8 AGRICULTURAL LAND AND SOILS

Introduction

8.1 This chapter of the ES assesses the likely significant effects of the Development on the environment in respect of Agricultural Land and Soils. Specifically, this chapter addresses the inherent resources of agricultural land and soils, and the land management and operational effects of the Development on affected farm holdings.

8.2 Detailed Agricultural Land Classification (ALC) surveys of the Site were carried out by Amet Property in April 2023 and January 2024. The surveys included 97 sample points. The ALC report is reproduced in Appendix 8.1. The farm impacts were assessed by Kernon Countryside Consultants Ltd with interviews and site visits held in January 2024.

8.3 The chapter has been prepared by Kernon Countryside Consultants Ltd. The work has been carried out by experienced and qualified experts, following detailed surveys as described in this Chapter.

Planning Policy Context

National Planning Policy

Future Wales - The National Plan 2040 (2021)[i]

8.4 Future Wales - The National Plan 2040 (Future Wales) sets the direction for development in Wales to 2040. It has development plan status and sets out a strategy for addressing key national priorities through the planning system, including achieving decarbonisation, climate-resilience and achieving net zero. It constitutes the highest tier of the development plan in Wales and provides the policy context against which applications for Development of National Significance (DNS) are determined.

8.5 Future Wales defines the “best and most versatile agricultural land” (BMV) as that in Grades 1, 2 and 3a of the Agricultural Land Classification. The map on page 27 shows where across Wales land is predicted to be of BMV quality. Future Wales does not, however, set a policy on protection of agricultural land. Policy 17 identifies that large scale solar will not be permitted in National Parks or Areas of Outstanding Natural Beauty (‘AONB’). Policy 18, specifically dealing with DNS, lists the 11 criteria against which DNS development will be assessed, but none of those include agricultural land.

Planning Policy Wales (2024)[ii]

8.6 National planning policy guidance on development involving agricultural land is set out in paragraphs 3.58 and 3.59 of Planning Policy Wales (PPW) as follows:

> *‘3.58 Agricultural land of grades 1, 2 and 3a of the Agricultural Land Classification system (ALC) is the best and most versatile, and should be conserved as a finite resource for the future.’*
>
> *‘3.59 When considering the search sequence and in development plan policies and development management decisions considerable weight should be given to protecting such land from development, because of its special importance. Land in grades 1, 2 and 3a should only be developed if there is an overriding need for the development, and either previously developed land or land in lower agricultural grades is unavailable, or available lower grade land has an environmental value recognised by a landscape, wildlife, historic or archaeological designation which outweighs the agricultural considerations. If land in grades 1, 2 or 3a does need to be developed, and there is a choice between sites of different grades, development should be directed to land of the lowest grade.’*

Technical Advice Notes

8.7 Planning policy regarding development involving agricultural land which is set out in PPW11 (see above) is supplemented by Technical Advice Note (TAN) 6 'Planning for Sustainable Rural Communities' (July, 2010)[iii]. TAN6 provides advice on sustainable agriculture. Specific advice for development involving agricultural land is provided at Section 6.2 of TAN6. Paragraph 6.2.1 states that:

> *'When preparing development plans and considering planning applications, planning authorities should consider the quality of agricultural land and other agricultural factors and seek to minimise any adverse effects on the environment.'*

Local Planning Policy

8.8 The Pembrokeshire County Council Local Development Plan "Planning Pembrokeshire's Future"[iv] (adopted February 2013) does not contain a specific policy governing either the use of agricultural land or renewable energy proposals.

Guidance and Best Practice

8.9 On 1st March 2022, the Minister for Climate Change issued a letter[1] to Chief Planning Officers regarding the use of BMV agricultural land. This referred to Future Wales, PPW and TAN 6 as referenced above. The letter noted that *'Should solar PV array applications on BMV agricultural land come before the Department for Climate Change, the Department will object to the loss of BMV agricultural land unless other significant material considerations outweigh the need to protect such land in accordance with Welsh Government policy and guidance outlined above*'.

8.10 This assessment has also taken into account the Institute of Environmental Management and Assessment ('IEMA') guidance document *'A New Perspective on Land and Soil in Environmental Impact Assessment*' (February 2022)[v] ('the IEMA Guidance'), Wales National Application Annex to LA109 *'Geology and Soils'*[vi], and the Institute of Civil Engineering's (2020) *'Environmental Impact Assessment Handbook, Third Edition.'*[vii]

Assessment Methodology

Consultation

8.11 This chapter has been prepared in accordance with the requirements of the EIA Regulations and Planning Inspectorate Wales' (PINS Wales) (now Planning and Environmental Decisions Wales' (PEDW)) adopted Scoping Direction.

8.12 The ALC survey and grading at the Site has been validated by the Welsh Government's Land Quality Advisory Service (LQAS) as set out in the response to scoping of 21st December 2023, except for 10 ha at the northern end of the Site which has been surveyed subsequently.

8.13 The following changes and amendments have been added to the ES Chapter following consultation with statutory consultees during the EIA Scoping process, which are shown in Table 8.1.

Table 8.1: Amendments Following EIA Scoping

Statutory Consultee	Comment	Response within the ES Chapter
Welsh Government Soil Policy and Agricultural Land Use Planning Unit (WG)	The 10ha at the north of the Site will need to be surveyed.	This has been surveyed and the results are presented in this Chapter.
	The application will need to provide evidence of: • how BMV land is to be protected;	This Chapter sets out the information about the land use and land quality. The overriding need and weight are assessed

[1] **Eich cyf (gov.wales)**

Statutory Consultee	Comment	Response within the ES Chapter
	• an overriding need if BMV land is involved.	in the planning balance assessment elsewhere in the application.
	The application will need to cover: • the agricultural quality and quantity of soil excavated (and retained on site) for on-site infrastructure; • the number of piles, extent of cabling etc; • information about any imported fill materials, track creation etc.	This information is provided within this Chapter.
	A Soil Management Scheme will be required.	This is provided in the form of an outline Soil Resources and Management Plan, in Appendix 8.2.

Study Area

8.14 The study area for the assessment is the Site as shown in Figure 1.1.

Assessment of Significance

8.15 The assessment of the significance of the effects from the Development has been assessed for both its construction and operational phases. The long-term effects including after the decommissioning phase have also been assessed.

8.16 The significance of the effect has been assessed based on the magnitude of the impact, and the sensitivity of the receptor. The assessments are based on the magnitude and sensitivity criteria in Tables 8.2 and 8.3. These have taken account of the IEMA Guidance (2022)v, and the Wales National Application Annex to LA109 'Geology and Soils'vi. These criteria have been developed further to reflect local circumstances, and land business impacts have been incorporated into the tables below.

8.17 The IEMA Guidance describes the impacts restricting proposed land use in Table 3 as "permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading". The footnote to Table 3 identifies that "temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soils". Therefore, the magnitude measurement relates to permanent, irreversible losses from sealing or land quality downgrading.

8.18 Table 8.2 below sets out the criteria for assessing the magnitude of the impacts from the Development that have been applied to the assessment.

Table 8.2: Criteria for Assessing Magnitude of Impact on Agricultural Receptors

Magnitude of Effect	Definition	
	Effects on Agricultural Land (soils)	Effects on Farm Businesses (agricultural businesses)
Major	The Development would directly lead to the loss (including permanent sealing or land quality downgrading) of one or more soil functions or soil volumes over an area of over 20 hectares ('ha') of soil-related features; or potential for improvement in one or more soil functions over an area of more than 20 ha.	The impact of the Development would render a full-time agricultural business non-viable.
Moderate	The Development would directly lead to the loss (including permanent sealing or land quality	The impact of the Development would require significant changes in the day-to-day

Magnitude of Effect	Definition	
	Effects on Agricultural Land (soils)	**Effects on Farm Businesses (agricultural businesses)**
	downgrading) of one or more soil functions or soil volumes over an area of between 5 ha and 20 ha of soil-related features; or potential for improvement in one or more soil functions over an area of between 5 ha and 20 ha.	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 5 ha of adjacent land to be farmed fully.
Minor	The Development would directly lead to loss (including permanent sealing or land quality downgrading) of one or more soil functions or soil volumes over an area of less than 5 ha of soil-related functions; or potential for improvement in one or more soil functions over an area of less than 5 ha.	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 boundary 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 would require only minor changes to a part-time farm business.

8.19 Under the IEMA Guidance, land of Grades 1, 2 and 3a is defined as "very high" sensitivity. Land of Subgrade 3b is defined as "moderate" sensitivity. That leaves the table unpopulated for "high" sensitivity. For continuity with other Chapters, all BMV land is placed in the high sensitivity category. This means that all BMV land falls into one category, and that any losses of in excess of 5 ha of BMV would be a moderate adverse impact, which would be significant in EIA terms.

8.20 Of the order of 19% of agricultural land in Wales is of BMV quality, based on the predictive ALC maps. This is an estimated area of 321,600 hectares of land[viii].

8.21 The matrix for determining the sensitivity of agricultural land and farm businesses is set out in Table 8.3 below.

Table 8.3: Matrix for Determining Sensitivity

Sensitivity	ALC/biomass production*	Sensitivity of topsoil and subsoil**	Agricultural businesses
High	Land of ALC Grades 1, 2 and 3a	High clay soils where the field capacity days ('FCD')*** is >150, or medium textured soils where the FCD is >225	-
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	-	Agricultural land that is not farmed or does not form part of a farm business.

* IEMA Guidance Table 2
** IEMA Guidance Table 4. For the full list. refer to the IEMA Guidance Table 4
*** Field Capacity Days i.e. days when the soil is replete with water

8.22 The significance of the effect can then be assessed based on the magnitude and sensitivity, as set out in the matrix at Table 8.4. Effects can be beneficial, adverse or negligible. A moderate or major impact will be considered as significant in EIA terms.

Table 8.4: Matrix for Determining Significance

Sensitivity	Magnitude			
	Major	**Moderate**	**Minor**	**Negligible**
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Minor	Minor	Negligible
Low	Minor	Minor	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Limitations and Assumptions

8.23 There are no limitations to the assessment of the Development's likely significant effects on agricultural land quality or on farm businesses. Land quality at the Site is mapped to the nearest 0.1ha, reflecting the ALC system.

8.24 Soil is regarded as a finite resource, as it forms slowly at the rate of approximately 1cm depth per 500 years. For the purposes of this assessment, it is assumed that the baseline soil resources identified on-Site as part of this assessment are unlikely to change significantly over the mid-term (i.e., to 2050) under natural conditions, where the land is undeveloped.

8.25 However, research has been undertaken by Cranfield University and ADAS to predict *'The Impact of climate change on the capability of land for agriculture as defined by the Agricultural Land Classification'*[ix]. In this research, 12 UKCP09 climate change scenarios were investigated, namely the medium, high and low emissions scenarios for 2020 (2010-2039), 2030 (2020-2049), 2050 (2040-2069) and 2080 (2070-2099) time periods. The report concludes, *inter alia*, that:

> *'Climate change is likely to have an impact on arable production in the UK in the coming decades. While warmer temperatures and increased CO_2 concentrations may result in improvements in wheat and potato yields; it is likely crops will suffer from adverse effects of climate change, especially related to water stress and crop heat stress. It is likely that the agricultural sector will have to adapt to the changing conditions, in order to stay profitable. It is currently unclear what the combined effect of environmental change, as well as any adaptations, will have on crop production.'*

8.26 Amongst the 'Potential Further Work' (Section 10), the report recommends, *inter alia*, that:

> *'The ALC system should be reviewed using contemporary weather and crop yield statistics to determine the significance of the droughtiness factor in the grading of agricultural land in England and Wales. The analyses presented in this report do suggest that some arable areas in lowland England are likely to suffer from increased droughtiness which would significantly reduce the yields of cereal crops. Under current conditions this deficiency could not be alleviated by management techniques (e.g., the areas are in regions where water supply is limited for irrigation). This is an important issue which needs to be addressed in the near future.'*

8.27 Most of the significant effects of climate change occur in the longer term, i.e., 2080 time period, when areas of the UK are likely to experience similar climatic conditions to those in present-day Mainland Europe. Therefore, for the purposes of this assessment, it is assumed that the baseline ALC grades determined on-Site as part of this assessment are unlikely to change significantly over the mid-term (i.e., to 2050 to 2080) under natural conditions.

8.28 For the purposes of this assessment, the Development is assessed as being 'reversible'. The Development has a modelled operational lifespan of up to 40 years and its equipment will be removed from the Site at the end of its operational lifespan. Following the Development's decommissioning, the

quality and quantity of agricultural land will not change from the current baseline conditions summarised in Table 8.6.

8.29 It is also assumed that the decommissioning phase can be carried out without any significant damage to soil, and without any adverse effect on the agricultural land quality grade. Consequently, other than any areas identified within this assessment as permanently affected, the land quality under the areas covered by the solar photovoltaic (PV) panels is assumed to remain of the same ALC grade as has been identified in the baseline conditions assessment. The basis for this assumption is explained in this Chapter.

8.30 It is assumed that it will not be possible to graze larger agricultural animals such as cattle around the solar PV panels, but that it will be possible to use the panel areas for the grazing of sheep. Sheep grazing under and around solar PV arrays is common practice. The assumptions about land use and management are based on experience of other solar developments nationwide.

8.31 The descriptions of the construction process that underpin this part of the assessment derive from observations and experience of other solar park installations in England and Wales, and from visits to operating sites post-construction. It is assumed that the development will follow industry good practice.

Baseline Conditions

Agricultural Land Quality

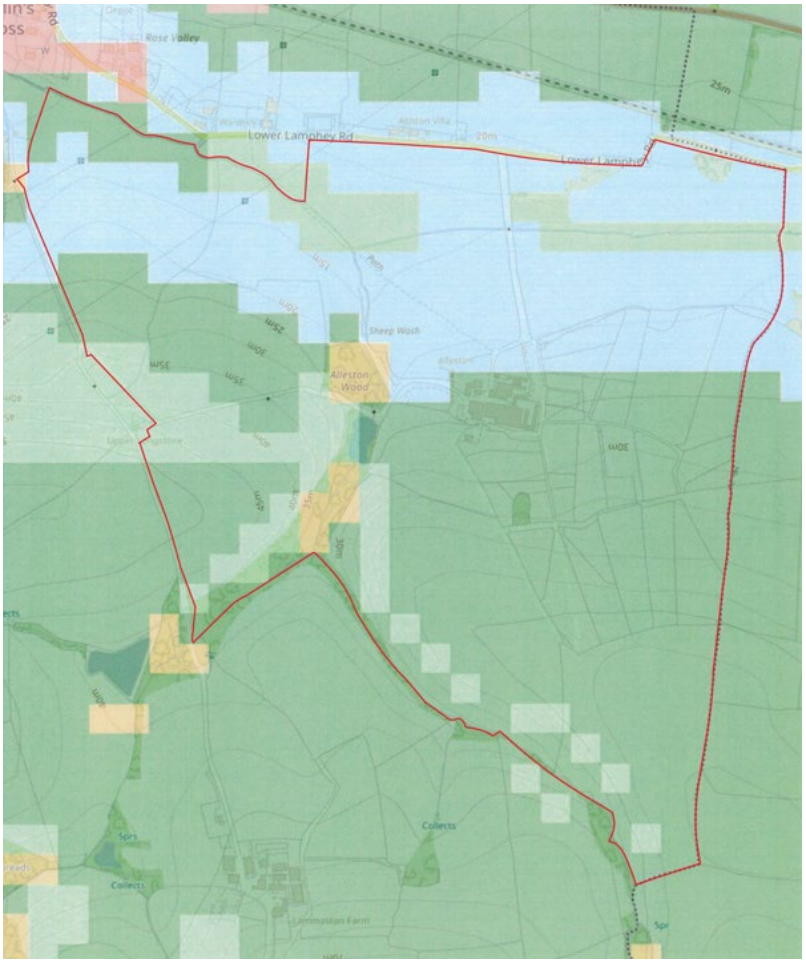
8.32 A detailed ALC survey of the Site including relevant information on climate, site (gradient, micro-relief, flooding), geology and soils, is provided at Appendix 8.1. A summary of its main findings is set out below.

8.33 An assessment of agricultural land quality, involving a desktop study and a detailed ALC field survey undertaken in April 2023 and January 2024, has been undertaken to determine the quality of agricultural land within an approximately 96ha survey area. The assessment is made in accordance with the ALC system for England and Wales. The Site is located to the south-west of Lamphey. The approximate centre of the Site is located at National Grid Reference (NGR) reference SN 00465 00113. The location and boundary of the Site is shown on Figure 1.1 of the ES.

8.34 The National Soil Map for Wales held by the National Soil Resources Institute (NSRI) at Cranfield University shows that land at the Site is covered by soils grouped in the East Keswick 3 Association and Milford Association. The East Keswick soils lie in the northern part of the site, and are described as well-drained fine loamy soils, often deep but sometimes over limestone. The Milford Association soils are described as well-drained fine loamy reddish soils over rock.

8.35 As shown on Figure 8.1, the Welsh Government's Predictive ALC map[x], the wider area is mostly predicted to be Grade 2 and Subgrade 3a, with areas of Subgrade 3b and Grade 4. The wider area is shown on Figure 8.1 below.

Figure 8.1: Extract from Predictive ALC Map



8.36 For Pembrokeshire, the predictive proportion of ALC grades from this map is set out in Table 8.5. This shows that 37.5% of agricultural land in Pembrokeshire is expected to fall into ALC Grades 1, 2 and 3a (BMV), compared to a national average of 19.1%. The predictive ALC estimates over 33,700 ha of BMV land in Pembrokeshire.

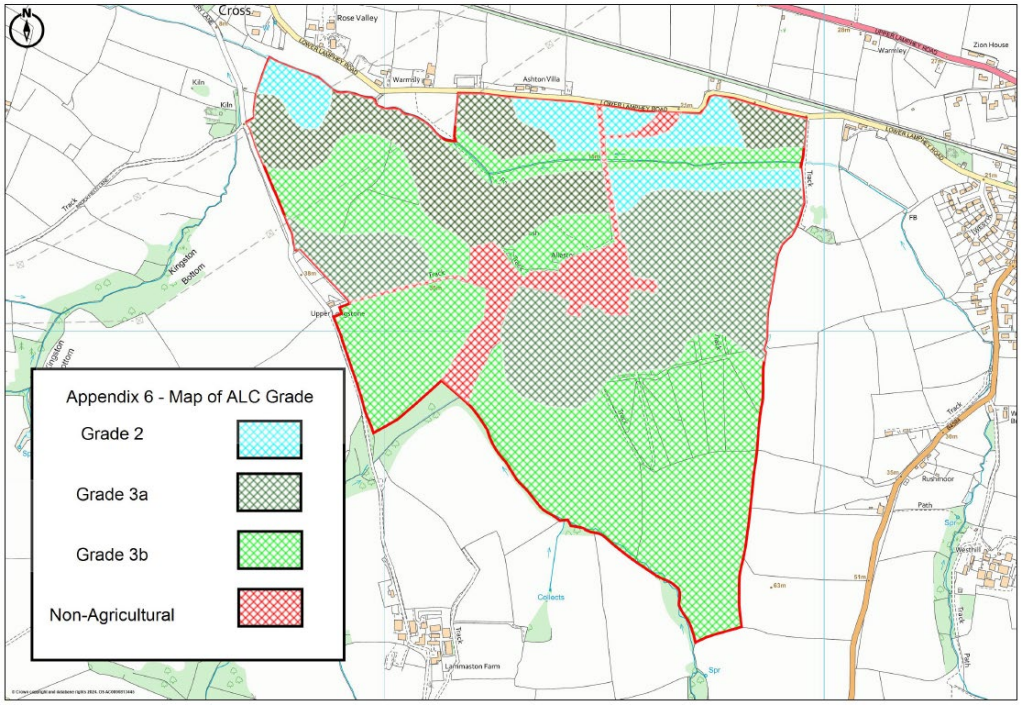
Table 8.5: Proportion of Land Grades in Pembrokeshire

ALC Grade	Description	Wales (%)	Pembrokeshire (%)	Pembrokeshire (ha)
1	Excellent	0.2	<0.1	21
2	Very good	7.5	10.2	9,189
3a	Good	11.4	27.3	24,526
3b	Moderate	29.0	48.7	43,712
4	Poor	24.5	8.2	7,346
5	Very poor	27.4	5.6	5,031
Total		**100.0**	**100.0**	**89,825**

8.37 The predictive ALC map shows the Site as a mixture of Grade 2 and Subgrades 3a and 3b land, as shown on the extract at Figure 8.1.

8.38 The detailed ALC survey was carried out in April 2023 and January 2024, using the MAFF methodology. The ALC survey covered all of the Site and the results are shown below. Not all the Site is proposed for solar PV arrays, but will remain in farming use, for grazing horses, or for biodiversity enhancement. The results for the Site are reproduced below.

Figure 8.2: ALC Results of the Site and Wider Area



8.39 As shown in Figure 3.1, the extent of the solar panel areas is limited. The plan below shows the ALC for the panel areas (and up to the field edge if close by). As shown on the application plans, the fenced PV Area is 44.1 ha. The table and plan below show a larger area as they include the land between the fenced PV area and the boundary hedges, as those strips are considered unlikely to be farmed.

Figure 8.3: ALC for the Solar PV Arrays Plus the Area Between Solar PV Array Fence and Field Boundary

8.40 The table below shows the ALC area for the whole Site and for the solar PV arrays and field edge areas.

Table 8.6: ALC of Land Within the Site

ALC Grade	Total Site (ha)	Total Site (%)	Solar PV and Field-edge Area (ha)	Solar PV and Field-edge Area (%)
1 Excellent	0	0	0	0
2 Very good	7.4	7.7	1.6	3.7
3a Good	35.3	36.8	6.4	14.7
3b Moderate	46.8	48.7	35.5	81.6
4 Poor	0	0	0	0
5 Very poor	0	0	0	0
NA Non-agricultural	6.5	6.8	0	0
Total	**96.0**	**100.0**	**43.5**	**100**

8.41 The Site is shown on the Google Earth image below, taken October 2017. The location of photographs are shown. The photographs are contained in Appendix 8.3. Most of the Site is used for arable cropping, especially maize. Views 1, 5, 9 and 11 are reproduced below with the full size photos in Appendix 8.3.

Figure 8.4: Location of Photographs

8.42 Part of the Site is used for the grazing of horses. This part of the Site, shown below, is not proposed for solar PV array deployment.

Photograph 1: View 12, Horse Grazing Areas (not proposed for solar PV arrays)

Photographs 2 – 5: Views 1, 5, 9 and 11

View 1: Looking over Subgrade 3b

View 5: Looking over Subgrade 3b towards Subgrade 3a

View 9: Looking over Subgrade 3a towards Grade 2

View 11: Looking over Subgrade 3b towards Subgrade 3a

8.43 The soils are described in the ALC report in Appendix 8.1. The following photographs are included to illustrate the different topsoils. These photographs were taken by the author during a site visit in January 2024, and illustrate the soils found. They do not show samples taken for ALC grading unless otherwise identified.

Photograph 6: ALC Grade 2

Photographs 7 and 8: ALC Subgrade 3a

Photographs 9 and 10: ALC Subgrade 3b

8.44 Many fields have a variety of land classifications within each field, creating limitations to land use (i.e. cropping), typically limiting crop choice to that which suits the poorest land in the field. There are areas where stoniness limits choices of crop.

Farm Businesses

8.45 Alleston Farm extends to 96.3 ha (238 acres) of which 39.9 ha will be within the solar PV array fenced area. The farm has been run by the same family since the mid-1950s.

8.46 The farm ran a dairy unit until 2016. Once the dairy herd was sold the intention had been to rear beef, but following an outbreak of Tuberculosis the decision was taken to let most of the land to a local arable farmer.

8.47 Most of the land is now cropped for a mix of crops, but principally maize for dairy farm winter fodder, and potatoes (on a circa 6 year rotation). The occupying tenant runs a substantial farm and occupies the land within the Site on a short-term, non-secure arrangement.

8.48 Some of the land within the Site is let to other farmers. Those areas are mostly used for arable cropping. In addition the farmers operate an enterprise producing hay and haylage, also using land rented elsewhere in the area. The farm has diversified and runs a substantial equine livery enterprise. The farm has also further diversified into making small-bale haylage.

8.49 None of the land proposed for solar PV arrays has been under-drained, so far as the farmer is aware. Water is laid on to most fields, dating from the dairy farm historic use.

Future Baseline

8.50 The future baseline conditions at the Site are not expected to change from the existing baseline conditions. Medium and long-term effects of climate change on agricultural land have been considered by the Welsh Government[xi], but there are many variables in the modelling. In the absence of the Development it has been assumed that the Site would continue to be used as a farm. Cropping may change as a result of, and in response to, climate change.

Likely Significant Effects

Construction Phase

8.51 The key to minimising damage to soils, and potentially adversely affecting the agricultural land quality, lies in timing of work on the land. It is important that soils are not moved, and that vehicular activity across soils, does not take place when the soils are replete with water, as that can result in structural damage which will be difficult to rectify easily once the solar PV panels are in position.

8.52 As stated in Chapter 5 Construction and Methodology of the ES, it is assumed for this assessment that:

- good working practices are implemented which will ensure that soil structure is not damaged as a result of trafficking or trenching works, and that a Soil Management Plan (SMP) will be produced. An outline Soil Resources Management (oSMP) Plan is attached as Appendix 8.2;
- good working practices will mean that disturbance to the soil profile is limited only to those areas where trenching for cabling is needed, and they will be replaced in the order they were removed, such that even localised works do not affect agricultural land quality;
- in areas where infrastructure is required for the duration of the operational period, such as tracks or transformer station bases, these areas will be capable of restoration on decommissioning;
- access to all farmed areas not in the development will be maintained throughout the construction period.

8.53 Construction work at the Site will result in the temporary suspension of the agricultural management of the land and forms the start of a period of altered agricultural use or practices for the occupying farm businesses.

Agricultural Land

8.54 This section of the Chapter considers the effects on agricultural land, and in particular agricultural land quality. The section describes the process of installing a solar farm, and assesses the effects on soils and land quality. The section considers land loss, which is land that has been sealed or irreversibly downgraded. Soils, as a distinct consideration, are assessed later in the Chapter.

8.55 The construction effects on agricultural land are generally low. Construction activities will only, so far as practicable, take place over agricultural land when the conditions of the soils are suitable. The installation of the panel framework piles does not disturb the underlying profile or properties of the soil.

8.56 The following description is for illustrative purposes only. For a detailed description please refer to Chapter 5. The following description is for the purposes of assessing impacts and broadly quantifying soil disturbance, but the assessment uses figures rounded to the nearest 0.1 ha (1000 sqm) so any discrepancies or variations will likely be absorbed in the rounding-up.

8.57 The first stage is the marking out of the Site. This is done on foot, inserting marker flags. This does not disturb the land.

8.58 The piles are then delivered by bobcat or other associated distribution vehicle, and lifted off by hand or with a small loadall.

8.59 The next stage is to install the piles. There is a potential impact from trafficking associated with the delivery of materials and their distribution around the Site. The delivery and distribution vehicles are often smaller than typical agricultural vehicles, as shown below. These cause minimal damage when ground conditions are suitable. These stages are illustrated using photographs from other solar PV installations. The final piling method will vary depending upon the final PV array supporting framework design and localised conditions. These sections are therefore illustrative.

Photograph 11: Example of piles Being Delivered and Installed

8.60 The following photograph shows that, when carried out in suitable conditions, the piling activity does not cause significant disturbance to soils or ground conditions.

Photograph 12: Piles Recently Installed (this at Tiln Farm, Retford, January 2023)

8.61 Whilst pile design varies, they are all lightweight with limited cross-sectional area. An example of piles is shown below, and a close-up of one into the ground, illustrating the minimal disturbance to soil that will result.

Photographs 13 and 14: Examples of Array Piles

8.62 Once the panel piles have been installed, the lightweight framework is installed. This usually arrives via bobcat or other associated distribution vehicle, and the framework is lifted off by hand. It is bolted together by hand. No heavy or damaging machinery is required and there is no physical disturbance to the soils, as shown below.

Photograph 15: Bolted-on Framework

8.63 The next stage is to bolt-on the individual PV array panels. These, too, are lightweight. They are brought out by bobcat or other associated distribution vehicle and lifted off the trailer by hand and bolted to the framework.

8.64 Therefore, across the majority of the Site, where the Development involves only the installation of strings of solar PV arrays, there is minimal ground disturbance and limited vehicular trafficking. That trafficking is by vehicles no larger than normal agricultural machinery and mostly machinery that is considerably smaller.

8.65 There are occasions when the weather results in suboptimal conditions. The outline Soil Resources and Management Plan sets out how soils should be handled and when work should cease, and it is assumed that a detailed Soil Management Plan will be produced and operated.

8.66 Soil is a fairly resilient material and topsoil disturbance rarely affects the land quality. Land quality can be affected if there is deep compaction that cannot be rectified by normal agricultural machinery, as this may affect the drainage and hence wetness. Surface damage – often caused in wet harvests or when cutting maize on arable land for example – rarely alters the land grade.

8.67 The panels are connected by cables that run along the underside of the panels, usually along the upper edge No trenching is required except at the end of the row (or string). Typically, around the end of each row a cable is buried, connecting each row to a circular circuit. Hence a short length usually runs from each row to the main circuit. This may run around the outside, or down the centre between rows.

Photographs 16 and 17: Cabling along Panels

8.68 Digging trenches to bury cables within the Site will involve digging out the soil to a suitable depth to bury cables. This would be a similar process to that involved in installing a new waterpipe around a farm. An open trench, with subsoil to one side and topsoil to the other, is shown below when the trench is open and subsequently when the trench has been restored. This results in no long-term disturbance to the soil profile and does not affect the ALC grade.

Photographs 18 and 19: Example of Cabling Being Installed

8.69 This process can look as though it is damaging to soils, but the trench is narrow and is the only area affected. This is illustrated in the following photograph. Some of the main trenches will be wider, typically 0.8m to 1.0m wide depending on local soil conditions, and could be up to 1.2m deep.

Photograph 20: Cable Trenching, Central Row

8.70 The machine operator will normally be able to distinguish topsoil from subsoil, and place these in separate piles on excavation for return into the original order once the cable is laid. The following photograph shows the colour difference between topsoil and subsoil, but the principal change is in texture.

Photograph 21: Topsoil and Subsoil

8.71 These areas recover quickly and well. The following photograph shows cables going into the ground. The transformer to which the cables connect can be seen, but there is no evidence of any damage to soil or difference in growth above the cable routes, which must run to the transformers.

Photograph 22: Example of Land Above Buried Cables, Monmouthshire

8.72 There will be modest areas where construction compounds need to be created. These will result in a construction-phase disturbance to soils, but the areas will be capable of full restoration, and to the same ALC grade.

8.73 Construction compounds are built by stripping topsoil and storing that in a bund on the edge of the Site. A matting is then laid down, and stone imported and levelled, as shown below.

Photograph 23: Newly-laid Construction Compound (Elsham-Lincoln Pipeline)

8.74 The matting prevents the stone from mixing with the subsoil, as shown below.

Photograph 24: Matting

8.75 Topsoil will need to be stored in a bund, as shown below. If soils are still wet when moved, the bund should be no higher than 1m, but otherwise temporary bunds can be up to 3m in height. Advice on this is set out in the oSRMP and the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

Photograph 25: Topsoil Storage Bund

8.76 Tracks will need to be constructed around the Site. These are usually constructed at the outset. The construction process will involve removing the topsoil, which will be stored near to the track from where the soil was removed, in low, managed bunds so that the soil can be replaced on decommissioning. These areas will be fully restorable to comparable ALC grade and are not therefore permanently sealed over or downgraded.

8.77 There will be a need for some storage containers as part of the Development. These will normally stand on a stone base, which is stripped beforehand in the same way as the tracks, and which will be fully restored on decommissioning.

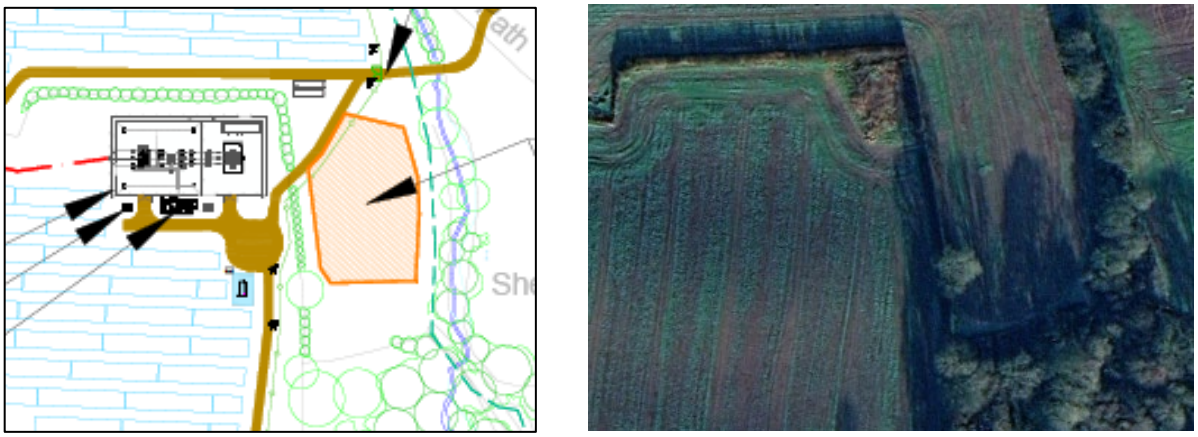
8.78 The placing of some of the fixed equipment s is not significantly disruptive to soil. They normally involve only a small foundation point for the framework, plus a modest area of stone to control vegetation growth and for the operators. An example is shown below. Some of the equipment, such as the MV Transformer will involve a larger area and deeper excavation to accommodate cabling. In those cases topsoil and subsoil removed should be stored in separate areas and not mixed together.

Photograph 26: Typical Inverter Containers

8.79 A DNO Customer HV Compound area is proposed near the centre of the Site. This is proposed on land classified as Subgrade 3a. The topsoil will be stripped and stored in managed bunds not exceeding 2-3m in height, which will be shaped and sown to grassland. The vegetation will be managed at least once per annum by mechanical means. This area will be restored on decommissioning.

8.80 The DNO Customer HV compound, whilst on Subgrade 3a land, occupies an edge of field position as on an aerial view below.

Figure 8.5: Proposed Location for Substation



8.81 The construction will require the use of the following areas of land for tracks, inverters, substation, etc, by ALC grade as set out in Table 8.7. This includes soil storage near the substation, and an estimate for soil stored for track reinstatement.

Table 8.7: Area in ha used for Tracks, Inverters and Substation

ALC Grade	Area in ha (rounded nearest 0.1ha)				
	Tracks	Inverters/Containers	Substation	Temp. Soil Storage	Total
2	0	0	0	0	0
3a	0.6	0.1	0.4	0.2	1.3
3b	0.4	0.1	0	0.3	0.8
4	0	0	0	0	0
Total	1.0	0.2	0.4	0.5	2.1

8.82 There is a small amount of BMV land affected by the construction of tracks, bases for inverters, and the substation. The areas affected are largely at the edges of fields. The areas will be restored at decommissioning. The main substation will utilise existing hardstanding.

8.83 The fenced PV area is 39.9 ha. For this Chapter we have assessed a larger area, being the fenced PV area plus the land between the fence and the hedgerow / field boundary, amounting to 43.5 ha, 8.0 ha is of BMV quality. The installation of solar PV arrays does not adversely affect the land quality, and therefore the installation of solar PV arrays results in a negligible magnitude effect on resources of medium (subgrade 3b or lower) or high (subgrade 3a or higher) sensitivity, which result in negligible significance effects, which is not significant.

8.84 The construction of tracks, containers, substation and soil storage areas etc will effect of the order of 2.1 ha of land, of which 1.3 ha is BMV agricultural land. This will, temporarily, involve the disturbance of a minor magnitude impact on a resource of high sensitivity, which will result in an effect of minor adverse significance (refer to Table 8.4). This is not significant.

8.85 The effects of tracks, inverters, soil storage and the substation will temporarily affect 0.8 ha of Subgrade 3b land. This is a minor magnitude impact on a resource of medium sensitivity, which is an effect of minor adverse significance, which is not significant.

8.86 The effect of tracks and transformer bases, plus the substation, will be reversed at the decommissioning phase, and the land will be restored to its current ALC grade. There will, therefore, be no long term loss or permanent downgrading of this land, and the construction phase effect will reduce to a negligible effect for those areas, which is not significant.

8.87 This Chapter of the ES has provided an in-depth description of the installation process. The land is not lost. The installation process does not seal or downgrade the land quality resource. The development is a temporary and reversible development, even with an operational life of 40 years.

8.88 As requested by Welsh Government, a Soil Management Plan and Scheme is set out in Appendix 8.2. This assesses the effect on land on a field-by-field basis.

8.89 This assessment concludes that the agricultural land will not be lost. Nor will it be downgraded.

8.90 The following plan, reproduced in larger scale in Appendix 8.2, shows the ALC grade of the areas proposed for panels, taking the field edge as the boundary where the panels are close. It can be seen that parcels 4, 6 and 7 are wholly Subgrade 3b land.

Figure 8.6: ALC for the Solar PV Arrays

8.91 Areas 1, 2, 3 and 5 are a mixture of Subgrade 3a and 3b, with a negligible amount of Grade 2 in Area 1. The oSRMP describes how soil management in these areas will be carried out. In practical terms, these fields are a mix of land grade. It is difficult to farm part of a field differently to another part of the same field. This limits the potential benefit of the BMV land. Parcels 1, 2, 3 and 5 are shown below, with other photographs in Appendix 8.3.

Photographs 27 – 30: Parcel Areas 1, 2, 3 and 5

Photograph 31: Looking southwest over parcel area 1, showing a mix of Grades 2, 3a and 3b

Photograph 32: Looking northeast over Subgrade 3b towards 3a

Photograph 33: Looking south over Subgrade 3b towards Subgrade 3a land

Photograph 34: Looking southwest over Subgrade 3a land, with 3b to the left of the photograph

8.92 In practical terms the benefit of the BMV in these parcel areas is limited by its physical intermixing with Subgrade 3b land.

8.93 Area 8 is mostly Subgrade 3a and Grade 2. It is shown below. In practical terms this is a whole field of BMV, as the Subgrade 3b alongside the watercourse is a wide, unfarmed grass strip, as shown. The BMV part of the field extends to approximately 5.5 ha, of which 2.2 ha is Grade 2 and 3.3 ha is Subgrade 3a. Within Area 8 only a short length of track is proposed, in an area currently used for equestrian activities. The land quality will not be affected by the installation of the panels. The land areas affected by the tracks and the transformer station amount to less than 1 ha of BMV including areas for soil storage. This is a long-term but reversible, therefore temporary loss.

Photograph 35: Area 8

Soils

8.94 Soils are an important resource. They store large amounts of carbon and provide the basis for life. They need to be managed carefully.

8.95 As required by the Welsh Government, an oSRMP has been produced to identify the soil handling units and advise on timing for soil handling. This is reproduced in Appendix 8.2. The oSRMP sets out specific guidance covering:

- soil stripping;
- soil storage;
- soil aftercare.

8.96 In terms of the IEMA guidance for EIA, as set out in Table 8.3, the area has a field capacity days (FCD) of 227. The soils are all medium and heavy clay loams, as set out in the ALC. Based on the IEMA Guide, medium and heavy clay loam soils in areas where the FCD exceeds 225 are all to be considered of high sensitivity, with a low resistance to structural damage. It will be important, therefore, to follow the oSRMP and so far as practicable to programme installation works to when the soils are suitably dry.

8.97 Without mitigation, the impact of the proposals affects in excess of 20 ha of soils of high and medium sensitivity, and this is an effect of major or moderate adverse magnitude. The significance of the effect can be reduced, however. By following the outline Soil Resources Management Plan (oSRMP), the adverse effects will be reduced. There should be no land adversely affected, save for the tracks etc, which reduces the magnitude of impact down to minor adverse magnitude effects on resources of moderate or high sensitivity, which results in a minor adverse effect, which is not significant.

8.98 The land is currently used for, in large measure, the growing of maize and potatoes. Both crops are lifted late in the summer or in the autumn. The consequence is that soils are left bare over winter. This results in the risk of erosion and, as can be seen in the following photographs, in a wet winter like 2023/2024, erosion has been significant. These photographs were taken within the Site in January 2024.

Photographs 36 – 38: Erosion from Bare Soils Within the Site (January 2024)

8.99 There will be significant benefits in terms of reduced erosion once the grassland is established.

Agricultural Businesses

8.100 The farm business will need to adjust the scale, and to a limited extent also the nature, of the farming enterprises. This will be a temporary impact during the construction phase. The longer-term effects on the farm businesses are considered under the operational phase.

8.101 The land affected is mostly farmed by others, on short-term, non-secure basis, or (in part) is grazed by horses. The effects on the farm businesses are not significant. The Development will involve an alternative area for grazing horses (which is still an agricultural use). The equestrian livery will not, therefore, be adversely affected. The two fields to the north will remain in agricultural use, and could be used by the farmers for growing haylage or could be let to others for farming, or could be farmed in any other manner.

8.102 The effects on farm businesses during the construction phase of the Development are assessed as follows.

- all the effects are considered to be of moderate or minor magnitude;
- the businesses are full or part-time, and so of medium or low sensitivity;
- leading to effects that are minor adverse or negligible, which is not significant.

Operational Phase

Agricultural Land

8.103 The effects on agricultural land will occur during construction. No additional effects would occur during the operational phase.

8.104 Management and maintenance machinery will generally be small and light. Usually the panels will be cleaned annually. This is normally undertaken in spring or early summer, when ground conditions are suitable, because this is the best period to clean panels so that they maximise their solar intake. Overall vehicle trafficking will be low compared to current agricultural uses.

8.105 Typically, machinery such as the following is used, which is no heavier than a small tractor. The particular machinery used could vary from this example, and may change over time.

Photograph 39 Cleaning of Solar Arrays (example machine shown)

8.106 There may occasionally be small rutting caused by agricultural vehicles (e.g. quads) or vans used by engineers. Typical light impacts are illustrated below. These will normally be levelled by grazing sheep, but if there are deeper ruts they could be repaired by a lightweight roller in the spring.

Photograph 40: Ruts Caused by Vehicles

8.107 The maintenance and repair possibilities are described in Chapter 3. If there is a need for repair involving vehicle travel across the land it should, so far as possible, be timed following the guidance in the oSRMP.

8.108 Therefore, there are no physical works required during the operational phase which will adversely affect soils or agricultural land quality. The effects are of negligible magnitude, and accordingly of negligible significance, which is not significant.

8.109 In terms of land use, there will be a change from maize and potatoes, and continued horse grazing for part of the farm. Once the solar PV arrays have been installed. The land between the panels within the fenced area can continue to be made available for sheep grazing, allowing for on-going farm operation to take place alongside the operation of the solar farm. There will be no change in the land use (agricultural), and therefore no adverse effect on agricultural land quality.

8.110 The DNO Customer HV Compound area will involve the temporary and reversible development of approximately 0.4 ha of Subgrade 3a agricultural land. This will be a long term but temporary adverse impact. This will be a minor magnitude of loss (less than 5ha) on a resource of high sensitivity, leading to a minor adverse effect, which is not significant.

8.111 The Development will involve the use of agricultural land, being the areas affected by the fixed infrastructure plus the field-edge areas, in different ALC grades as follows. Those will go from predominantly arable to a mix of solar energy and potentially sheep grazing.

Table 8.8: Area of Agricultural Land under Solar Panels and Other Infrastructure

ALC Grade/Sensitivity of Receptor	Total (Ha)	Total (% of the Site)
Grade 1 (Excellent) – Very High Sensitivity	0	0
Grade 2 (Very Good) – Very High Sensitivity	1.6	3.7
Subgrade 3a (Good) – High Sensitivity	6.4	14.7
Subgrade 3b (Moderate) – Medium Sensitivity	35.5	81.6
Grade 4 (Poor) – Low Sensitivity	0	0
Grade 5 (Very Poor) low Sensitivity	0	0
Total	43.5	100

8.112 The peripheral areas between the panels and the field edge may be capable of being grazed, as per the example below.

Photograph 41: Example of Sheep Grazing Area Between Fence and Hedge

8.113 The land within the proposed solar panel areas is mostly arable, with some horse-grazing grassland. For the duration of the Development's operational phase, the land will remain grassland and capable of being grazed by sheep. There will be no material change in land use, and therefore the effect will be negligible, which is not significant.

Soils

8.114 Evidence suggests that reducing the intensity of management, such as grassland under solar PV arrays, has substantial benefits in terms of long-term soil structure and storage of organic carbon, as set out above.

8.115 There are benefits from putting arable land into long-term grassland. This is widely recognised. Relevant considerations include:

(i) soil is an important natural capital resource, but our understanding of soils is hindered by a lack of data. In the Environment Agency's "Summary of the State of the Environment: Soil" report of January 2023[2], they note that UK soils currently store about 10 billion tonnes of carbon, equal to 80 years of annual greenhouse gas emissions. The report notes that soil biodiversity and the many biological processes and soil functions that it supports "**are thought to be under threat**". The statistics are concerning:

- almost 4 million hectares of soil are at risk of compaction;
- over 2 million hectares of soil are at risk of erosion;
- intensive agriculture has caused arable soils to lose about 40 to 60% of their organic carbon.

(ii) the UK Food Security Report 2021 also notes that, whilst grain is generally the most efficient form of production in terms of calories per hectare, it has a significant environmental impact "**due to the lack of biodiversity in conventional grain fields, damage to soil through ploughing, environmental harms caused by fertilisers and pesticides, and the oil use embedded in fertilisers and field operations**".

(iii) the Environment Agency "State of the Environment: soil" report notes that bare soils, reduced hedgerows and increased field sizes mean that, in England and Wales, an estimated 2.9 million tonnes of topsoil is lost to erosion every year. Erosion regularly exceeds the rate of formation of new soils (which is at about 1 tonne per hectare per year) on many soils, with 40% of arable soils at risk, especially lighter soils on hillslopes and peats in upland areas. "**Significant decreases in erosion risk occurred when fields changed from winter cereal use to permanent grassland**", the EA reported. Management practices in arable land can make a big difference, but the constant vegetation cover of grassland reduces erosion significantly.

(iv) organic matter in soil acts like a sponge and can hold up to 20 times its weight in water. Most arable soils have lost 40 to 60% of their organic carbon[3]. The British Society of Soil Science record (Science Note: Soil Carbon, BSSS (2021)) the declining state of soil carbon (soil organic carbon and soil inorganic carbon), and note that the greatest and most rapid soil carbon gains can be achieved through land use change, eg converting arable land to grassland. Sustainable soil management practices are needed for all soils.

(v) the role of soil organic carbon in soils is complex, as described in the British Society of Soil Science Note "Soil Carbon" (2021). As described under the heading "Soil Carbon Functions" on page 4, "**a soil with a greater SOC content has a more stable structure, is less prone to runoff and erosion, has greater water infiltration and retention, increased biological activity and improved nutrient supply compared to the same soils with a smaller SOC content. Even small increases in SOC can markedly influence and improve these properties**". it is noted in that same report at the top of page 5 that "**Significant long-term land use change (e.g. conversion of arable**

[2] Research and analysis: Summary of the state of the environment: soils, Environment Agency (26 January 2023)

[3] EA, ibid, page 8.

land to grassland or woodland) has by far the biggest impact on SOC, but is unrealistic on a large scale because of the continued need to meet food security challenges".

8.116 The conversion of the arable land back to grassland will have benefits. The cessation of maize and late-harvest arable crossing, leaving bare soils over winter, will have benefits. Therefore, soils will benefit across the whole area under panels, and managed for biodiversity. The magnitude of the benefit is major. The benefit is to land and soils of both high and medium sensitivity. Notwithstanding the matrix in Table 8.4, however, the benefit is considered to be minor beneficial, which is not significant.

Farm Businesses

8.117 The impacts on farm business will be a mix of adverse and beneficial effects.

8.118 There will be a reduced income for the affected farmer as a consequence of not letting the land for others to farm. The equestrian business will not be affected. Conversely, the farm business will experience an enhanced income per hectare from the rental from the solar PV panels coupled with the potential continued agricultural income from management to the solar PV site area.

8.119 Following the installation of the solar PV arrays, with the exception of the areas for fixed infrastructure, all of the land within the solar PV array areas of the Site will be capable of being used for the grazing of sheep. There will be continued agricultural use.

8.120 The effects on the land use of the farmed and equestrian areas will be negligible. There will be no change.

8.121 The grazing of solar PV panel areas by sheep is feasible and common. Sheep, and sheep dogs, can see under the panels, as shown below.

Photograph 42: Sheep Grazing Panel Areas

8.122 A change from arable and horse grazing to sheep grazing is not an environmental consideration. There is nothing in planning policy to require agricultural land to be farmed to any particular intensity, or land use. There is no adverse environmental effect.

Mitigation Measures

Agricultural Land

8.123 The design process has evolved to avoid, where practicable, area of BMV. Some BMV land remains within the proposed fenced PV area, although the land quality will not be affected. By following best practice set out in the oSRMP (Appendix 8.2), there will be no requirement for additional mitigation measures other than those embedded in the Development.

Soils

8.124 By following best practice set out in the oSRMP (Appendix 8.2), there will be no requirement for additional mitigation measures other than those embedded in the Development.

Farm Businesses

8.125 No additional mitigation measures are required.

Residual Effects

Construction Phase

8.126 With effective implementation of appropriate mitigation/best practice measures to safeguard the soil resources on the Site during the construction phase, it is predicted that the significance of the effect of the Development on agricultural land will be minor adverse, which is not significant, i.e., the impact on agricultural land is limited to about 1.3 ha of Subgrade 3a BMV agricultural land. This is not significant. The assessment is as follows:

- agricultural land: minor magnitude adverse effect;
- soils: minor magnitude adverse effects;
- farm businesses: negligible effect.

Operational Phase

8.127 There will be no further effect on soils or land quality during the operational phase. The affected farm business will experience slight to moderate changes in its day-to-day operations, but these will result in minor adverse impacts. There will, conversely, be economic benefits and overall, the effects are considered negligible, which is not significant. The assessment is as follows:

- agricultural land: no effect;
- soils: no effect:
- farm businesses: minor adverse effects together with minor benefits, overall a negligible effect.

Decommissioning Phase

8.128 The decommissioning phase should not adversely affect soil resources or agricultural land quality, but as with the construction phase that is dependent upon the works being carried out when the soil conditions are suitable. It is important that vehicles do not traffic the land when soil conditions are not suitable.

8.129 The importance of avoiding deep compaction (below 45cm) is identified in the Welsh Government's Soil Policy Evidence Programme report "The impact of solar photovoltaic (PV) sites on agricultural soils and land quality" (March 2023)[x] which confirmed the importance of working within the safe windows for construction (these are set out in the oSRMP). The report noted that decommissioning of BMV land may be easier than decommissioning of non-BMV land.

8.130 Overall, the decommissioning phase should, subject to compliance with appropriate / best practice, result in a negligible impact on soils and agricultural land quality. This is an effect of negligible magnitude on resources of medium or high sensitivity, which is a negligible effect and not significant.

8.131 In other DNS applications WG have expressed concern that the advice in TAN 6 (2010) had not been followed. Paragraph 6.2.2 advises that "*once agricultural land is developed, even for 'soft' uses such as golf courses, its return to agriculture as best and most versatile agricultural land is seldom practicable*".

8.132 The assessment in this Chapter concludes that the majority of the Site is not physically disturbed. The resource is not harmed.

8.133 Decommissioning involves removal of the piles, but this will not seal the land or result in downgrading. The advice in TAN 6 was not directed at solar farms, which were not common in 2010.

8.134 The farm business will not be affected during decommissioning other than short-term loss of access to grazing areas. Post-decommissioning, the businesses will experience an overall slight adverse effect as a result of the cessation of the diversified form of income. The overall effect will be negligible on a resource of medium sensitivity, which is a negligible significance effect and not significant.

Cumulative Effects

8.135 The Development in respect of agricultural land will not result in any cumulative effects.

8.136 The quantum of agricultural land involved is small (1.3ha BMV, 0.8ha non-BMV) and the in-combination total of land adversely affected is expected to be small, and reversible.

Summary

8.137 An assessment of agricultural land quality, involving a desktop study and a detailed ALC survey, has been undertaken to determine the quality of agricultural land at the Site. The assessment has been undertaken in accordance with the ALC system for England and Wales. The Site extends to approximately 96 ha, but this includes the farmyard, equestrian buildings, horse grazing land, farmland that will remain farmland, and the land for the proposed solar PV arrays and associated infrastructure.

8.138 The land has been classified under the ALC system. Across the whole Site the results are as follows:

Table 8.9: Land Classification

ALC Grade	Area (ha)	Proportion (%)
2 very good	7.4	7.7
3a good	35.8	36.8
3b moderate	48.7	48.7
NA non-agricultural	6.8	6.8
Total	96.0	100.0

8.139 Not all the land is proposed for solar PV arrays. The solar PV arrays, measured to the field edge in cases where the fence is close to the field edge (ie taking a larger area than will be used) amounts to approximately 44.1 ha, plus small areas of tracks between the panel areas.

8.140 The land quality breakdown within the panel areas is as follows:

Table 8.10: Land Quality Breakdown of Fenced Area Plus Field-edge Areas

ALC Grade	Area (ha)	Proportion (%)
2 very good	1.6	3.7
3a good	6.4	14.7
3b moderate	35.5	81.6
Total	43.5	100.0

8.141 Adding on areas of tracks not within that total, there is approximately 8.0 ha of BMV agricultural land that will be affected by the solar PV arrays, fixed infrastructure, or otherwise limited in use because it forms a narrow area between fences and field edges.

8.142 The installation of the solar PV panels does not result in any sealing or irreversible downgrading of the agricultural land. Therefore, for the great majority of the land within the panel areas, there is a negligible effect on soils and land quality.

8.143 Temporarily affected are smaller areas for tracks and the substation, plus areas where topsoil will be stored. These are approximately as follows:

Table 8.11: Effects

ALC Grade	Area in ha (rounded nearest 0.1ha)				
	Tracks	**Inverters/Containers**	**Substation**	**Temp. Soil Storage**	**Total**
2	0	0	0	0	0
3a	0.6	0.1	0.4	0.2	1.3
3b	0.4	0.1	0	0.3	0.8
4	0	0	0	0	0
Total	1.0	0.2	0.4	0.5	2.1

8.144 These areas are capable of full restoration on decommissioning.

8.145 In respect of the construction effects, the effect on agricultural land quality and soils will both be of minor magnitude on resource of very high sensitivity, which results in an adverse effect of minor adverse significance, which is not significant.

8.146 During the operational phase there will be no further adverse effects. The effects are thus negligible.

8.147 Decommissioning will restore the land affected temporarily by tracks etc, to the original ALC land grade. It will not cause any sealing or irreversible downgrading of agricultural land, therefore the decommissioning works have a negligible magnitude of impact, which will result in an overall negligible impact, which is not significant.

8.148 Table 8.13 contains a summary of the likely significant effects of the Development.

Table 8.13: Table of Significance – Agricultural Land and Soils

Potential Effect	Nature of Effect (Permanent/ Temporary)	Significance (Major/Moderate/ Minor) (Beneficial /Adverse/ Negligible)	Mitigation / Enhancement Measures	Geographical Importance*						Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)
				I	UK	W	R	C	L	
Construction										
Temporary loss of c 1.3 ha of BMV land for tracks etc	Temporary	Minor Adverse	Follow SRMP for future restoration				X			Minor Adverse
Temporary loss of <1 ha of non-BMV land for tracks etc	Temporary	Minor Adverse	Follow SRMP for future restoration						X	Minor Adverse
Installation of solar PV arrays over BMV/non-BMV land	Temporary	Negligible	Follow SRMP for future restoration						X	Negligible
Construction effects on low-resilience clayey soils	Temporary	Minor Adverse	Follow SRMP for future restoration						X	Minor Adverse
Effect on farm businesses	Temporary	Minor or Negligible							X	Minor Adverse
Completed Development										
Operational effects on soils	Temporary	Minor Adverse	Follow SRMP for future restoration				X			Minor Adverse
Soil structure from long-term grassland	Temporary	Minor Beneficial	Follow SRMP for future restoration						X	Minor Beneficial
Effect on farm businesses	Temporary	Negligible							X	Negligible

*** Geographical Level of Importance**

I = International; UK = United Kingdom; W = Wales; R = Regional; C = Council; L = Local

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