The Ecology Partnership
Thorncroft Manor, Thorncroft Drive
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[redacted]

Job Name: **Land at Hook Meadow, Westergate**

Date: **Updated 10/12/2024**

Prepared By: **Chris Jennings BSc (Hons) MSc MCIEEM**

Subject: **Update Walkover – PEA Addendum**

The Ecology Partnership was commissioned by Redrow Homes to support a reserved matters planning application for a residential development on site. The site was subject to an outline planning application (AL/178/22/OUT), which was granted on appeal (APP/C3810/W/23/3323858). The reserved matters application is to be submitted for the appearance, landscaping, layout and scale (pursuant to outline permission AL/178/22/OUT) for the construction of up to 89 residential dwellings and open space and associated works.

Figure 1: Application boundary indicated by red line

The Ecology Partnership originally undertook survey work across the arable field section of the site in May 2021 when the site was subject to a preliminary ecological appraisal. Latterly access was agreed through 24 Meadow Way with this section of the site surveyed in November 2022, this work also included an internal and external inspection of the buildings for bats. This survey work was undertaken by Chris Jennings BSc (Hons) MSc MCIEEM and Aimee Littlechild BSc (Hons).

The site was dominated by arable land in the form of a ploughed and cultivated field, with associated semi-improved grassland field margins and associated hedgerows and hedgerows with trees. A dry

ditch also ran along much of the northern and eastern boundary. The land at 24 Meadow Way included an end of terrace house, detached garage, associated hardstanding and garden habitats in the form of lawn with associated shrubs, trees and ornamental planting. A number of potential constraints to development were noted including:

- The house at 24 Meadow Way was assessed to have 'low' bat roost potential from external features present and as the building was proposed for demolition a single emergence survey was recommended;
- A single tree with 'moderate' bat roost potential on the northern boundary of the site, with survey work recommended if this tree is to be impacted, this was to be retained within the outline scheme;
- The site was considered to have 'low' potential to support foraging and commuting bats and with the site identified within the wider conservation zone of the Sussex Bat SACs three walked transect surveys across the bat survey season and associated static monitoring was recommended;
- Potential for reptiles around the thin field margins was identified and a reptile survey recommended;
- Two ponds within 250m of the site were identified as having potential for great crested newts and such further eDNA survey work recommended if access could be granted;
- The site was considered to have some potential for hazel dormice and again a survey involving the erection of nest tubes was recommended; and
- Other standard recommendations for nesting birds and badgers were recommended and their likely presence acknowledged although no specific further survey was recommended.

Protected species work was subsequently undertaken and is summarised in Table 1 below.

Table 1: Species surveys undertaken between 2021, 2022 and 2023

Faunal Group	Survey Methodology	Date of Surveys	Guidance
[redacted]			
	boundary features.		
Bats – tree inspection	As part of the PEA, any trees supporting particular features likely to be of value to bats, such as splits,	7th May 2021 11th November 2022	Bat Surveys – Good Practice Guidelines 2nd Edition (Hundt 2012)

	cracks, rot holes, coverings of ivy, peeling bark or similar, were recorded. The potential for the trees to support roosting bats were assessed in accordance with the criteria set out in the Bat Conservation Trust guidelines (BCT, 2012; BCT, 2016)		Bat Surveys – Good Practice Guidelines 3rd edition (Collins 2016)
Bats – activity surveys	Three dusk surveys were carried out across the site using transect methods to record activity, along with two remote recording devices (Anabat surveys) as per Bat Conservation Trust guidelines (BCT, 2012; BCT 2016).	Transect survey: 18th May 2022 13th July 2022 22nd September 2022 Anabat Express devices were deployed on site and recorded data on: 18th - 23rd May 2022 14th -19th July 2022 15th – 20th September 2022	Bat Surveys – Good Practice Guidelines 3rd edition (Collins 2016)
Bat- emergence survey	Single emergence survey undertaken on the house at 24 Meadow Way	4th May 2023	Bat Surveys – Good Practice Guidelines 3rd edition (Collins 2016)
Dormice	A total of 50 dormouse tubes were established along the boundary features on 25th April 2022. Checks were undertaken once a month in May, July, August, September and October 2022. A survey effort score of 21 was achieved after the October check, which exceeded the recommended score of 20.	Tubes set up on 25th April 2022. Checks May – November 2022	Dormouse Conservation Handbook – English Nature
Great Crested Newts	An eDNA survey was carried out on the off-site Pond 1. The water samples were taken by licensed ecologist Alexia Tamblyn's accredited agent. All water samples were analysed by SureScreen Scientifics.	5th May 2022	eDNA surveys and analysis follow the protocol outlined by Biggs *et al.* (2014)
Reptiles	The refugia were placed around the edges of the site within the grassland and next to hedgerows. Mats were set up prior to the commencement of the reptile survey. A total of seven survey visits were made to the site to check the refugia for the presence of reptiles. Visits were only carried out if the weather conditions were suitable for locating reptiles. On each visit to the site, a minimum of one circuit to check all refugia was carried out.	Refugia set up date 31st March 2022 Seven checks April – September 2022	The timing and number of surveys completed were based on guidelines produced by Froglife (1999) and Gent and Gibson (1998)

The Ecological Impact Assessment (EcIA) is attached within the appendix of this technical note. This details the results of the further survey work undertaken for the outline planning submission, which has informed the principal to develop the site. A summary of the protected species survey work results undertaken 2021 – 2023 are detailed in Table 2 below

Table 2: Summary table of faunal groups surveyed and present on the site and levels of importance

Faunal Group/Species	Results
Bats (roosting)	A single tree along the northern site boundary had 'moderate' potential for roosting bats however now further survey work was undertaken as this was to be retained as part of proposals. No evidence of bat use was recorded at the residential property at 24 Meadow Way. However the house was considered to have 'low' potential due to the presence of external features. The detached garage was considered to have negligible potential. A single emergence survey undertaken in May 2023 found no evidence of bat roosting use at the house at 24 Meadow Way. No further survey work was required.
Bats (foraging and commuting)	The boundary features on site support potential for foraging and commuting bats. The central arable field is limited value for foraging and commuting bats. At least eight bat species were identified during the activity and static record surveys, including a low number of passes (9 across 15 nights) from the Annexe II species barbastelle. A subsequent HRA assessment found that the site was not functionally linked to the Sussex Bat SACs, including Singleton and Cocking Tunnels SAC.
Great Crested Newt	A single pond referenced 'Pond 1' was eDNA surveyed for GCN. This result was positive. Access to 'Pond 2' was denied but it was established that the pond was infact a swimming pool and not suitable for the species. Further analysis found that due to barriers of dispersal and the poor quality of habitat present the species would not be a constraint to proposals.
Hazel Dormice	No evidence of dormice was found during checks, as such the likely absence of the species established and dormice are not considered a constraint to development.
[redacted]	
Reptiles	A 'good' population of slow worms, with a single juvenile grass snake identified on site during the 2022 surveys. The site does not meet the criteria for a Key Reptile Site.
Birds	Only robin, magpie and *corvus sp.* were recorded using the sites boundary features. A gull species was recording flying over site but not using site. As such, no birds of priority concern were considered utilising site.

To update the previously assessment work in light of new legislation, policy changes and survey methodology and to review any implications of changes of habitat and management the site was surveyed by Chris Jennings BSc (Hons) MSc MCIEEM on 9th April 2024.

Figure 2: 2021 Habitat survey with JNCC Phase 1 habitat classification

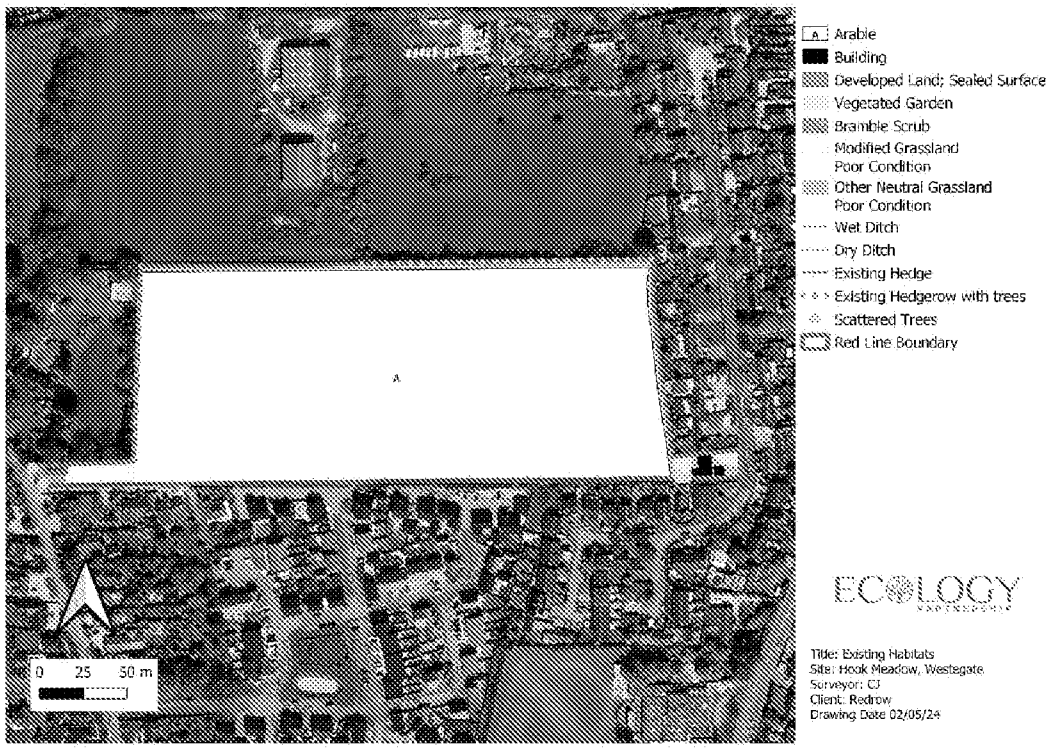


Figure 3: Update habitat map from 2024 with UKHAB habitat classification

Update Habitat Survey

The site was almost exactly the same as it was recorded in the 2021 and 2022 PEA work. Following latest guidance, habitat types have been converted from JNCC Phase 1 habitat classification to UKHAB habitat classification. It should be noted that any difference in habitat type is largely down to reclassification and the habitats themselves have not changed significantly and are under similar management. During the update site visit, the arable field which forms the majority of the site was under crop in the early stages of growth.

It was noted that the extent of scrub has been slightly reduced although this change was not significant in the value of the site. In addition, the western portion of the previously recorded dry ditch was holding a small amount of water following recent rainfall, although it is considered likely that this will dry out shortly as weather warms up into late spring early summer, consistent with the previous survey work which found this feature to be dry at the beginning of May.

Plant species and abundance were recorded and were largely similar to the 2021/2022 findings. Less plant species were recorded within the grassland during the update survey work, this is due to the survey being undertaken slightly earlier in the season and less plant species being present and visible.

The site once again was dominated by arable land. The field that forms the majority of the site was under crop in early stages of growth. This has left vegetation coverage across the field a monoculture of sparse vegetation, which provides very limited habitat for wildlife.

The grassland on site was at a moderate to short sward at the time of the survey and was clased in two distinct areas. The grassland around the field margins were classified as other neutral grassland. It appeared to be maintained at periods of time to prevent scrub growth and is probably maintained along with the hedgerows and other boundary features. The grassland contained abundant false oat grass, meadow fescue with occasional annual meadow grass, cocksfoot, perennial rye-grass and Yorkshire fog. Timothy was found rarely around the edges of the field. In addition, cow parsley, lords and ladies, hogweed, cleavers, common nettle, dandelion, spear thistle, creeping thistle, common plantain and ribwort plantain were found occasionally throughout the grassland. Herb Robert and Spanish bluebell were found rarely around the site boundaries.

A second distinct area was found along the vehicular entrance leading into the site at the south western corner. This was classed as modified grassland and was clearly seeded and man-made. This was dominated by meadow fescue, perennial ryegrass with some stands of creeping buttercup.

A small patch of bramble scrub was present near site entrance to the west of the site encroaching in from the hedge line.

The hedgerow running along the southern boundary was still dominated by hawthorn, with abundant ivy, and occasional elder, honeysuckle, bramble and bay and dogwood rarely recorded. The hedgerow with trees were again dominated by hawthorn, with abundant ivy, frequent blackthorn, and occasional ash, elder, honeysuckle, bramble and field maple with rare holly and oak.

Several scattered rural trees were present along the edges of the field, all located towards the western edge. This included hawthorn, ash and oak.

Hardstanding was present at the western end of the site, where a vehicular access is present to the field from Hook Lane, as well as what appeared to be a utilities facility.

With regards to the residential plot at 24 Meadow Way, this consisted of a end of terrace house, detached garage and hardstanding in the form of driveway and paths. The garden was vegetated, with areas of lawn in the form of modified grassland as well as ornamental shrub planting, with kerria, bay, lavender spotted laurel and berberis recorded. In the rear garden were four small beech trees and a single silver birch tree. The habitats and management regime at 24 Meadow Way had not changed since previous survey and was considered the same.

Protected Species Considerations

Bats

The buildings at 24 Meadow Way were internally and externally inspected by licenced bat ecologist Chris Jennings BSc (Hons) MSc MCIEEM on 9th April 2024. The house on site had been previously assessed as having 'low' potential due to a small number of external features which were found to not be in use during the 2023 emergence survey. Like before no evidence of roosting bats, such as droppings were recorded within the loft of the building, which seemed relatively well sealed and lined with a breathable membrane under the tiles. Similarly, the garage had no internal evidence and like before

had no notable external features present that could be utilised by roosting bats. The garage, as before was considered to have 'negligible' potential for roosting bats. It was considered that nothing had significantly changed with regards to the previous assessment with regards to bats and with the emergence survey on the 'low' potential house, having been undertaken under a year ago, it is considered the result from this survey is still valid.

The previously recorded bat 'moderate' potential tree was not recorded on site. It is not clear whether the feature has degraded from external conditions, or the tree or section of tree may have fallen or been removed. There were no signs of Arboricultural works having taken place on site and it is considered likely that the feature is no longer present through natural processes.

With regards to commuting and foraging bats, the linear features around the site had been kept under similar management as previously recorded. With the rest of the site having not changed and again under similar management it was considered that the field was likely in use by a similar assemblage of bats at similar usage levels and nothing significant has changed with regards to opportunities for bats on site.

Sensitive Lighting Scheme

A sensitive lighting scheme with regards to bats has been designed for the reserved matters application and reviewed by The Ecology Partnership. The lighting design focuses on the protection of the site boundaries, which are used by bat species. Column street lighting is restricted to the spine road and of the development. Additional low level lighting is restricted to bollard lighting with rear backshields which will only shine low levels of light into the site where there is a required need for resident access. Details for this are attached in Appendix 2 of this report. All lighting is 3000 Kelvin which is within the range that is recognised as being friendly to bat species. It should be noted that the software produced to make the lux plan was unable to show the impact of the bollard rear shield on lux levels. Through consultation with the lighting consultant Mark Kenny, the light levels on the hedgerows will be as good as 0 and will be dictated by moonlight, eradicating artificial light from the boundaries. For context research has shown that the average light level on hedgerows most used by horseshoe bats which are a light averse species is 0.45lux. It is considered that the lighting plan, takes into account both the needs for residents and bats including the sensitive barbastelle species which have been recorded at low levels infrequently using the northern boundary.

As such it is considered that the favourable conservation status of the species group will be maintained post development. The site was ruled out as being functionally linked to the Sussex Bat SACs by extensive survey work, with these conclusions seen to be still applicable.

Reptiles

It is considered likely that the previously recorded population of slow worms and grass snake are still present around the field margins. The extent of available habitat to the species group was the same as previously recorded. It is therefore anticipated that the population on site is likely to be consistent with our previous survey results and the proposed reptile mitigation strategy will be appropriate and proportionate. Reptile mitigation for the reserved matters application is dealt with in a separate document with regards to the discharge of condition 4 of the outline planning permission appeal approval decision.

Birds

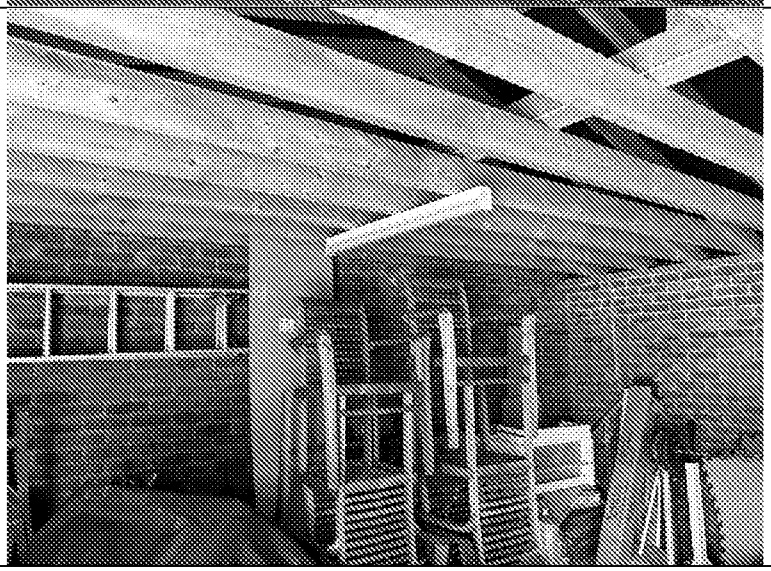
Once again no sign of skylark or any other ground nesting bird were recorded during the site walkover. It is not considered that development of the site would impact the local bird assemblage, due to the heavily managed and poor value habitats onsite, particularly as habitats of most value to birds are to be largely retained in the form of boundary hedgerows. The new development will increase grassland, scrub and hedgerow areas on site providing an increased opportunity for nesting and foraging.

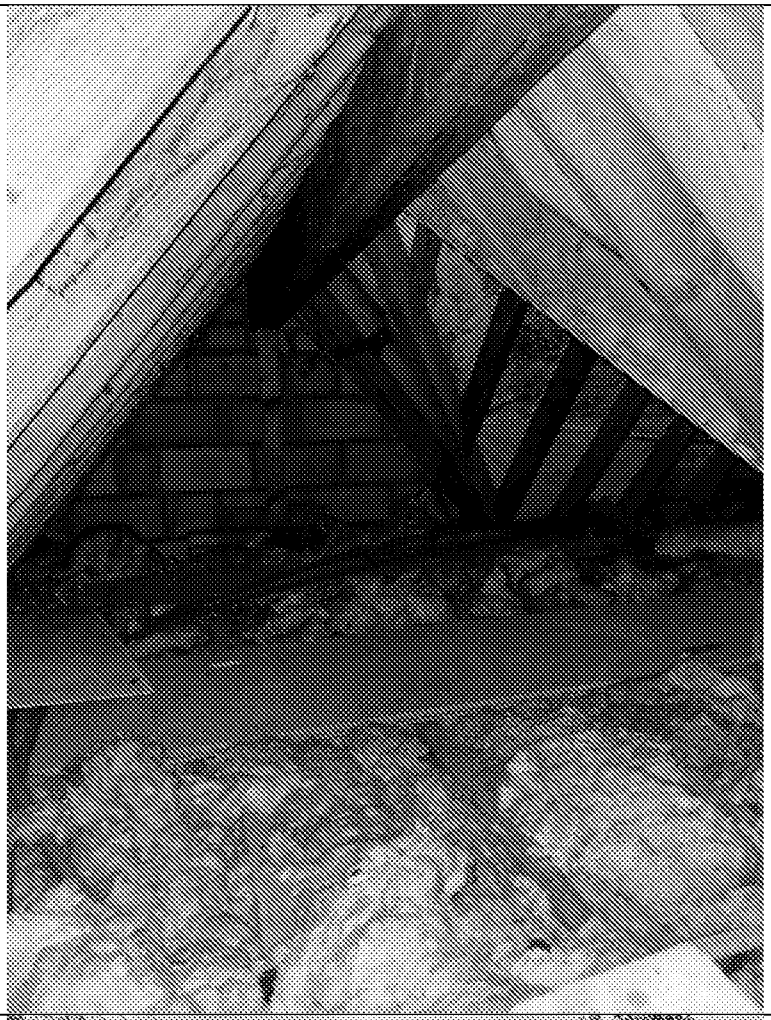
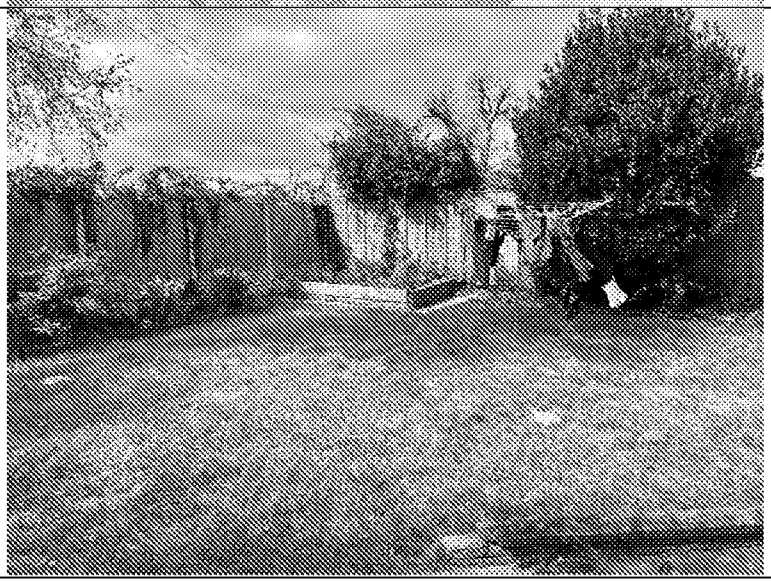
It is recommended that any nesting bird habitat is removed outside of the nesting bird season which runs typically from March – September. If a bird's nest is discovered at the time of works, no works to that feature should be undertaken until the young have fledged following the Wildlife and Countryside Act 1981 (As amended). The area of the bird's nest should be cordoned off and protected until a suitably qualified ecologist can confirm that the nest is no longer active.

It is considered that the assessments made for hazel dormice and great crested newts as detailed within the submission documents for the outline consent are still valid with these species not considered to be a constraint to development. No potential for any other species was discovered during the update walkover.

It is considered that the recommendations within the extensive survey work and EcIA (see in appendices) produced for the outline planning application are still valid and that the habitats and protected species considerations are also consistent as previously recorded.

Please see photographs taken during the site visit overleaf.

Photograph 1: 24 Meadow Way		
Photograph 2: Inside garage at 24 Meadow Way.		

Photograph 3: Inside the loft at 24 Meadow Way, no evidence of bats		
Photograph 4: Gardens to the rear of 24 Meadow Way		

Photograph 5: The extensive area of heavily managed arable land on site		
Photograph 6: The section of previously dry ditch that was wet during the survey		

Photograph 7: The northern boundary looking east		
Photograph 8: The southern boundary looking west		
Photograph 9: The existing vehicular entrance to the arable field to the west, considered modified grassland		

Appendix 1: Update Statutory Metric Condition Assessment

-Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)		
UKHab Habitat Type(s): Grassland - Modified grassland		
Condition Assessment Criteria		**Grassland – Seeded Grass at Vehicle Entrance to Field**
A	There are 6-8 vascular plant species per m present, including at least 2 forbs (this may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m~ (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	N
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note – patches of scrub with continuous (more than 90% cover should be classified as the relevant scrub habitat type.	Y
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	N
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens?).	Y
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y
G	There is an absence of invasive non-native plant species? (as listed on Schedule 9 of WCA*).	Y
	Condition	**Poor**
Condition Assessment Result		
Good	Passes 6 or 7 of 7 criteria including essential criterion A	
Moderate	Passes 4 or 5 of 7 criteria including passing essential criterion A	
Poor	Passes 3 or fewer criteria; OR 4-6 of criteria but failing criterion A	

Footnote 1 – Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.

Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying the buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 4 – Wildlife and Countryside Act 1981 (as amended)

Condition Sheet: GRASSLAND Habitat Type (medium, high & very high distinctiveness)		
UKHab Habitat Type(s): All other grassland types and tall ruderal (ie. not amenity/modified)		
Condition Assessment Criteria		**Field Margins**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). [1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	N
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens[2].	Y
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Y
E	Combined cover of species indicative of sub-optimal condition[3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species[4] (as listed on Schedule 9 of WCA[5]) are present, this criterion is automatically failed.	Y
Additional Criterion - must be assessed for all non-acid grassland types		
F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	N
	Condition	**Poor**

Condition Assessment Result	
Good	Passes 5 of 6 criteria, including essential criterion A and F
Moderate	Passes 3 or 4 of 6 criteria, including essential criterion A
Poor	Passes 0, 1, 2 criteria of 6 criteria; OR Passes 3 or 4 criteria excluding criterion A and F

Footnote 1 – Professional judgement should be used alongside the UKHab description.
Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches where not exceeding 5% cover.
Footnote 3 – Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*.
Footnote 4 – Assess this for distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into the adjacent habitat, by applying professional judement.
Footnote 5 – Wildlife and Countryside Act 1981 (as amended)

Condition Assessment Criteria	Criteria achieved?									
Hedgerows	**H1**	**H2**	**H3**	**H4**	**H5**	**H6**	**H7**	**H8**	**H9**	**H10**
Height >1.5 m average along length	Y	Y	Y	Y						
Width >1.5 m average along length	Y	Y	Y	Y						
Gap – hedge base Gap between ground and base of canopy <0.5 m for >90% of length	N	N	N	N						
Gap – hedge canopy continuity Gaps make up <10% of total length and No canopy gaps >5 m	Y	Y	Y	N						
Undisturbed perennial vegetation >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length (on one side of the hedge (at least))	Y	Y	Y	Y						
Undesirable species Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	N	N	N	N						
Invasive species >90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA[3]) and recently introduced species.	Y	Y	Y	Y						
Current Damage	N	N	N	N						

>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.										
Tree Age (if hedgerow with trees) There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.		N		Y						
Tree health (if hedgerow with trees) At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.		Y		Y						
Criteria failed	3	3	3	4						
Condition (G = good; M = moderate; P = poor)	M	M	M	M						

Condition Assessment Result		
	Hedgerow without trees	**Hedgerow with trees**
Good	No more than 2 failures in total; AND No more than 1 in any functional group.	No more than 2 failures in total; AND No more than 1 failure in any functional group.
Moderate	No more than 4 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & C2 = Moderate condition).	No more than 5 failures in total; AND Does not fail both attributes in more than one functional group (e.g. fails attributes A1, A2, B1, C2 & E1 = Moderate condition).
Poor	Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).	Fails a total of more than 5 attributes; OR Fails both attributes in more than one functional group (e.g. fails attributes A1, A2, B1 & B2 = Poor condition).

Footnote 1 – DEFRA (2007) *Hedgerow Survey Handbook. A standard procedure for local surveys in the UK.* [online] Available on: layout (hedgelink.org.uk)

Footnote 2 – STALEY, J.T. ET AL. (2020) *Definition of Favourable Conservation Status for Hedgerows.* [online] Available on: Definition of Favourable Conservation Status for Hedgerows - RP2943 (naturalengland.org.uk)

Footnote 3 – Wildlife and Countryside Act 1981 (as amended).

Footnote 4 – CHEFFINGS, C. M. et al. (2005) *The Vascular Plant Red Data List for Great Britain.* Species Status 7: 1-116. [online] Available on:
The Vascular Plant Red Data List for Great Britain (Species Status No. 7) | JNCC Resource Hub

Footnote 5 – BOTANICAL SOCIETY OF BRITAIN AND IRELAND (BSBI). *Definitions: wild, native or alien?* [online] Available on:
Definitions: wild, native or alien? – Botanical Society of Britain & Ireland (bsbi.org)

Footnote 6 – BSBI and Biological Records Centre (BRC) (2022) *Online Atlas of the British and Irish Flora.* [online] Available on:
Acknowledgements | Online Atlas of the British and Irish Flora (brc.ac.uk)

Footnote 7 – GB NON-NATIVE SPECIES SECRETARIAT (GBNNSS) (2022) Available on:
Home » NNSS (nonnativespecies.org)

Footnote 8 – See gov.uk standing advice on ancient and veteran trees. Available from:
Keepers of time: ancient and native woodland and trees policy in England (publishing.service.gov.uk)
and
Ancient woodland, ancient trees and veteran trees: advice for making planning decisions - GOV.UK (www.gov.uk)

Appendix 2: Bat Sensitive Lighting Scheme

DATE:	**3 December 2024**
DESIGNER:	**Mark Kenny Lighting Consultancy Ltd**
PROJECT No:	**MKL060**
PROJECT NAME:	**Redrow Homes Development - Hook Meadow, Westergate**

Spine Road Lighting Classification: P4 (BS 5489-1 2020, Table A.5)

Minimum maintained average illuminance (Eav): >5.00 <7.50 lux

Minimum illuminance (Emin): >1.00 lux

Lighting Uniformity (Emin/Eav): >0.20 (20%)

N.B - Areas lit with low level bollard lighting does not conform to standards as laid out in BS 5489-1 2020, Table A.5

Lighting Design - Revision R3

Base Drawing File Title - Site Layout 19 Stripped Back.dwg

Outdoor Lighting Report

PREPARED BY:

Mark Kenny Lighting Consultancy Ltd
173 College Road
Crosby
Merseyside
L23 3AT
[redacted]

Layout Report

General Data

Dimensions in Metres Angles in Degrees

Calculation Grids

ID	Grid Name	X	Y	X' Length	Y' Length	X' Spacing	Y' Spacing
1	Grid 1	493675.01	104758.27	138.00	34.50	1.50	1.50
2	Grid 2	493631.84	104824.33	66.00	21.00	1.50	1.50
3	Grid 3	493476.20	104803.05	161.58	34.50	1.50	1.50
4	Grid 4	493679.77	104784.02	67.50	27.00	1.50	1.50
5	Grid 5	493566.09	104825.17	136.50	67.50	1.50	1.50
6	Grid 6	493531.79	104826.76	27.00	65.97	1.50	1.50
7	Grid 7	493469.49	104831.50	34.50	57.00	1.50	1.50
8	Grid 8	493471.88	104763.01	21.00	43.50	1.50	1.50
9	Grid 9	493534.75	104763.11	24.00	58.50	1.50	1.50
10	Grid 10	493594.75	104762.97	22.50	58.50	1.50	1.50
11	Grid 11	493625.03	104764.96	37.50	46.50	1.50	1.50
12	Grid 12	493387.80	104753.67	92.81	27.00	1.50	1.50
13	Grid 13	493358.31	104722.88	473.92	209.92	1.90	1.50

Luminaires

Luminaire A Data

Supplier	D W Windsor
Type	KIRIUM PRO MINI 16LED 3k A1 400mA UM SUG 42 0018 0000 100
Lamp(s)	16 x 3k LED
Lamp Flux (klm)	2.76
File Name	KIRIUM PRO MINI 16LED 3k A1_400mA U MSUG 42 0018 0000 100.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	741.1, 276.2, 0.0
No. in Project	13

Luminaire B Data

Supplier	
Type	PM1 WW
Lamp(s)	9 x LUXEON Tx 3K LED
Lamp Flux (klm)	1.20
File Name	PM1 WW N V2.ies
Maintenance Factor	0.83
Imax70,80,90(cd/klm)	190.3, 155.7, 117.6
No. in Project	41

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	A	493693.21	104780.62	6.00	254.00	0.00	0.00	0.30			
2	A	493723.99	104780.86	6.00	269.00	0.00	0.00	0.30			
3	A	493755.93	104778.63	6.00	268.00	0.00	0.00	0.30			
4	A	493789.94	104779.68	6.00	273.00	0.00	0.00	0.30			
5	A	493664.57	104793.54	6.00	35.00	0.00	0.00	0.30			
6	A	493650.54	104822.18	6.00	238.00	0.00	0.00	0.30			
7	A	493618.91	104826.61	6.00	267.00	0.00	0.00	0.30			
8	A	493580.49	104819.08	6.00	90.00	0.00	0.00	0.30			

8514965831

Layout Continued

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
9	A	493511.65	104814.24	6.00	88.00	0.00	0.00	0.30			
10	A	493550.82	104826.03	6.00	278.00	0.00	0.00	0.30			
11	A	493481.06	104820.92	6.00	358.00	0.00	0.00	0.30			
12	B	493542.15	104832.76	1.00	358.00	0.00	0.00	0.00			
13	B	493488.08	104801.58	1.00	178.00	0.00	0.00	0.00			
14	B	493487.51	104779.78	1.00	179.00	0.00	0.00	0.00			
15	B	493487.15	104767.81	1.00	179.00	0.00	0.00	0.00			
16	B	493715.35	104822.44	1.00	127.00	0.00	0.00	0.00			
17	B	493685.64	104798.86	1.00	130.00	0.00	0.00	0.00			
18	B	493696.26	104807.32	1.00	132.00	0.00	0.00	0.00			
19	B	493705.78	104814.89	1.00	128.00	0.00	0.00	0.00			
20	B	493549.33	104848.62	1.00	182.00	0.00	0.00	0.00			
21	B	493544.49	104863.43	1.00	0.00	0.00	0.00	0.00			
22	B	493544.43	104876.68	1.00	359.00	0.00	0.00	0.00			
23	B	493489.91	104841.31	1.00	177.00	0.00	0.00	0.00			
24	B	493481.87	104855.64	1.00	358.00	0.00	0.00	0.00			
25	B	493490.29	104869.70	1.00	180.00	0.00	0.00	0.00			
26	B	493548.94	104768.70	1.00	184.00	0.00	0.00	0.00			
27	B	493540.84	104787.41	1.00	0.00	0.00	0.00	0.00			
28	B	493549.37	104815.16	1.00	179.00	0.00	0.00	0.00			
29	B	493549.40	104801.88	1.00	180.00	0.00	0.00	0.00			
30	B	493610.23	104769.16	1.00	182.00	0.00	0.00	0.00			
31	B	493609.84	104783.75	1.00	182.00	0.00	0.00	0.00			
32	B	493602.27	104799.67	1.00	0.00	0.00	0.00	0.00			
33	B	493608.78	104814.83	1.00	180.00	0.00	0.00	0.00			
34	B	493643.31	104776.68	1.00	180.00	0.00	0.00	0.00			
35	B	493636.14	104792.87	1.00	328.00	0.00	0.00	0.00			
36	B	493654.63	104800.13	1.00	136.00	0.00	0.00	0.00			
37	B	493473.19	104767.68	1.00	90.00	0.00	0.00	0.00			
38	B	493456.59	104767.56	1.00	90.00	0.00	0.00	0.00			
39	B	493439.92	104767.41	1.00	90.00	0.00	0.00	0.00			
40	B	493422.31	104767.46	1.00	93.00	0.00	0.00	0.00			
41	B	493405.82	104768.65	1.00	86.00	0.00	0.00	0.00			
42	A	493632.44	104840.04	6.00	0.00	0.00	0.00	0.30			
43	A	493633.21	104868.26	6.00	359.00	0.00	0.00	0.30			
44	B	493689.03	104868.72	1.00	224.00	0.00	0.00	0.00			

Layout Continued

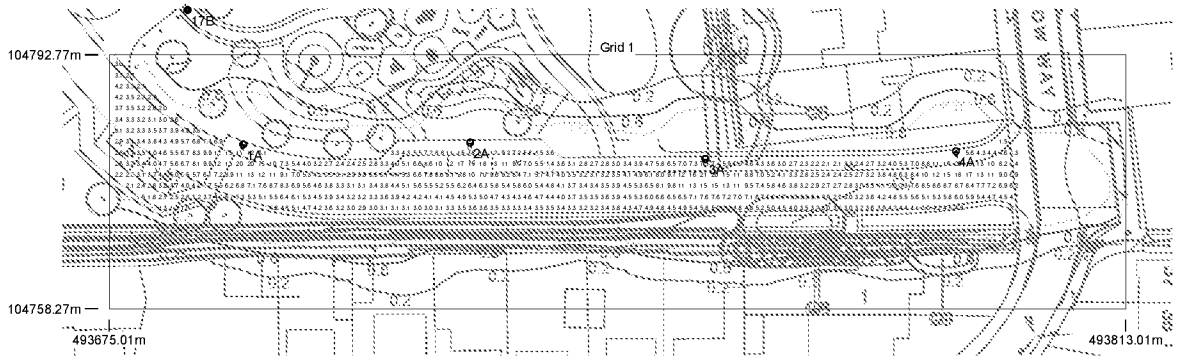
ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
45	B	493686.64	104880.16	1.00	311.00	0.00	0.00	0.00			
46	B	493640.49	104883.77	1.00	270.00	0.00	0.00	0.00			
47	B	493677.27	104873.66	1.00	40.00	0.00	0.00	0.00			
48	B	493655.95	104883.82	1.00	270.00	0.00	0.00	0.00			
49	B	493666.33	104878.50	1.00	89.00	0.00	0.00	0.00			
50	B	493626.84	104877.91	1.00	90.00	0.00	0.00	0.00			
51	B	493600.87	104883.44	1.00	269.00	0.00	0.00	0.00			
52	B	493588.76	104883.36	1.00	271.00	0.00	0.00	0.00			
53	B	493590.88	104873.82	1.00	136.00	0.00	0.00	0.00			
54	B	493614.64	104883.55	1.00	269.00	0.00	0.00	0.00			

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 1



Results

Eav	5.75
Emin	1.29
Emax	21.05
Emin/Emax	0.06
Emin/Eav	0.23

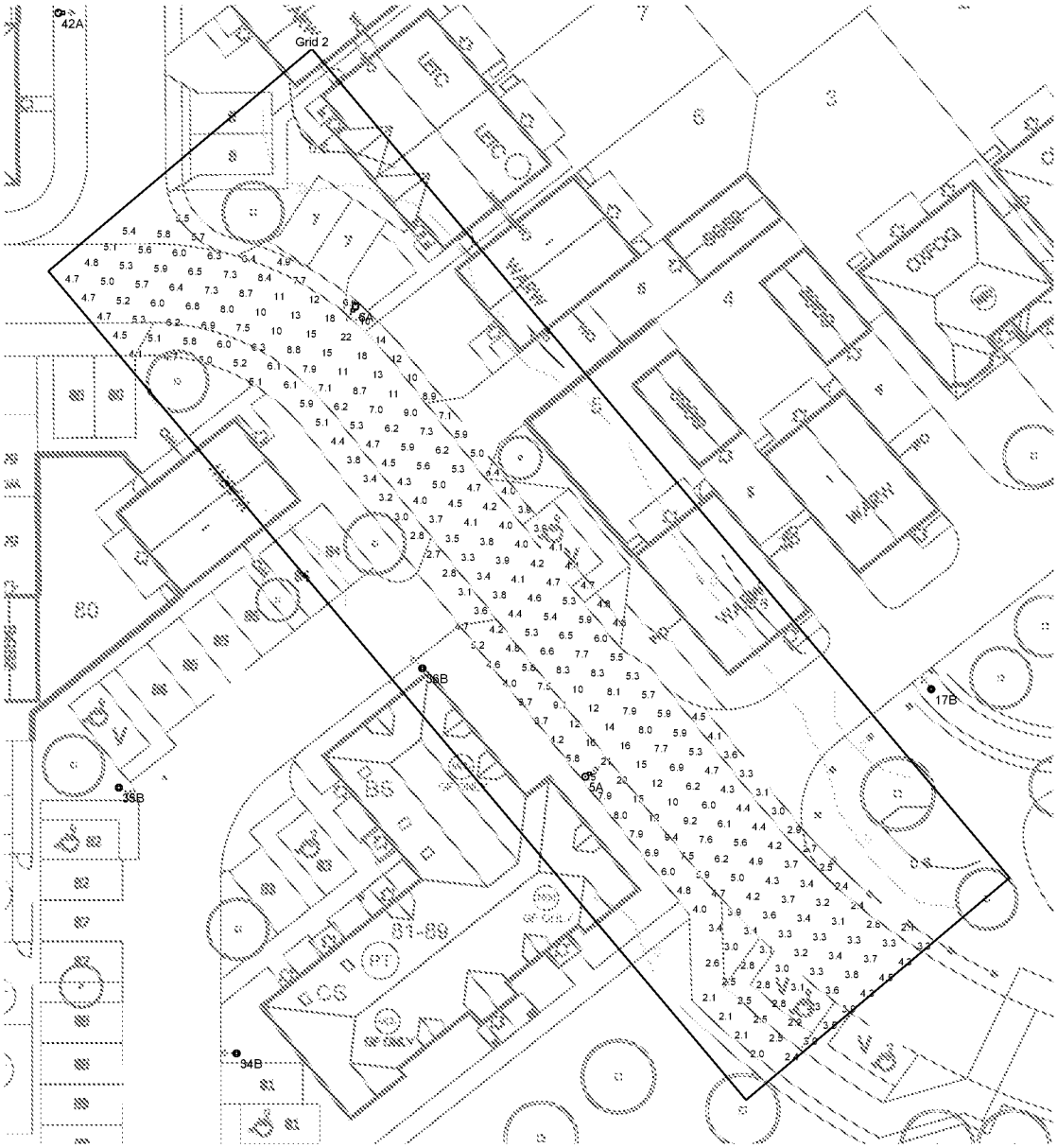
8514965831

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 2



Results

Eav	5.95
Emin	2.04
Emax	21.68
Emin/Emax	0.09
Emin/Eav	0.34

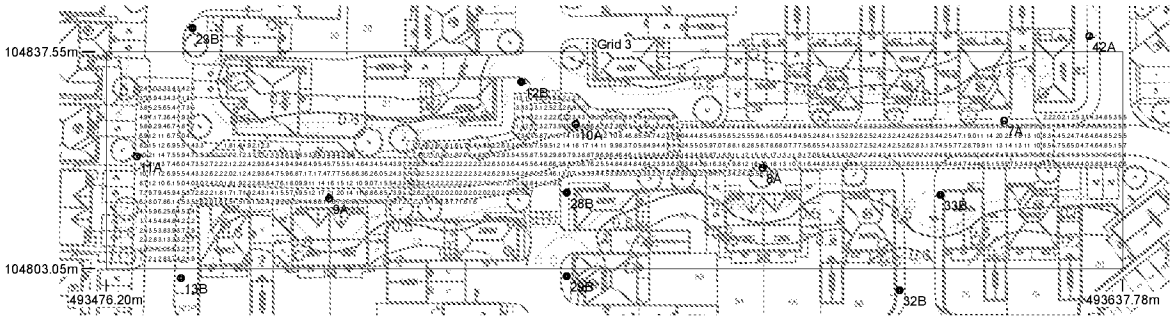
8514965831

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 3



Results

Eav	5.29
Emin	1.49
Emax	21.51
Emin/Emax	0.07
Emin/Eav	0.28

8514965831

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 4

Results

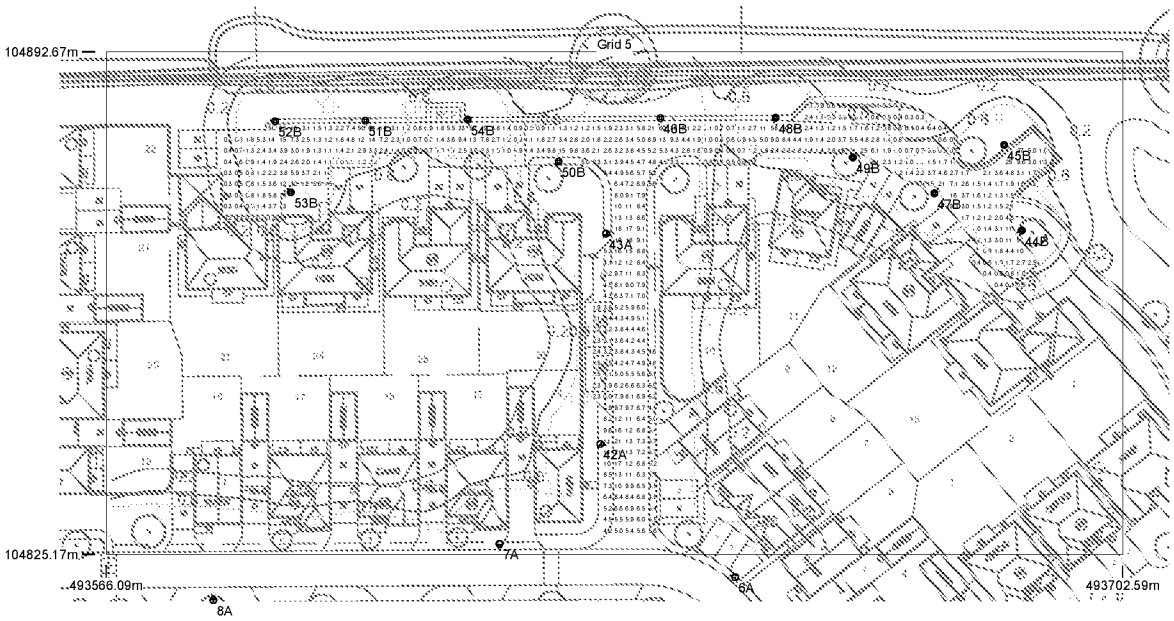
Eav	3.56
Emin	0.35
Emax	27.77
Emin/Emax	0.01
Emin/Eav	0.10

8514965831

DATE: 3 December 2024	DESIGNER:	Mark Kenny Lighting Consultancy Ltd
PROJECT No: MKL060	PROJECT NAME:	Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 5

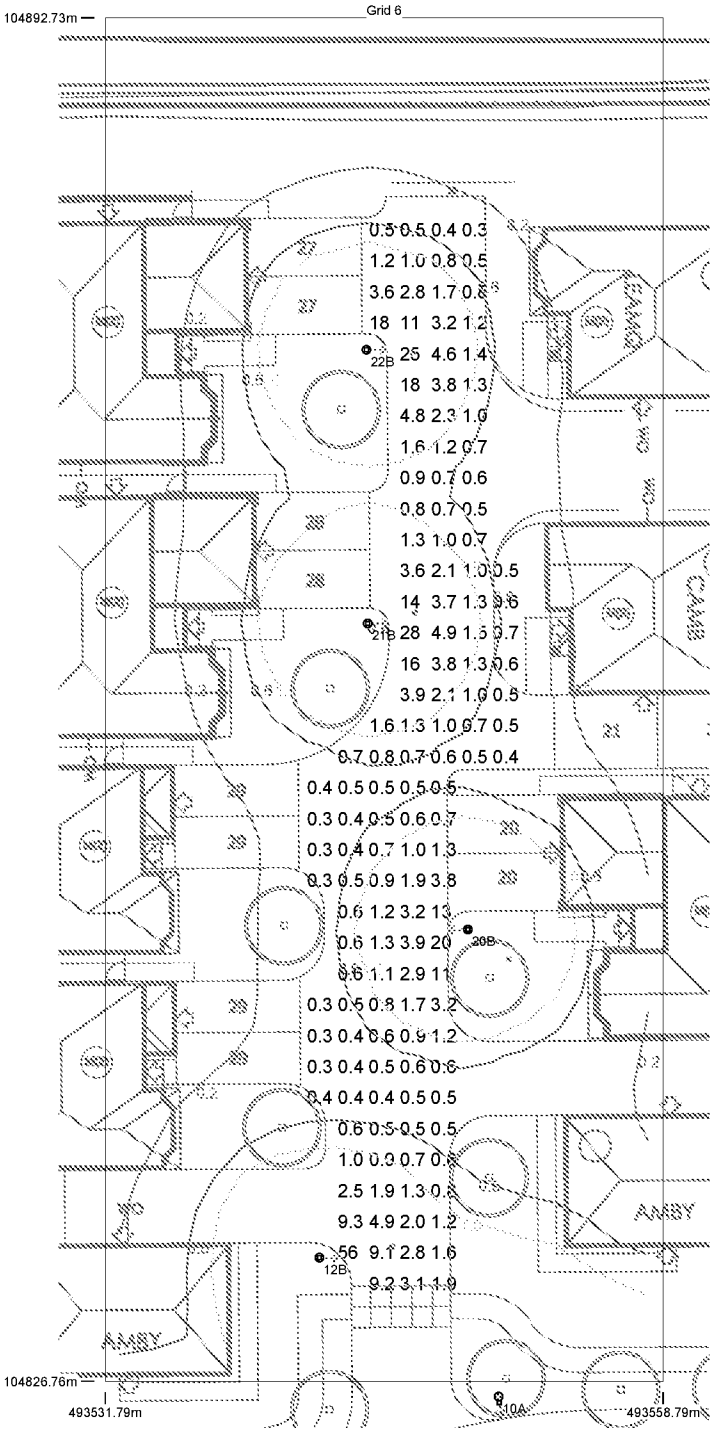


Results

Eav	5.57
Emin	0.21
Emax	63.90
Emin/Emax	0.00
Emin/Eav	0.04

Horizontal Illuminance (lux)

Grid 6

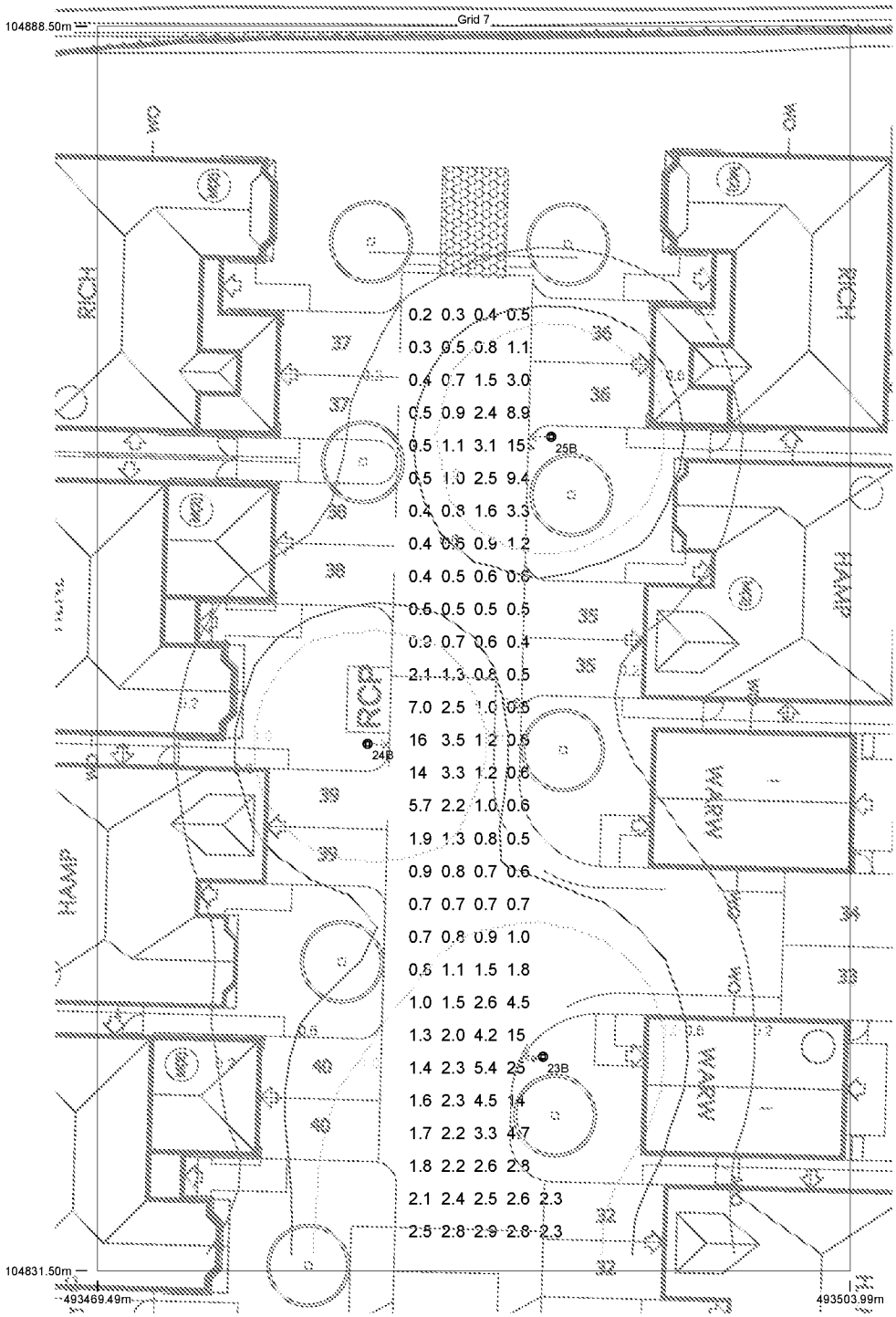


Results

Eav	2.96
Emin	0.30
Emax	55.85
Emin/Emax	0.01
Emin/Eav	0.10

Horizontal Illuminance (lux)

Grid 7



Results

Eav	2.46
Emin	0.22
Emax	24.90
Emin/Emax	0.01
Emin/Eav	0.09

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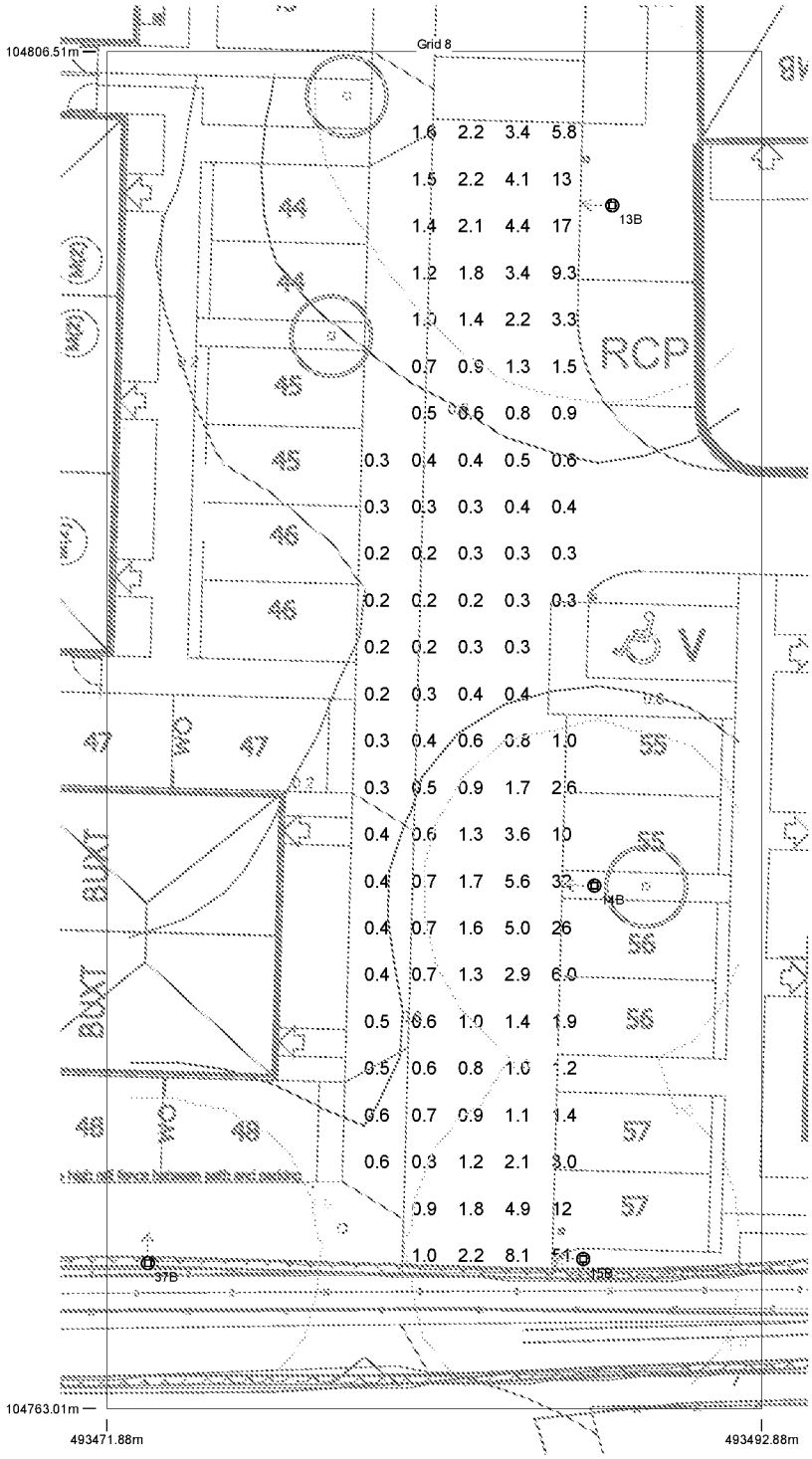
DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 8

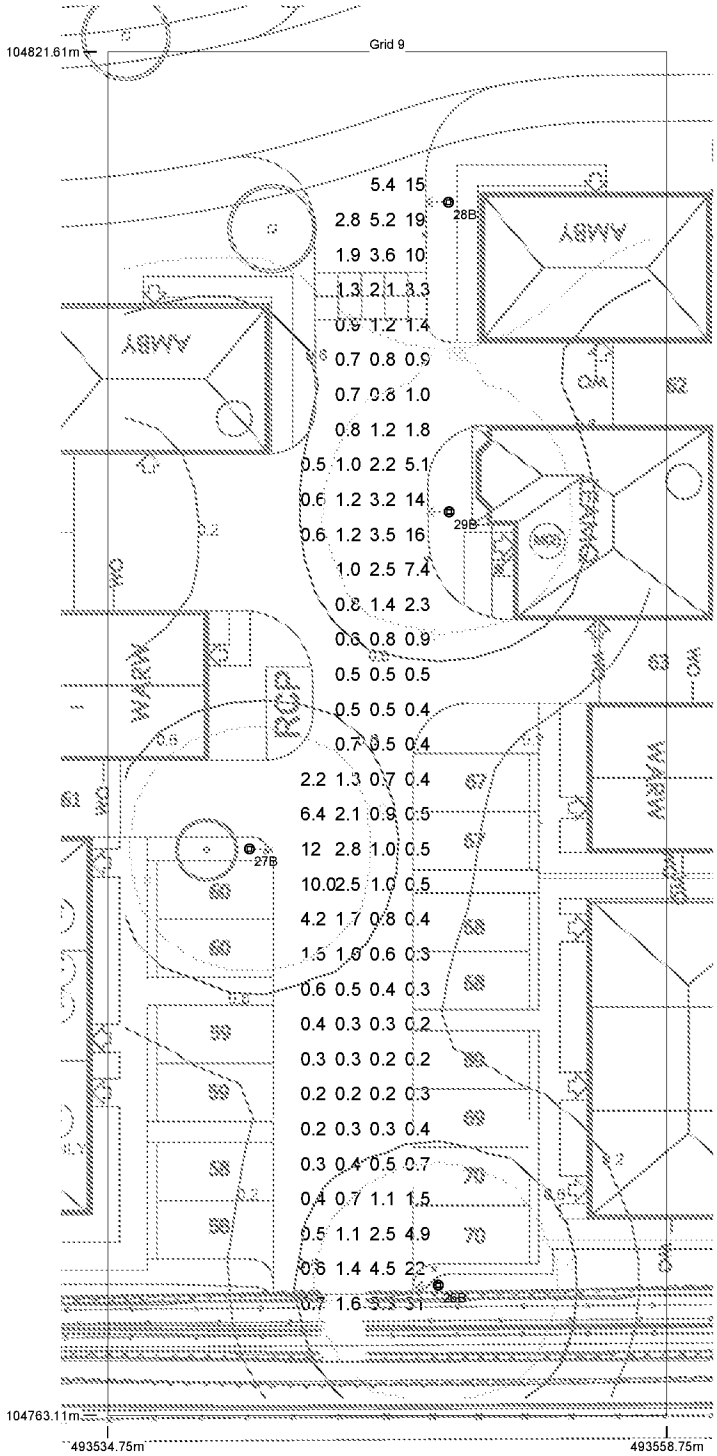


Results

Eav	2.76
Emin	0.20
Emax	51.04
Emin/Emax	0.00
Emin/Eav	0.07

Horizontal Illuminance (lux)

Grid 9



Results

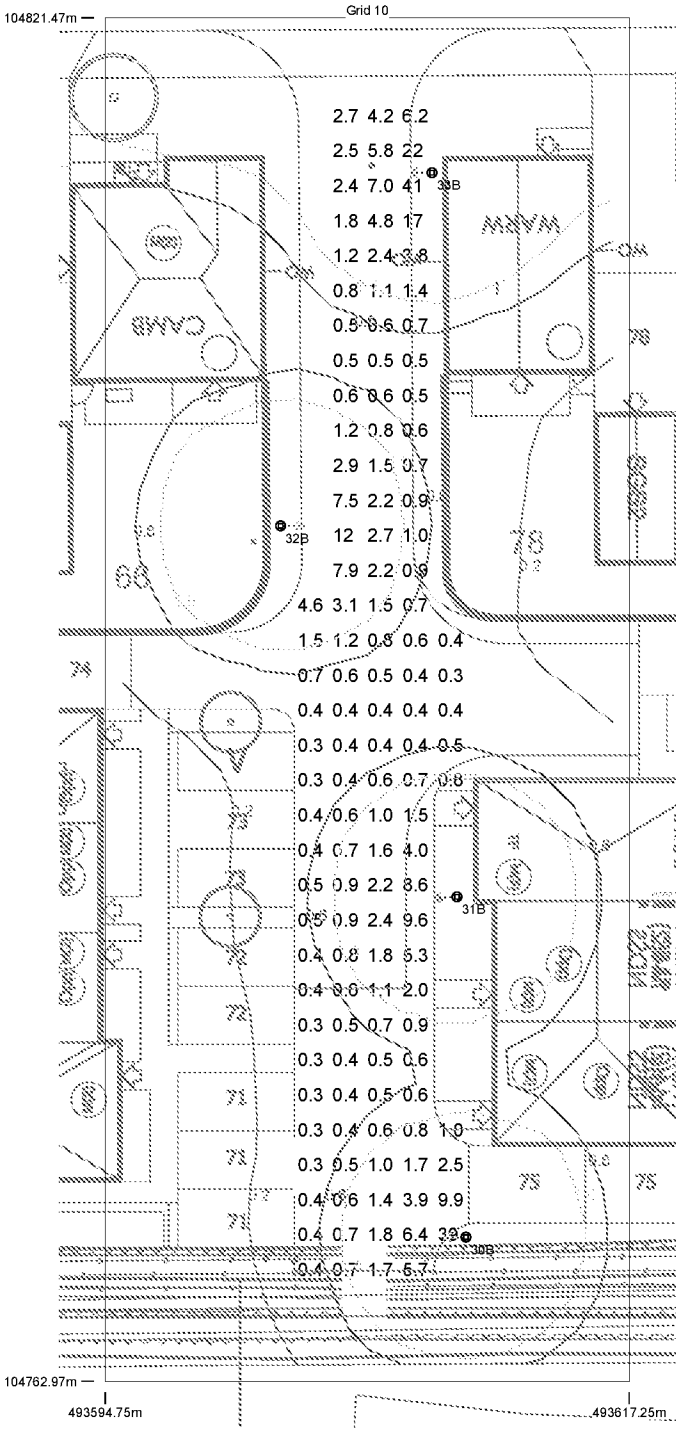
Eav	2.54
Emin	0.23
Emax	30.75
Emin/Emax	0.01
Emin/Eav	0.09

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 10



Results

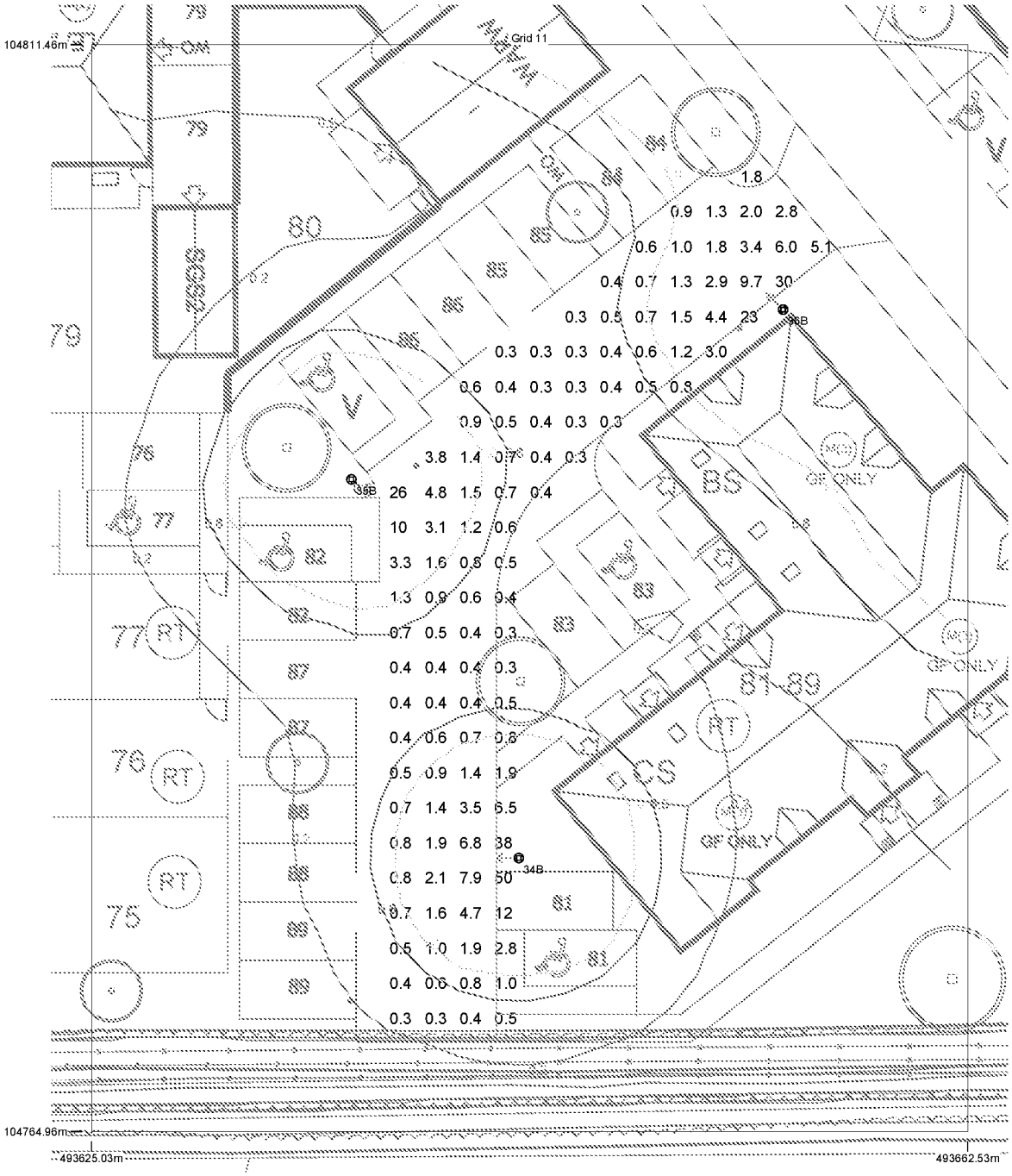
Eav	2.58
Emin	0.29
Emax	40.86
Emin/Emax	0.01
Emin/Eav	0.11

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 11



Results

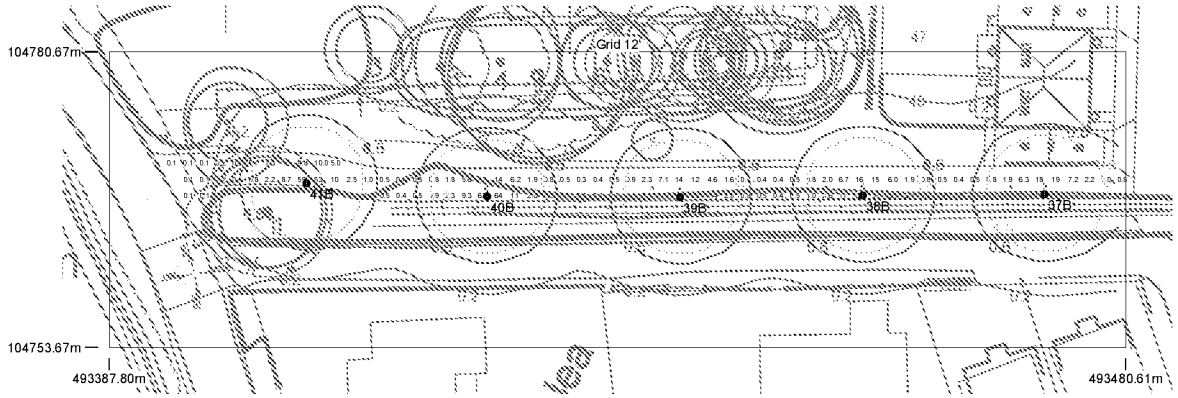
Eav	3.05
Emin	0.26
Emax	50.43
Emin/Emax	0.01
Emin/Eav	0.08

DATE: 3 December 2024 DESIGNER: Mark Kenny Lighting Consultancy Ltd

PROJECT No: MKL060 PROJECT NAME: Redrow Homes Development - Hook Meadow, Westergate

Horizontal Illuminance (lux)

Grid 12



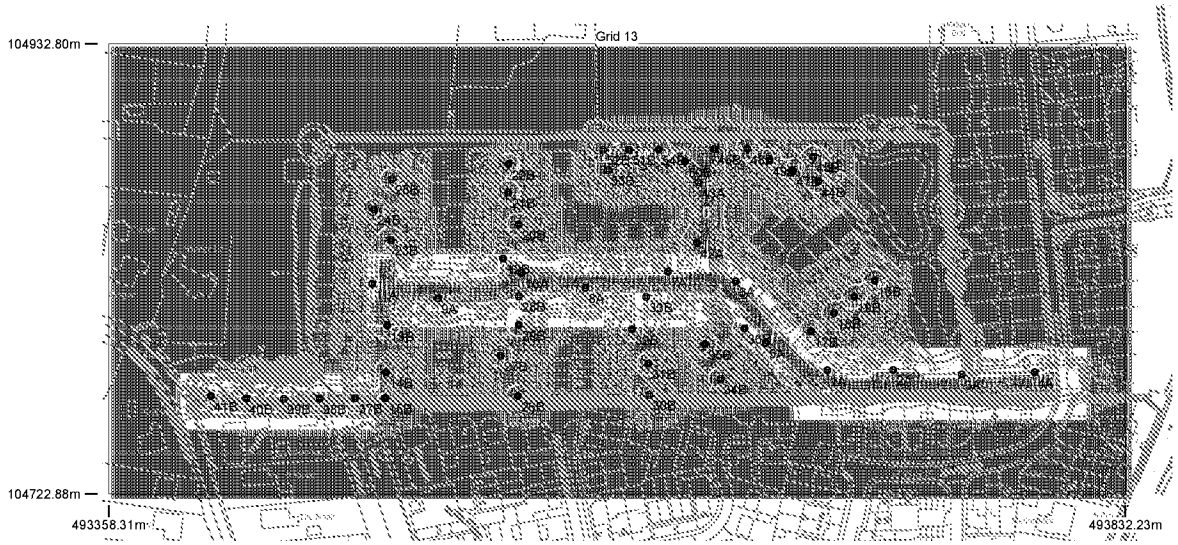
Results

Eav	8.18
Emin	0.06
Emax	63.81
Emin/Emax	0.00
Emin/Eav	0.01

851496831

Horizontal Illuminance (lux)

Grid 13



Results

Eav	0.56
Emin	0.00
Emax	68.17
Emin/Emax	0.00
Emin/Eav	0.00

Appendix 3: 2022 EcIA

the ecology partnership

Ecological Impact Assessment

Land to the rear of Meadow Way, Westergate

The Ecology Partnership, Thorncroft Manor, Thorncroft Drive, Leatherhead, Surrey KT22 8JB

[redacted]

Contents

LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living creatures are capable of migration and whilst protected species may not have been located during the survey duration, their presence may be found on a site at a later date.

The views and opinions contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

Purpose of the Report

1.1 This Ecological Impact Assessment (EcIA) evaluates the effects of the development on land to the rear of Meadow Way, Westergate, West Sussex. The findings of The Ecology Partnership's surveys are assessed against the proposals in order to:

- Evaluate the baseline interest;
- Identify and rank significant impacts;
- Set out mitigation and compensation measures and the means to secure these;
- Assess the significance of residual impacts;
- Identify enhancement measures; and
- Set out requirements for post-construction monitoring.

Site Context and Proposals

1.2 The site is located on the edge of Westergate, within the Arun District of West Sussex (SU 93616 04825). The site (Figure 1) covers approximately 3.8ha and consists predominately of a large arable field with hedgerows and dry ditch borders, plus the residential property and garden at 24 Meadow Way. The site is bordered by a mixture of private gardens and arable land to the west and north with housing to all other aspects. The wider landscape consists largely of agricultural land with the villages of Eastergate and Barnham to the east.

1.3 A Preliminary Ecological Appraisal (PEA) of the arable field was initially undertaken in 2021, with an update PEA in November 2022 to include the proposed access area located within the current residential property at 24 Meadow Way. Protected species survey work for bats, dormice, reptiles and great crested newts were undertaken on site throughout the course of 2022.

Figure 1: Approximate location of the survey area (red line) Taken using Google Earth Pro (Sep 2019).

1.4 Proposals are for *"Outline planning application with all matters reserved, other than principal means of access and demolition of 24 Meadow Way, for the construction of up to 89 residential dwellings, with access taken from Meadow Way, together with the provision of open space, landscaping and associated infrastructure"* (Figure 2). The landscaping includes the creation of a large SUDS in the north east corner of site, with public open space (POS) also located in the east of site, around the SUD and site entrance.

1.5 The development would involve the development of the arable field and residential property and garden at 24 Meadow Way, and the removal of small sections of southern hedgerow and semi-improved grassland. Compensatory and enhancement planting is planned around the site boundaries and within the public open space towards the eastern end of the development. Additional planning and street trees will also be incorporated throughout the built environment.

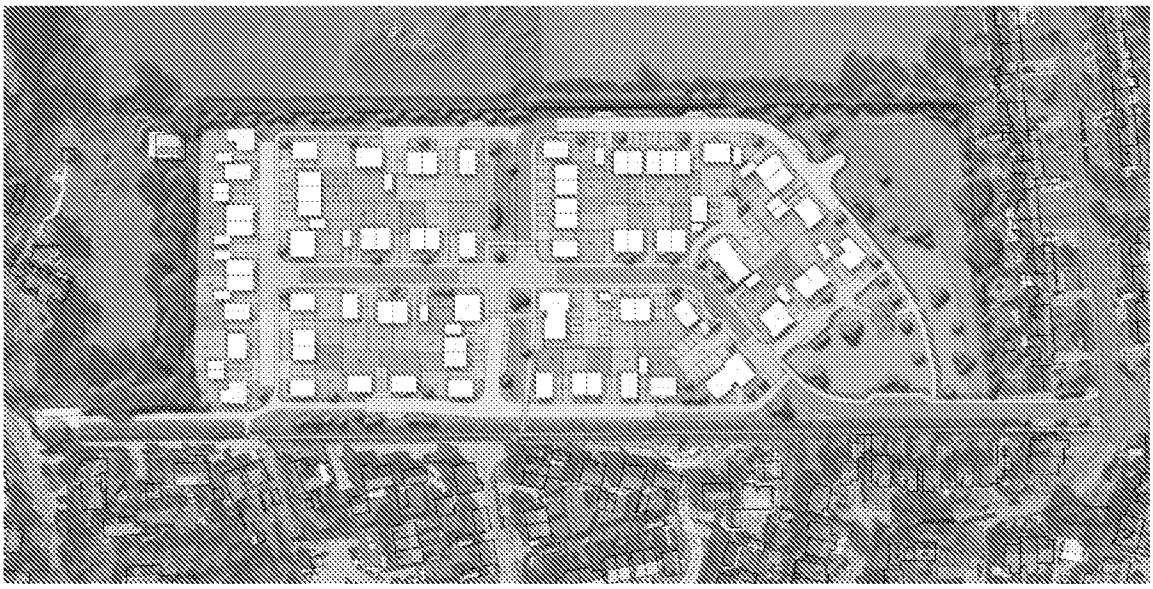


Figure 2: Site development proposals, provided by Gleeson 2022

Legislation

1.6 The following legislation has been considered in determining the scope of this EcIA.

Wildlife and Countryside Act 1981 (as amended)

1.7 The surveys identified the potential presence within the project's red line of several species or species groups listed on Schedule 5 of the Act, for which the provisions of Section 9 apply, necessitating surveys and assessments to determine presence/absence, location of activity and in some cases estimates of abundance, from which mitigation measures could, if necessary, be devised to comply with the Act. These species and species groups were bats, reptiles, great crested newt (*Triturus cristatus*) and hazel dormouse (*Muscardinus avellanarius*).

1.8 The PEA also noted habitat suitable for a number of breeding bird species, hence the need to assess the likely distribution of active nests, to provide constraints on site clearance in compliance with the protection provided to wild birds, their nests and eggs through Section 1 of the Act.

Natural Environment and Rural Communities Act 2006

1.9 Section 41 (Biodiversity lists and action (England)) of the Act requires the Secretary of State to *"publish a list of living organisms and types of habitat which in the Secretary of State's*

opinion are of principal importance for the purpose of conserving biodiversity (in England)" and to "*take such step as… reasonably practical to further the conservation… or promote the taking by others of such steps*" for these (Section 41 List) species and habitats.

1.10 The PEA identified the presence of the Section 41 hedgerows as well as the potential presence of a number of Section 41 species, including the aforementioned bats, breeding birds, reptiles, great crested newts and hazel dormice. Surveys and assessments for the species provided information to inform mitigation that could be requested by the local planning authority in relation to Section 41, in addition to meeting legislative requirements.

Hedgerow Regulations 1997

1.11 The PEA assessed the hedgerows present on site according to criteria set out in the Hedgerow Regulations 1997. These regulations make provision for the protection of important hedgerows in England which meet set criteria.

The Protection of Badgers Act 1992

1.12 The Act provides protection to the species and its setts, controlling certain actions by licence. Information on the location of active setts was required to inform the project layout and, if necessary, the need for licenced activity.

Conservation of Habitats and Species Amendment (EU Exit) Regulations 2019

1.13 The Conservation of Habitats and Species Amendment protects biodiversity through the conservation of natural habitats and species of wild fauna and flora. It outlines the rules for the protection, management and exploitation of such habitats and species.

1.14 European Protected Species (EPS) are protected under this legislation includes all UK bat species, hazel dormice and great crested newt. If the development is likely to cause an offence against an EPS which significantly impacts their favourable conservation status; an EPS mitigation licence would be required to permit certain activities that would otherwise be illegal.

1.15 Special Area of Conservation (SAC) are designated for protecting one or more special habitats and/ or species. Special Protection Areas (SPAs) are selected to protect one or more rare, threatened or vulnerable bird species listed within this legislation. Development proposals which are likely to have a significant (adverse) effect on the National Site Network in the UK (including Special Areas of Conservation (SAC) and Special Protection Areas (SPA)) is required to undertaken an Appropriate Assessment.

Planning Policy

1.16 The following national and local planning policies have been considered in determining the scope of this EcIA.

National Planning Policy

1.17 National policy guidance is provided by the **National Planning Policy Framework** (NPPF 2021), which sets out the Government's planning policies for England and how they should be applied. Section 15 of the document is entitled 'Conserving and Enhancing the Natural Environment'. This outlines the need for planning policies and decisions to contribute and enhance the natural environment, to minimise impacts from development and to provide net gains in biodiversity.

Local Planning Policy

1.18 The site falls under the planning control of Arun District Council and the Arun Local Plan 2011 – 2031 is the current plan. The relevant policies are as follows:

- Policy ENV SP1: Natural Environment
- Policy ENV DM1: Designated sites of biodiversity
- Policy ENV DM3: Biodiversity Opportunity Areas
- Policy ENV DM4: Protection of trees
- Policy ENV DM5: Development and biodiversity

1.19 As well as the Arun Local plan, the site is covered by The Aldingbourne Neighbourhood Plan 2 2019-2031 (adopted July 2021). This has a number of policies with regards to nature conservation:

- Policy EH1: Built Up Area Boundary (BUAB)

- Policy EH2: Green Infrastructure and Ecosystem Services
- Policy EH4: Protection of watercourses
- Policy EH6: Protection of trees and hedgerows
- Policy EH12: Protection of bat habitats

2.0 Methodology

Baseline Surveys

2.1 The pre-development ecological baseline was established through review of existing survey data obtained from the following documents:

- Preliminary Ecological Appraisal report – The Ecology Partnership (2022a);
- Bat survey report – The Ecology Partnership (2022b);
- Biodiversity net gain assessment- The Ecology Partnership (2022c);
- Dormouse survey report – The Ecology Partnership (2022d);
- GCN eDNA survey letter of report – The Ecology Partnership (2022e);
- Reptile survey report – The Ecology Partnership (2022f);
- Technical note to inform Habitats Regulations Assessment - The Ecology Partnership (2022g).

Scope of the Assessment

2.2 The zone of influence of the development is defined as:

- The project red line, for effects on designations, habitats and species;
- Adjacent habitat, considered by species, for mobile species with territories or foraging ranges that may overlap the site;
- Designated sites which can be impacted through development activities; and
- Undesignated priority (Section 41) habitats that may be sensitive receptors to increased recreational pressure or other impacts such as surface water pollution.

2.3 The types of features considered in the assessment of effects, to meet legislative and policy requirements, are:

- Designated sites (European, national and local);
- Protected species;

- Habitats and species of principal importance (Section 41 list);
- Hedgerows and woodland, where not of principal importance;
- Invasive species (Schedule 9 of Wildlife and Countryside Act); and
- Habitats, where not of principal importance, that may function as wildlife corridors or stepping stones.

Desktop Study

2.4 A desktop study was completed using an internet-based mapping service (www.magic.gov.uk) for statutory designated sites and an internet-based aerial mapping service (maps.google.co.uk) to understand the habitats present in and around the survey area as well as habitat linkages and features within the wider landscape. Records for the site and local area (up to 2km) were purchased from the Sussex Biological Records Centre (SxBRC) in 2021.

Field Surveys

Preliminary Ecological Appraisal (PEA)

2.5 The site was initially surveyed by the Ecology Partnership on 7th May 2021. The red line boundary was altered with the inclusion of 24 Meadow Way, which was subsequently surveyed on 11th November 2022.

2.6 The surveyors identified the habitats present, following the standard 'Phase 1 habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC). The Ecology Partnership surveyed the site on foot and the existing habitats, land uses and dominant plant species in each habitat were recorded on an appropriately scaled map (JNCC 2010).

2.7 The site was inspected for indications of the presence of protected species as follows:

- Evidence of badger, including setts, runs, snuffle holes and hairs;
- The presence of features within trees such as fissures, holes, loose bark and/or ivy which had the potential for roosting bats;
- Scrub/grassland mosaic and potential hibernation sites for common reptiles;
- Relevant habitat for dormice, such as dense deciduous woodland and coppice;

- The presence of suitable breeding places (waterbodies) and hibernation features for GCNs; and
- Suitable nesting habitat for birds.

Protected Species Surveys

2.8 The preliminary ecological appraisal including a desk top study and extended phase 1 habitats survey, assessed the potential for the site to support protected species. Following the PEA, further surveys for reptiles, bats, great crested newts (GCNs) and dormice were recommended and undertaken within the red line boundary. The specific survey work is summarised in Table 1 below. Detailed survey methodologies are provided in the appended reports.

Table 1: Species surveys undertaken between 2021 and 2022

Faunal Group	Survey Methodology	Date of Surveys	Guidance
[redacted]			
Bats – tree inspection	As part of the PEA, any trees supporting particular features likely to be of value to bats, such as splits, cracks, rot holes, coverings of ivy, peeling bark or similar, were recorded. The potential for the trees to support roosting bats were assessed in accordance with the criteria set out in the Bat Conservation Trust guidelines (BCT, 2012; BCT, 2016)	7th May 2021 11th November 2022	Bat Surveys – Good Practice Guidelines 2nd Edition (Hundt 2012) Bat Surveys – Good Practice Guidelines 3rd edition (Collins 2016)
Bats – activity surveys	Three dusk surveys were carried out across the site using transect methods to record activity, along with two remote recording devices (Anabat surveys) as per Bat Conservation Trust guidelines (BCT, 2012; BCT 2016).	Transect survey: 18th May 2022 13th July 2022 22nd September 2022 Anabat Express devices were deployed on site and recorded data on: 18th - 23rd May 2022 14th -19th July 2022 15th – 20th September 2022	Bat Surveys – Good Practice Guidelines 3rd edition (Collins 2016)

Dormice	A total of 50 dormouse tubes were established along the boundary features on 25th April 2022. Checks were undertaken once a month in May, July, August, September and October 2022. A survey effort score of 21 was achieved after the October check, which exceeded the recommended score of 20.	Tubes set up on 25th April 2022. Checks May – November 2022	Dormouse Conservation Handbook – English Nature
Great Crested Newts	An eDNA survey was carried out on the off-site Pond 1. The water samples were taken by licensed ecologist Alexia Tamblyn's accredited agent. All water samples were analysed by SureScreen Scientifics.	5th May 2022	eDNA surveys and analysis follow the protocol outlined by Biggs *et al.* (2014)
Reptiles	The refugia were placed around the edges of the site within the grassland and next to hedgerows. Mats were set up prior to the commencement of the reptile survey. A total of seven survey visits were made to the site to check the refugia for the presence of reptiles. Visits were only carried out if the weather conditions were suitable for locating reptiles. On each visit to the site, a minimum of one circuit to check all refugia was carried out.	Refugia set up date 31st March 2022 Seven checks April - September	The timing and number of surveys completed were based on guidelines produced by Froglife (1999) and Gent and Gibson (1998)

Ecological Assessment Methodology

2.9 This assessment has been carried out with reference to 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (CIEEM 2018).

Baseline condition

2.10 The baseline condition of the site is the situation documented in this report (section 3) from data (field surveys and desk study) gathered between 2021 and 2022, plus any relevant modifications within or outside the red line within the zones of influence subsequent to the completion of the 2021 assessment.

Important ecological features

2.11 Important ecological features are those for which the decision maker (LPA or other regulator) needs the EcIA to help to assess the effects (negative, neutral or positive) and to guide the determination of the planning application. Important features are therefore generally defined by whether legislation or policy requires their consideration. For example, a European site within the zone of influence of the development is important and needs an assessment of effects. Similarly, at different levels, any legally protected species and any features such as wildlife corridors and section 41 species, with national or local policy support, are important features. Features that cannot be referenced to legislation and policy are generally not important and the next step of the EcIA (impact assessment) is not necessary. There may occasionally be situations where professional judgement and local expertise is relevant in defining local rarity as important, regardless of a lack of current legislative and planning support.

2.12 The CIEEM guidelines (2018) avoid rigid guidance on the levels of importance, which is often required within EIA, along with the level of magnitude of an effect, as one axis of an impact matrix. Sometimes a label of European, national or local importance may be obvious, for European sites, SSSIs and Local Wildlife Sites respectively. It is often less clear whether a small population of a Section 41 priority species or small extent of a Section 41 habitat should be of local or greater or less importance, as this may depend on data that does not exist on the distribution and abundance of the feature. Legally protected species can be important solely because of the need to meet legislation, or because they are also a feature of a County Wildlife Site or target of a local Biodiversity Action Plan. In these cases, the same species could warrant different levels of importance, possibly with different implications for what is reasonable mitigation or compensation, beyond legislative compliance.

2.13 This report follows CIEEM guidelines (2018) in not forcing features into a level of importance, but using ranked importance where possible. Sites are given three levels, corresponding to their legislative and planning support: European, National and Local. Habitats and species, where not a qualifying feature of the hierarchy of sites, are simply

referenced to the planning policy or legislation that supports their importance and where possible assessed from the extent, range or population size within zone of influence in relation to the extent, range or population size in the relevant administrative unit, for example LPA boundary or BAP boundary.

Impact assessment

2.14 According to CIEEM guidelines (2018), the only essential purpose of impact assessment in EcIA is: *"to assess and report significant residual effects that remain after mitigation measures have been taken into account. However, it is good practice for the EcIA to make clear both the potential significant effects without mitigation and the residual significant effects following mitigation"*.

2.15 Impact assessment is required for each feature determined as important and not for other features. CIEEM guidelines (2018) advise that each impact assessment should consider, if possible, the different stages of a development (construction, operation and decommissioning) and that it should be characterised by the following:

- Positive or negative - whether the impact leads to an adverse, beneficial or neutral effect;
- Extent – the spatial area over which the impact occurs;
- Magnitude – change in, for example, the amount of habitat or the size of population;
- Duration – both in relation to the life cycle of the ecological feature and of the life of the project;
- Frequency and timing – for example, the number of disturbance incidents to birds and their timing in relation to the breeding cycle; and
- Reversibility – if and at what timescale recovery is possible.

2.16 As with the assessment of importance, CIEEM guidelines (2018) do not encourage a classification of the magnitude of impacts on a scale of severity. Rather, the significance of each impact should be assessed as the quantity of a feature of importance impacted; for example, residual loss of 5% of the extent of woodland within a Local Wildlife Site or gain of 10% in the extent of a section 41 habitat (hedgerows) on the site.

Avoidance, mitigation, compensation and enhancement

2.17 CIEEM guidance (2018) recommends a mitigation hierarchy. Once important features and significant impacts are identified, the project design should be modified where possible to avoid significant impacts. If avoidance is not possible, mitigation then compensation should be sequentially considered (Figure 3). A residual impact is an impact that remains after mitigation but is documented here both before and after compensation, as mitigation, particularly if embedded in the design, is assumed to be delivered without input from the LPA or other regulator, whilst compensation may require planning conditions and have some uncertainty on which the regulator should deliberate. Enhancement is an activity that results in a net gain in biodiversity, generally for an important feature, "over and above" anything required for mitigation or compensation. The terms mitigation and compensation are not always clearly defined and there is difference of opinion on their definitions. This report follows the Information Paper on the subject developed in consultation with Natural England for HS2 (2017), from which this quote and illustration are taken:

"A clear distinction is made between the use of the terms 'mitigation' and 'compensation' reflecting the habitual use in ecological impact assessment of 'mitigation' to mean 'measures taken to avoid or reduce negative impacts', as separate from 'compensation' meaning 'measures taken to make up for the loss of, or permanent damage to, biological resources through the provision of replacement areas"

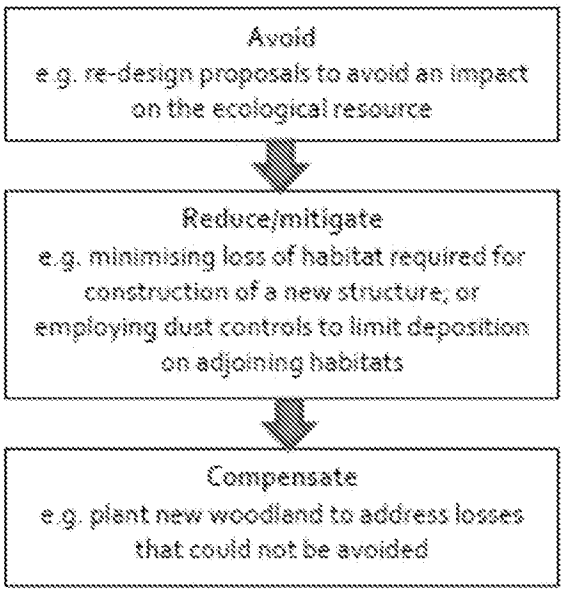


Figure 3: The mitigation hierarchy (from HS2 2017)

Limitations of the Assessment

2.18 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment. The site was visited over the period of several site visits, as such seasonal variations cannot be fully observed and potentially only a selection of all species that potentially occur within the site have been recorded. Therefore, the survey provides a general assessment of potential nature conservation value of the site and does not include a definitive plant species list. However, the survey area was visited on a number of occasions over the optimal period, ensuring that detailed habitat information could be gathered. It is therefore considered that the survey work has allowed a robust assessment of habitats and botanical interest across the site.

2.19 The specific protected species surveys were undertaken at the appropriate time of year and during suitable weather conditions to an appropriate level of survey effort. Any specific limitations are noted in the relevant sections above or discussed in the results section.

3.0 Baseline Ecological Conditions

Biological Records from SxBRC

3.1 A 2km radius data search was requested from the Sussex Biodiversity Record Centre in 2021. Notable protected species from this search are outlined below (Table 2). Only records from within the last ten years and those closest to site have been included.

Table 2: Biological Records from Sussex Biodiversity Record Centre within 2km of the site from the past 10 years

Species	Status	Closet Record to Site (Year Recorded)	Most recent record
Great Crested Newt *Triturus cristatus*	European Protected Species. Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b/9.4c/9.5a. NERC Act (2006) Section 41	*c.* 210m south west (2013)	2018
Slow Worm *Anguis fragilis*	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	*c.* 450m east (2016)	2019
Common Lizard *Zootoca vivipara*	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	*c.* 450m east (2016)	2016
Stag Beetle *Lucanus cervus*	Habitat and Species Directive (1992) Annex 2; Wildlife and Countryside Act (1981 as amended) Schedule 99.5a; NERC Act (2006) Section 41	*c.* 60m east (2015)	2020
European Water Vole *Arvicola amphibius*	Wildlife and Countryside Act (1981 as amended) Schedule 9.4a/9.4b/9.5c. NERC Act (2006) Section 41	*c.* 1.55km south east (2013)	2013
West European Hedgehog *Erinaceus europaeus*	UK BAP Priority, RedList GB post2001 VU	*c.* 215m north (2015)	2019
Western Barbastelle *Barbastella barbastellus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2016)	2016

Noctule *Nyctalus noctula*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2016)	2019
Serotine *Eptesicus serotinus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 690m north (2018)	2019
Myotis Bat *Myotis sp.*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 690m north (2018)	2018
Whiskered Bat *Myotis mystacinus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2012)	2012
Common Pipistrelle *Pipistrellus pipistrellus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 610m north (2020)	2020
Soprano Pipistrelle *Pipistrellus pygmaeus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 610m north (2020)	2020
Nathusius's pipistrelle *Pipistrellus nathusii*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2016)	2016
Long-eared Bat *Plecotus* sp.	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife	*c.* 700m north (2018)	2018

	and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c		
Barn Owl *Tyto alba*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2018
Red Kite *Milvus milvus*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2019
Merlin *Falco columbarius*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2019
Lapwing *Vanellus vanellus*	Natural Environment and Rural Communities Act (2006) Section 41, UK BAP Priority	Within 2km (2019)	2019
Kingfisher *Alcedo atthis*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2019
Corn Bunting *Emberiza calandra*	Natural Environment and Rural Communities Act (2006) Section 41, UK BAP Priority	Within 2km (2019)	2019
Eurasian Skylark *Alauda arvensis*	Natural Environment and Rural Communities Act (2006) Section 41, UK BAP Priority, EU Birds Directive Red List	Within 2km (2019)	2019

Additional species are present within the biological records but may be older than 10 years or outside our search radius. Some species have not been included due to the likelihood of presence on site due to habitat types.

Designated sites

3.2 There are three internationally designated sites within 10km of the sites red line boundary, these are shown in Table 3 below.

Table 3: Internationally designated sites within 10km of the site

Name of site and designation	Description (Taken from site citation where applicable)	Approximate Distance from Site (At nearest point)
Duncton to Bignor Escarpment, Special Area of Conservation (SAC) and Site of	*Asperulo-Fagetum* beech forests occur here on steep scarp slopes and on more gently-sloping hillsides in mosaic with ash *Fraxinus excelsior* woodland, scrub and grassland. Much of the beech woodland is high forest but with some old pollards.	Approximately *c.* 8.85km north-east.

Special Scientific Interest (SSSI)	Rare plants present include the white helleborine *Cephalanthera damasonium,* yellow bird's nest *Monotropa hypopitys* and green hellebore *Helleborus viridis*. The woods also have a rich mollusc fauna. -Taken from the JNCC SAC citation	
Chichester and Langstone Harbour, Special Protection Area (SPA), Ramsar site and SSSI	The site is internationally important because it regularly supports more than 10,000 wintering wildfowl (average 25,000) and 20,000 wintering waders (77,000). This site also supports internationally important numbers of the following species: grey plover *Pluvialis squatarola* (3.9% of west European population), sanderling *Calidris alba* (3.1%), dunlin *Calidris alpina* (2.6% and over 20,000 birds), redshank *Tringa tetanus* 1.4%), brent goose *Branta bernicla* (12%), shelduck *Tardona tardona* (4%) and teal *Anas crecca* (1%). The site supports internationally important numbers of migratory bird species listed above and nationally important wintering numbers of the following migratory bird species: ringed plover (*Charadrius hiaticula,* curlew *Numerius arguata,* bar-tailed godwit *Limosa lapponica,* turnstone *Arenaria interpres,* wigeon *Anas penelope,* pintail *Anas acuta,* shoveler *Anas clypeata* and the red-breasted merganser *Mergus serrator.* The site also provides a breeding site for three species of terns including little tern *Sterna albifrons* and sandwich tern *Sterna sandvicensis.* -Taken from the 1996 SPA Citation sheet	Approximately *c.* 9.6km west.
Pagham Harbour SPA, Ramsar site and SSSI	Internationally important wetland supporting in winter an average of 3045 dark bellied brent geese *Branta bernicla bernicla* (2% of the European wintering population). The site also supports nationally important wintering populations: 270 pintail *Anus acuta* (1% of the British wintering population), 781 grey plovers *Pluvialis squatarola* (3%) and 340 black tailed godwits *Limosa limosa* (7%). The site also supports an average of 160 wintering ruff *Philomachus pugnax* (10%), and breeding populations of little tern *Sterna hirundo.* -Taken from the 1998 SPA Citation sheet	Approximately *c.* 7.95km south-west.

3.3 Significant impacts on the designated sites listed within Table 3 have been ruled out within the Technical note to inform Habitats Regulations Assessment - The Ecology Partnership (2022f) which deals with SPA, SAC and Ramsar designations. The site specific SSSI designations for these sites are also ruled out, along with other SSSIs in the local area, due

to the distance from site and residential development not considered as a potential impact on site, as identified from the SSSI IRZ information gathered during the desk study.

3.4 In addition, Singleton and Cocking Tunnels Special Area of Conservation (SAC) is located approximately 11km northwest of site. The proposed development site therefore falls within the 12km wider conservation area of Singleton and Cocking Tunnels SAC, but outside the 6.5km Key Conservation Area as indicated within the Sussex Bat Special Area of Conservation Planning and Landscape Scale Enhancement Protocol produced by the Draft Natural England and South Downs National Park Authority. Impacts on this designation is ruled out within the Technical note to inform Habitats Regulations Assessment - The Ecology Partnership (2022g) and mitigation and compensation measures are not required.

3.5 There are no statutory designated sites within 2km of the sites red line boundary but there is one non-statutory designated Local Wildlife Site (LWS) within 2km of the site:

- Fontwell Park Racecourse LWS, approximately *c.* 1.75km north east of site which is designated for its lowland meadow.

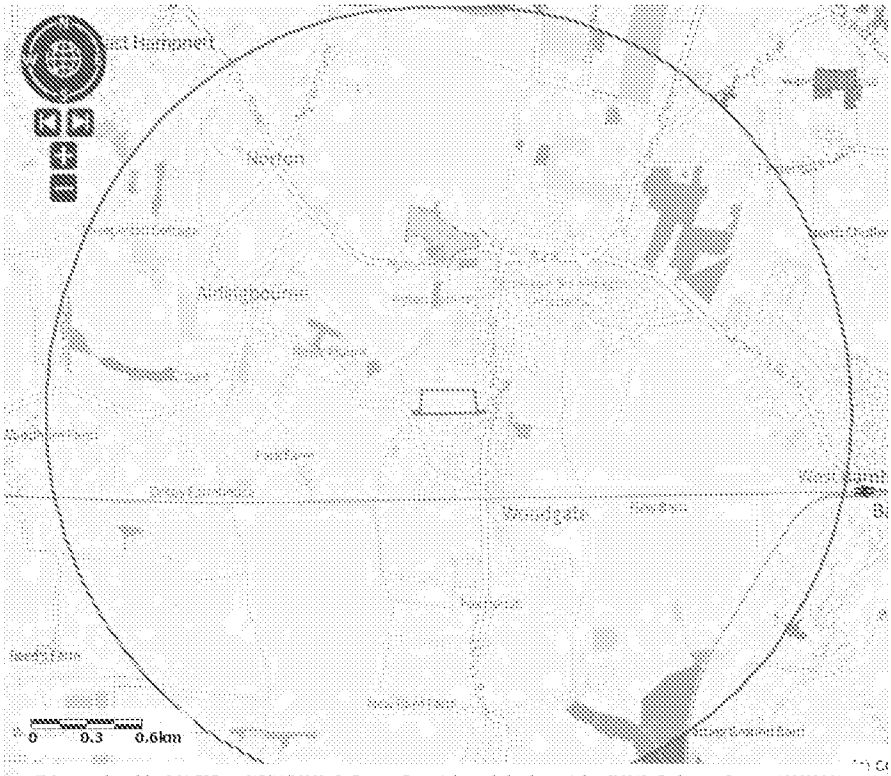
3.6 Fontwell Park LWS lies within the centre of a horseracing track which is under private ownership and as such, there is no public access to this LWS. No impacts on this habitat is considered as a result of the proposals.

Habitats

Context and surrounding priority (Section 41 list) habitats

3.7 The site is located within Westergate and there are priority habitats within 2km of the survey site boundary as shown in Figure 4 below. Deciduous woodland lies 120m east of the site boundary which is of local importance. A single parcel of ancient semi-natural woodland was also present in the local area, c. 1.35km west. Other priority habitats were also located within the local surroundings comprising traditional orchard c. 825m north, woodpasture and parkland c. 675m north, coastal and floodplain grazing marsh c. 1.7km south-east, lowland meadows 1.75km north east and chalk stream c. 180m east.

3.8 Less extensive priority habitats, not mapped in Figure 5, are hedgerows on site and within the surrounding landscape.



"Map produced by MAGIC on [15/11/2022]. © Crown Copyright and database rights [2021]. Ordnance Survey 100022861. Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of information that is being maintained or continually updated by the originating organisation. Please refer to the documentation for details, as information may be illustrative or representative rather than definitive at this stage".

Figure 4: Priority habitats: deciduous woodland (dark green); traditional orchards (green); ancient woodland (brown horizontal hatches); wood pasture and parkland (light green with shrub symbols); coastal and floodplain grazing marsh (blue); and lowland meadows (lime green) within 2km (red circle) around the red line boundary of the site.

Baseline habitats on the site

3.9 There have been negligible changes to the habitats present on site in late 2022 since the 2021 survey, limited to annual management practices; hedgerows have been flailed, with grassland edges and scrub patches cut back. The site primarily consists of a single arable field, which remained unchanged.

3.10 The boundary features were considered to be of a similar condition to 2021, with dry ditches, hedgerows, hedgerows with trees, neutral semi-improved grassland and scrub patches being present.

3.11 The recently extended red line boundary also comprises buildings, hardstanding, amenity grassland, urban trees and introduced shrub borders. The amenity grassland and introduced shrub habitats are both widespread and common, and are of limited ecological value, therefore they are considered to be of **site level importance** only. The buildings and hardstanding are of negligible ecological value. The urban trees have most ecological value, however the silver birch is immature in size and the four beech trees have had significant crown reduction, limiting their ecological value and they are also considered to be of **site level importance** only.

3.12 **Hedgerows** and **hedgerows with trees** are present along the field boundaries on site. Their composition varied in terms of height, structure and species composition but all were considered to be species-poor and not important under the Hedgerow Regulations. It must be noted however, that the southern hedgerow was only one woody species away from being classed as 'important' under the Hedgerow Regulations Assessment. The total length of hedgerow features within the ownership boundary is *c.* 0.73km. This habitat is locally common with a network of hedgerows linking the site to the wider landscape. As such, this habitat is not considered of importance beyond a **local level**.

3.13 The neutral semi-improved grassland is relatively speciose but restricted to thin strips around the field edge and subject to occasional chemical treatment, overspill from the arable field management. It does however have suitability for wildlife, as for the majority of the year the sward was long and grassland undisturbed, providing commuting corridors for local wildlife. This habitat is widespread and common and is therefore considered to be of **site level importance** only.

3.14 The scattered scrub on site is small in area but has connectivity to the hedgerow boundary features. The dry ditches on site offer potential commuting habitat, although it is acknowledged that if these held water, suitability would increase. These habitats are common and widespread, therefore considered to be of **site level importance** only. The arable field has limited ecological value due to its managed nature and is of **site level importance** only.

3.15 More details can be found within the most recent PEA report in Appendix A (The Ecology Partnership, 2022a).

Table 4: Summary table of habitats present on the site and levels of importance

Habitats	Description	Level of Importance
Residential curtilage habitats	The residential curtilage included house, hardstanding, amenity grassland, shrubs and small garden trees. All of these habitats are common and widespread.	**Site**
Hedgerows and hedgerows with trees	Their composition varied in terms of height, structure and species composition	**Local**
Neutral semi improved grassland	Restricted to thin strips around the field edge	**Site**
Scattered scrub	Small and scattered habitat. Limited in nature and extent	**Site**
Arable	Managed arable field	**Site**

Species and species groups

3.16 Species data is derived primarily from biological records within 2km of the site and the protected species surveys conducted throughout 2022, commissioned to support this EcIA and to inform site design.

Bats

3.17 A single tree with potential for roosting bats was identified along the northern site boundary, however this will be unaffected by site works and suitably buffered from development. The property at 24 Meadow Way was assessed to have 'low' bat roost potential and will require a minimum of one bat survey before it can be removed. Any roost present will need to be subject to suitable mitigation and compensation as part of a suitable Natural England EPS mitigation licence. The house did not contain any evidence of roosting within the loft space and any roost within the building is considered to be restricted to a small number of features within external features. It is considered that if a roost is present they would most likely be mitigated with bat boxes and detailed mitigation is unlikely to be required.

3.18 The majority of site as an arable field was considered to be of low interest for bats, but the boundary features do offer habitat suitability for foraging and commuting bats, owing to the presence of mature hedgerows and hedgerows with trees along the field edges (The Ecology Partnership, 2022a). Seasonal activity and static detector surveys were undertaken in 2022.

3.19 **Common pipistrelle** (*Pipistrellus pipistrellus*) were the most frequently recorded species during the walked transect and static detector surveys (55.98%). Low numbers of **soprano pipistrelle** (*P. pygmaeus*) were also recorded during both the walked transect and static detector surveys (9.45%). Both species are common and widespread bat species within the UK (Mathews *et al.* 2018). According to the Sussex Bat Group (2019), common pipistrelles are widespread and abundant in the county whilst soprano pipistrelles are widespread and fairly common.

3.20 **Nathusius' pipistrelle** (*P. nathusii*) was also recorded on site in very low numbers at a total of 3 calls (0.26%). The Sussex Bat Group states this species is scarce but widespread in both Sussex and the UK as a whole. Activity levels of this species on site is considered typical for the region.

3.21 **Myotis species** (*Myotis spp.*) also formed a notable portion of the calls, accounting for 29.9% of the total calls. The vast majority of these calls however, were made from the northern anabat during September only. Due to the timings of these recordings and observations made from the walked transects, it is considered that these recordings were made from a likely low number of individuals foraging up and down the same feature, in this case the northern hedgerow which joins another hedgerow that continues off site to the north. Due to the fact that only one month recorded a significant number of passes, it is considered that the site does not form part of myotis species core foraging or commuting habitat.

3.22 Note that myotis calls could not be confidently identified to species and have been grouped in the general 'myotis species' category, which includes the rare Annex II species Bechstein's bat. Bechstein's bats however, have a limited range and are almost exclusively found in woodland habitats, particularly ancient woodland (BCT, 2013). They also tend to forage within the woodland they roost in with restricted outward travel (SDNP/NE draft plan). The site does not contain any woodland, with the nearest ancient woodland block located over 2.5km away and deciduous woodland blocks within 1km of site considered too small to support a population of the species. As such, it is considered highly unlikely that the site supports Bechstein's bats, despite not being able to definitively rule them out from anabat analysis.

3.23 The Sussex Bat Group has identified these species as widespread but scarce. The numbers present on site are not considered to be significant but it is acknowledged that calls could not be confidently identified to species.

3.24 **Noctules** (*Nyctalus noctula*), **serotines** (*Eptesicus serotinus*) and **Leisler's** (*Nyctalus leisleri*) formed only a low proportion of the total calls on site, at 2%, 1.3% and 0.3% respectively. It is considered likely that low numbers of these individuals were using the site occasionally and it does not form part of their core foraging and commuting habitat.

3.25 **Brown long-eared** (*Plecotus auritus*) bats were not recorded during either the walked transects or the static detector surveys. In Sussex, this species is relatively abundant and widespread, and in England, their population size is estimated to be 934,000 (Mathews *et al.*, 2018). It is considered likely that low levels of activity by this species may have been missed due to the quietness of their low-amplitude echolocation calls, which could be obscured by louder species such as pipistrelles, and their reliance upon their hearing and sight for foraging.

3.26 The Annexe II species barbastelle was not recorded during the walked transects, however it made up 0.78% of the total calls on site from the static detectors, with a total of 9 calls over the three survey months. Notably barbastelle was only recorded along the northern hedgerow, which has better connectivity to the wider landscape and to the Slindon estate, which lies only 2.7km north east of site and supports a known maternity roost for the species (SDNP/NE draft plan). The Sussex Bat Group has identified these species as widespread but very rare.

3.27 Given the assemblage of bat species and their levels of activity on site, the populations of bats using the site are considered to be of **local importance**. Full details can be found in Appendix B (The Ecology Partnership, 2022b).

Badgers

[redacted]

[redacted]

Great Crested Newts (GCN)

3.29 The initial desktop study for the PEA identified biological records for great crested newt (GCN) (*Triturus cristatus*) within local area and that there were three off-site waterbodies within 250m of the site. The site itself does not support any ponds but does contain dry ditches along the northern and eastern site boundaries, which have remained dry (and therefore unsuitable for breeding GCN) across various surveys conducted on site between April and November 2022. Two SUDS associated with a new development south of the red line boundary were additionally identified during the PEA but are unsuitable for GCN as they do not hold water and lack planting both in and around the SUDS.

3.30 After further investigation Pond 3 is considered unsuitable for GCN as it was a covered swimming pool at the local primary school, access to Pond 2 was denied but Pond 1 was tested for GCN eDNA on 5th May 2022. Water samples were analysed by SureScreen Scientifics and were submitted for eDNA analysis to the protocol stated in DEFRA WC1067 (latest amendments). The result of this was a positive result which indicates GCN presence, although the number of positive replicates is only 2 out of 12 which suggests low level presence.

3.31 Historical GCN records suggest low numbers of GCN from Pond 1, Pond 2 and another pond located 400m north of site. Pond 1 is the closest to site at *c.*160m south west of site. None of the records suggest that any of the ponds are breeding ponds, although this cannot be ruled out with certainty. As such, Natural England's risk calculator was used and, even presuming the worse case scenario that all three ponds are breeding ponds, the results came out as Green: Offence Highly Unlikely. The site is now separated from ponds 1 and 2 by a new housing development and Hook Lane further reducing the likelihood the species would be present onsite.

3.32 Furthermore, GCN suitable habitat on site is restricted to the boundaries, which are largely to be retained as per site plans. As such, no further surveys were considered necessary and GCNs are not considered a constraint to development as the development of the site will

not alter the favourable conservation status of the species within the local area. Full results can be found within the Appendix D (The Ecology Partnership, 2022e).

Hazel Dormice

3.33 Dormouse monitoring surveys were undertaken across the site boundaries between April and October 2022. No evidence of dormice was recorded across site, but a total of eight *Apodemus sp.* nests within the tubes. Hazel dormice are therefore thought to be likely absent from the site boundaries and the development is not constrained by the species. Mitigation and compensation measures are therefore not required for the species and they will not be mentioned further in this report. Full details can be found in Appendix C (The Ecology Partnership, 2022d).

Reptiles

3.34 The reptile surveys concentrated on suitable habitat around the arable field edges throughout April to September 2022. The property at 24 Meadow Way was not surveyed for reptiles however the update PEA (The Ecology Partnership, 2022a) identifies the garden habitats as unsuitable to support reptile species. The targeted reptile surveys confirmed that the site supports a 'good' population of slow worms from a peak of 20 adult slow worms and a single juvenile grass snake recorded on site.

3.35 These were recorded within all field boundaries, along the hedgerows and neutral semi-improved grassland but recorded at higher densities along the northern and eastern boundaries. The presence of only two different reptile species means the site is not a key reptile site but as the site supports a 'good' population of slow worms, the reptile population on site are considered of **local** importance. Full details can be found in Appendix E (The Ecology Partnership, 2022f).

Breeding birds

3.36 Robin, magpie, *corvus* sp. and gull species were recorded on site during the initial 2021 PEA (The Ecology Partnership, 2022a). In addition, a barn owl box was also recorded on a building outside of the red line boundary closest to the north west corner of site, although this showed no apparent signs of use. The arable field by nature is optimal habitat for ground nesting birds such as skylark, however none were recorded on or around the site during the 2021 survey or across any protected species surveys conducted across 2022.

Furthermore, the crops in the field are sown densely and right up to the field edges, providing no gaps in the crops for species such as skylark to exploit.

3.37 Several gull species are listed on the Amber List, meaning they are of higher conservation concern. These were only recorded flying over site however, not present on site such as the robin, magpie and corvus sp. which were recorded along the site boundaries. The species recorded utilising the site are not Red List or Amber List species and as such, are considered to be of interest at a **site level**.

Future Baseline

3.38 Future baseline conditions are conditions which would be likely to arise if present conditions continue and a change of land use through the planning system does not occur. These conditions are assumed to be the continued functioning of the site for agricultural purposes with associated intensive management of arable land, hedgerows, grassland and scrub.

Table 5: Summary table of faunal groups surveyed and present on the site and levels of importance

Faunal Group/Species	Description	Level of Importance
Bats (roosting)	A single tree along the northern site boundary had 'moderate' potential for roosting bats, alongside the residential property at 24 Meadow Way which had 'low' potential.	**Local (if roost present)**
Bats (foraging and commuting)	The boundary features on site support potential for foraging and commuting bats. The central arable field is limited value for foraging and commuting bats. At least eight bat species were identified during the activity and static record surveys, including a low number of passes (9 across 15 nights) from the Annexe II species barbastelle.	**Local**
Badgers	There was no evidence of badger activity on site but the site does provide suitable foraging and commuting opportunities. This species has been included for legal compliance.	**Site** (legislative implications)
Reptiles	A 'good' population of slow worms, with a single juvenile grass snake identified on site during the 2022 surveys. The site does not meet the criteria for a Key Reptile Site.	**Local**
Birds	Only robin, magpie and *corvus sp.* were recorded using the sites boundary features. A gull species was recording flying over site but not using site. As such, no birds of priority concern were considered utilising site.	**Site**

4.0 Description of the Proposed Development

4.1 The site landscape masterplan (131802_Land west of Meadow Way_Illustrative masterplan_201022, dated October 2022 in Appendix F) shows the extent of the development area and green infrastructure area within the development area. A range of embedded mitigation and proposed compensation measures will be implemented within both the development and ownership boundaries.

4.2 Specified features of the landscape masterplan that can be considered as **embedded mitigation** are:

- Retention of the majority of the boundary hedgerows and associated grassland, incorporating the suitable reptile habitat on site;
- Retention and buffer of bat potential tree; and
- Construction largely within arable field habitat, or on previously developed land (24 Meadow Way) of low ecological value.

4.3 Specified features of the landscape masterplan that are proposed as **compensation**, for the loss of the site's baseline habitats, are:

- Provision of replacement habitats, such as sections of grassland, hedgerow, and replacement trees

4.4 Full habitat details can be found within the stand alone Biodiversity Net Gain report (The Ecology Partnership 2022c).

5.0 Assessment of Effects and Mitigation Measures

5.1 The impact assessment is for the development as described above (Section 4), including the submitted site layout plan, landscape and ecology strategy and their embedded mitigation. This assessment does not separate construction and operation impacts, rather it is focussed on assessing effects on important features that would result from the final layout. Residual impacts are those that remain after mitigation and before compensation, which is considered in section 7.

5.2 Features within or overlapping the red line that require an impact assessment are those determined as important in section 3, namely:

- Hedgerows;
- Bats;
- Badgers;
- Breeding birds;
- Reptiles.

Hedgerows

5.3 The hedgerows on site are considered to be of local value, have high ecological value and vitally, provide landscape connectivity. The hedgerows across the site boundaries are largely to be retained, but small segments (total *c.*8m) of the southern hedgerow is to be removed to allow for public footpath networks.

5.4 Mitigation for hedgerows on site includes the retention of nearly all existing hedgerow across the sites boundaries. A buffer will also be maintained between the hedgerows and development to consider root protection areas and maintain dark corridors. Heras fencing will be erected at least 2m from the retained site boundaries, to act as a visual and physical buffer during construction to prevent their degradation and protect reptiles along the site edges.

5.5 The loss of small hedgerow sections would result in a **minor negative impact of local importance.**

Bats - roosting

5.6 One tree was assessed as having 'moderate' bat roost potential along the northern boundary, but this tree is to be retained and buffered from the development. The residential dwelling at 24 Meadow Way is assessed as having 'low' potential for roosting bats and this still requires a single emergence survey before it can be removed.

5.7 No evidence of internal roosting was recorded within 24 Meadow Way. The roosting potential are restricted to small external crevices which are only likely to support small numbers or individual crevice dwelling bat species, if in use. As such detailed specific mitigation would be highly unlikely required to be designed into the scheme and such external features can easily be mitigated for by the way of integrated or external bat boxes. As such it is considered appropriate that this further survey could be conditioned and

dealt with at reserved matters stage. If no roost is identified, the building removal would result in a **neutral impact at a local level.** If a roost of low conservation significance is identified, it is expected to result in a **minor negative impact of local importance.**

Bats - foraging and commuting

5.8 The majority of the development footprint comprises of sub-optimal habitats with the suitable habitats being largely restricted towards the site margins, including hedgerows, hedgerows with trees, scattered scrub, urban trees and neutral semi-improved grassland.

5.9 Mitigation for bats include the retention of the majority of optimal habitats on site as part of the proposals with no significant severance or fragmentation of linear features and therefore flight lines. The southern hedgerow is to have two small sections removed but this is not considered significant and the total length of this habitat loss is *c.* 8m

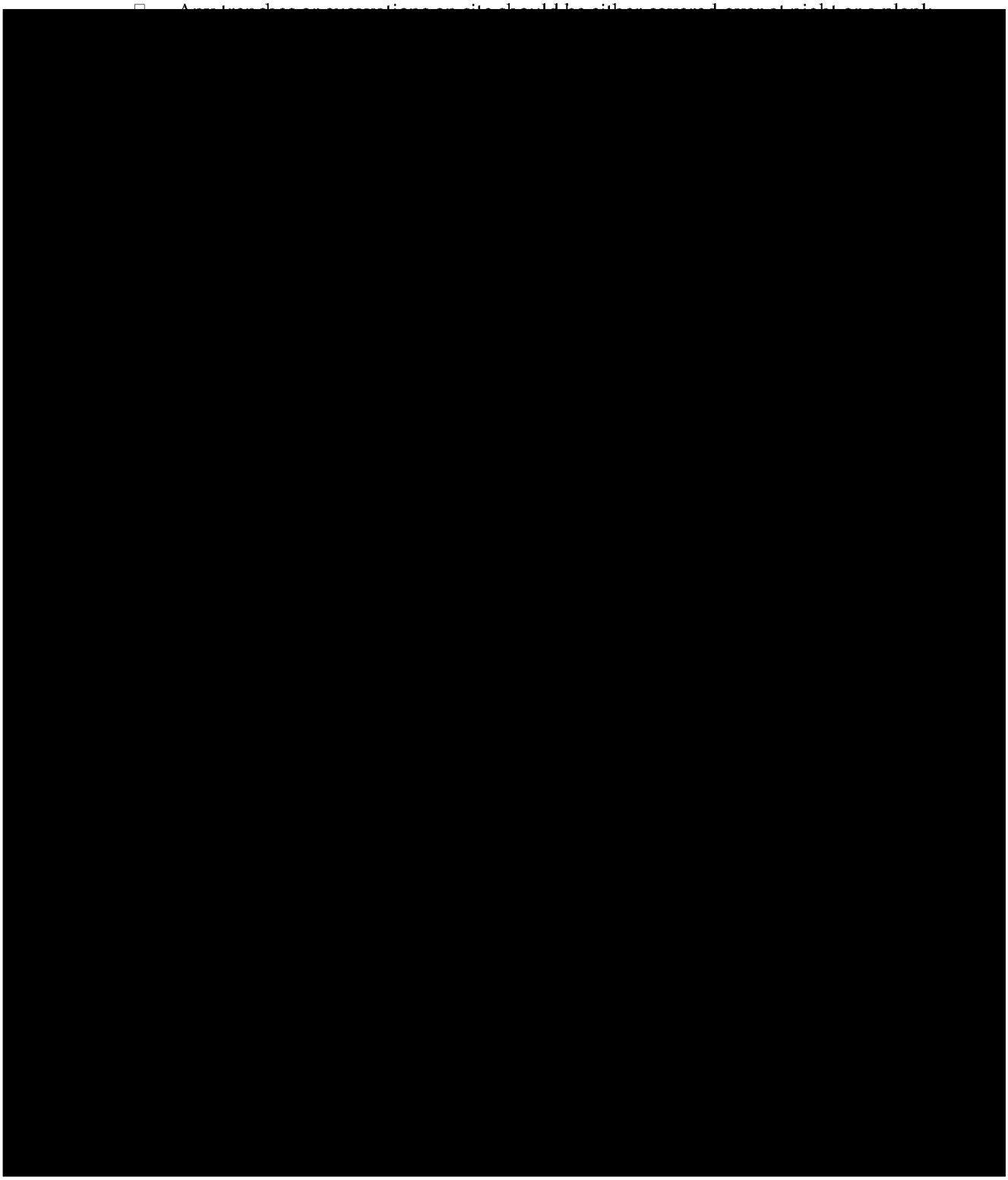
5.10 Mitigation also includes the implementation of a sensitive lighting scheme across the site, which can be conditioned. A sensitive lighting scheme will reduce any impacts from new artificial lighting on foraging and commuting bats as recommended within the Bat Activity report (The Ecology Partnership 2022b).

5.11 The implementation of a sensitive lighting scheme on site, plus the retention and buffer of existing wildlife corridors on site aim to minimalize the impact on foraging and commuting bats. The loss of small sections of suitable and a large area of sub optimal habitat on site however, will still result in **minor negative effect of local importance**.

Badgers

[redacted]

- Any trenches or excavations on site should be either covered over at night or a plank



Reptiles

5.19 The semi-improved grassland and base of hedgerows across site support reptile populations albeit these are limited to the field boundaries. The development area is

largely sub-optimal for reptiles and the suitable habitat were constrained towards the site margins. Presence/likely absence reptile surveys of the site in 2022 identified 'good' population of slow worm, in addition to a single juvenile grass snake. As the site supports only two reptile species, it does not meet the criteria for a 'key reptile site'.

5.20 Construction activities will lead to a reduction of small areas of suitable reptile habitat including southern hedgerow and eastern semi-improved grassland, for access purposes. Construction activities may lead to fatalities or harm to individual reptiles on site. This is an impact through the legislative protection afforded these species through section 5 of the Wildlife and Countryside Act 1981, as amended, and because of these species' status as Section 41 species.

5.21 Mitigation measures for reptiles include:

- Retention of the majority of boundary habitats;
- Heras fencing installed around the retained boundary habitats, at least 2m from hedgerow features to protect reptile populations present;
- Small sections of suitable habitat to be removed must be done using a two-phase cut, under RAMS and ecological supervision;
- Translocation by a suitably qualified ecologist of any individual reptiles found during site works to areas being retained and protected;
- Continued current management of the arable field to ensure there is no further of any vegetation development and the ground remains unsuitable for reptiles.

5.22 These measures are considered sufficient to ensure harm to reptiles is avoided. Further mitigation details can be seen within the reptile report. The habitat loss on site will result in a **minor residual impact of local level importance**.

6.0 Cumulative effects

6.1 There are a number of developments in the locality which are currently active;

- Thakeham, Land at Wings Nursery (AL/20/21/PL)- Demolition of Wings House and erection of 71 replacement dwellings. Currently under construction

- Taylor Wimpey Nyton Nursery (AL/3/19/PL)- residential development of 68 dwellings (net increase of 23 dwellings over current consent (AL/102/17/RES). Currently under construction
- Taylor Wimpey Nyton Nursery (AL/102/17/RES)- Demolition of existing buildings and outline application for the erection of 268 dwellings. First stage complete, second phase under construction
- Thakeham, Land North of Lee's Yard Lidsey Road (AL/108/22/RES)- Outline planning permission for 38 residential dwellings. Approved conditionally
- Reside, Land west of Fontwell Avenue (BN/50/20/PL)- demolition of existing structures and construction of 42 dwellings. Currently under construction
- Reside Land at Bayards Level (AL/113/21/OUT)- construction of up to 69 dwellings. Approved with S106 agreement
- Dandara, Land east of Fontwell Avenue (WA/48/19/RES)- construction of 400 new dwellings, retail and community space. Currently under construction

6.2 There are also a number of developments which are currently going through the planning process but not consented at this stage, including;

- Westergate BEW Parcel SC1 Barnham (BN/11/22/OUT) –outline application for the demolition of existing structures and mixed-use development to provide 1,250 residential dwellings, care accommodation, retail and community floorspace and a primary school. Currently Undecided.
- Cala Homes, Land east of Westergate (AL/97/22/ESO)- Environmental screening test for full application of 400 dwellings. ES is required to continue further
- Land West of Hook Lane (AL/135/22/RES)- 10 dwellings, currently undecided but decision date of 9th December 2022

6.3 The consented developments are all required, as a result of the planning process, to minimise effects on ecology through mitigation measures. The granting of planning permission for these sites have been a result of assessing potential impacts on the surrounding habitats, including designated sites, as required by law and policy. This includes assessing the impacts alone and in combination with other projects and plans within the local landscape.

6.4 Other developments include smaller developments such as; extensions, building change of use plus demolition and replacement of single or low numbers of buildings. These types of developments are considered to have negligible impact upon surrounding habitats and protected sites as they do not result in a significant net increase of people living in the area.

6.5 Assuming that the nearby developments have mitigation in place to negate any potential negative effects such as increased visitor pressure on surrounding habitats and that protected species surveys have been conducted, a cumulative impact from the developments would be **insignificant**.

7.0 Compensation

Hedgerows

7.1 The proposed development plan includes the planting of *c.* 470m new native mixed species hedgerows around the SUDS and POS areas. Part of this new hedgerow planting will compensate the *c.*8m loss of existing hedgerow to be removed, with the remainder serving as site enhancements. The new and existing hedgerows will be managed in the long term for wildlife and therefore with the small loss of hedgerow compensated for, it is considered that the development **would remove any residual impact.**

Foraging and Commuting Bats

7.2 The bat activity report (The Ecology Partnership, 2022b) outlines the recommended mitigation and compensation measures for bats overall across the site. The following compensation measures are considered to be sufficient to remove any residual effects on these species:

- Planting of mixed scrub and tree planting along northern and eastern boundaries to create more robust habitat edges along the site boundaries;
- Planting of new urban trees near the proposed site entrance to create 'hop-over' points which would maintain aerial linkages in the south east corner and contribute to the green infrastructure within the site; and
- Planting SUDS with wildlife friendly margins/ pond edge mixes to increase invertebrate activity and in turn, prey for bats.

7.3 The implementation of compensatory measures may result in an overall reduction of greenspace on site, however the green habitats created on site, provide better opportunities for foraging and commuting bats than the existing heavily managed arable field. With habitats such as wetland SUDs features, scrub and replacement hedgerow, it is considered likely to lead to a **minor positive impact of local importance.**

Roosting Bats

7.4 The moderate potential tree identified on the northern boundary is to be retained and buffered. The house at 24 Meadow Way has been identified as 'low' potential for roosting bats. It is recommended that a precautionary bat survey is undertaken and conditioned to be dealt with at reserved matters stage. With roosting potential, limited to small external features which are likely to only have potential to support individual roosting bats or low numbers of bats, it is considered that any mitigation and compensation could be easily accommodated in the scheme. With any potential roost lost, compensation measure would be subject to agreement with Natural England and the relevant EPS mitigation licence obtained to legalise the works. With a licence in place this **would remove any residual impact.**

Breeding birds

7.4 Only common breeding birds have been identified using the site, although it is acknowledged that priority birds could also use the site. Five urban trees and small sections of the southern hedgerow are to be removed (total *c.*8m) and the recommended compensation measures are outlined below:

- Planting of new native mixed species hedgerow within the east of site;
- Mixed native tree and scrub planting along the northern and eastern boundaries.

7.5 With replacement planting providing compensatory foraging and nesting habitat, in place this **would remove any residual impact.**

Reptiles

7.6 The reptile survey report outlined the recommended mitigation and compensation measures for reptiles. These measures will be implemented to compensate for the small

losses of suitable grassland, scrub and hedgerow habitat. The below compensation measures in place **would remove any residual impact.**

- Creation of new grassland areas around the SUDS and POS with a wildflower meadow or wet meadow mix;
- Scrub planting along the northern and eastern site boundaries, improving connectivity across the site boundaries;
- Management of retained and new habitats to provide a range of niches, specifically grassland areas maintained at a longer sward for wildlife.

7.7 The SUDS and scrub planting along the eastern boundary will provide enhanced habitat once established and improve connectivity for reptiles. By increasing overall habitat on site and improving management for reptile and other wildlife within areas of open space, this will aim to offset any increase in predation from domestic pets and any increase in disturbance and will lead to an overall enhancement.

Badgers and GCN

[redacted]

8.0 Enhancement

8.1 The development proposals include significant enhancements for the site. These have been designed to ensure there is minimal impact on ecology.

8.2 The most significant enhancement is the creation of the SUDS, mixed scrub, native mixed hedgerow and wildflower meadow planting in the east of site. The SUDS will be designed to hold water in some capacity all year round and be planted appropriately for wildlife. Mixed scrub and tree planting will occur on the eastern boundary, improving connectivity across the site boundaries, and along the northern boundary which will make a more robust habitat edge.

8.3 A significant number of urban trees will also be planted along the new access roads, which includes both areas near existing hedgerows and towards the centre of site.

8.4 The above measures will provide new opportunities for a range of wildlife including breeding birds, breeding and foraging reptiles and foraging bats. The long-term management of these habitats should be detailed in a LEMP, which will ensure it is managed to maximise wildlife in the long term- for example maintaining longer grassland around the SUDS and mowing a footpath through it for pedestrian access.

8.5 The inclusion of integral bird and bat boxes on/within the new houses will provide new features for such species. The inclusion of hedgehog highways and hedgehog homes will provide additional resting places for hedgehogs and increase connectivity across the site.

8.6 The following enhancements are included within the scheme and summarised below;

- Mixed scrub and tree planting along the northern and eastern boundaries to improve green corridors around the site;
- Creation of a large SUDS in the north east corner of site, designed to hold water all year-round and be planted for wildlife;
- Sowing amenity grassland areas with a flowering lawn mixture;
- Sowing POS areas with wildflower meadow mixtures to increase biodiversity;
- New native mixed species hedgerow planting around the SUDS and POS;
- Planting urban trees through the site and along the road networks.
- Provision of integral bird and bat boxes;
- Installation of at least four log piles;
- The provision of hedgehog highways and hedgehog homes;
- Long-term management of retained and newly planted habitats such as hedgerows and grassland to benefit wildlife.

9.0 Monitoring

9.1 Ecological clerk of works tasks will be required during construction, to ensure there is no change in the baseline that may alter the implementation of the development.

9.2 All reptile mitigation works must be undertaken under the supervision of a suitably qualified ecologist and all vegetation clearance on the site boundaries must be undertaken with hand tools only to ensure that the species are protected during works. Nesting bird checks will also be undertaken prior to habitat removal.

10.0 Summary and conclusions

10.1 The development to the rear of Meadow Way results in a change of land use into residential development with approximately 89 residential dwellings to be created with associated open space and infrastructure. Table 5 (below) summarises the effects on important features and how mitigation and compensation have been applied.

Baseline ecology and effects

10.2 The baseline features evaluated as important (through site designation, legislative protection or priority status on NERC Act 2006 Section 41 lists), so needing an assessment of effects, are as follows.

10.3 Features within or overlapping the red line that require an impact assessment are those determined as important in section 3, namely:

- Hedgerows;
- Foraging and Commuting Bats;
- Roosting Bats;
- Badgers;
- Breeding birds;
- Reptiles

Mitigation, compensation and enhancement

10.4 Embedded mitigation comprises the development footprint largely taking place on arable land, which is of limited ecological value and the retention of the majority of boundary habitats with a buffer of 2m and protective Heras fencing.

10.5 Residual impacts can be removed through species specific mitigation and compensation measures, which should be written into the planning conditions for the full planning application. The following methods are recommended:

- Gaining a Natural England mitigation for bats, if roosting on site;
- Sensitive clearance for reptiles and protection of retained habitat during works;
- Provision of replacement habitats, such as sections of grassland, hedgerow, and replacement trees
- A sensitive lighting scheme across the site, particularly for the site boundaries which must remain unlit.

10.6 Overall biodiversity enhancement has been designed into the site design, with a measurable biodiversity net gain achieved, detailed within the biodiversity net gain calculation. A proportion of the landscape design and appropriate management will form part of compensation measures, the rest will be classed as enhancement. Enhancements should be secured by condition including:

- New native mixed species hedgerow planting around the SUDS and POS;
- Sowing POS areas with wildflower meadow mixtures to increase biodiversity and increase reptile suitable habitat post development;
- New mixed scrub planting and tree planting along the eastern and northern edges;
- Provision of bird boxes on trees and buildings;
- Provision of bat boxes on trees and bat tubes in buildings;
- Creation of four log piles and/or hibernacula around the sites edges;
- The inclusion of hedgehog highways and hedgehog homes;
- Long-term management of the new and existing habitats to benefit wildlife and biodiversity.

10.7 Site monitoring is required to ensure that on site conditions have not changed between the November 2022 walkover and construction starting. If further reptile suitable habitat has established, mitigation will be reviewed and a full translocation may be required. Monitoring is also required during construction, to ensure that the boundary features are adequately fenced off and protected from site works/ degradation.

10.8 Monitoring is required prior to the construction phase for badgers, who may create setts on site between now and construction. and ensuring sensitive clearance of the site's habitats. Monitoring will also include an ecological clerk of works at construction phase to ensure sensitive clearance of required habitat areas. Monitoring will ensure

implementation of the conditions in addition to ensuring there is no change in the baseline that may alter the implementation of the development.

Summary

10.9 The proposed development is to be built on habitats common and widespread and of site value only. Habitats of value, including the hedgerow boundary habitats, are being largely retained and maintained within the scheme.

10.10 Whilst there is some small loss of hedgerow sections for footpath links, these will be compensated for by the buffering of retained hedgerows and the provision of new hedgerow and scrub features in the east of site.

10.11 To compensate for the loss of low value habitat, higher value habitats will be created, including SUDS planted for wildlife and wildflower meadow planting in new POS areas.

10.12 Enhancements include the planting of urban trees across site, creation of log piles and the use of a variety of wildlife boxes within the scheme.

10.13 It is considered that the new habitats created are of higher value than the ones which are lost. No impacts are predicted on protected species resulting from this development.

Table 6: Features of the site where significant effects are predicted to from the development

Feature	Effect type and magnitude	Mitigation	Residual effect	Compensation to remove residual effects	Residual effect after compensation	Enhancement/biodiversity gain
Priority habitats						
Hedgerows	**Minor negative of local level,** *c.*8m habitat loss	Heras fencing to protect majority of retained hedgerow features on site. Embedded mitigation (BS5837) to avoid damage to retained hedgerows.	**Minor negative** of local importance	Mixed species native hedgerow planting	**Neutral**	Creation of new mixed species native hedgerows around the POS and SUDS areas- increased connectivity across the eastern section of site Long term management for wildlife including less frequent flailing
Priority and protected species						
Bats (foraging and commuting)	**Minor negative of local level,** Small loss of southern hedgerow habitat and five urban trees. Light pollution causing indirect loss of commuting habitats.	Retention and enhancement of the majority boundary features. Implementation of sensitive lighting scheme and 2m buffer from hedgerow features to maintain dark corridors	**Minor negative of site importance**	Mixed species scrub and tree planting along the northern and eastern site boundaries	**Minor positive**	Mixed species native hedgerows planted in the east of site to improve connectivity across site Creation of SUDS planted for wildlife Urban tree planting across site
Bats (roosting)	**Neutral,** trees with roost potential to be retained **Minor negative of site level, b**uilding subject to precautionary emergence survey secured as part of	Heras fencing to be installed around the retained boundary habitats. Implementation of sensitive lighting scheme	**Neutral or Minor negative of local importance**	TBC - Securing relevant Natural England EPS mitigation licence if required and implementing compensation measures	**Neutral**	New bat boxes to be installed on site to create new roosting opportunities.

	reserved matters					
Badgers	**Neutral,** foraging and commuting habitat to be retained.	Precautionary working practices to be implemented during construction.	**Neutral**	-	**N/A**	Habitat creation and enhancement Creation of log piles
Common reptiles	**Minor negative of local level,** Loss of small sections of suitable habitat. Potential predation from domestic cats from new residents	Majority of suitable habitat to be retained and protected from site works via Heras fencing. Sections of habitat removal to be conducted under RAMS and ecological supervision. Translocation of any reptiles found to areas retained.	**Minor Negative** of local importance	Wildflower meadow grassland habitat feature to be created in the east of site around SUDS and POS	**Neutral**	Habitat creation and enhancements within the north east corner of site to include longer grassland and SUDS Creation of log piles and hibernacula Long-term management of new habitats for reptiles
Breeding birds (active nests, all species)	**Minor negative of site level**, loss of urban trees and *c.* 8m hedgerow Potential predation from domestic cats from new residents	Construction works timing outside of breeding bird season or under ecological supervision	**Minor negative at site importance**	Planting of replacement hedgerow habitat	**Neutral**	Additional nesting habitats planted including mixed scrub and urban trees Installation of bird boxes

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Appendix A: The Ecology Partnership Preliminary Ecological Appraisal 2022

the ecology partnership

Preliminary Ecological Appraisal

Land rear of Meadow Way, Westergate

The Ecology Partnership, Thorncroft Manor, Thorncroft Drive, Leatherhead, Surrey KT22 8JB

Contents

LIABILITIES:

Whilst every effort has been made to guarantee the accuracy of this report, it should be noted that living animals and plants are capable of migration/establishing. Whilst such species may not have been located during the survey duration, their presence may be found on a site at a later date. This report provides a snap shot of the species that were present at the time of the survey only and does not consider seasonal variation. Furthermore, where access is limited or the site supports habitats which are densely vegetated, only dominant species may be recorded.

The recommendations contained within this document are based on a reasonable timeframe between the completion of the survey and the commencement of any works. If there is any delay between the commencement of works that may conflict with timeframes laid out within this document, or have the potential to allow the ingress of protected species, a suitably qualified ecologist should be consulted.

It is the duty of care of the landowner/developer to act responsibly and comply with current environmental legislation if protected species are suspected or found prior to or during works.

1.0 Introduction

1.1 The Ecology Partnership were commissioned by Gleeson Land to undertake a preliminary ecological appraisal (PEA) of land to the rear of Meadow Way, Westergate, PO20 3AQ.

1.2 The key objectives of a PEA (CIEEM 2017) are to:

- Identify the likely ecological constraints associated with a project;
- Identify any mitigation measures likely to be required, following the 'Mitigation Hierarchy' (CIEEM 2016; BSI 2013, Clause 5.2);
- Identify any additional surveys that may be required to inform an Ecological Impact Assessment (EcIA); and
- Identify the opportunities offered by a project to deliver ecological enhancement.

1.3 This report comprises:

- The legislative and planning context (Section 1);
- Assessment methodologies (Section 2);
- Results (Section 3);
- Implications for development, including an impact assessment (Sections 4 and 5);
- Conclusions (Section 6).

Site Context

1.4 The site is located on the edge of Westergate, within the Arun District of West Sussex (SU 93616 04825). The site covers approximately 3.8ha and consists predominately of a large arable field with hedgerows and dry ditch borders, plus the residential property and associated garden at 24 Meadow Way. The site is bordered by a mixture of private gardens and arable land to the west and north with housing to all other aspects. The wider landscape consists largely of agricultural land with the villages of Eastergate and Barnham to the east.

1.5 The approximate red line boundary of the site is shown in Figure 1 below and in Figure 2 in wider context. It must be noted that the sites red line boundary in was originally restricted to the arable field in 2021, extended later in 2022 to include the property at 24 Meadow Way.

Figure 1: Approximate location of the survey area (red line) Taken using Google Earth Pro (Sep 2019).

Figure 2: Approximate location of the survey area (red) showing the surrounding area Taken using Google Earth Pro (Sep 2019).

1.6 Proposals for the site for *"Outline planning application with all matters reserved, other than principal means of access and demolition of 24 Meadow Way, for the construction of up to 89 residential dwellings, with access taken from Meadow Way, together with the provision of open space, landscaping and associated infrastructure"*. The landscaping includes the creation of a large SUDS in the north east corner of site (Figure 3), with public open space (POS) also located in the east of site, around the SUDS and site entrance.

1.7 The development would involve the development of the arable field and residential property and garden at 24 Meadow Way, and the removal of small sections of southern hedgerow and semi-improved grassland. Compensatory and enhancement planting is planned around the site boundaries and within the public open space towards the eastern end of the development. Additional planting and street trees will also be incorporated throughout the built environment.

Figure 3: Site development proposals, provided by provided by Gleeson Land 2022

Planning Policies

1.8 The site was surveyed to assess its ecological value and to ensure the proposals were compliant with relevant planning policy and legislation. Policy guidance is provided by the National Planning Policy Framework (NPPF 2021) as well as relevant planning policies from Arun District Council. The Arun Local Plan (adopted July 2018) provides a framework for planning decisions in the district and policies relevant to biodiversity and environmental protection have been included below:

- Policy ENV SP1: Natural Environment
- Policy ENV DM1: Designated sites of biodiversity
- Policy ENV DM3: Biodiversity Opportunity Areas
- Policy ENV DM4: Protection of trees
- Policy ENV DM5: Development and biodiversity

1.9 As well as the Arun Local plan, the site is covered by The Aldingbourne Neighbourhood Plan 2 2019-2031 (adopted 2021). This has a number of policies with regards to nature conservation and specifically bat species, these are listed below:

- Policy EH1: Built Up Area Boundary (BUAB)
- Policy EH2: Green Infrastructure and Ecosystem Services
- Policy EH4: Protection of watercourses
- Policy EH6: Protection of trees and hedgerows
- Policy EH12: Protection of bat habitats

1.10 The Environment Bill received Royal Assent on 9th November 2021 and is now a enacted as the Environment Act 2021. Part 6 (Nature and Biodiversity) and Schedule 14 of the Environment Act 2021 inset a new section 90A and Schedule 7A into the Town and Country Planning Act 1990 (TCPA), which contain the provisions requiring mandatory biodiversity net gain for development granted planning permission pursuant to the TCPA. These provisions are not yet in force, but, once they are brought into effect through implementing legislation, will require developments to provide a biodiversity value post-development that exceeds the predevelopment biodiversity value of the onsite habitats by at least 10%. Proposals also need to provide a net gain in biodiversity in accordance with the NPPF.

1.11 The assessment also takes into consideration nature conservation and wildlife legislation including, but not limited to, the Wildlife and Countryside Act 1981 (as amended), the Natural Environment and Rural Communities (NERC) Act 2006 and the Conservation of Habitats and Species Regulations 2017.

1.12 The report has been produced with reference to current guidelines for preliminary ecological appraisal (CIEEM 2017) and in accordance with BS 42020:2013 Biodiversity – Code of Practise for Planning and Development.

1.13 The site was surveyed to assess its ecological value and to ensure compliance with national and local plan policies. The report has been produced with reference to current guidelines for preliminary ecological appraisal (CIEEM 2013) and in accordance with BS 42020:2013 Biodiversity – Code of Practise for Planning and Development.

2.0 Methodology

Desktop Study

2.1 A desktop study search was completed using an internet-based mapping service (www.magic.gov.uk) for statutory designated sites and an internet-based aerial mapping service (maps.google.co.uk) was used to understand the habitats present in and around the survey area, including identifying habitat linkages and features (ponds, woodlands etc.) within the wider landscape.

2.1 Records of protected and notable species within 2km of the site were requested from the local biological records centre, Sussex Biodiversity Records Centre (SxBRC). Information on the on the presence of non-statutory designated sites within 2km of the site was also obtained by SxBRC. Records were screened for relevance and age with only those from the last decade and of species that could occur on site considered further.

Preliminary Ecological Appraisal

2.2 A preliminary ecological appraisal (PEA) of the arable field was undertaken on 7th May 2021 by ecologists Chris Jennings BSc (Hons) MSc MCIEEM and Aimee Littlechild BSc (Hons). This included an assessment of both the habitats and protected species potential of the site. The residential dwelling at 24 Meadow Way was additionally surveyed by the same ecologists on 11th November 2022. This included an internal and external inspection for bats of both the house and detached double garage building.

Phase 1 Habitat Survey

2.2 The surveyors identified the habitats present, following the standard 'Phase 1 habitat survey' auditing method developed by the Joint Nature Conservancy Council (JNCC). The site was surveyed on foot and the existing habitats and land uses were recorded on an appropriately scaled map (JNCC 2010). The dominant plant species in each habitat were recorded, where appropriate.

2.3 Plant species abundance was recorded using the DAFOR scale and species abundance was assigned to one the following categories in Table 1.

Table 1: DAFOR Scale Lettering

DAFOR Category	Letter
Dominant	D
Abundant	A
Frequent	F
Occasional	O
Rare	R

Protected Species Assessments

2.4 Any evidence of protected species was recorded. Standard survey methods for finding evidence and assessing presence or likely absence based on habitat suitability were used for bats in trees and buildings (Collins 2016), breeding birds (BTO 2020), hazel dormice (Bright *et al.* 2006), great crested newts (ARG 2010), reptiles (Froglife 2015), badgers (Creswell *et al*. 1990) and water voles (Strachan *et al*. 2011).

Hedgerow Assessment

2.5 The hedgerows were assessed under the criteria of the Hedgerow Regulations 1997 (as amended 2002). Under the criteria, to be determined as 'important', a hedgerow must be at least 30 years old and meet at least one of the additional criteria as summarised below:

- Marks a pre-1850 parish or township boundary
- Incorporates an archaeological feature
- Is part of, or associated with, an archaeological site
- Marks the boundary of, or is associated with pre-1600 estate or manor.
- Forms an integral part of a pre-Parliamentary enclosure field system.
- Contains certain categories of species of birds, animals or plants listed in the Wildlife and Countryside Act or Joint Nature Conservation Committee (JNCC) publications.

2.6 To be determined as 'species-rich', the hedgerow must include:

a) at least 7 woody species, on average, in a 30-metre length;

b) at least 6 woody species, on average, in a 30-metre length and has at least 3 associated features;

c) at least 6 woody species, on average, in a 30-metre length, including a black poplar tree, or large-leaved lime, or small-leaved lime, or wild service-tree; or

d) at least 5 woody species, on average, in a 30-metre length and has at least 4 associated features.

2.7 The number of woody species is reduced by one in northern counties. The list of 56 woody species comprises mainly shrubs and trees. It generally excludes climbers (such as clematis, honeysuckle and bramble) but includes wild roses.

2.8 The hedgerow may also be considered as 'important' if the hedgerow runs alongside a bridleway, footpath, road used as a public path, or a byway open to all traffic and includes at least 4 woody species, on average, in a 30-metre length and has at least 2 of the associated features listed at (i) to (vii) below:

i) a bank or wall supporting the hedgerow;

ii) less than 10% gaps;

iii) on average, at least one tree per 50 metres;

iv) at least 3 species from a list of 57 woodland plants;

v) a ditch;

vi) a number of connections with other hedgerows, ponds or woodland; and

vii) a parallel hedge within 15 metres.

Limitations

2.9 It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no single investigation could ensure the complete characterisation and prediction of the natural environment. The site was visited over the period of one site visit. As such, seasonal variations cannot be observed and potentially only a selection of all species that potentially occur within the site have been recorded. Therefore, the survey provides a general assessment of potential nature conservation value of the site and does not include a definitive plant species list.

2.10 The protected species assessment provides a preliminary view of the likelihood of protected species occurring on site, based on the suitability of the habitat and any direct evidence on site. It should not be taken as providing a full and definitive survey of any

protected species group. The assessment is only valid for the time when the survey was carried out. Additional surveys may be recommended if, on the basis of this assessment, it is considered reasonably likely that protected species may be present.

3.0 Results

Desktop Study

3.1 There are three international designations within 10km of the sites red line boundary. (Figure 4). These are:

- Duncton to Bignor Escarpment, Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI) located approximately 8.85km northeast; designated for its *Asperulo-Fagetum* beech forests.
- Chichester and Langstone Harbour, Special Protection Area (SPA), Ramsar site and SSSI located approximately 9.6km west; designated due to its internationally important breeding colonies of terns (*Sterna hirundo*) and populations of regularly occurring migratory bird species.
- Pagham Harbour SPA, Ramsar site and SSSI, located approximately 7.95km southwest; designated due to its internationally important populations of regularly occurring Annex I and other migratory bird species.

3.2 It should also be noted that the site does fall within the 12km Wider Conservation Area for The Singleton and Cocking Tunnels SAC (Figure 4) which is designated because it is a significant hibernation site for a variety of bat species.

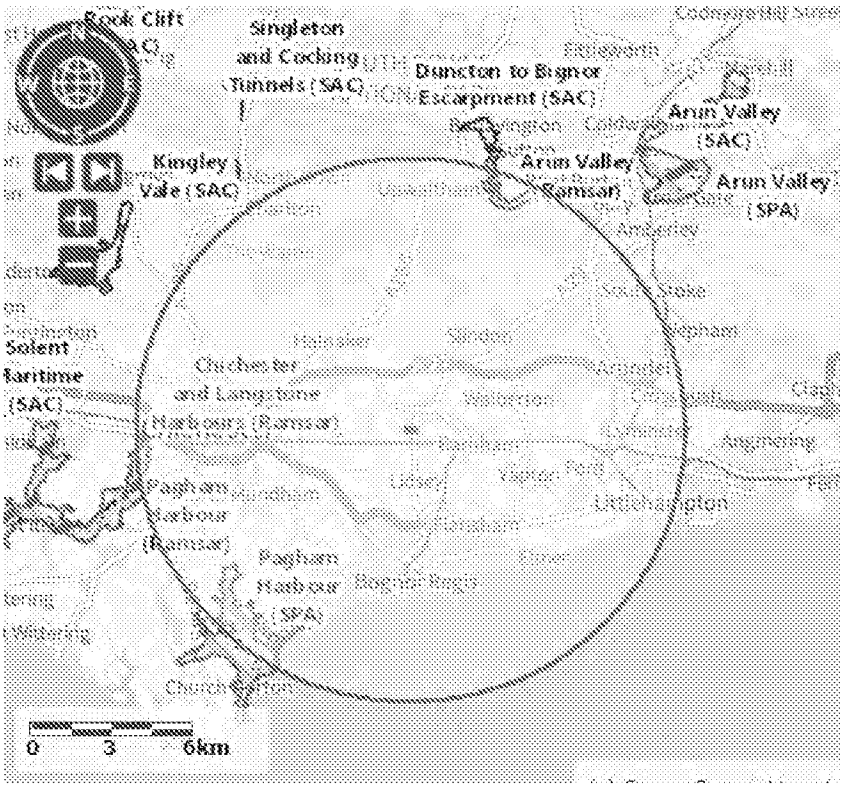

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Figure 4: Internationally designated sites within 10km (red circle) of the sites red line boundary.

3.3 There are no statutory designated sites within 2km of the sites red line boundary but the site does fall within Impact Risk Zones (IRZ) for SSSI sites in the wider area. It is not clear from MAGIC maps to which sites the impact zones specifically relate to, but is considered most likely from the following sites (Figure 5):

- Bognor Reef Site of Special Scientific Interest (SSSI) approximately 5.9km south;
- Fairmille Bottom SSSI approximately 5.6km northeast.

3.4 With regards to the IRZ only the following developments and associated impacts would require consultation with Natural England with regards to likely risks:

- Airports, helipads and other aviation proposals;
- Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m²; and
- General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant,

pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.

3.5 The site is also surrounded by one non-statutory site:

- Fontwell Park Racecourse, Local Wildlife Site (LWS) approximately 1.75km north east of site.

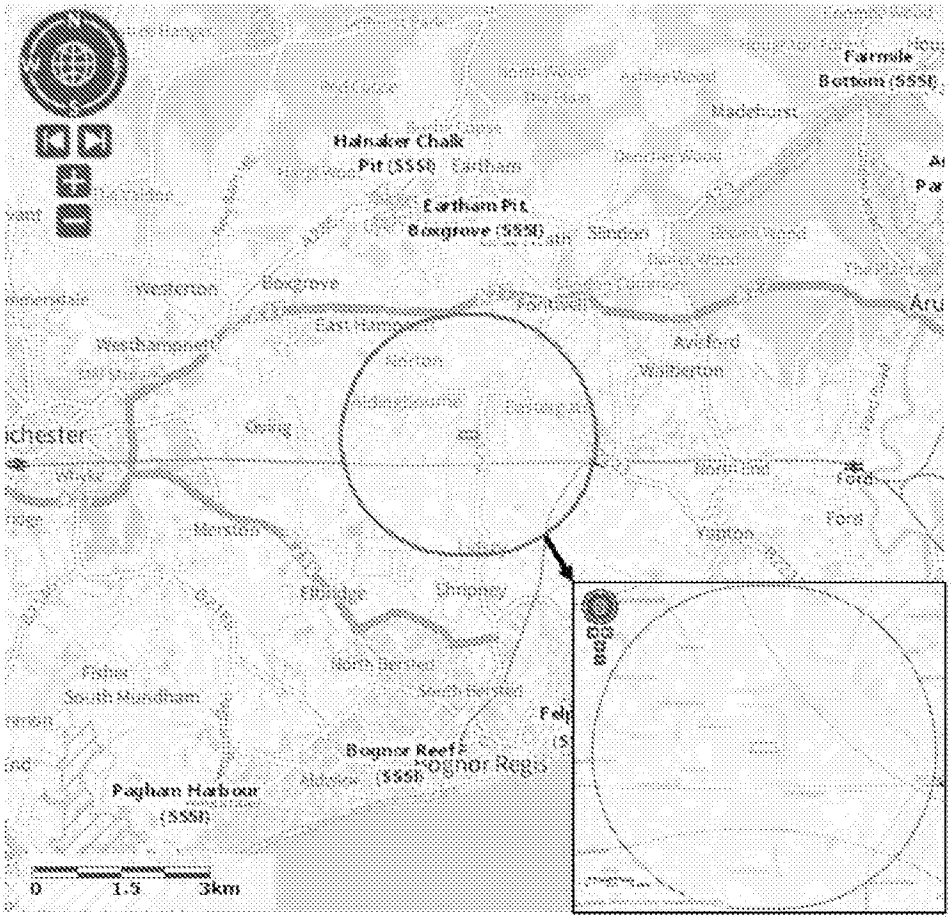

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Figure 5: SSSI sites in the wider area (green hashed areas), and impact risk zones (purple lines in insert image) within 2km (red circle) of the sites red line boundary

3.6 The site is surrounded by a number of priority habitats (Figure 6), the closest of each type are:

- Deciduous woodland approximately 120m east;
- Woodpasture and parklands approximately 675m north;

- Traditional orchards approximately 825m north;
- Ancient woodlands approximately 1.35km west;
- Coastal and floodplain grazing marsh approximately 1.7km southeast;
- Lowland meadows approximately 1.75km northeast;
- Chalk stream approximately 180m east.

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Figure 6: Deciduous woodland (dark green); traditional orchards (green); ancient woodland (brown horizontal hatches); wood pasture and parkland (light green with shrub symbols); coastal and floodplain grazing marsh (blue); and lowland meadows (lime green) within 2km (red circle) around the red line boundary of the site.

3.7 OS mapping and historical records of the site revealed three waterbodies within a 250m radius of the site (Figure 7). Two are located south west of site; Pond 1 is associated with a drainage ditch and Pond 2 appears to be a small reservoir with banked sides. Pond 3, the eastern most waterbody is actually a swimming pool at Aldingbourne Primary School and as such, is not discussed further in this report. Additionally, two dry SUDs features

were noted within the adjacent housing development to the south. These are not suitable to support GCN and have been scoped out of any further assessment.

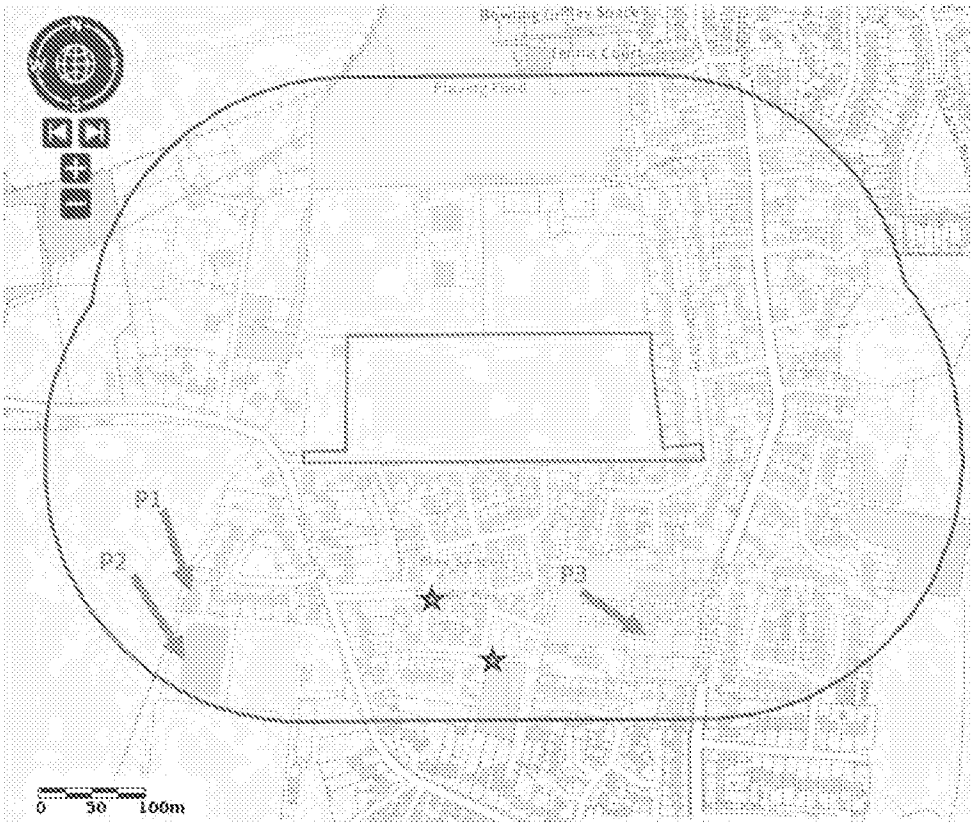

Figure 7: The red line boundary shown, with the ponds within 250m of the redline boundary shown and numbered. Dry SUDs indicated by stars.

3.8 The search also revealed that three European Protected Species (EPS) licences were granted within a 2km radius around the red line boundary (Figure 8). These are detailed below:

- A mitigation licence was for bats, specifically common pipistrelle granted in 2016 and was located 1.6km east of site;
- A mitigation licence for great crested newts (GCN), specifically to destroy a resting place (2019-42009-EPS-MIT), located approximately 180m south west of site granted in 2019; and
- A mitigation licence for hazel dormouse granted in 2017, located approximately 930m northeast of site.

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Figure 8: Locations of EPS licences for bats (blue square) and hazel dormouse (purple square) within a 2km buffer (red circle) around the red line boundary of the site

3.9 A 2km radius data search was purchased from SxBRC. The records closest to site, recorded within the last 10 years and relevant to the habitats on site have been included in Table 2. Details regarding the data requests are included in **Appendix 4**.

Table 2: Notable species records within 2km of the site in the last 10 years

Species	Status	Closet Record to Site (Year Recorded)	Most recent record
Great Crested Newt *Triturus cristatus*	European Protected Species. Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b/9.4c/9.5a. NERC Act (2006) Section 41	*c.* 210m south west (2013)	2018
Slow Worm *Anguis fragilis*	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	*c.* 450m east (2016)	2019
Common Lizard *Zootoca vivipara*	Wildlife and Countryside Act (1981 as amended) Schedule 5; NERC Act (2006) Section 41; Bern Convention Appendix 3	*c.* 450m east (2016)	2016
Stag Beetle *Lucanus cervus*	Habitat and Species Directive (1992) Annex 2; Wildlife and Countryside Act (1981 as amended) Schedule 99.5a; NERC Act (2006) Section 41	*c.* 60m east (2015)	2020
European Water Vole *Arvicola amphibius*	Wildlife and Countryside Act (1981 as amended) Schedule 9.4a/9.4b/9.5c. NERC Act (2006) Section 41	*c.* 1.55km south east (2013)	2013
West European Hedgehog *Erinaceus europaeus*	UK BAP Priority, RedList GB post2001 VU	*c.* 215m north (2015)	2019
Western Barbastelle *Barbastella barbastellus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2016)	2016
Noctule *Nyctalus noctula*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2016)	2019

Serotine *Eptesicus serotinus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 690m north (2018)	2019
Myotis Bat *Myotis sp.*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 690m north (2018)	2018
Whiskered Bat *Myotis mystacinus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2012)	2012
Common Pipistrelle *Pipistrellus pipistrellus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 610m north (2020)	2020
Soprano Pipistrelle *Pipistrellus pygmaeus*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 610m north (2020)	2020
Nathusius's pipistrelle *Pipistrellus nathusii*	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 260m east (2016)	2016
Long-eared Bat *Plecotus* sp.	Conservation of Habitats and Species Regulations (2010) Schedule 2; Habitat and Species Directive (1992) Annex 4; Wildlife and Countryside Act (1981 as amended) Schedule 9.4b & 9.4c	*c.* 700m north (2018)	2018
Barn Owl *Tyto alba*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2018

Red Kite *Milvus milvus*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2019
Merlin *Falco columbarius*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2019
Lapwing *Vanellus vanellus*	Natural Environment and Rural Communities Act (2006) Section 41, UK BAP Priority	Within 2km (2019)	2019
Kingfisher *Alcedo atthis*	Birds Directive Annex 1; Wildlife and Countryside Act (1981 as amended) Schedule 1	Within 2km (2019)	2019
Corn Bunting *Emberiza calandra*	Natural Environment and Rural Communities Act (2006) Section 41, UK BAP Priority	Within 2km (2019)	2019
Eurasian Skylark *Alauda arvensis*	Natural Environment and Rural Communities Act (2006) Section 41, UK BAP Priority, EU Birds Directive Red List	Within 2km (2019)	2019

Phase 1 Habitat Survey

3.10 The site was mostly comprised of a large arable field, with semi-improved grassland and scattered scrub patches. The field is bordered by fences, species poor hedgerows, hedgerow with trees and dry ditches. The residential property at 24 Meadow Way consisted of two buildings, associated hard standing, amenity grassland, introduced shrub borders and urban trees within the garden.

3.11 Only species of note have been listed within this section, the full species list can be found within **Appendix 3**. Photos of site can be found within **Appendix 2**.

Arable land

3.12 The vast majority of site consisted of arable farmland. At the time of survey, the crop was at an immature life stage and species undeterminable. The field margins to the south and east were of a long sward and dominated by nettle, perrenial ryegrass, cow parsely and cleavers. The field margins to the north and east were much wider areas and have been recorded as semi- improved grassland, as discussed below.

Neutral semi-improved grassland

3.13 Neutral semi-improved grassland habitat was identified along the northern and eastern boundaries, between the dry ditch and arable field, in addition to the south west corner of site near the site entrance. The grass was of a long to medium sward and was comprised of abundant meadow fescue, perennial rye grass and upright brome, frequent cow parsley, cocksfoot and cleavers, and occasional yarrow, meadow foxtail, timothy, common bent, garlic mustard and slender speedwell. Rare plants included stinking iris, fumitory and common vetch.

Scattered Scrub

3.14 Two small patches of scattered scrub were recorded on site, near the entrance on the southern boundary and in the north east corner of site. This habitat type was dominated by bramble, with frequent common nettles and cleavers, occasional ivy and rare bracken species which was present along the south western border.

Species-poor Hedgerow

3.15 Species poor hedgerows were recorded along the entire southern boundary and the western section of the northern boundary of site. These hedgerows were dominated by hawthorn, with frequent blackthorn and occasional elder. Climbers present are frequent ivy, occasional travellers joy, honeysuckle and bramble. The understories were comprised largely of lords and ladies, cleavers, and cow parsley.

3.16 The hedgerow in the western section of the northern site boundary has a dry ditch running immediately south of its entire length but is considered species poor and not important using the Hedgerow Regulations 1997 (as amended 2002).

3.17 The southern hedgerow is the northern border of a public footpath for its entire length and it contains the following features; less than 10% gaps; and a parallel hedge within 15 metres. Whilst it contains a single rare bay and rare dogwood, on average, in a 30-metre length it only contains 3 woody species (dominant hawthorn, frequent blackthorn and

occasional elder), which means it is one woody species short of being classed as 'important' using the criteria from the Hedgerow Regulations.

Hedgerow with trees

3.18 A hedgerow with trees was recorded along the north western boundary and the eastern section of the northern boundary. These hedgerows were less reminiscent of a traditionally maintained hedge but contained hedge species that had grown to taller height with some obvious trees and still marked the boundary between arable fields.

3.19 Species recorded include dominant hawthorn much like the other hedgerows on site, with abundant ivy, frequent blackthorn, occasional elder, honeysuckle and bramble. Tree species recorded within this hedgerow along the eastern section of the northern boundary include occasional ash with rare field maple. The western hedgerow contains holly and a single pedunculate oak sapling. These hedgerow with trees were also considered species poor and not important using the criteria from the Hedgerow Assessment.

Dry Ditch

3.20 Dry ditches were recorded along the northern and eastern boundaries of site. The ditch in the north was recorded between the semi-improved grassland and hedgerows whereas the eastern ditch appeared to be the site redline boundary limit, with private gardens backing onto the other side.

3.21 The ditches whilst dry at time of the survey, could potentially be wet during the winter months of the year. Plants recorded on the edges of the ditches included lesser celandine, common nettle, cuckoo flower and lords and ladies.

Buildings

3.22 Buildings within the extended red line boundary comprised of the semi-detached residential property at 24 Meadow Way and associated detached double garage. Both buildings are discussed in more detail with regards to roosting bats later within the report.

Hardstanding

3.23 Hardstanding was recorded associated with the residential property on site, comprising of paved driveway to the front of the property and patio to the rear.

Amenity grassland

3.24 The gardens at the front and rear of the property of 24 Meadow Way consisted predominantly of amenity grassland with plant borders which are discussed below. The grassland comprised of abundant red fescue and springy turf moss, with frequent white clover, common daisy and dandelion. Yarrow was additionally noted in the front garden but not present within the rear garden. Both sections were however, maintained to a very short sward.

Introduced shrub

3.25 The borders within the front and rear gardens of 24 Meadow Way consisted of introduced shrubs including lavender species, thyme, *Kerria* species, bay, *Berberis* species. A small section of isolated leylandii Cyprus was also recorded in the front garden, with a small vegetable bed in the rear, although this was devoid of any plants at the time of survey in November 2022.

Urban trees

3.26 The rear garden of 24 Meadow Way also contained four beech trees along the southern boundary and a single silver birch on the western boundary. All of the trees are considered immature in size and age, whilst the beech trees have also been subject to significant crown reduction, with the crowns currently reduced to *c.* 2.5m from ground level.

Target Notes [1]

Target Note 1 – Gravel Pile

3.27 A gravel pile was recorded near the entrance to site, this is shown on the habitat map in **Appendix 1**.

Target Note 2 – 'Moderate' potential bat tree

3.28 A single ash tree was recorded as having 'Moderate' bat roosting potential, this is shown on the habitat map in **Appendix 1**.

Protected Species

Roosting Bats

3.29 One ash tree along the northern boundary was considered to have 'moderate' potential for roosting bats, due to a small, south facing hole recorded which is a potential roosting feature (see **Appendix 1**).

3.30 The remaining trees along the northern boundary, western boundary and within the rear garden of 24 Meadow Way were considered to have 'negligible' potential for bats due to a lack of any potential roosting features.

3.31 The property at 24 Meadow Way was a semi-detached two-story building with dormer windows, comprised of brick walls and tight-fitting concrete roof tiles. The lead flashing around the dormer windows and chimney was well sealed, the roof tiles appeared well sealed and the soffit boxes were generally flush to the brickwork around the whole property. A small section of hanging tiles was present on the rear of the property, The hanging tiles were largely flush to the house, although a couple of small gaps were noted which maybe exploited opportunistically by single crevice dwelling bats. The southern and western gable ends also support slight gaps at the apex between the soffit boxes and the brickwork, although these are expected to be superficial.

[1] The location of the Target Notes can be seen within the habitat map in Appendix 1.

3.32 The loft space was internally assessed, and it was revealed to be used sporadically as storage. The roof was lined with a bitumen style roof felt, which was generally in good condition throughout the space. The exception to this is one area on the western elevation where the roof lining had broken, revealing the roof tiles. No gap was present large enough for bats to exploit and enter the loft space. Some gaps and potential bat roosting features were present around the chimney breast and between the rafters and brickwork at the ends of the gable. However, the loft void was very heavily cobwebbed, indicating the space had not been disturbed in quite some time. No evidence of bats such as droppings were identified anywhere within loft void. Overall, whilst it is considered unlikely this property supports roosting bats, it has been assessed as having 'low' bat roost potential due to the few external possible bat features.

3.33 The detached double garage was extremely well sealed around the perimeter of the building, with no gaps recorded underneath the tiles, the soffit or the gable ends. Inside, the space was clearly used regularly as a workshop, storage and exercise space. The roof lining appeared in perfect condition with no rips or tears and cobwebs were present along the length of the ridge. No evidence of bats such as droppings were identified anywhere within the garage building. Overall, this this building has been assessed as having 'negligible' bat roost potential.

Commuting and Foraging Bats

3.34 The hedgerows, hedgerows with trees and small scrub patches around the site boundaries offer potential for foraging and commuting bats whilst the grassland, buildings, hardstanding and arable habitats offers limited opportunities. It is considered that the majority of the commuting and foraging potential for bats is located around the boundary habitats and also offers connectivity across the wider landscape.

Badgers

[redacted]

[redacted]

Great Crested Newts (GCN)

3.36 No ponds were recorded on site but two were present within 250m of the sites red line boundary. Ditches were recorded within the site boundary, along the northern and eastern boundary edges but these were recorded as dry at the time of survey and considered to be dry for most, if not all of the breeding season.

3.37 Pond 1 is located 160m south west of the site boundary and is immediately adjacent to a new housing development. This development was built sometime after September 2019 as this is the latest dated image available from Google Earth satellite images, and at this time the development is not yet present. A GCN EPS licence was granted for this development in September 2019, granting permission to destroy a resting place.

3.38 Pond 1 appeared largely shaded from surrounding trees and the ditch that runs adjacent and south of the pond was mostly dry at the time of survey. Crucially, an amphibian/ reptile fence was observed around this pond and continuing north to the rear of the newly constructed houses. These fences are used as a part of reptile and amphibian mitigation for new developments to protect them from encroaching land that is being developed and coming to harm.

3.39 Pond 2 appears to be a reservoir with baked sides from mapping imagery but was not able to be accessed during the survey to assess GCN suitability.

3.40 GCN are known to be present in the area due to numerous records returned within 2km of site within the last 10 years. These most recent of these records relate to a site approximately 400m north of site in 2018 which appears to have had GCN presence/absence surveys undertaken and records a maximum of 2 adult males caught in a bottle trap and one adult female observed by torching methods.

3.41 Records also exist from Ponds 1 and 2 from 2013. Pond 1 recorded peak counts of one male and one female in a bottle trap, whilst Pond 2 recorded one female in a bottle trap. FPCR conducted these GCN presence/absence surveys in 2013, which recorded low populations

in both ponds, however no evidence of eggs where found which may indicate they are not breeding ponds. WYG conducted a site inspection report in December 2018 and recommended further surveys for GCN as the 2016 surveys were outdated but results for these surveys have not been found on the Arun District Council planning portal.

3.42 The hedgerows, hedgerows with trees and scattered scrub on site were considered to offer some foraging and commuting habitat for GCN but no possible refuges recorded, with the majority of site as arable land offering no protection from predators. Additionally, two SUDS were recorded within a new large housing development to the south of site, but these were unsuitable for GCN as both were dry and appear to not be designed by wildlife, as indicated by a lack of any vegetation both within the basins or around the edges.

3.43 The site has good connectivity for GCN across the wider habitat, through hedgerows running north of site, hedgerows and treelines west of site and residential mature gardens to the west and south west of site. Connectivity to the east and south east is more limited due to denser housing numbers and associated roads.

Hazel Dormice

3.44 The majority of site as arable habitat is considered to offer negligible potential for commuting and foraging dormice. The hedgerows, hedgerows with trees and scrub patches recorded along the northern, western and southern site boundaries however, are considered to offer moderate levels of foraging and commuting potential for dormice.

3.45 These features contain species which offer various sources of food for dormice, including hawthorn, blackthorn, elder and bramble, and these habitats provide some connectivity across the wider landscape to other suitable habitats.

3.46 The hedgerows along the southern boundary lies alongside a public footpath and as such, is likely prone to high levels of disturbance. The hedgerow along the northern boundary however, is more suitable and has greater connectivity across the wider landscape; to both deciduous woodland priority habitat approximately 300m west of site and a site approximately 930m northeast that required an EPS licence for dormice in 2017.

Reptiles

3.47 The vast majority of site as arable land is unsuitable for reptiles due to it being frequently disturbed and providing a lack of protection from predators. The hardstanding and garden habitats associated with 24 Meadow Way are also unsuitable for reptiles. It is considered that the hedgerows, hedgerows with trees and scrub patches along the boundary features do provide potential to support common reptile species.

3.48 The field margins and semi-improved grassland identified both in the south west corner of site and along the northern and eastern boundaries are of a medium to long sward which is ideal for foraging and commuting reptiles. The site is also positioned with most of the suitable grassland south facing, with a sunny aspect which is good for bathing reptiles. The site has good connectivity across the wider landscape for reptiles, largely via hedgerows and gardens to the north, west and south west of site.

Nesting Birds

3.49 The hedgerows, trees and scrub patches could provide potential for birds to nest within and a few old bird nests were observed amongst the trees along the northern boundary. Bird species recorded on site during the survey was limited to robin, magpie, corvus *sp.* around the site edges and and gull species flying over the site.

3.50 As arable land supporting crop production, the site has some habitat suitability for ground nesting birds such as skylark. No skylark were either heard or observed on or around site on the day of the survey, plus the manner in which the crops were sown meant there was no suitable gaps for skylark to exploit. The crops in the field are sown densely and right upto the field edges with no gaps present. During consequent protected species surveys on site across 2022, skylark were never heard or observed over on or around site and is presumed absent from the immediate localilty.

Barn Owls

3.51 What appeared to be a barn owl box was recorded on a building outside of the site red line boundary, closest to the north west corner although this box showed no apparent signs of use. The data search revealed records of barn owls within 2km of site in 2019.

There are no buildings or trees suitable for barn owls recorded within the site boundary and foraging opportunities were limited due to the heavily managed nature of the site.

Other Species

3.52 Due to a lack of suitable habitat, the site was not considered suitable for other protected species, such as water voles or otters.

3.53 The semi-improved grassland, hedgerows and scrub patches are considered to offer potential for a range of invertebrate species. The data search recorded stag beetles in the area, with the closest located within 60m east of site in 2016.

4.0 Discussion

4.1 The following paragraphs consider the effects of the development on designated sites, priority habitats and protected and priority species. Where the desk study and Phase 1 survey provide sufficient evidence for an assessment of effects on any of these groups to be taken through planning, these are detailed below, the need for additional surveys and when and how these should be completed are summarised, if required.

Effects on Designated Sites

4.2 There are three internationally designated areas within 10km of the site's red line boundary. Two of these are also designated as SSSI and Ramsar sites; Chichester and Langstone Harbour SPA and Pagham Harbour SPA located approximately 9.6km west and 7.95km southwest of site respectively. Due to the distances between the proposed development site and these designations, no significant adverse impacts are predicted to occur on these designated areas. Furthermore, the development site sits outside the Chichester and Langstone Harbour SPA zone of influence which is set at 5.6km and Pagham Harbour SPA zone of influence which is set at 3.5km.

4.3 The remaining site is Duncton to Bignor Escarpment SAC located approximately 8.85km northeast of site. At these distances it is considered that there are no direct impacts in terms of habitat loss, or indeed the isolation or fragmentation of habitats between the proposed development site and the above internationally designated sites. Furthermore,

the distances involved reduce impacts resulting from changes to lighting, water run-off and impacts resulting from construction.

4.4 As such it is considered that the proposals adhere to **Policy ENV SP1**: Natural Environment and **Policy ENV DM1**: Designated sites of biodiversity.

4.5 It must be noted that the site lies approximately 11km from Singleton and Cocking Tunnels SAC, and therefore within the 'wider conservation area' (within 12km of the Sussex Bat SACs). The 12km covers the area which is likely to support foraging bat species for which Singleton and Cocking Tunnels were designated, in this case barbastelle (*Barbastelle barbastellus*) and Bechstein's bat (*Myotis bechsteinii*).

4.6 Bats are mobile and species that are qualifying features of the SAC, may forage or roost on land outside of the SAC boundaries. Occasionally impacts to such habitats can have a significant effect upon the special interest of a European site, through an impact on conservation objective 4 (effect on the population) and 5 (the distribution of the species). Habitats used by significant numbers of qualifying features of the SAC are defined as ***functionally linked*** to the site and so require assessment under the Habitats Directive and Regulations, as if they were within the SAC boundary (Chapman and Tyldesley 2016).

4.7 As the proposals are likely to impact a small section of tree line, and the site falls within the 12m wider conservation area of the Sussex bats SACs, all impacts must be considered, as habitats within the zone are considered critical for sustaining the population of bats within the SACs. Following the Sussex SAC guidance, avoidance, mitigation, and compensation must be considered in relation to bats associated with the SACs.

4.8 Advice laid out within Sussex Bat Special Area of Conservation, Planning and Landscape Scale Enhancement Protocol states that all proposals within this zone should take:
'reasonable steps to avoid impacts to the SACs and biodiversity in general and where this cannot be achieved, 'mitigation' measures should be implemented and if there are still residual impacts then compensatory measures will need to be provided'.

4.9 Mitigation has been recommended in the form of a sensitive lighting scheme, which can be conditioned. Furthermore, a buffer zone around the retained hedgerows, where additional planting should take place to further protect the existing linear features and to

make a more robust ecological network. Finally, incorporation of surveys prior to any works on any roosting bat potential trees, if any are to be removed. It is however, recommended that all mature trees and hedgerows on site are retained where possible.

4.10 Compensation in the form of new hedge planting along the eastern boundary of the site is proposed, where the site boundary ends and backs onto existing housing. This would provide a link between the hedgerows north and south of the site.

4.11 Enhancements to the site have also been recommended within the Enhancements section of this report, to create more opportunities for foraging, commuting and roosting bats within the site. This includes the creation of pockets of native scrub plating and planting of higher value grassland habitat to attract a greater variety of invertebrates.

4.12 Overall, if the site developments avoid impacting the majority of the potential habitat for bats within the boundary features, and if these mitigation and compensation measures are followed it is considered that no likely significant effects on roosting and foraging bats, including barbastelles and Bechstein, would occur as a result of the proposals. Therefore, the proposals would not have any significant impact on the qualifying features for which Singleton and Cocking Tunnels are designated for. Further bat activity surveys have been recommended and these will give a greater understanding of how bats use the site and inform mitigation and compensation measures.

4.13 The proposed development site falls within wider Impact Risk Zones (IRZs) for SSSI sites within the wider area. IRZs are areas where listed developments are considered likely to have a negative impact on the integrity of the designated area and the LPA should be consulted.

4.14 However, at this distance only developments involving combustion, slurry lagoons, land fill and other types of development (aviation proposals, wind turbines etc) would require consideration of impacts on the SSSI and the local planning authority (LPA) would need to consult with Natural England about likely risks. As the development type is not listed against those that might have a negative impact upon SSSI sites or any other designation considered, and considering the distance between site and SSSI sites, the development is not considered to impact upon these designations and is not constrained by them.

4.15 Other than statutory designations, there is one non-statutory area within 2km of the site's red line boundary; Fontwell Park Racecourse LWS approximately 1.75km north east of site. Due to the distance between the site and this designated area, plus the fact that the racecourse is under private ownership, it is considered that development would not impact on this protected site.

4.16 Given the distances of separation from the site and the above designations, it is not considered likely that any proposals would directly impact these sites through habitat loss, fragmentation or isolation. However, indirect impacts, such as recreational pressure will have to be reviewed once the extent of the development proposals are understood.

Effects on Priority Habitats

4.17 Government guidance[2] requires the protection of ancient woodland, with at least a minimum 15m buffer between the woodland and development. Ancient woodland is located within the wider landscape; however, this is located *c.* 1.35km west of site and it is therefore considered not be impacted, directly or indirectly, by the proposed development.

4.18 There are a number of priority habitats surrounding the site, which are all habitats of principle importance for the conservation of biodiversity under Section 41 of the NERC Act 2006. The closest priority habitat to the site is deciduous woodland located 120m east of the site, with traditional orchards and wood pasture and parklands 825m north and 675m north of site respectively.

4.19 Considering the distance between the proposed development and the above habitats, it is considered that the proposals are unlikely to have any impacts on priority habitats within the local area, and as such would adhere to **Policy ENV SP1: Natural Environment and Policy ENV DM3: Biodiversity Opportunity Areas**.

[2] https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences

4.20 One priority habitat is also recorded within the red line boundary; hedgerows as defined by dimensions and composition of woody species (over 80%). Hedgerows were recorded across northern, western and southern site boundaries and these are recommended to be retained as much as possible, keeping a network of such habitat across the site.

Effects on on-site Habitat

4.21 The vast proportion of site is arable land which provides limited ecological value. The residential dwelling at 24 Meadow Way consists largely of buildings, hardstanding, introduced shrub beds and short maintained amenity grassland which also offer limited ecological value. As such, removal or alternation of these habitats would result in minimal impacts on site or wider landscape functionality.

4.22 The hedgerows, hedgerows with trees and associated understories bordering the site are considered to be of wildlife value through providing habitat, foraging and commuting opportunities. These features are to be largely retained and conserved as per the development plan and should be enhanced where possible.

4.23 In terms of the garden habitats of 24 Meadow Way, the five trees present within the rear garden offer the most value to wildlife at site level. However, all five are considered immature, limiting their value, due to their relative small size and a lack of features associated with mature trees such as rot holes, cracks and splits, which may provide additional nesting and refuge for wildlife species. The four beech trees run parallel to the adjacent public footpath which also supports an existing hedgerow feature on the southern edge of the footpath (which lies off site). It must be noted that only the northern edge of the footpath lies within the sites red line area and this is identified as the southern site boundary. The footpath and parallel hedgerow features are to be retained as per site plans and as such, the removal of the trees will not sever the limited connectivity to off site habitats in the south east corner or significantly impact site functionality.

4.24 Considering the majority of site is arable land and the majority of the boundary features are to be retained, it is considered likely that the site can achieve biological net gain in line with the DEFRA metric assessment methods.

4.25 By retaining and enhancing the boundary habitats on site, incorporating new and supplementary planting across the site and other enhancements recommended in the enhancements section below, the proposals would adhere to **Policy ENV DM5** in Arun District Council's Local Plan, development proposals must *"in the first instance, seek to achieve a net gain in biodiversity and protect existing habitats on site" and "incorporate elements of biodiversity including green walls, roof, bat and bird boxes".* This would also be compliant with **Policy EH6** of the Aldingbourne Neighbourhood plan.

4.26 The Environment Bill received Royal Assent on 9th November 2021 and is now a enacted as the Environment Act 2021. Part 6 (Nature and Biodiversity) and Schedule 14 of the Environment Act 2021 inset a new section 90A and Schedule 7A into the Town and Country Planning Act 1990 (TCPA), which contain the provisions requiring mandatory biodiversity net gain for development granted planning permission pursuant to the TCPA. These provisions are not yet in force, but, once they are brought into effect through implementing legislation, will require developments to provide a biodiversity value post-development that exceeds the predevelopment biodiversity value of the onsite habitats by at least 10%. These provisions are not expected to come into force until November 2023 for new planning applications, however many LPAs already require the 10% net gain.

4.27 Proposals also need to provide a net gain in biodiversity in accordance with the NPPF and local planning policies. The DEFRA biodiversity metric may be required to ensure a 10% net gain in biodiversity is met post-development. With the site consisting of a large area of arable land, there is scope to provide biodiversity net gain on site, by new and supplementary planting around the boundaries plus restoring part of the arable habitat to that of higher ecological value such as native diverse grasslands, scrub land and wetlands.

Effects on Protected Species

Bats

4.28 One ash tree was recorded along the northern boundary with 'moderate' potential for roosting bats. This tree and indeed others along the northern and western site boundaries are to be retained as per site plans. If development plans change however and this tree is

to be impacted by works, then further emergence surveys should be undertaken to establish whether it is in use by roosting bats.

4.29 The trees within the residential garden at 24 Meadow Way and the detatched garage were all assessed as 'negligible' bat roost potential. As such, all can be removed without further consideration for roosting bats.

4.30 The residential property at 24 Meadow Way has been assessed as having 'low' bat roost potential due to a low number of potential roosting features. Whilst it is considered unlikely that the property supports a large roost of high significance, it is possible that it could support occasional day roosts for low numbers of common crevice dwelling bat species. Such roosts are simple to mitigate for without the need for detailed mitigaiton design into the development and can be mitigated for by the provision of bat boxes. As such, a single precautioinary emergence suvey should be undertaken on the property as a precautionary approach. It is considered appropriate that this survey could be conditioned as part of any outline approval. If a roost is identified during this survey, a further two surveys would also be required to support a bat licence.

4.31 It must be noted that bat survey work should be undertaken between May-August, with supplementary survey work in September acceptable.

4.32 Whilst the majority of habitat on site (arable) is largely unsuitable for bats, it is considered that the site offers commuting and foraging potential, with bats most likely sticking to the boundary features on site, such as the hedgerows across the north and south. Multiple bat species have been recorded within the local area, including the rare Western Barbastelle only 260m east of site in 2016. One EPS license for bats has been granted (for common pipistrelle in 2016, 1.6km east of site), and the site falls within the 12km Sussex Bat SAC wider forgaing habitat area, which is designated for Barbastelle and Bechsteins bats. It should be noted that the emerging Aldringbourne Neighbourhood Plan 2 has two conditions that are relevant to bats, EH1 and EH2 2019. These policies look to retain identified biodiversity corridors. Policy EH2 2019 states:

"In order to be fully compliant with the Habitats Directive relating to the Singleton and Cocking Tunnels SAC qualifying features, proposals for the development of greenfield sites within the Parish

(most of which falls within the SAC's 12km Wider Conservation Area) must evaluate whether there is a potential for the loss of suitable foraging habitat and / or the severance of commuting flight lines, such as in the form of mature treelines, hedgerows and watercourses. If so, such features must be preserved unless surveys demonstrate that they are not used by Barbastrelle, Bechstein or other bats linked with nearby roosting sites. Care must also be taken through development design to ensure that such retained features are not subject to artificial lighting."

4.33 Consideration to this should be undertaken with regards to the site design.

4.34 The Bat Conservation Trust survey guidelines (Collins 2016) state that in table 4.1, *"guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement".* It is important that proportionality is employed when recommending further survey work for bat species on a proposed development site. As stated within section 8.2.7 of these guidelines (Collins 2016), the following points need to be taken into account with regard to planning activity surveys:

- Likelihood of bats being present;
- Likely species concerned;
- Number of individuals;
- Type of habitat affected;
- Predicted impacts of the proposed development on bats;
- Type and scale of proposed development.

4.35 Considering the above, if site development proposals involve of the retainment buffering and enhancement of the boundary features, it is considered that the development will not have a significant impact on the favourable conservation of bat species in the area and no further surveys are recommended. If however, the plans involve the removal or alternation of any of the boundary features, there is a potential impact on the character of the site for foraging and commuting bats and three transect surveys are recommended (One early summer, one mid summer and one late summer to help identify levels of activity, features of interest and identify which species use the site). These should occur between the months of April and October. Static recorders would be necessary on site to establish the levels of bat activity present on site. It is also recommended that the static

recording devices be left on site along side each transect survey for five consecutive nights between the months of April and October.

4.36 Any proposed lighting scheme as part of the proposals will have to consider bats in the surrounding area as well as the site. All bat species are nocturnal, resting in dark conditions in the day and emerging at night to feed. Bats are known to be affected by light levels, which can affect both their roosting and foraging behaviour. This needs to be considered with a sympathetic lighting scheme, with special consideration to all the boundary features. Recommendations include:

- Installing lighting only if there is a significant need;
- Using LED luminaries due to their lower intensity, sharp cut-off and good colour rendition – any lights with UV elements or metal halide lights should not be used;
- Lights with peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone 2012);
- Lights with an upward light ratio of 0% and good optical control;
- Careful consideration of column height to avoid light spill;
- Any external security lights should use motion-sensors and short (1-minute) timers.
- Avoid putting lighting near tree and hedgerows and angling light away from these linear features which could be used by commuting and foraging bats.

Badgers

[redacted]

[redacted]

Great Crested Newts

4.40 GCN are known to be present in the area due to numerous records returned within 2km of site. There are two suitable ponds within 250m of site and both have GCN records from surveys conducted in 2013. Pond 1 recorded peak counts of 2 GCN, whilst Pond 2 recorded a peak count of 1 GCN. An EPS licence was also granted for the development adjacent to Pond 1 in September 2019 to destroy a resting place.

4.41 WYG conducted a site inspection report in December 2018 and recommended further surveys for GCN as the 2016 surveys were outdated but results (if any) for these surveys have not been found on the Arun District Council planning portal. More recent records relate to a site approximately 400m north of site in 2018.

4.42 The hedgerows, hedgerows with trees, semi improved grassland and scrub habitats were considered to provide potential for commuting and foraging GCN in their terrestrial phase and the site has good connectivity for GCN across the wider habitat. Additionally, Pond 1 was recorded as having an amphibian/ reptile fence around it at the time of survey.

4.43 Considering all of the above, it is recommended that further GCN surveys are undertaken. This would initially involve a Habitat Suitability assessment and eDNA surveys on Ponds 1 and 2 to establish if GCN are still present in these ponds. GCN eDNA surveys should be carried out between the 15th April and the 30th June before site works. Dependent on the extent of the final proposals, a Natural England EPS mitigation licence may be required to legalise works. This should be assessed. Any EPS licence application would need to be informed by further population estimate surveys, once full planning permission has been granted.

Hazel Dormice

4.44 The boundary features of hedgerows, hedgerows with trees and scattered scrub were considered to offer potential for foraging and commuting dormice. The hedgerow along the southern boundary lies alongside a public footpath and as such, is likely prone to high levels of disturbance. No records of hazel dormouse were returned from SxBRC within 2km of the site.

4.45 The hedgerow along the northern boundary however, is more suitable and has greater connectivity across the wider landscape; to both a deciduous woodland priority habitat west of site and a site approximately 930m northeast that required an EPS licence for dormice in 2017.

4.46 As such, it is considered possible that dormice are present on site. If the boundary features are to be retained as part of the development proposals, works can commence without further consideration for this species. If any of the boundary features are to be removed or altered in any way, further surveys are recommended. Dormouse presence/absence surveys are conducted monthly between April or May and November.

Reptiles

4.47 Whilst the majority of site is unsuitable for reptiles, the hedgerows, semi-improved grassland and scrub patches along the site boundaries and near the site entrance were considered to offer potential for commuting and foraging reptiles. Whilst no records for grass snakes or adders were returned from the data search, multiple records were returned for both slow worms and common lizards 450m east of site in 2016.

4.48 Considering the above and that it is likely the development plans are to include at minimum, the removal of suitable habitat near the site entrance, a presence/absence survey for reptiles is recommended to be undertaken prior to any works. The surveys should be undertaken between April-September on suitable dry days within suitable conditions. The results of a potential reptile survey should inform what, if any, further mitigation for reptiles is required.

Barn Owls

4.49 The data search revealed records of barn owls within 2km of site in 2019, however there are no buildings or trees suitable for barn owls within the site boundary and foraging opportunities limited. As such, barn owls do not pose a constraint to the proposed development and no further surveys are recommended.

Nesting Birds

4.50 The trees, hedgerows and scrub habitats have the potential to support nesting birds. All birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended). If any of these features are to be removed as part of the proposals, this should be undertaken outside of the breeding bird season (March-September inclusive) or immediately after a nesting bird check by a suitably qualified ecologist. If active nests are identified, works in the vicinity of the nest must cease until the birds have fledged the nest. If this method is followed, no significant residual impacts are predicted on nesting birds within the local area.

Other Species

4.51 The hedgerows on site are considered to be suitable for invertebrate species such as stag beetles. The hedgerows, as priority habitat and boundary features are recommended to be retained and enhanced. As such, no significant impacts are predicted on this species.

4.52 If all of these recommendations are followed, it is believed that the proposals will adhere to **Policy ENV DM5**: **Development and biodiversity,** by taking all necessary steps to ensure no harm to protected species occurs as a result of the development.

Ecological Enhancements

4.53 Several enhancements can be made to the final development to help reduce potential ecological impacts, as well as to try and achieve 10% biological net gain. Local planning **Policy ENV DM5** encourages developments to contribute towards a net gain in green infrastructure and biodiversity, therefore some recommended ecological enhancements to be considered are included below.

4.54 To enhance the local bat population and provide additional roosting opportunities within the site, bat boxes can be hung on some of the mature trees around the site, if they are retained. Woodcrete boxes are recommended as they are breathable and long-lasting. These can include Schwegler boxes, such as the 2F, 2FN and 1FD models, as well as suitable alternatives such as the Vivaro Pro Low Profile Woodstone Bat Box range.

4.55 Bat boxes can also be integrated into the structure of new buildings (Figure 9). These provide good opportunities for crevice-dwelling species such as pipistrelles. The opening of the bat box/tube will be the only section visible and they are designed so that they require little to no maintenance. Several of these tubes can be established in a row together providing a good-sized roost space. The bat tubes should be inserted in the brickwork at least 4m from ground level in a location not illuminated by artificial lighting. Habitat, in association with the Bat Conservation Trust, provide a range of boxes which are unfaced for render or designed to match the brickwork of the building.

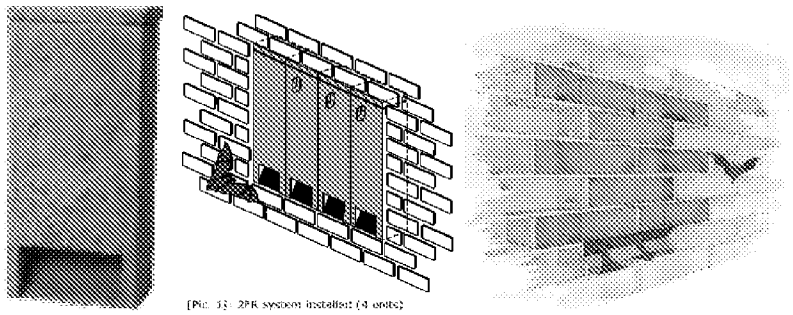

Figure 9: Bat tubes incorporated into the wall of a building to provide roosting space

4.56 Hedgerows and hedgerows with trees retained within the site should be enhanced; especially along the western boundary, this would provide a layering of different habitats that can be utilised by different species. Species that may be planted include blackthorn, hawthorn, hazel, holly (*Ilex aquifolium*), elder, alder buckthorn (*Frangula alnus*), guelder rose (*Viburnum opulus*), dog rose (*Rosa canina*) and dogwood (*Cornus* sp). A new hedgerow could be planted along the eastern boundary to increase connectivity across the site.

4.57 New shrub and herb planting could be proposed within the newly created garden habitats. Recommended native species include bilberry (*Vaccinium myrtillus*), spindle (*Euonymus europaeus*), buckthorn (*Rhamnus cathartica*), foxglove (*Digitalis purpurea*), wood

sage (*Teucrium scorodonia*), betony (*Stachys officinalis*) and sweet woodruff (*Galium odoratum*). Furthermore, planting species such as box (e.g. dwarf sweet box *Sarococca hookeriana*), various herbs and cotoneaster species would also provide additional food sources for local wildlife.

4.58 Planting across site with herbaceous plants and bulbs that attract bees, butterflies and other insects as well as providing ground cover for smaller animals. Seeds that are tolerant of semi-shade and are suitable for sowing beneath newly planted or established hedges should be used. As a guide, the following species can be included in the mix; however, appropriate seed mixes may be purchased from native species stockists:

- Yarrow - (*Achillea millefolium*)
- Agrimony – (*Agrimonia eupatoria*)
- Garlic mustard – (*Alliaria petiolata*)
- Common knapweed – (*Centurea nigra*)
- Wild Basil – (*Clinopodium vulgare*)
- Hedge bedstraw – (*Galium album*)
- Wood avens – (*Gerum urbanum*)
- Oxeye daisy – (*Leucanthemum vulgare*)
- Cowslip – (*Primula veris*)
- Selfheal – (*Prunella vulgaris*)
- Red campion – (*Silene dioica*)
- Hedge woundwort – (*Stachys sylyatica*)
- Upright hedge parsley – (*Torilis japonica*)
- Tufted vetch – (*Vicia cracca)*

4.59 Nest boxes can be installed in order to provide new nesting opportunities for birds. These can be hung on surrounding mature trees, if any are retained. Bird boxes made from woodcrete or similar are recommended due their longevity.

4.60 It is recommended that log piles are created for use as refugia by reptiles, amphibians, small mammals and invertebrates (Figure 10). These could be placed within hedgerows around the site boundaries. These should be stacked and perhaps some leaf litter added. Planting around log piles with species such as honeysuckle or clematis can also add value.

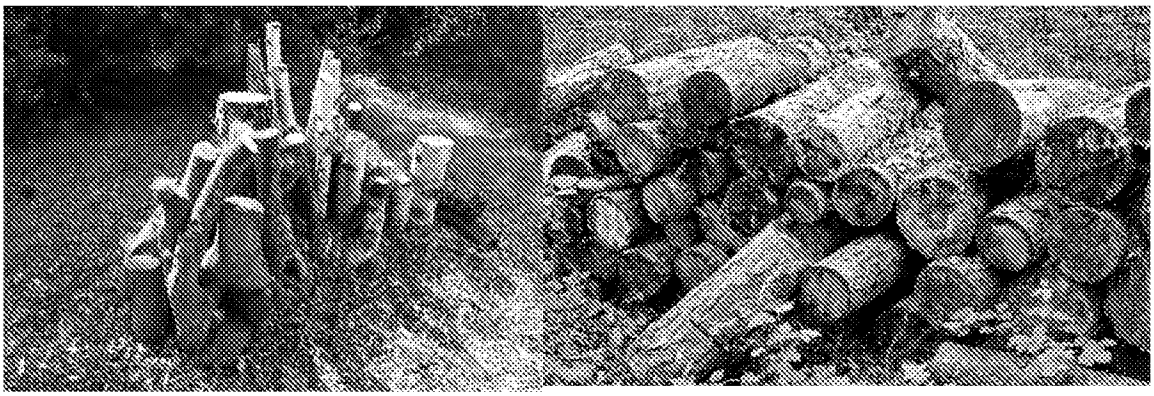

Figure 10: Examples of log piles that can be made on site

4.61 Hedgehog (*Erinaceinae europaeus*) homes could also be placed across the site (Figure 11). These provide areas of shelter for hedgehogs within the site, helping support the local population.

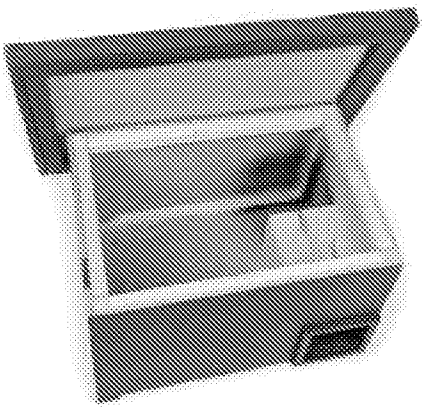

Figure 11: Example of a hedgehog house that can be utilised on site

4.62 Where possible, fencing relating to the new homes will be made hedgehog-friendly by creating a 13cm x 13cm hole at the base (Figure 12). These simple features allow hedgehogs to travel between gardens and increase habitat connectivity. To ensure these are not blocked, small signs can be painted or erected above the hole.

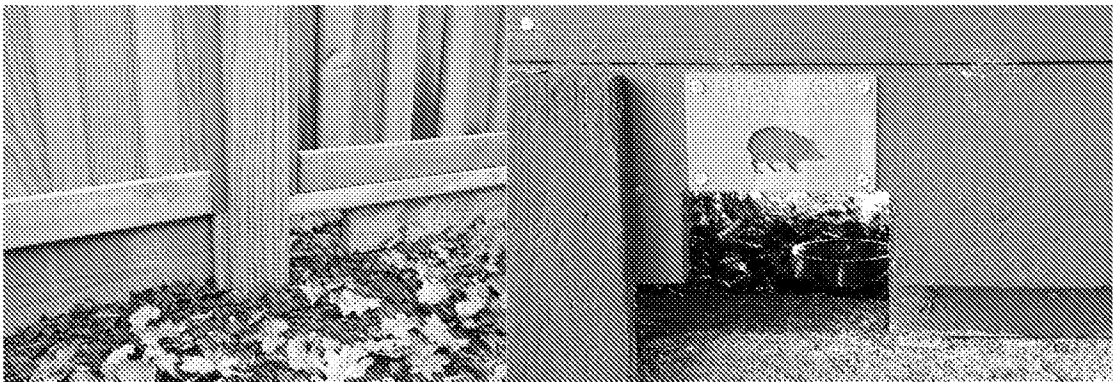

Figure 12: Hedgehog-friendly fencing and highway signage (hedgehgstreet.org)

5.0 Impact Assessment

5.1 A detailed Ecological Impact Assessment (EcIA) cannot be carried out at this stage as further surveys are required. An assessment should be carried out following the completion of the further surveys in order to quantify and evaluate the potential impacts of the development on the habitats and species present on site and within the local area.

6.0 Conclusions

6.1 The site falls within the wider conservation area of the Sussex Bat SAC, notably approximately 11km of Singleton and Cocking Tunnels and consideration to this must be undertaken with the design of the site, maintaining and buffering suitable bat commuting and foraging habitat and protecting it from artificial light. Further survey work for bats will give data on which species are using the site and identify if the proposals will have a significant negative impact on the Sussex bat SACs.

6.2 Although the site has been identified within a SSSI IRZ, it is not considered that the nature of the proposals (residential scheme) would trigger the requirement for consultation with Natural England about likely impacts to SSSIs in the local area and no significant impacts on such designations are anticipated.

6.3 The majority of the habitats on site are common and widespread. However, the on-site hedgerows and hedgerows with trees are considered priority habitats and should be retained. Furthermore, grassland and scrub habitats around the site edges, should be

enhanced within the scheme and a new hedgerow planted along the eastern boundary to ensure landscape connectivity.

6.4 The boundary habitats of hedgerows and hedgerows with trees on site have suitability for commuting and foraging bats and connectivity across the wider landscape. One tree has been identified as having 'moderate' potential for roosting bats. If this tree is to be impacted by works, then further emergence surveys should be undertaken to establish whether it is in use by roosting bats. This survey work should be undertaken between May-August, with supplementary survey work in September acceptable.

6.5 As the site lies within the wider conservation area of the Sussex Bat SAC, considering the size of the potential development and potential impact on the character of the site for foraging and commuting bats, three transect surveys are recommended should the development plans involve the removal or alteration of the above boundary features (One early summer, one mid summer and one late summer to help identify levels of activity, features of interest and identify which species use the site). These should occur between the months of April and October. Static recorders would be necessary on site to establish the levels of bat activity present on site. It is also recommended that the static recording devices be left on site along side each transect survey for five consecutive nights between the months of April and October. A sensitive lighting scheme should be implemented and enhancements for bats have been recommended.

6.6 The residential house within 24 Meadow Way, was classed as having 'low' potential to support roosting bats. This was owing to small gaps noted within the external features. If used by roosting bats, due to the nature of the construction of the building it would only likely be used by low numbers of more common crevice dwellings species. Such roosts can be easily mitigated for, without detailed design and provisions of bat boxes. As such it is considered appropriate that the recommended single precautionary bat emergence survey can be conditioned as part of any outline application. If a roost is recorded further survey work will be undertaken to characterise the roost and inform an appropriate mitigation strategy and Natural England EPS mitigaiton licence.

6.7 Whilst no evidence of badgers, such as setts or latrines, was identified on site at the time of the survey, it is considered likely that they use the site for commuting and foraging purposes. As such, precautionary methods of work have been outlined to avoid harming any individuals that may use the site.

6.8 Due to the presence of two ponds within 250m of site and historical records of great crested newts in these ponds, in addition to GCN suitable habitat around the boundaries of site, eDNA of these ponds is recommended prior to any works. GCN eDNA surveys should be carried out between the 15th April and the 30th June. The results of this survey will help inform the need for further surveys and mitigation, if necessary.

6.9 There is suitable dormouse habitat present on site and connectivity between the proposed development site and an area within 1km where an EPS licence was required for hazel dormouse. It is therefore considered possible that hazel dormouse is present on site. If the boundary features are to be retained as part of the development proposals, works can commence without further consideration for this species. If any of the boundary features are to be removed or altered in any way, further surveys are recommended. Dormouse presence/absence surveys are conducted monthly between April or May and November. The results of these surveys should inform what, if any, further mitigation for dormice is required.

6.10 Reptile suitable habitat is present along the boundary features. As the development plans are likely to include at minimum, the removal of suitable habitat near the site entrance, a presence/absence survey for reptiles have been recommended to take place prior to any works. The surveys should be undertaken between April-September on suitable dry days within suitable conditions. The results of this survey, if necessary, should inform what, if any, further mitigation for reptiles is required.

6.11 Birds may use the hedgerows, trees and scrub habitats on site to nest within. Any works should therefore avoid the bird nesting season (March – September inclusive) or immediately after a nesting bird check by a qualified ecologist will be required.

6.12 Owing to a lack of suitable habitat and/or connectivity, the site is not considered to be constrained by other protected/notable species such as barn owls, otters or water voles.

6.13 Potential impacts will be reviewed once development proposals are made available and the protected species surveys have been conducted. Furthermore, consideration of net gain within the scheme will have to be addressed.

7.0 References

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Internet resources:

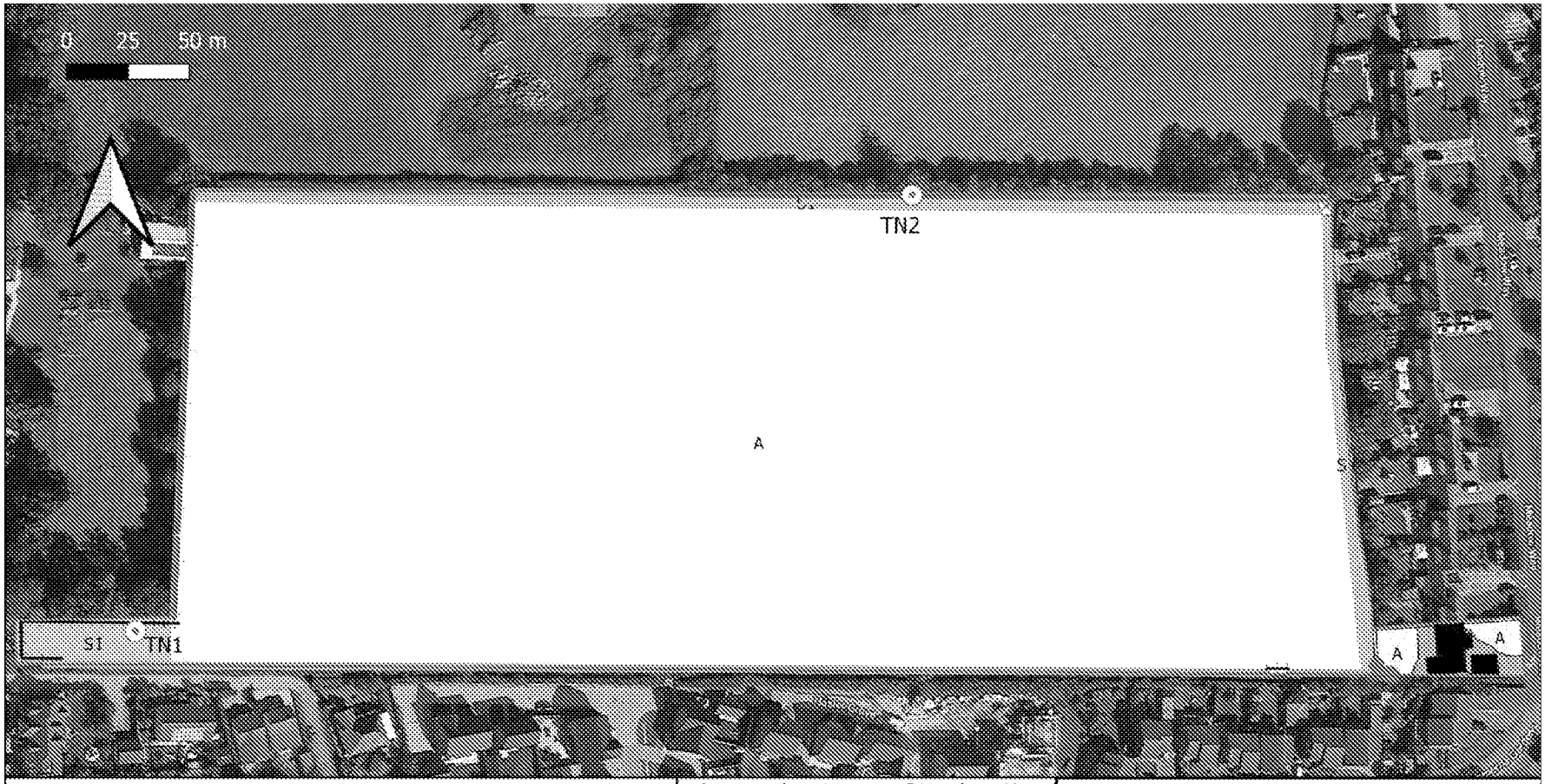
Arun District Council:

https://www.arun.gov.uk/adopted-local-plan/ and www.arun.gov.uk/weekly-lists

Google Maps: www.google.co.uk/maps

Magic Interactive Map: www.magic.gov

Appendix 1: Phase 1 Habitat Map



- Red line boundary
- Arable (A)
- Semi improved grassland (SI)
- Scrub
- Fence
- Hedgerow with trees
- Hedgerow
- Dry ditch
- Building
- Hardstanding
- Amenity grassland (A)
- Introduced shrub border
- Urban tree
- Target notes:
  TN1 Gravel pile
  TN2 Moderate potential bat tree

Site: Land to the rear of Meadow Way
Client: Gleeson Land

Dates of surveys: 07/05/2021
& 11/11/2022
Surveyors: CJ & AL

The Ecology Partnership Ltd
Thorncroft Manor
Thorncroft Drive
Leatherhead
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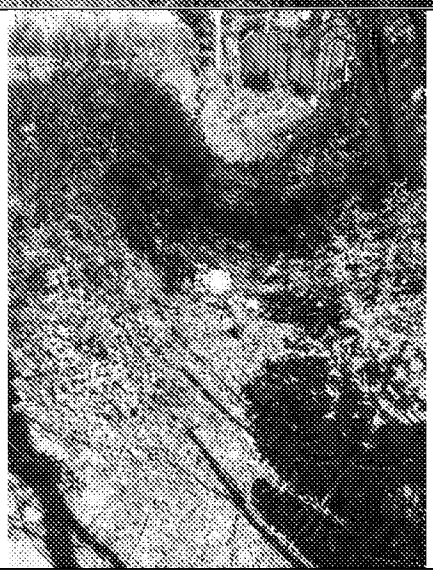
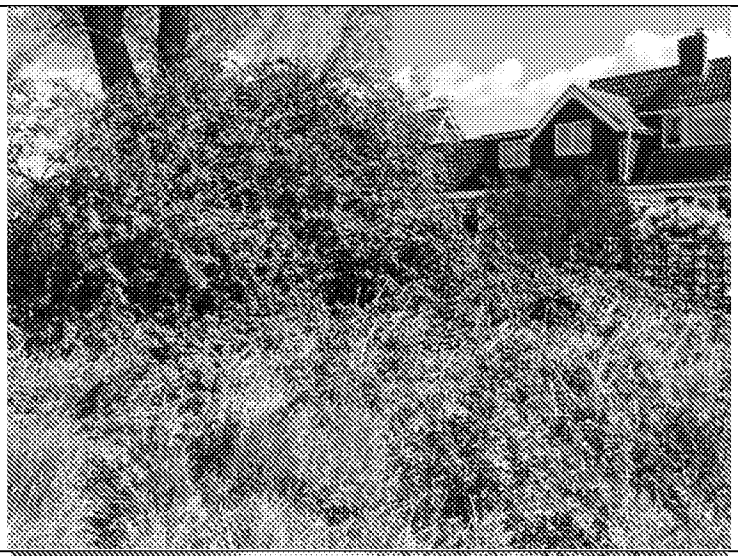
the ecology partnership

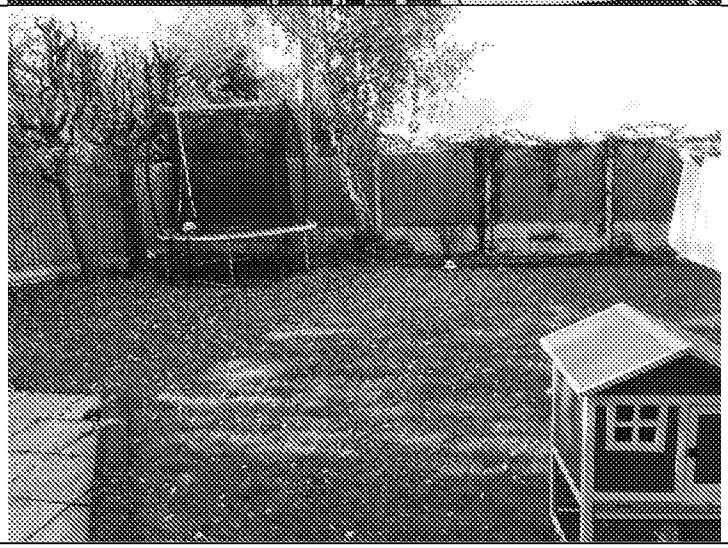
Zoomed in area of 24 Meadow Way:

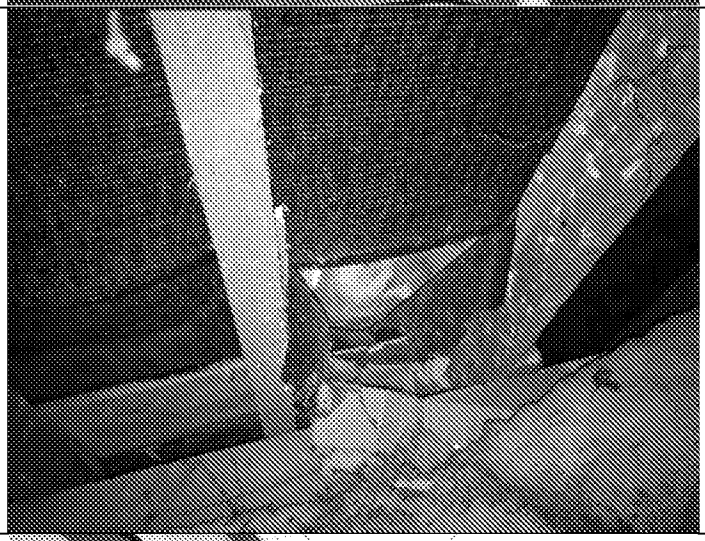
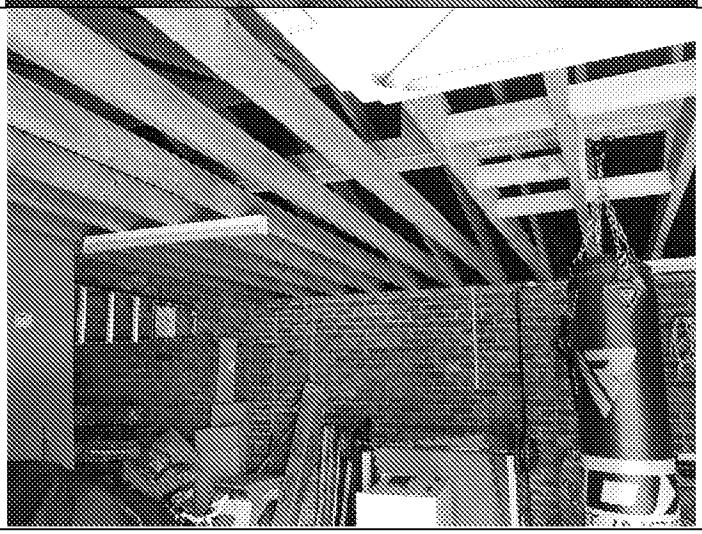
Appendix 2: Photos

Photograph 1: Overview of the south west corner, showing site entrance, hedgerow and gravel pile.	
Photograph 2: Overview of site with southern hedgerow, facing east.	
Photograph 3: Overview of site with western boundary, facing north.	

Photograph 4: Field margin, gap in hedge and fence along the southern boundary, facing east.	
Photograph 5: Semi-improved grassland along the eastern boundary, facing north (trees outside the red line boundary)	
Photograph 6: Dry ditch along the eastern boundary, facing north.	

Photograph 7: Scrub habitat in the north east corner of site.	
Photograph 8: Hedgerow with trees along the northern boundary, facing west.	
Photograph 9: Moderate potential bat roost tree present along the northern hedgerow with trees	

Photograph 10: Residential dwelling and detached garage building at 24 Meadow Way	
Photograph 11: Rear of 24 Meadow Way, with small hanging tile section	
Photograph 12: Rear garden of 24 Meadow Way	

Photograph 13: Internal loft void of 24 Meadow Way, with dense cobwebs		
Photograph 14: Internal loft void of 24 Meadow Way, showing broken roof lining and light entering the void from a cracked tile		
Photograph 15: Internal of the detatched garage		

Photograph 16: Pond 1 located south west of site.	
Photograph 17: Mostly dry ditch adjacent to Pond 1.	
Photograph 18: Dry and unsuitable GCN SUDS within new housing development south of site.	

Appendix 3: Species List

Common name	Latin name	DAFOR score
Scattered scrub		
Bramble	*Rubus fruticosus*	D
Nettle	*Urtica dioica*	A
Cleavers	*Galium aparine*	F
Ivy	*Hedera helix*	O
Bracken sp.	*Pteridium sp*	R
Species poor hedgerows		
Hawthorn	*Crataegus monogyna*	D
Ivy	*Hedera helix*	A
Blackthorn	*Prunus spinosa*	F
Travellers joy	*Clematis vitalba*	O
Elder	*Sambucus nigra*	O
Honeysuckle	*Lonicera periclymenum*	O
Bramble	*Rubus fruticosus*	O
Dogwood	*Cornus sp.*	R
Bay	*Laurus nobilis*	R
Neutral semi- improved grassland		
Meadow fescue	*Festuca pratensis*	A
Perennial rye grass	*Lolium perenne*	A
Upright brome	*Bromus erectus*	A
False oat grass	*Arrhenatherum elatius*	A
Cow parsley	*Anthriscus sylvestris*	F
Cocksfoot	*Dactylis glomerata*	F
Cleavers	*Galium aparine*	F
Yarrow	*Achillea millefolium*	O
Common nettle	*Urtica dioica*	O
Lords & ladies	*Arum maculatum*	O
Rosebay willowherb	*Chamerion angustifolium*	O
Creeping thistle	*Cirsium arvense*	O
Common groundsel	*Senecio vulgaris*	O
Meadow foxtail	*Alopecurus pratensis*	O
Herb robert	*Geranium robertianum*	O
Horsetail	*Equisetum sp*	O
Curled dock	*Rumex crispus*	O
Bearded couch	*Elymus caninus*	O
Timothy	*Phleum pratense*	O
Common bent	*Agrostis capillaris*	O