PINS Reference EN010169

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Meridian Solar Farm.

Soils, Agriculture and Land Use Impact

Review of Applicant's Comments on Local Impact Reports Appendix ii Report of Reading Agricultural Consultants

Report of Reading Agricultural Consultants

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Introduction

1. This report has been prepared to inform Lincolnshire County Council's (LCC) comments on the Applicant's submissions at Deadline 2, relating to Reading Agricultural Consultants report of August 2026, appended to Lincolnshire County Council's Local Impact Report at Appendix ii **[EN010169-000541-LCC Local Impact Report]**.

Review of Documents

EN010169-000683-8.33 Applicant's Comments on Appendix ii of LCC's Local Impact Report [REP2-015]			
Paragraph	**Matter Raised**	**Applicant's Response**	**LCC Further Comment**
18.1	Section 5.6 of the ES describes the baseline conditions of the soils of the site; the survey that informs the assessment fails to describe typical cropping on the land surveyed or assess the economic output from the land.	Appendix A of this document provides cropping information for the Solar Development Area. However, an employment based rather than economic output based assessment is considered standard practice socio-economic assessments within EIAs, as explained within Table 3-9 and in response to comments 18.27 – 18.29 in this table.	It is acknowledged that the Applicant's socio-economic assessment is based on employment rather than productivity. The details of historical cropping set out in Appendix A to the Applicant's comments are incomplete and reflect the choice of individual landowners. RAC's estimates of production are based on Rural Payments Agency (RPA) data as displayed on its CROME mapping system. These data are representative of historical land use across and around the proposed Solar Development Area (SDA), where the fundamental characteristics of soils are common.
18.2	The soils of the area were mapped by the Soil Survey of England and Wales (SSEW) (the 1:250,000 scale National Map) as: the Wallasea 2 association in Parcels A, B and C, being deep, stoneless clayey soils derived from marine alluvium, calcareous in places and some deep calcareous silty soils; and the Wisbech association in Parcel D, being stoneless calcareous coarse silty soils, also derived from marine alluvium. It is notable that SSEW identifies soils in both associations as locally "calcareous in the Wallasea and calcareous in the Wisbech". More detailed mapping is readily available at 1:50,000 scale and is accompanied by the definitive reference text 'Soils of the Boston and Spalding District' (Soil Survey Memoir No. 27) published by the SSLRC in 1990. These detailed and authoritative references are not identified in the ES and there is no evidence that they were consulted in advance of the soil survey that informs the assessment of ALC grades at the site.	British Society of Soil Science guidance proposes referencing of published soil maps. The national scale soil maps and 1:50,000 Bedrock and Superficial geology mapping were consulted. The Wallasea and Wishbech (*sic)*soils are noted as "calcareous in places" not uniformly calcareous. This finding has been confirmed by the reported field survey, presented within ES Appendices 5-2 and 5-3 [REP1-028 and REP1-030] an earlier reconnaissance survey by Land Research Associated (LRA) and a 1991 ALC survey. All found the majority of soils on site to be non-calcareous.	*The Wallasea and Wisbech soils are noted as "calcareous in places" not uniformly calcareous.* This statement by the Applicant is incorrect concerning the Wisbech association. In Lincolnshire, according to the National Map Bulletin, Soils and their Use in Eastern England, this association consists entirely of calcareous alluvial gley soils. Reference to the semi-detailed Soils of the Boston and Spalding District, which maps the soils field-by-field shows these lighter soils – Wisbech, Stockwith and Agney series - are <u>all</u> calcareous alluvial gley soils.
18.3	The ES places the Wallasea soils in Wetness Classes III and IV, citing the Bulletin accompanying the National Map. This is a misinterpretation, as the Bulletin puts these soils after drainage in Wetness Class II. Given the range of cropping on these soils (cereals, oil seed rape, potatoes, sugar beet and brassicas) and the dense network on distributor drains maintained by the Internal Drainage Board, it is extremely unlikely that the land in the Meridian Scheme is undrained.	Wallasea Soils are usually wetness class III to IV when undrained. Whilst there is drainage infrastructure in the area of the Site, the evidence of wetness within the clay soils shows seasonal waterlogging. The reconnaissance survey by LRA similarly identified that soil permeability has been subject to deterioration under prolonged arable and horticultural use, which is difficult to correct and so they have become slowly permeable and imperfectly-draining.	The Meridian survey was done during a late summer drought and confirmed using desiccated archaeological trenches. These conditions mean that there could have been no observable wetness in the clay soils indicative of seasonal waterlogging. These soils are assigned Wetness Class II by the Soil Survey of England and Wales, based on observations from an intensive network of water table monitoring points. The Applicant's claim that that the field drains have failed is not supported by any evidence, just hypothesis or hearsay from landowners. Farmers (and soil surveyors) are generally very aware of surface compaction and plough pans which they can easily see. Deeper compaction associated with repeated trafficking (year-on-year) of high axle weight traffic on low or even relatively low ground pressure tyres can reach to depths greater than 500 mm **[AHDB Soil compaction from machinery]**. In the absence of soil pit evidence to one metre depth, it is very likely that this is cause of the

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			compaction feature described by the Applicant. Thus, the compaction is anthropogenic, most likely resulting from drainage, trafficking with high axle weight vehicles on low ground pressure tyres not a naturally occurring slowly permeable layer. Compaction at these depths is readily correctable by maintaining drains, crop rotation, mole draining and subsoiling up to one metre depth and so cannot be considered a permanent feature that can downgrade the ALC https://ahdb.org.uk/knowledge-library/field-drainage-the-importance-of-soil-health. LCC, therefore, continue to assert that none of the affected land observed to have a slowly permeable layer well below plough depth is below BMV quality. Whilst the Applicant has produced no evidence to demonstrate that field drains in the SDA have been allowed to deteriorate, it can be confidently stated that after decades under solar panels, without mole ploughing and maintenance of drainage and associated outfalls, the drainage system will fail. Renewal of the drainage system, on decommissioning, and a programme of rehabilitation will be required to restore the land to its pre-construction quality.
18.4	Non-calcareous Wallasea clay soils cannot be poorer than Subgrade 3a in this local climate, while calcareous Wallasea soils would be in Grade 2. The schedule of observations from the soil survey carried out to inform the grading of the site within the ALC framework fails to identify specifically calcareous soils and so a significant area of calcareous clayey alluvial soils, which cannot be poorer than Grade 2 in the ALC system, are classified as Grade 3b in the assessment. This appears to have been the consequence of a failure to undertake any field tests for calcareous soils and incorrectly assessing the Wetness Class; which failures should nullify the findings of the survey. Wisbech soils can be either Grade 1 or 2. If the ALC guidance is applied correctly, the whole area is of BMV quality	The ALC survey reports (**ES Appendices 5-2 and 5-3** [REP1-028 and REP1-030]) have been updated at Deadline 1 to clarify where the calcareous testing undertaken on Site with 10% HCL yielded negative findings. The three most recent field surveys (i.e. the surveys reported within **ES Appendices 5-2 and 5-3** [REP1-028 and REP1-030], LRA 's reconnaissance survey and 1991 MAFF survey) within the study area found mostly non-calcareous soils The combination of Wetness Class III, clay topsoil and Field Capacity Days <126 results in ALC grade 3b, derived from table 6 of MAFF guidance17.	For the reasons given in 18.3, LCC believes the Wallasea soils are not in WC III and IV and so their classification as Grade 3b is wrong. Good agricultural practice would be to relieve any observed compaction and maintain the land drainage system resulting in the non-calcareous clays in the SDA being classified as Grade 3a and the calcareous clay soils (Newchurch series) as Grade 2. The records of observations in all areas set out in Table 3 (Wetness Class assessment) of the Agricultural Land classification Reports **[EN10169-00156 & 01069-000157]** state that "*gleying was not identified to be present within the top 120cm*". Further, the auger logs leave the gleying column blank. These observations are described despite soils of the area all being mapped as alluvial gley soils. Soils in WCIII and IV, and therefore of the lower ALC Grade as classified by the Applicant are always gleyed, whereas ungleyed soils as recorded by the Applicant cannot be in WCIII or IV. The images of the exposed trench faces clearly display gleying, despite dryness and smearing of the exposure. Gleying is a persistent feature of soils derived in a wet environment, which persists after drainage and is a relict feature of Wallasea and Wisbech soils that have been drained and farmed, as is the case in the SDA. This apparent lack of recognition and recording of gleying is inexplicable and inconsistent with the grading of the site.
18.5	The assessment also describes limitations to ALC grades, as presented in Appendices 5-2 and 5-3 to the ES. The most significant of these is the identification during the survey of a Slowly Permeable Layer (SPL) at between 30cm and 40cm depth across large parts of the site. This feature is claimed to limit the ALC grade to Subgrade 3b. These observations, made from hand augered samples, are only	There is no minimum prescribed number of soil pits specified within statutory guidance for ALC surveys with the majority of planning applications following a minimum of one pit per soil type. **ES Appendices 5-2 and 5-3** [REP1-028 and REP1-030] were also updated for Deadline 1, to include additional soil pit logs photographs across the Site.	Natural England's guidance on land classification **[Guide to assessing development proposals on agricultural land]** states that surveyors should dig small inspection pits by hand to a minimum depth of 1m to add supporting evidence to the borehole data, where there is a change in main soil type and ALC grade to provide a good depiction of the site.

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	informed by observations made from the excavation of two soil pits, the locations of which are shown to be remote from a large proportion of the auger observations.		The Meridian site extends over 1,200 ha and four ALC grades (1, 2, 3a and 3b) are identified by the Applicant, yet only two *summary* soil profile descriptions are presented in each appendix. Photos and brief descriptions of the sides of the archaeological trenches are provided but only one exposed profile is over one metre, the others being in the range of 0.35m to 0.62m. Moreover, most have heavily smeared and desiccated faces making it difficult for soil structure and colour to be identified. Soil examination pits should be picked clean of any smearing for a proper description to be made. Therefore, the ALC assessment is over-reliant on auger borings, which cannot identify the key features of subsoil structure and porosity on which the Applicant's assessment of these soils being in WCIII and IV and Subgrade 3b is based. The archaeological trenches are too shallow and not sited on the basis of soil and landscape changes that are used to identify changes in ALC grade.
18.6	Expert interpretation of these observations in the local context strongly suggests that the application of this limitation is wrong. NE guidance on ALC states that: "*soils developed in marine alluvium can have very porous subsoils due to the presence of vertical channels and such soils often do not have slowly permeable horizons*" This guidance is supported by the depth of the features observed in the photographs, which strongly suggests that they are the result of husbandry (plough pans) and are thus temporary and easily removed through the use of appropriate soil management practices [paras 16 & 42 et seq: RR].	For features of the soil profile to be considered temporary this would be typically within the top 35cm of the soil profile, as this is what is considered removable under normal agricultural practices. As the slowly permeable soil features extend deeper than this depth, it would net be practicable to remediate these soil profiles and thus are considered a permanent feature.	It is entirely incorrect to assume that compaction below 35cm cannot be remediated and so is a permanent feature. Effective subsoiling can be carried out to one metre depth (see 18.3).
18.7	Furthermore, the information derived from the two soil pits is limited to poor quality images and basic descriptions, which make interpretation difficult. British Society of Soil Science (BSSS) Guidance on assessing land classification requires that soils should be described using methods described in the Soil Survey Field Handbook, including the description of soil pits dug to at least 100 cm. The available evidence strongly suggests that this guidance has not been followed, and pits were dug to insufficient depth [Photographs 6 & 7 EN010169-000156-6.3 ES Appendix 5-2 Agricultural Land Classification Report - Parcels A and D and Photograph 9 EN010169-000157 6.3 ES Appendix 5-3 Agricultural Land Classification Report - Parcels B and C]. Further, there is no evidence of any detailed examination of soil structure in or colour of the pit walls. The assertion in the assessment of the presence of less than 0.50% biopores greater than 0.50mm diameter and of prismatic structures is made without the benefit of robust supporting evidence from observation pits. No laboratory evidence is available to support the texturing of the visible elements of the soil profile of any pit. This is not accepted practice [para 44: RR].	**ES Appendices 5-2 and 5-3** [REP1-028 and REP1- 030] were updated for Deadline 1 to clarify constraints, noting that due to ground conditions at the time of the survey, pits to a full depth were not possible. However, the pit depths which were excavated expose a sufficient portion of the subsoil for which observations could be made. **ES Appendices 5-2 and 5-3** [REP1-028 and REP1- 030] were also updated for Deadline 1 to include additional soil pit logs photographs across the Site. **ES Appendices 5-2 and 5-3** [REP1-028 and REP1- 030] include laboratory results of textural analysis at Appendix VI. Survey logs reflect the laboratory findings.	2026 is an even drier year and soil surveyors, including colleagues in RAC, use diggers to excavate soil pits from time-to-time. More often, surveys of particularly contentious or difficult sites are delayed awaiting suitable conditions. The Meridian site already had numerous machine excavated archaeological trenches open, so additional machine dug small pits, that could be immediately back-filled, would not have represented a significant additional disturbance to this land. The record shows that only topsoils were sampled for laboratory analysis and so cannot fully reflect the characteristics of the range of soil horizons expected across 1,200ha. LCC maintains its assertion that the Applicant's ALC assessment is over-reliant on auger observations and that more proper pit descriptions and laboratory analyses are required to support their conclusions.

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18.8	In the Site Survey Logs [Appendix II of EN010169-000157-6.3 ES Appendix 5-3 Agricultural Land Classification Report - Parcels B and C & EN010169- 000156-6.3 ES Appendix 5-2 Agricultural Land Classification Report - Parcels A and D], the recorded observations within each soil type described are generally similar in terms of horizon depths and content. The auger logs appear to have been copied and pasted and not individually described. This is despite the ES stating that "a degree of variability in physical characteristics within a discrete area is to be expected". The lack of variation in observations and lack of consistency between observed and measured laboratory soil textures fail to provide confidence in the ALC grading ascribed to each bore, particularly the clay soils graded as 3b, which rely on the identification of a slowly permeable horizon.	Soil logs have been written with a standardized terminology. Similarities in colours, textures and structures is expected in adjacent auger samples and will appear the same within the logs.	The Applicant's response to RAC's comment on the uniformity of observation in the soil survey states *"Similarities in colours, textures and structures is expected in adjacent auger samples and will appear the same within the logs."* Few experienced soil surveyors would agree with this statement without qualification. Furthermore, the trench photos used to support the Applicant's soil survey clearly indicate significant lateral differences in horizon depths, colour etc that would show up on auger samples. Historic auger bore records from the National Map and Boston and Spalding surveys are available on Cranfield's LandIS Portal https://portal.landis.org.uk and none show the repetition of identical profiles presented in the Applicant's logs. The Applicant should be asked to produce field notes to confirm that each auger bore was individually described and not just recorded as "same as before". LCC regards this question as important, given the over-reliance on auger observations to put so much of the site in Subgrade 3b.
18.9	The ES contains no detailed description or images of the soil types identified at the site, and the lack of a baseline description of soils condition makes it impossible to establish a robust baseline from which changes in the physical and chemical characteristics of the soils of the Scheme area, pre- and post-development can be identified. This fails to comply with recent ISEP guidance, which is referred to in the ES [pp3&4: RR].	The Applicant notes that ISEP guidance requires that, for each of the main soil types, certain soil characteristics are to be recorded at a soil pit, including with photographs. The guidance references a pit for each main soil type and the guidance is met with the records provided within **ES Appendix 5-3 Agricultural Land Classification Report - Parcels B and C** [REP1-030] and **ES Appendix 5-2 Agricultural Land Classification Report - Parcels A and D [REP1-028].**	See 18.5. Moreover, it is noted that most photos show smeared trench faces and it is not possible to see the features claimed in the descriptions.
18.10	Taken with the failure to record the presence or absence of calcium carbonate in the surveyed soils, and the incorrect assignment of Wetness Class, in a situation where the downgrading of mapped BMV land is critical to the weight given to soils and agriculture in the planning balance, the available evidence is insufficient to support the conclusion drawn in the ES that the majority of the area taken by the Scheme is not BMV and that the loss of more than 418ha of highly productive BMV land for 40 years is not significant.	In the original application documentation negative results for calcium carbonate testing were not presented but that did not reflect an absence of testing. The presence of calcium carbonate in the upper soil layer improves Wetness Class. The uplift was not applied to Wetness Class following negative findings for calcium carbonate and findings for Wetness Class reflect the field survey. This was shared in a consultation exercise with LCC/ RAC and Natural England. Appendix II of **ES Appendix 5-3 Agricultural Land Classification Report - Parcels B and C** [REP1-030] and **ES Appendix 5-2 Agricultural Land Classification Report - Parcels A and D** [REP1- 028]were revised for Deadline 1 to identify negative results, providing the requested evidence. Reference is made to the loss of BMV land for 40 years. **ES Chapter 5: Agriculture and Soils** [REP1- 014] differentiates between permanent effects resulting in the loss of BMV land and reversible effects where the land is not lost. Effects, treated as if permanent, where hardstanding would be required adopts 15 ha of BMV land and the effect is identified as a major adverse (significant) effect. Additionally, 140 ha of Grades 1 and 2 land would be adopted for solar PV panels and this reversible land use has been presented as a moderate adverse (significant) effect. Other land use changes on BMV and non-BMV land are identified as not significant. These include the permanent planting of trees and shrubs at field boundaries.	The explanation for the absence of results of observed $CaCO_3$ tests is noted. Natural England is leading on the significance of loss of BMV land, in particular the issue of planting so LCC will not add to its comments.

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18.11	The baseline soils data used in the oSMP are based on the results of Meridian's ALC survey. The results of the survey are questioned in this report with particular regard to the identification of soil features within areas classified as Grade 3b, where established mapping strongly suggests that soils are likely to be sensitive to disturbance. Detailed surveys of soil type, structure and health should be carried out and a baseline, against which restoration and aftercare can be assessed, established before work on site commences, in order to inform accurately the final Soil Management Plan.	There is a relationship between ALC grade and the sensitivity of soils to disturbance but typically BMV land has higher resilience to disturbance. This is because soil texture is a determining feature of soil resilience. The data for soil texture obtained in the field were confirmed by laboratory analysis and provide appropriate data for soil management. The **OSMP** [REP1-068] recognises that soil handling will be governed by soil type rather than ALC grade. There is no standard measure of soil health. Visual assessment of soil structure can provide a useful contribution to soil differentiation. The **OSMP** [REP1- 068] establishes roles for individuals responsible for the protection of soils on site.	LCC welcomes the inclusion of detailed proposals for assessing soil health in the full SMP. In the meantime the Applicant is referred to ISEP's https://www.isepglobal.org/resources/blogs/2026/january/new-isep-advice-note-soil-health-in-environmental-assessment/ which provides a realistic assessment of what can be achieved in an EIA.
18.12	The oSMP states that land restoration after decommissioning will aim to restore all agricultural land without diminution of original ALC grades, as informed by the detailed ALC survey. Given the lack of confidence in the findings of the original survey which maps land, identified elsewhere as BMV, as non-BMV, it is not possible to write or rely on its recommendations without additional detailed survey work.	The field survey presented within **ES Appendices 5-2 and 5-3** [REP1-028 and REP1-030] followed the standard methods for undertaking ALC surveys. The Applicant is satisfied that the survey identifies the baseline condition for restoration.	LCC's position on the inaccuracy of the Applicant's ALC assessment is unchanged. Moreover, LCC further believes that after more than 40 years of inadequately unmanaged fallowing under solar panels, without mole ploughing and maintenance of the drainage system, the hydrological characteristics of the soil profiles will have change fundamentally. It will be necessary to renew of the drainage system on decommissioning and enter the land into a programme of rehabilitation to restore the land to its pre-construction quality.
18.13	The oSMP does not include any details of the nature or duration of any aftercare that may be necessary to restore disturbed land to its original ALC grade and condition. Aftercare should be described for all land stripped during the construction period, including access tracks, works compounds and electrical installations.	The **OSMP** [REP1-068] presents conditions for the stripping and storage of soil and managed through the operational phase. The decommissioning phase provides approaches to restoration, including of access tracks, compounds and electrical installations. Techniques to reduce compaction of subsoil and improve biological activity will be undertaken before loose tipping topsoil. The land will be returned to the landowner for land management post-construction. Rather than specifying an aftercare period, the **OSMP** [REP1-068] identifies the availability to the landowner/ land operator of specialist advice from an agronomist, soil scientist or agricultural engineer until restoration is established to baseline conditions.	LCC welcomes this and awaits the detailed proposals for aftercare the full SMP.
18.14	The oSMP also fails to consider the mass balance of soil types stripped from areas of temporary land take and appropriate storage in the consideration of soil movement and storage from construction, through operation to decommissioning and restoration. This is of particular concern with respect to the undertaking of necessary works during the establishment of inter array and grid connections, although equally applicable to works associated with the arrays.	Soil budgets and soil storage locations are to be developed within the detailed Soil Management Plan in conjunction or by the appointed contractor, and in accordance with the principles set out within the **OSMP** [REP1-068].	LCC welcomes this and awaits the detailed proposals for soil budgets the full SMP.
18.15	The oSMP fails to include description of soil storage, specifically: bund specifications for individual soil types and longevity, including maximum dimensions and vegetation management.	Soil budgets and soil storage locations are be developed within the detailed Soil Management Plan in conjunction or by the appointed contractor, and in accordance with the principles set out within the **OSMP** [REP1-068]. Statements on maximum heights of bunds and slope angles are included in the **OSMP** [REP1-068]. The inclusion of information on seeding a herbaceous sward and maintaining bunds free of woody species has been included in the **OSMP** [REP1-068] submitted at Deadline 1.	It is accepted that soil budgets and plans will be developed in the detailed Soil Management Plan (SMP), which will be informed by detailed soil surveys.

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18.16	The Outline Construction Environmental Management Plan (oCEMP) identifies a risk associated with Unexploded Ordnance (UxO) in part of the Scheme area. This risk and details of mitigation methods should also be referenced in the oSMP, particularly with regard to completing the ALC surveys in plots of land shown as unsurveyed.	The **OSMP** [REP1-068]identifies that unsurveyed areas would be surveyed before construction. The necessary safeguards would be established in areas with the potential for unexploded ordinance (UXO). The additional survey information will be established to inform a detailed Soil Management Plan. There are no unforeseen environmental effects to agricultural land because of the unsurveyed parcels.	See 18.15
18.17	DESNZ's Renewable Energy Planning Database monitors renewable energy projects quarterly. The database for Quarter One (Q1) of 2026 reflected Lincolnshire's rapid growth in energy infrastructure, with the area of planning permissions granted growing from 5,888ha to 7,036ha –a 1,148ha over two quarters. This represents a 19.5% increase in land take, compared with a 13% increase in land take nationally. Lincolnshire accounted for roughly 29% of all new nationally granted solar area over the two quarters despite only having approximately 5% of UK agricultural land. This strongly suggests that the County is having approved a disproportionate number of decisions for ground-mounted PV. The proposed solar development area grid and associated inter-array connection corridors occupy a total of 1,593.6ha, that is about 0.3% of Lincolnshire's farmland. Whilst this may seem like a small proportion of the farmed area of the County, it is important to view this proposal in the context of its contribution to the cumulative impact of all developments, and particularly solar developments on potentially sensitive receptors, as required in ES.	Cumulative assessment within **ES Chapter 5: Agriculture and Soils** [REP1-014] identifies not only planning permission granted but schemes in development, which are within the public domain. The cumulative assessment considered above ground infrastructure over a potential 11,238 ha. Within this total, the permanent loss of BMV land was 65 ha and the permanent loss of non-BMV land was 58 ha. On the basis of the total cumulative land-take calculated, it is estimated that cumulative solar schemes in Lincolnshire will account for approximately 3% of all agricultural land within Lincolnshire, with above ground infrastructure accounting for approximately 2.3 % of all agricultural land. An estimated 1.1 % of BMV land would be temporarily used and 0.02 % of BMV land permanently used across the identified solar projects. Whilst there is a measure of uncertainty around this proportion, it is indicative that the solar schemes represent a small proportion of agricultural and BMV land in the County.	The Applicant's assessment of cumulative land take at about 11,238ha is accepted. It is also accepted that the permanent land take is as described. The Government's Solar Roadmap estimated that up to 0.4% of all UK land would be used to satisfy the required solar deployment; based on a UK land area of 24,438,000ha, that is 97,752ha of land. **If** all of this capacity were to be met by development across **England's** 8,900,000ha of agricultural land, that would be about 1.1% of all land. Clearly, this is not realistic scenario and not only fails to take into account solar PV in Scotland, Wales and Northern Ireland, but also roof-mounted PV and National policy, which directs ground-mounted solar farms away from BMV land to protect national food security. However, if the proposed development were to proceed, as the Applicant suggests, this 1.1% proportion of BMV land in the County would be occupied by SDAs for in the region of 40 years. This highly exaggerated figure is slightly less than 50% of all agricultural land in the county, discounting upcoming applications and developing roof-mounted PV. Whilst 1.1% of BMV land is a small proportion, comparison with the Government's own, exaggerated, estimate strongly suggests that the area of solar development proposed for the County is disproportionate and that it would be reasonable to assume that solar development would be more evenly distributed. Given the likelihood of additional SDAs coming forward and being developed in Lincolnshire before 2030, the Solar Roadmap target date, it is reasonable to assume that the tipping point identified by the Secretary of State in his Decision Letter on the Outer Dowsing application **[para 4.140 EN010130-002643]**, where the cumulative loss of agricultural land reaches an unacceptable level, is being approached. Furthermore, the Applicant in this case has made no reasonable attempt to minimise the loss of Best and Most Versatile (BMV) agricultural land, the extent of which in the proposed SDA is disputed by LCC.
18.18	The current and historical use of the land to be occupied by the Scheme is not described in greater detail than that it is "currently used to grow arable crops". Thus, the ES cannot assess the economic contribution of crops grown in the Scheme area to individual farm businesses affected, or the impact of the loss of production on the local or regional economies.	The physical effects of land use change are addressed in **ES Chapter 5: Agriculture and Soils** [REP1-014]. The socio-economic effects on the agricultural workforce are addressed in **ES Chapter 14: Socio-Economics and Land Use** [APP-065]. **Appendix A** of this document provides cropping data for the Solar Development Area.	See 18.1

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18.19	ES requires that impacts of proposed developments are assessed cumulatively as well as in their own right. The lack of data on land use and cropping also renders it impossible to undertake any valid assessment of the cumulative impact of the proposal.	Cumulative effects on agricultural land are assessed in **ES Chapter 5: Agriculture and Soils** [REP1-014], which considered above ground infrastructure across a potential 11,238 ha, within which the permanent loss of BMV land was 65 ha and of non-BMV land was 58 ha. The assessment indicates that the solar schemes represent a small proportion of agricultural and BMV land in the County. Cumulative effects on employment and GVA are assessed in **ES Chapter 14: Socio-Economics and Land Use** [APP-065] and are not significant. Adding together gross output figures across schemes would not give a reliable or proportionate measure of cumulative economic effect, for reasons explained in response to 18.27 to 18.29 below.	See 18.1 and 18.17
18.20	The ES sets out detailed cumulative impact assessments for Agriculture and Soils, Materials and Waste, Traffic, and Landscape and Visual topics, addressing: • Nationally Significant Infrastructure Projects (NSIPs) within 30km, within five years; • Town and Country Planning Act (TCPA) applications within 15km with three years; and • Solar schemes within the administrative County of Lincolnshire within the past five years for NSIPs and three for TCPA applications. Only projects under the last bullet are considered in the agricultural land assessment. Projects assumed to form part of the existing baseline, that is operational schemes or schemes where construction is nearly complete, are excluded from the assessment, along with schemes that have had permission refused, have been withdrawn, or otherwise have not proceeded.		
18.21	The ES fails to assess any cumulative effects relating the use of land and its productivity, specifically in terms of its contribution to the local and regional economies.		
18.22	The Scheme is said to be temporary, and the ES fails to include any assessment of any changes that are likely to be experienced during the life of the development. For instance, no evidence provided of change in the health of land taken out of production and subject to reduced solar inputs for an extended period, and there is no proposal for the establishment of any baseline condition of soil health in order that change can be assessed at the end of the Scheme's life.	There are no agreed or readily achievable measures of soil health because of spatial and temporal variation. A programme of monitoring of soil health is not considered proportionate on the basis of the likely significance of any potential effects. The principle of removing soil cultivation and establishing permanent vegetation cover being beneficial to soil are established (for example, British Society of Soil Science18). This improves soil structure and carbon sequestration. These are noted in **ES Chapter 5: Agriculture and Soils** [REP1-014].	Soil Health and Resilience can be measured using a scorecard developed for the Agricultural and Horticultural Development Board **[AHDB]** and in a recent paper published in Soil Use and Management **[Heming, 2026]**, published by the British Society of Soil Science. Only by establishing an effective benchmark of soil health before development commences can restoration of the SDA to its original agricultural potential.
18.23	Whilst it is accepted that short term fallowing of intensively farmed arable land has a generally positive effect on soil health, there is little research into the long-term removal of highly productive land from agriculture. A review of Rothamsted Research's Highfield experiment suggests that 50 years of management of typical silty clay loam soil as bare- fallow can result in significant reductions in soil carbon and nitrogen, and in the abundance of biological communities, with soil structure also severely compromised.	The Scheme will not operate areas of bare fallow and so the comparison with the Rothamsted experiment is not germane to the proposed Scheme. A herb-rich sward is to be created within the Solar Development Area and hence the comparison is made against annual cultivations. These positive effects of this on soil resources is noted in **ES Chapter 5: Agriculture and Soils** [REP1-014]. Indeed, it would be possible to apply ISEP guidelines to present these changes as a moderate beneficial effect (significant) but professional judgement has been applied to moderate the impact, such that it is presented as a minor benefit (not significant).	The maintenance of herb rich swards over the anticipated lifetime of the proposed development has not been demonstrated by the Applicant. The Outline Management Plans produced by the Applicant do not adequately describe the means of establishment of a resilient herb rich sward or its maintenance in the light of the developing drainage regime likely to apply across the SDA. See also 18.33.
18.24	Uncertainty regarding the impacts of permanent shade and differential wetti ng on plant communities and soil structure and health under solar arrays means that it is impossible to definitively foretell the true impact of long-term change of use on high- quality soils. Thus, in the absence of evidence of long-term PV being	There are no agreed or readily achievable measures of soil health because of spatial and temporal variation. A programme of monitoring of soil health is not considered proportionate on the basis of the likely significance of any potential effects. Differential wetting on a diverse sward will create differential niches for biodiversity but a research investigation is not proposed.	See 18.23

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	beneficial to these soils, it is reasonable to retain them for agricultural production.		
18.25	Furthermore, land that currently benefits from irrigation is not identified. Irrigation enables the full versatility of land to be utilised, including the production of high value crops such as potatoes, sugar beet and brassicas. Any extended interruption to the use of an irrigation abstraction licence is extremely likely to result in the revocation of that licence by the Environment Agency. Any such revocation will be permanent, and it is unlikely that a licence similar to the original would be granted when the land is returned to agriculture, so limiting the use of the land to crops not requiring irrigation. Thus, any land benefitting from irrigation will be less productive on decommissioning of the solar array than is currently the case. The ES fails to identify any agricultural land that benefits from irrigation and thus cannot accurately assess the temporary or likely permanent impacts of its loss from the farming economy.	Appendix A of this document provides cropping data and indicates, where irrigation may be actively used. Water Supply Strategy (Doc Ref. 8.37) submitted for Deadline 2 also notes that license trading can be used for any existing abstraction licenses currently used on the Site to use water for the Scheme, where spare capacity exists. Active water abstraction license locations within 1km of the Order Limits are mapped on **ES Figure 11-1** [APP-106].	Whilst the Water Supply Strategy does identify the trading of abstraction licences, it does not make provision for the restoration of any existing irrigation capacity on decommissioning the Scheme. Where land in the SDA is part of an existing irrigation command area, that land cannot be returned to its original use on decommissioning without an adequate water supply.
18.26	Drainage and other existing underground infrastructure, such irrigation mains, are critical elements of effective agricultural land management in the Fens. Most such infrastructure is buried with about 0.75m of cover, just below the maximum depth of normal tillage operations. The ES does not take into account the possible disruption of this infrastructure during the installation and decommissioning of the solar arrays, including the inter array connections.	Measures to protect existing drainage are secured through the **OCEMP** [REP1-061]. • Protection of existing field drainage • The Principal Contractor shall ensure that existing field drainage systems are not compromised as a result of construction. Field drainage systems will be maintained during construction and reinstated so far as reasonably practicable to a condition that is as effective as the previous condition on completion. • The Principal Contractor will coordinate drainage surveys to establish the existing drainage position including any related field drainage that may be affected by the Scheme and these will be marked where encountered. The Principal Contractor shall record the location, condition and characteristics (e.g. depth of installation, pipe type and diameter) of drains cut or disturbed by construction of the Scheme. • Any field drainage affected by the Scheme shall be either reinstated or diverted to secondary channels if reasonably practicable. Landowners and occupiers shall be informed, through the Environment Manager of the design and timing of drainage works required during construction and following completion of the works, including, where relevant, in relation to pipe layout, falls, dimensions and outfalls.	It is welcomed that the Applicant proposes to ensure that the existing field drainage systems are not compromised as a result of construction, that drainage surveys will map and mark drainage features within the SDA and that any field drainage affected by the Scheme will either be reinstated or diverted in consultation with the relevant landowner. The Applicant fails to identify how the existing drainage network will be maintained over the lifetime of the proposed Scheme in order to maintain the soils of the area in good condition. It is normal practice to maintain drainage systems and carry out periodic deep cultivations in order to relieve compaction and maintain drainage in Fenland. The impact of the proposed development on the long-term functionality of the agricultural land drainage system has not been described or measures to mitigate any impacts that might effect the soils of the SDA, identified.
18.27	In the absence of cropping details for the Scheme area, an estimate of typical cropping for the immediate area has been made using cropping data from the Rural Payment Agency's Crop Map of England (CROME) for the years 2021-2025. Crome shows that the cropping of the area is mixed, including cereals (55.7%); cover crops (12%): peas and beans (7.6%); oilseeds (6.3%); maize (5.8%); sugar beet (4.1%); potatoes (2.5%); and others, including onions and brassicas (6%).	The Applicant's assessment of effects on agricultural land holdings in ES Chapter 14: Socio-Economics and Land Use [APP-065] is receptor-based. It considers the landowners and tenants affected, the sensitivity of their holdings, and the potential for the Scheme to compromise the viability of the holding. Economic impacts are assessed in terms of employment, through consideration of the jobs supported by on- site uses and the application of multipliers to account for the indirect and	It is correct to base the assessment on impacts on receptors. Economic effects extend beyond direct impacts on labour employed by the landowners likely to benefit from the Scheme. This principle is adopted by the Applicant in its use of multipliers to account for indirect and induced employment within the supply chain influenced by the proposed Scheme. The use of the economic productivity of the land occupied by the SDA is a reasonable way to assess the impact of direct, indirect and induced

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18.28	The potential agricultural output achievable from this range and area of cropping across the 1064.1ha of the proposed development area (excluding impacts associated with grid and array connectors) is estimated to be between £1,431,000 and £1,904,000 annually, based on standard costs taken from the 2026 edition of the John Nix Pocketbook for Farm Management; that is an average annual output per hectare of between £1,345 and £1,789. Whilst the expected life of many solar farms is being promoted to be 60 years, for the claimed 40 years of this development that would be between £57,20,000 and £76,160,000 lost to the local economy, excluding any added value within the supply chain. In order to put this into context with the rest of the County, a similar exercise has been carried out to estimate the proportions of crops grown in the administrative County of Lincolnshire and apply standard values for outputs. Field scale agriculture in Lincolnshire covers about 435,700ha and the cropping data from CROME for the years 2021-2025 shows a similar mixture of cropping, including cereals (44.7%); cover crops & fallow (18%): peas and beans (5.2%); oilseeds (5.5%); maize (6.6%); sugar beet (3.4%); potatoes (1.9%); others, including onions and brassicas (0.8%), grassland and forage (13.8%); and cover crops, fallow, hedgerow. The potential agricultural output achievable from this range and area of cropping is estimated to be between £477,663,500 and £635,735,000 annually, based on standard costs taken from the 2026 edition of the John Nix Pocketbook for Farm Management; that is an average annual output per hectare of between £1,096 and £1,459 across the County. These values exclude any value added within the supply chain.	induced employment within the supply chain. This is a more robust approach to assessing effects on agricultural landholdings and the economy than one which depends on the type and value of individual crops currently produced on the land. This approach has been used for numerous other DCO applications and is considered proportionate. The baseline records that the Site is predominantly agricultural land, mainly arable with some grazing, and that the Solar Development Area is farmed by five landowners with no tenant farmers. The Applicant considers this sufficient to reach a reasoned conclusion on likely significant effects relating to agricultural landholdings and employment. RAC's estimate of £1,431,000 to £1,904,000 per annum gross agricultural output indicates the revenue which could be raised by the crops if they were sold. It is not accurate to state that this is the value which would go into the local economy. Gross output does not reflect the costs of production (including fuel, fertiliser, seed and machinery), and a substantial proportion of spending on these items would go outside the local area. While some of the crops may be sold and consumed locally, it is likely that much the produce will be transported outside of Lincolnshire to retailers and wholesalers based elsewhere in the country. The sum of £57.24 million to £76.16 million is similarly not a robust representation of the net economic effect on the local economy. **ES Chapter 14: Socio-Economics and Land Use** [APP-065] considers economic effects in terms of employment on a net basis, adopting a robust and proportionate approach. Notwithstanding the above, the Applicant has provided crop information for the Solar Development Area within Appendix A of this document. That information demonstrates that in 2025 a quarter of the land was diverted to environmental schemes and not producing any crops, and that cropping was otherwise dominated by cereals rather than higher value vegetables. Available information indicates that the end market for cereals was animal fodder and energy use, and that the crops supplied for human consumption were limited. The RAC approach also does not take account of the c.160 ha of land within the Solar Development Area that will be retained in arable use, or of the diversified rental income that landowners will receive from hosting the Scheme, which offsets the change in farming income. All landowners within the Solar Development Area have entered into voluntary agreements with the Applicant, and there are no tenant farmers within these areas. On employment, the ES concludes that any loss of agricultural sector employment is likely to be minimal, given that the Solar Development Area is farmed by the landowners themselves and that any contractors involved are not wholly reliant on the land. The Scheme is estimated to generate a net gain of 11 FTE jobs during operation. On this basis, the ES concludes that the effect on agricultural land holdings within the Solar Development Area is minor beneficial (not	effects on the local economy. The revenue generated by crops is distributed throughout the supply chain, *via* fertiliser, seed, agrochemical, fuel and machinery suppliers, agricultural engineering firms, agronomists, contractors and casual labour. In addition to these local businesses, the wider sector is also likely to be affected by reductions in throughput, processors, packhouses, storage and transport businesses are most often based locally and employ local people. Whilst distributors, wholesalers and retailers, which roles also exist in the supply of agribusinesses, may be national businesses, the impact of any reduction in production locally will have a direct impact on elements of the supply chain. The cropping and entering of land within the SDA into agri-environment schemes are the choices of landowners and do not necessarily reflect the value of the land for production. Farm income from the land may well be replaced or even increased by rental income received from the land. This income cannot be considered to be diversified. Agricultural diversification in England is regarded by Defra as any entrepreneurial use of farm resources to generate additional income. An entrepreneurial activity involves the taking of financial or personal risk to create value. The definition specifically excludes the letting of land for agricultural or non-agricultural end-purpose, land let for non-agricultural activity is not diversification as it is not the farmer who is undertaking the activity. Thus, the letting of land for solar is not agricultural diversification. The exclusion of the 160ha of land within the SDA to be retained in arable use is due to lack of detail regarding what role the land will play in the farming businesses and how that land will be farmed. It is assumed that that any income or employment associated with retained arable land is accounted for within the Applicant's assessment. Given all of the above, and in the absence of a robust assessment of the impacts of the scheme on the agricultural economy, it cannot be reliably conclude that the overall effect on the local economy is insignificant.
18.29	Thus, the economic output per hectare attributable to agriculture on the proposed development area is about 23% greater than that averaged across the County. This significant difference in productivity has not been taken into account in the ES.		

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		significant), and that the effect on the local economy from employment is negligible (not significant).	
18.30	It is also clear from this summary that the area of land under, allocated and being considered for ground-mounted solar PV in Lincolnshire, including this proposal, is approaching that proportion of land suggested in the LUF as necessary for solar and wind energy across England. It has been acknowledged by the Secretary of State for Energy Security and Net Zero in their Outer Dowsing Decision Letter that there is no defined threshold upon which a conclusion regarding the acceptability of the loss of BMV land can be made if the cumulative loss of agricultural land is proceeding without consideration of when the tipping point into unacceptability is reached.	The Applicant has provided further explanation for the siting of the Scheme on BMV agricultural land in response to issues raised in the earlier tables. The impacts of this are assessed within **ES Chapter 5: Agricultural Land and Soils** [REP1-014].	The provision of additional information regarding the locating of the SDA on prime agricultural land is welcomed. The scale of the development and consequent scale of the land take is not considered with reference to the proportion of BMV land and agricultural land generally to be taken for solar development in Lincolnshire and the relationship of that area to defined Government targets. See 8.17
18.31	It is proposed that this tipping point is being approached, where the County of Lincolnshire, which contributes more agricultural output than any other county, is already at or nearing the committed proportion of solar development identified as the average national requirement. In the case of this Scheme the proportion of BMV land to be taken is reasonably disputed and the Applicant has failed to justify its loss from production for 40 years claimed by the Developer or for an extended period of 60 years, as is claimed by a number of concurrent Solar NSIPs, in Lincolnshire and across the UK.		
18.32	At such a critical time in the delivery of solar energy, it is imperative that proposals should be fully justified in terms of guidance set out by Authority. In this case, the Applicant has made no attempt to avoid BMV land and has failed to justify any exception to the Government's guidance on the use of BMV land for solar PV.		
18.33	The ES also suggests that grazing by sheep could maintain agricultural production. Sheep cannot graze on weeds arising from intensive arable production, so the land would have to be converted to grassland, preferable creeping fescue to avoid poaching. The grass would have to be sown before construction and would take two years to become established and resilient to traffic movements during construction and between the arrays. This complication is not considered as part of the assessment.	Habitat management will not allow arable weeds to dominate land within the Scheme. Land management responsibilities are secured through the **OLEMP** [REP1-070]. This includes converting areas of agricultural land around and beneath the solar PV panels into species rich grassland.	Whilst land management plays an important role in the maintenance of a grass sward beneath solar panels, no detail is provided of how the sward will be established to exclude arable weeds, which often have significant established and persistent seed banks in arable soils, or how habitat management will support the management of arable weeds.
18.34	Whilst the direct economic impacts of the Scheme are relatively easy to estimate, social impacts such as employment are less easy, given the lack of information about the farm businesses affected. Indirect impacts, on agricultural businesses such as machinery dealers, seed and fertiliser merchants, transport, packing and processing cannot realistically be estimated without detailed knowledge of the businesses.	As outlined within **ES Chapter 14: Socio-Economics and Land Use** [APP-065], the likely impacts on agricultural employment have been considered within the assessment of net employment effects during operation. Indirect impacts on businesses in the supply chain are covered through the application of multipliers. The Solar Development Area is farmed by the landowners and there are no tenant farmers, so there is no displacement of tenants. The landowners will continue to generate income from their land during construction and operation of the Scheme. There may be some contractors who undertake farming activities on the land, but it is very likely that such contractors would not	See 18.27 – 18.29. It is unreasonable to claim that research and consultation is disproportionate given the likely magnitude of the effect identified by RACs reasonable, basic analysis of the productivity of the land.

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		be entirely reliant on these farms for employment. Any loss of agricultural employment is therefore likely to be minimal. Within the Grid Connection Route and Inter-Array Connections, disruption to farming activities would largely be temporary and short term. A more detailed assessment of indirect effects on the agricultural supply chain would require further research and/ or consultation, which would not be proportionate. Given the conclusion that no material loss of agricultural employment is anticipated, and that the majority of affected landowners within the Grid Connection Route and Inter-Array Connections would not experience any substantial change to their farming activities, it is considered reasonable to conclude that the Scheme would not have a significant effect on the wider agricultural supply chain.	
18.35	The Socioeconomics and Land Use Chapter (14) of the ES fails to take fully into account ISEP guidance on the essential components of Environmental Assessments and Reports [p4: RR].	The Applicant has reviewed the ISEP (2025) guidance on Solar PV on Agricultural Land, as recorded in **ES Chapter 5: Agriculture and Soils** [REP1-014]. The socio-economic matters it raises are addressed in **ES Chapter 14: Socio-Economics and Land Use** [APP-065]. The Solar Development Area is farmed by the landowners and there are no tenant farmers, so there is no displacement of tenants. The tenant farmers along the Grid Connection Route and Inter-Array Connections are identified and assessed as receptors. Effects on agricultural employment and the wider economy are assessed on a net basis, taking account of leakage, displacement and multiplier effects, and cumulative effects are assessed in **ES Chapter 5: Agriculture and Soils** [REP1-014] and **ES Chapter 14: Socio-Economics and Land Use** [APP-065]. The Applicant considers the assessment to be proportionate and consistent with the guidance.	See 18.27 – 18.29 & 18.34
18.36	A total of 42 agricultural landowners are located within the grid connection route and three tenants who farm the agricultural land, and a further 14 agricultural landowners located within the inter- array connections and two tenants who farm the agricultural land. The holdings are identified as having medium sensitivity on the grounds that the area is rural, numerous holdings are affected and there is potential for substitution because of the number of holdings in the area. No details of the specific nature of cropping or the scale of the affected businesses or the infrastructure/ investment in holdings are described to permit specific assessment of impacts to be made.	**ES Chapter 14: Socio-Economics and Land Use** [APP-065] identifies the landowners and tenant farmers affected along the Grid Connection Route (42 landowners and three tenants) and the Inter-Array Connections (14 landowners and two tenants) and assesses the effect on their holdings. The holdings are assigned medium sensitivity, reflecting the number of holdings that could be affected and the potential for substitution given the abundance of farm holdings in the surrounding area. The magnitude of impact is assessed as low, because the works are temporary and limited in duration, the land will be reinstated, and landowner agreements are being pursued. Before construction, a detailed Soil Management Plan will be submitted in accordance with the **OSMP** [REP1-068], ensuring that soils are not degraded and that farming activities can recommence after construction. This leads to a minor adverse effect, which is not significant. The Applicant considers this sufficient to reach a reasoned conclusion on likely significant effects, and a more detailed baseline of cropping on each holding would not alter that conclusion, given the temporary nature and limited scale of the works.	Whilst the impacts on the 42 affected agricultural landowners within the grid connection route are temporary, the nature of the likely effects of the works, which may endure for two years, is unknown. The impacts cannot be assessed simply by immediate loss of land from production. The assessment should also take into account severance of land, access, irrigation and drainage infrastructure due to construction works, all of which have potential to have a significant impact on farming operations, particularly in an area that is drained by open ditches and dikes.
18.37	The impact associated with construction on the holdings affected by the grid connection route and inter array connections is identified as being temporary and fully mitigated and so is assessed as low, given the temporary nature of the development the magnitude of impacts, although the nature and scale of any impacts are not described.		
18.38	Overall, the Scheme is assessed as having a low to very low adverse impact for both landowners and tenants with medium sensitivity affected by the grid connection route and inter array connections,		

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	leading to a negligible to minor adverse effect. This is considered not significant by the Developer.		
18.39	The ES states that voluntary agreements have been reached with all landowners in the Scheme area and that it provides an opportunity to diversify operations and generate non-agricultural income from their land. The affected agricultural land holdings have been assigned a medium sensitivity. The provision of an income from the land occupied by the proposed scheme is identified as a beneficial impact and its magnitude has been assessed as medium beneficial. 180ha of land within the Scheme area will be retained for agricultural use, for ecological mitigation.	**ES Chapter 14: Socio-Economics and Land Use** [APP-065] assesses the effect on the holdings in the Solar Development Areas by considering both the change in land use and the non-agricultural income the landowners will receive. The five landowners have entered into voluntary agreements with the Applicant, there are no tenant farmers, and the Scheme provides an opportunity to diversify their operations. The holdings are assigned medium sensitivity, and the assessment concludes that the change in land use would not compromise the financial viability of individual holdings. c. 160 ha of land within the Solar Development Areas will be retained in agricultural use. The Applicant considers this sufficient to reach a reasoned conclusion on likely significant effects, and a more detailed baseline of cropping and rotations would not alter the conclusion, which is based on continued viability of the holdings and the absence of a material loss of agricultural employment. On effects beyond the farm boundary, the ES concludes that any loss of agricultural employment is likely to be minimal, as the land is farmed by the landowners themselves and any contractors involved are not wholly reliant on it. It is therefore considered reasonable to conclude that the Scheme would not have a significant effect on the wider agricultural supply chain.	See 18.27 – 18.29 & 18.34
18.40	Given that the proposed scheme will provide a diversified source of income for landowners, the assessment concludes that the proposed change in land use would not compromise the financial viability of individual farm holdings and so assesses the effect on agricultural land holdings as minor beneficial, that is not significant.		
18.41	Assessment concludes that the proposed change in land use would not compromise the financial viability of individual farm holdings and so assesses the effect on agricultural land holdings as minor beneficial, that is not significant.		
18.42	The ES fails to take any impact on employment caused by the withdrawal of the land from production or the knock on impacts any losses may have on local services such as shops, schools and tradesmen.	**ES Chapter 14: Socio-Economics and Land Use** [APP-065] considers the effect of the Scheme on agricultural employment. The Solar Development Areas are farmed by the landowners themselves with no loss of agricultural employment. The landowners will continue to generate income from their land through the Scheme, and the Scheme is estimated to generate a net gain of 11 FTE jobs during operation. As no material loss of agricultural employment or of landowner income is anticipated, the Applicant does not expect the Scheme to have a knock-on effect on local services such as shops, schools and tradesmen.	See 18.27 – 18.29 & 18.34
18.43	The ES makes no effort to examine in detail the impact on these businesses and therefore cannot extend any assessment beyond the boundary of the proposal. This failure makes it impossible to enable the Secretary of State to take into account the economic and other benefits of that land, as required by the Overarching National Policy Statement for Energy (EN-1).	**ES Chapter 14: Socio-Economics and Land Use** [APP-065] assesses the economic effects of the Scheme on the affected agricultural holdings, including their income and viability, and on employment and GVA in the wider study area, taking account of leakage, displacement and multiplier effects. This is consistent with paragraphs 5.13.2 and 5.13.4 of EN-1, which require applicants to assess likely local and regional socio-economic impacts. Paragraph 5.11.34 of EN-1 directs the Secretary of State to take into account the economic and other benefits of Best and Most Versatile (BMV) land where a scheme is sited on it. The Applicant has provided the information for this purpose in **ES Chapter 5: Agriculture and Soils** [REP1-014] and **ES Chapter 14: Socio-Economics and Land** Use [APP-065], which together describe the quality of the land, the effects on the holdings and the effects on the local economy.	See 18.27 – 18.29 & 18.34

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18.44	In the case of this application, detailed survey carried out for the ES identified the distribution of land grades as: 120.6ha of Grade 1 (11.3%); 92.6ha of Grade 2 (8.7%); 205.4ha of Subgrade 3a (19.2%) and 523.7ha of Subgrade 3b (49.1%) land. 101. This grading is significantly different to other sources of land grading: NE's 2026 Predictive ALC map for England shows the whole area within ALC Grades 1, 2 and 3a; NE's strategic scale map of the East Midlands Region of England, predicting the likelihood of BMV land shows that there is a high likelihood, that is 60% or greater chance, of the land being BMV; and MAFF and the Soil Survey of England and Wales' 1:63,360 scale indicates that the land occupied by the Scheme is all within Grades 1 and 2, that is BMV land.	The Applicant would note that LCC's critique of the ALC survey is based on predictive mapping and historic data. Predictive ALC mapping assumes effective under-drainage of soils, which then allows the land to achieve BMV status. However, drainage requires maintenance; the effectiveness of tile drains and mole drains should not be assumed. Survey evidence indicates that soil wetness was the limiting factor in some areas. For example, root channels into lower soil layers were not observed. The functioning of tile drains, whether perforated plastic or clay, diminishes over time. Tile drains are used in tandem with unlined mole drains that deteriorate through collapse and silting. Differences between modelled outputs, historical records and the survey would be expected if under-drainage was not delivering to its full potential. For this reason, predictive mapping and historic data is less reliable than recent field survey. The ALC survey results presented within **ES Appendix 5-2** [REP1-028] and **ES Appendix 5-3** [REP1-030] provide higher resolution survey information across the Solar Development Area, which is representative of existing, rather than the predictive model conditions. The Applicant would also note that large areas of Grade 3b land were identified by LRA19 within the Solar Development Area as part of the reconnaissance survey in 2023- 2024. As such, two separate surveys by separate surveyors have concluded Grade 3b ALC classification land within parts of the Site, particularly within Land Parcel D. Furthermore, **Appendix A** of this document provides cropping information for the Solar Development Area over the past years. This cropping data is not characteristic of Grade 1 and Grade 2 ALC land throughout the Site, as would be suggested by the predictive mapping, but is indicative of Grade 3a and Grade 3b land within parts of the Site. Published data was considered to aid understanding of the baseline, with sources used presented within **ES Chapter 5: Agriculture and Soils** [REP1-014]. They informed preparation for field surveys. The predictive model of ALC was not available at this stage, however, would not change the conclusions of the assessment. The field survey data were derived at a higher spatial resolution than the cited materials and derived from direct examination of materials, providing higher value data than the published materials. **ES Chapter 5: Agriculture and Soils** [REP1-014] referenced the nationally recognised soil mapping datasets alongside published geological information from the BGS. The soils identified during the survey were consistent with the mapped Wallasea 2 Association and with the published superficial geological deposits. Reconnaissance survey undertaken by LRA similarly identified that soil permeability has been subject to deterioration under prolonged arable and horticultural use. This survey reported that the clay subsoils were firm and compacted, which is difficult to correct and so they have become slowly permeable and imperfectly drained. Hence, the survey	These points are addressed above. The Predictive ALC grades are based on existing soil surveys and what is known about the productive capacity of these Lincolnshire soils. The failure of the drainage system is speculation, unsupported by evidence, although it is admitted that drainage requires maintenance, which should be part of routine farm activity. Subsoil porosity and structure cannot be identified from auger samples and there are no detailed soil pits descriptions to one metre as required by NE. The trench profiles are, with one exception, too shallow and too smeared to allow a proper examination of the subsoil. The Applicant states that subsoils have become slowly permeable as a result of prolonged arable and horticultural use, indicating that the condition is anthropogenic and not a result of natural compaction. Such compaction is not uncommon, is well understood and can extend to below 500mm. This type of compaction is correctable by subsoiling and crop rotation and so cannot be considered a permanent feature that can be used to justify the drop of ALC grade. Land drainage systems should be maintained and renewed in line with good agricultural practice to uphold soil health and the productive capacity of land **[AHDB Field drainage: the importance of soil health]**. With regard to the Applicant's record of cropping not reflecting the existence of BMV land, cropping and entry into long term environmental schemes generally reflects the choice of individual landowners which can be influenced by many factors. LCC, therefore, continues to assert that all of the SDA is of BMV quality, aligning with the results of earlier soil and ALC surveys.
18.45	Thus, the conclusions drawn and used in the assessment are significantly different from any previously published assessment of the quality of the land of the proposed development area and of the surrounding area, a difference which is not commented on or justified in the ES.		

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		conclusions do mirror other recent field data. The Applicant presented information from the reconnaissance survey in its Preliminary Environmental Impact Report but because it was at a variable sample intensity, a new survey was undertaken to inform the **ES Chapter 5: Agriculture and Soils** [REP1-014]. Hence, survey data presented is not inconsistent with other recent data.	
18.46	Section 5.8 of ES Chapter 5, Agriculture and Soils, assesses the potential impacts and likely significant effects of the Scheme. Footnote 14 to Table 5-12 and footnote 16 to Table 5-13 state that, because the restoration of Grades 1 and 2 land to be occupied with BESS stations and solar stations to its original condition cannot be guaranteed, the assessment assumes a permanent impact across this area. This differentiation is not reflected in the body of the table and the respective totals for permanent and temporary land take cannot be verified and the validity of the summary table of effects (Table 5-16) is uncertain.	**ES Chapter 5: Agriculture and Soils** [REP1-014] has been revised for Deadline 1 to reflect that areas of hardstanding, although to be restored, are assessed as a worst case scenario as if having a permanent effect. The approach has been extended to include Subgrade 3a land.	LCC has no additional comments. NE is leading on these points.
18.47	Furthermore, the separate treatment of Grades 1 and 2, and Grade 3 land, all BMV land, is not justified. It is the view of the Council that all BMV land should be treated equally and that impacts on Grade 3a land should regarded as permanent. This change would cause the assessment of effects to be changed, with a significantly greater area of land would be classified as suffering a Moderate Adverse effect. Where land has been under-graded in the assessment, and land falls into Grade 1 and 2, the effect would be Significant Major Adverse.	**ES Chapter 5: Agriculture and Soils** [REP1-014] has been revised for Deadline 1 to reflect that areas of hardstanding, although to be restored, will be assessed as if having a permanent effect. The approach has been extended to include Subgrade 3a land. The change does not introduce a new significant effect but the revision for Deadline 1 now identifies the significant effect to be major adverse.	The revision to reflect difficulties restoring Grade 1 and 2 soils to their original grades on decommissioning is welcomed. LCC has no additional comments. NE is leading on these points.
18.48.	The ES fails to identify a detailed cropping history for the Scheme area and potential agricultural output from it.	Appendix A of this document provides cropping data for the Solar Development Area. Cropping history indicates limited production of crops for the human food chain – some areas of potatoes, peas and sugar beet. Most of the land is used for the bioenergy sector or animal feed. Some areas are established with winter bird food crops under the Sustainable Farming Incentive.	LCC welcomes the provision of a cropping history for the SDA, but it is noted that there are gaps in the record, which may or may not be significant. The Council believes that the land use statistics generated using the Rural Payment Agency's spatial dataset for agricultural land use is a more accurate means of identifying historical cropping across the proposed development area. The cropping, fallowing or diversified use of land is the choice of individual landowners. The planning regime concerns itself with the potential use of land.
18.49	An assessment of cropping in the immediate area of the Scheme shows that the cropping of the area is mixed, including cereals (55.7%); cover crops (12%): peas and beans (7.6%); oilseeds (6.3%); maize (5.8%); sugar beet (4.1%); potatoes (2.5%); and others, including onions and brassicas (6%). The potential agricultural output achievable from this range and area of cropping across the proposed Scheme area (excluding impacts associated with grid and array connectors) is estimated to be between £1,431,000 and £1,904,000 annually, that is an average annual output per hectare of between £1,345 and £1,789. Over the 40-year design life of the Scheme, this equates to a loss to the local economy of	As noted above, the crops currently grown on the land and the associated economic output is not a valid assessment of impacts on the local economy. Much of the revenue raised from a crop will be spent on costs associated with production, or flow to retailers and wholesalers outside of Lincolnshire.	The economic output of agriculture in the proposed SDA is a relevant measure of the flow of monies through the local economy and therefore a means of assessment of impacts on the local and wider economies. The Applicant fails to provide any valid comparator of productivity of land across the proposed SDA, Lincolnshire, the region or nationally, that would enable the ExA to put the site into context of the Government's Land Use Framework, which aims to protect productive agricultural land **[LUF]**. See 18.27 – 18.29.

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	between £57,20,000 and £76,160,000, excluding any added value within the supply chain. This should be compared with field scale agriculture in Lincolnshire as a whole, which has a cropping mix comprising: cereals (44.7%); cover crops & fallow (18%): peas and beans (5.2%); oilseeds (5.5%); maize (6.6%); sugar beet (3.4%); potatoes (1.9%); others, including onions and brassicas (0.8%), grassland and forage (13.8%); and cover crops, fallow, hedgerow. The potential agricultural output achievable from this range and area of cropping is estimated to be between £477,663,500 and £635,735,000 annually, that is an average annual output per hectare of between £1,096 and £1,459 across the County. These values also exclude any value added within the supply chain.		
18.50	This analysis shows that the economic output per hectare attributable to agriculture on the proposed development area is about 23% greater than that averaged across the County. This significant difference in productivity and thus the role of the land in the local economy should be taken into account in the planning balance.		
18.51	In the case of this proposal, it is contended by LCC that development occupies solely BMV land and that no attempt has been made to mitigate the loss of highly productive BMV land in the County.	**ES Chapter 5: Agriculture and Soils** [REP1-014] establishes baseline conditions. The land was identified as a combination of BMV land and non-BMV land. The land will not be lost as the land use change is for the most part reversible. Measures have been taken to minimise effects on BMV land. Physical development and retention of arable land within Habitat Management Area 6 (for skylark benefit) was targeted to areas with mainly Grade 1 and Grade 2 land. Similarly, avoiding woodland blocks as part of the landscape design was in part to minimise negative impacts on BMV land.	LCC maintains that the proposed development occupies solely BMV land and that the Applicant has made no attempt to mitigate the loss of highly productive land from the County. The Applicant's plans for Soil, Water, Landscape and Ecology, Construction, Operation and Decommissioning fail to describe in detail the extent of surveys to establish the drainage infrastructure baseline and how effective drainage will be maintained throughout the lifetime of the proposed development and reverted to its baseline condition at decommissioning, including the removal of swales identified as crossing open fields. The design assumptions made to inform the development of the SDA include that "*the drainage regime of the solar PV panel areas… …remain consistent with its pre-developed state*" **[Outline Drainage Strategy]**. LCC believes that the drainage regime of the SDA will evolve with time, leading to a significant reduction in permeability throughout the soil profile.
18.52	The total area of Best and Most Versatile (BMV) agricultural land taken for the development varies according to the source used. The results of the survey carried out for the ES is inadequate to justify the conclusions drawn in the assessment, given its failure to properly grade land. LCC contends that the Scheme occupies solely BMV land and that no attempt has been made to mitigate the loss of highly productive BMV land in the County.	The Applicant has engaged subject specialists to provide a survey of baseline conditions reported in **ES Chapter 5: Agriculture and Soils** [REP1-014]. Measures have been taken to minimise effects on BMV land. Physical development and retention of arable land within Habitat Management Area 6 (for skylark benefit) was targeted to areas with mainly Grade 1 and Grade 2 land. Similarly, avoiding woodland blocks as part of the landscape design was in part to minimise negative impacts on BMV land.	Whilst measures to minimise the effects of the proposed development on BMV land are welcomed, its overall impact remains disproportionate given the magnitude of the economic effects likely to be endured as a result of its operation, which occupies a significant area of BMV land that is shown on strategic scale mapping and in the original reconnaissance soil survey.
18.53	The ES fails satisfy the requirement of the Overarching National Policy Statement for Energy (EN 1) that Applicants should seek to minimise impacts on BMV land and the Secretary of State should ensure that	The Planning Statement [APP-260] provides the planning balance for the Scheme, taking into account national policy. The Scheme is a Critical	It is accepted that schemes of this type are critical national priorities in the delivery of new low carbon energy infrastructure, the application ignores the Government's Land Use Framework, which prioritises land

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	where schemes are to be sited on BMV land the economic and other benefits of that land should be taken into account and the development justified, which this application fails to do.	National Priority project due to the urgent for new low carbon energy infrastructure. While BMV impacts are a consideration, as set out in 5.11.34 of EN-1, paragraph 2.10.21 of EN-3 states that while preference should be given to poor quality land "l*and type should not be predominating factor in determining the stability of the site*". The Site Selection Report [APP-264] and Post ISH1 Note: Strategic Site Selection (Doc Ref. 8.35) detail how BMV land has been considered as part of the site selection process. The Applicant has set out the environmental, social and economic benefits and disbenefits within the Planning Statement, and concludes that, while there would be some residual impacts, these do not outweigh the urgent need for the delivery of the Scheme.	use change in areas that are less suitable for high-value and resilient sustainable agriculture, and advocates multifunctionality to deliver a range of benefits across a range of outcomes, including the integration of photovoltaics with arable agriculture with photovoltaics in agrivoltaic schemes.
18.54	The ES fails to address any cumulative effects relating to the use of land and its productivity, specifically in terms of its contribution to the local and regional economies. LCC calculates that the annual productivity of the land is between £1,345/ ha and £1,789/ ha, for the solar PV areas, that is £1,431,000 and £1,904,000 annually or a loss to the local economy over the 40 year life of the development of between £57,200,000 and £76,160,000.	The figures cited are estimates of gross agricultural output. They do not represent the net economic effect of the Scheme on the local or regional economy, because they do not account for the costs of production, leakage outside the local area, retained agricultural land or the rental income received by landowners. Cumulative effects on agricultural land are assessed in **ES Chapter 5: Agriculture and Soils** [REP1-014], which considered above ground infrastructure across a potential 11,238 ha, within which the permanent loss of BMV land was 65 ha and of non-BMV land was 58 ha. This is indicative that the solar schemes represent a small proportion of agricultural and BMV land in the County. Cumulative effects on employment and GVA are assessed in **ES Chapter 14: Socio-Economics and Land Use** [APP-065] and are not significant. Adding together gross output figures across schemes would repeat the limitations described above, in response to 18.27-18.29, and would not give a reliable or proportionate measure of cumulative economic effect.	The use of gross agricultural output is reflective of the value of goods and services flowing through the local economy. The productivity of solar schemes cannot be judged on a common basis, where output from the schemes provides value outside the local area and immediate benefits can only be expressed in terms of employment and associated spending. The agricultural and food economy in Lincolnshire produces, processes and transports roughly 11% to 12% of England's total agricultural output despite representing only about 5.5% of its agricultural area and 1.4% of its population.
18.55	The area of land under, allocated to and being considered for ground-mounted solar PV in Lincolnshire, including this proposal, accounts for 1.3% of the County's farmland, that is approaching the 1.8% proportion of utilised agricultural area land suggested in the LUF as necessary for solar and wind energy in the UK. There is no defined threshold upon which a conclusion regarding the acceptability of the loss of BMV land can be made if the cumulative loss of agricultural land is proceeding without consideration of when a tipping point into unacceptability is reached.	The UK Government Food Security Report, 2024, identifies that the UK is broadly maintaining its level of total utilised agricultural area. The UK government expects there to be increases in land use change, including to economic infrastructure, specifying the energy sector as an example. The report indicates that food production levels could be maintained or moderately increased alongside this land use change. Climate change is recognised as the greatest medium to long term risk to the UK's domestic food production, and solar farms contribute to addressing this risk. The Applicant notes the importance of Lincolnshire as an agricultural county but contends that neither the Scheme nor cumulative solar developments change the agricultural character of the county.	See 18.53 and 18.54
18.56	It is proposed that this point is being approached, where the County of Lincolnshire, which contributes more agricultural output than any other county, is nearing the committed proportion of solar development identified as the average national requirement.		
18.57	At such a critical time in the delivery of solar energy, it is imperative that proposals should be fully justified in terms of guidance set out by Authority. In this case, the Applicant has made no attempt to recognise the contribution of BMV land to productivity, and has failed	The Applicant has provided a response in the Site Selection and Alternatives table regarding the consideration of BMV land as part of site selection.	LCC maintains that the Applicant has made no attempt to recognise the contribution of BMV land to productivity and thus has failed to justify any exception to the Government's guidance on the use of BMV land for solar PV.

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	to justify any exception to the Government's guidance on the use of BMV land for solar PV.		
18.58	The ES fails to take into account the nature and extent of the affected holdings and the impacts each business will experience, including the cropping and rotational areas that will be lost.	The assessment in **ES Chapter 14: Socio-Economics and Land Use** [APP-065] is receptor-based. It identifies the landowners and tenants affected in each part of the Scheme, identifying that there are five landowners and no tenant farmers in the Solar Development Areas, 42 landowners and three tenants along the Grid Connection Route, and 14 landowners and two tenants along the Inter-Array Connections. It assesses the sensitivity of the agricultural land holdings and the potential for the Scheme to compromise their viability, using the criteria in the chapter. The baseline records that the Site is predominantly agricultural land, mainly arable with some grazing. The Applicant considers this sufficient to reach a reasoned conclusion on likely significant effects. A more detailed baseline of cropping and rotations for each holding would not alter the conclusions of the assessment, because they rest on landowner income, the continued viability of the holdings and the absence of a material loss of agricultural employment.	
18.59	Further, the removal of the land from production is likely to have impacts extending to businesses in the food chain and farming support sector beyond the farm boundary. The ES fails to take any impact on employment caused by the withdrawal of the land from production or the knock on impacts any losses may have on local services such as shops, schools and tradesmen.	**ES Chapter 14: Socio-Economics and Land Use** [APP-065] considers the effects of the Scheme on agricultural employment and, on a net basis, on employment and GVA in the wider study area. As set out in paragraph 14.4.11, the assessment estimates direct jobs associated with on-site activities and then applies a multiplier to reflect the number of indirect jobs associated with the supply chain and local services, following best practice guidance. The landowners in the Solar Development Areas farm the land themselves and will continue to generate income from it, and any contractors involved are not wholly reliant on the land. No material loss of agricultural employment is therefore anticipated. A more detailed assessment of indirect effects on businesses in the food chain and the farming support sector would require further research and consultation, which would not be proportionate. On this basis, it is considered reasonable to conclude that the Scheme would not have a significant effect on the wider agricultural supply chain, or on local services such as shops, schools and tradesmen.	See 18.27 – 18.29 & 18.34
18.60	The well-developed interrelationships between land and communities in Lincolnshire is complex and extensive. The impact of the removal of land from production on these receptors is not assessed and this failure makes it impossible for the Secretary of State to take into account the economic and other benefits of that land, as required by the Overarching National Policy Statement for Energy (EN-1).	**ES Chapter 14: Socio-Economics and Land Use** [APP-065] assesses the socio-economic effects of the Scheme on employment, the local economy and the affected agricultural holdings, in accordance with Section 5.13 of EN-1. The Applicant has considered the relationship between the land and the local economy through this assessment, and concludes that the effects of the Scheme are not significant. **ES Chapter 5: Agriculture and Soils** [REP1-014] and **ES Chapter 14: Socio-Economics and Land Use** [APP- 065] provide the Secretary of State with the information needed to take into account the economic and other benefits of the land under paragraph 5.11.34 of EN-1. The Applicant considers that further assessment of the proposed change of land use would not alter these conclusions and would not be proportionate.	