

## **Mallard Pass Solar Farm**

Applicant's Response to Interested Parties' Deadline 2 Submissions - Air Quality, Noise, Vibration and Health

Deadline 3 - June 2023

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## Applicant's Response to Interested Parties' Deadline 2 Submissions on Air Quality, Noise and Vibration and Health

Parties Raised	Sub-Theme	Issues Raised	Applicant's Response	
REP2-048 (LIR), REP2-047(WR), REP2-050(FWQ), REP2-153, REP2- 138, REP2-054	P2-047(WR), P2-050(FWQ), P2-153, REP2-3, REP2-054  transmission network noise generated by the substation a transmission network and work and work and transmission network and work and work and transmission network and work and transmission network and work and	generated by the substation and transmission network and would want the examining authority to be satisfied that the ES statement is correct in order to ensure that there was no adverse impact from this element of the proposed	The robust assessment presented in ES Chapter 10: Noise and Vibration [APP-040] has demonstrated that although the operational noise may be audible at times and minor adverse noise impacts are predicted in some instances, no significant impacts from operational noise are expected from the proposed Onsite Substation and associated infrastructure. An independent Environmental Statement review (Appendix D) was undertaken by Barton Willmore (now Stantec) on behalf of Rutland County Council and South Kesteven District Council which concludes that the ES:	
			Is in compliance with the Infrastructure EIA Regulations' requirements;	
			Is in compliance with the requirements of Advice Note 7;	
				<ul> <li>Comprehensively identifies and assesses the likely significant effects of the Proposed Development;</li> </ul>
			<ul> <li>Provides sufficient information to allow the Planning Inspector to make an informed decision on the Development Consent Order; and</li> </ul>	
			As with the EIA Scoping Report, and PEIR, the ES includes some superfluous detail and minor errors but given the scale of the ES, these are not deficiencies that require corrective action.	
			The final design and component specification of the Onsite Substation would be controlled through a DCO requirement (paragraph 16 of Schedule 2 of the draft DCO [REP2-006]). This requires an operational noise strategy to be prepared by the Applicant and to be submitted and approved by the relevant local authorities.	

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REP2-048 (LIR), REP2-047(WR) REP2-050(FWQ) REP2-238, REP2- 138, REP2-181, REP2-117, REP2- 165, REP2-190, REP2-141, REP2- 114, REP2-169, REP2-193	Construction noise	A negative impact arises from the development in terms of construction noise, given the timescale of the construction phase.	The temporary effects of noise associated with the construction activities have been assessed in Chapter 9 Noise and Vibration in the ES [APP-040] as expected to be within accepted thresholds for such activities and with appropriate mitigation measures in place to not have a significant effect. The assessment accounted for the duration of the construction period. The effects will be controlled through the Construction Environmental Management Plan (CEMP) with use of restrictions to working hours and minimised through the application of Best Practical Means. This will be controlled through a DCO requirement (paragraph 11 of Schedule 2 of the draft DCO [REP2-006]). This requires a CEMP to be prepared by the Applicant and to be submitted and approved by the relevant local authorities.
REP2-057, REP2- 138, REP2-117, REP2-181 REP2- 209, REP2-160, REP2-161	Noise impact on local residents	The creation of additional noise is not acceptable to the local residents in surrounding villages.	ES Chapter 10: Noise and Vibration [APP-040] has demonstrated that, although some noise does arise as part of the construction and operation of the Proposed Development, this would be controlled and managed effectively through, in summary:  • Restriction of working hours for construction activities, and additional restrictions on daily duration of piling works. Specific management and mitigation measures to minimise the impact of out-of-hours HDD works required in specific instances. The communication of noisy works to PRoW users. Implementation of further good practice measures (Best Practical Means) in the CEMP to minimise construction noise as far as reasonably practicable. This will be controlled through a DCO requirement (paragraph 11 of Schedule 2 of the draft DCO [REP2-006]). This requires a CEMP to be prepared by the Applicant and to be submitted and approved by the relevant local authorities.  • The design of the site includes a separation distance of more than 600 m from the Onsite Substation (Works Area 2) from noise-sensitive residential properties. The Solar Stations were identified as the other main potential source of operational noise: the final design of these components will include a minimum separation distance of 250m and 50m from residential properties and PRoWs respectively to Solar Stations as set out in the design guidance (PE.4.2 and PE.4.3) within the Design and Access Statement [REP2-018]. This will be controlled

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			Applicant to be in accordance with the design guidance and to be submitted and approved by the relevant local authorities.
			The assessment of operational noise concluded that the predicted worst-case levels of noise from the plant associated with the Proposed Development were either below or only marginally above baseline background noise levels during quiet day-time periods, when the plant is most likely to operate at full duty. At night-time, the noise from the plant is likely to be lower than predicted levels due to reduced solar and heat loads. The response to Q9.0.3 and Q9.0.4 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037] considers this in further detail.
REP2-117	Noise pollution	Safety concern in relation to noise generated by inverters and proximity to bridleways	The final design and location of the Solar Stations will include a minimum separation distance of 50m from PRoWs as set out in the design guidance (PE.4.2) within the Design and Access Statement [REP2-018]. This will be controlled through a DCO requirement (paragraph 6 of Schedule 2 of the draft DCO [REP2-006]). This requires the detailed design prepared by the Applicant to be in accordance with the design guidance and to be submitted and approved by the relevant local authorities.
			As a result, noise from electrical plant on PRoWs is not expected to be at a high level (having been assessed in the ES Chapter 10 Noise and Vibration [APP-040] to be below 55 dB $L_{Aeq}$ ) and is relatively constant in nature (with no sudden noises) so significant disturbance for animals such as horses is considered to be unlikely. Therefore, there are no safety concerns regarding noise and use of PRoWs.
REP2-182, REP2- 056, REP2-138, REP2-129, REP2- 117, REP2-097, REP2-141, REP2- 157, REP2-169, REP2-059, REP2- 160		Concern about the ongoing noise from the proposed substations and inverters and the impact on local residents.	The assessment of operational noise in Chapter 10 of the ES [APP-040] shows that, even during the noisiest periods of operation (in full sunshine and during elevated temperatures) and based on worst-case assumptions, the operational noise levels are low (either below or only marginally above baseline background noise levels during quiet day-time periods) and correspond to a minor adverse impact. In other situations, and particularly at night, lower noise levels will be experienced in practice due to reduced solar and heat loads. The response to Q9.0.3 and Q9.0.4 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037] considers this in more detail.
			The final location and design of these components will include a minimum separation distance of 250m and 50m from residential properties and PRoWs

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			respectively to solar stations as set out in the design guidance (PE.4.2 and PE.4.3) within the Design and Access Statement [REP2-018]. This will be controlled through a DCO requirement (paragraph 6 of Schedule 2 of the draft DCO [REP2-006]). This requires the detailed design prepared by the Applicant to be in accordance with the design guidance and to be submitted and approved by the relevant local authorities.
REP2-160	Noise around the Drift	It is inevitable that the noise of over 100 acres of moving machinery in Fields 1, 2 & 3 would be clearly audible within the nearby dwellings, especially those at Ryhall Heath on The Drift.  Concerns regarding audible noise from the substation and inverters within dwellings  Concerns regarding moving solar PV arrays and loss of sleep.  Evidence of low existing noise levels based on mobile phone app.	Chapter 10: Noise and Vibration of the ES [APP-040], specifically paragraphs 10.8.2 to 10.8.12 and Table 10-2, has assessed noise from construction activities, based on worst-case assumptions, in particular considering when works are undertaken at the closest point to the different receptors. This considered both residential and PRoW receptors. Most of the time, works will be occurring at a greater distance than the minimum distances assumed in the ES, with reduced noise levels. It is also considered unlikely that simultaneous work would be occurring across the entirety of fields 1 to 3, and activity will be more likely to be localised in certain areas at different times.  Noise from construction activities are likely to be audible at times but represent temporary impacts and are expected to be within accepted thresholds for such activities. Construction activities will be controlled through the CEMP with use of restriction of working hours and minimised through application of Best Practical Means. This will be controlled through a DCO requirement (paragraph 11 of Schedule 2 of the draft DCO [REP2-006]). This requires a CEMP to be prepared by the Applicant and to be submitted and approved by the relevant local authorities.  The response to Q9.0.3 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037] considered how low the operational noise levels
			would be within dwellings, even with windows opened and that significant effects on sleep and health were unlikely. The Applicant's response to Q9.0.1 in the same document also considered impacts on PRoWs in more detail.
			The potential noise from Single Axis Tracker (SAT) motors has also been assessed and it is clear from Appendix 10.5 of the ES [REP2-014] (see paragraph 10.1.17) that the associated noise emissions are negligible.
			Please note that mobile phone noise applications do not provide accurate noise level readings, and the measurements reported in Appendix 10.4 of the ES

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			[APP-080], using calibrated noise monitoring equipment, should be referenced instead.
REP2-057, REP2- 218, REP2-138, REP2-117, REP2- 209, REP2-064, REP2-115, REP2- 166, REP2-054, REP2-216, REP2- 160, REP2-059, REP2-161	Impact on the physical and mental health of the Locals	The construction of the Solar Farm will remove this environmental health improving asset [being the tranquil countryside] from the arms of the population. The introduction of fenced-in fields, CCTV and security lighting, will only diminish the health and well-being of the community.	The health impact assessment guidance in HUDU Rapid HIA Tool (2019) is a nationally recognised tool for understanding the health impacts of development. Produced by NHS London Healthy Urban Development Unit, the tool presents the determinants of health impacted by development and the pathways through which health outcomes can be affected. The HUDU Rapid HIA Tool (2019) states that "Providing secure, convenient and attractive open/green space can lead to more physical activity and reduce levels of heart disease, strokes and other ill-health problems that are associated with both sedentary occupations and stressful lifestyles." Therefore, reducing the access to the countryside could negatively impact health outcomes through reduced use of open space.
			The impact of the Proposed Development on open space and the countryside is considered through technical assessments of the Environmental Statement in the following ways:
			<ul> <li>Changes in visual and recreational amenity – these impacts are assessed in ES Chapter 6 Landscape and Visual [APP-036].</li> <li>Changes in traffic and travel access – these impacts are assessed in ES Chapter 9 Highways and Access [APP-039].</li> <li>Changes in noise and vibration – these impacts are assessed in ES Chapter 10 Noise and Vibration [APP-040].</li> <li>Changes in air quality – these impacts are assessed in ES Chapter 15 Other Environmental Topics [APP-046].</li> </ul>
			These assessments concluded that the Proposed Development would have significant adverse effects on visual receptor groups immediately bordering the Order Limits (within 500m), and on Bridleways E169 and E182 / BrAw/1/1 during the construction phase as a result of changes in visual amenity. Temporary diversions will be required for some periods of the construction and decommissioning phase for Bridleway E169 and E182 / BrAw/1/1 only). No further significant effects during the construction are anticipated, nor on PRoWs during the operation and decommissioning phase as a result of changes to traffic and travel access or noise and vibration.
			Public access to the countryside within the Order limits would be improved compared to current access as a result of the delivery of new permissive paths

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			totalling 8,1km in length. The public right of ways that traverse the Order Limits are are, bridleways E169 and E182 / BrAW/1/1 and footpaths BrAW/7/1, BrAW/9/1 and Uffi/5/1 and these would remain accessible.
			Many of the existing fields within the Order limits are already secured by established hedgerows, and the perimeter fencing specified is that of wire mesh and wooden poles which is similar in style of fencing used to fence fields containing sheep, cattle, deer and therefore has been designed to respond to the surrounding agricultural context in accordance with the Design Guidance (PL3.5 and PL3.6) as set out in the Design and Access Statement [REP2-018]. The use of security lighting on-site would be limited to the Onsite Substation. CCTV would be located around the perimeter of the Solar PV Site, will be located within the perimeter fencing and would be inward facing and use infrared technology so to respect public amenity and reduce environmental impacts. Where public access is provided (either via existing PRoW or permissive paths) hedgerow planting is provided that over time will establish and screen views of the perimeter fencing and inward facing CCTV cameras.
			It is not considered that changes in access to fields within the Order limits, or the use of CCTV and security lighting, could result in a significant impact on health outcomes. Any impact on health outcomes of changes in access to the fields would be positive once the Proposed Development is operational as a result of the creation of the new permissive paths. Any use of CCTV and security lighting, and any subsequent adverse impact on health outcomes, would be minimal once operational, and these measures would help prevent crime and anti-social behaviour (another factor affecting health conditions).
REP2-182, REP2- 056, REP2-138, REP2-129, REP2- 218, REP2-117, REP2-146, REP2- 161, REP2-209, REP2-059, REP2- 235, REP2-136, REP2-166, REP2- 105, REP2-114, REP2-211, REP2- 169, REP2-143,		Concern that the proposed development will negatively impact the local residents' mental health, as a result of the loss of open space and tranquillity of the area.	The health impact assessment guidance in the HUDU Rapid HIA Tool (2019) is a nationally recognised tool for understanding the health impacts of development. Produced by NHS London Healthy Urban Development Unit, the tool presents the determinants of health impacted by development and the pathways through which health outcomes can be affected. The HUDU Rapid HIA Tool (2019) states that "Providing secure, convenient and attractive open/green space can lead to more physical activity and reduce levels of heart disease, strokes and other ill-health problems that are associated with both sedentary occupations and stressful lifestyles." Therefore, reducing access to open space could negatively impact health outcomes.

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REP2-124, REP2- 176, REP2-216			The impact of the Proposed Development on changes in access to open space and the countryside has been considered throughout the Environmental Statement via the assessment of:
			<ul> <li>Changes in visual and recreational amenity – these impacts are addressed in ES Chapter 6 Landscape and Visual [APP-036].</li> <li>Changes in traffic and travel access – these impacts are addressed in ES Chapter 9 Highways and Access [APP-039].</li> <li>Changes in noise and vibration – these impacts are addressed in ES Chapter 10 Noise and Vibration [APP-040].</li> <li>Changes in air quality – these impacts are assessed in ES Chapter 15 Other Environmental Topics [APP-046].</li> </ul>
			These assessments concluded that the Proposed Development would have significant adverse effects on visual receptor groups immediately bordering the Order limits (within 500m), and on Bridleways E169 and E182 / BrAw/1/1 during the construction phase as a result of changes in visual amenity. Temporary diversions will be required for some periods of the construction and decommissioning phase for Bridleway E169 and E182 / BrAw/1/1 only). No further significant effects during construction are anticipated, nor on PRoWs during the operation and decommissioning phase as a result of changes to traffic and travel access or noise and vibration.
			The Proposed Development would not result in a loss of access to open space. The public rights of way that traverse the Order limits are bridleways E169 and E182 / BrAW/1/1 and footpaths BrAW/7/1, BrAW/9/1 and Uffi/5/1, and these would remain accessible. New permissive paths, totalling 8.1km in length, would also be delivered.
			Public access to countryside throughout the remainder of the Order limits would largely be unaffected as it would remain as private land in agricultural production with no public access. However, it should be noted that the permissive paths will allow access to areas within the Order limits that will continue to be managed as agricultural land which are not currently accessible to the public.
			Based on the conclusions of the technical assessments in the Environmental Statement, stated above, it is considered highly unlikely that the Proposed Development would result in a significant effect on health, including mental

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			health, outcomes at receptor populations including Rutland and South Kesteven residents.
REP2-142 REP2-129 REP2-144 REP2-126 REP2-160 REP2-059		During the pandemic the value of green spaces, access to the countryside and being surrounded by nature had a fundamental benefit on individuals not only on physical health but mental health too. The scale of Mallard Pass will result in loss of access to green spaces for the local population and the consequent detrimental impact on health and well being.	The health impact assessment guidance in the HUDU Rapid HIA Tool (2019) is a nationally recognised tool for understanding the health impacts of development. Produced by NHS London Healthy Urban Development Unit, the tool presents the determinants of health impacted by development and the pathways through which health outcomes can be affected. The HUDU Rapid HIA Tool (2019) states that "Providing secure, convenient and attractive open/green space can lead to more physical activity and reduce levels of heart disease, strokes and other ill-health problems that are associated with both sedentary occupations and stressful lifestyles." Therefore, reducing access to open / green space could negatively impact health outcomes.  The impact of the Proposed Development on changes in access to open space has been considered throughout the Environmental Statement via an assessment of the following:
			<ul> <li>Changes in visual and recreational amenity – these impacts are addressed in ES Chapter 6 Landscape and Visual [APP-036].</li> <li>Changes in traffic and travel access – these impacts are addressed in ES Chapter 9 Highways and Access [APP-039].</li> <li>Changes in noise and vibration – these impacts are addressed in ES Chapter 10 Noise and Vibration [APP-040].</li> </ul>
			These assessments concluded that the Proposed Development would have significant adverse effects on visual receptor groups immediately bordering the Order Limits (500m), and on Bridleways E169 and E182 / BrAw/1/1 during construction as a result of changes in visual amenity. During construction, a temporary diversion may be required for some periods of the construction phase for Bridleway E169 and BrAW/1/1 only. No further significant effects during the construction are anticipated, nor on PRoWs during the operation and decommissioning phase as a result of changes to traffic and travel access or noise and vibration.
			The public rights of way that traverse the Order limits are bridleways E169 and E182 / BrAW/1/1 and footpaths BrAW/7/1, BrAW/9/1 and Uffi/5/1, would remain accessible, and new permissive paths, totalling 8.1km in length, would be delivered. Public access to countryside throughout the remainder of the Order

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			limits would largely be unaffected as it would remain as private land in agricultural production with no public access. However, it should be noted that the permissive paths will allow access to areas within the Order limits that will continue to be managed as agricultural land which are not currently accessible to the public.
			Based on the conclusions of the technical assessments in the Environmental Statement, it is considered highly unlikely that the Proposed Development would result in a significant effect on health and well-being outcomes at receptor populations including Rutland and South Kesteven residents.
REP2-182, REP2- 224, REP2-131, REP2-157, REP2- 054	Light Pollution	Concern about the proposed security lighting and the level of light pollution that will result.	The PV Arrays will be monitored remotely by CCTV cameras that would use night-vision technology, avoiding the need for night-time lighting. No areas of the PV Arrays will be continuously lit, which is set out within the Design Guidance (PL3.7) of the Design and Access Statement [REP2-018].
			The final layout and design of the Proposed Development will be controlled through a DCO requirement (paragraph 6 of Schedule 2 of the draft DCO [REP2-006]). This requires the detailed design prepared by the Applicant to be in accordance with the design guidance and to be submitted and approved by the relevant local authorities.
REP2-057, REP2- 117		The winter, autumn, and spring periods (for the working safety of the construction people) will require huge amounts of lighting for long periods of time, creating massive light pollution. Additionally, it is expected when	The outline Construction Environmental Management Plan at Section 2.9, Table 3-1 and Table 3-2 [REP2-020] includes measures to control light during construction including mitigation principles to avoid excessive glare, and minimise spill of light to nearby receptors (including ecology and residents).  The PV Arrays will be monitored remotely by CCTV cameras that would use night-vision technology, avoiding the need for night-time lighting. No areas of the PV Arrays will be continuously lit, which is set out within the Design
		constructed the solar farm will require significant lighting to manage the site in a safe way.	Guidance (PL3.7) of the Design and Access Statement [REP2-018].  The final layout and design of the Proposed Development will be controlled through a DCO requirement (paragraph 6 of Schedule 2 of the draft DCO [REP2-006]). This requires the detailed design prepared by the Applicant to be in accordance with the design guidance and to be submitted and approved by the relevant local authorities.
REP2-238	Construction Compounds	A secondary compound directly opposite our house, a similar	The potential noise and vibration effects associated with the construction compounds, as well as operational noise from electrical equipment, were

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		distance from the panels, is proposed. This will inevitably	assessed in the ES Chapter 10: Noise and Vibration [APP-040] which determined that no significant adverse effects were expected.
	result in a significant increase in noise and vibration, particularly during construction but also ongoing from inverters and security kits.	Noise and vibration from construction activities will be controlled through the CEMP with use of the restriction of working hours and minimised through application of Best Practical Means. This will be controlled through a DCO requirement (paragraph 11 of Schedule 2 of the draft DCO [REP2-006]). This requires a CEMP to be prepared by the Applicant and to be submitted and approved by the relevant local authorities.	
			The assessment of operational noise in the ES shows that, even during the noisiest periods of operation (in full sunshine and during elevated temperatures) and based on worst-case assumptions, the operational noise levels are low and correspond to a minor adverse impact. In other situations, and particularly at night, lower noise levels will be experienced in practice. The response to Q9.0.3 and Q9.0.4 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037] considers this in further detail.
			The final location and design of these components will include a minimum separation distance of 250m and 50m from residential properties and PRoWs respectively to Solar Stations as set out in the design guidance (PE.4.2 and PE.4.3) within the Design and Access Statement [REP2-018]. This will be controlled through a DCO requirement (paragraph 6 of Schedule 2 of the draft DCO [REP2-006]). This requires the detailed design prepared by the Applicant to be in accordance with the design guidance and to be submitted and approved by the relevant local authorities.
REP2-048 (LIR), REP2-047(WR) REP2-050(FWQ)	Construction times	Questions the appropriateness of the proposed core construction hours of 07:00 to 19:00 Monday to Saturday. Suggest that given the scale of the project and to provide local residents with some respite from construction noise there should be no working on Saturdays as well as Sundays.	The outline Construction Environmental Management Plan [REP2-020] sets out that core construction working hours will be 07:00 to 19:00 Monday to Saturday (excluding works likely to generate substantial levels of noise which will be limited to 13:00 on Saturdays). The construction hours proposed, including Saturday morning works, are considered commonplace as they are referenced in the British Standards Institution code of practice for construction noise and vibration control, specifically in Annex E of BS 5228-1. If construction hours are restricted further, for example to avoid Saturday morning works entirely, this will likely extend further the overall duration of the construction.

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REP2-226, REP2- 181, REP2-134, REP2-064, REP2- 169, REP2-193, REP2-176	Air and noise pollution	Concern the heavy traffic generation will have the amount of noise and air pollution.	The potential noise impact of construction traffic was assessed in Appendix 10.5: Noise and Vibration – Noise Modelling [APP-081]. The conclusions of this assessment are set out in paragraphs 10.8.16 and 10.8.17 of the ES Chapter 10: Noise and Vibration [APP-040] which found there would be a negligible effect on noise for locations neighbouring the access route. For the primary construction compound access on Essendine Road a temporary minor adverse effect was predicted with noise levels for traffic predicted to be below 65dB.
			The potential effects on Air Quality were considered in Chapter 15 of the Environmental Statement [APP-045]. It concludes at paragraphs 15.2.32 and 15.2.33 that the measures implemented via the oCTMP [APP-212] and oCEMP [REP2-020] are considered sufficient to minimise impacts to air quality from emissions associated with construction traffic and NRMM. Therefore, it is not anticipated that there will be any significant residual effects with regard to air quality.
REP2-098	Visual and noise impacts on health	Repeating concerns raised in its Relevant Representation [RR-1076] about noise impacts and the effect of visual and noise impacts on people's mental health and well-being.	The Environmental Statement has assessed the construction, operational and decommissioning noise impacts of the Proposed Development in Chapter 10: Noise and Vibration of the Environmental Statement [APP-040].
			The assessment's findings at paragraph 10.13 were that with the implementation of the relevant mitigation measures, no significant adverse noise and vibration effects are expected as a result of the Proposed Development.
			The potential impacts to the landscape and visual resource, including settlements has been comprehensively assessed in accordance with best practice guidance and informed by consultation with stakeholders.
			The results of this assessment are set out in detail within Chapter 6: Landscape and Visual of the Environmental Statement [APP-036] and concludes that there are limited localised residual significant effects.
			The Planning Inspectorate agreed in their EIA Scoping Opinion [APP-050] that human health impacts should be addressed through the relevant technical assessments:
			Highways and Access [APP-039]
			Noise and Vibration [APP-040]

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			Water Resources and Ground Conditions [APP-041]
			Recreation and Amenity Assessment [APP-058]
			Other Environmental Topics including Air Quality, Glint and Glare, Major Accidents and/or Disasters and Utilities [APP-045]
			These assessments conclude that there would be no significant effects as a result of the Proposed Development.
REP2-048 (LIR), REP2-047(WR) REP2-050(FWQ)	Odour	Solar farms are not generally associated with odour emission during operation, however the construction phase is likely to be an intensive part of any development process and there is the potential for this to result in negative impacts on the surroundings of the site.	Construction works are not usually associated with odour nuisance. It is considered unlikely that odour during the construction phase would create a statutory nuisance based on the FIDOL factors (frequency, intensity, duration, odour unpleasantness and location). During construction, it is possible that odours due to construction traffic or NRMM may be experienced, however these are expected to have a neutral hedonic tone. It is also expected that construction activities will focus on different areas within the Order limits and as such it is considered unlikely that any one location will be affected for a significant amount of time.
REP2-047(WR), REP2-048(LIR), REP2-050 (FWQ),	ExA Q1 – Q1.0.11 – Core construction hours, the LPAs were requested to provide their comments on the acceptability of the Applicant's proposed core construction hours.	The Local Planning Authority considers that given the anticipated length of the construction period, allowing construction to take place until 7pm on Saturdays would result in harm to the living conditions and the health and wellbeing of the residents in the areas affected by the construction traffic. The vicinity of the application site is used extensively by walkers and cyclists and allowing construction traffic in this area would disrupt and discourage those activities from taking place at weekends.	The application is accompanied by an outline Construction Traffic Management Plan [APP-212], which is secured by way of Requirement 13 in the draft DCO [REP2-006] and an Outline Construction Environmental Management Plan [REP2-019] both of which will manage the impacts of the project during construction.  The OCEMP specifies that noisier activities such as Heavy Goods Vehicle (HGV) deliveries to the Order limits and works likely to generate substantial levels of noise, aside from Horizontal Directional Drilling (HDD), would be limited to daytime hours of 07:00 to 19:00 during weekdays or Saturday mornings (until 13:00 hours).  Please also see response to FWQ 1.0.11.
REP2-044(LIR), REP2-045(FWQ), REP2-046(WR),		LCC is agreeable to the proposed construction hours and days as proposed however during the winter months there may be a	The Applicant notes that LCC are agreeable to the proposed construction hours and agrees that any temporary construction or decommissioning lighting that may be necessary could be covered by requirements 11 and 18 in the draft DCO [REP2-006], noting that the OEMP relates to operational lighting (which is

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		need for floodlighting in the early evening (e.g. post 4pm). Details of any such lighting could however be covered by the final CEMP/OEMP/DEMP (DCO Requirements 11, 12 & 18).	only required in relation to the onsite substation to meet health and safety requirements (see paragraph 2.6.2 of the OEMP [APP-208]).
REP2-051(LIR), REP2-052(FWQ), REP2-053(WR),		Response: SKDC note that (in the event that permission is forthcoming) extended working hours are proposed, in comparison to typical construction working hours that SKDC would advise to be acceptable. SKDC acknowledge that extended working hours will no doubt help to reduce the duration of the construction programme. As such, SKDC would make the following recommendations in respect of construction working hours:  - Working hours remain as proposed, with the contractor carrying out an assessment of the impact within 250m of a sensitive receptor (as identified in table 10.2 of the noise assessment) for noisier activities (earthworks, trench construction and piling and any other similar activities likely to generate substantial levels of noise and HGV deliveries/movements) with any of the noisier activities ceasing at 4pm on any given day.	Paragraph 5.1.4 of the Outline Construction and Environmental Management Plan [REP2-019] states that a Community Liaison Officer will be appointed to respond to any complaints raised by the local community (or other stakeholders) during construction. Contact details will also be available on the display board at the Order limits entrance should anyone wish to make contact. It is commonplace that at EIA stage, not all details of the construction methodology and programme will have been finalised. ES Chapter 10: Noise and Vibration [APP-040] at section 10.5 describes the reasonable worst-case assumptions which were made to account for these uncertainties and presents a robust assessment of potential effects. The approach taken in the EIA was reviewed by Stantec on behalf of Rutland County Council and South Kesteven District Council and no adverse comments were made on the approach taken.  The outline Construction Environmental Management Plan [REP2-020] sets out that core construction working hours will be 07:00 to 19:00 Monday to Saturday (excluding the works likely to generate substantial levels of noise which will be limited to 13:00 on Saturdays). The construction hours proposed, including Saturday morning works, are considered commonplace as they are referenced in the British Standards Institution code of practice for construction hours are restricted further, for example avoiding noisier activities beyond 4pm on any given day, this will likely extend further the overall duration of the construction.  The ES assessment concludes that with appropriate mitigation measures in place the effects of noise and vibration from all construction activities (including percussive piling) would result in negligible to minor adverse effects which is not significant. This is based on guidance and thresholds determined from relevant British Standards and accounts for the rural nature of the baseline noise environment.  Noise and vibration from construction activities will be controlled through the CEMP with use of the restri

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		Further to this, SKDC would also request that the contractor establish a telephone contact line, for any concerns relating to noise related construction activities, to be addressed promptly, and to be maintained over the construction programme period.	application of Best Practical Means. This will be controlled through a DCO requirement (paragraph 11 of Schedule 2 of the draft DCO [REP2-006]). This requires a CEMP to be prepared by the Applicant and to be submitted and approved by the relevant local authorities.
REP2-090	Noise and vibration	Both noise and vibration are key concerns of the community especially given the long working hours and short distances from the site for many receptors. The subject is highly technical and complex and we are reliant upon the expertise of the Planning Inspector and other more qualified consultees to audit the data presented. Whilst MPSF seem confident of their findings and mitigation they clearly state "Full details of the exact construction method, plant and duration for the Proposed Development are not available at this stage." It follows that MPSF are unable to fully assess all the impacts. It is therefore important for MPSF to clarify that the noise assessments have been conducted on a realistic worst case scenario.  Accordingly, allowance should be made for this uncertainty in the planning balance and this factor weighs against the proposal. At	It is commonplace that that at EIA stage, not all details of the construction methodology and programme will have been finalised. ES Chapter 10: Noise and Vibration [APP-040] at section 10.5 describes the reasonable worst-case assumptions which were made to account for these uncertainties and present a robust assessment of potential effects. The approach taken in the EIA was reviewed by Stantec on behalf of Rutland County Council and South Kesteven District Council (see Appendix D) and no adverse comments were made on the approach taken.  When the final construction methods and programme are determined, the relevant measures to control noise and vibration will be finalised in a Construction Environmental Management Plan (CEMP) which is substantially in accordance with the Outline Construction Environmental Management Plan (OCEMP) [REP2-020] submitted with the DCO Application. This CEMP has to be submitted to and approved by the relevant local authority as under a requirement of the DCO (see paragraph 11 of Schedule 2of the draft DCO [REP2-006]).

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		least some weight should be accorded to this consideration.	
		BS 5228-1 para 6.2 "Whichever measure is used to describe environmental noise, it should always be made clear to which period of the day any particular value of the measure applies." This requires clarification in MPSF's assessment.	This was fully considered in the assessment undertaken. Most of the construction control and management measures proposed relate to the standard daytime construction working hours (weekdays and Saturday mornings) which form part of the embedded mitigation. As described in paragraph 10.7.3 of ES Chapter 10: Noise and Vibration [APP-040], the only exception to these general working hours would be any night-time work for Horizontal Directional Drilling which may need to extend out of these hours (including at night) with suitable controls put in place.
		MPSF assumes in Table 1 of Appendix 10.5 Noise Modeling (APP-081), and in all subsequent related noise calculations that "jacked-in piling" would be used. This is the 'least noise' method and, should contractors selected by MPSF choose to use an alternative method, noise levels would increase substantially. The noise levels for worst case should be supplied. It is hard to understand how piling frames 2.5m into the ground is the least noise method.	The assumptions made in Appendix 10.5 Noise Modelling [APP-081] for the piling activity are based on data from BS 5228-1 for "Tubular steel piling - hydraulic jacking - 240mm diameter" with a sound power of 117 dB(A) which represents the upper end of typical noise emissions based on large percussive piling and represents a worst-case assumption as a basis for the assessment. Although quieter methods could and may be used in practice, the assessment presented in the noise chapter was based on worst-case assumptions.
		Over 530,000 solar panels are to be installed, a huge amount of pile driving per day. In reality this part of the construction will not be spread over 2 years, it will take place relatively early on in the process. That would require multiple equipment to be doing	The assessment of construction noise was based on worst-case assumptions when the piling activity would be occurring at the closest distance to any particular receptor (see paragraph 10.8.2 and Table 10-2 of ES Chapter 9: Noise and Vibration [APP-040]). If piling is also undertaken simultaneously at another location within the working area, this would be located further away with reduced noise levels, which would either represent a negligible contribution or

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		the same job at the same time, therefore has MPSF considered the cumulative noise impacts across the site?	only marginally increase noise levels such that the assessment outcome would not change.
		MPSF undertakes to restrict piling to no more than two periods of four hours each with at least one hour of no piling when works are undertaken within 400m of residential properties.  Residents would be subject to noise from piling for eight hours per day over an extended period of time. This is an unacceptable	Paragraph 10.9.4 of the ES Chapter 10: Noise and Vibration [APP-040] sets out that if percussive piling is used, this should be further restricted (when works are undertaken within 400m of residential properties) to no more than two periods of four hours each with at least one hour no piling between these four-hour periods and restricted to the hours of 08:00 to 18:00 Monday to Friday and 08:00 to 12:00 on Saturdays. This is more restricted in time than the general construction working hours, which themselves are based on the guidance of BS 5228-1.  The ES assessment concludes that with appropriate mitigation measures in place the effects of noise and vibration from all construction activities (including
		duration, especially for those residents presiding at home during the day. There are a considerable number of households within 400m distance.	percussive piling) would result in negligible to minor adverse effects which is not significant. This is based on guidance and thresholds determined from relevant British Standards and accounts for the rural nature of the baseline noise environment.
		Can MPSF clarify the baseline for the distance from a residential property to the solar PV site?  Is that to the edge of the solar PV site to the fencing, or to the start of a solar PV array or to where the inverters and transformers are placed? Some of the distances look incorrect.	Table 9 of Appendix 10.5 of the ES [APP-081] includes distances measured from the different representative receptors identified to the boundary of Works Area 1. The boundary of Works Area 1 has been informed by the Design Guidance set out within the Design and Access Statement [REP2-018] which sets minimum offsets from natural features to the fencing surrounding the PV Arrays. The actual PV Arrays would be located further within the boundary of Works Area 1. This is where most of the noisy works would be undertaken and therefore the distances in Table 9 represent a precautionary basis for the assessment.
		MPSF proposes to provide a board on which residents can write comments about excess noise. This seems an inadequate	The relevant measure in the Outline Construction Environmental Management Plan (oCEMP) [REP2-020] proposes that a Community Liaison Officer will be appointed to respond to any complaints raised by the local communities (or other stakeholders) during construction. Contact details will also be available on

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		method for residents to give feedback to contractors. The design and construction should be such to minimize noise impacts as far as possible. MPSF should be required to set up a regular meeting with resident representatives to discuss all areas of concern.	the display board at the Order limits' entrance should anyone wish to make contact. The contractor will set up a social media page where regular progress updates will be provided. This would be used to post any information on changes such as AIL deliveries or new phases of work to ensure that the local community remains updated.
		Article 1 of the First Protocol to the Convention of the Human Rights Act 1998 protects the rights to peaceful enjoyment of possessions. This does not seem that it will be adhered to.	The assessment of ES Chapter 10: Noise and Vibration [APP-040] thoroughly considered potential impacts on residential amenity in line with applicable guidance and standards and no significant effects were identified.  Given the lack of significant effects through noise emanating from the Proposed Development identified in the Environmental Statement the Applicant is of the view that there would be no breach of the right to peaceful enjoyment of property. If development consent is granted for the Proposed Development the decision maker would have detailed evidence before him setting out the potential impacts on properties of the Proposed Development and provided the decision maker considers those impacts in the decision-making process, it is not considered that a local resident's right to peaceful enjoyment of their property would be infringed.
		PRoW receptors are at least 50m from any central inverters and are located more than 800m from the On-site substation. The modeling results of Appendix 10.5 shows that operational noise levels would not exceed 50 dB Laeq, which is therefore clearly below a precautionary level. Making comments in relation to the precautionary level and concluding that PRoW are of medium sensitivity to noise and vibration, because users are	The basis for the assessment of PRoW receptors was set out in detail in Appendix 10.1 [APP-077] and Appendix 10.2 of the ES [APP-078], and was further clarified in the response to Q9.0.1 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037].  For the assessment of construction and decommission effects, the PRoW receptors were considered as having medium sensitivity to noise or vibration, which is similar to what would be considered for public amenity areas such as parks, but the PRoW are used on a more transient basis, so exposure to noise from the Onsite Substation and any Solar Stations would be transient and comparable to exposure to localised sources of noise for other portions of the PRoWs (including traffic noise and agricultural activities).

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		passing through is misleading. PRoW's are used for leisure, relaxation, well-being and any significant noise negates the benefit of using the paths.	
		The PRoWs both identified are bridleways and whilst there is no firm policy or guidance for animals vs. humans, it is a safety concern that horses will be in such close proximity to this unusual noise. A horse does not experience noise in the same way humans do, and the tone and frequency may be more of an issue than the level of noise.	Noise from electrical plant on PRoWs is not expected to be at high level (below 55 dB L <sub>Aeq</sub> ) and is relatively constant in nature (i.e. there are no sudden noises) so significant disturbance for animals such as horses is considered unlikely. Noise with a similar character (tone and frequency range) is already emitted from other similar electrical plant (substations) in the area and elsewhere in the country without causing a detrimental impact on horses using bridleways.
		Solar panels will have a 25 to 30 year life. The noise and vibration levels caused by the replacement of all of the panels, has not been assessed. This is a major omission.	ES Chapter 10: Noise and Vibration [APP-040] noted at paragraph 10.8.30 that "Decommissioning is likely to involve activities of similar or reduced intensity as for the construction phase and therefore result in comparable noise and vibration effects in the most part; however, HDD or piling are unlikely to be required for this phase, leading to reduced impacts overall."  This statement would apply to replacement of solar PV panels if required, with negligible to low adverse effects expected which would not be significant. The associated effects would be minimised and managed through the Decommissioning Environmental Management Plan secured through a requirement of the DCO (see paragraph 18 of Schedule 2 in the draft DCO (rev.2) [REP2-006]).
		Noise levels affecting residents appear to be have been forecast on the basis that residents are in their houses with the windows closed. Thus no account is taken for the impact of noise when, for	The assessment of ES Chapter 10: Noise and Vibration [APP-040] was not based on assuming that windows would be closed. Levels were predicted at external locations (e.g. gardens) rather than within houses) and assessed in relation to applicable guidelines and standards. Even with an opened window, noise levels inside houses will be lower than outdoors.

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		example, residents are in their gardens during the warmer months and in bed at night with their windows open.	The Applicant has also explained the assessment's findings in respect of potential noise effects inside rooms where windows are left open at night-time (see responses to Q9.0.3 and Q9.0.4 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037]).
		With an 852Ha site, the level of noise testing seems fairly basic in terms of locations chosen and the frequency. This need be reevaluated to ensure it is fully representative across such a vast site.	As noted in Appendix 10.3: Noise and Vibration – Consultation Summary of the ES [APP-079], the approach to the baseline noise measurements was discussed in consultation with the relevant departments of RCC and SKDC and was considered comprehensive and satisfactory. The aim of the monitoring was to characterise baseline noise levels in the quieter parts of the area around the Proposed Development and the survey spatial coverage and duration were sufficient for this purpose.
			The approach taken in the EIA has also been reviewed by Stantec on behalf of Rutland County Council and South Kesteven District Council (see Appendix D) and no adverse comments were made on the approach taken.
		It is concerning that the baseline methodology assumes low to moderate wind conditions. In parts of the site where it is very open and undulating the prevailing SW wind can have a significant impact on noise levels. The best example is the train line. It can be clearly heard up to 1.5 miles away, as it is a transient noise it is more acceptable	The analysis of baseline noise measurements excluded periods of increased winds, as required by BS 4142, in order to represent quieter baseline conditions and therefore provide a robust assessment. However, the predictions of noise from the different sources of noise assumed favourable propagation conditions, such as those which may be experienced when the wind blows from sources to receivers. This therefore provides a precautionary assessment.  The approach taken in the EIA has been reviewed by Stantec on behalf of Rutland County Council and South Kesteven District Council (see Appendix D) and no adverse comments were made on the approach taken.
		MPSF state in Chapter 10 Noise and Vibration (APP-040) "As the noise from the Onsite Substation is likely to include a tonal character which may be clearly audible (as a worst-case),a penalty of +4 dB is applied in accordance with BS 4142 (see	As discussed in the ES and in further detail in the response to Q9.0.4 in the Applicant's Response to ExA's First Written Questions (ExQ1) [REP2-037], the electrical plant is unlikely to operate or not operate at full duty during most periods of the night, resulting in lower night-time noise levels compared to worst-case rated noise levels from the equipment. Even on the basis of the worst-case assumptions made, the predicted noise levels are low and unlikely

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		Appendix 10.5). This potentially results in rated noise levels of 33 dB LAr which is similar to typical lowest background noise levels of at least 31 dB LA90 experienced at the closest dwellings identified during the daytime, resulting in a low impact."  That may be the case theoretically, but this constant tonal noise at night will be experienced very differently compared to the levels of daytime noise and could have serious implications for the mental and physical health of residents affected. Had the substation been sited behind Freewards woodland, it would have provided both a natural sound and visual barrier.	to be associated with significant noise impacts and therefore unlikely to have significant implications for health and wellbeing.  Please note that trees generally offer negligible screening for noise. It is not clear from MPAG's Written Representation what precisely is meant by siting the Onsite Substation behind The Freewards woodland, however, relocating the Onsite Substation nearer to that location would move the equipment either closer to residential receptors in Ryhall or in Essendine tcompared to the current separation distance between these settlements and the proposed location for the Onsite Substation. This would be detrimental as it would lead to increased noise levels at receptors as the effects of increased proximity would over-ride any limited screening of noise from the forestry.
		Appendix 10.5 noise modeling: It is hard to see how the total sound power of 99 dB(A) for the onsite substation will be reduced down to33 dB LAr over such a short distance to the residential receptor. Taking a similar distance from the inverters, the end resulting noise for receptors is not that different, but the starting point at source is much lower. How can that be the case?	The noise modelling of the Onsite Substation was based on the recognised method of ISO 9613-2. Please note that 99 dB(A) is a sound power which represents the total sound energy at the source (when summed across the entire surface around the source) and that the actual noise levels which would be experienced, even near to the source, would be substantially lower than this.
		Technology opportunities. If MPSF genuinely want to minimize	The selection of the final equipment to be used at the site will be made on the basis of a range of considerations, including noise. These will be set out based

component specification for sources of operational noise strategy required by the DCO (see paragraph 16 of DCO [REP2-006]).
rd good practice for the management of construction cation of 'Best Practicable Means' (BPM) to control acts, following the guidance of BS 5228-1. Examples of le 3-5 Noise and Vibration of the Outline Construction EP2-020] including maintaining construction plant and diswitching them off when not in use.
location is already more than 600 m from the nearest rs and it is not considered necessary to further increase e. As noted above, trees would provide negligible noise proposed, including Saturday morning works, are as they are referenced in Annex E of BS 5228-1.
rs e.

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		community they intend to go 'over and above' to minimize the impacts by:  - Re-siting of the substation with better visual and noise screening.  - Monday to Friday working only with more frequent time-outs for noisy construction activity.	
		Vibration. Can MPSF assure ALL residents there will be no vibration impacts to any buildings adjacent to the site? The baseline assumption of 50% soft ground and 50% hard ground when piling and digging out surfaces may not be representative across the site. Some of the trial trenching activity clearly shows solid stone/rock only a few inches below the surface. Does BS5228 pay heed to the impact on older buildings, some without foundations, some sensitive to high vibration levels?	In paragraph 10.1.3 of Appendix 10.5 of the ES [APP-081], the ground cover is assumed as "50% hard / 50% soft" but this is only relevant to the predictions of construction noise.  The predictions of construction vibration (paragraphs 10.1.4 and 10.1.5 of Appendix 10.5) do not assume soft ground conditions, but were based on precautionary predictions based on the methodology of BS 5228-2, which were not based on soft ground for either piling vibration generation or propagation.  As noted in paragraph 1.1.16 in Appendix 10.2 of the ES [APP-078]), BS 5228-2 advises that any risk of building damage, even for sensitive buildings, would only occur at vibration levels above 10 mm/s. As worst-case predicted levels do not exceed 1 mm/s, no building damage is expected from any of the proposed works.
REP2-090	Air Quality	[Para19.26] There are a number of SSSIs close to and within the site. During construction there is a high probability those SSSIs will be damaged in terms of the habitat and species living there or close by. This is due to the level of HGV traffic, cabling activity, pollution and air quality impacts in those areas. This is a strong indicator that harms to	The Ryhall Pasture and Little Warren Verges Site of Special Scientific Interest (SSSI) is located adjacent to the north-western boundary of the Order limits at approximate NGR: 502749 313588, and Braceborough Little Wood Ancient Woodland is located outside of but within 50 m of the Order limits at approximate NGR: 506739 313309.  With regard to impacts from construction dust, in line with Institute of Air Quality Management guidance on assessment of dust from demolition and construction, the unmitigated risk of dust impacts at either ecological site is classified as medium. Within the oCEMP [REP2-020], mitigation measures have been specified based on a potential large risk of dust emission during

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		nationally protected assets will not be avoided by the use of this location at this scale. It will not be possible to recover the damage caused to all habitat and species due to the unprecedented levels of disturbance, noise, dust and pollution down Uffington Lane with both a primary and secondary compound as well as new substation	construction as a precautionary approach. On this basis, it is not anticipated that there will be any significant residual effects.  With regard to the potential impacts from emissions due to construction traffic, the Design Manual for Roads and Bridges state the potential for significant effects is caused by a cumulative increase in annual average daily traffic flows of 1000 vehicles on any one road link within 200m of a sensitive ecological receptor per day. As confirmed in the oCTMP, trip generation during the construction phase is expected to be far lower than this threshold and, on this basis, there are not anticipated to be any significant impacts to air quality at sensitive ecological receptors.
			The potential effects on Air Quality were considered in Chapter 15 of the Environmental Statement [APP-045]. It concludes at paragraphs 15.2.32 and 15.2.33 that the measures implemented via the oCTMP [APP-212] and oCEMP [REP2-020] are considered sufficient to minimise impacts to air quality from emissions associated with construction traffic and NRMM. Therefore, it is not anticipated that there will be any significant residual effects with regard to air quality to ecological receptors.