 17.4	C: Low D: Low	C: Medium D: Medium	C: Minor adverse D: Minor adverse		C: Minor adverse D: Minor adverse	
The temporary disruption or reduced access to PRoW (footpaths and bridleways).	✓	✗	✗	17.1, 17.2, 17.5	C: Medium	C: Medium (footpaths) to high (bridleways)	C: Moderate adverse (footpaths and bridleways)		C: Moderate adverse (footpaths and bridleways) (Significant)	
The temporary disruption or reduced access to Oxford Greenbelt Way, Shakespeare Way Long Distance Path and NCR 5.	✓	✗	✗	17.1, 17.2, 17.5	C: Negligible	C: High (Greenbelt Way & Oxford greenbelt Way) to very high (NCR)	C: Minor adverse		C: Minor adverse	

<sup>a</sup> C=construction, O=operational and maintenance, D=decommissioning

**Table 17.23: Summary of potential cumulative environmental effects, mitigation and monitoring.**

Description of effect	Phase <sup>a</sup>			Mitigation number	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
<b>Tier 1</b>										
The permanent loss of BMV agricultural land.	✓	×	×	17.3, 17.4	C: High	C: Very high	C: Major adverse	No further mitigation measures are proposed beyond those adopted as part of the Project.	C: Major adverse	No further monitoring is proposed with respect to agricultural land and PRow.
The permanent disruption caused to the operation of agricultural land holdings.	✓	×	×	17.3, 17.4	C: Low	C: Low to medium	C: Minor adverse		C: Minor adverse	
The temporary impact on PRow and other promoted routes.	✓	×	×	17.1, 17.2, 17.5	C: Negligible	C: Medium to very high	C: Minor adverse		C: Minor adverse	
<b>Tier 2</b>										
The permanent loss of BMV agricultural land.	✓	×	×	17.3, 17.4	C: High	C: Very high	C: Major adverse	No further mitigation measures are proposed beyond those adopted as part of the Project.	C: Major adverse	No further monitoring is proposed with respect to agricultural land and PRow.
The permanent disruption caused to the operation of agricultural land holdings.	✓	×	×	17.3, 17.4	C: Low	C: Low to medium	C: Minor adverse		C: Minor adverse	
The temporary impact on Oxford Greenbelt Way, Shakespeare Way Long Distance Path and NCR 5.	✓	×	×	17.1, 17.2, 17.5	C: Negligible	C: Medium to very high	C: Minor adverse		C: Minor adverse	

Description of effect	Phase <sup>a</sup>			Mitigation number	Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D							
The temporary disruption or reduced access to PRow (footpaths and bridleways).	✓	✗	✗	17.1, 17.2, 17.5	C: Medium	C: Medium (footpaths) to high (bridleways)	C: Moderate adverse (footpaths and bridleways)		C: Moderate adverse (footpaths and bridleways) (Significant)	

<sup>a</sup> C=construction, O=operational and maintenance, D=decommissioning

## 17.15 Next steps

- 17.15.1.1 Additional site-specific surveys are required to inform the assessment of agricultural land and PRoW for the ES. These additional site-specific surveys would include the following.
- The ALC survey work would be completed across the remainder of agricultural land within the Study Area and, where appropriate, additional survey at a detailed level would be undertaken to identify the areas of best and most versatile land that could be affected by the Project.
- 17.15.1.2 Where required, mitigation proposals would be developed to be included in the PRoW Management Plan, in consultation with relevant Local Authorities and other interested parties as appropriate.

## 17.16 References

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