Submission by Mallard Pass Action Group (MPAG)

– unique ID ref. 20036230

Deadline 9:

Comments on the Applicant's Responses (REP8-019) at D8 to D7 submissions of Interested Parties

Contents

1.0 Mental and physical health concerns

Linda Davis [REP7-066]	Environmental Impacts	Challenge to the Applicant's position regarding the different determinants of health and extent of adverse impacts on health and wellbeing.	The Applicant provided details on this matter in its response to SWQ10.0.8 **[REP5-012]**, in the Applicant's Responses to Interested Parties' Deadline 2 Submissions – Socio-economic Effects' **[REP3-033]**, and most recently in the Applicant's Comments on any submission received at Deadline 5 **[REP6-004]**, specifically its response to MPAG's note on the implications of the Proposed Development on health and wellbeing. The Applicant has assessed the impact of the Proposed Development on environmental factors relevant to wellbeing and mental health throughout the Environmental Statement. The Applicant understands that some individuals may face adverse mental health impacts, but notes that feelings of uncertainty and frustration at the Examination process will be alleviated to some extent by the Secretary of State's decision in due course. Guidance on Health Impact Assessments in the planning process, such as the widely recognised Institute of Environmental Management and Assessment (2022) Guide to Determining Significance for Human Health in Environmental Impact Assessment, identifies that in EIA, health impacts should be considered against a framework that identifies the significance of a health effect at a population health level. As previously highlighted in the Applicant's other responses on this matter, the Applicant considers that given the extent of the changes in environmental conditions, any impact on mental health would not be significant at that level. The Applicant recognises the strength of feeling of those involved in the Examination and throughout project development has sought to mitigate its impacts to the local area and be a good neighbour as set out in its scheme vision set out in the DAS [REP5 - 058]. The Applicant considers that its design and mitigation measures have achieved this.

MPAG believe the mental and physical health impacts should be assessed at **local level**. The Applicant talks about it at a population health level but they seem to be referring to environmental health impacts as if there were some kind of pollution spillage or disease. Just because the impacts may be experienced at local level does not mean they are insignificant or unimportant.

It is not for the Applicant to determine or surmise that the mental health impacts are down to 'feelings of uncertainty and frustration at the Examination process" which will be "alleviated to some extent by the Secretary of State's decision in due course". If the DCO is consented the mental and health impacts will only worsen for the many reasons outlined in our submission at deadline 5. (REP5-030)

MPAG remain unconvinced "the Applicant recognises the strength of feeling of those involved in the Examination" or even acknowledge the importance of community buy-in to a national infrastructure project with no direct local benefits. The scale of opposition and feeling to the proposed development is huge in comparison to the size of the rural community, not just from individuals in the community, but from representatives of the community at parish and district/county council level as outlined below.

- Stage 1 consultation. 978 responses, 72% against (filtered results from the Applicant)
- Stage 2 consultation. 1097 responses. 74% against (filtered results from the Applicant)
- 1,206 registered as an Interested Party and made a Relevant Representation. 95.7% (1,154) of the Relevant Representations were against the proposed Development.

- 15 Parish Councils in the local area registered their opposition to the Proposed Development through their Relevant Representation.
- Unanimous vote from both SKDC and RCC planning committees to support the Planning Officers' Local Impact Report findings and their overall conclusion **not** in support of the Proposed Development.

Each individual or organisation has their own reasons for opposing this scheme, but the one thing they all have in common is the impact it has had and could continue to have on their well-being, whether that translates into mental or physical health issues, or a combination of both. People that care and are passionate about their local environment, agriculture and community are affected to a greater or lesser degree and the totality of those effects and impacts need to be taken into account when considering this application.

2.0 Surface water flooding

Greatford Parish Council [REP7-048]	Outline Surface Water Strategy	Specifically, I will concentrate on Mallard Pass (MP) outline surface water strategy (OSWS) as amended REP 5 053 Section 3, pages 13 -21. MP estimates that surface-mounted PV arrays extending to 4630000m2 in a 6-hour storm will increase surface water runoff by 14147 litres per second or a 256% increase from the current baseline i.e. current circumstances. Extrapolating this out, an additional 305 million litres of surface water would be discharged into the West Glen	As outlined in the Applicant's Response to Deadline 4 Submissions, the calculations presented in Table 7 of Section 3.1 of Appendix 11.6: Outline Surface Water Drainage Strategy (oSWDS) **[APP-087]** assumes that the PV arrays are placed on the ground over the full PV array area of 4,630,000 m^2 *i.e.*, assuming an overly conservative approach, which would reduce the potential for infiltration, hence theoretically increasing run-off by 256 %.
		River in a short period of time, inevitably increasing river levels & the risk of flooding in Greatford. But no, according to MP this can be reduced to a 0% increase by 4 measures; - As shown in plate 7 MP intends to leave gaps between the frame-mounted panels rather than a single drip line at the lowest end. Their reasoning seems to rely upon a report by Cooke & McEwan which in summary, states ' solar panels do not have a significant effect on run off volumes or peak flows however where ground beneath panels is bare there may be an increase. MP, however make no reference to the conclusion in this report which states that in certain circumstances, the peak discharge could be in excess of 100%, which of course, would be a major problem! - MP are relying upon clay soils across the site not being compacted during the construction period & that grass can be established both under & between panels. This is referenced in Natural England's technical information note 101 which says ' the key to avoiding increased runoff & soil into water courses is to maintain soil permeability & vegetative cover. Permeable land surfaces underneath & between panels should be able to absorb rainfall as long as they are not compacted & there is vegetation to bind the soil surface.	It should be noted that the Applicant has updated Appendix 5.1 (submitted at Deadline 5) to include a parameter that limits the surface area of panels to 1,647,300 m^2. Based on the confirmed PV area, the theoretical surface water increase (assuming PVs on the ground rather than on a racking system) would be a 90 %. Therefore, the calculations presented in Table 7 of Section 3.1 of Appendix 11.6 are an extremely conservative scenario. The raised nature of PV Arrays will not prevent soil from absorbing rainwater as the panels will not be placed directly on the ground and each PV Row will be separated, with the same area of soil available for infiltration as per the baseline scenario. Therefore, the calculated increase does not represent the impact of the PV Arrays on surface water runoff. The Applicant has explained how the Proposed Development is likely to lead to reduced surface water run-off rates compared to the baseline agricultural scenario in its answer to Q12.0.6 a) in the Applicant's Responses to ExA's First Written Questions **[REP2-037]**, principally through the implementation of advanced sowing of grass, where appropriate, in addition to planting and vegetation. This approach has been utilised on other solar developments of similar scale and the methodology has been reviewed by the relevant regulatory bodies. The conclusion of the Cook & McCuen study states that *"when gravel or pavement was placed under the panels, with the spacer section left as patchy grass or bare ground, the volume of the runoff increased*

		- MP suggest that the panels will be located on flat topography. This is not true for the whole site where there are significant slopes down into the West Glen river therefore inevitably increasing surface water runoff. - MP propose a 6m buffer zone from all watercourses which they allege will absorb surface water run off & slow this down before entering the watercourse. How established will this be? - MP have suggested that additional attenuation could be considered as referred to in the OSMP, by the introduction of swales & scrapes to collect water runoff. No detail of what is proposed has been provided. This risk was clearly identified by Rutland County Council REP2 048 ' it is considered that the proposals would have a negative impact on surface water drainage across the whole site & the development could pose a flood risk' I have no doubt this is correct. MPs solicitor stated that the Environment Agency had not raised any issues with flood risk. As I pointed the Environment Agency do not deal with surface water runoff issues which is the LLFAs responsibility.	*significantly and the peak discharge increased by approximately 100%. This was also the result when the **entire cell** was assumed to be bare ground." i.e.*, the entirety of the Order limits would have to be bare earth for this scenario to occur. This is a wholly unrealistic scenario and the commitment in the oSMP **[REP5-069]** will ensure that grass cover is achieved as far as reasonably practicable. Measures in the Outline Water Management Plan (oWMP) **[APP-214]** will ensure that if isolated areas of bare earth are present then target measures such as swales and cut-off ditches will be placed in these areas. Regarding compaction, the effects of construction activities including plant and machinery on the underlying clay soils will be managed through the oSMP **[REP5-069]**, which includes measures to identify when the soils are suitable for construction activities to take place. The location of construction sites on clay soil is not considered to be rare or unique, and any effects will be managed through delivery of the oSMP **[REP5-069]**. The commitment in the oSMP will ensure that grass cover is achieved as far as reasonably practicable. The suggestion in the oSWDS **[APP-087]** that grassland establishment with a suitable grass mix under the PV array tables is consistent with the approach in the oSMP **[REP5-069]** and will prevent rilling and soil erosion. Section 3.1 of the oSWDS **[APP-087]** states that localised topography within each parcel of the Proposed Development generally comprises gentle gradients and hence increased runoff would be unlikely to lead to fast moving surface water and
			consequent erosion except on the small areas of steeper slopes immediately adjacent to parts of the West Glen River. The Applicant has provided a response to topography within the Order limits in its comments on any submission received at Deadline 5 **[REP6-004]**, which states that 90% of the PV array area is located on land with slopes of 2% or less and only 2.5% of the PV array area is located on slopes of greater than 6%. The Applicant has explained how the Proposed Development is likely to lead to reduced surface water run-off rates compared to the baseline agricultural scenario in its answer to Q12.0.6 a) in the Applicant's Responses to ExA's First Written Questions **[REP2-037]**. Regarding buffer strip establishment, this will be undertaken at the same time as the grassland establishment. Regarding the 2D surface water model, as outlined in the oral submissions on behalf of the Applicant at ISH4 (and Summary of the Applicant's Oral Submissions at ISH4 **[REP7-036]**), the 6.6 ha modelled area is representative of the wider Order limits due to the topography being broadly similar to the study area. The basic principle of surface water modelling is that increasing surface roughness (e.g. by changing a surface from arable to grassland) in turn increases friction, which will slow surface water passing over it regardless of slope. As outlined in the oWMP **[APP-214]**, other drainage measures could be implemented and measures would be proportionate to the risk i.e., where greater risk is highlighted at specific locations,

			specific measures would be agreed with the relevant stakeholders for those locations prior to construction. Table 1-1 Summary of Mitigation Measures of the oWMP **[APP-214]** specifically refers to drainage features (cut-off ditches, swales and retention ponds) to be employed for the construction phase for the dual function of reducing run-off rates and sediment control. These features need to be designed and located by the appointed construction contractor and these are to be secured through the Outline Water Management Plan **[APP-214]** and outline Construction Environmental Management Plan **[APP-207]**. It should be noted that Rutland County Council have recently updated the draft Statement of Common Ground to reflect their acceptance of the measures in the oWMP **[APP-214]** and their ability to approve the detailed design of SuDS features in the WMP prior to the construction phase.

Despite the numerous outline management plans to control, mitigate and manage the effects of construction, operation and decommissioning of the Proposed Development, there are still fundamental issues unresolved as far as MPAG is concerned.

1. The lack of a total commitment from the Applicant to establish a grass sward well in advance of construction which would mitigate the effects of soil disturbance, soil mixing and compaction. The Applicant is only prepared to say *"The commitment in the oSMP will ensure that grass cover is achieved **as far as reasonably practicable**."* They do not explain why.

The recent addition of the GEMP in the oLEMP Rev 5 (REP7-021, REP7-022) only offers up a best case scenario of sowing the seed 6 months in advance of construction. Rather worryingly the GEMP only appeared at deadline 7, seemingly an afterthought and not even given its own separate status as a plan as it is in Appendix 3 of the oLEMP.

2. The lack of acknowledgement that rain hitting the solid surface of 530,000 panels will not only hit the ground at greater speed but will not be distributed evenly across the grassland, leading to faster surface water run-off and not being dispersed evenly across the grassland.

A recent report[1] from ADAS for the Welsh government, "The impact of PV sites on agricultural soils and land quality", draws attention to many issues with respect to the effects of compaction, soil mixing and soil disturbance. Extracts from the report and MPAG's comments are made in a separate Appendices document under **Appendix 2**; the full report is supplied in **Appendix 3.**

[1] ADAS: The Impact of solar photovoltaic (PV) sites on agricultural soils and land, work package 3, March 2023.

3.0 Substation site selection

John Hughes	Landscape and visual - Residential Visual Amenity Assessment	Landscape and Visual impacts on 'The Bungalows' and 'Glen Crescent' and what mitigating measures the applicant has taken with regards to residents west of the ECML.	The Applicant's Residential Visual Amenity Assessment (RVAA) [APP-057] where Glen Crescent is recognised as a specific receptor group. The RVAA recognises the potential impacts and comments on how the design evolution has sought to address potential impacts by removing panels from Field 26. The RVAA also points to the planting along the boundaries of Fields 18 and 19 and concludes that the magnitude of change would be negligible with a slight adverse impact. The Applicant has further responded to concerns relating to visual amenity from Glen Crescent in the Applicant's Response to Interested Parties' Deadline 2 Submissions – Landscape and Visual [REP3-032]. Specific point around the ECML, the solar PV area in fields 27 and 29 was moved to provide a greater set back from Essendine, further respecting public amenity of the residents of Essendine and mitigating visual impacts of users travelling along the A6121. The combination of the dis-used railway line, topography and existing underground utilities offer structuring elements within in the landscape, with the proposed solar PV area being designed to sit to the east of Essendine to reduce the potential impacts in accordance with the design principles set out within the Design and Access Statement (DAS) [REP5-058]. The Applicant's response to potential impacts has sought to work on a bespoke basis, noting that an appropriate measure for one area of the Site may not result in the same outcome somewhere else so it is not necessarily a matter the solar PVs
			being a certain distance or using a certain feature to the achieve the same effect. In the case of Glen Crescent, the Applicant has identified measures it feels are appropriate in the context of the landscape and assessed impact and these must be balanced against a range of other factors including the urgent need for renewable energy generation.

There has still been no explanation during the site selection process what the alternative locations were that were investigated for the new substation. It would seem no attempt has been made to locate the new substation away from residential view, the opposite is the case for the existing 400KV Ryhall substation which is screened behind Freewards woodland. The topography of field 19 sloping downhill to field 18 is such that it will be impossible to screen the Proposed Development effectively from view to both the residents and passing traffic. Essendine is still a village despite the A6121 and railway line running through it, but the addition of the substation will destroy the rural character of the village and landscape surrounding. Also it should be noted that the location of the substation can also be seen from many vantage points around the Order Limits (easily discernible right now due to the presence of the hard core mound at the top of field 19) which was pointed out during the accompanied site inspection from a number of locations.

One of the key aspects of site selection is ascertaining the ALC grade of land to be permanently lost as a result of the Proposed Development being consented. However, this was not the case for the substation as only a semi-detailed survey of the area was ever conducted as clearly outlined in the Auger Points Plan in Appendix 12.4 Land Use & Soils- ALC survey (APP-091) and highlighted by MPAG in their Landscope report (REP7-060). It is now clear from the latest changes made to the oSMP vs6 (REP8a-005), that a retrospective requirement has been put in place to conduct a detailed ALC grading of that area.

Extract from the oSMP:

10 SUBSTATION

Advice

10.1 Advice on assessing soil suitability is set out in the IQ notes in Table 4.2 at **Appendix B.**

10.2 Advice on moving and handling soils is set out below and in the Defra Code of Practice extracts at **Appendix D.**

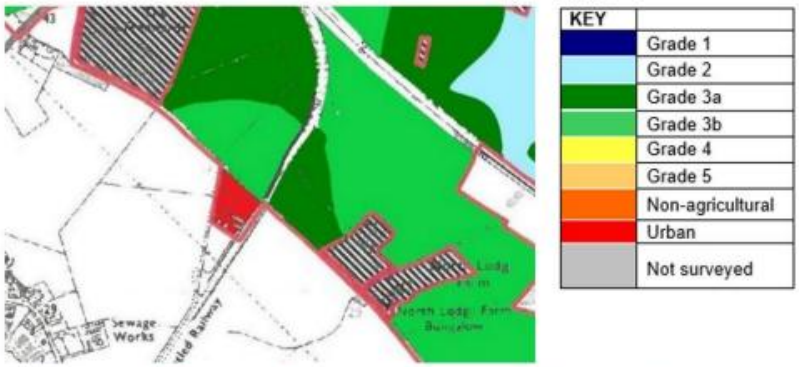
~~10.2~~10.3 Prior to soil stripping, additional soil survey of this area is required, to establish the detailed ALC grade and distribution of soil types. This information is required to ensure that soil moved in a particular soil type and ALC grade is stored in an area of the same soil type and grade (i.e. all Subgrade 3a soils are stored in Subgrade 3a land, and all Subgrade 3b soils are stored in Subgrade 3b land). This may require a sampling density more frequent than one per hectare, with the final density to be based on ensuring that it covers the location of the substation and the areas for soil bunds.

Additionally the oSMP has acknowledged that the original downgrading of the area to 3b was not a reliable assessment and until the detailed survey is conducted for the substation area, no ALC grade can be claimed at this stage. The stage 1 auger sampling showed a large area of 3a right in the location that the substation is planned for in field 19.

ALC Grade

~~10.6~~10.7 The ALC grade of the Site is shown on the plan below, extracted from the ALC Plan.

Insert 40: Extract from the ALC



~~10.7~~10.8 The area for the substation will be subject to detailed survey pre-construction. ~~The area for the substation is therefore all Subgrade 3b~~.

4.0 Replacement and recycling

CPRE [REP7-049]	Sustainability	CPRE are very concerned about the long-term sustainability of silicon solar panels. These are made, like silicon chips, in high energy processes using particular types of silica sand which, according to the Institute of Materials, Metals and Mining of which I am a member, is in increasingly short supply. There is serious doubt that the solar panels will continue to operate effectively and efficiently over the now proposed lifetime of the site and it is likely they will need to be replaced during that time. For the reason given above replacement material may not be available. Furthermore, speaking as a person with a degree and a doctorate in materials science from the University of Sheffield which included considerable study of metallurgy, I believe that	The oOEMP [REP7-017] sets out the activities that will occur during the operational phase which will be restricted principally to vegetation management, equipment maintenance and servicing, replacement and renew of any components that fail, and monitoring. It is anticipated that maintenance and servicing would include the inspection, removal, reconstruction, refurbishment or replacement of broken or faulty (including as a result of reaching end of life) equipment. The oOEMP was amended at Deadline 7 to clarify that the replacement of equipment included any equipment that had reached its end of life. The Applicant has provided further clarity regarding the conservative embedded carbon assumptions within their 'Statement on 60 Year Time Limit' [REP7-038].
		over the proposed lifetime of the site it is probable that the metal frames and stands on which the panels will be mounted will suffer serious corrosion, probably leading to structural collapse and a further need for replacement with all the additional carbon emissions that this will entail. This requires full independent investigation. As far as we are aware there is no established process or industry for dealing with disposal and/or recycling of waste solar panels. Although it is possible that such a new industry may emerge. Currently, it is just an aspiration that by the time these sites cease to operate, an industry recycling solar panels might exist.	As noted at the Hearing (Agenda Item 3c) [REP4-022] the Applicant explained that the ExA and Interested Parties could be confident of the project having value at the end of its operational life in terms of the recycling and/or repurposing of the assets. It may well be that the project ceases to be commercially viable after a period, based on the UK renewable energy market, but its assets would continue to be commercially viable in a different jurisdiction, for example, a developing country. On that basis, the project could be decommissioned and sold to an investor/operator in the alternative jurisdiction. Indeed, this is a practice already underway worldwide, albeit it is a developing marketplace because few solar projects have come to the end of their operational life. It was also noted that the there is a growing market across the world for recycled panels to repurpose them. Therefore, in other parts of the world the panels would not necessarily only have a scrap value as although they may be deemed no longer cost effective for this site in the UK market, the panels are likely to have a value in different jurisdictions.

CPRE raise a very valid point about replacement of the frame infrastructure and especially the pile element. There is no detail provided in any of the outline management plans for this. It should have been considered in both the oOEMP and the oDEMP with removal and reinsertion of the piles subject to certain controls.

ADAS's report for the Welsh government, 'The impact of solar photovoltaic (PV) sites on agricultural soils and land quality March 2023', explores the effects of removal and insertion of piles
There are 2 factors to consider:

- The disturbance to the soil, both in the context of damage to archaeological buried remains and soil mixing/compaction which could result in ALC downgrading.
- As the piles corrode there needs to be consideration for the effects of contamination from the oxidised metals. "*The piles are usually made from galvanised aluminium or steel coated in zinc oxide. Most standard steel products corrode, particularly in the upper part of the pile and this may adversely affect the ability to extract the piles after 40 years. (Non-corrosive materials could be used but have cost implications). The true impact of the steel corroding and levels of zinc displaced into the soil is not fully understood. However some research on agricultural land has shown that zinc in soils diminishes biological activity (Moffett et al, 2003).*"

5.0 BESS

In response to the Applicant's comments MPAG would like to make further observations and comments on the Applicant's response to REP7-055 Battery Energy Storage System. (The Applicant's response at deadline 8 is given in blue italics).

Blue italic text denotes extracts from the Applicant's D8 response, **black text** denotes our counter response.

5.1 *"The Applicant does not agree that the absence of a BESS makes the Proposed Development 'suboptimal'. Indeed the Proposed Development will, if consented, make the best use possible of the available grid connection capacity at Ryhall and therefore is an optimal solution in this location."*

The Proposed Development, if approved, may make the best use of the available Grid connection. However, that connection is not fully fit for purpose in that it does not allow the co-location of a BESS. The Proposed Development would be sub-optimal when compared to most other NSIP solar farm developments.

5.2 *"MPAG states that "without a co-located BESS the value of the Proposed Development would be significantly reduced" but has not provided evidence to support their view, define the 'value' which has reduced, or quantify the supposed extent of assumed "reduced" value."*

The extent of the likely impact of not having a BESS can best be demonstrated by referring to the proposed Gate Burton development which, like the Proposed Development, would have a capacity of 350MWp. This is relevant as Pinsent Masons and Mr Gillett representing the Applicant are also advisors for the Gate Burton NSIP, and would therefore accept the claimed level of increased output and carbon reduction associated with a BESS.

5.3 *"The substantial benefits of a co-located scheme over a standalone scheme, do not render the contribution of a standalone scheme to be sub-optimal in this location, because the co-located scheme is not deliverable at this location."*

This paragraph appears to claim that the Proposed Development will not be "sub-optimal" as it would optimise the connection with the sub-station. The point made by MPAG is that, given the capability of the sub-station the Proposed Development will be sub-optimal when compared with other NSIP solar farms who may offer a more compelling case especially when weighted against the many adverse impacts of this scheme.

"Para 11.5.3 of the Cottam Statement of Need states that: "Standalone solar schemes provide essential low carbon electricity to the grid and not including storage capability at the site does not detract from their core contribution to decarbonising the electricity network:

- *Not all grid connections have both import and export capability, and the import capability may not be cost effective to provide, however export capability, where it is available, should be used to connect renewable generation to the NETS; and*

- *Although storage facilities, if collocated with renewable generation schemes add utility to the operation of solar generation schemes, services which support the efficient flow of renewable power onto the UK electricity system can and also are expected to be located and operated separately to renewable generation assets."*

The Applicant has omitted the first part of paragraph 11.5.3 which says *"Co-location of solar and storage assets provides efficiencies in relation to land use and the maximum use of available grid connection capability (if available) because on-site infrastructure can be shared between the two technologies."*

The omission is important as it puts into context the remainder of the paragraph as given by the Applicant. That paragraph also echoes the points made consistently by MPAG regarding land use and maximum use of the grid capacity. MPAG is not aware of any other NSIP projects not having both import and export capability. MPAG agrees with the last sentence, that stand-alone BESSs will be required for storage and providing grid services. However, it is not the case that stand-alone PV sites will be required.

In referring to the Statements of Need produced for other developments it is important to remember that many, including Cottam and Sunnica, were written by Mr Gillett. Thus when referencing this particular document, Mr Gillett is referencing himself!

5.4 *"Prior to the selected text from Sunnica Statement of Need para 10.4.13, the author* (Mr Gillett) *had written: "Colocation of energy storage within solar generation schemes is not essential for either asset to make a significant contribution to the future operation of the NETS"*

The Applicant has made another omission. The entire paragraph has not been reproduced. The Sunnica Climate Change para 10.4.13 document actually reads:

"Whilst the electricity storage element of the Scheme is not an NSIP in itself the Applicant considers it is associated development. There is a clear, direct relationship between the solar generation station and the electricity storage which means that there are substantial benefits to their colocation which will result in an improved contribution to low carbon UK electricity supplies when compared to either coming forward independent of the other. Colocation of energy storage within solar generation schemes is not essential for either asset to make a significant contribution to the future operation of the NETS, however ***Table 10-1*** *demonstrates that the colocation of those assets enables additional operational capabilities to be accessed for system benefit, supporting the view of the Applicant that electricity storage is associated development as per the Guidance on associated development applications for major infrastructure projects. Colocation is especially beneficial for NGESO where connections are to the transmission, rather than to the distribution network, because the combined asset is required to meet certain planning, notification and service obligations (see* ***Section 7.5****)."*

In quoting only the middle section of the paragraph the Applicant has taken it out of context. When put back into context an entirely different meaning emerges.

5.5 *"If for some reason National Grid needed to curtail power generation nationally, storage facilities connected to the NETS elsewhere (i.e. not associated with the scheme) may be asked to import more power meaning that the scheme may not be curtailed. MPAG continue to misunderstand the relationship between over-planting and storage."*

As more solar power becomes on-line the potential need for curtailment will grow. Solar produces maximum amounts of power when the need for that power it is at its lowest. Under such circumstances there will be a need for even greater levels of storage to avoid curtailment.

MPAG is very clear in its understanding of the relationship between over-planting and storage. As the Applicant states in the Statement of Need 7.7.2 *"Over-planting implies that on occasion when irradiation is high and panels have not yet degraded, sites may be forced to self-curtail: they may be unable to export all of the power they generate at certain times."*

This is correct if, as with the Proposed Development, those sites do not have a BESS. A development with a co-located BESS would not have to self-curtail as described, because that power would be saved for release at a later time. Thus power which would otherwise be wasted, will be used.

Inclusion of a BESS allows a development to be designed with a high level of over-planting, much higher than the capacity of the Grid connection. Excess power generated during periods of high irradiation can be saved, thereby increasing the ability of such developments to maximise the overall amount of power generated. This is not possible unless the BESS is co-located.

In paragraph 7.7.3 the Applicant says *"However schemes which are over-planted will instead generate more low-carbon power at times of lower irradiation (compared to a site which is not over-planted) and at those times output will not be limited by the grid connection capacity."*Again this is correct but with the proviso that a suitably specified co-located BESS could perform the same function using less land and in a more effective and controllable fashion. Even a heavily over-planted solar scheme cannot deliver power to the Grid in hours of darkness. A BESS can!

5.6 *"It is a step too far to conflate a national need to a blanket expectation or requirement for all RES developments to be developed with co-located BESS or not at all."*

MPAG acknowledge that a co-located BESS is not a requirement. However, as is demonstrated by reference to other solar developments, the inclusion of a co-located BESS is seen as being important.

Gate Burton Climate Change documents paragraph 6.6.34 states *"It is noted that the contribution of most individual projects to national-level budgets will be small and so the UK context will have limited value. This GHG emissions assessment therefore uses the IEMA guidance to assess the significance of effects (Table 6-10), with the sectoral and UK carbon budgets being used to provide context to the GHG emissions (Table 6-11)"*

This is a refreshingly open point which draws attention to the relatively limited impact of individual solar projects. Therefore those, such as the Proposed Development, which are sub-optimal should not be approved as the impact of those developments not going forward is limited.

5.7 *"The Gate Burton Energy Park delivers a significant climate change benefit, which MPAG do not seem to disagree with. This acutely demonstrates that the main solar component of the Gate Burton Energy Park development delivers a significant carbon benefit without considering any BESS benefit, and therefore supports the significant benefit the proposed Development, as a standalone solar scheme, delivers in support of Government's aim to achieve its decarbonisation, energy security and affordability targets."*

The Gate Burton Climate Change document provides data to demonstrate the contribution that a BESS can make to a solar scheme. In paragraph 6.10.31 the figure given for the lifetime contribution to carbon reduction of the PV site is over 9 million tonnes CO2e.Figures are then given for "Additional carbon savings from the use of the BESS"

Paragraph 6.10.35 reads *"Should the BESS be charged from the Scheme, and discharged back into the grid once each day, ……..The overall carbon reduction when the BESS is used for a daily charge-discharge cycle as described here is around 10.3 million tonnes CO2e, or over 1.1 million tonnes CO2e higher than if the entire output of the Scheme is supplied to the grid without the use of a BESS."*

Paragraph 6.10.35 reads *"The BESS can also be used for additional grid balancing purposes independent of the solar PV element of the Scheme, charging the battery from the grid overnight during periods of low demand and feeding it back when demand increases in the morning. ……Should the BESS be used for an additional overnight charge-discharge cycle as described here, it would result in savings of over 3.3 million tonnes CO2e over its operational lifetime, over and above the savings from use of the battery when charged directly from the solar farm."*

The numbers above given by Gate Burton cannot be directly compared with the Proposed Development as some assumptions are not common to both. However, the order of magnitude between the figures given by Gate Burton is indicative of the relative value of a co-located BESS development when compared to one not having a BESS.

The above is yet more proof of the major part a BESS plays within a solar development. It is the reason why all NSIP proposal to date, with the exception of the Proposed Development, include a BESS. However it is also important to state that any BESS must be appropriately located and that precludes siting a BESS anywhere in proximity to rural locations given the highly dangerous nature of the lithium-ion batteries.

5.8 *"All schemes cited by MPAG are different layouts on different land in different locations and with different grid connection capabilities and agreements. It should therefore not be surprising that each have different Needs cases, although the theme of delivering significant low-carbon generation capacity to the grid runs common in each. The Proposed Development will, if consented, play an important role in supporting Government to reach its legally binding target of Net Zero 2050 as well as improve UK energy security and increase the affordability of electricity in the UK.*

Noting MPAG's point in para 5.6 (ref Mr Gillett's point in para 6.6.34 Gate Burton) that the contribution is small. The theme that is common to each of the other developments is that a BESS is included within each design which changes the nature of the contribution they can make.

5.9 *"Sub-optimal is a relative and un-evidenced term. The Proposed Development will, if consented, play an important role in supporting Government to reach its legally binding target of Net Zero 2050 as well as improve UK energy security and increase the affordability of electricity in the UK."*

MPAG agrees that sub-optimal is a relative term and uses it when comparing the Proposed Development with all other similar ones. In this regard MPAG has provided considerable evidence and support much of it coming from documents contributed to by those both acting for the Applicant and other NSIP solar developments.

The Applicant's says *"The Proposed Development will, if consented, make the best use possible of the available grid connection capacity at Ryhall and therefore is an optimal solution in this location."* **Making the best use of a connection not fully fit for purpose does not mean that it should be used.**

6.0 ALC and BMV

MPAG [REP7-060]	Agricultural Land Classification	MPAG introduce and discuss the results of an ALC Survey that they have commissioned.	The Applicant has responded to this in a separate section of this response below, Appendix A - Applicants Response to Critique of ALC by Landscope on behalf of MPAG.

There is a review in **Appendix 1** from Landscope of the comments the Applicant has made at deadline 8 (REP8-019) to their report. To reaffirm, the point of the Landscope report was to understand, using an independent expert, whether the ALC testing conducted at stage 1 and stage 2 was robust in the context of the methodology and results, and where possible to access the Order Limits to verify any further information required. There was never the expectation that Landscope would conclude that the majority of the site was BMV, however any further increase from the stated 41% in the ES is significant given the importance of protecting BMV land as outlined in all national and local policy documents.

Natural England

In response to comments from Natural England:

MPAG is concerned that NE seem to have missed a number of key issues in their evaluation of the Applicants ES work on Land & Soils, however are somewhat comforted to see they are final acknowledging some key points now a light has been shone on them.

1. That the substation was not the subject of a detailed survey and should have been. The Applicant plans to correct this as noted in the latest oSMP, but because this land will be permanently lost this information should have been checked and identified earlier in the process. (The Applicant has now removed their assumption that the land is 3b until it is subject to a detailed survey).

2. That if there is more data available than from just 2 soil pits and more trench information available, that that information should have been shared to help verify the auger sample ALC gradings. (To note MPAG has no issue with the use of trenches, but there are only 3 trenches geographically identified all in field 36 and with no data. Looking at the survey timings, the majority of the trench work did not coincide with the auger sampling, probably the reason there is no supporting data – but not a justification for KCC not returning at a later date to follow up).

3. NE is seeking clarification on why quite a significant part of the solar area was downgraded despite not being resurveyed. (Even though the Applicant has since provided some explanations, Landscope does not seem convinced about most of their explanations as outlined in Appendix 1).

4. Whilst NE seems comfortable with the proposed soil management in their SoCG, MPAG are not sure how they could have accepted the ALC survey data given the apparent limitations. Also since the late release of the GEMP defining more clearly the grassland establishment, NE should have picked up the shortcomings in that approach. MPAG suggest that their earlier SoCG was completed before they had seen the GEMP.

5. For clarification Landscope's final conclusion that there is in excess of 50% BMV is based on assessing a wider number of data sets than the Applicant had when they submitted the ES:
- using **all** the KCC data available from the PEIR, Stantec (RAC) and ES documents
- adding the auger sampling and soil pit data from field 2 and 3 to fill some auger sample gaps and verify some of KCC's existing findings
- checking the auger sampling data against information provided by the landowner for fields 1, 2 and 3
- reviewing and re-extrapolating the downgrading that took place.

7.0 Scope of the Proposed Development

MPAG [REP-057]	Scope of the Proposed Development	The confusion over the Plant Load Factor (PLF) was reflected in the different numbers the Applicant supplied in the various ES documents. MPAG used government data from DUKES that at the time which had a PLF of 10%. Since MPAG submitted our original response on output figures, DUKES has updated their PLF to 10.6%. Having seen the Applicant's satellite data and taking it at face value, their hypothesis seems reasonable and therefore we would now have to accept 11.5%. The Applicant had not used actual output figures but the best-case scenario assuming 350MW output capacity rather than the actual 240MW AC energy that the grid would be able to take, noting they have no capacity to store excess energy. This in turn affected the figures they used for the 'Homes' calculations. However still using the Applicant's figures, it shows the proposed development to have the lowest homes per MWp as illustrated in the table in paragraph 2.3. The Applicant admitted to not applying a degradation factor to their output scenarios which in turn also affected the 'Homes' calculations. That has since been corrected. 2.5 MPAG spotted anomalies in their degradation % between their 350MW DC calculations and 240MW AC which they admitted should have been the same. Their current figures assume the panels would last 40 years but there is no evidence to suggest that this is likely to be the case. As such therefore they included no replacement panel carbon costs in their carbon calculations. It will be important for the 60 year calculation that they explain their replacement panel assumptions and reflect that in their calculations.	The Applicant engaged with MPAG on a Teams call (Tony Orvis, 13th September) and walked through the Excel analysis shared in REP5-012 and REP5-013. During the call, the Applicant explained how the load factor had been calculated and how the installed capacity and grid connection capacity related to each other in the calculation of an estimated annual load factor for the site, both at commissioning and each year after as a result of anticipated degradation. The Applicant asked Mr Orvis whether the explanation given had been clear and whether there were any questions arising and none were raised. In summary, the analysis shared by the Applicant showed that at commissioning the load factor of a 350MW(p) site with a 350MW grid connection would be 11.6% and with a 240MW grid connection (as would be the case at Mallard Pass) would be lower, at 11.4%. This was the average of multiple years of satellite data and cannot therefore be interpreted as a 'best case' as suggested by MPAG. Appendix B in REP4-022 explains clearly which load factors the Applicant has used, referring as necessary toits application and publicly available material. For example, some calculations have been made on conservative assumptions. Where this was the case, that fact was made clear and conservative assumptions should not be taken to be an estimate of actual future performance. The Applicant did however acknowledge in the same REP4-022 the presence of a typographical error in ES Chapter 13 (Climate Change).
		The point that MPAG wanted to make was that the Applicant should not to be misleading in overstating the number of homes that could be supplied in reality, rather than hypothetically. The same applies to lack of battery storage which undoubtedly has a huge impact on delivering the 'case for need'. (See Appendix 1 for a deeper review of the importance and evidence on BESS).	The Applicant presented, at ISH4, a conservative assessment of the carbon costs, benefit and net benefit of a 60-year timeframe and this was submitted in REP7-036. Further information has been submitted to the ExA at DL8 in answer to the Rule 17 Request for Additional Information. The Applicant wishes to highlight that DUKES reports on actual (historical) annual national performance on a year-by-year basis for already installed and operational capacity, and this is (a) highly likely to differ from year to year and (b) highly likely to differ from a location-specific multi-year projection of average load factor for a new facility before it may reduce due to the effects of degradation. In Item 3a of REP4-022, the Applicant notes that Mr Fox "confirmed that the Applicant welcomes other academic papers to be submitted so that they can be reviewed" but that none have so far been submitted by MPAG or others which contradict the position presented by the Applicant. The Applicant has worked to explain to MPAG and others the basis of its calculations on output but does not believe that it has at any time materially overstated the number of homes that could be supplied either in reality or hypothetically. The Applicant wishes to remind the ExA of the urgent need for low-carbon generation capacity to come forwards in order to fight climate change, and deliver security of supply. This case was set out in the Statement of Need [APP-202]. The Applicant also wishes to remind the ExA of the national shortage of grid connection capacity, as explained in the Applicant's response to the ExA's

			First Written Questions, Q1.2.6. In that response the Applicant stated that: "To achieve [a] Net Zero future, the **equivalent** of over 150 solar projects (350MW x 150 = 52.5GW, versus c.14GW installed solar capacity as at 2023) of a similar scale to the Proposed Development will be required to come forwards in the next 12 years (i.e., in 2035 or earlier)" and that "One of the key benefits of the Proposed Development is that it makes use of existing grid connection capacity which facilitates a connection in 2028" It is clear therefore that the Proposed Development is not coming forwards instead of any of the schemes listed in MPAG's table 2.3, but is required to come forwards alongside those schemes and countless others. The Applicant therefore believes that it is appropriate to consider the benefit of the case that the Proposed Development comes forwards (315GWh/year average low-carbon electricity is generated over 40 years, effective 2028, or 301GWh/year over 60 years, also effective 2028) versus the case that it does not: no low-carbon electricity is generated from the scheme or at Ryhall Substation. The question of battery storage is addressed elsewhere in the Applicant's Deadline 8 submissions.

A separate submission is being made at D9 to specifically address MPAG's comments on the Applicant's response (REP8a-010) on Carbon at Deadline 8A.

8.0 60 year life span

MPAG [REP-057]	60-year lifespan	As this is an NSIP MPAG believe the development should be considered in terms of its wider and longer term implications. Whilst we now have certainty, 60 years is more than a generation, an incredibly long time in whatever context you view it. It is impossible to make any reasonable predictions of future land use need, or energy generation technologies over this period of time. Committing to 60 years means that the government and future generations would be unable to respond to changes brought about by climate change, technology changes and land use need, not just in the UK but globally. Sustainable development, which is what we are all striving for, is defined as meeting the needs of the present without compromising the ability of future generations to meet their needs. Can the Applicant truly say the proposed development meets this test? The government seems open to looking at repowering in the future if deemed appropriate at the time. They have also said in NPS EN-3 para 3.1.58 that a time limited consent would not prevent the Applicant at a later date seeking to extend the period. So we cannot comprehend why the Applicant has chosen such a long time period with so many unknown implications into the future. 60 years is 50% more than the baseline for any of the calculations used, 50% more than typical solar farms consented and 50% more than the NPS refers to. Given this huge step change, MPAG believe the Applicant should review systematically all the chapters of the ES to reflect their latest position and to acknowledge the material changes. One of the key changes is that all the panels (530,000) will have to be replaced during the 60 year period. Yet in answer to RCC's and LCC's comments about SWQ1.0.1 (REP6-004) the Applicant states. The move to 60 years is a material change on which the EA's were originally assessed. The Applicant is incorrect in stating that there will be no significant impact. Gate Burton, also a client of Pinsent Mason and Si Gillett the expert, who has a defined 60 year period, is quite clear in Chapter 6, Climate Change paragraph 6.4.29. It seems the Applicant is not entirely clear about the lifespan of their panels, Mr Phillips for the Applicant says it is 40 years, yet the Canadian Solar website talks about 25-30 years. There is a lack of clarity moving forward with 60 years at what point the Applicant thinks the panels will need to be replaced. The view of MPAG is that it will be the economic life of the panel, not necessarily the actual life and that as it stands today, assuming technology does not change considerably in the next 12-18 months, will be approximately 30 years necessitating full replacement in and around that timescale taking account that the panels would need to be updated in efficient blocks. The replacement will trigger a number of impacts. - Gate Burton, for example, takes this into account in their project's output and carbon calculations. They say the replacement of equipment has a similar emissions output as the original construction and will contribute 95.9% of carbon emissions made during the construction phase. - However there are also the removal and recycling impacts to be taken into account	The Applicant refers to its response at **[REP7-036]** 'Statement on 60 Year time limit' which reviews each topic within the Environmental Statement in turn to appraise the change from a permanent to a temporary / semi-permanent operational period. The ES assessed a worst-case scenario that the Proposed Development would be permanent (with an unspecified operational period). The ES also assessed a construction phase and a potential decommissioning phase; the conclusions of these assessments do not change other than providing a certainty as to when the Proposed Development would be decommissioned with the time limit being imposed. It is important to emphasise that the change in approach is not a change from 40 years to 60 years. As the Statement sets out the only change relates to two assessments where some form of 'line' had to be drawn for the purposes of assessments. All other assessments had assumed no 'line', meaning that there is now a benefit in certainty. Furthermore, for carbon, the change means that the assessed benefit stretches further into the future. As explored at the Hearings, and in the Applicant's response to the ExA's Rule 17 Request, whilst there may be panel replacement in that 60 year period, it cannot be done in a way that causes materially new or materially different effects to those assessed in the ES. Given that the ES considered only ad-hoc replacement, any replacement activities therefore cannot be worse than such activities.

		- Wooden posts need to be replaced, panel mountings may need replaced, along with much of the rest of the electrical infrastructure - Traffic and transport issue. Whilst the oOEMP sets out a maximum of 5 x 2 way HGVs during operation taking account of replacing panels, MPAG struggles to understand the viability of replacing the panels in such a piecemeal ad hoc way. Based on the oOEMP it would take around 200 days to replace just the panels based on c1000 containers. - Potential soil damage due to trafficking of the soils leading to a higher risk of surface water run off. - Loss of food production increases by 50% moving to 60 years when we know the country will be in a different place with Climate change leading to rising sea levels, global warming, more weather extremes; increased population numbers; less global food production available per head. - Potential habitat and species damage and disturbance. - Long term loss of landscape and quality recreational amenity leading to communities fragmenting. The overarching message the Applicant is trying to give is concerning, suggesting that during the operational phase there will be limited adverse impacts from the proposed development. In reality if consent were granted based on that assumption, it would be easier for the Applicant to push though material changes given the limited	

		resource of councils to contest, monitor or take enforcement action on any non-compliance. MPAG and others question the rationale for 60 years, seemingly a slightly random number and strange that it wasn't selected for many of the numerical calculations in the first instance. Mr Fox in the hearing stated 'we had to pick a number' and so picked 60.	

MPAG's closing position remains unchanged from our assessment put forward in REP7-057 and in subsequent submissions. It is hard to establish what the Applicant's original baseline was in their head when they submitted a 'time unlimited application'. Therefore we can only surmise what they are moving from and to. As they decided to use 40 years as part of their calculations, that would seem to be a reasonable baseline.

We do not believe 60 years has any clear rationale as a time period and the addition of all the replacement elements (electrical infrastructure, piles, possibly frames, all fencing etc) will certainly add ongoing adverse effects into the mix.

The drip feed replacement scenario as outlined in the OEMP and dDCO is not economically, technically and logistically viable and therefore in all probability the Applicant will request approval of a fuller replacement activity to the LPAs via the maintenance schedule. That in turn would likely be approved thereby avoiding acknowledgement upfront now of the adverse impacts of such a huge replacement activity when assessing the operational impacts.

9.0 Applicant's Response to MPAG Landscape and Visual Review at Deadline 7 Submissions

Ms Tinkler, MPAG's L&V expert, is still waiting for a response from the Landscape Institute with respect to gaining clarification on interpretation of their guidance, despite the Applicant not being overly keen to go down that route. The questions she posed were generic and could apply to any LVIA so as not to prejudice the response from them.

Given her position on how to interpret the guidance still stands and she has clearly laid this out in previous submissions and responses, MPAG do not feel there is further value to repeat this in response to the Applicant's comments in their D8 response (REP8-019) to the D7 submissions.

Should the response arrive before the close of the Examination, MPAG would ask for it to be considered.