



THE DROVES
SOLAR FARM

The Droves Solar Farm

Preliminary Environmental Information Report

Volume I, Chapter 11: Soils and Agriculture

Prepared by: Kernon Countryside Consulting

Date: May 2025

PINS Reference: EN0110013



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11 Soils and Agriculture

11.1 Introduction

- 11.1.1 This chapter of the PEIR presents the findings of a preliminary assessment of the likely significant effects in relation to soils and agricultural land. The information presented within this chapter has been informed by the design information of the Scheme provided in **Volume I, Chapter 5: Scheme Description**.
- 11.1.2 Information considered in this chapter includes relevant soils and agricultural land policy and guidance, baseline soils and agricultural land, sets out the methodologies and approaches intended to be used to inform the soils and agricultural land chapter of the Environmental Statement (ES) for the Scheme. This is realised through a description of the soils and agricultural land baseline conditions (as they are understood at time of writing). This chapter details the findings of work undertaken to date and presents a preliminary assessment of the likely significant effects arising from the Construction, Operational and Decommissioning Phases of the Scheme in relation to soils and agricultural land. The chapter also considers proposed avoidance, Mitigation and compensation measures and any residual effects following the implementation of such measures.
- 11.1.3 Embedded mitigation measures are presented, where necessary, and discussed to minimise the impacts of the Scheme to an acceptable level (i.e. to a residual minor or negligible effect), during the Construction, Operation and Decommissioning Phases.
- 11.1.4 This chapter should be viewed as a preliminary assessment that will be updated and refined as necessary, particularly as the results of further evaluation become available and as the Scheme design evolves. Initial assumptions have been made based on the survey and background information available to date and professional judgement. The PEIR does not replicate or act as a draft ES but rather aims to enable consultees to understand the likely environmental effects of the Scheme and helps to inform consultation responses during the pre-application stage.

Consultation

- 11.1.5 The content and assessment methodology contained within this chapter has been informed by the Scoping Opinion from the Planning Inspectorate (PINS) dated 18 December 2024 (**Volume III, Appendix 2.2**) as well as further updated and informed following consultation with key stakeholders in relation to transport and access matters.
- 11.1.6 Consultation feedback received throughout the pre-application phase of the Scheme has been considered in preparing this PEIR chapter. Further detail on consultation undertaken is included at **Volume III, Appendix 11.1**.

Legislation, Planning Policy and Guidance

- 11.1.7 A detailed review of the Legislation, Policy and Guidance that is relevant to the transport and access assessment of the Scheme is included at **Volume III, Appendix 11.1**. The review demonstrates that the Scheme has been developed in accordance with the requirements identified in **Volume I, Appendix 11.1**.



11.2 Assessment Methodology

Assessment Scope

- 11.2.1 The assessment considers the agricultural land quality of the Site, and the extent to which the Scheme will affect the inherent land quality. It considers the method of construction and decommissioning and the impact this could have on soil qualities, and in particular whether the construction and decommissioning could result in any sealing or permanent downgrading of agricultural land. It considers the removal of the PV panels and the reversibility of the impact, and it considers the extent to which agricultural use can continue during the life of the Scheme.
- 11.2.2 The assessment considers the potential impact on soil typology. For example, clayey soils in wet climate areas are less resilient to being handled and trafficked, and the assessment therefore considers the soils and the methodologies appropriate to minimise disturbance to soil structure from the Scheme.
- 11.2.3 The effect on the nature of the farm businesses, on farm enterprises and farm labour, is also assessed.

Scoped in

- 11.2.4 The scope of the Agriculture and Soils assessment within the PEIR and ES has been agreed with the Planning Inspectorate through the Scoping Opinion (**Volume III, Appendix 2.2**). The following effects have been scoped into the assessment (see also the Scoping Opinion Response, **Volume III, Appendix 2.3**):
- Disturbance and Crop Loss – Construction and Decommissioning Phases. The effects on farm enterprises at the Construction Phase, which could last up to 24 months, are included within the assessment. These effects will take place at the construction stage and there will be effects through to the end of decommissioning, and so these effects considered as part of the Economic and Land Use effects assessment
 - Land Quality – Construction, Operation, and Decommissioning Phases. The potential effects on agricultural land quality, from sealing or downgrading are assessed throughout all phases of the development
 - Soils – Construction, Operation, and Decommissioning Phases. Soils, as a resource distinct from land quality, have the potential to be affected by physical works (construction and decommissioning) and operational activities, and are assessed
 - Economic and Land Use Effects for Farm Businesses and Rural Economy – Construction, Operation and Decommissioning Phases. The agricultural activities that can take place over the Site will be restricted by the infrastructure, and the effects on the farms and wider rural economy are assessed; and
 - Cumulative effects on land quality and food production, as required by PINS in the Scoping Opinion, are assessed under the Operational Phase assessment

Scoped Out

- 11.2.5 As per PINS's Scoping Opinion (**Volume III, Appendix 2.2**), the following effects have been agreed to be scoped out of the assessment:



- Disturbance and Crop Loss – Construction and Decommissioning Phases; being the short-term impacts just for the duration of the activity, such as when there is no access to land due to construction works. These are covered as part of the Land Use and Economic Effects assessment for all phases.

Determining Significance of Effect

- 11.2.6 The methodology to determine significance of effect is based on the IEMA Guide ‘A New Perspective on Land and Soil in Environmental Impact Assessment’ [Ref 11-1]. The assessment methodology identifies the sensitivity of the various Receptors in terms of their importance (e.g. BMV land quality) and their susceptibility to damage when being trafficked (e.g. sensitive soil type).
- 11.2.7 Agricultural land quality in England and Wales is measured under a system of Agricultural Land Classification (ALC). This determines the quality of land based on the long-term physical limitations of agricultural land for agricultural use, particularly climate, site and soil characteristics. The best quality land is Grade 1, the poorest Grade 5, with Grade 3 split into two subgrades.
- 11.2.8 EN-3 [Ref 11-2] identifies that Grades 1, 2 and 3a are the “best and most versatile”. These, Natural England estimate, account for about 42% of all farmland in England, with an estimated 21% in Grade 1 and 2 and 21% in subgrade 3a. The resource is considered to be of national importance. The IEMA Guide considers land of ALC Grades 1 and 2 to be of “very high” sensitivity, subgrade 3a to be of “high” sensitivity, and land of Subgrade 3b to be of “medium” sensitivity. Land of Grades 4 and 5 is “low” sensitivity. As set out in the Scoping Report grades 1, 2 and 3a have all been placed in the highest sensitivity category.
- 11.2.9 Soils as a resource can be affected by construction activities and by land use, both negatively and positively. The potential for adverse effects on soils is highest when they are wet (in a plastic state), and soils with small particles (e.g. clays) are more susceptible to damage. The IEMA Guide places clay soils in wetter climate areas in a higher sensitivity to damage category, with sandy soils in drier regions least susceptible. Wetness of soils is measured by hand, but the IEMA Guide also references the Field Capacity Days (FCD) measure from the ALC methodology as a guide to when soils are saturated. As identified in the Agricultural Land Classification Report for the Site (**Volume III, Appendix 11.2**), the FCD for the Site is under 150 days per year, and as a result no soil types are within the High Sensitivity category in Table 11.1.
- 11.2.10 The IEMA Guide does not provide magnitude and sensitivity definitions for farm businesses, although effects are described in paragraph 8.3.3 of the IEMA Guide. The criteria in Table 11.1 to
- 11.2.11 Table 11.3 below are based on professional judgement. The methodology considers farm businesses to be more resilient to change. Farm businesses are continually adapting to change, caused by external factors (weather, disease, Government policy), internal factors (management, finances, personal wishes) and economic factors (crop prices, input costs). Some businesses are less resilient to change because of their relationship with land (e.g. a dairy herd needing access for cows to walk to grassland), others are more resilient (e.g. arable farms and access to arable fields). However, no farm business types are considered to be of high sensitivity to change. Full-time businesses that would be terminated by the Scheme are identified as a high magnitude of impact, with farm businesses less affected being identified



as medium or low magnitude impacts. The sensitivity of farms is reflective of their resilience to change.

Receptor Sensitivity

11.2.12 The sensitivity of Receptors is as set out in Table 11.1 below.

Table 11.1 Methodology for Determining Receptor Sensitivity

Sensitivity	ALC Grade	Sensitivity of topsoil and subsoil	Agricultural businesses
High	Land of ALC Grades 1, 2 and subgrade 3a	There are no soils of high sensitivity in this climatic area	No farm businesses are considered to be of high sensitivity.
Medium	Land of ALC Subgrade 3b	High clay soils where the FCD is <150, or medium textured soils where the FCD is <225	Full-time businesses, and farm businesses where the location of land is particularly important such as dairy farms.
Low	Land of ALC Grades 4 and 5	Soils with a high sand fraction where the FCD is <225	Part-time farms or farms with low sensitivity to change, e.g. arable land held on short-term arrangements.
Negligible	Land of ALC Grades 4 and 5 with only indirect links	No soils are considered to be of negligible sensitivity.	Agricultural land that is not farmed or does not form part of a farm business.

**Field Capacity Days: days when the soil is replete with water*

Magnitude of Impact

11.2.13 The magnitude of impacts will be assessed as per the methodology set out in Table 11.2 below. The determination of “loss”, with regard to ALC land and soil quality, will draw on the definition in the IEMA Guide ‘A New Perspective on Land and Soil in Environmental Impact Assessment’ [Ref 11-1], which defines “loss” for assessing magnitude as “*permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading)*”. It identifies that “*temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils*” [Ref 11-1].



11.2.14 The magnitude of impact on farm businesses is determined based on professional judgement, taking a long-term view given farm businesses’ resilience to change. Closure of a full-time farm business or it being rendered non-viable is a high magnitude impact, with the magnitude decreasing as impacts reduce. Full-time farm business impacts are considered greater than impacts on part-time businesses, and accordingly the closure of a part-time business is considered a medium adverse magnitude impact.

Table 11.2 Methodology for Determining Magnitude of Change

Magnitude of Impact	Definition	
	Effects on Agricultural Land (Soils)	Effects on Farm Businesses (agricultural businesses)
High	The Scheme would directly lead to the loss (including permanent sealing or land quality downgrading) of over 50 hectares (ha) of soil-related features; or potential for improvement in one or more soil functions over an area of more than 50ha.	The impact of development would render a full-time agricultural business non-viable.
Medium	The Scheme would directly lead to the loss (including permanent sealing or land quality downgrading) over an area of between 20 and 50ha of soil-related features; or potential for improvement in one or more soil functions over an area of between 20ha and 50ha.	The impact of the Scheme would require significant changes in the day-to-day management of a full-time agricultural business, or closure of a part-time agricultural business. Loss of buildings or impacts on drainage or water supplies affecting the potential for at least 5ha of adjacent land to be farmed fully.
Low	The Scheme would directly lead to the loss (including permanent sealing or land quality downgrading) of less than 20ha of soil-related functions; or potential for improvement in one or more soil functions over an area of less than 20ha; or temporary, reversible loss of soil-related features.	Land take would require only minor changes in the day-to-day management / structure of a full-time agricultural business or land take would have a significant effect on a part-time business. Minor effects, direct or indirect, on surrounding land beyond the boundaries of the Site.
Negligible	No discernible loss or reduction or improvement of soil functions or volumes.	Land take would require only negligible changes in the day-to-day management of a full-time agricultural business or land take



Magnitude of Impact	Definition	
	Effects on Agricultural Land (Soils)	Effects on Farm Businesses (agricultural businesses)
		would require only minor changes to a part-time farm business.

Significance of Effect

- 11.2.15 The assessment of the significance of effects will be determined based on the matrix in
- 11.2.16 Table 11.3 below. The matrix combines the sensitivity of Receptor (as described in Table 11.1) with the magnitude of impact (as described in Table 11.2) to determine the scale of the effect, which ranges from Negligible to Major.

Table 11.3 Methodology for Determining Scale of Effect

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

- 11.2.17
- 11.2.18 Table 11.3 identifies that a high magnitude impact (the loss by sealing or land quality downgrading of in excess of 50ha of land) on a high sensitivity Receptor (BMV agricultural land), results in a major scale of effect. A loss of 20 – 50 ha (medium magnitude of impact) of BMV (high sensitivity Receptor) results in a moderate scale of effect, as would the loss of >50 ha (high magnitude of impact) of Subgrade 3b land (medium sensitivity Receptor). For the EIA, effects that are major or moderate in scale are considered to be significant. Effects that are minor or negligible in scale are considered to be not significant.
- 11.2.19 Effects are considered in terms of whether they are adverse or beneficial. Impacts are considered in terms of whether they are of national or local significance. Impacts on land of BMV quality are of national significance, whereas impacts on land of Subgrade 3b or lower, and impacts on farm businesses, are of local significance.



- 11.2.20 The assessment also considers whether the effects are temporary or permanent. This affects overall significance.
- 11.2.21 The reversibility of an effect will influence the assessment of significance. Temporary short-term impacts are less significant than temporary long-term impacts, but all are temporary and accordingly no more than of low magnitude under
- 11.2.22 All temporary effects are less significant than permanent impacts.

11.3 Study Area

- 11.3.1 The Study Area for this assessment is the Site as there would be no impact on land use or soils beyond this extent. Information on agricultural land quality and soils has been collected for most of the Site boundary, excluding areas of the Grid Connection Infrastructure and potential temporary working area for grid connection infrastructure, to inform the baseline conditions for assessment. Farm information collected has covered wider areas farmed beyond the boundary of the Site by the businesses farming the Site.

11.4 Baseline Conditions

- 11.4.1 The baseline conditions are assessed in this section. This includes a review of published information and presenting the results of field surveys. The baseline conditions assessed are:
- Agricultural land quality
 - Soils and soil type; and
 - Local agricultural circumstances.

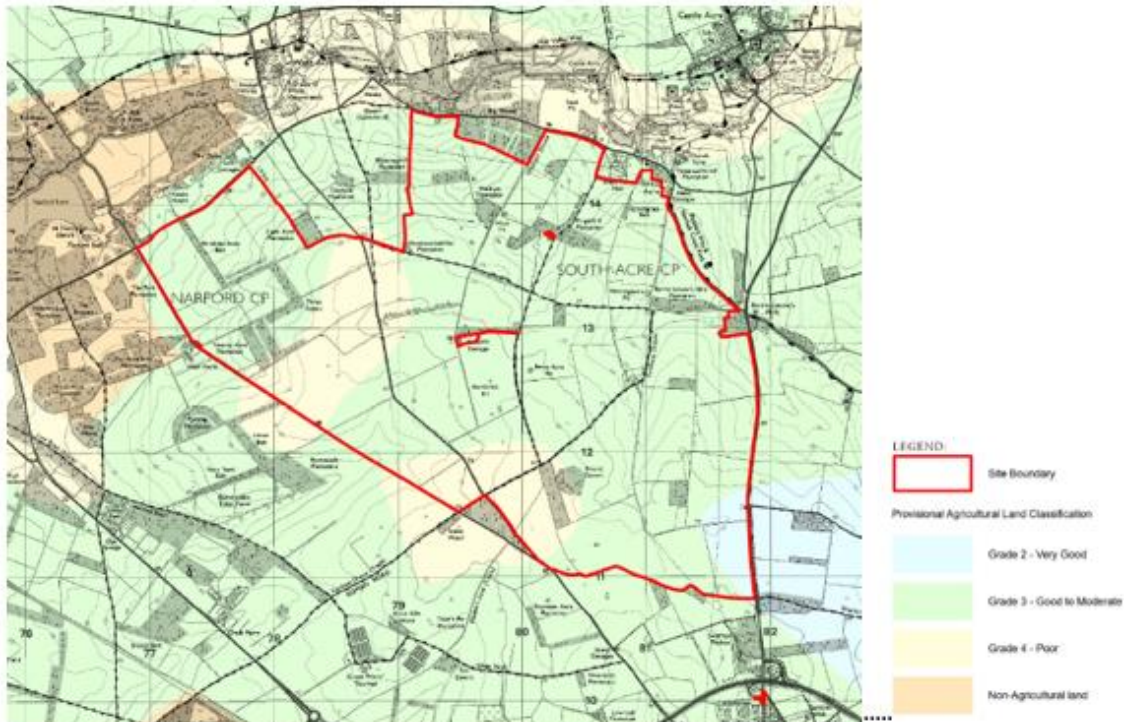
Agricultural Land Quality

- 11.4.2 Agricultural land is measured under a system of Agricultural Land Classification (ALC). This grades land based on the long-term physical limitations of land for agricultural use, including climate (temperature, rainfall, aspect, exposure and frost risk), site (gradient, micro-relief and flood risk) and soil (texture, structure, depth and stoniness) criteria, and the interactions between these factors determining soil wetness, droughtiness and utility. The system is described in Natural England's Technical Information Note TIN049 (2012) [Ref 11-3].
- 11.4.3 Land is divided into five grades, 1 to 5. Grade 3 is divided into two subgrades, referred to as Grade 3a and Grade 3b. Land falling into ALC Grades 1, 2 and 3a is the "best and most versatile" (BMV) (as defined in EN-3 [Ref 11-2] and Annex 2 of the National Planning Policy Framework (December 2024) [Ref 11-4] Natural England estimate in TIN049 that 42% of agricultural land in England is of BMV quality, of which about 21% is Grades 1 and 2 and 21% is Grade 3a [Ref 11-3].
- 11.4.4 The Ministry of Agriculture, Fisheries and Food (MAFF) produced a series of "provisional" ALC maps in the 1970's [Ref 11-5]. These were reprinted by Natural England in 2010 [Ref 11-6]. These maps were produced at a scale of 1:250,000 and are for strategic purposes only. They do not show the subgrades of Grade 3. As described in TIN049 [Ref 11-3] these maps are not suitable for use in site specific circumstances, but they provide information for use in wider landscape planning.



- 11.4.5 The provisional map for the East of England shows the Site to be mostly of undifferentiated Grade 3 with areas of Grade 4. There is a small area of Grade 2 shown on the eastern edge. **Figure 11.1** below shows the provisional ALC map for the area.

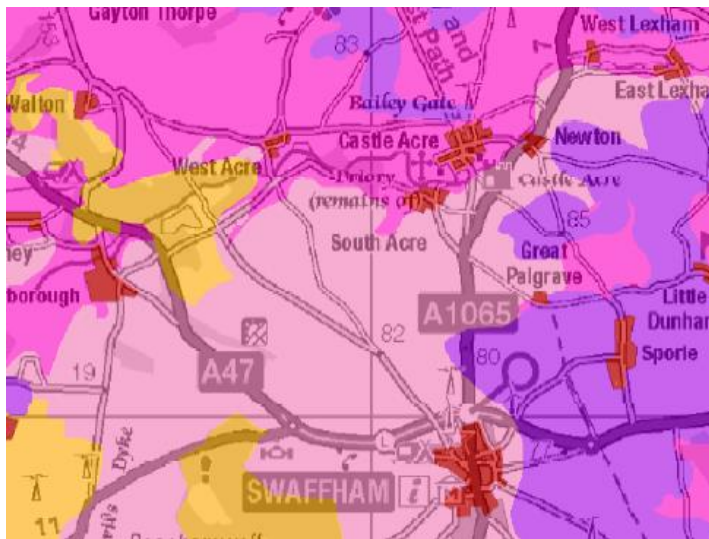
Figure 11.1 Provisional ALC Map for the Site and Surrounding Area



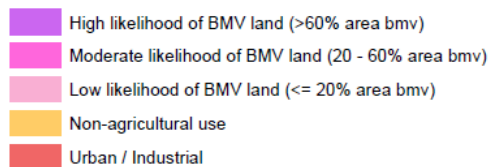
- 11.4.6 Grade 2, a small amount of which is shown on the eastern edge of the Site, is defined as “very good quality” land in the MAFF Methodology [Ref 11-5]. Grade 3 is “good to moderate” quality. The subdivisions of Grade 3, which are not shown on the map, are 3a “good” and 3b “moderate”. Grade 4 is “poor quality” agricultural land.
- 11.4.7 The maps, as above, show that better quality land is expected to the east, identified as Grade 2.
- 11.4.8 In 2017 Natural England published a series of maps, also at 1:250,000 scale, showing the likelihood of BMV land [Ref 11-7]. These maps divide the country into three categories: low (<20% area BMV), moderate (20%-60% area BMV), and high (>60% area BMV). The Site is shown as almost wholly falling into the “low likelihood” category, as shown in Figure 11.2.
- 11.4.9 The Site therefore mostly falls within the lowest category for the likelihood of BMV land. At the very north of the site, near to Fingerhill Plantation, the land falls into the “moderate likelihood” (20-60% area BMV) but at the scale of mapping it is not possible to determine if any of the Site falls into this category. Along the eastern boundary a small area of “high likelihood” (>60% area BMV) lies adjacent to the A1065.
- 11.4.10 The BMV Likelihood, from the 1:250,000 predictive map [Ref 11-7] is shown on Figure 11.2.



Figure 11.2 Extract Natural England's Predictive BMV



Predictive BMV Land Assessment © Defra



Agricultural Land Classification (ALC) Survey

- 11.4.11 An Agricultural Land Classification (ALC) Survey of the Site¹ has been carried out by the Applicant. The land quality has been assessed at a density of one auger sample per hectare, as recommended by Natural England (**Volume III, Appendix 3.2**). The ALC survey results are set out in Table 11.4. The surveyed area extends to 774.3 hectares, this largely covers the Indicative area for Solar PV site (as shown on the Concept Masterplan, **Volume III, Appendix 5.1**).
- 11.4.12 The ALC Survey was undertaken prior to a revision to the Site boundary which occurred post submission of the Scoping Opinion Request (**Volume III, Appendix 3.1**) to allow for grid infrastructure works to enable a new National Grid Substation, as shown on the Concept Masterplan (**Volume III, Appendix 5.1**), for Grid Connection Infrastructure. Works in this area are understood at this stage of the Scheme design relate to limited enabling works to the existing overhead lines and pylons to enable a new National Grid Substation. The temporary working area for grid connection infrastructure has not been surveyed at the time of writing. For completeness, a targeted ALC survey prior to submission of ES will be considered post Statutory Consultation.
- 11.4.13 The ALC has identified a large range in the ALC types found across the site, from two modest areas of Grade 1 to areas of Grade 4.

¹ Excluding Highway Works area and potential temporary area for grid connection infrastructure



11.4.14 The ALC results are shown in Figure 11.3 below, which is also included **at Volume III, Appendix 11.2** (Appendix 6 of the ALC Survey Report). Figures are rounded to the nearest whole hectare. The results show that, in broad terms, the eastern and western areas of the Site are generally moderate or poor quality land, and the central areas, where the soils are more loamy and hold more water, are generally good or very good quality.

Figure 11.3 ALC Survey Results of the Site

Appendix 6 - Map of ALC Grade

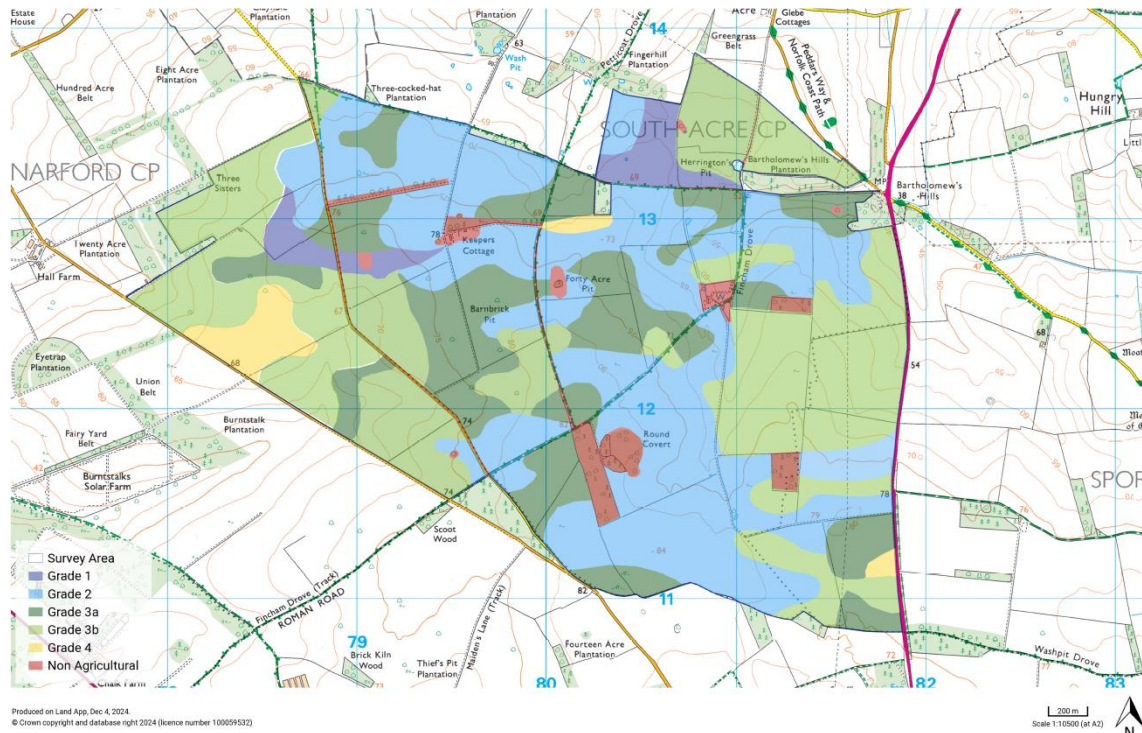


Table 11.4 ALC Survey Results of the Site

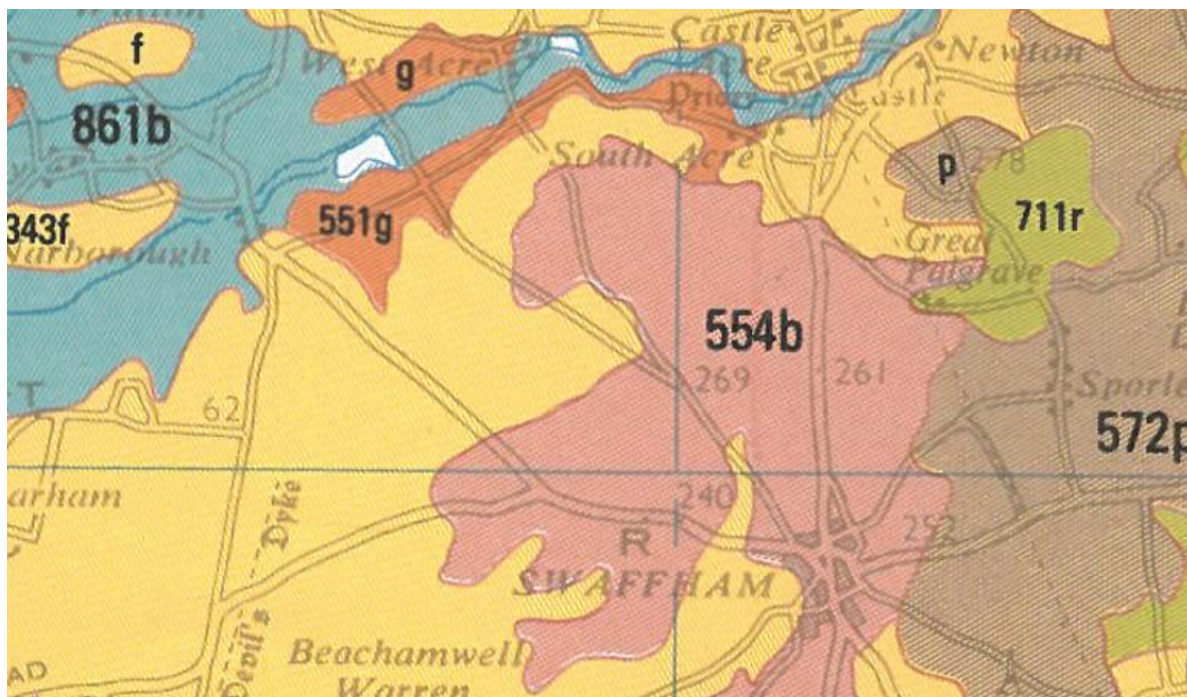
Grade	Description	Area (ha)	Proportion of Site (%)
1	Excellent	27	3
2	Very good	279	36
3a	Good	149	19
3b	Moderate	269	35
4	Poor	20	3
NA	Non-agricultural	30	4
Total		774	100



Soils and Soil Type

- 11.4.15 Soils have been mapped historically by the Soil Survey of England and Wales (SSEW) [Ref 12-8] at a 1:250,000 scale. The SSEW mapping for the Site identifies that the soils are expected to comprise mostly soils of the 554b Worlington Association, being deep, well-drained sandy soils, in places very acid with a subsurface pan, and at risk of wind erosion. In the west of the Site, soils are shown as 343f Newmarket 1, being shallow well-drained calcareous sandy over coarse loamy soils over chalk or chalk rubble. Just north of the Site and broadly coinciding with the “moderate likelihood of BMV” (and thus indicating that category is not within the Site boundary) the soil is shown as 551g Newport 4 association soils, being deep, well-drained sandy soils. Figure 11.4 shows the SSEW map for the area.

Figure 11.4 Extract from the SSEW Map



- 11.4.16 The soils found across the Site are described in the ALC Survey Report (**Volume III, Appendix 11.2**). Soils have been found to be more variable than indicated on the national soil map and in some fields can vary over short distances giving rise to several ALC grades within the same field.
- 11.4.17 The soils in the loamier parts of the Site are generally found in the central part of the Site. Purely for illustrative purposes, examples of soils from some of the Grade 2 (this sample from northwest of Keepers Cottage) are shown in Photographs 1 and 2 (Image 11.1)



Image 11.1 Photographs 1 and 2: Soils (Grade 2) near Keepers Cottage



11.4.18 Whilst there is variability, as described in the ALC report, as soils become sandier they hold less moisture for plant use and are graded lower quality as a result. Sandier soils, from Subgrade 3a in the centre of the site, are shown in Photographs 3 and 4 (Image 11.2), again purely for illustration.

Image 11.2 Photographs 3 and 4: Subgrade 3a Soils



11.4.19 Soils of Subgrade 3b are generally sandy or shallow. Outdoor pig rearing is taking place on the land of Grade 4 at present, but arable land of Subgrade 3b from the eastern side of the



Site is illustrated in Photographs 5 and 6 below (Image 11.3). The sandy nature of the soils, for illustration, can be seen in the crumbly nature of the topsoil.

Image 11.3 Photographs 5 and 6: Subgrade 3b Soil Example



11.4.20 In places, as described in the ALC, the soils are shallow over limestone, with an example presented for illustration in Photographs 7 and 8 (**Image 11.4**).

Image 11.4 Photographs 7 and 8: Shallow Soils





Image 11.5 Photograph 9: Outdoor Rearing of Pigs



Image 11.6 Photograph 10: Outdoor Rearing of Pigs



11.4.25 One field on the northern edge of the Site is currently used for rearing free-range poultry. At the time of this assessment all birds were being housed because of Avian Influenza restrictions. The free-range buildings are shown in Photograph 11 (Image 11.7).



Image 11.7 Photograph 11: Free-range Poultry



11.4.26 The majority of the Site is farmed as large, open arable fields. A few photographs of parts of the Site are shown in Photographs 12, 13 and 14 (Image 11.8 to Image 11.10).

Image 11.8 Photograph 12: Arable Land, Central Site



Image 11.9 Photograph 13: Arable Land, Eastern Area





Image 11.10 Photograph 14: Arable Land, Western Area



- 11.4.27 Parts of the Site are grazed by sheep in the winter, on stubbles or on stubble crops (such as stubble turnips). These sheep are grazed temporarily, secured by electric fencing. Two such areas, one being grazed (Photograph 16), are shown below in and Image 11.12

Image 11.11 Photograph 15: Sheep Fencing for Grazing





Image 11.12 Photograph 16: Sheep Grazing a Stubble Crop



11.4.28 There are two areas of farm buildings within the Site. One is a small brick building near the western boundary, of no significant agricultural use and shown in Photograph 17. There is a brick building that is not within the Site Boundary but lies adjacent to Keeper's Cottage, shown in Photograph 18 (and included in this description for the assessment of impacts on farm resources).

Image 11.13 Photographs 17 and 18: Brick Buildings Within and Adjacent to the Site



In the north-eastern part of the Site, off Fincham Drove, is a small range of buildings, plus two feed silos, shown in Photographs 19 and 20 (



11.4.29 Image 11.14).



Image 11.14 Photographs 19 and 20: Farm Buildings Within the Site



11.5 Embedded Mitigation

Soils and Soil Quality

- 11.5.1 Construction effects may arise as a result of impacts on soils (and thereby on land quality), either from physical movement of the soils or physical movement across the soils by vehicles. An outline Soil Management Plan (oSMP) will be developed and submitted as part of the DCO Application, with a requirement in the DCO that a detailed Soil Management Plan (SMP) be prepared substantially in accordance with the oSMP. The SMP will provide the framework through which good practice² soil management measures will be implemented for the whole duration of the Scheme and minimise potential effects on soils and agricultural land quality.
- 11.5.2 Construction of the Scheme will involve vehicle trafficking over agricultural land. There is the potential for the soil to be adversely affected by vehicular movement if not managed properly. However, the oSMP submitted in support of the DCO Application will include measures to mitigate adverse effects to soils (e.g. compaction). It is considered the most important measure to avoid travelling over or moving soils when wet, and the oSMP measures will include the methodology for determining the suitability of soils to being handled, and controls and measures to minimise soil impacts and prevent adverse effects.
- 11.5.3 A number of potential impacts are capable of mitigation by the careful use of, and handling, of soils. These potential impacts are generally assumed to be mitigated as part of the construction in this assessment, and are assumed to be capable of being controlled (for the purposes of mitigation and impact minimisation) through the oSMP, by way of a requirement within the DCO Application.

11.6 Assessment of Likely Significant Effects

Construction Phase

²

Department for Environment, Food and Rural Affairs (2009). Construction Code of Practice for the Sustainable Use of Soils on Construction Sites

The Institute of Quarrying (2021) Good Practice Guide for Handling Soils in Mineral Workings



Effects on Agricultural Land Quality and Soils

- 11.6.1 The potential for adverse effects on agricultural land (both on soils and the land quality) resulting from the construction of the Scheme have been assessed. This section considers the effects on soils and land quality that are scoped in.
- 11.6.2 The effects of disturbance on crop loss, land use and economics considered in the Operational Phase assessment but will commence at the commencement of the Construction Phase and continue to the end of the Decommissioning Phase. The possible impacts on soils and land quality are described and assessed together and then the effects on soils and land quality are summarised at the end of this section individually.
- 11.6.3 The following construction related stages and activities considered as part of this preliminary assessment for PEIR are assessed:
- Temporary Construction Compounds
 - Access Tracks
 - Ground Mounted PV Modules
 - Vehicle trafficking (on both soils and land quality)
 - Electrical cabling for the Cable Circuit and Cable Route Corridor
 - Customer Substation, National Grid Substation and Ancillary Buildings
 - Battery Energy Storage System (BESS)
 - Electrical Infrastructure such as the Conversion Units or standalone components; and
 - Green Infrastructure.
- 11.6.4 **Volume I, Chapter 5: Scheme Description** provides a detailed description of the works involved with the various components of the Scheme. Accordingly, the works are described only in summary form in the following sections, focussing on the potential effects on agricultural land quality and soils arising from those works.
- 11.6.5 **Temporary Construction Compounds.** The Temporary Construction Compounds will require the removal of topsoil, which will be stored in low-level bunds on land adjacent to the compound. A matting will then be placed on the ground, and stone will be added. The matting will prevent any mixing of stone with the underlying subsoil. These areas will be restored by removing the stone and matting, loosening any compaction in the subsoil, and returning the topsoil to the area.
- 11.6.6 Provided that the works are carried out when soil conditions are suitable, which can be controlled by condition, the works will not have any permanent adverse effect on the land quality or soils.
- 11.6.7 The soils are generally sandy across the Site, with loamy sands and sandy loams in the central part of the Site. In general terms, the sandier soils on the eastern and western areas will be capable of being trafficked (i.e. driven over or moved) for most of the year, with the central soils typically too wet between November and February. All the soils are, however, of a sandy nature and will restore readily even if handled when in sub-optimal conditions.
- 11.6.8 The location of the construction compounds is not yet determined at this stage of the the Scheme Design, but the impact of the works is expected to be temporary and reversible.



Taking a worst-case estimate, potentially 20-50ha of BMV or Subgrade 3b land could be affected, short term. The oSMP will be followed to minimise impacts. As these are short-term effects and fully reversible, they are low magnitude impacts. Temporary low magnitude impacts on land quality and soil resources which are Receptors of high, medium or low sensitivity result in effects of at worst minor significance, which with embedded mitigation incorporated, would be **not significant**.

- 11.6.9 **Access Tracks.** The access tracks will, where possible, follow existing access tracks around the Site. Currently there is a network of access tracks for farm vehicles. Where new tracks are required, they will be constructed in a manner similar to the construction compounds, with topsoil scraped off, matting added, and stone laid down. If required, scrapes for drainage will be provided. New internal Access Tracks are likely to be up to 6m wide where passing bays are provided along the internal Access Tracks. The internal Access Tracks will likely be constructed of compacted stone with excavation kept to a minimum.
- 11.6.10 The topsoil across the Site varies over short distances, as described in the ALC report (**Volume III, Appendix 11.2**), and to enable topsoil to be replaced in a similar location to its original location, soil will be stored in a low mound adjacent to the track. This will minimise handling during the Construction and Decommissioning Phases, and maximise the success of the restoration works, ensuring that the restored land quality will be the same as that pre-construction.
- 11.6.11 The location of new tracks has not yet been determined. However as set out in **Volume I, Chapter 5: Scheme Description** it is anticipated that internal Access Tracks will follow the alignment of the existing agricultural tracks, where practicable with the exception of the Drovers, which will not be used for routing construction traffic apart from crossing points. Assuming a possible worst case scenario, more than 20ha of BMV land could be moved for tracks, although such a large quantity is considered unlikely. That is because, taking an average 5m width for the track and scrape, some 2,000m of track would equate to one hectare, so temporary impacts of in excess of 20ha are considered unlikely.
- 11.6.12 If 20-50 ha of BMV land was to be removed permanently for new tracks, it would be a medium magnitude of impact on a Receptor of high sensitivity. That would lead to a moderate adverse effect. However, it is intended to restore the tracks to the same ALC grade on decommissioning, and following the principles in the oSMP, the effect will be reversible. This would then be a low magnitude impact, on resources of low, medium or high sensitivity, which for both soils and land quality would be a minor adverse effect that is **not significant**.
- 11.6.13 **Solar PV Arrays.** Metal frames that hold PV panels in rows, either secured via metal posts driven into ground to a depth of up to 4m or, subject to ground conditions and further environmental assessment, weighed down using concrete feet. The driving in of the metal posts will not create ground disturbance that will adversely affect agricultural land quality or soils, due to the minimal area of disturbance associated with this insertion method. If required, some areas may use concrete blocks as ballast, and whilst the weight will be considerable if installed when ground conditions are suitably dry, these will not create compaction or soil disturbance to any significant degree.
- 11.6.14 Therefore, it is considered that the installation of the Solar PV Arrays would result in a negligible magnitude of impact. As a result, the resulting effect on soils and land quality is negligible and **not significant**.
- 11.6.15 **Vehicle Trafficking.** There is the potential for construction traffic to cause short-term temporary damage to soils if operations take place when soils are wet. It is very unlikely that



compaction of these sandy soils will not be capable of being alleviated readily using typical agricultural machinery, even between the PV Tables, and therefore any adverse effects on soils are considered to be short-term, temporary and reversible and **not significant**, considering that embedded mitigation as detailed in paragraph 11.5.2 above.

- 11.6.16 There is not likely to be compaction to a degree that would affect land quality. The soils are resilient to machinery travel, as Photograph 21 (Image 11.15) of part of the Site following winter lifting of sugar beet shows, where the impact on the soils is relatively minor despite the poor conditions at the time. This area is ALC Grade 2, to the west of Keeper’s Cottage.

Image 11.15 Photograph 21: Grade 2 Soils from which Sugar Beet has been winter Harvested



- 11.6.17 The sandy soils on the eastern side of the Site are more resilient to winter trafficking, and as shown in Photograph 22 (Image 11.16) soils have been shown very little deformation from farm traffic.

Image 11.16 Photograph 22: Sandy Soils following Sugar Beet Lifting



- 11.6.18 The magnitude of impact on soils and agricultural land quality resulting from the Construction Phase is subsequently negligible, resulting in a negligible effect which is **not significant**.
- 11.6.19 **Electrical Cabling.** Cabling around the ground mounted PV modules is usually limited to the end of each row, connecting back to the electrical structure. This cabling normally involves a narrow trench with soils replaced in the same order as they were removed, shortly after the trench is dug. Subject to good practice, as controlled through measures within the SMP



secured by way of requirement within the DCO, this operation results in a negligible magnitude of impact on soils.

- 11.6.20 A larger cable connection may be required between the substations and the Customer Substation, and then also from the Customer Substation to the National Grid Substation, which would be located within the Cable Route Corridor. This would involve a trench up to 7m in width and up to 2m in depth, resulting in short-term disturbance. Undertaken in accordance with Best Practice Measures controlled through the SMP, the impact of the Cable Route Corridor on soil quality would be short-term temporary and reversible.
- 11.6.21 The excavation of trenches has the potential to affect field drainage systems. The Site is mostly sandy, free draining and a partial drainage scheme in field 32 is the only drainage scheme that has been identified to date. The magnitude of impact of the trenches is expected to be low (under 20ha) for the collective total across the Site from the construction of the Scheme. The works are temporary and reversible. Therefore, the combination of impacts on BMV and non-BMV land will be no greater than a low magnitude impact on resources of high or medium sensitivity resulting in short-term temporary, effects that are minor adverse, which is **not significant**.
- 11.6.22 Customer Substation, National Grid Substation and Ancillary Buildings, Grid Connection Infrastructure. As described in **Volume I, Chapter 5: Scheme Description**, the Customer Substation and Ancillary Buildings, and the National Grid Substation, are both expected to have a footprint of up to 4ha each. They are to be located in an area identified on the Concept Masterplan (**Volume III, Appendix 5.1**) which includes land of ALC Grades 2, 3a and 3b (Figure 11.3). The area anticipated for these facilities is within fields 24, 26, 27, 33 and 35. Fields 24, 33 and 35 are mostly or wholly Subgrade 3b. Fields 26 and 27 are mixed quality but include Grades 2 and 3a mixed with Subgrade 3b. The land quality of the area identified for Grid Connection Infrastructure is not known to date but works in that area are expected to be limited.
- 11.6.23 The worst-case assessment is that these areas could result in an adverse impact of low magnitude (<20 ha) on a resource of high sensitivity, resulting in an effect of minor adverse effect. The works may, in part, be permanent and therefore the worst-case assessment is a permanent, minor adverse effect, on land quality which is **not significant**. The impact on soils will be low so the effect will be minor adverse, which is **not significant**.
- 11.6.24 **BESS**. As described in **Volume I, Chapter 5: Scheme Description**, the BESS could require an area up to 10.5ha in fields 24, 26, 27, 33 or 35. The base for the BESS is constructed similarly to that of the construction compound, with topsoil stripped and stored in a bund, a matting laid down and stone added. The BESS requires a level base, however, and depending upon the location chosen, some subsoil moving to level the base may be required.
- 11.6.25 The details of the necessary levelling works have not yet been developed, so a worst-case assessment has been made for the PEIR. Assuming that up to 10.5ha of topsoil and subsoil movement is necessary, careful handling and storing of these materials will be required in order to minimise the potential for a permanent downgrading of land quality. Soils will need to be moved when suitably dry, and an outline soil handling assessment will be provided in the oSMP.
- 11.6.26 The BESS is anticipated to be located in the area of fields 24, 26, 27, 33 or 35, of which only fields 26 and 27 contain land of BMV quality. The successful restoration back to the original ALC grade, especially as the soils are sandy and resilient to being handled and therefore resilient to impacts that might affect land grade, is considered likely. A worst-case assessment,



however, with a level of works undertaken which is not easily restored, could result in a permanent impact on up to 10.5ha (low magnitude of impact) of BMV land (high sensitivity Receptor), resulting in a minor adverse effect, which in isolation is **not significant**. Assuming successful restoration to the same grade on decommissioning then the impact will be of low magnitude and the effect minor adverse, which is also **not significant**.

- 11.6.27 **Electrical Infrastructure such as Conversion Units or Standalone Equipment.** Associated electrical infrastructure such as transformers, switchgear and metering equipment, either housed within the Conversion Unit or as standalone equipment, may require the construction of bases. These are assumed to be sited on a concrete slab, strips or footings, which will not require deep foundations. The physical works involved, and the potential effects on soils and land quality, will be limited.
- 11.6.28 This would result in an impact of low magnitude (<20ha) on a high sensitivity Receptor (BMV land, assuming a worst-case scenario), which would result in a long-term temporary effect that is minor adverse, which is **not significant**.
- 11.6.29 **Green Infrastructure.** The proposed green infrastructure as per the Masterplan Strategies (**Volume III, Appendix 5.3**) will require land uses of no impact on agricultural land and soils, such as grassland or wildflower planting. They are also expected to involve areas of hedgerow planting.
- 11.6.30 Such works do not involve disturbance to soils or agricultural land. Planting of hedgerows is encouraged on farmland, and as can be seen on the ALC map (Insert 11-3) ALC grading sweeps under hedges. Therefore, there will be a negligible impact on soils and land quality, which is **not significant**. Potential for beneficial effect will be considered in the ES, at this stage a worst case assessment has been undertaken.
- 11.6.31 **Overall Effect on Soils and Agricultural Land Quality.** The short-term temporary effects of construction compounds and the installation of electrical cabling are considered to be impacts of minor or negligible magnitude and to be short-term and temporary impacts. The effects of the Solar PV Arrays on land quality will be long-term, temporary but of low or negligible magnitude. There is the potential, under a reasonable worst-case scenario, for temporary effects to be in the 20 – 50 ha magnitude, and to involve BMV land which is a Receptor of high sensitivity, but the impacts will be reversible and therefore are of low magnitude, resulting in a temporary, minor adverse effect, which is **not significant**.
- 11.6.32 The construction effects of the access tracks, Customer Substation, National Grid Substation, BESS and electrical infrastructure could collectively amount to more than 50 ha of BMV. At this stage, when details are still under consideration, this is a worst-case assessment. If these areas were not restored to comparable ALC grade the effect could potentially result in an adverse impact of major (>50 ha) magnitude on resources of high sensitivity (BMV), which would result in a major adverse effect, which would be **significant**. If restored to comparable ALC grade the effect would be low magnitude and a minor adverse effect, which would be **not significant**.
- 11.6.33 The National Grid Substation and any pylons will result in a construction impact that will be a permanent impact. This is assessed worst-case as a low magnitude impact on a resource of high sensitivity, resulting in a permanent, minor adverse effect, which is **not significant**.
- 11.6.34 The soils across the Site are of medium or low sensitivity. As the impacts are not permanent the Construction Phase effects are minor or negligible on soils, which is **not significant**.



Operation Phase

Effects on Agricultural Land Quality and Soils

- 11.6.35 The land under and around the Solar PV Arrays will be kept in grassland use and potentially farmed by the grazing of sheep or the production of fodder. Depending upon the grazing regime, there may be periodic need for some mowing or topping of grassland; this will be normal agricultural activity and following good practice, which will be described in the oSMP and will adhere to the principles set out in the LEMP, there would be no greater than a **negligible impact** on soils, which would **not be significant**. Operational activities will be covered by the oSMP. By careful operation, there should be **no significant adverse effects** on soil resource or agricultural land quality during operation.
- 11.6.36 There will be a need for maintenance and periodic repair of the Solar PV Arrays and electrical infrastructure. This may periodically require vehicles to travel across the grassland off the access tracks in order to access PV panels. In most cases, the vehicles will be lightweight (e.g. small vans) and are unlikely to make any visible or significant impact on the grassland. If emergency access is required when soils are wet and indents are created, they will likely be restored by the effect of grazing sheep, or they can be repaired with soils or mechanically when conditions are suitable.
- 11.6.37 During operation there is not expected to be any impact greater than minor (<20ha), temporary and reversible effects on soils or on agricultural land quality, including BMV land of high sensitivity. The operational effects on soils will be minor adverse and short-term temporary. The resting of soils from arable enterprises will have benefits in terms of retention of soil organic carbon and the build-up of organic matter, which will be beneficial. These beneficial effects will occur over all of the Site but, as land quality will not be enhanced, the magnitude is assessed as negligible (Table 11.2). The operational effects on agricultural land quality and soils will be negligible. The effect is **not significant**

Agricultural Businesses

- 11.6.38 There are a number of farm businesses and enterprises operating within the Site at the time of writing. All are full-time businesses. The enterprises all relate to land within the Site, although all could also operate on other land. There are no effects of severance. All the farm enterprises, as described below, are considered to be of medium or low sensitivity (Table 11.1), principally influenced by the tenure of the enterprise.
- 11.6.39 There are currently four fields used for the rearing of free-range pigs. These enterprises are run separately to the principal arable farms. At this stage of the assessment, it is assumed that these enterprises, which are rotated every 2-3 years in any event, will be able to relocate to land outside the Site. The impact on these businesses will be either low or medium, but the impact is likely to be low given the time lag to 2031 before works commence which will allow time for the enterprises to undergo relocation prior to commencement. Taking a reasonable worst-case assessment the impacts are considered potentially of medium magnitude. Medium magnitude impacts on farm businesses of medium sensitivity result in a minor adverse effect, which is **not significant**.
- 11.6.40 One field is currently used for the rearing of free-range poultry. It is assumed for the PEIR that an alternative area not within the Site, for what is a periodically-moved enterprise anyway (rotating the flock to different pastures is important for disease and pest control), will be available. Taking a reasonable worst-case assessment the impact could be of medium



magnitude on a medium sensitivity business, resulting in a minor adverse effect, which is **not significant**. Overall, therefore, it is assumed that the effect will be negligible.

- 11.6.41 Two substantial arable farming enterprises will be affected. One of these is farmed in-hand (by the landowner). One is occupied on a short-term tenancy operation. The scale of impact is considerable, and both enterprises will be affected adversely to a medium magnitude of impact being a significant adverse effect on the day-to-day operations of a farm business. The businesses will not be rendered unviable however, there is the potential for replacement farming enterprises such as sheep grazing under and around the PV panels, and overall the quantum of agricultural labour is not expected to be significantly different as a result of the change from arable production to sheep production.
- 11.6.42 The land is, in part, grazed by sheep, which are flocks grazing over winter stubble and stubble crops. Sheep grazing has the potential to continue, and expand, under and around the PV panels. In respect of the effect on the sheep business, these are expected to be beneficial impacts for the duration of the Operational Phase. They will be low magnitude, long-term temporary benefits (Table 11.2), on enterprises of low sensitivity which will be long-term temporary beneficial effects of minor beneficial significance, which is **not significant**.
- 11.6.43 The impacts on the arable businesses will be adverse, and long-term temporary. Adverse effects from reduced arable production may be replaced by income from sheep production, but for the PEIR a worst-case assessment is made. Both arable enterprises will have to reduce in scale, but neither will be rendered non-viable. No farm buildings or other key components of the enterprises will be affected. There will be no impacts on these holdings as a result of severance. Access to maintain irrigation and water supplies will be retained.
- 11.6.44 As such the worst-case magnitude of impact is assessed as a significant change in the day-to-day operations, which will be medium magnitude impact for both enterprises. However as both enterprises are arable operations, but they are full-time so of medium sensitivity. Consequently, for both farm enterprises and adverse effects are of long-term temporary minor adverse significance, which is **not significant**.
- 11.6.45 Parts of the Site are used on short-term arrangements for vegetable or maize (for Anaerobic Digestion) growers. These are large agricultural business, and whilst there will be a need for them to source other land or otherwise to reduce their scale of operation, the reductions will be of minor magnitude, and **not significant**.

Loss of BMV and Food Production on a regional scale.

- 11.6.46 In response to the Scoping Report, the Planning Inspectorate set out that the cumulative effect on food production and the use of BMV land on a regional scale should be included in the ES.
- 11.6.47 The Site surveyed, excluding Highway Works area and temporary working area for Grid Connection Infrastructure includes of the order of 740ha of agricultural land (including hedges, field margins etc) based on the ALC survey. The ALC includes areas such as the hedgerows, farm tracks, ditches etc and not all of these areas can be used for cropping. Therefore, for the purposes of assessment an area of about 720ha of farmable land is used. This will be further reviewed in the ES should the need for additional ALC surveyed be identified as part of Statutory Consultation.
- 11.6.48 Norfolk as a County has an estimated area (from the provisional ALC maps from the 1970's) of the order of 479,000ha of agricultural land. Over 433,000ha of this is BMV (Grades 1, 2 and 3a). The ALC grade for Norfolk is broken down in TTable 11.5.



Table 11.5 Provisional ALC Breakdown

ALC Grade	Area (ha)	Proportion (%)
1 excellent	45,529	8.4
2 very good	88,398	16.4
3 good to moderate	299,449	55.4
4 poor	45,662	8.5
5 very poor	112	0.0
NA non-agricultural	49,294	9.1
U urban	11,644	2.2
Total	540,088	100

11.6.49 Natural England estimate that 42% of agricultural land is BMV (see TIN049). Statistically about 40% of undifferentiated Grade 3 is therefore anticipated to be subgrade 3a. Using that crude estimate, the proportion of BMV land in Norfolk is therefore approximately 53%, which is higher than the national average.

11.6.50 The amount of land within the Site is approximately 0.15% of the land within the County. The land quality will not be affected and the land resource will not be lost. The use of 0.15% of the County for a mixed energy generation and food production use is not significant. It a negligible quantum on a regional basis. The regional impact is therefore considered to be negligible, which is **not significant**.

11.6.51 The UK Food Security Report (11 December 2024) [Ref 11-9] concludes that food production levels could be maintained or moderately increased alongside the land use change required to meet our Net Zero and Environmental Act targets and commitments. The preliminary assessment in this PEIR therefore accords with Government’s national assessment that, individually, the effects on food production will be minor adverse or negligible, which is **not significant**.

Decommissioning Phase

Effects on Agricultural Land Quality and Soils

11.6.52 On decommissioning, most of the long-term temporary impacts will be reversed. The cabling connecting the solar PV modules would be disconnected, the solar PV panels would be dismantled and removed and the framework unbolted. The piles would then be pulled out likely using machinery not dissimilar to that which installed the framework posts. This machinery would likely have tracks to dissipate ground pressure and would be operated in dry conditions.

11.6.53 Once the solar PV modules have been removed the bases for the fixed infrastructure can be removed. This would involve removing the crushed stone bases and matting, loosening the soil to remove compaction, then returning topsoil to the areas. The topsoil would then be worked with normal agricultural machinery to create a tilth suitable for return to the landowner.



- 11.6.54 Cables would be removed by digging a narrow trench, removing topsoil to one pile, subsoil to another, removing the cable then replacing the soils.
- 11.6.55 The soils across the Solar PV Site would then be loosened with normal agricultural machinery and returned to the farmers for continued agricultural use. These works would be embedded mitigation in the oSMP, which will be submitted with the ES.
- 11.6.56 Decommissioning can be timed to be carried out when soil conditions are suitable, which would be set out in the oSMP. Subject to suitable mitigation, decommissioning is therefore not anticipated to result in any effects greater than those during construction.
- 11.6.57 Some areas of habitat may remain, but in these areas the land quality would not have been altered, so this is not considered as an adverse impact. Soil benefits resulting from long-term grassland may be lost over time if the land-use returns to intensive arable farming uses.
- 11.6.58 Accordingly the effects after decommissioning on land quality and soils will be negligible, which is **not significant**.
- 11.6.59 The National Grid Substation and Grid Connection Infrastructure will remain, and this will result in a permanent adverse effect. The reasonable worst-case assessment is that this might involve a low magnitude impact on a resource of medium or high sensitivity and overall, a minor adverse effect, which is **not significant**.

Agricultural Businesses

- 11.6.60 After decommissioning the farms will have available all farmland except for the areas described above, and the effect will therefore be negligible, which is **not significant**.

11.7 Additional Mitigation

- 11.7.1 The effects presented in the ‘Assessment of Likely Significant Effects’ section above have considered the embedded mitigation and are intended to demonstrate the worst-case effects that the Scheme would have based on the parameters presented at PEIR. This assessment has been undertaken to inform the statutory consultation process which will feed into further design refinement.
- 11.7.2 At this stage, no additional mitigation is proposed and the effects are intended to be managed through the control documents detailed in the ‘Embedded Mitigation’ section of this PEIR. It is possible that, through further design refinement, the effects concluded above will be reduced for the final Scheme submitted for the DCO Application, which would be considered as embedded mitigation in the final ES chapter.

11.8 Residual Effects

- 11.8.1 As no additional mitigation is proposed at the PEIR stage, the residual effects on Agricultural Land and Soils are as presented in the ‘Assessment of Likely Significant Effects’ section of this PEIR chapter.



11.9 Cumulative Effects

11.9.1 The cumulative effects of the Scheme alongside other developments will be considered. The effect on agricultural land is assessed below.

Table 11.6 Cumulative Assessment

Project Name and reference	Land Quality and Source	Likely Effects	Cumulative Effects with the Drovers
High Grove Solar EN0110010	1,400 ha of arable land, would likely involve areas of BMV	Not quantified, but assumed to involve some temporary loss of BMV	There is likely to be a cumulative impact involving some potentially permanent loss of land, possibly including BMV, and areas that are affected temporarily. Overall, the cumulative effect is likely to be moderate or major adverse (i.e. >50ha of BMV), which is significant.
East Pye Solar	Over 1,000 ha shown mostly as falling in the 20-60% BMV likelihood areas on Natural England's maps.	Not quantified but assumed to involve some temporary loss, and possibly some permanent loss for fixed infrastructure.	There is likely to be a cumulative impact involving some potentially permanent loss of land, possibly including BMV, and areas that are affected temporarily. Overall, the cumulative effect is likely to be moderate or major adverse (i.e. >50ha of BMV), which is significant.
Norfolk Vanguard Offshore Windfarm EN010079	Grade 1: 58 ha Grade 2: 153 ha Grade 3a: 276 ha Grade 4: 6 ha Grade 5: 1 ha (all provisional)	It was concluded that the effects on agriculture were minor adverse as the proposals were temporary	No significant cumulative effects



<p>Norfolk Boreas Offshore Windfarm EN010087</p>	<p>Grade 1: 53 ha Grade 2: 159 ha Grade 3a: 294 ha Grade 4: 6 ha Grade 5: 0 ha (all provisional)</p>	<p>It was concluded that the effects on agriculture were minor adverse as the proposals were temporary</p>	<p>No significant cumulative effects</p>
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11.10 Assumptions and Limitations

- 11.10.1 This assessment is based on baseline and Scheme design information available at the time of writing. An updated assessment will be undertaken as part of the EIA and will be reported in the ES. There are currently few gaps in the baseline data available. Where data is not known, or where details of design and Scheme impacts are not yet determined, a worst-case assessment has been undertaken.



11.11 Summary of Effects

Table 11.7 Agricultural Land and Soils Effects (worst case effect)

Receptor/Feature	Activity	Embedded Mitigation Measures	Nature and Duration of Effect	Sensitivity of Receptor	Magnitude of Impact	Preliminary Likely Significant Effects	Additional Mitigation Measures	Residual Effect Significance
Construction and Decommissioning Phase								
Agricultural Land Quality	Construction Phase components and activities removed during the Decommissioning Phase	oSMP	Temporary	Mostly high (Grades 1, 2 and 3a BMV land) and medium (3b), with some low (Grade 4).	Low impact on the basis that the effect is temporary	Minor Adverse (not Significant)	None	Minor Adverse (not Significant)
Agricultural Land Quality	Construction Phase components and activities for areas that will not be removed during the Decommissioning Phase	oSMP	Permanent	High (Grades 1, 2 and 3a BMV land) and medium (3b)	High impact (worst case)	Major Adverse (Significant)	Restoration to comparable land quality under the decommissioning works	Minor Adverse (not significant)



Receptor/Feature	Activity	Embedded Mitigation Measures	Nature and Duration of Effect	Sensitivity of Receptor	Magnitude of Impact	Preliminary Likely Significant Effects	Additional Mitigation Measures	Residual Effect Significance
	ning Phase or where (worst-case) land quality may be adversely affected							
Soils	Solar PV Arrays	oSMP	Temporary	Medium (3b) and low (Grade 4).	Negligible impact	Negligible adverse effect (not Significant)	None	Negligible (not Significant)
Operation Phase								
Agricultural Land Quality	Maintenance etc	oSMP	Temporary	High (Grades 1, 2 and 3a BMV land), medium (3b) and low (Grade 4).	Negligible impact	Negligible adverse effect (not Significant)	None	Negligible adverse effect (not Significant)
Soils	Being rested from arable	oSMP	Long-term temporary	Medium (3b) and	Negligible	Negligible	None	Negligible



Receptor/Feature	Activity	Embedded Mitigation Measures	Nature and Duration of Effect	Sensitivity of Receptor	Magnitude of Impact	Preliminary Likely Significant Effects	Additional Mitigation Measures	Residual Effect Significance
				low (Grade 4).				
Farm Businesses	Operational constraints	None	Long-term temporary	Medium	Medium impact	Minor adverse effect (Not Significant)	None	Minor adverse effect (Not Significant)



References

- Ref 11-1 Institute of Environmental Management and Assessment (IEMA) Guide 'A New Perspective on Land and Soil in Environmental Impact Assessment', (2022)
- Ref 11-2 Department for Energy and Net Zero (2024). National Policy Statement on Renewable Energy Infrastructure ('EN-3', 2024)
- Ref 11-3 Natural England Technical Information Note 049 "Protecting the Best and Most Versatile agricultural land, edition 2" (2012)
- Ref 11-4 Ministry of Housing, Communities and Local Government (formerly the Department for Levelling Up, Housing and Communities) (2023) National Planning Policy Framework (NPPF).
- Ref 11-5 Agricultural Land Classification of England and Wales: revised guidelines and criteria for grading the quality of agricultural land, MAFF (1988).
- Ref 11-6 Natural England 1:250,000 Series Agricultural Land Classification "East Region" (2010)
- Ref 11-7 Natural England 1:250,000 Likelihood of Best and Most Versatile (BMV) Agricultural Land "East Region" (2017)
- Ref 11-8 Soil Survey of England and Wales 1:250,000 'Sheet 4: Eastern England' (1983)
- Ref 11-9 Department of Environment, Food and Rural Affairs "UK Food Security Report 2024" (14 January 2025)



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