



Tween Bridge Solar Farm

A Nationally Significant Infrastructure Project in the Energy Sector

Preliminary Environmental Information Report

Technical Appendix 7.10 – Outline Ecological Construction Management Plan

March 2025



Visit: www.tweenbridgesolar.co.uk
Email: info@tweenbridgesolar.co.uk

Outline Ecological Construction Management Plan



Tween Bridge Solar Farm
11th December 2024



**Tyler
Grange**

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Admin QA	Author	Checked	Approved
N/A	Joseph Dance BSc (Hons) MCIEEM	-	-

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Section 1: Introduction and Context

Introduction

- 1.1. This outline Ecological Construction Management Plan (eCMP) has been prepared by Tyler Grange Group Ltd on behalf of RWE in respect of 'Tween Bridge Solar Farm' and accompanies the submission of a Preliminary Environmental Information Report (PEIR), which is produced to inform the Statutory Consultation of The Scheme. It must be read alongside the accompanying PEIR chapter for full context. For the purposes of this report, the extent of the Scheme is referred to as the 'Draft Order Limits', which includes all areas proposed for solar panels, ecological mitigation areas and associated infrastructure.
- 1.2. The intention of this document is to provide the principles of measures which will be required during the construction phase of the proposed project to ensure adverse impacts on ecological receptors are either avoided or adequately mitigated for. It does not provide a comprehensive consideration of all ecological impacts during the site's construction and associated measures to be adopted within the final Construction and Environmental Management Plan. The full detail of this will be submitted within the Environmental Statement.
- 1.3. This Plan broadly discusses:
 - a) A risk assessment of potentially damaging construction activities.
 - b) Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction (may be provided as a set of method statements).
 - c) The location and timing of sensitive works to avoid harm to biodiversity features.
 - d) The times during construction when specialist ecologists need to be present on site to oversee works.
 - e) Responsible persons and lines of communication.
 - f) The role and responsibilities on site of an ecological clerk of works (EcoW) or similarly competent person.
 - g) Use of protective fences, exclusion barriers and warning signs.
 - h) Details of any lighting during construction.
- 1.4. This eCMP is informed by a suite of ecological survey work, which has identified the presence of protected/notable sites, habitats and species both within and adjacent to the Draft Order Limits, all of which will need a degree of protection and mitigation during the site's construction. The following section of this Plan summarises the baseline context regarding ecological receptors within the Zone of Influence of the site.



- 1.5. The responsibility for ensuring works proceed in accordance with this eCMP will lie with the appointed contractor for the works. Overall control will be held by the contractor's site manager or a suitable delegate within the contractor's company.



Section 2: Ecological Features

Site Context

- 2.1. The Draft Order Limits consist of c.2000ha of agricultural land, approximately 94% of which consists of arable farmland with cereal and non-cereal crops. Fields are bounded by watercourses as well as fences, hedgerows and tree lines. Modified grassland used for pastoral land is also present within the Draft Order Limits as well as a woodland copse and a number of ponds.
- 2.2. The Tween Bridge Wind Farm is located within the Draft Order Limits, and consists of twenty-two operational wind turbines. The Stainforth and Kneadby Canal crosses the Draft Order Limit from west to east.
- 2.3. In the wider context, the Draft Order Limits is surrounded by extensive areas of farmland and areas of woodland, with areas of lowland peat bog (Thorne & Hatfield Moors) located to the north and south of the Draft Order Limits.
- 2.4. The Draft Order Limit lies outside of designated sites, with the exception of Thorne & Hatfield Moors Special Protection Area (SPA), Thorne Moor Special Area of Conservation (SAC), Thorne, Crowle and Goole Moors Site of Special Scientific Interest (SSSI) and Hatfield Chase Ditches SSSI. Whilst the Moors SPA/SAC/SSSI lies within the Draft Order Limit, they are outside the development footprint. The Humber Estuary SPA/SAC/Ramsar sits approximately 6km to the northeast of the Draft Order Limits.
- 2.5. This section of the eCMP summarises the existing ecological features within the site which are reported as part of the PEIR Chapter concerning biodiversity matters.

Designated Sites

- 2.6. **Table 1** below summarises the statutory designated sites located within and adjacent to the Draft Order Limits which have been screened in for further assessment regarding potential construction phase impacts. They have been screened in due to their proximity to The Scheme, or potential/known presence of qualifying features associated with the site. The other sites within the Zone of Influence are considered to be sufficiently distant, with no potential impact pathways, to avoid any adverse impacts as a result of the proposals.

Site Name	Distance/Direction	Description
Hatfield Chase Ditches SSSI	Within DOL	Complex of ditches which retain elements of former marshland. Ditches contain a rich assemblage of aquatic and emergent plants, water



		vole and nationally scarce beetles
Thorne, Crowle and Goole Moors SSSI	Within DOL	Remnant of once extensive raised bog. Highly regarded for its invertebrate fauna and breeding and wintering bird populations
Thorne Moor SAC	Within DOL	H7120 – degraded raised bogs still capable of natural regeneration
Thorne and Hatfield Moors SPA	Within DOL	Breeding nightjar
Humberhead Peatlands National Nature Reserve NNR	Adjacent to northern boundary of DOL	Largest are of raised bog in lowland Britain
Hatfield Moor SAC	100m south	H7120 – degraded raised bogs still capable of natural regeneration
Hatfield Moors SSSI	100m south	Remnant of once extensive raised bog – notified because of its important breeding bird and insect populations
Humber Estuary SPA/Ramsar (SAC screened out)	6km east	Estuarine habitats, over-wintering/passage/breeding birds, grey seal and river/sea lamprey

2.7. A large number of non-statutory nature conservation sites have also been identified both within and adjacent to the Draft Order Limits, full details of which are provided in Annex 2 of Appendix 7.1 of the PEIR Chapter. The sites are broadly discussed within this eCMP in terms of required mitigation measures, but broadly comprise woodland copses, ditches/drains and a former railway lines.



Habitats

- 2.8. The Draft Order Limits are dominated by arable land in use as cereal crops, with some areas of modified grassland and tall ruderal vegetation. All of these habitats are of intrinsic negligible ecological importance in their own right and do not require any specific considerations regarding protection during the construction phase. They are known, however, to support protected/notable species, which are discussed in the relevant sections of this report.
- 2.9. Other habitats of local importance, some of which are also identified as Habitats of Principal Importance (HoPI) under the Natural Environment and Rural Communities Act (NERC) Act 2006, are also present within the DOL, comprising scrub, hedgerows (HoPI), lines of trees, ponds (HoPI), ditches and woodland (HoPI).

Protected and Notable Species

Amphibians

- 2.10. The majority of the habitats on site, namely the arable fields, provide limited suitability as terrestrial habitat for great crested newt (GCN) *Triturus cristatus* and other amphibians. eDNA surveys of accessible ponds (noting not all within 250m of the DOL were accessible) has confirmed the likely absence of GCN within the DOL. Other amphibians may be present in ponds within the DOL, however, and may cross the site during their terrestrial phase.

Badger

- 2.11. Badgers are known to be present in the landscape and within the DOL, although are protected for welfare concerns rather than being of any unfavourable conservation status.

Bats

- 2.12. Detailed bat surveys are yet to be complete but the DOL contains habitats which are generally of low suitability for foraging/commuting bats, confined to linear habitat corridors within and around the DOL. Trees and buildings may also provide potential roost sites for bats.

Birds

Breeding Birds

- 2.13. The DOL is known to support a range of breeding farmland birds associated with all habitats recorded within the site. Of particular importance is the widespread presence of skylark territories across the DOL.

Non-Breeding Birds

- 2.14. The DOL is known to support a number of non-breeding bird species associated with the Humber Estuary SPA/Ramsar, along with the presence of such species in adjacent land.



Reptiles

- 2.15. Specific surveys for reptiles have not been completed as much of the DOL comprises intensively managed arable habitat which has negligible value for reptiles. The ditch network may, however, provide some habitat and connectivity for reptiles, as this species group is known to be present in the surrounding landscape.

Otter/Water Vole

- 2.16. Surveys for this species have confirmed the presence of water vole in a short section of ditch network in the northeast of the DOL, and possible presence of otter. Both species are also known to be present in the surrounding landscape and Hatfield Chase Ditches SSSI is also designated for the presence of water vole.

Other

- 2.17. Brown hare and hedgehog are also both known to be present in the DOL and surrounding landscape.

Invasive Non-Native Species

- 2.18. Water fern and rhododendron, both listed as invasive plants under Schedule 9 of the Wildlife and Countryside Act 1981 have been recorded within the DOL.

Relevant Legislation

- 2.19. Construction cannot be undertaken which compromises the survival or success of the fauna described above where this could result in an offence under protective legislation pertaining to wildlife; nor which results in the spread of non-native invasive species.
- 2.20. GCN are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations'). It is an offence to deliberately kill, injure, disturb or capture them; deliberately take or destroy their eggs; and to damage or destroy their breeding sites and resting places. It is also an offence under the Wildlife and Countryside Act (WCA) 1981 (as amended) to intentionally or recklessly disturb GCN while they occupy a structure or place used for shelter or protection and to obstruct access to a place of shelter or protection. Where an offence would otherwise be likely to occur, a Natural England licence is needed in advance of relevant works to ensure these are undertaken legally and that suitable mitigation and compensation measures are in place. An impact assessment and conservation payment certificate (an IACPC) from Natural England was submitted with the planning application to confirm a commitment to joining the District Level Licencing (DLL) scheme. A licence will need to be issued now planning permission has been granted, following submission of a licence application and conservation payment. No works which could impact GCN, their breeding sites and resting places can be undertaken until this DLL is in place.
- 2.21. Badgers are afforded protection under the Protection of Badgers Act 1992, making it an offence to kill, injure, take, ill-treat or disturb a badger when it is occupying a badger sett, or



to damage, destroy or interfere with a sett unless a licence is obtained from a statutory authority.

- 2.22. All bats and their roosts are afforded protection under the WCA 1981 (as amended) and are protected under the Conservation of Habitats and Species Regulations 2017 (as amended). This legislation makes it an offence to destroy, damage or obstruct access to a bat roost or to intentionally or recklessly disturb, injure or kill any bat. The roost is protected whether bats are present or not.
- 2.23. All wild bird species, their eggs and nests are legally protected under the WCA 1981 (as amended), which makes it an offence to intentionally kill, injure or take any wild bird or take or destroy their eggs or nest or damage a nest while it is in use or being built (generally acknowledged to occur between March and August, inclusive, although this is not defined in law and birds can nest outside of this time). Species listed under Schedule 1 of the WCA 1981 (as amended) are afforded additional protection from disturbance while breeding.
- 2.24. Common reptile species are protected under the WCA 1981 (as amended). This legal protection prohibits the intentional killing or injury of reptiles.
- 2.25. It is illegal to plant or otherwise cause to grow in the wild any plant species listed under Schedule 9 of the WCA 1981 (as amended).
- 2.26. Adoption of control measures described within Section 3 of this CEMP will ensure that no breach in relevant legislation occurs with regard to GCN, badger, bats, breeding birds, reptiles, otter and water vole. The measures proposed will also protect other protected and notable species which may be present on the site, including priority species, common toad, hare, hedgehog and harvest mouse.



Section 3: Outline Ecological Construction Management Plan

Risk Assessment of Potentially Damaging Construction Activities

- 3.1. To inform the preparation of this eCMP, a risk assessment has been completed on all proposed construction-type activities likely to impact important/sensitive ecological features within and immediately adjacent to the site, as detailed below.
- 3.2. The proposed layout has been designed to retain those habitats/protected sites which have been identified as being of greatest ecological importance which, in the context of the site are:
- SAC/SPA/SSSI designations;
 - LWS designations;
 - Hedgerows;
 - Ditches;
 - Woodland;
 - Scrub;
 - Trees
- 3.3. Small amounts of hedgerow are anticipated to be lost to facilitate access, but this is not expected to be more than 5m length in any given location and wherever possible, existing field gates and hedgerow breaks will be utilised to avoid hedgerow loss. Ditches and woodland copses will also be retained and appropriately buffered – discussed in detail below.
- 3.4. Although soft landscape detail is not available at this stage, the ecological mitigation response for the Scheme proposes to create large, open areas of permanent species-rich pasture managed sensitively for both over-wintering and breeding birds, particularly skylark and wading bird species associated with the Humber Estuary SPA/Ramsar. This is in addition to the main body of the site being re-seeded with a grass mix and grazed by sheep. Full details of the landscape management principles are set out in the accompanying outline Landscape and Ecological Management Plan (LEMP).

Site Clearance

- 3.5. During the clearance of habitats, there is potential for impacts to occur as a result of the following:



- Damage and destruction of retained habitats including habitats associated with international/national/local designations, hedgerows, woodland, trees and ponds, negatively impacting the structure and viability of these habitats post-development;
- Dust deposition resulting in damage to retained habitats within the site and adjacent offsite habitats, which is particularly important in the context of the ditch and watercourse network within and adjacent to the DOL;
- Killing and injury of GCN, amphibians, badger, nesting birds, brown hare, hedgehogs and/or reptiles resulting from habitat removal or destruction during constructions works;
- Noise and general construction activity resulting in disturbance of species within and adjacent to the site, which is particularly important in the context of over-wintering/passage birds which are known to utilise adjacent land; and
- Temporary lighting disturbing nocturnal species, such as bats.

Site Set-up

3.6. Site set-up could result in impacts occurring as a result of the following:

- Damage to retained habitats as a result of pollution from plant maintenance and storage of oils, fuels and chemicals, including toilets;
- Site lighting, in particular overnight lighting, has the potential to cause disturbance to foraging and/or commuting bats as well as other nocturnal species; and
- Construction activities including compaction of ground and accidental damage to retained and immediately adjacent offsite habitats.

Groundworks

3.7. Construction groundworks including creating foundations and excavations could result in impacts including:

- Damage to retained habitats through accidental damage; and
- Impacts to wildlife, including amphibians, badger, birds and other small mammals, should these become trapped in pits and trenches created during groundworks.

3.8. In addition to these pathways, groundworks impacts could occur as a result of killing or injury of wildlife, damage to retained habitats, dust, noise and artificial lighting as detailed above.

Material Storage and Removal from Site

3.9. The improper storage and disposal of materials during site clearance and construction could cause impacts to retained and adjacent habitats, as a result of dust, run-off and noise (as detailed above) which could result in direct impacts through damage or long-term impacts such as loss of function.



Construction

- 3.10. During construction there is potential for impacts to occur as a result of killing or injury of wildlife, damage to retained habitats, dust, noise, run-off and artificial lighting (as detailed above).

Environmental Incidents

- 3.11. Whilst not part of any specific construction stage, environmental incidents have the potential to occur at any time during the works, such as from:
- Vandalism resulting in impacts to retained habitats through direct damage or pollution events, should fuel or chemical containers become damaged;
 - Fires and burning waste could result in impacts to retained on and offsite habitats and protected/notable species should this occur close to retained habitats; and
 - Emergency incidents such as spillages or extreme weather resulting in impacts to retained and adjacent habitats.

Identification of 'Biodiversity Protection Zone'

- 3.12. Areas within the site identified as 'biodiversity protection zones' for retained habitats of ecological importance, protected and notable fauna species are included within **Table 3.1**, below. Temporary protective fencing will be required to exclude and protect these retained areas during construction.

Practical Measures to Avoid or Reduce Impacts During Construction

- 3.13. Practical measures (both physical measures and sensitive working practices) to avoid or reduce impacts during construction will be adopted to ensure that important ecological features are protected during construction and to allow works to proceed in line with relevant environmental legislation.
- 3.14. An initial 'toolbox' talk (TBT) will be completed with the contractors, to explain the sensitive features present on the site and the requirements for protection measures. This TBT will also provide detail on the working methods to be employed during all works affecting sensitive habitats and in relation to legally protected species present, or with potential to be present, on the site. This TBT will be delivered by an appointed Ecological Clerk of Works (ECoW), comprising a suitably experienced ecologist.
- 3.15. Prior to any works commencing on site, the appointed ECoW will walk the construction area in a given phase with the site manager to ensure that protective fencing for retained habitats has been installed and no-work zones clearly identified and communicated to all contractors.
- 3.16. Works will be undertaken during daytime, to avoid the need for lighting and to undertake works when a number of nocturnal species are least active, to minimise disturbance to their foraging and commuting activities. In winter months, it is expected that work may begin in the morning before full light and continue into the afternoon during hours of darkness. These short spells of work are not considered to require any specific mitigation or controls as



nocturnal species (primarily bats) will either be hibernating or with significantly reduced activity.

- 3.17. **Run-off** - To prevent run-off and pollution occurring, protection measures will be implemented during the site clearance and all subsequent stages, as set out below. Construction methodology will be designed to comply with good practice guidelines (CIRIA, 2015¹) and will include the following measures as necessary:
- Use of double stacked straw bales or other methods such as bunds to collect any potential run-off;
 - Using secondary containment such as bunds around storage tanks where necessary;
 - Ensuring deliveries are completed away from any watercourses/ditches;
 - Ensure chemicals and hazardous substances are securely stored, labelled appropriately and regularly inspected; and
 - Provision of jet washer and water bowser to remove mud from vehicles as necessary.
- 3.18. A pollution/spillage plan will also be put in place prior to the start of works. This will include training for site management, TBT for operatives and provision of spill kits.
- 3.19. **Dust** - Dust arising during construction work is generally considered to only have a significant ecological impact within 20m, where heavy soiling of vegetation can occur (Holman *et al*, 2014²). Therefore, impacts to the retained habitats on and adjacent to the site, could occur. Contractors will suppress dust pollution with water including specialist spray equipment if required to dampen any arising debris and dust. Water from the dust suppression will then be controlled by suitable methods to prevent run-off (see above). Machinery exhaust emissions will be kept as low as is practicable by using well maintained vehicles and machinery at all times. These will be turned off when not in use.
- 3.20. Further to the above, specific measures for individual retained habitats and important species are provided in **Table 3.1**, below. These include details of the location and timing of sensitive works and times during construction when specialist ecologists need to be present on site to oversee works.
- 3.21. Throughout the construction period, the site manager will be responsible for ensuring that the protective fencing of retained habitats remains in place and fit for purpose. The maintenance of all such protection measures will be the responsibility of the site manager, however, an experienced ecologist acting as an ECoW will be available to attend the site, if required, throughout the construction period should any issues arise
- 3.22. **Noise** – The majority of construction activity will comprise earth excavation and movement of plant through the site. Research recommends that construction noise levels are kept below 70dB to avoid excessive disturbance of birds. **Table 1** below is adapted from the Institute of

¹ CIRIA (2015). Environmental good practice onsite guidance (fifth edition) (C81 1D). London.

² IAQM (2014) Guidance on the assessment of dust from demolition and construction. Version 1.1. Available online at: www.iaqm.co.uk/text/guidance/construction-dust-2014.pdf



Estuarine and Coastal Studies (University of Hull), which outlines the 'five' levels of disturbance. It should be noted that these figures are at the bird receptors, not at the source itself.

Table 1 Noise impact levels

Level	Impact	Effect level	dBA	Example
1	None	Low	<50	Regular construction noise
2	Head turning, scanning behaviour	Moderate	<70	Piling noise, cranes, dumper trucks
3	Movement within zone	Moderate – High	>70	Piling noise
4	Movement out of zone (but within site)	High	>85	Piling noise
5	Movement off site	High	N/A	N/A

3.53. Noise attenuates at a rate of 6dB with every doubling distance, which means that in the absence of any further mitigation, noise would have dropped to an 'acceptable' level of 70dB at 100m from the source. It is expected that the majority of construction activity will be below 70dB and would therefore not cause any disturbance response to birds which may be utilising adjacent land, some of which is considered to be functionally linked to the Humber Estuary SPA/Ramsar. Consequently, no specific mitigation is considered necessary for noise impacts, but as best practice the following measures will be adopted as part of the overall CEMP for the Scheme.

- Ensuring vehicles and machinery are regularly serviced and in good condition;
- Speed limits on site;



- Installing silencers or attenuators where applicable;
- Replacing older equipment with quieter alternatives;
- Using broadband reversing alarms on site;
- Not leaving engines idling when not in use;
- Siting any generators in the east of the site;

3.54. **Visual Disturbance** – as qualifying birds of the nearby Humber Estuary SPA/Ramsar are known to use adjacent land, there is a risk that construction activity comprising regular human presence and plant movement could disturb birds in adjacent land. Some of this land is visually separated/screened from the proposed construction areas by existing hedgerows/built form, which would negate the need for any additional screening. In some instances, however, and depending on the phasing of construction activity, there may be areas where construction activity would not be visually screened from adjacent land and would, therefore, require a degree of mitigation.

3.55. In these instances, the appointed ECoW will review the proposed working areas and risk to birds in adjacent land (if a given phase would require works at a time of year when sensitive estuary birds would be present, taken to be September – March in any given year) and advise if additional screening in the form of hoarding/hessian mesh on the perimeter heras fencing is necessary. Such features will provide visual separation between the construction areas and adjacent land, and mitigate for any visual disturbance risk. It is expected, however, that not all of the Scheme would be ‘built out’ at the same time, so in the event of any visual disturbance, birds would be able to relocate to undisturbed parts of the DOL without conflicting with the conservation objectives of the Humber Estuary SPA/Ramsar

Cable Corridor

3.56. It is understood that the cabling infrastructure to connect the solar arrays to the national grid will require a length of cabling running eastward from the DOL, and it is expected that the works will comprise open-trenching with the exception of ditch/watercourse crossings, where Directional Drilling (DD) will be utilised.

3.57. The positioning of the cable route has, wherever, possible stuck to field boundaries to as to minimise disruption to agricultural activity and to ensure the open areas of agricultural land likely to be used by over-wintering birds can remain undisturbed.

3.58. Works to install the cabling are relatively minor and should not yield unacceptable noise disturbance. However, the regular construction activity may result in a visual deterrent for such bird species. To this end, a number of options exist to mitigate this via working practices, either:

- Timing works to avoid the non-breeding bird season (i.e. completing cabling infrastructure works between April and August in any given year, noting the potential conflict with the nesting bird season); or



- Installing heras fencing lined with visual screens (i.e. mesh/closed hoarding) to screen birds from visual activity. It is expected, however, that the bird mitigation areas proposed will be installed prior to the cabling works commencing, so any birds present will have the ability to disperse to favourable habitat away from disturbance



Table 3.1 Protection Measures for Habitats on and off-site

Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
Designated Sites			
Thorne and Hatfield Moors SPA / SAC & Thorne, Crowle and Goole Moors SSSI & Humberhead Peatlands NNR	No direct impact on SPA/SAC but potential for habitat degradation through dust/water pollution and disturbance to breeding nightjar.	Minimum of 15m stand off from boundary of SPA.	A Construction Method Statement will be adopted on site, which includes details on incident response, refueling and storage of chemical and construction materials in order to prevent any spills or contamination, as far as possible. Storage of materials and maintenance of machinery will be undertaken away from retained habitats and associated 'biodiversity protection zones'. Details are expected to be in line with industry best practice guidance. Standard dust suppression techniques implemented throughout construction phase.
Humber Estuary SPA/Ramsar	Disturbance to qualifying bird species in adjacent land	N/A	See bird section.
Retained Habitats			
Hedgerows	Accidental damage due to use of machinery, soil compaction or storage of materials or because of pollution, such as dust, water, air and soil pollution.	Root protection area (RPA), which will be detailed in a future Tree Protection Plan.	Protection of retained hedgerows with tree protection fencing in line with BS 5837 (2012). Warning signs will be included on this fencing for information and to deter access.
Ditches/watercourses (including those	Accidental degradation of water quality due to pollution	IDB watercourses will be protected by a minimum 9m	A Construction Method Statement will be adopted on site, which includes details on



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
identified as Local Wildlife Sites and Hatfield Chase SSSI)	(spills, dust), damage of banks and riparian corridor.	buffer, which will be delineated by heras fencing prior to works starting. Other ditches/watercourses will be protected with a minimum 5m buffer which will be delineated by heras fencing prior to works starting.	incident response, refueling and storage of chemical and construction materials in order to prevent any spills or contamination, as far as possible. Storage of materials and maintenance of machinery will be undertaken away from retained habitats and associated 'biodiversity protection zones'. Details are expected to be in line with industry best practice guidance. Standard dust suppression techniques implemented throughout construction phase.
Woodland and Trees (including those identified as Local Wildlife Sites)	Accidental damage due to use of machinery, soil compaction or storage of materials or because of pollution, such as dust, water, air and soil pollution.	RPAs, which will be detailed in a future Tree Protection Plan.	Protection of retained woodland and trees with tree protection fencing in line with BS 5837 (2012). Warning signs will be included on this fencing for information and to deter access.
Ponds	Accidental damage as a result of pollution, such as dust, light and water pollution.	Minimum 10m buffer from pond margin, delineated by heras fencing.	Retention within a suitable buffer to be fenced using heras or mesh/barrier fencing. A Construction Method Statement will be adopted on site, which includes details on incident response, refueling and storage of chemical and construction materials in order to prevent any spills or contamination, as far as possible. Storage of materials and maintenance of machinery will be undertaken away from retained habitats and associated 'biodiversity protection zones'. Details are expected to be in line with industry best practice guidance.



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
Protected and Notable Species			
GCN	<p>Potential to cause killing, injury or disturbance as a result of site clearance and ground works.</p> <p>Accidental damage to retained habitats of use to GCN resulting in their inability to disperse, breed or survive.</p>	Minimum 10m buffer from pond margins, delineated by heras fencing.	<p>Storage of materials will be located away from potentially suitable terrestrial habitat for GCN, to be discussed and agreed with the ECoW on site, in order to avoid creating potential refugia for GCN. Ideally to be located on hard standing or bare ground.</p> <p>Habitat manipulation required for reptiles would also provide reasonable avoidance measures (RAMs) for GCN. As a result, these works should be supervised by a Natural England GCN licensed ecologist.</p> <p>Hedgerow removal preceded by a hand-search for GCN and other herptiles in the active season (March – October).</p>
Badger	Potential to cause killing, injury or disturbance as a result of site clearance and ground works.	Up to 30m from an active sett, to be advised by the ECoW on site.	<p>Pre-commencement badger survey to record recent signs of badger activity on the site and evidence of badger setts. Monitoring of the sett previously recorded near P1 will be undertaken to determine whether the sett is active, should there be potential for impacts to badgers occupying this sett, if present, to occur.</p> <p>Should an active sett be recorded on the site which is likely to be impacted by construction works within 30m, a badger licence from Natural England will be applied for prior to such works</p>



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
			<p>being undertaken. As part of the licence application, a method statement and work schedule will be produced which will detail appropriate mitigation that will be implemented both during and post-construction, the personnel responsible for the licence and the timings of all works. Natural England will only grant a licence for interference or closure of a badger sett between July and November, inclusive.</p> <p>Any excavations will require covering overnight to prevent mammals becoming trapped or have a suitable plank/ramp (set at an angle no steeper than 45°) to provide a means of escape for mammals. Excavations left open/uncovered overnight will be inspected each morning to ensure no animals have become trapped overnight. Should a badger become trapped in a trench it will likely attempt to dig itself into the side of the trench, forming a temporary sett. Should a trapped badger be encountered the ECoW will be contacted immediately for further advice.</p> <p>Any mounds of soil/compost will be distributed around the site as needed or covered in turf, as quickly as possible, to reduce the duration they are stored on site. Storage areas, when required, should avoid potentially suitable habitats for other species identified in this report and be compacted around the base to reduce the</p>



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
			potential for them to be used as a refuge. Regular checks should be undertaken by the site manager, or other nominated contractor, to look for signs of mammal digging, such as by badger. If present, the ECoW should be contacted for advice.
Bats	<p>Potential to cause killing, injury or disturbance as a result of site clearance and ground works.</p> <p>Accidental damage to retained habitats of use to bats resulting in loss or damage to bat roosts, if present.</p> <p>Disturbance to bats foraging or commuting on the site as a result of increased lighting.</p>	RPA's of retained trees	<p>Retention and protection of woodland and trees with bat roost potential. Should any tree removal or maintenance works be required a ground level tree assessment (GLTA) would be undertaken by a suitably competent ecologist to identify whether the tree(s) have potential to be used by roosting bats. Should potential be identified further surveys would be needed to confirm the presence or likely absence of roosting bats. Should a bat roost be identified, which could be impacted by the works, a Natural England licence would be required prior to such works, to agree a suitable mitigation strategy and timings of work.</p> <p>No lighting to be used during construction other than potentially for short spells in early morning/late afternoon in winter months when bats will either be not active or with significantly reduced activity.</p>
Birds	Potential to cause injury or mortality to nesting birds, their nests, eggs or young	Suitable buffer to be agreed and demarcated by the ECoW around an active nest, depending on the bird	Retention and protection of suitable hedgerows, woodland and trees.



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
	<p>Potential to cause injury or mortality to ground nesting birds, their nests, eggs or young as a result of site clearance and ground works.</p> <p>Disturbance to non-breeding bird species associated with Humber Estuary SPA/Ramsar</p>	<p>species, nest location and surrounding habitat.</p>	<p>Vegetation clearance including groundworks timed to occur outside the breeding bird season (March - August). Should this not be possible, a search for nesting species should be undertaken by a competent ecologist. If a nest is found, a suitable buffer will be agreed and construction will not be allowed to continue in the vicinity until the nest has fledged and/or the nest is no longer active, to be confirmed by a competent ecologist.</p> <p>ECoW to make decision regarding need for use of visual screening to be erected on boundary heras fencing, depending on potential bird sightlines into construction area if not screened already by vegetation/buildings.</p>
<p>Reptiles</p>	<p>Potential to cause killing or injury as a result of site clearance and ground works.</p>	<p>Ground works will not be undertaken in areas of suitable reptile habitat, namely grassland and scrub vegetation, until staged strimming is complete, to render the areas unsuitable.</p>	<p>Retention and protection of grassland, ditches and pond vegetation most suitable for use by reptiles.</p> <p>Directional and staged strimming of suitable vegetation, to be agreed and supervised by the ECoW. To be undertaken during the active season (March-October), in suitable weather conditions (air temperature between 9 and 18°C³) to allow for reptiles (and GCN) to be displaced, out of harm's way into other areas of suitable habitat that will not be impacted by construction activities.</p>

³ Froglife (1999) Reptile Survey: An Introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
			<p>First cut suitable vegetation to a height of c. 250mm with all arisings removed. 48 hours later, cut remaining vegetation to a height of c. 150mm in a directional manner towards suitable areas of retained habitat. Arisings should again be removed. Soil strip, if needed, can progress 48 hours later, in a directional manner. Following clearance, vegetation should be managed to remain unsuitable for reptiles (and GCN) until construction activities with potential to impact these species cease in these locations.</p> <p>Potential reptile refugia (which may also be suitable for use by GCN and other common amphibian species) should be carefully dismantled by hand in advance of site clearance, where they would be impacted during construction. Materials could be relocated to another suitable area of habitat to be retained. Reptiles (or other species) found will be carefully moved, by gloved hand, out of harm's way, to another area of suitable habitat to be retained.</p>
Water vole / otter	Disturbance to water vole and otter and/or damage to habitat. Potential for killing or injury.	5 – 9m buffer zones around each watercourse	Prior to any works commencing in a given phase, a pre-commencement inspection for water vole and otter will be undertaken along each watercourse within/adjacent to that phase as a precaution.



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
			<p>Heras fencing will then be installed along each watercourse at 5 or 9m to prevent accidental damage of the watercourse by plant or construction activity.</p> <p>Should any evidence of water vole or otter be encountered, the ECoW will advise on the most appropriate course of action. This may require extending the distance between the watercourse and heras fencing/no work areas, or completing work under a watching brief where necessary.</p> <p>If it is considered that the works would constitute an offence under the relevant legislation, advice will need to be sought from the ECoW regarding a Natural England licence.</p>
Other species – hare, hedgehog	Potential to cause killing or injury as a result of site clearance and ground works.	Suitable buffer to be agreed by the ECoW around any leverets or harvest mouse nests.	<p>Retention of hedgerows, woodland, trees and ponds within suitable habitat buffers will retain the most suitable habitats on the site, and therefore opportunities for other species to be present.</p> <p>Brown hare is a mobile species so likely to be displaced from the site during construction activities, if present. During their breeding season (February to September, inclusive) leverets (the young) are left in forms (small depression in the ground among long grass). At this vulnerable stage, should they be encountered during site clearance works, a suitable buffer will be agreed</p>



Ecological Feature	Potentially damaging construction activities	Biodiversity Protection Zone	Measures to Avoid or Reduce Impacts During Construction
			<p>on site by the ECoW and fenced/flagged until the leveret is able to move of its own accord.</p> <p>Should hedgehog be encountered during site clearance they should be carefully moved from harm's way with gloved hands into other suitable habitat. Ideally clearance of suitable hibernation habitat, if required, will be undertaken outside of their hibernation season, October/November to March/April, inclusive.</p> <p>Should grassland >30cm tall need cutting between mid-May and October, a check of this vegetation by the ECoW should be undertaken prior to works, in order to check for harvest mice nests. Harvest mice nests are generally located in the stalk zone of reeds and grasses at least 30m above ground and vary between a diameter of approximately 5-10cm. In the event a nest is found, a suitable buffer will be agreed on site by the ECoW and fenced/flagged until the nest is no longer in use.</p>



Responsible Persons and Lines of Communication

- 3.59. During the construction period, the following responsible persons and lines of communication have been identified in order to guide the implementation of this eCMP.
- 3.60. Advice and monitoring, including with regard to legal consents, planning conditions and contractual arrangements, will be provided by the site operator, the site manager and ECoW as appropriate.
- 3.61. The details of the site manager will be displayed on the site boundary with the site manager responsible for addressing any issues which are raised during construction.
- 3.62. The installation and maintenance of protective fencing will be undertaken by the site contactors under the supervision of a suitably qualified site agent, this site agent must be:
- Present on site for the majority of the time;
 - Aware of the arboricultural and biodiversity constraints;
 - Having the authority to stop any work that is causing, or has the potential to cause harm to any retained habitat;
 - Responsible for ensuring that all site operatives are aware of their responsibilities toward retained habitats and the consequences of any failure to observe those responsibilities; and
 - Make immediate contact with the local authority and/or a trained arboriculturalist in the event of any tree related problems occurring, whether actual or potential.
- 3.63. The site manager will make all contractors aware of the presence of retained ecological features and the measures implemented to protect these features.
- 3.64. Prior to the start of works an ECoW will provide a TBT to detail the ecological features to be protected and the methods employed. Where any subsequent supervision of works is required, bespoke TBT will be delivered by an ECoW, prior to these works commencing, along with an updated walkover of the site to check for the signs of any protected or notable species and to check the methods detailed in the CEMP are being adhered to.
- 3.65. In the event of accidents or damaging incidents occurring during construction, the site manager will liaise with the ECoW, arboriculturalist and local authority as necessary, to agree solutions and contingency measures. If damage is not considered to be significant the habitats may be allowed to regenerate naturally, although if required, replacement planting will be provisioned, with the scale of replacement to be determined by the ECoW.

Role and Responsibilities on Site of an ECoW

- 3.66. An ECoW will comprise a suitably qualified and experienced ecologist, appointed to supervise the implementation of the CEMP.



- 3.67. The responsibilities of the ECoW will include attending the site prior to the start of works to deliver an initial TBT and to set out the ecological constraints and protection measures required.
- 3.68. The ECoW will be available to provide advice and undertake appropriate steps, including supervision, as detailed in **Table 3.1** as well as should any previously unidentified or unexpected protected or notable species be encountered during site works. The ECoW will keep a record of their site visits and TBT delivered.
- 3.69. No post-construction monitoring will be undertaken by the ECoW as part of this CEMP. A LEMP will be produced for this development which will detail all post-construction monitoring and management measures.
- 3.70. Copies of all ecological reports relevant to the site works, Natural England licence documents and TBT supporting documents will be kept on site and be made available to the ECoW and site manager at all times, so that they are familiar with identified ecological constraints relating to the development.

Identifying and Rectifying Remedial Measures

- 3.71. As part of any compliance checks or ECoW site visits, should any potential issues of non-compliance with the CEMP be identified, these will be immediately reported to the site manager and appropriate actions agreed.
- 3.72. In the event a significant issue occurs, appropriate remedial measures will be discussed and agreed with all relevant parties. Such remedial measures will be reported to the local authority, as required. Further checks will then be completed within an appropriate time frame to confirm that remedial measures have been correctly implemented to the satisfaction of the local authority.





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