

**Proposed Solar PV Development**

# Preliminary Environmental Information Report Chapter 14 Summary

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Reference: EN010139

Revision 1 | May 2023



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# 14. Summary

## 14.1. Summary of Effects and Mitigation

- 14.1.1. The effects presented within this chapter are preliminary and further certainty of the potential environmental effects as a result of the Proposed Development will be gained as the Environmental Impact Assessment (EIA) process progresses alongside the development of the design of the Proposed Development. The design of the Proposed Development is an iterative process and will continue to develop with consultation with statutory and non-statutory consultees.
- 14.1.2. Several different aspects of the environment would potentially be affected by the Proposed Development. Some of these effects would occur during construction, such as the loss of land, vegetation and wildlife habitat, and the generation of dust and noise. Other impacts would occur during operation, such as the provision of new landscaping and ecological habitats from the landscape and ecological mitigation proposals.
- 14.1.3. The final design parameters will be considered in detail by the environmental chapter authors and the results of the assessments will be reported in the individual topic chapters of the Environmental Statement (ES).
- 14.1.4. Mitigation measures are identified and described in further detail within the individual topic chapters (Chapters 5 – 12) of this Preliminary Environmental Information Report (PEIR). These mitigation measures have been incorporated into the Proposed Development and/or control documents, as agreed with the project team and stakeholders (where necessary), to control residual effects.
- 14.1.5. Table 14-1 presents a high level assessment of significant environmental effects from the Proposed Development, proposed mitigation measures and the residual effects for each of the environmental topics assessed within this PEIR.

**Table 14-1 Summary of effects and mitigation**

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>Climate Change</b>						
<b>Climate change</b>	Release of GHG emissions during construction	<ul style="list-style-type: none"> <li>Increasing recyclability by segregating construction waste to be re-used and recycled where reasonably practicable;</li> </ul>	Medium	The construction period of the Proposed Development	Low	Minor
<b>Climate Change</b>	Release of GHG emissions during decommissioning	<ul style="list-style-type: none"> <li>Adopting the Considerate Constructors Scheme (CCS) to assist in reducing pollution, including GHGs, from the Proposed Development by employing good industry practice measures;</li> <li>Designing, constructing and implementing the Proposed Development in such a way as to minimise the creation of waste and maximise the use of alternative materials with lower embodied carbon, such as locally sourced products and materials</li> </ul>	Medium	End of design life	Low	Minor

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<p>with a higher recycled content where feasible;</p> <ul style="list-style-type: none"> <li>▪ Reusing suitable infrastructure and resources already available in the Site Area where possible to minimise the use of natural resources and unnecessary materials (e.g. reusing excavated soil for fill requirements or storing, preserving and restoring top soil);</li> <li>▪ Encouraging the use of lower carbon modes of transport by identifying and communicating local bus connections and pedestrian and cycle access routes to/ from the Proposed Development to all construction staff, and providing appropriate facilities for the safe storage of cycles;</li> <li>▪ Liaising with construction personnel for the potential to implement staff</li> </ul>				

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<ul style="list-style-type: none"> <li>minibuses and car sharing options;</li> <li>▪ Implementing a Travel Plan to reduce the volume of construction staff and employee trips to the Proposed Development;</li> <li>▪ Switching vehicles and plant off when not in use and ensuring construction vehicles conform to current EU emissions standards; and</li> <li>▪ Conducting regular planned maintenance of the construction plant and machinery to optimise efficiency.</li> </ul>				
<b>Climate Change</b>	Production of low carbon energy	Nothing beyond increasing efficiency of power generation	Medium	The lifetime of the Proposed Development	High	Major beneficial
<b>Biodiversity</b>						
<b>Construction</b>						
<b>Teesmouth and Cleveland SPA, Ramsar</b>	Potential disturbance and displacement of wintering wildfowl part of the waterfowl assemblage of the Teesmouth	<ul style="list-style-type: none"> <li>▪ Revised layout avoids open water and some</li> </ul>	High (International importance)	Short term (during	Negligible	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>and proposed Ramsar site</b>	and Cleveland SPA and Ramsar site.	<p>areas where geese were recorded in the winter.</p> <ul style="list-style-type: none"> <li>Displacement unlikely given relatively low numbers of wintering birds recorded within the Site Area</li> <li>Noise and visual disturbance will not impact on the integrity or the functioning of SPA, Ramsar &amp; SAC sites, owing to the distance between these sites and the Site Area. This potential impact will be assessed through a Habitat Regulations Screening Assessment (HRA).</li> </ul>		construction) & reversible		
<b>Thrislington SAC</b>	Potential indirect impacts to the Thrislington SAC through noise, water quality, lighting or visual	Noise and visual disturbance will not impact on the integrity or the SAC site, owing to the distance between these sites and the Site Area. This potential impact will be assessed through a Habitat Regulations Screening Assessment (HRA).	High (International importance)	Short term & reversible	Negligible	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>Briarcroft Pasture SSSI, Whitton Bridge Pasture SSSI, Redcar Field SSSI &amp; Newton Ketton Meadow SSSI</b>	Potential indirect impacts through noise, water quality, lighting or visual	<ul style="list-style-type: none"> <li>Construction will not directly impact on habitats within these designated sites.</li> <li>Noise and visual disturbance will not impact on the integrity or the functioning of SSSI sites, as standard environmental protection measures will be implemented and adopted during construction, formalised through a CEMP.</li> </ul>	High (National importance)	Short term & reversible	Negligible	Not significant
<b>Hardwick Dene &amp; Elm Tree Woods LNR &amp; Stillington Forest Park LNR, Carr House Pond</b>			High (National importance)	Short term & reversible	Negligible	Not significant
<b>Darlington LWS &amp; Wynyard Woodland Park Stockton LWS</b>			Medium (County Importance)	Short term & reversible	Negligible to Low Adverse	Not significant
<b>Habitats - arable and grassland habitats</b>	Loss of these habitats to facilitate the Panel Areas and cable corridor	<ul style="list-style-type: none"> <li>These habitats are species-poor and had little intrinsic botanical value and are common in the surrounding</li> </ul>	Low (Site Importance)	Long term	Low Adverse	Not significant



Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<p>environment. There loss is not considered to be significant.</p> <ul style="list-style-type: none"> <li>Under and between Panel Areas these habitats to be enhanced in line with three options and managed accordingly: wildflower mix, legume rich mix and low maintenance grass.</li> </ul>				
<b>Habitats - semi-improved grassland, woodland, dense scrub, hedgerows, treelines, swamp &amp; ponds</b>	Loss of these habitats to facilitate the Panel Areas and cable corridor.	<ul style="list-style-type: none"> <li>The majority of these habitat types are along field margins with the majority of these habitats to be retained.</li> <li>Field boundaries will be managed to enhance biodiversity with sowing along field margins (sowing with specific wild bird winter food, sowing of tussock forming grass species and sowing of wildflower seed mix) and planting of lost hedgerows in the landscape with</li> </ul>	Low (Local Importance)	Short term & reversible (replacement planting and sowing)	Negligible to Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		additional planting along gappy hedgerows.				
<b>Watercourses</b>	Pollution to watercourses.	<ul style="list-style-type: none"> <li>Appropriate buffers to watercourses.</li> <li>All works in proximity to waterbodies/watercourses will follow measures outlined in a CEMP to ensure their complete protection against pollution, silting and erosion.</li> </ul>	Medium (County Importance)	Short term & reversible	Negligible to Low Adverse	Not significant
<b>Wintering bird assemblage</b>	<ul style="list-style-type: none"> <li>Low numbers of wintering birds recorded within the study area.</li> <li>Loss of foraging habitat for wintering bird due to disturbance and the placement of Solar PV modules.</li> </ul>	<ul style="list-style-type: none"> <li>Revised layout avoids open water and some areas where geese were recorded in the winter.</li> <li>Allocation of discrete areas that will remain free of solar panels to provide continued availability of habitat.</li> <li>Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide enhanced roosting and</li> </ul>	<p>Medium</p> <ul style="list-style-type: none"> <li>(County Importance: great crested grebe, grey partridge, herring gull, linnet, pink-footed goose, stock dove and wigeon</li> <li>District Importance: common gull, starling &amp; tree sparrow)</li> </ul>	Long term & partially reversible	Low Adverse	Construction: Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<ul style="list-style-type: none"> <li>foraging habitat for wintering birds.</li> <li>Sowing with specific wild bird winter food mix along field margins.</li> </ul>				
<b>Breeding bird assemblage</b>	Loss of breeding habitat for nesting birds through disturbance and the placement of Solar PV modules	<ul style="list-style-type: none"> <li>Revised layout avoids open water and some areas of nesting lapwing and curlew.</li> <li>Provision of discrete parcels with no panels to provide nesting opportunities for ground nesting birds.</li> <li>Clearance of vegetation of value to nesting birds will be completed outside of the bird-breeding season. Should it not be possible to avoid this season, vegetation will be inspected/surveyed by the project ecologist immediately before clearance.</li> <li>Lost hedgerows will be replanted, gappy ones stocked up and</li> </ul>	<p>Medium</p> <ul style="list-style-type: none"> <li>County: skylark, tree sparrow and yellowhammer</li> <li>District: grey partridge, lapwing, curlew, and reed bunting</li> </ul>	Long term (for operation of solar farm) & partially reversible	High to Medium Adverse	Significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<p>management relaxed on others to provide enhanced foraging and nesting habitat for birds.</p> <ul style="list-style-type: none"> <li>Provision of rough grass, wildflower and game cover and winter seed source sowing within field margins improving foraging habitat for bird species.</li> <li>Area underneath and between panels will be sown with one of 3 potential options, aiming to increase invertebrates and improve foraging habitat for birds.</li> </ul>				
<b>Invertebrates</b>	Potential short-term decrease in invertebrate numbers. The Site Area is likely to support an invertebrate assemblage typical of farmland landscapes which would not be of particular importance with the surrounding environment containing a similar landscape.	<ul style="list-style-type: none"> <li>Revised layout enabling the retention of habitats suitable for invertebrates such as field margins, woodland and the majority of hedgerows and associated trees.</li> <li>Planting along field margins, under panels and planting lost</li> </ul>	Low (Site Importance)	Short term & reversible	Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		hedgerows with additional planting along gappy hedgerows is likely to increase invertebrate numbers and diversity across the Site Area.				
<b>GCN and other amphibians</b>	Potential loss of GCN and amphibian breeding habitat if suitable ponds are removed for the placement of Solar PV modules.	<ul style="list-style-type: none"> <li>▪ Revised layout enabling the majority of habitat suitable for GCN and amphibians to be retained such as field margins, woodland, scrub and the majority of hedgerows.</li> <li>▪ Existing ponds to be retained and enhanced where possible. Any potential impact to GCN to be offset by a Natural England District Level Licence for GCN.</li> </ul>	Low (Local Importance)	Short term & partially reversible	Low Adverse	Not significant
<b>Reptiles</b>	Potential loss of reptile habitat	<ul style="list-style-type: none"> <li>▪ Revised layout enabling the retention of habitat suitable for reptiles such as field margins, woodland, scrub and the majority of hedgerows.</li> <li>▪ Should habitat suitable for reptiles require</li> </ul>	Low (Site Importance)	Short term & partially reversible	Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		clearing it will be done in accordance with a method statement to safeguard reptiles.				
<b>Nathusius' pipistrelle</b>	<ul style="list-style-type: none"> <li>Disturbance to foraging bats due to noise, as well as changes to habitat due to the placing of Solar PV modules which could potentially lead to a temporary reduction in bat insect prey</li> </ul>	<ul style="list-style-type: none"> <li>Revised layout enabling the retention of habitats suitable for foraging, commuting and roosting bats such as field margins, woodland, scrub and the majority of hedgerows and associated trees.</li> </ul>	Medium (County Importance)	Short term & reversible if no roosts are to be removed	Low Adverse	Not significant
<b>All other bat species recorded within the study area</b>	<ul style="list-style-type: none"> <li>Potential loss of roosting habitat</li> <li>Potential loss of commuting habitat</li> </ul>	<ul style="list-style-type: none"> <li>Maintenance of appropriate buffers between solar panels and potential bat roost trees.</li> <li>No trees are anticipated to require felling. Any tree to be felled will be subject to a pre-construction check to determine its current bat roost potential.</li> <li>Lost hedgerows will be replanted, gappy ones stocked up and management relaxed on others to provide</li> </ul>	Low (Local Importance)	Short term & reversible if no roosts are to be removed	Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<p>enhanced commuting and foraging habitat for bats.</p> <ul style="list-style-type: none"> <li>Planting along field margins and under panels with the aim of increasing invertebrate numbers and diversity which will enhance foraging for bats</li> </ul>				
<b>Otter</b>	Disturbance to foraging otter and potential pollution to watercourses	<ul style="list-style-type: none"> <li>Maintenance of appropriate buffers between solar panels and riparian boundaries and watercourses.</li> <li>Protection measures will be implemented and adopted during construction, formalised through a CEMP.</li> <li>No works in the vicinity of waterbodies/watercourses during hours of darkness.</li> </ul>	Low (Local Importance)	Short term & reversible	Negligible	Not significant
<b>Badger</b>	Disturbance to badger, as well as changes to foraging habitat due to the placing of Solar PV modules	<ul style="list-style-type: none"> <li>Revised layout enabling the retention of field margins, woodland with</li> </ul>	Low (Local Importance)	Short term & reversible	Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<p>no sett closure expected.</p> <ul style="list-style-type: none"> <li>Setts will be protected with appropriate buffers to prevent disturbance.</li> <li>Any exposed trenches or holes are to be covered up when contractors are off site (i.e. at night time) or a slope provided to allow any trapped badgers a safe exit.</li> <li>Security fencing used around the Panel Areas will be permeable to badgers allowing continued movement across the site.</li> </ul>				
<b>Brown hare</b>	Disturbance to brown hare, as well as changes to foraging habitat due to the placing of Solar PV modules	<ul style="list-style-type: none"> <li>Revised layout enabling the retention of field margins, treeline, hedgerows and woodland which would typically be used as resting up areas and cove from predators.</li> <li>Security fencing used around the Panel Areas</li> </ul>	Low (Local Importance)	Short term & reversible	Low Adverse	Not significant



Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		will be permeable to hares allowing continued movement across the Site Area. Surrounding habitats that can be used by brown hare in the locality.				
<b>Deer</b>	Fragmentation of foraging routes across the wider landscape	Design of security fencing used around the Panel Areas will fence fields individually rather than a single fence around the entire perimeter to allow access by deer. This will enable them to use retained margins adjacent to field boundaries to move across the wider landscape, whilst still being excluded from panel areas.	Low (Local Importance)	Short term & reversible	Low Adverse	Not significant
<b>Hedgehog</b>	Disturbance to hedgehog, as well as changes to foraging habitat due to the placing of Solar PV modules	<ul style="list-style-type: none"> <li>▪ Revised layout enabling the retention of field margins, treeline, hedgerows and woodland which would typically be used as resting up areas.</li> <li>▪ Security fencing used around the Panel Areas will be permeable to hedgehogs allowing</li> </ul>	Low (Local Importance)	Short term & reversible	Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<p>continued movement across the Site Area</p> <ul style="list-style-type: none"> <li>Surrounding habitats that can be used by hedgehog in the locality.</li> </ul>				
<b>Operation</b>						
<b>Teesmouth and Cleveland SPA, Ramsar and proposed Ramsar site</b>	Potential indirect impacts through noise, lighting or visual	Solar farms are passive developments which require minimum operational work. Therefore, no operational impacts on this site are expected from the Proposed Development.	High (International importance)	No potential impacts expected	Negligible	No change
<b>Thrislington SAC</b>	Potential indirect impacts through noise, lighting or visual	Solar farms are passive developments which require minimum operational work. Therefore, no operational impacts on this site are expected from the Proposed Development.	High (International importance)	No potential impacts expected	Negligible	No change
<b>Briarcroft Pasture SSSI, Whitton Bridge Pasture SSSI, Redcar Field SSSI &amp; Newton Ketton Meadow SSSI</b>			High (National Importance)	No potential impacts expected	Negligible	No change

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
Hardwick Dene & Elm Tree Woods LNR & Stillington Forest Park LNR, Carr House Pond			High (National Importance)	No potential impacts expected	Negligible	No change
Darlington LWS & Wynyard Woodland Park Stockton LWS			Medium (County Importance)	No potential impacts expected	Negligible	No change
Habitats - arable and grassland habitats	There are no pathways (e.g. habitat loss and pollution) during operation of the Proposed Development which could affect habitats.	<ul style="list-style-type: none"> <li>As solar farms are passive developments the impacts from the Proposed Development during operation on habitats would be minimal.</li> <li>Enhancement of arable and grassland habitats through planting under and between panels will increase biodiversity.</li> </ul>	Low (Site Importance)	Long term (operational 40 years) & reversible after life of project	Medium Beneficial	Significant Beneficial
Habitats - semi-improved	There are no pathways (e.g. habitat loss and pollution) during operation of the	<ul style="list-style-type: none"> <li>As solar farms are passive developments the impacts from the</li> </ul>	Low (Local Importance)	During (operation – 40	Medium Beneficial	Significant Beneficial

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
grassland, woodland, dense scrub, hedgerows, treelines, swamp & ponds	Proposed Development which could affect habitats.	<p>Proposed Development during operation on habitats would be minimal.</p> <ul style="list-style-type: none"> <li>The new habitat creation and enhancement including planting of hedgerows, and sowing of higher biodiversity grassland species, means that the overall impact of operation on habitats is expected to be low beneficial.</li> </ul>		years) & after operation		
<b>Watercourses</b>	There are no pathways (e.g. pollution) during operation of the Proposed Development which could affect watercourses.	As solar farms are passive developments the impacts from the Proposed Development during operation on watercourses would be minimal.	Medium (County Importance)	No potential impacts expected	Negligible	No change
<b>Wintering bird assemblage</b>	Potential increase in foraging due to enhancement of habitats. Increased roosting habitat due to hedgerow planting, enhancement and relaxing hedgerow cutting. Solar free panel areas proving continued foraging habitat.	<ul style="list-style-type: none"> <li>Potential increase in invertebrate diversity with an increase in foraging and roosting habitat due to habitat and enhancement measures along field boundaries and hedgerows.</li> </ul>	<ul style="list-style-type: none"> <li>Medium</li> <li>(County Importance: great crested grebe, grey partridge, herring gull, linnet, pink-footed goose, stock</li> </ul>	Long term (operational – 40 years)	Low Adverse	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		<ul style="list-style-type: none"> <li>Solar free panels areas to provide continued availability of foraging habitat for birds such as curlew, lapwing and skylark.</li> </ul>	<ul style="list-style-type: none"> <li>dove and wigeon</li> <li>District Importance: common gull, starling &amp; tree sparrow)</li> </ul>			
<b>Breeding bird assemblage</b>	Open ground will provide breeding and foraging habitat for ground nesting birds such as curlew, lapwing and skylark. Increased nesting and foraging habitats due to habitat enhancement of field margins, hedgerows and under solar panel area	<ul style="list-style-type: none"> <li>The discrete areas allocated for ground nesting birds will be managed in a manner sympathetic to ground nesting birds, for example late summer hay cuts after young birds have fledged.</li> <li>Habitat creation including hedgerows, field margin sowing, and meadow grassland would benefit invertebrates and in turn foraging and nesting birds.</li> </ul>	<ul style="list-style-type: none"> <li>Medium</li> <li>County: skylark, tree sparrow and yellowhammer</li> <li>District: grey partridge, lapwing, curlew, and reed bunting</li> </ul>	Long term (for operation of solar farm) & partially reversible	Medium Adverse	Significant – residual effects will depend on efficacy of mitigation
<b>Invertebrates</b>	Likely Potential increase in invertebrate abundance and diversity due to habitat enhancement	<ul style="list-style-type: none"> <li>Habitat creation including hedgerows and habitat enhancement along field margin and under Panel Areas</li> </ul>	Low (Site Importance)	Long term (operation – 40 years)	Medium Beneficial	Significant Beneficial

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		would benefit invertebrates.				
<b>GCN and other amphibians</b>	There are no pathways (e.g. pollution) during operation of the Proposed Development which could affect habitat suitable for these species. Habitat creation of hedgerows and enhancement of field margins and under panel areas to benefit GCN and amphibians.	<ul style="list-style-type: none"> <li>As solar farms are passive developments the impacts from the Proposed Development during operation on GCN and amphibians would be minimal.</li> <li>Habitat creation including hedgerows and habitat enhancement along field margin and under Panel Areas would benefit GCN and amphibians.</li> </ul>	Low (Local Importance)	Long term (operation – 40 years)	Low Beneficial	Significant Beneficial
<b>Reptiles</b>	Habitat creation of hedgerows and enhancement of field margins and under panel areas to benefit reptiles.	Habitat creation of hedgerows and habitat enhancement in field margin and under Panel Areas would benefit reptiles	Low (Site Importance)	Long term (operation – 40 years)	Low Beneficial	Significant Beneficial
<b>Nathusius' pipistrelle</b>	<ul style="list-style-type: none"> <li>Potential increase in invertebrate diversity with an increase in foraging habitat for bat species due to habitat and enhancement measures along field</li> </ul>	<ul style="list-style-type: none"> <li>All boundary features which are of value to foraging/commuting and potential bat roost features in trees will be retained with suitable buffers to allow the continued use of these features across the Site</li> </ul>	Medium (County Importance)	Long term (operation – 40 years)	Low Beneficial	Significant Beneficial
<b>All other bat species recorded within the study area</b>			Low (Local Importance)	Long term (operation – 40 years)	Low Beneficial	Significant Beneficial

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
	<p>boundaries and under Panel Areas.</p> <ul style="list-style-type: none"> <li>More commuting habitats available due to the planting of lost hedgerows, and planting up of gappy hedgerows</li> </ul>	<p>Area. It is therefore expected that there will be no impacts on bat foraging and roosting habitat within the Site Area from the Proposed Development.</p> <ul style="list-style-type: none"> <li>Habitat creation including hedgerows with field margin sowing and meadow grassland would benefit invertebrates and in turn foraging bats.</li> </ul>				
<b>Otter</b>	<ul style="list-style-type: none"> <li>There are no pathways (e.g. pollution) during operation of the Proposed Development which could affect habitat suitable for these species.</li> <li>Otters will be able to commute and forage along watercourse within the Proposed Development</li> </ul>	As solar farms are passive developments the impacts from the Proposed Development during operation on GCN and amphibians would be minimal.	Low (Local Importance)	No potential impacts expected	Negligible	No change
<b>Badger</b>	<ul style="list-style-type: none"> <li>Badger will be able to forage and commute</li> </ul>	<ul style="list-style-type: none"> <li>Regular checks of fencing will occur to ensure badger access</li> </ul>	Low (Local Importance)	Long term (operation – 40 years)	Low Beneficial	Beneficial

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
	<p>across the Proposed Development.</p> <ul style="list-style-type: none"> <li>Enhanced foraging across the Proposed Development.</li> </ul>	<p>points remain operational.</p> <ul style="list-style-type: none"> <li>The creation of hedgerows and the and habitat enhancement in field margin and under Panel Areas would benefit foraging badgers.</li> </ul>				
<b>Brown hare</b>	Enhanced foraging across the Proposed Development	<ul style="list-style-type: none"> <li>Regular checks of fencing will occur to ensure access points remain operational.</li> <li>The creation of hedgerows and the and habitat enhancement in field margin and under Panel Areas would benefit brown hare</li> </ul>	Low (Local Importance)	Long term (operation – 40 years)	Low Beneficial	Beneficial
<b>Deer</b>	Design of Security fencing used around the Panel Areas. Deer will be able to move freely across the Proposed development	No measures required.	Low (Local Importance)	Long term (operation – 40 years) & reversible	Negligible	No change
<b>Hedgehog</b>	Enhanced foraging across the Proposed Development	<ul style="list-style-type: none"> <li>Regular checks of fencing will occur to ensure access points remain operational.</li> <li>The creation of hedgerows and the and</li> </ul>	Low (Local Importance)	Long term (operation – 40 years)	Low Beneficial	Beneficial



Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
		habitat enhancement in field margin and under Panel Areas would benefit brown hare				
<b>Landscape and Visual</b>						
<b>Construction</b>						
<b>Landscape Fabric</b>	Removal of short sections of hedgerow for access and cable routes.	To be designed – see Chapter 7, section 7.10	N/A	Short-term (during construction period and re-establishment of replacement planting)	To be assessed after mitigation design in ES.	Not significant
<b>6 Great Stainton Farmland</b>	Changes to host landscape character area due to construction activity.	None	Medium	Short-term (during construction period)	To be assessed after mitigation design in ES.	Potentially significant
<b>Visual receptors within 0.5km of Panel Areas</b>	Changes to views due to construction activity.	None	Medium	Short-term (during construction period)	To be assessed after mitigation design in ES.	Potentially significant
<b>All other landscape and visual receptors</b>	Changes to views due to construction activity.	None	Varies	Short-term (during construction period)	No further assessment required	Not significant
<b>Operation</b>						

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>Darlington: 6 Great Stainton Farmland</b>	Changes to host landscape character area – see Chapter 7, 7.11.13-7.11.14.	To be designed – see section Chapter 7, 7.10	Medium	Operation – 40 years	To be assessed after mitigation design in ES.	Significant
<b>Darlington: 7 Bishopton Vale</b>	Changes to host landscape character area – see Chapter 7, 7.11.15-7.11.17.	To be designed – see section Chapter 7, 7.10	Medium/low	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Darlington: 5 Upper Skerne Valley</b>	Changes to adjacent character area – see Chapter 7, 7.11.19-7.11-20.	To be designed – see section Chapter 7, 7.10	Medium	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Durham: 73 Sedgfield, Windlestone and Aycliffe</b>	Changes to adjacent character area – see Chapter 7, 7.11.21-7.11-22.	To be designed – see section Chapter 7, 7.10	Medium	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Durham: 16 Butterwick and Shotton</b>	Changes to adjacent character area – see Chapter 7, 7.11.23-7.11-24.	To be designed – see section Chapter 7, 7.10	Medium	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Stockton-on-Tees: 1 West Stockton Rural Fringe</b>	Changes to nearby character area – see Chapter 7, 7.11.25-7.11-26.	To be designed – see section Chapter 7, 7.10	Medium/low	Operation – 40 years	No further assessment required	Not significant
<b>Stockton-on-Tees: 3 Billingham and Thorpe Becks</b>	Changes to nearby character area – see Chapter 7, 7.11.27-7.11-28.	To be designed – see section Chapter 7, 7.10	Medium	Operation – 40 years	No further assessment required	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>NCA 23 Tees Lowlands</b>	Changes to host national character areas – see Chapter 7, 7.11.29-7.11-32.	To be designed – see section Chapter 7, 7.10	Medium/low	Operation – 40 years	No further assessment required	Not significant
<b>Coatham Mundeville</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.36.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	No further assessment required	Not significant
<b>Brafferton</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.37.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Not significant
<b>Great Stainton</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.38.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Bishopston</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.39-7.11.40.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Old Stillington</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.41.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Stillington</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.42.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	No further assessment required	Not significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>Whitton</b>	Changes to views for residents of and visitors to settlement. See Chapter 7, 7.11.43.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	No further assessment required	Not significant
<b>Between A167, Salters Lane, Lea Hall and Little Ketton Farm</b>	Changes to views residents and users of local roads and footpaths. See Chapter 7, 7.11.44-7.11.47.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Significant
<b>Between Lea Hall, Salters Lane, Newton Ketton, Elstob Lane and Hill House Lane</b>	Changes to views residents and users of local roads and footpaths. See Chapter 7, 7.11.48-7.11.51.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Significant
<b>Between Elstob Lane, Bleach House Bank, Stoney Flatt Farm, Gillyflatts and Long Pasture House Farm</b>	Changes to views residents and users of local roads and footpaths. See Chapter 7, 7.11.52-7.11.54.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Significant
<b>Between Bleach House Bank, Stillington, Redmarshall</b>	Changes to views residents and users of local roads and footpaths. See Chapter 7, 7.11.55-7.11.57.	To be designed – see section Chapter 7, 7.10	High/medium	Operation – 40 years	To be assessed after mitigation design in ES.	Significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>and Stoney Flatt Farm</b>						
<b>A167</b>	Changes to views for main road users. See Chapter 7, 7.11.58.	To be designed – see section Chapter 7, 7.10	Medium	Operation – 40 years	No further assessment required	Not significant
<b>East Coast Main line</b>	Changes to views for main road users. See Chapter 7, 7.11.59-7.11.60.	To be designed – see section Chapter 7, 7.10	Medium/low	Operation – 40 years	No further assessment required	Not significant
<b>A1(M)</b>	Changes to views for main road users. See Chapter 7, 7.11.61.	To be designed – see section Chapter 7, 7.10	Low	Operation – 40 years	No further assessment required	Not significant
<b>Elstob AHLV</b>	Changes to valued qualities. See Chapter 7, 7.11.64-7.11.65.	To be designed – see section Chapter 7, 7.10	To be considered in detail within ES.	Operation – 40 years	To be assessed after mitigation design in ES.	Potentially significant
<b>Hall Garth</b>	Changes to valued qualities. See Chapter 7, 7.11.66.	To be designed – see section Chapter 7, 7.10	N/A	Operation – 40 years	No further assessment required	Not significant
<b>All other landscape and visual receptors</b>	Changes due to presence of operational solar farm	To be designed – see section Chapter 7, 7.10	Varies	Operation – 40 years	No further assessment required	Not significant
<b>Decommissioning</b>						
<b>6 Great Stainton Farmland</b>	Changes to host landscape character area due to decommissioning activity.	None	Medium	Short-term (during construction period)	To be assessed after mitigation design in ES.	Potentially significant

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>Visual receptors within 0.5km of Panel Areas</b>	Changes to views due to decommissioning activity.	None	Medium	Short-term (during construction period)	To be assessed after mitigation design in ES.	Potentially significant
<b>All other landscape and visual receptors</b>	Changes due to construction activity.	None	Varies	Short-term (during construction period)	No further assessment required	Not significant
<b>Cultural Heritage and Archaeology</b>						
<b>Construction</b>						
<b>Remains associated with the purported route of the Roman road to Chester-Le-Street</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Medium	Permanent and non-reversible	Negligible (following mitigation)	Negligible
<b>Remains associated with possible rectangular cropmark of unknown date</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Low	Permanent and non-reversible	Low (following mitigation)	Minor Adverse

<b>Receptor type</b>	<b>Description of potential impact</b>	<b>Embedded design, mitigation, and enhancement measures</b>	<b>Sensitivity of receptor</b>	<b>Duration and reversibility</b>	<b>Magnitude of impact</b>	<b>Significance of effect</b>
<b>Areas of medieval field systems near to Redmarshall and Carlton</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Low	Permanent and non-reversible	Negligible (following mitigation)	Negligible
<b>Large areas of post-medieval ridge and furrow throughout the Site Area</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Low	Permanent and non-reversible	Negligible (following mitigation)	Negligible
<b>The Castle Eden Branch of the North East Railway near to Kenilworth</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Low	Permanent and non-reversible	Negligible (following mitigation)	Negligible
<b>Bishopton Landing Ground, a World War One airfield</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Medium	Permanent and non-reversible	Negligible (following mitigation)	Negligible
<b>Possible rectangular cropmark to the north-</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Low	Permanent and non-reversible	Low (following mitigation)	Minor Adverse

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>east of Great Stainton</b>						
<b>Anomalies identified from the geophysical survey relating to possible or probable archaeology</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Negligible to High	Permanent and non-reversible	Low (following mitigation)	Negligible to Moderate Adverse
<b>As yet unknown archaeological remains</b>	Loss of archaeological interest leading to impact on heritage significance	Avoidance through design measures and/or application of approved archaeological mitigation measures	Negligible to High	Permanent and non-reversible	Low (following mitigation)	Negligible to Moderate Adverse
<b>Operation</b>						
<b>Asset Group Three: Bishopton</b>	Limited alteration in an identified view from outside the conservation area	None applicable	Medium	Permanent but fully reversible upon decommissioning	Negligible	Negligible
<b>Scheduled Monument Motte and Bailey Castle 400 m south east of Bishopton</b>	Change in appreciation and understanding of assets heritage significance through alteration of specific element of setting	None applicable	High	Permanent but fully reversible upon decommissioning	Low	Moderate Adverse
<b>Land use and Socio-economics</b>						



Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
<b>Socioeconomic receptors</b>	Employment and supply chain opportunities during construction and decommissioning	Employment and supply chain opportunities	Medium	Short-term, potential effects related to construction and decommissioning only	Low	Minor
<b>Recreational and community facilities</b>	Maintained access during construction and decommissioning	Ensure continued access as identified in the Construction Traffic Management Plan	Low	Short-term, potential effects related to construction and decommissioning only	Low	Negligible
<b>Development land</b>	Sterilisation of safeguarded limestone mineral resource	N/A	Medium	Short-term, potential effects related to construction and decommissioning only	Low	Minor
<b>PRoW</b>	Required closing / extinguishment of existing PRoW	<ul style="list-style-type: none"> <li>▪ Permissive trails</li> <li>▪ Use of signage</li> <li>▪ Implementation of short, temporary closures</li> <li>▪ Implementation of an alternative/new route(s)</li> </ul>	Medium	Short-term, potential effects related to construction only	Low	Minor
<b>Agricultural land classification</b>	Disturbance of the land	Soil management strategy	Low	Short-term, potential effects related to	High	Moderate

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
and soil resources				construction only		
<b>Hydrology and Flood Risk</b>						
<b>Watercourses</b>	<ul style="list-style-type: none"> <li>Potential risk of increased pollution to watercourses</li> </ul>	<ul style="list-style-type: none"> <li>No large scale excavations proposed</li> </ul>	Medium	Short-term duration related to spillage/temporarily increased pollution	Negligible	Negligible
<b>Designated Sites</b>	<ul style="list-style-type: none"> <li>Pollution may increase due to runoff from vehicles and solar PV modules and increased sediment transport</li> </ul>	<ul style="list-style-type: none"> <li>Runoff and sediment control measures including minimal soil disturbance measures</li> <li>8m buffer zone surrounding watercourses</li> </ul>	High		Negligible	Minor
<b>Groundwater</b>	<ul style="list-style-type: none"> <li>Risk of increased pollution as a result of operation and maintenance activities</li> <li>Risk of pollutants percolating into groundwater</li> </ul>	<ul style="list-style-type: none"> <li>Equipment to contain and clean up fuel spills</li> </ul>	High		Negligible	Minor
<b>Water Supplies</b>	Potential risk to private water supply (PWS) and public water supply during operation and construction as a result of pollution from vehicles and solar PV panels	<ul style="list-style-type: none"> <li>No PWS are located within the drainage pathway of the Site Area</li> <li>Pollution control and mitigation measures as described above.</li> </ul>	High	Short-term duration related to spillage/temporarily increased pollution	<ul style="list-style-type: none"> <li>PWS - No change</li> <li>Public water supply - negligible</li> </ul>	<ul style="list-style-type: none"> <li>PWS - no change</li> <li>Public water supply - negligible</li> </ul>
<b>Flood Risk</b>	<ul style="list-style-type: none"> <li>Potential risk of increased flood risk</li> </ul>	<ul style="list-style-type: none"> <li>Run-off control measures</li> </ul>	High	Potential for long-term	Negligible	Minor to negligible

Receptor type	Description of potential impact	Embedded design, mitigation, and enhancement measures	Sensitivity of receptor	Duration and reversibility	Magnitude of impact	Significance of effect
	<p>downstream as a result of soil compaction and increased overland flow</p> <ul style="list-style-type: none"> <li>Potential risk of altered flow pathways during operation</li> </ul>	<ul style="list-style-type: none"> <li>Proposed drainage scheme and surface water management plan is detailed in the FRA and Drainage Strategy (Appendix 10.1)</li> </ul>		duration due to alteration of flow pathways		
<b>Noise and vibration</b>						
<b>Residential</b>	Construction/decommissioning Traffic noise and vibration	Low level of traffic predicted	High	Short term and reversible	Negligible	None
<b>Residential</b>	Construction/decommissioning Activities noise and vibration	CEMP	High	Short term and reversible	Small	Moderate
<b>Residential</b>	Operational Traffic	Low level of traffic predicted	High	Long Term and reversible	Negligible	None
<b>Residential</b>	Operational Activities noise	Location of 'noisy' equipment placed as far as practicable from receptors	High	Long Term and reversible	Negligible	None
<b>Traffic and transport</b>						
<b>Pedestrians, Horse Riding and Cyclists</b>	Severance	Construction Traffic Management Plan (CTMP)	Negligible	Short Term	Negligible	Not Significant
<b>Pedestrians, Horse Riding and Cyclists</b>	Pedestrian, Horse Riding and Cyclist Amenity	CTMP	Low	Short Term	Negligible	Not Significant

<b>Receptor type</b>	<b>Description of potential impact</b>	<b>Embedded design, mitigation, and enhancement measures</b>	<b>Sensitivity of receptor</b>	<b>Duration and reversibility</b>	<b>Magnitude of impact</b>	<b>Significance of effect</b>
<b>Car Drivers and Passengers</b>	Driver Delay	CTMP	Negligible	Short Term	Negligible	Not Significant
<b>Car Drivers and Passengers</b>	Accidents and Safety	CTMP	Negligible	Short Term	Negligible	Not Significant

## **14.2. Next Steps**

- 14.2.1. The next stage of the EIA process will be to refine the design of the Proposed Development, along with our assessments of potential environmental effects and further develop mitigation measures to reduce any identified adverse effects where possible. Specifically, the project team will be seeking to undertake the following, which will be reported and assessed within the ES:
- Additional site walkovers to confirm baseline;
  - Detailed mitigation design;
  - Ongoing engagement and consultation with landowners;
  - Further consultation with stakeholders; and
  - Undertake the in-combination and cumulative effects assessments.

## **14.3. Consultation**

- 14.3.1. The Planning Act 2008 requires applicants for DCOs to carry out formal (statutory) pre-application consultation on their proposals. The PEIR has been prepared to accompany formal consultation under Sections 42, 47 and 48 of the Planning Act 2008, the requirements of such are described in further detail in Chapter 4 of this PEIR.
- 14.3.2. The views of consultation bodies and the local community serve to focus the environmental studies and to identify specific issues that require further investigation, as well as to inform aspects of the design of the Proposed Development.
- 14.3.3. Following statutory consultation on this PEIR and consideration of the feedback received, the design of the Proposed Development will be further refined and this PEIR will be developed into an ES to be submitted as part of a suite of DCO Application materials.
- 14.3.4. The ES will set out the issues that have been raised through consultation and how these have been considered and addressed. A Design and Access Statement will be submitted with the DCO Application and will provide details of the design iteration of the Proposed Development. The pre-application consultation undertaken by the Applicant will also be documented within the Consultation Report that will form part of the DCO Application.