



Axis P.E.D.

Newburn Haugh, Newcastle

ECOLOGICAL APPRAISAL

August 2023

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1.0 NON-TECHNICAL SUMMARY

- 1.1 FPCR were commissioned by Balance Power Projects (BPP) to undertake an Ecological Appraisal of Land at Newburn Haugh, Newcastle to identify any potential constraints or opportunities for battery storage proposals.
- 1.2 An extended UKHab habitat survey and desktop study were completed by FPCR to inform this assessment. The survey included a walkover of the Site on 28th June 2023 mapping all habitats present on site along with their potential to offer suitable habitat for protected and notable species.
- 1.3 There are six statutory designated sites within 2km of the Site. Shibdon Pond has been classified as a Site of Special Scientific Interest (SSSI). Five others have all been classified as Local Nature Reserves.
- 1.4 The Site is dominated by other neutral grassland which is considered to be of low nature conservation value. This is a common and widespread habitat supporting limited botanical diversity.
- 1.5 The habitat has signs of disturbance. This is shown by tyre tracks caused by vehicular activity.
- 1.6 A linear area of developed land; sealed surface, is also present within the boundary of the Site.
- 1.7 The area to be cleared should be first checked for signs of nesting birds by an ecologist.
- 1.8 In addition, a range of additional enhancement should be introduced including bat and bird boxes and native species planting within landscape proposals.

2.0 INTRODUCTION

- 2.1 The following report has been prepared by FPCR Environment & Design Ltd. on behalf of Axis P.E.D. and provides an Ecological Appraisal of a Site at Newburn Haugh, Newcastle (Central OS Grid Ref: NZ 18302 64471) herein referred to as 'the Site'. This report details the findings of a UKHab survey including initial observations of any suitable habitats for, or evidence of, protected species.
- 2.2 This Ecological Appraisal is based on the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance¹. The scope and objectives of this report are to:
- Present the findings of the extended habitat survey and preliminary protected species assessment;
 - Identify the likely ecological constraints associated with the proposed development;
 - Identify any habitat retention, mitigation and/or compensation measures likely to be required;
 - Identify any additional surveys that may be required to further inform the development proposals; and to,
 - Identify the opportunities available within the proposals to deliver ecological enhancement.

Site Location and Context

- 2.3 The Site is located at Newburn Haugh, Newcastle (Figure 1). It comprises one field of other neutral grassland with a linear area of developed land (sealed surface).
- 2.4 The surrounding landscape is predominantly industrial with urban development to the north and a meander of the River Tyne being located approximately 700m to the south beyond a partially constructed development. A small tidal tributary/ inlet of the River Tyne is located within 100m of the eastern site boundary.

Site Proposals

- 2.5 The Site is proposed as a battery storage facility with associated infrastructure and landscaping.

¹ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

3.0 LEGISLATION AND POLICY

3.1 Detail on the relevant national policy and legislation for ecology in relation to development sites are provided in Appendix A. The national policy and legislation most relevant here are:

- The Environment Act 2021
- The Conservation of Habitats and Species Regulations (“The Habitats Regulations”) 2017 (as amended) in relation to the European Protected Species (EPS) great crested newt, (GCN), bats (all species) and dormouse; and European protected sites i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPAs) and Internationally protected “Ramsar Sites” (collectively known as “Natura 2000 sites”). Annex II bat species of particular relevance in relation to SACs designated for bats.
- The Wildlife and Countryside Act 1981 (WCA) (as amended) in relation to all wild birds (including Schedule 1 species), other animals (notably Schedule 5 species), flora (those listed in Schedules 8 and 9) and Sites of Special Scientific Interest (SSSI);
- Protection of Badgers Act 1992;
- Natural Environmental and Rural Communities (NERC) Act 2006 in relation to various priority species and habitats;
- Hedgerow Regulations 1997 made under Section 97 of the Environment Act 1995;
- National Planning Policy Framework (NPPF) (2019);
- Local Nature Reserves (LNR) as designated most recently by the NERC Act 2006;
- Non-statutory protected local sites including County Wildlife Sites (CWS), Sites of Importance for Nature Conservation (SINC), Local Wildlife Sites (LWS) and Ancient Woodland Inventory (AWI) sites;
- Local Biodiversity Action Plans (LBAP); and
- Birds of Conservation Concern (BoCC).

4.0 METHODOLOGY

- 4.1 In order to compile existing baseline information, relevant ecological information was requested from both statutory and non-statutory nature conservation organisations including:
- Multi Agency Geographic Information for the Countryside (MAGIC)²;
 - Environmental Records Information Centre North East (ERIC NE).
- 4.2 Further inspection of colour 1:25,000 OS base maps (www.ordnancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk) was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
- 4.3 The search area for biodiversity information was related to the significance of sites and species and potential zones of influence, as follows:
- 10km around the application area for sites of International Importance (e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar sites).
 - 2km around the application area for sites of National or Regional Importance (e.g. Sites of Special Scientific Interest (SSSIs)) and species records (e.g. protected, Local Biodiversity Action Plan (LBAP) or notable species).
 - 1km around the application site for sites of County/ District and Local importance (e.g. Biological Heritage Sites Local Wildlife Sites).
- 4.4 When reporting consultation data, records were filtered to include only those from the previous twenty years (since 2003), however, professional judgement has also been used and older records included where deemed appropriate to the overall assessment.

Extended UKHab Habitat Survey

- 4.5 A field survey was conducted on 28th June 2023. Survey methods followed the UKHab methodology. This involved a systematic walk over of the Site to classify the broad habitat types and identify any Habitats of Principal Importance (HPI) for the conservation of biodiversity as listed within Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006. Habitats were broadly mapped in the field using an OS base map.
- 4.6 Where feasible, target notes and species lists were compiled for individual areas and assessments of abundance were made using the DAFOR scale. Vascular plant nomenclature follows Stace (2010)³. Additional notes regarding the current 'condition' of the habitat was completed in accordance with the Natural England's The Biodiversity Metric 4.0 Technical Supplement.
- 4.7 Habitats were classified using the UKHab classification system in order to allow use the DEFRA Biodiversity Metric 4.0 to inform offsetting calculations.

Invasive Plants, Notifiable Weed Species and Other Notable Flora

- 4.8 Consideration was given as to the presence of invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (WCA 1981)⁴ and the presence of any notable weeds

² magic.defra.gov.uk/

³ Stace, C.A. (2010). New Flora of the British Isles. (3rd Ed.). Cambridge: Cambridge University Press

⁴ Act of Parliament, (1981). The Wildlife and Countryside Act 1981 (as amended), London: HMSO.

including those covered under the Weed Act 1959⁵ (where population is significant enough to be considered injurious).

Preliminary Protected Species Assessment

- 4.9 During the extended Phase 1 Habitat survey, observations, identification and signs of any species protected under the following list of Acts and Regulations (collectively referred to herein as 'Protected Species') were recorded.
- Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
 - The Protection of Badgers Act 1992; and
 - The Conservation of Habitats and Species Regulations 2017 (as amended).
- 4.10 Consideration was also given to the existence and use of the site by other fauna listed as one or more of the following (collectively referred to herein as 'Notable Species'):
- Species of Principal Importance (SPI) for the conservation of biodiversity in England on the Natural Environment and Rural Communities (NERC) Act, Section 41 (S41);
 - Species listed on any Local Biodiversity Action Plan (LBAP) initiatives; and
 - Red Data Book (RDB) species.
- 4.11 The likely presence or absence of protected and notable species has been assessed by a number of factors including the availability or suitable habitat, connectivity, known species distribution, local records and an understanding of the ecology and habitats requirement of the individual species assessed. Examples of the types of criteria for likely presence/absence used as part of this assessment are provided in Table 1.

Table 1: Criteria Used for Assessing Likely Presence/Absence of Protected/Notable Species

Likelihood of Presence	Example criteria
Negligible	Where one or more of the following is true for the Site: it offers no suitable habitat; it is isolated from known areas of suitable habitats/species presence; displays no evidence of use by the species in question; it is outside of the known local/regional/national distribution for the species; and there are no desk study records are present during the data search.
Low	Where one or more of the following is true for the Site: the habitats present are of poor to moderate suitability; it is limited or restricted connectivity to areas of suitable offsite habitat or areas with known presence; it is in a location where the species distribution is known to be sparse at a local or regional scale; the desk study indicates the presence of the species in the locality in small to moderate numbers.
Moderate	Where one or more of the following is true for the Site: the habitats present are of moderate to high suitability; it is clearly connected to suitable offsite habitat offsite habitat or areas with known presence; it is in a location where the species is known to be well distributed; the desk study indicates the presence of the species in the locality in moderate to good numbers.

⁵ Act of Parliament. (1959). The Weed Act 1959. London: HMSO.

Likelihood of Presence	Example criteria
High	Where one or more of the following is true for the site: the habitats present are of optimal suitability; it is adjacent to areas of suitable offsite habitat or areas with known presence; it is in a location where the species is known to be well distributed; there are field signs evidencing that a species has been present on the site; the desk study indicates the presence of the species has been historically present on or within the immediate vicinity of the Site.
Present	The species was observed using the site during the extended phase 1 habitat survey or, where appropriate for certain species, field signs indicate the regular use of the Site i.e. the presence of a badger sett.

Limitations

- 4.12 The habitat survey was undertaken in late June which is an optimal time for habitat surveying. Sufficient information was gathered to determine broad habitat types, however, species lists should not be regarded as exhaustive. Given the simplicity and species-poor nature of habitats present on-site, it is not considered the outcome of UKHab classifications and condition scores will have been affected by the timing of the survey.
- 4.13 This assessment aims to provide baseline ecological data for the Site and as such presents an overview of the habitats and features present. Due to the transient and complex nature of ecosystems, no investigation can provide a complete representation or prediction of the natural environment present, however every effort has been made to ensure an accurate description of the Site in presented following best practice guidance, experience and professional judgement.
- 4.14 The UKHab map has been reproduced from detailed field notes and informed by aerial imagery, OS mapping and site maps provided by the client. The accuracy of this figure is therefore ultimately guided by the accuracy of these sources and can only be relied upon to a certain degree of resolution.
- 4.15 Data provided by third party sources collated during the desktop study is generally made up from a wide range of sources including (but not limited to) those submitted by ecological consultancies, wildlife conservation organisations and volunteers. As such, this data is typically focused on areas of known nature conservation, is reliant upon formal surveys having been undertaken within an area or the presence of an expert within the locality (particularly for invertebrate records) and as such this data can never be fully relied upon as a complete ecological dataset for any given area. Rather, this data is used as a guide to likely presence of notable ecological features and can never be relied upon for likely absence.
- 4.16 Given the transient nature of natural processes, the findings of this report should not be relied upon for more than 18 months from completion of surveys⁶.

⁶ [Advice-Note.pdf \(cieem.net\)](#)

5.0 RESULTS

Desk Study

Designated Sites

- 5.1 Results of the desk study are shown on Figure 1: Designated Sites and Protected Species Plan.

Statutory Designated Sites

- 5.2 There were no statutory designated sites of international importance sites recorded within 10km of the Site boundary.
- 5.3 One statutory designated sites of national importance were recorded within the search area of 2km of the Site. This is Shibden Pond, located 1.64km south east of the Site. The site has been designated for its wetland habitats comprised of open water with associated tall fen, willow scrub, damp grassland, dry grassland and hawthorn scrub.
- 5.4 One statutory designated site of local importance was recorded within the search area of 1km of the Site.
- Sugley Dene Local Nature Reserve is located 500m to the north east of the site and is designated for its semi-natural ancient woodland.

Non-Statutory Designated Sites

- 5.5 Ten non-statutory designated sites are located within 1km of the Site. Nine of these are Local Wildlife Sites (LWS), the closest is the Lemington Gut LWS located 25m west of the Site and has been noted for its salt marsh habitat.
- 5.6 There is also one Site of Local Conservation Concern (SLCI). SLCIs are sites of lower ecological value recognised by Newcastle City Council⁷. The closest is Newburn Haugh Wetland SLCI located 20m west of the Site. This SLCI has been noted for its areas of open water and swamp vegetation.

Protected/Notable Species

- 5.7 A number of protected or notable species records from the previous twenty years were highlighted within the surrounding area by Environmental Records Information Centre North-East.
- 5.8 Two records of red squirrel *Sciurus vulgaris* have been returned. The most recent record was in June 2004, approximately 510m from the Site.
- 5.9 One record of a badger *Meles meles* exists within 1km from the Site. The exact location of this cannot be provided for confidentiality reasons.
- 5.10 Two bird species protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) have been returned within 1km of the site. These are redwing *Turdus iliacus* and greenshank *Tringa nebularia*. The most recent record of redwing was in January 2017, approximately 730m south west of the Site, whilst the most recent record of greenshank in August 2010 approximately 610m south west of the Site.

⁷ Newcastle City Council and Gateshead Council Green Infrastructure Study – River Tyne Report (2011) <https://www.gateshead.gov.uk/media/1862/162-SD-NewcastleGateshead-Green-Infrastructure-Study-River-Tyne-Report/pdf/162.-SD-NewcastleGateshead-Green-Infrastructure-Study-River-Tyne-Report.pdf>

- 5.11 Three species of bat have been returned, these are common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus spp.* and noctule *Nyctalus noctule*. The most recent record was of a common pipistrelle at Newburn Haugh Industrial Estate, approximately 1.68km from the Site in May 2022.
- 5.12 Three records of otter *Lutra lutra* have been returned. The most recent record was in November 2019, approximately 800m from the Site.
- 5.13 Two species of amphibian have been returned. These are common frog *Rana temporaria* and smooth newt *Lissotriton vulgaris*. The most recent records were smooth newt and frog recorded at Walbottle Brick in February 2018, approximately 1.3km north west of the Site. No records of great crested newt *Triturus cristatus* have been provided within the search area.
- 5.14 No water vole *Arvicola amphibius* records have been returned in the last twenty years.
- 5.15 No reptile records have been returned in the last twenty years.
- 5.16 Wall *Lasiommata megera* and small heath *Coenonympha pamphilus* butterflies have been recorded on the Site. Both species have been classified as a species of principal importance within section 41 of the NERC Act. The most recent record of wall butterfly is from May 2005, whilst the most recent record of small heath butterfly is from May 2017.
- 5.17 Records of grey squirrel *Sciurus carolinensis*, wall cotoneaster *Cotoneaster horizontalis*, Japanese knotweed *Reynoutria japonica* and Japanese rose *Rosa rugosa* have been returned.

UKHab Survey

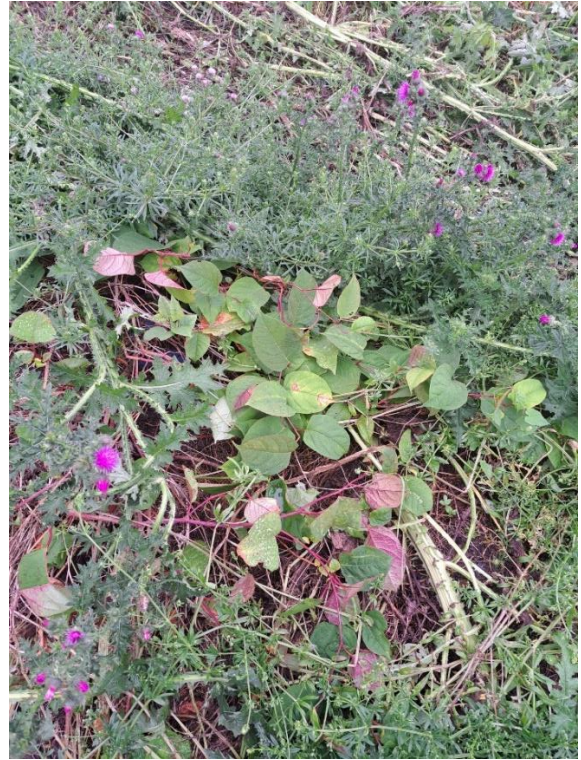
- 5.18 The locations of the habitats described below are illustrated in Figure 3: UKHab Plan. A botanical species list is provided in Appendix A.

Other Neutral Grassland - g3c5 Arrhenatherum neutral grassland

- 5.19 The habitat present towards the southern extent of the Site was comprised of other neutral grassland. The species-poor sward was comprised of occasional to locally frequent creeping bent *Agrostis stolonifera* and false oat-grass *Arrhenatherum elatius*, occasional red fescue *Festuca rubra*, rare to locally frequent common couch *Elymus repens*, bramble *Rubus fruticosus* agg. and Yorkshire fog *Holcus lanatus* plus rare cock's-foot *Dactylis glomerata*, timothy *Phleum pratense* and perennial rye-grass *Lolium perenne*.
- 5.20 The forbs was comprised of occasional viper's bugloss *Echium vulgare*, tansy *Tanacetum vulgare*, rare to locally abundant black medick *Medicago lupulina*, rare to locally frequent ox-eye daisy *Leucanthemum vulgare* plus rare red clover *Trifolium pratense*, meadow buttercup *Ranunculus acris*, yarrow *Achillea millefolium*, common knapweed *Centaurea nigra*, curled dock *Rumex crispus*, common ragwort *Jacobaea vulgaris* and creeping thistle *Cirsium arvense*.
- 5.21 Towards the southern extent of the Site, there were rare patches of Japanese knotweed *Reynoutria japonica*. Japanese Knotweed is listed as an invasive species on Schedule 9 of the Wildlife and Countryside Act (1981).
- 5.22 The grassland is currently unmanaged though disturbed throughout by plant machinery as evidenced by tyre tracks present caused by vehicular activity.



Other neutral Grassland within the Site showing vehicular disturbance



Japanese knotweed on southern boundary

Developed land (sealed surface)

- 5.23 An area of developed land (sealed surface) was present towards the northern extent of the Site. This covered an area of approximately 3000m².



Developed land (sealed surface) photo 1



Developed land (sealed surface) photo 2

Preliminary Protected Species Assessment

- 5.24 The potential for the site to support protected and notable surveys has been assessed based on the desktop study results, the habitats present on site and their connectivity to suitable offsite habitats. Based on an evaluation of these factors, the habitats present on site are considered to have potential to support a small number of protected/notable species as discussed in Table 2.

Table 2: Preliminary Protected/Notable Species Assessment

Species	Relevant Legislation	Site Assessment	Likelihood of Presence
Bats	WCA, CHSR	Due to a lack of structured vegetation (trees or scrub), there was very limited foraging and commuting bat potential within the Site. There was no trees or structures providing potential bat roosting habitat within the site. The habitats present were considered unsuitable.	Negligible
Red squirrel	WCA	The habitats on the Site were suboptimal for red squirrel. No evidence of this species was recorded during the UKHab survey however the desktop study indicates the presence of this species within the locality.	Low
Nesting Birds	WCA	Ground nesting birds are not considered likely due to the levels of disturbance within the Site. The absence of structured vegetation makes the likelihood of other bird nesting activity unlikely.	Negligible
Badgers	PBA	Habitats onsite were suboptimal for badgers, with some limited foraging opportunities. No evidence of badger was recorded during the UKHab survey however the desktop study indicates the presence of this species within the locality (precise location omitted from this report for confidentiality).	Low
Great Crested Newt (GCN)	CHSR, WCA	There are no suitable aquatic habitats onsite or within 500m and terrestrial habitat would be limited to other neutral grassland. As such GCN are unlikely to be present within the Site.	Negligible
Reptiles	WCA	The habitats on the Site were suboptimal for reptiles with other neutral grassland providing limited vegetation structure. No reptile records were noted in the desk study.	Low
Water vole	WCA	No records of water vole was identified in the desktop study over 500m from the Site and the Site does not support any suitable water vole habitat.	Negligible
Otter	WCA	The habitats on the Site were suboptimal for otters with other neutral grassland providing limited vegetation structure. The proximity of Lemington Gut suggests that there may be potential for otters to stray into or pass through the Site, but no evidence was noted.	Low
Wall and Small heath Butterflies	NERC	Wall and small heath butterflies tend to favour short managed grassland (absent from the Site) though records have been found on Site in previous years.	Moderate

6.0 DISCUSSION AND RECOMMENDATIONS

- 6.1 The results of this ecological appraisal of the site have been assessed against the most up-to-date understanding of the proposals which comprises a battery storage facility with associated infrastructure and access road.

Designated Sites

Statutory Designated Sites

Shibdon Pond SSSI

- 6.2 The SSSI is designated for its wetland habitats comprised of open water with associated tall fen, willow scrub, damp grassland, dry grassland and hawthorn scrub. The Site is located 1.57km to the north-west of the SSSI.

Construction Phase

The habitats within the SSSI have the potential to be impacted indirectly during the construction phase of the development, including from dust deposition, particularly in periods of dry weather. In the absence of mitigation, dust deposition could result in damage to vegetation and potentially affect associated fauna. The Site is not physically or hydrologically linked to Shibden Pond SSSI as such it is unconceivable that the proposals will result in direct impacts to the habitats within the designated site.

Operational Phase

There will be no direct impacts from the scheme to the SSSI. As such residual effects on the LWS are expected to be **Neutral**.

Non-Statutory Designated Sites

- 6.3 Ten non-statutory designated sites are located within 1km of the Site. The closest is the Lemington Gut LWS located 25m west of the Site, with Newburn Haugh LWS and Newburn Haigh Wetland SLCI also noted in proximity to the Site.

Construction Phase

- 6.4 There is potential for habitats within the non-statutory designated sites located in proximity to the Site to be impacted indirectly during the construction phase of the development, including from dust deposition, particularly in periods of dry weather. In the absence of mitigation, dust deposition could result in damage to vegetation and potentially affect associated fauna. Other potential impacts to fauna include noise. Some construction activities such as piling are of low frequency but at high amplitude. In the absence of mitigation, dust deposition could result in damage to vegetation and potentially affect associated fauna. Where impacts are severe, some species may disperse from affected areas in the short-term. In the absence of mitigation the residual effect from the above could lead to significant negative effects at a local scale.
- 6.5 None of the non-statutory designated sites are directly hydrologically linked to the Site.

Operational Phase

There will be no direct impacts from the scheme to the SSSI. As such residual effects on the LWS are expected to be **Neutral**.

Mitigation

Where potential construction phase impacts have been identified above it is anticipated that these can be mitigated through the use of good practice measures that would be outlined within a Construction Environment Management Plan (CEMP). Taking this into account the residual residual effects on the non-statutory designated Sites is expected to be **Neutral**.

Habitats

- 6.6 The habitats composition within the Site was limited to Developed Land/ Sealed Surface and Other Neutral Grassland
- 6.7 The proposals are expected to result in the loss of the majority of other neutral grassland on site. This habitat is generally species poor and all species recorded are common and widespread and is considered to be of moderate nature conservation value and of medium distinctiveness. Please refer to the BNG report for discussion regarding compensation for loss of habitats. The habitat is of Site value and the loss of such habitat is not considered important in the context of this assessment.
- 6.8 Developed Land/ Sealed Surface is of negligible nature conservation value.

Protected/ Notable Species

Badger

- 6.9 The site supported suitable habitat for badgers within grassland habitats. Despite this, no evidence of badger was observed during the extended phase 1 habitat survey. Badgers are known to be present within the locality (the precise location of records has been omitted from this report for confidentiality). However, it is therefore recommended that a pre-commencement badger survey is undertaken at the site where works have not begun within 6 months of the date of the UKHab survey.

Bats

- 6.10 The absence of any roosting potential within the Site means that there will be no impacts associated with roosting bats. The habitat composition within the Site means that the site is unlikely to be of any significant loss of habitat to commuting or foraging bats.
- 6.11 Offsite, but adjacent to the southern Site boundary is a line of trees/ scrub which could provide a potential corridor which could be utilised by bats linking offsite woodland to the west to potential foraging habitat around Lemington Gut.
- 6.12 Illumination either of external lighting or light spill from the development may impact on bats commuting and foraging along this woodland. The lighting and layout of the proposed development will be designed to minimise light-spill onto woodland. This will be achieved by ensuring that the design of lighting is based upon guidelines presented in the Bat Conservation Trust and Institution of Lighting Professionals Guidance Note 08/18 'Bats and artificial lighting in the UK - Bats and Built

Environment Series⁸, the Bat Conservation Trust & Institute of Lighting Engineers 'Bats and Lighting in the UK - Bats and Built Environment Series⁹, the Bat Conservation Trust 'Artificial Lighting and Wildlife Interim Guidance¹⁰ and the Bat Conservation Trust 'Statement on the impact and design of artificial light on bats'¹¹. Therefore, the lighting scheme will include the following:

- Any Site lighting during the construction phase will be directed away from the woodland.
- Unnecessary light spill will be controlled through a combination of directional lighting, low lighting columns, hooded / shielded luminaires or strategic planting;
- Any new column mounted luminaires shall be fitted with flat glass where appropriate to aid 0% upward light discharge;
- Where appropriate, luminaires on the site boundary will be fitted with light baffles to prevent light spill.

Birds

- 6.13 It is unlikely that the proposals will result in the loss of any significant nesting bird habitat.
- 6.14 On a precautionary basis, it is recommended that any vegetation removal takes place outside of the bird breeding season (March to August inclusive) to minimise the risk of disturbance to breeding birds. If this is not possible, such vegetation should be checked prior to removal by a suitably experienced ecologist. If active nests are found, vegetation should be left untouched and suitably buffered from works until all birds have fledged. Specific ecological advice should be sought prior to undertaking the clearance.

Great Crested Newt

- 6.15 There are no GCN records within 1km of the site and no suitable aquatic habitat within the Site or within 500m. The presence of GCN onsite is considered unlikely and therefore not considered to be a constraint to the proposals.

Invertebrates

- 6.16 Wall and small heath butterflies are both Section 41 species of principal importance under the NERC Act in England and are both considered to be priority 'high' species by butterfly conservation. Whilst records of these species are present on Site, the habitat composition is not considered to be particularly suitable for these species on account of the longer grassland sward. These species typically prefer short, more open grassland. managed grassland favoured by these species are absent from the site. Wall and spotted heath butterflies are not considered to be a constraint to the proposals.
- 6.17 Opportunities for enhancement are available within the grassland margins that will be provided within the band of greenspace around the Site. Providing suitable habitat for invertebrates would be conducive for net gain.

⁸ <https://cdn.bats.org.uk/uploads/pdf/Resources/ilp-guidance-note-8-bats-and-artificial-lighting-compressed.pdf?v=1542109349>

⁹ [Artificial Lighting Guidance - Buildings, planning and development - Bat Conservation Trust \(bats.org.uk\)](#)

¹⁰ the Bat Conservation Trust 'Artificial Lighting and Wildlife Interim Guidance

¹¹ [Artificial Lighting Guidance - Buildings, planning and development - Bat Conservation Trust \(bats.org.uk\)](#)

Otter

- 6.18 Whilst habitats onsite are not considered suitable for otter, considering the proximity to Lemington Gut to the Site and the possibility, during construction contractors should be aware of the possibility of encountering otters and precautionary mitigation should be outlined within the CEMP.

Reptiles

- 6.19 The habitats onsite were considered unsuitable for reptiles due to the lack of varied habitat structure and structures that could be potentially utilised as hibernaculum. No ecological records of reptiles have been returned within 1km of the site. Therefore, reptiles are not considered to be a constraint to the proposals.

Water vole

- 6.20 The habitats onsite were considered unsuitable for water voles due to the absence of streams, ditches or any other suitable habitat. No ecological records of reptiles have been returned within 1km of the site. Therefore, water voles are not considered to be a constraint to the proposals.

Invasive Non-Native Species

- 6.21 As Japanese knotweed, a classified Schedule 9 species under the Wildlife and Countryside Act 1981 (as amended), has been found to be onsite, measures must be taken to avoid the spread of the species during the construction and operational phase of the proposals. An appropriate remediation strategy must be implemented to control and eradicate any invasive non-native species including the disposal of such material at a registered landfill site.

Summary of Mitigation

- 6.22 It is anticipated that mitigation can be implemented through the use of good practice measures that would be outlined within a Construction Environment Management Plan (CEMP).

Recommendations for Enhancement

- 6.23 It is recommended that bat and birds boxes are to be installed where possible, though this will not impact on Biodiversity Net Gain units. Installations could be on the sides of buildings or boundary fences in the absence of trees. If this is not feasible, habitat piles can be created to create shelter for wildlife. Suitable butterfly habitat could also be created in terms of incorporating scrapes, butterfly banks and introducing larval foodplants.

APPENDIX A: BOTANICAL SPECIES LISTS AND QUADRAT DATA

Other neutral grassland species list

Species	Latin	DAFOR
Black medick	<i>Medicago lupulina</i>	f la
Cock's-foot	<i>Dactylis glomerata</i>	o lf
Creeping cinquefoil	<i>Potentilla reptans</i>	o lf
Bramble	<i>Rubus fruticosus</i> agg.	r lf
Red fescue	<i>Festuca rubra</i>	o la
Viper's bugloss	<i>Echium vulgare</i>	o
Weld	<i>Reseda luteola</i>	r lf
Tansy	<i>Tanacetum vulgare</i>	r o
Common bird's-foot-trefoil	<i>Lotus corniculatus</i>	r
Ribwort plantain	<i>Plantago lanceolata</i>	r
Common couch	<i>Elymus repens</i>	r lf
Creeping bent	<i>Agrostis stolonifera</i>	o lf
Hogweed	<i>Heracleum sphondylium</i>	r
Perforate St John's-wort	<i>Hypericum perforatum</i>	r
Creeping thistle	<i>Cirsium arvense</i>	r
Common mouse-ear	<i>Cerastium fontanum</i>	r
Scentless mayweed	<i>Tripleurospermum inodorum</i>	r
Hedge woundwort	<i>Stachys sylvatica</i>	r
Tufted vetch	<i>Vicia cracca</i>	r
Marsh thistle	<i>Cirsium palustre</i>	r lf
Oxeye daisy	<i>Leucanthemum vulgare</i>	r lf
Yorkshire-fog	<i>Holcus lanatus</i>	r lf
False Oat-grass	<i>Arrhenatherum elatius</i>	r lf
Butterbur	<i>Petasites hybridus</i>	r lf
White campion	<i>Silene latifolia</i>	r lf
Dog rose	<i>Rosa canina</i>	r lf
Nipplewort	<i>Lapsana communis</i>	r
Creeping Buttercup	<i>Ranunculus repens</i>	r
Wild teasel	<i>Dipsacus fullonum</i>	r

Species	Latin	DAFOR
Fat-hen	<i>Chenopodium album</i>	r
Wild carrot	<i>Daucus carota</i>	r
Pineappleweed	<i>Matricaria discoidea</i>	r
Common	<i>Veronica persica</i>	r
Mugwort	<i>Artemisia vulgaris</i>	r
Wild mignonette	<i>Reseda lutea</i>	r
Greater plantain	<i>Plantago major</i>	r
Groundsel	<i>Senecio vulgaris</i>	r
Colt's-foot	<i>Tussilago farfara</i>	r
White dead-nettle	<i>Lamium album</i>	r
Yarrow	<i>Achillea millefolium</i>	r
Meadow vetchling	<i>Lathyrus pratensis</i>	r
Red clover	<i>Trifolium pratense</i>	r
Common ragwort	<i>Jacobaea vulgaris</i>	r
Common poppy	<i>Papaver rhoeas</i>	r
Field scabious	<i>Knautia arvensis</i>	r
Large bindweed	<i>Calystegia silvatica</i>	r
Rosebay willowherb	<i>Chamaenerion angustifolium</i>	r
Timothy	<i>Phleum pratense</i>	r
Curled dock	<i>Rumex crispus</i>	r
Broad-leaved dock	<i>Rumex obtusifolius</i>	r
Red dead-nettle	<i>Lamium purpureum</i>	r
Japanese knotweed	<i>Reynoutria japonica</i>	r
Common nettle	<i>Urtica dioica</i>	r
Common knapweed	<i>Centaurea nigra</i>	r
Long-headed poppy	<i>Papaver dubium</i>	r
Knotgrass	<i>Polygonum aviculare</i>	r
Cut-leaved crane's-bill	<i>Geranium dissectum</i>	r
Prickly sow-thistle	<i>Sonchus asper</i>	r
Perennial sow-thistle	<i>Sonchus arvensis</i>	r
Hawthorn seedlings	<i>Crataegus monogyna</i>	r

Species	Latin	DAFOR
Perennial rye-grass	<i>Lolium perenne</i>	r

Other neutral grassland quadrat data

Species	Latin	Q1	Q2	Q3
Black medick	<i>Medicago lupulina</i>	10	10	20
Cock's-foot	<i>Dactylis glomerata</i>	20		6
Creeping cinquefoil	<i>Potentilla reptans</i>	10	15	
Bramble	<i>Rubus fruticosus</i> agg.		50	70
Red fescue	<i>Festuca rubra</i>	50	1	
Viper's bugloss	<i>Echium vulgare</i>			2
Weld	<i>Reseda luteola</i>		1	
Tansy	<i>Tanacetum vulgare</i>		2	
Common bird's-foot-trefoil	<i>Lotus corniculatus</i>	2		
Ribwort plantain	<i>Plantago lanceolata</i>	4		
Common couch	<i>Elymus repens</i>		3	4
Creeping bent	<i>Agrostis stolonifera</i>			4
Hogweed	<i>Heracleum sphondylium</i>		2	
Perforate St John's-wort	<i>Hypericum perforatum</i>		2	
Creeping thistle	<i>Cirsium arvense</i>			1
Common mouse-ear	<i>Cerastium fontanum</i>		2	
Scentless mayweed	<i>Tripleurospermum inodorum</i>		1	
Hedge woundwort	<i>Stachys sylvatica</i>			2
Tufted vetch	<i>Vicia cracca</i>	1		
Height (cm)		20	15	25
Cover (%)		95	90	99