
Preliminary Ecological Appraisal

The Hollies, Brick Kiln Lane

for

Eastern Healthcare Ltd

13 October 2023



Client

Eastern Healthcare Ltd

Planning authority

South Norfolk Council

Time limit of reliance

Please note that the reported surveys were conducted on the date(s) stated in the report and that it represents site conditions at the time of the visit. The findings and recommended mitigation are based on these conditions. If site conditions change materially after the site survey, the original report cannot be relied upon and will need to be updated. Ecological reports and surveys can typically be relied on for 18 to 24 months from the date of survey.

Surveys supporting European Protected Species Mitigation Licence applications must be within the current or most recent survey season for bats (May to September), or within two survey seasons for great crested newts (March to June).

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Signed disclosure

The information, data, advice and opinions provided in this report which I have provided is true and has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. I confirm that the opinions expressed are my true and professional bona fide opinions.

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Table of Contents

SUMMARY	4
1. METHOD	7
2. SITE CONTEXT	7
3. DESCRIPTION OF THE DEVELOPMENT	9
4. PROTECTED SITES	9
5. HABITATS	10
6. PROTECTED AND NOTABLE SPECIES	14
7. DISCUSSION AND CONCLUSIONS	26
8. BIBLIOGRAPHY	31
APPENDIX A	METHODS
APPENDIX B	MAP OF PROTECTED SITES WITHIN 2KM
APPENDIX C	PROTECTED SITES CITATIONS
APPENDIX D	LEGISLATION
APPENDIX E	PLANT SPECIES RECORDED ON SITE
APPENDIX F	NATIVE SPECIES SUITABLE FOR PLANTING AND SOWING
APPENDIX G	EXAMPLES OF BAT AND BIRD BOXES
APPENDIX H	EXAMPLES OF HEDGEHOG FRIENDLY FENCING
APPENDIX I	PROPOSED PLANS

SUMMARY

- Greenlight Environmental Consultancy Ltd. has been commissioned to carry out a Preliminary Ecological Appraisal for a proposed development at The Hollies, Brick Kiln Lane, Morningthorpe, Norfolk, NR15 2LH (grid reference: TM 21152 93847).
- This report outlines the habitat features on site, the likelihood of protected species being present and any potential effects of the proposed development on such species.
- The ecology report is required in support of a planning application for the demolition and rebuilding of part of a care home, and the alteration/extension of an outbuilding.
- The survey and assessment were completed by independent, qualified and experienced ecologists with Natural England survey licences for the relevant protected species.
- The findings of the assessment are that the habitats on the site are of **low** ecological value and that there are no significant ecological constraints that would prevent the proposed works.
- **Further surveys for bats are required prior to works commencing to inform an ecological impact assessment of the site and an appropriate mitigation strategy.**
- If the following mitigation and enhancements are incorporated into the proposed layout, there will be a net gain for biodiversity, as is encouraged by the National Planning Policy Framework.

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
Protected sites	One statutory and two non-statutory protected sites within 2km. Site located within GIRAMS zone of influence. Site located within Broads SAC nutrient neutrality zone.	Potential 'Likely Significant Effect' on the Broads SAC from increase nutrient load as a result of the development. Increased recreational pressure on European designated sites and their qualifying features, but not significant.	<u>Further information required</u> HRA and further information on additional nutrient load (through a nutrient budget calculator) required. <u>Mitigation</u> A Recreational Avoidance Mitigation Contribution will be made payable to South Norfolk Council. Prices dated at the time of this report are £210.84 per dwelling/2.5 units.
Protected habitats and habitats subject to conservation designations	Small section of scrub will be removed as part of the proposed works. No Priority Habitats will be affected.	Low scale of habitat loss predicted for wildlife.	<u>Mitigation</u> Construction work to be carried out in accordance with BSI (2012), BS 5837:2012, to protect trees and their root protection areas.
Bats	Low summer bat roosting potential in building one (outbuilding) and section A of building two (main house). Low hibernation bat roosting potential in	Potential disturbance of bat roosts if present in trees. Low scale loss and potential light disturbance of commuting and	<u>Further surveys required</u> At least one activity survey to be undertaken on building one (outbuilding) and section A of building two (main house) between May-August. If proposed works change to affect the roof/loft space or extend to the eaves

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
	<p>building one (outbuilding).</p> <p>Moderate bat roosting potential in section B of building two (main house), albeit roosting features unaffected by proposed works.</p> <p>Negligible bat roosting potential in buildings 3-4.</p> <p>Low value commuting and foraging habitat on site.</p>	<p>foraging habitats on site.</p>	<p>level of section B of building one (main house), further nocturnal bat surveys will be required.</p> <p>The outcome of the surveys will inform a detailed mitigation strategy and whether an EPS Mitigation Licence will be required from Natural England.</p> <p><u>Mitigation (subject to change following nocturnal bat surveys detailed above)</u></p> <p>In accordance with the latest survey guidelines (Collins, 2023), buildings assessed as low hibernation potential (building one) must consider alternative approaches to hibernation surveys, which comprises:</p> <ul style="list-style-type: none"> • Works conducted outside the bat hibernation period between April and October. • Precautionary Working Method Statement to include a toolbox talk and soft roof/wall strip undertaken by hand. • One integrated bat box situated on the north aspect of the converted building to provide compensatory habitat. <p>Any lighting schemes will comply with Bat Conservation Trust and CIE 150:2017 guidance.</p>
Breeding birds	<p>Nesting habitats for scrub, tree and building nesting birds present on site, including potential breeding habitat for Amber listed species.</p> <p>No suitable barn owl foraging habitat on site.</p>	<p>Low scale loss of nesting habitat on site.</p> <p>Potential disturbance to breeding birds.</p>	<p><u>Mitigation</u></p> <p>Works to any scrub, trees and buildings on site to be conducted outside bird nesting season or under watching brief of ecologist if during nesting season.</p> <p><u>Enhancement</u></p> <p>Installation of one integrated sparrow terrace and two small bird boxes on site, installed on buildings and trees respectively.</p>
Great crested newts	<p>Predominantly unsuitable terrestrial habitats on site with only a small area of suboptimal scrub.</p> <p>Two ponds within 250m of the site could not be accessed for detailed assessment.</p> <p>Site falls within Amber risk zone for district level licensing.</p>	<p>Potential harm to GCN if present on site during works.</p> <p>Loss of GCN terrestrial habitat not considered significant to a local population of GCN, if present.</p> <p>No impacts on potential GCN aquatic habitat.</p>	<p><u>Precautionary mitigation</u></p> <p>Cut and maintain vegetation short (maximum height of 10cm) on and around the site until the start of works.</p> <p>Rough sawn planks placed inside any open excavations.</p> <p>Construction materials will be stored off the ground on pallets and waste materials in skips.</p> <p>In the highly unlikely event that any GCN are found, work will cease immediately,</p>

Protected habitats/species	Status	Potential effect	Recommended mitigation and enhancements
	19 GCN records within 2km.	Natural England rapid risk assessment indicates offence ' <i>highly unlikely</i> '.	and a licenced ecologist contacted to remove any GCN to safety and advice on how to proceed.
Reptiles	Habitats on site predominantly unsuitable with only a small area of suboptimal scrub. No reptile records within 2km.	Reptiles unlikely to be found on site due to small quantities of suitable habitats present. No impacts predicted.	<u>Precautionary mitigation</u> Mitigation for GCN above will be implemented to avoid impacts on reptiles from the proposed work.
Other animals	N/A	Potential harm to animals.	<u>Mitigation</u> If fencing is required, this will be porous and provide openings for hedgehogs.

1. METHOD

- 1.1. A walkover of the site was conducted on 3rd October 2023 by Lucy Reed (Natural England licences: Bat level 1 2019-43094-CLS-CLS, Great crested newt level 1 2020-44647-CLS-CLS, Barn owl level 1 2023-11281-CL29-OWL) and Daniel Howes – independent, qualified and experienced ecologists. Survey conditions were as follows: 14°C, 13mph wind, sunny intervals and dry.
- 1.2. All survey methods were carried out in accordance with the most up to date good practice guidance for the relevant protected species. Please refer to Appendix A for the full methodology and species breakdown.
- 1.3. The habitats on and directly adjacent the site were considered unsuitable for the following protected species, with no evidence or signs of use observed. No further surveys or mitigation for these species are detailed in this report:
 - Water vole *Arvicola amphibius*
 - Otter *Lutra lutra*
 - White-clawed crayfish *Austropotamobius pallipes*
 - Badger *Meles meles* (setts)
 - Hazel dormouse *Muscardinus avellanarius*
 - Natterjack toad *Epidalea calamita*

2. SITE CONTEXT

Location

- 2.1. The general location of the site is shown in Figure 1 below.
- 2.2. The site is situated on the northwestern edge of the village of Morningthorpe, with the A140 located approximately 1km west. The closest town is Long Stratton, located approximately 1.1km southwest of the site.
- 2.3. The site is enclosed by residential dwellings and outbuildings to the north, agricultural premises to the east, the associated gardens and outbuildings of the care home to the south and a hardstanding driveway and Brick Kiln Lane to the west. The wider surroundings are comprised of a mixture of residential dwellings, small blocks of woodland, grassland, agricultural premises and arable fields lined with mature trees and hedgerows.

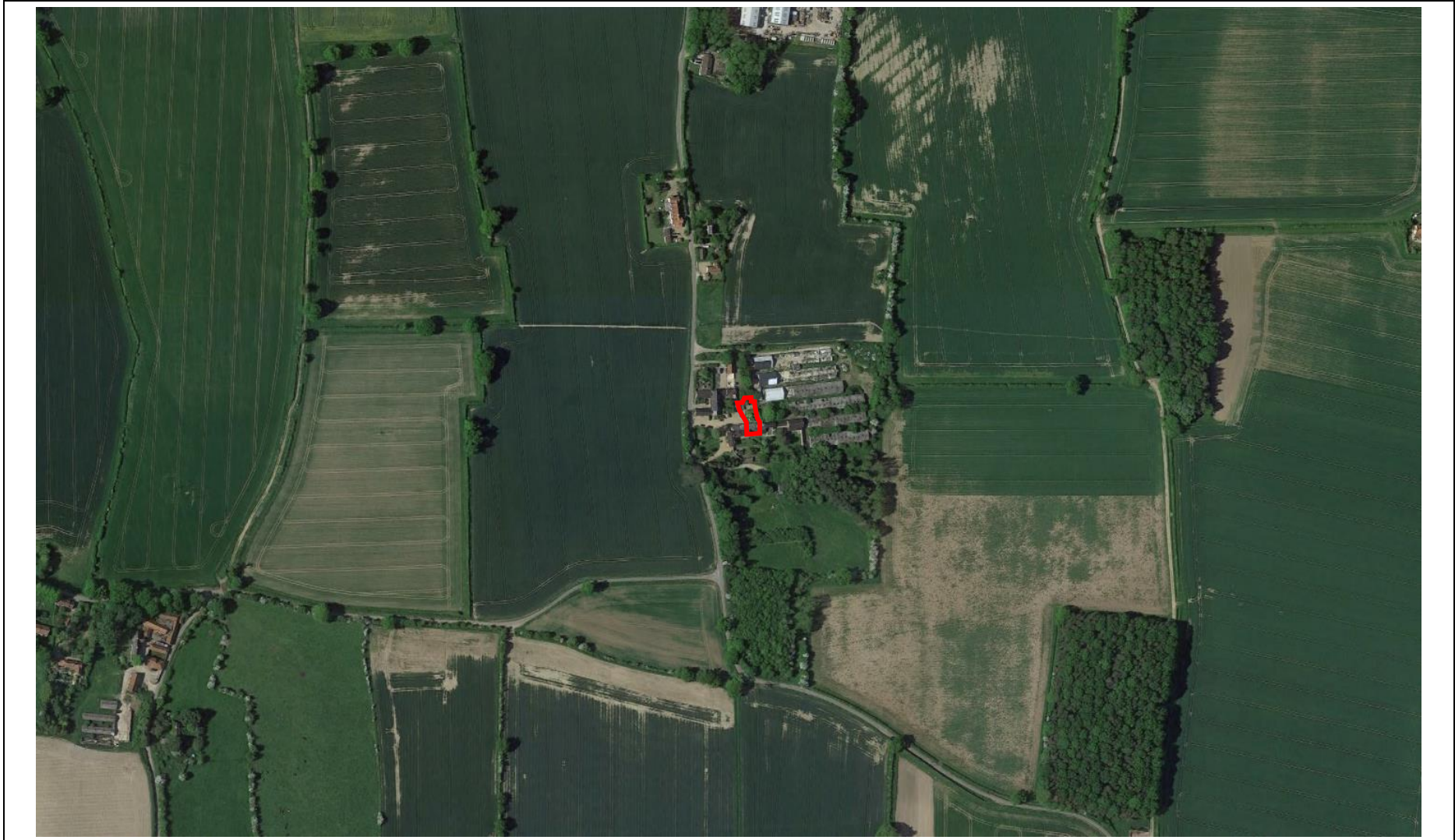


Figure 1
Satellite image of site surroundings, site indicated by red line.
Image © Google, date accessed 04/10/23

3. DESCRIPTION OF THE DEVELOPMENT

- 3.1. The proposals are for the demolition and rebuilding of part of a care home, and the conversion/extension of an outbuilding. Please refer to Appendix I for the proposed plans.

4. PROTECTED SITES

Statutory

- 4.1. There is one statutory protected site located within 2km – one Sites of Special Scientific Interest (“SSSI”). Please refer to Appendix C for the full citation.
 - i. Fritton Common SSSI, approximately 1.8km southeast.

“Fritton Common is one of only a few large grassy commons remaining in south Norfolk still under traditional management by light cattle grazing. The site forms an excellent example of the locally uncommon damp acidic grassland habitat developed over loess soils.”
- 4.2. Although the proposed development falls outside of all SSSI Impact Risk Zones relating to Residential Developments, being a development of less than 50 units, it falls within the Norfolk Green Infrastructure Recreational Avoidance and Mitigation Strategy (“GIRAMS”) zone of influence.
- 4.3. The proposed development falls within the Broads SAC nutrient neutrality catchment area.

Non-statutory

- 4.4. There are two non-statutory protected sites located within 2km – two County Wildlife Sites (“CWS”). Please refer to Appendix C for the full citations.
 - i. Fritton Grange Meadows CWS, approximately 1.4km northeast.

“This site consists of a long series of fields, a mixture of tall rank grassland and tall fen vegetation in lower areas. The site also contains a number of ponds and an area of game crops. Springs feed into an extensive dyke system.”
 - ii. Pope’s Wood CWS, approximately 1.6km northeast.

*“This is an excellent coppiced ancient woodland site on wet clay-loam soils with abundant hornbeam (*Carpinus betulus*). There is a high diversity of species and wide grassy rides have a marshy grassland flora.”*

5. HABITATS

Desktop review

- 5.1. Priority Habitats to occur within 2km (identified using MAGIC – managed by Natural England), include Coastal and Floodplain Grazing Marsh, Good Quality Semi-Improved Grassland, Lowland Dry Acid Grassland, Lowland Fens, Lowland Meadows, Deciduous Woodland and Traditional Orchards. The closest of which, is Deciduous Woodland located approximately 350m southeast of the site.

Field study

- 5.2. The habitats on the site are of **low** ecological value, being modified grassland managed as lawn and hardstanding.
- 5.3. No Priority Habitats, as listed under the NERC Act 2006 Section 41 Habitats of Principal Importance are found on site.
- 5.4. Figure 2 provides a map of the habitats present on the site. NERC Act 2006 Section 41 habitats have been identified where relevant. A full list of plant species recorded on site is attached in Appendix E.

Modified grassland (UK Habitat Classification g4; secondary code: 32 scattered trees, 81 ruderal, 108 frequently mown)

- 5.5. An area of modified grassland managed as lawn is present to the east of the site with ruderal vegetation and scattered trees. Species include: bristly oxtongue *Helminthotheca echioides*, cleavers *Galium aparine*, clover *Trifolium sp.*, creeping buttercup *Ranunculus repens*, daisy *Bellis perennis*, dandelion *Taraxacum officinale*, fescue *Festuca sp.*, ground ivy *Glechoma hederacea*, nettle *Urtica dioica* and perennial ryegrass *Lolium perenne*. Tree species include: cherry *Prunus sp.* and cedar *Cedrus sp.*

Mixed scrub (UK Habitat Classification h3h; secondary code : 32 scattered trees)

- 5.6. The site features areas of mixed scrub to the north of the site, comprised of bramble, buddleia *Buddleja sp.* and ivy *Hedera helix* with scattered cherry trees.

Buildings (UK Habitat Classification u1b5)

- 5.7. There are several buildings on site. Please refer to the bat section detailed below for further information.

Other developed land (UK Habitat Classification u1b6)

5.8. The site features an of compacted gravel hardstanding.





Photo 1, modified grassland managed as lawn with scattered trees and ruderal vegetation, looking east.



Photo 2, compact gravel hardstanding to the west of the site, looking west.

6. PROTECTED AND NOTABLE SPECIES

Desktop review

Data search

- 6.1. The biodiversity data search within 2km of the site indicated 567 records from 134 species.
- 6.2. Records of note within 2km and relevant to the proposed development works are:
 - Seven barn owl *Tyto alba* records, with the most recent from 2018.
 - Five skylark *Alauda arvensis* records, with the most recent from 2018.
 - Seven swift *Apus apus* records, with the most recent from 2018.
 - 19 GCN *Triturus cristatus* records, with the most recent from 2020. The closest record is located approximately 0.7km southwest.
 - 31 hedgehog *Erinaceus europaeus* records, with the most recent from 2020.
 - 72 bat records, with the most recent from 2020, including common pipistrelles *Pipistrellus pipistrellus*, soprano pipistrelles *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, serotines *Eptesicus serotinus*, noctules *Nyctalus noctula*, Daubenton's *Myotis daubentonii*, Natterer's *Myotis nattereri*, barbastelles *Barbastella barbastellus* and other unidentified bat species.

Protected species licences

- 6.3. A 2km search on <http://www.magic.gov.uk/> indicated two records of a granted European Protected Species ("EPS") Mitigation Licence relating to:
 - Bats (case reference: 2015-14218-EPS-MIT-1) from 2016, approximately 0.9km west. Species on the licence include: common pipistrelle, soprano pipistrelle, Natterer's and brown long-eared.
 - Bats (case reference: 2017-30714-EPS-MIT) from 2017, approximately 1.7km southeast. Species on the licence include: common pipistrelle and brown long-eared.

Bats

6.4. There are four buildings located on site, as indicated in Figure 3 and Photos 3-11.



Building one – Outbuilding

- 6.5. The outbuilding is of timber weatherboard and brick construction, with a pitched clay pantile roof on the western aspect and flat corrugated asbestos roof on the eastern aspect. The building features timber framed doors and timber fascias on the southern aspect, with gaps under the weatherboarding on the southern aspect allowing access for bats, although the weatherboarding is single skinned with no suitable roosting opportunities. There are a number of lifted tiles on each aspect of the roof which offer suitable roosting opportunities for crevice dwelling bats.
- 6.6. Internally, the building is open voided and features a mixture of original and modern sawn timbers with a ridge beam present. No mortise and tenon joints or crevices within the timbers are present. The roof is lined with bitumen felt with several holes in the lining allowing access into the building. Although the eastern section of the building was not accessible, a gap between

the brickwork and roof in the western section allowed the interior to be viewed, with no suitable roosting features observed.

- 6.7. Although no signs of bats were observed, roosting opportunities are present under lifted roof tiles and along the ridge.
- 6.8. The outbuilding is assessed as **low** summer and hibernation roost suitability for bats due to their location, roosting features and signs of bats. The building is classified as a non-classical hibernation site and is unlikely to be utilised by bats over winter. There are limited hibernation roosting features, with the only roosting opportunities being under tiles and along the ridge, which offer limited protection. Additionally, the building is used as a workshop infrequently, which further reduces the potential for hibernating bats within the open void. However, due to the uncertain nature of hibernation occurring with the *Pipistrellus* genus unexpected incidents of hibernation could occur (Korsten *et al.*, 2015).



Photo 3, south and west aspects of building one, northeast.



Photo 4, east and south aspects of building one, looking northwest.



Photo 5, gaps under lifted roof tiles (highlighted in red) on building one.



Photo 6, internal view of building one, looking north.

Building two – Main house

Section A

- 6.9. Section A of the main house is of brick construction with the northern aspect of the brickwork rendered. The section features a corrugated metal roof on the north aspect and a clay pantile roof on the south aspect. The section features timber fascias on the north and south aspects which are tight fitting to the brickwork and timber framed windows and doors, with the exterior in a good state of repair.
- 6.10. Although no signs of bats were observed externally, roosting opportunities are present under lifted roof tiles and around the ridge on the southern aspect.
- 6.11. There is no loft space present to the north or the southeast of the section. However, a small void (<0.5m to the ridge) is present to the southwest of the section, but there is no internal access to allow for inspection. This information has been considered for the assessment.
- 6.12. Section A is assessed as **low** summer, but **negligible** hibernation roost suitability for bats due to its location, roosting features and signs of bats. Please note, the building is occupied during winter months and features heating, which would create fluctuations in temperature and humidity.



Photo 7, north aspect of section A, looking southeast.



Photo 8, south aspect of section B, looking northeast.



Photo 9, gaps under lifted tiles (highlighted in red) on section A.

Section B

- 6.13. Section B is of brick construction with a pitched, clay pantile roof. The building features timber framed windows and doors and timber fascias. The pantiles and lead flashing are generally tight with a small number of lifted tiles.
- 6.14. Internally, the section features a loft void which was inaccessible and could not be inspected for evidence of bats. This information has been considered for the assessment.
- 6.15. Section B is assessed as **moderate** summer roost suitability for bats, but **negligible** hibernation roost suitability for bats due to its location, roosting features and signs of bats. Please note, the building is occupied during winter months and features central heating, which would create fluctuations in temperature and humidity.



Photo 10, north aspect of section B, looking south.

Buildings 3-4

6.16. The buildings vary in construction and are comprised of:

- Building three – a corrugated metal and timber shiplap Nissen hut.
- Building four – a timber shiplap shed with a bitumen felt roof.

6.17. There were no signs of use by bats on the building exteriors or interiors and the structures provide unsuitable roost environments, with no suitable cavities for roosting bats. The buildings are assessed as **negligible** (summer and hibernation) roost suitability for bats.



Photo 11, east and south aspects of building three, looking northwest.

Trees

- 6.18. The trees around the site boundary were assessed for bat roosting potential and were considered unsuitable due to their age and/or lack of features.

Foraging and commuting links

- 6.19. The site itself provides **low** value foraging habitat for bats along the boundary trees, with bats mainly using nearby woodlands for foraging.
- 6.20. The landscape immediately adjacent to the site is considered of **low** to **moderate** value for foraging and commuting bats, with linked gardens, hedgerows and treelines providing links to the wider landscape. Residential dwellings adjacent the site and within Morningthorpe have the potential to provide roosting opportunities for bats.

Birds

- 6.21. Birds in the UK are classified into three categories of conservation importance - red, amber and green. Factors such as global threat level, population decline, breeding population decline and contraction of breeding range are taken into account to determine classification.
- 6.22. The following bird species were observed during the site visit:

Amber listed:

Woodpigeon

*Columba palumbus***Green listed:**

Blackbird

Turdus merula

Collared dove

Streptopelia decaocto

Great tit

Parus major

Robin

Erithacus rubecula

- 6.23. The site provides suitable nesting habitats for scrub, tree and building nesting species.
- 6.24. The site does not provide potential breeding habitat for the Red listed species.
- 6.25. The site provides potential breeding habitat for the following Amber listed species: woodpigeon.
- 6.26. No signs of barn owl were found on the site and no foraging habitat is present.

Great crested newts

- 6.27. There are no ponds within the survey site and two further ponds within 250m, which for the size of the development and nature of terrestrial habitat on the site, is a sufficient distance to consider for assessment (Figure 4). GCN are most likely to occupy good quality terrestrial habitat within 250m of a breeding pond (English Nature, 2001).
- 6.28. The terrestrial habitats on the site are considered predominantly unsuitable for GCN, consisting of modified grassland managed as lawn and hardstanding, with only a small area of suboptimal scrub.
- 6.29. Terrestrial habitats adjacent the site include a mixture of unsuitable (hardstanding and modified grassland managed as lawn) and suitable (scrub and hedgerows) GCN foraging, commuting and hibernating habitats.
- 6.30. Ponds 1-2 were not assessed in detail, as authorised access to the ponds was not available.
- 6.31. The site falls within the Amber risk zone for GCN district level licensing, which is classified as “containing main population centres for GCN and comprise important connecting habitat that aids natural dispersal” (Natural England, 2021).

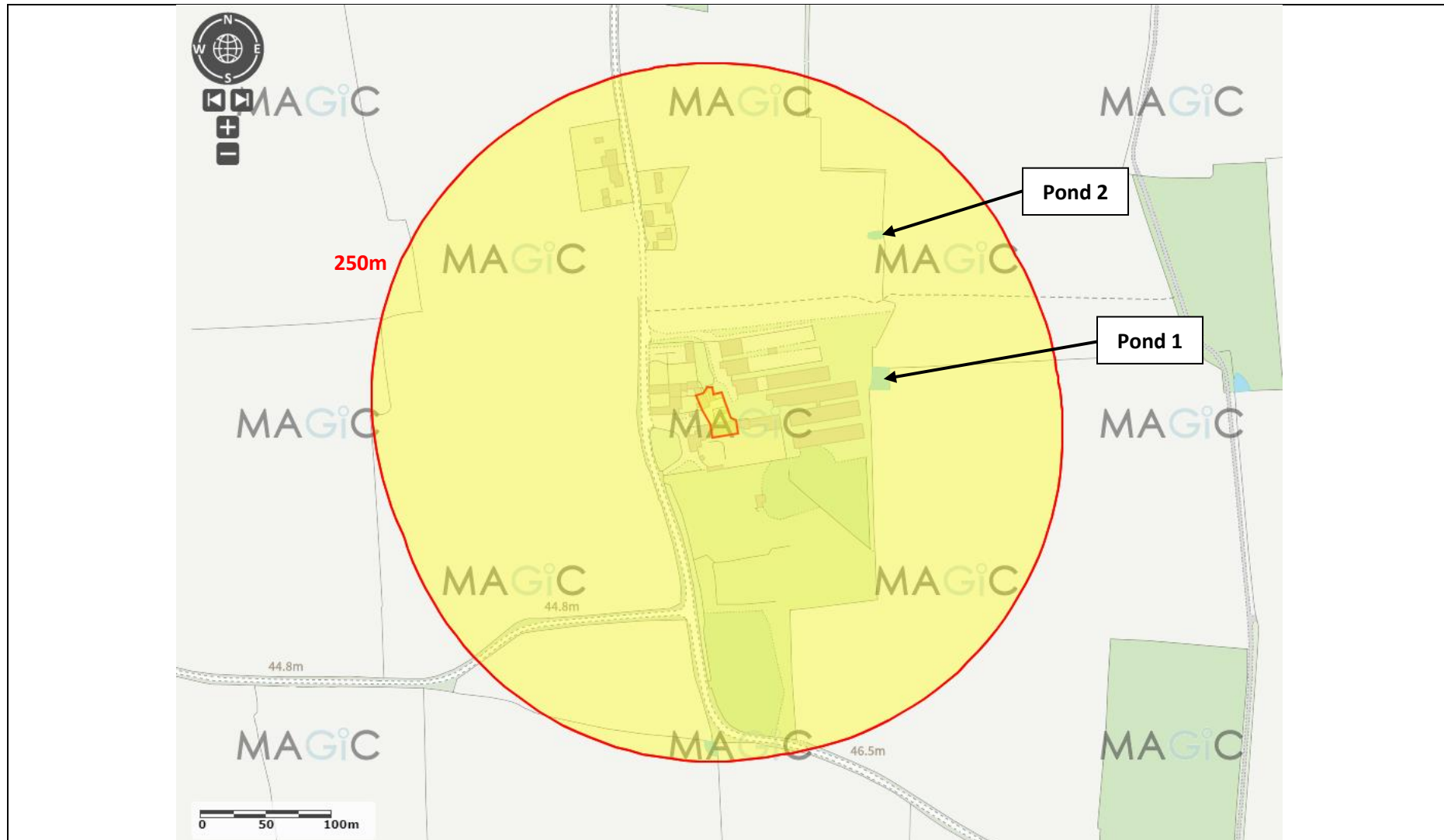


Figure 4
Ponds within 250m of the proposed site.
Image © MAGIC, date accessed 05/10/23

Reptiles

- 6.32. The habitats on the site are considered predominantly unsuitable for reptiles, consisting of modified grassland managed as lawn and hardstanding, with only a small area of suboptimal scrub.
- 6.33. Terrestrial habitats adjacent the site include a mixture of unsuitable (hardstanding and modified grassland managed as lawn) and suitable (scrub and hedgerows) reptile foraging, commuting and hibernating habitats.

7. DISCUSSION AND CONCLUSIONS

Protected sites

- 7.1. The development footprint falls outside all identified protected sites (statutory and non-statutory). There is one statutory protected site and two non-statutory protected sites located within 2km of the site.
- The closest statutory protected site (Fritton Common SSSI) is located approximately 1.8km southeast and designated for its locally uncommon damp acidic grassland habitat developed over loess soils.
 - The closest non-statutory protected site (Fritton Grange Meadows CWS) is located approximately 1.4km northeast of the site and designated for its mixture of tall rank grassland and tall fen vegetation.
- 7.2. Although the proposed development falls outside of all SSSI Impact Risk Zones relating to Residential Developments, being a development of less than 50 units, it falls within the Norfolk GIRAMS zone of influence.
- 7.3. The following mitigation will be implemented to avoid potential impacts on European designated sites and their features from the proposed works:
- i. A Recreational Avoidance Mitigation Contribution will be made payable to South Norfolk Council. Prices dated at the time of this report are £210.85 per dwelling/2.5 units.
- 7.4. The proposed development falls within the Broads SAC nutrient neutrality catchment area.
- 7.5. The proposed development will require a Habitats Regulation Assessment (“HRA”) and further information on additional nutrient load (through a nutrient budget calculator) to assess whether the development will have a ‘Likely Significant Effect’ on the Broads SAC.

Habitats

- 7.6. The proposed works will require little clearance of vegetated habitats on site, with the works predominately limited to the existing footprints of the buildings and hardstanding. Some small areas of scrub around building three may need to be cleared for the development.
- 7.7. As a precautionary measure, the following mitigation will be implemented to avoid impacts on habitats from the proposed works:
- i. Construction works carried out in accordance with British Standards Institution (2012), BS 5837:2012, Trees in relation to design, demolition and construction – recommendations, to protect trees which are to be retained and their root protection areas.

Bats

- 7.8. The proposed works will require the conversion/extension of building one and the demolition of section A of building two, which has the potential to materially modify or destroy potential bat roosting locations, if present. Please note, potential roosting features within section B of building two (main house) will be unaffected by the proposed works, with the proposed works solely for the demolition and rebuilding of the ground floor of the building (section A).
- 7.9. The following surveys/mitigation are required to determine if any bat species are present, the nature of their use of the building(s) and any roosting locations:
- i. At least one bat activity survey to be conducted on building one (outbuilding) and section A of building two (main house) between May and August.
 - ii. If proposed works change to affect the roof/loft space or extend to the eaves level of section B of building two, further activity surveys will be required.
 - iii. If bats are found to be present and roosting within any building(s), further activity surveys and a European Protected Species Mitigation Licence may be required for the development.
 - iv. Building one (outbuilding) is classified as low hibernation potential and classified as a non-classical hibernation site. In accordance with the latest survey guidelines (Collins, 2023), buildings assessed as low hibernation potential must consider alternative approaches to hibernation surveys, which have been outlined below (subject to change, following completion of the nocturnal bat surveys detailed above):
 - a. Works will be undertaken outside the main bat hibernation season between April and September.
 - b. Precautionary Working Method Statement to include a toolbox talk prior to works commencing (detailing bat signs, potential roosts/access points, what to do if bats are found and activities to avoid that might cause high vibrations or noise) and a soft roof strip and demolition of the walls undertaken by hand.
 - c. One integrated bat box situated on the north aspect of the converted building to provide compensatory habitat (Bat Block – Appendix G).
 - v. Any lighting schemes will follow guidance from the Bat Conservation Trust (GN08/23) and CIE 150:2017. Warm-white (<3,000K) lights with UV filters (where necessary) will be installed away from roosting locations and linear features. Lighting units will feature a beam angle <70°, connected to movement sensors and feature baffles, hoods, louvres and horizontal cut off units at 90° where necessary.

- 7.10. The outcomes of further activity surveys will inform the detailed recommended mitigation for bats. We consider that the proposed development will be able to accommodate this in the form of alternative roosting opportunities, as required.
- 7.11. Building Regulations state that the energy efficiency of buildings must be improved where possible and that contractors must assess the condensation risk within the roof space and make appropriate provisions in line with BS 5250:2011. This British Standard states that both High Resistance (bitumen type 1F) and Low Resistance (non-bitumen coated roofing membranes (NBCRM)) underlays are acceptable as long as appropriate ventilation is provided. As NBCRM are proven to entangle bats through regular contact, which also compromises the integrity of the membrane, the Bat Conservation Trust recommend only NBCRM that have passed the snagging propensity test (must be supplied/installed with the necessary certification) or traditional type 1F bitumen are used.

Birds

- 7.12. The proposed works are expected to result in a low scale loss of bird nesting habitat through the conversion/extension of building one, demolition of building two (section A) and clearance of vegetation.
- 7.13. As a precautionary measure, the following mitigation will be implemented to avoid impacts on birds from the proposed works:
- i. Any works affecting bird nesting habitat such as management of scrub, trees or buildings would ideally need to be conducted outside the main nesting season. If work is planned during the bird nesting season (between 1st March and 31st July), then a precautionary check of all habitats will be conducted by a qualified ecologist immediately prior to starting any work. If any nesting birds are found, an appropriate protection zone from the nest will be required and will be maintained until the young have fledged.
- 7.14. As enhancements, the following will be implemented:
- i. One integrated sparrow terrace on the converted outbuilding (1SP Schwegler Sparrow Terrace – Appendix G).
 - ii. Two small bird boxes on suitable trees on or adjacent the site (Schwegler 1B or 2H Nest Box – Appendix G).

Great crested newts

- 7.15. The proposed works are expected to result in a low scale loss of terrestrial habitats (small sections of scrub), with aquatic habitats unaffected.
- 7.16. GCN are most likely to use suitable terrestrial habitat within only 250m of a breeding pond (English Nature, 2001) and we consider it highly unlikely that GCN would be present on site.
- 7.17. Taking a worst-case scenario of 0.01-0.1ha of land being lost or damaged between 100-250m of a breeding pond, the risk assessment calculation (set out in the GCN method statement template provided by Natural England) indicates an “*offence highly unlikely*”.
- 7.18. As a precautionary measure, the following mitigation will be implemented to avoid impacts on GCN from the proposed works:
- i. Vegetation on site will be cut and maintained short (maximum height of 10cm) until the start of works, to discourage animals from using these areas.
 - ii. Any excavations will have a rough sawn plank placed inside to act as a ramp to allow any animals that have fallen in to escape. The excavations will be checked each morning works are scheduled for, to remove any animals trapped.
 - iii. Construction materials will be stored off the ground on pallets and waste materials in skips, to prevent providing shelter for animals and subsequent harm when materials are moved.
 - iv. In the highly unlikely event that any GCN are found, work will cease immediately, and a licenced ecologist contacted to remove any GCN to safety and advice on how to proceed.
- 7.19. After these precautionary mitigation measures, we predict no impact on GCN as a result of the development plans, and no further surveys are necessary.

Reptiles

- 7.20. The proposed works are expected to result in a low scale loss of reptile habitat through the clearance of small sections of scrub.
- 7.21. Although suitable reptile habitats are present on site, they are in small quantities (<0.01ha) and would be unable to support a population in isolation. As a precautionary measure, the mitigation for GCN above will ensure there are no impacts on reptiles from the proposed development.
- 7.22. After these precautionary mitigation measures, we predict no impact on reptiles as a result of the development plans, and no further surveys are necessary.

Other animals

7.23. The surrounding habitat of the site is considered suitable for hedgehogs. To maintain potential hedgehog routes within the site and between the site and further habitats, any fencing installed will be porous and provide access openings for hedgehogs (see Appendix H for examples).

7.24. General mitigation to protect wildlife during the construction period are as follows:

- i. Any excavations will have a rough sawn plank placed inside to act as a ramp to allow any animals that have fallen in to escape. The excavations will be checked each morning works are scheduled for, to remove any animals trapped.
- ii. Construction materials will be stored off the ground on pallets and waste materials in skips, to prevent providing shelter for animals and subsequent harm when materials are moved.

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Appendix A Methods

Desktop Review

A desktop review of published data, such as records of protected sites and species, OS maps and satellite images has been carried out. A data search was carried out with the Norfolk Biodiversity Information Service ("NBIS"). A field survey visit was conducted to confirm the findings of the desktop review and to record habitats and species located on site.

Equipment available for use during the survey were binoculars, ladders, torches, endoscope and a digital camera.

Habitats

The habitats on site have been defined using the UK Habitat Classification Version 2.0 (UKHab Ltd, 2023). Natural Environment and Rural Communities (NERC) Act (2006) habitats listed under section 41 have been identified where appropriate.

Bats

An assessment of the habitats on and surrounding the site for bat interest was made, in accordance with latest bat survey guidelines (Collins, 2016).

The building(s) on site was assessed for its potential to support roosting bats and involved a thorough internal and external search of all suitable cavities, holes and crevices. All suitable areas, including objects, ledges and floors were inspected for the following signs:

- Bat droppings
- Stains around roosting places and entrance points
- Urine marks
- Prey remains
- Areas devoid of cobwebs
- Live or dead bats
- Suitable cracks and crevices for bats to enter

In exposed conditions, the signs of bat usage such as droppings and urine marks can be obliterated by heavy rain.

An evaluation system was applied to the building(s) using the following criteria:

- **Negligible roost suitability for bats.** These buildings have no potential roosting features for bats, or very few or minor features in an isolated or unsuitable location such that the presence of a bat roost is considered highly unlikely. Such buildings usually fall into two main types: generally, well maintained without cracks and crevices, no gaps between bargeboard or soffit and wall, or without an attic space; or those which contain some or all of the above features, but are both draughty and thick in cobwebs

or contain strong odours such as solvents, diesel etc. It must be borne in mind that a building from this latter group can become suitable for bats following refurbishment. This often happens to houses once the attic space has been cleaned and under-felted prior to timber treatment. When no suitable habitats for bats are found, no further surveys or European Protected Species (“EPS”) mitigation licence are required.

- **Low roost suitability for bats.** Buildings in this category have one or more potential roost sites that could be used by individual bat opportunistically. These buildings do not however provide suitable conditions (such as space, shelter, temperature, humidity, or light and noise disturbance) to be used on a regular basis by a large number of bats. Structures with low roost suitability for bats will require **one dusk emergence or one dawn re-entry survey** conducted between May and August to assess their current use by bats.
- **Moderate roost suitability for bats.** These buildings contain one or more potential roosting sites which could be regularly used by bats owing to their size, shelter, protection and conditions. These buildings are however unlikely to support a roost of high conservation status (maternity roost or hibernation roost). Structures with moderate roost suitability for bats will require two surveys, **one dusk emergence and one dawn re-entry survey** conducted between May and September with at least one of the surveys undertaken between May and August, to assess their current use by bats.
- **High roost suitability for bats.** This group includes buildings with one or more potential roost sites which are obviously suitable for use by a larger number of bats on a regular basis and potentially for longer periods of time owing to their size, shelter, protection and conditions. These buildings may support a roost of high conservation status (maternity roost or hibernation roost) and will require three activity surveys to assess their current use by bats. The surveys should include at least **one dusk emergence and** at least **one dawn re-entry survey** (the third survey can either be at dusk or dawn) and should be conducted between May and September with at least two of surveys undertaken between May and August.

Trees on and around the site were assessed for their suitability to support roosting bats. The assessment involved a ground level inspection of the exterior of the trees to search for features offering roosting potential to bats such as split limbs, woodpecker holes, cavities, lifted bark and dense thick-stemmed ivy.

An evaluation system was applied to the trees using the following criteria:

- **Negligible roost suitability for bats.** Trees unlikely to be used by roosting bats.
- **Low roost suitability for bats.** A tree of sufficient size and age to contain Potential Roosting Features (“PRFs”), but with none seen from the ground or features seen with only very limited roosting potential.
- **Moderate roost suitability for bats.** A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.

- **High roost suitability for bats.** A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection and surrounding habitat.

The habitats on and around the site were assessed for their commuting and foraging potential for bats. An evaluation system was applied to the commuting and foraging potential using the following criteria.

- **Negligible commuting and foraging potential for bats.** Habitat features unlikely to be used by commuting or foraging bats.
- **Low commuting and foraging potential for bats.** Habitats that could be used by a small number of commuting or foraging bats such as, a gappy hedgerow, unvegetated stream or lone trees, but are isolated and not well connected to the surrounding landscape.
- **Moderate commuting and foraging potential for bats.** Habitats that are continuous and connected to the wider landscape such as, lines of trees, scrub, linked back gardens, grasslands and water features.
- **High commuting and foraging potential for bats.** Habitats that are continuous and connected to the wider landscape such as, river valleys, watercourses, hedgerows, lines of trees, deciduous woodland, and grazed parkland. These habitats are likely to be used regularly by commuting or foraging bats and are likely to be close to, or connected to, known roosts.

Birds

The site and its surrounding habitats were assessed for their potential to support breeding birds. Bird nesting habitat could include grassland, hedgerows, scrub, trees and buildings.

Bird species noted during the site visit were recorded. Trees, buildings and grassland were checked for use by barn owls, swifts and skylarks.

Great crested newts

Habitats on and near the site were assessed for their suitability for great crested newts ("GCN").

Water features on and near the site were assessed for their suitability for occupation by GCN, according to a Habitat Suitability Index ("HSI"). The HSI is a theoretical index of a waterbody's suitability to support a breeding population of GCN and is calculated from a series of ten variables recorded on site, as detailed in Table 1.

Indices	Name	Description
SI1	Geographic Location	Lowland England or upland England, Scotland and Wales
SI2	Pond area	To the nearest 50m ²
SI3	Permanence	Number of years' pond dry out of ten
SI4	Water quality	Measured by invertebrate diversity
SI5	Shade	Percentage shading of pond edge at least 1m from shore
SI6	Fowl	Level of waterfowl use
SI7	Fish	Level of fish population
SI8	Pond count	Number of ponds within 1km divided by 3.14
SI9	Terrestrial habitat	Quality of surrounding terrestrial habitat
SI10	Macrophytes	Percentage extent of macrophyte cover on pond surface

Table 1, HSI indices.

The HSI score is the geometric mean of the ten suitability indices calculated:

$$HSI = (SI1 \times SI2 \times SI3 \times SI4 \times SI5 \times SI6 \times SI7 \times SI8 \times SI9 \times SI10)^{1/10}$$

Once calculated, the HSI score for a waterbody can be categorised as follows:

Excellent (>0.8)

Good (0.7 – 0.79)

Average (0.6 – 0.69)

Below Average (0.5 – 0.59)

Water voles, otters and white-clawed crayfish

Water features on and adjacent to the site were assessed for use by water vole, otter and white-clawed crayfish. Otters in England typically use areas of fresh water and streams and ditches for moving between habitats. Otter holts are usually located underneath tree roots, in tunnels. Field signs of presence include spraints on prominent features such as bridges, tree bases or boulders, and footprints.

Water voles inhabit burrows in the banks of ponds, ditches, streams and rivers. Field signs include droppings left in latrine spots, burrow entrances or feeding remains.

White-clawed crayfish inhabit streams and rivers with a moderate flow rate, and lakes. Clear, well-oxygenated water is preferred. Typical habitat features include crevices in rocks, gaps between stones, submerged plants and tree roots.

Reptiles

The habitats on the site and within the proposed area of works were assessed for suitability for reptiles.

Reptiles rely on conditions that allow them to maintain their body temperature through basking. They require access to direct sunlight, shelter from the elements, sufficiently large populations of prey species and hibernation sites.

Reptiles typically favour a habitat mosaic with a diverse vegetation structure, which could include grassland, scrub and woodland.

Badgers

An inspection of all habitats with the potential to support badger *Meles meles* sett construction and foraging activities on the application site was undertaken. Any incidental observations of badger signs were also recorded. The survey comprised searching for evidence of badger activity in the form of setts, droppings, pathways, snuffle holes, hair and footprints.

Dormice

Dormice habitats include deciduous woodland, hedgerows and scrub. Dormice are found mainly in the south of England, including Kent and Sussex, with sporadic populations elsewhere. An assessment of the suitability of site habitats for occupation by dormice was made.

Other protected species

Particular regard was made to the nature of the proposed development and the potential of impact upon any other protected species, species which are nationally or locally scarce, or species subject to other conservation designations such as Red Data Book or Priority S41 species, from the development work, should these be present in the area.

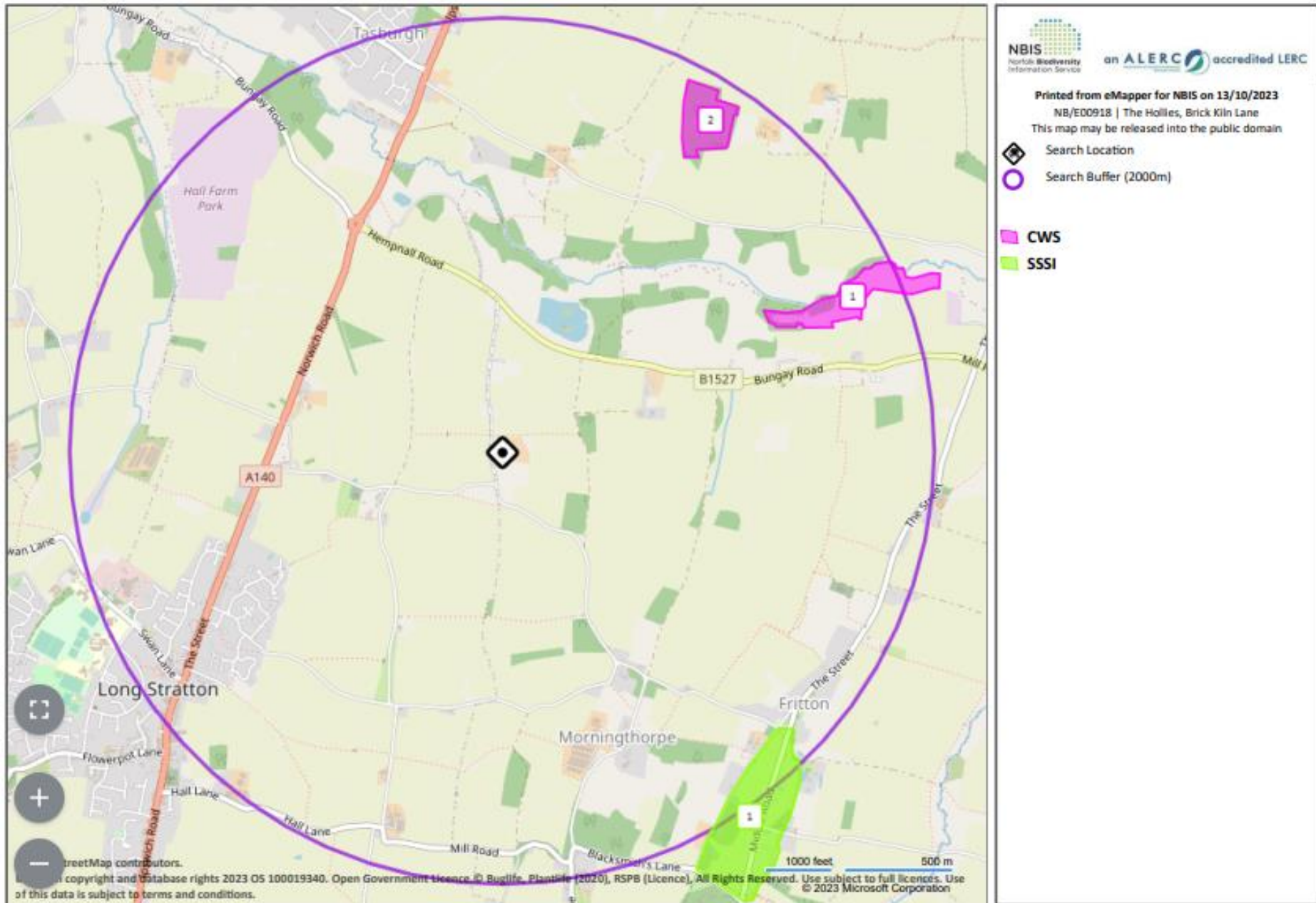
Constraints

The field survey was conducted outside of the optimal survey period for flowering plants. Although the habitats recorded on site are unlikely to change to those described in this report, flora biodiversity is likely to be under recorded.

Ponds 1-2 were not accessible and could not be surveyed for GCN suitability.

The loft space of section B and inside of section A of building two were inaccessible and could not be inspected for evidence of bats. This has been accounted for in the assessment.

Appendix B
Map of protected sites within 2km



Appendix C

Protected sites citations

County Wildlife Sites citations

CWS Number	Name	Description	Last surveyed
100	Fritton Grange Meadows	<p>This site consists of a long series of fields, a mixture of tall rank grassland and tall fen vegetation in lower areas. The site also contains a number of ponds and an area of game crops. Springs feed into an extensive dyke system. Part of the area has recently been planted with conifers, another part is grazed but the whole site is generally used for shooting. The higher drier areas are dominated by reed (<i>Phragmites australis</i>), reed canary-grass (<i>Phalaris arundinacea</i>) and false oat-grass (<i>Arrhenatherum elatius</i>) which combine to give a very tall sward. Locally stands of hemp-agrimony (<i>Eupatorium cannabinum</i>), meadowsweet (<i>Filipendula ulmaria</i>), angelica (<i>Angelica sylvestris</i>) and great willowherb (<i>Epilobium hirsutum</i>) are common whilst nettle (<i>Urtica dioica</i>) occurs throughout. In shorter areas Yorkshire fog (<i>Holcus lanatus</i>) predominates with species such as silverweed (<i>Potentilla anserina</i>), hairy sedge (<i>Carex hirta</i>), hard rush (<i>Juncus inflexus</i>) and water mint (<i>Mentha aquatica</i>). In lower areas there is thick growth of greater pond-sedge (<i>Carex riparia</i>); reed canary-grass and reed sweet-grass (<i>Glyceria maxima</i>) predominates on very wet ground. Few forbs occur here although angelica is common throughout. The ponds are developing an interesting vegetation with greater pond-sedge and bulrush (<i>Typha latifolia</i>) although aquatic vegetation is limited. The site is surrounded by hedges of osier (<i>Salix viminalis</i>), hawthorn (<i>Crataegus monogyna</i>) and elder (<i>Sambucus nigra</i>) with scattered alder (<i>Alnus glutinosa</i>) trees.</p>	1995
105	Pope's Wood	<p>This is an excellent coppiced ancient woodland site on wet clay-loam soils with abundant hornbeam (<i>Carpinus betulus</i>). There is a high diversity of species and wide grassy rides have a marshy grassland flora. Nearly the entire wood consists of coppiced stools with ash (<i>Fraxinus excelsior</i>) and hornbeam the two commonest species. The latter is often old and forms pure groves. Standards are infrequent but are normally oak (<i>Quercus robur</i>). Hazel (<i>Corylus avellana</i>) and more locally birch (<i>Betula pendula</i>) and willow (<i>Salix cinerea</i>) are all frequent in coppiced blocks. Around the periphery field maple (<i>Acer campestre</i>) and hawthorn (<i>Crataegus monogyna</i>) become frequent. Bramble (<i>Rubus fruticosus</i> agg.) is common along the ride edges whilst in deep shade dog's mercury (<i>Mercurialis perennis</i>) is dominant with frequent enchanter's-nightshade (<i>Circaea lutetiana</i>) and more rarely species such as yellow pimpernel (<i>Lysimachia nemorum</i>) and barren strawberry (<i>Potentilla sterilis</i>). Along wider rides meadowsweet (<i>Filipendula ulmaria</i>) is tall and vigorous. Soft rush (<i>Juncus</i></p>	1995

		effusus) and compact rush (<i>Juncus conglomeratus</i>) form thick vegetation with yorkshire fog (<i>Holcus lanatus</i>). Other species include false fox-sedge (<i>Carex otrubae</i>), fleabane (<i>Pulicaria dysentrica</i>), ragged-robin (<i>Lychnis flos-cuculi</i>), common spotted-orchid (<i>Dactylorhiza fuchsii</i>) and southern marsh-orchid (<i>Dactylorhiza praetermissa</i>).	
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Appendix D Legislation

European Protected Species

The Ramsar Convention (1971) on Wetlands of International Importance especially as Waterfowl Habitat seeks to promote the conservation and wise use of wetlands, particularly those which support internationally significant numbers of water birds. This is achieved through the designation of Ramsar Sites.

The European Community Council Directive on the Conservation of Wild Birds (79/409/EEC) sets out general rules for the conservation of all naturally occurring wild birds, their nests, eggs and habitats. It requires member states to designate Special Protection Areas (SPAs) for protection of certain species.

The main piece of legislation relating to nature conservation in Great Britain is **The Wildlife and Countryside Act 1981 (as amended)**. This Act is supplemented by provision in **The Countryside and Rights of Way (CROW) Act 2000** and **The Natural Environment and Rural Communities Act 2006 (in England and Wales)**. This act provides varying degrees of protection for the listed species of flora and fauna, including comprehensive protection of wild birds, their nests and eggs.

The Countryside and Rights of Way Act 2000 strengthens the protection given to SSSIs. It revises the procedures for the notification of SSSIs and for the consenting of operations which may damage the special interest of a SSSI. Local authorities have a duty to take steps, consistent with the proper exercise of their functions, to further the conservation and enhancement of SSSIs. The act also strengthens the existing provisions of the Wildlife and Countryside Act 1981 for the enforcement of wildlife legislation, including a new offence of "recklessly" destroying or damaging the habitats of certain protected species.

UK wildlife is also protected under **The Conservation (Natural Habitats &c.) Regulations 1994** (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. In 2017, these Regulations, together with subsequent amendments, were consolidated into **The Conservation of Habitats and Species Regulations 2017**.

The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. The Regulations make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade in the animals listed in Schedule 2, or pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5. However, these actions can be made lawful through the granting of licenses by the appropriate authorities. Licenses may be granted for a number of purposes but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on wild population of the species concerned.

The Protection of Badgers Act 1992 consolidates previous badger legislation by providing comprehensive protection for badgers and their setts, with a requirement that any authorised sett disturbance or destruction be carried out under licence.

The Hedgerows Regulations 1997 aim to protect important hedgerows in the countryside. They make it illegal to remove most countryside hedges without first notifying the local planning authority, and provide protection for 'important hedgerows'.

County Wildlife Site is a non-statutory designation used to identify high quality wildlife habitats in a county context. Local Authorities have a responsibility as part of their planning function to take account of sites of substantial nature conservation value and to consider them alongside other material planning considerations. The location of County Wildlife Sites will be included in Local Plans and Development Documents.

National Planning Policy - National Planning Policy Framework (NPPF)

Section 15 of the National Planning Policy Framework 2021 (NPPF): Conserving and enhancing the natural environment states that 'planning policies and decisions should contribute to and enhance the natural and local environment by ... minimising impacts on and providing net gains for biodiversity.'

Office of The Deputy Prime Minister ("ODPM") Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the planning system.

Paragraph 98 of Circular 06/2005 states that 'the presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat'.

Implications of legislation and policies

Without this ecological assessment, the potential developer would be unable to demonstrate due diligence in his responsibilities. Furthermore, the local planning authority would not have been provided with sufficient information for a planning decision to be made. This could result in non-determination or refusal of the application.

With legal responsibilities and planning implications, it is essential that any ecological assessment of a potential development site, including the area of this report, must determine the possible presence or absence of any protected species as part of any planning development consideration.

Where mitigation or compensation measures are required to ensure that no significant impacts will result on biodiversity from the development, the proposed measures may be secured through planning conditions or by EPS Mitigation Licences from Natural England.

Bats

All bat species in Britain are protected under the Wildlife and Countryside Act 1981 through inclusion on Schedule 5. They are also protected under the Conservation (Natural Habitats &c.) Regulations 1994 (which were issued under the European Communities Act 1972), through inclusion on Schedule 2. On 30th November 2017, these Regulations, together with subsequent amendments, were consolidated into the Conservation of Habitats and Species Regulations 2017.

European protected animal species (“EPS”) and their breeding sites or resting places are protected under Regulation 42. It is an offence for anyone to deliberately capture, injure or kill any such animal or to deliberately take or destroy their eggs. It is an offence to damage or destroy a breeding or resting place of such an animal. It is also an offence to have in one's possession or control, any live or dead European protected species.

The threshold above which a person will commit the offence of deliberately disturbing a wild animal of a European protected species has been raised. A person will commit an offence only if he deliberately disturbs such animals in a way as to be likely significantly to affect (a) the ability of any significant groups of animals of that species to survive, breed, or rear or nurture their young, or (b) the local distribution of abundance of that species. The existing offences under the Wildlife and Countryside Act (1981) as amended which cover obstruction of places used for shelter or protection (for example, a bat roost), disturbance and sale still apply to European protected species.

This legislation provides defences so that necessary operations may be carried out in places used by bats, provided the appropriate Statutory Nature Conservation Organisation (in England this is Natural England) is notified and allowed a reasonable time to advise on whether the proposed operation should be carried out and, if so, the approach to be used. The UK is a signatory to the Agreement on the Conservation of Bats in Europe, set up under the Bonn Convention. The Fundamental Obligations of Article III of this Agreement require the protection of all bats and their habitats, including the identification and protection from damage or disturbance of important feeding areas for bats.

Barn Owls

The Habitats Regulations (1994), as amended, states that a person commits an offence in the case of Barn Owl only if this species is disturbed in the breeding season. This applies equally to all those bird species listed under Schedule 1.

Breeding Birds

It is an offence to kill, injure or take any wild bird; take, damage or destroy the nest of any wild bird while that nest is in use or being built (even of "pest" species); take or destroy the eggs of any wild bird.

Great Crested Newts

Great crested newts are protected under both English and European law. It is an offence to kill, injure, disturb or take great crested newts or to damage or destroy their places of shelter, whether the animals are present or not.

Water Vole

The water vole received limited legal protection in April 1998 through its inclusion in Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) for some offences. Legal protection makes it an offence to:

- intentionally kill, injure or take (capture) a water vole;

- possess or control a dead or live water vole, or any part of a water vole;
- intentionally or recklessly damage or destroy access to any structure or place which water voles use for shelter or protection or disturb Water Voles while they are using such a place;
- sell, offer for sale or advertise for sale live or dead Water Voles

Water voles, their breeding sites and resting places are protected by law. In most cases, work can be planned to avoid harming water voles. If works cannot avoid disturbing them or damaging their habitats, you may be able to get a licence from Natural England.

Otters

Otters are protected under Section 9 of the Wildlife and Countryside Act 1981 (as amended) and revised by the Countryside and Rights of Way Act 2004, making it an offence to:

- intentionally kill, injure or take an otter;
- possess or control any (live or dead) otter, or any part of or anything derived from an otter;
- intentionally or recklessly damage or destroy or obstruct access to any structure or place used for shelter or protection by an otter;
- intentionally or recklessly disturb an otter while it is occupying a structure or place for that purpose;
- to sell, offer for sale, possess or transport for the purpose of sale any (live or dead) otter or part or derivative of an otter;
- to advertise for buying and selling such things.

Furthermore, otters are included on Schedule 2 of the Conservation (Habitats &c.) Regulations (1994), making it an offence to:

- deliberately to capture or kill a wild animal of a European protected species;
- deliberately to disturb any such animal;
- deliberately to take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

Otters are also listed as a priority species on the UK and Biodiversity Action Plans.

White-Clawed Crayfish

This crayfish is listed under Annex II of the habitats directive and areas are designated as Special Areas of Conservation to protect this species. Outside of this a licence is required to capture this species. It is listed as a priority species under the Biodiversity Action Plan and is a Species of Principal Importance under section 41 of the NERC Act 2006.

Reptiles

Reptiles such as common lizard, slowworm, grass snake or adder are protected under Section 9 of the Wildlife & Countryside Act (1981) as amended. The legislation makes it illegal to deliberately or recklessly kill or injure

any native reptile. This protection therefore requires that reasonable effort be made to avoid harm to reptiles during developments on land occupied by reptiles.

Badger

The Wildlife and Countryside Act (1981) and its subsequent amendment in 1985 made it an offence to take, kill, injure or ill-treat a badger. The badger gained further protection under the auspices of The Protection of Badgers Act (1992) which consolidates all former protective legislation in relation to badgers, except their inclusion on Schedule 6 of the Wildlife and Countryside Act 1981.

Under the 1992 Act, the badger sett is protected against obstruction, destruction, and damage; furthermore, the animal's access to and from the sett must not be impeded. It should be noted that the concept/definition of the sett extends beyond the main sett to include annexe, subsidiary and outlying setts. However, although the badger and its sett are protected (including access to the sett), the wider habitat and foraging ground is not.

Dormice

Dormice are protected from being killed, injured, captured or disturbed and their resting and breeding places should not be damaged or destroyed.

Natural England Licensing - EPS Mitigation Licensing

Licences can be obtained from the Wildlife Management and Licensing Service at Natural England to allow certain activities that would otherwise constitute an offence, for the purposes of development (e.g. destruction of a bat roost, loss of great crested newt aquatic and terrestrial habitat, etc).

Appendix E

Plant species recorded on site

English name	Scientific name
Bramble	<i>Rubus fruticosus</i>
Buddleja	<i>Buddleja sp.</i>
Bristly oxtongue	<i>Helminthotheca echioides</i>
Cedar	<i>Cedrus sp.</i>
Cherry	<i>Prunus sp.</i>
Cleavers	<i>Galium aparine</i>
Clover	<i>Trifolium sp.</i>
Common chickweed	<i>Stellaria media</i>
Creeping buttercup	<i>Ranunculus repens</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Fescue	<i>Festuca sp.</i>
Ground ivy	<i>Glechoma hederacea</i>
Ivy	<i>Hedera helix</i>
Nettle	<i>Urtica dioica</i>
Perennial ryegrass	<i>Lolium perenne</i>
Ribwort plantain	<i>Plantago lanceolata</i>

habvsAppendix F

Native species suitable for planting and sowing

Plants should be obtained from specialist nurseries and preferably be of local genetic stock.

Key: (f) – fruit and berry species; (e) – evergreen species; (se) semi-evergreen species; (d) – deciduous species

Trees	
Alder (d)	<i>Alnus glutinosa</i>
Apples (f; d)	<i>Malus spp.</i> (local varieties)
Ash (d)	<i>Fraxinus excelsior</i>
Beech (d)	<i>Fagus sylvatica</i>
Bird cherry (f; d)	<i>Prunus padus</i>
Elder (f; d)	<i>Sambucus nigra</i>
Elm (d)	<i>Ulmus procera</i>
Field maple (d)	<i>Acer campestre</i>
Pedunculate oak (d)	<i>Quercus robur</i>
Rowan (f; d)	<i>Sorbus aucuparia</i>
Pears (f; d)	<i>Pyrus spp.</i>
Silver birch (d)	<i>Betula pendula</i>
Small-leaved lime (d)	<i>Tilia cordata</i>
White willow (d)	<i>Salix alba</i>
Wild cherry (f; d)	<i>Prunus avium</i>
Walnut (d)	<i>Juglans regia</i>

Shrubs	
Blackthorn (f; d)	<i>Prunus spinosa</i>
Buckthorn (f; d)	<i>Rhamnus catharticus</i>
Crab apple (f; d)	<i>Malus sylvestris</i>
Dog rose (f; d)	<i>Rosa canina</i>
Dogwood (f; d)	<i>Cornus sanguinea</i>
Field maple (d)	<i>Acer campestre</i>
Guelder-rose (f; d)	<i>Viburnum opulus</i>
Hawthorn (f; d)	<i>Crataegus monogyna</i>
Hazel (d)	<i>Corylus avellana</i>
Holly (e)	<i>Ilex aquifolium</i>
Honeysuckle (f; d)	<i>Lonicera periclymenum</i>
Spindle (f; d)	<i>Euonymus europaeus</i>
Wild privet (f; se)	<i>Ligustrum vulgare</i>
Yew (f; e)	<i>Taxus baccata</i>

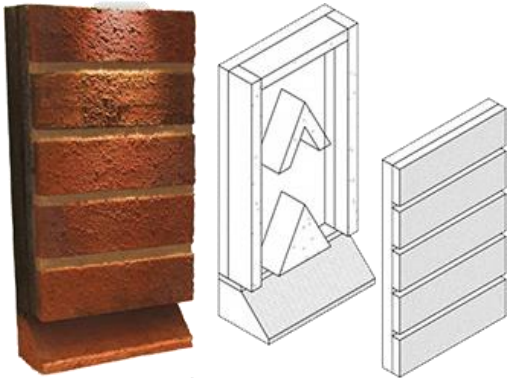



Flowering plants	
Bird's-foot trefoil	<i>Lotus corniculatus</i>
Black knapweed	<i>Centaurea nigra</i>
Common cat's-ear	<i>Hypochoeris radicata</i>
Common sorrel	<i>Rumex acetosa</i>
Common vetch	<i>Vicia sativa</i>
Cowslip	<i>Primula veris</i>
Field scabious	<i>Knautia arvensis</i>
Foxglove	<i>Digitalis purpurea</i>
Lady's bedstraw	<i>Galium verum</i>
Meadow buttercup	<i>Ranunculus acris</i>
Meadow vetchling	<i>Lathyrus pratensis</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Primrose	<i>Primula vulgaris</i>
Red clover	<i>Trifolium pratense</i>
Selfheal	<i>Prunella vulgaris</i>
Sweet violet	<i>Viola odorata</i>
Wild daffodil	<i>Narcissus pseudonarcissus</i>
Yarrow	<i>Achillea millefolium</i>

Grasses	
Common bent	<i>Agrostis capillaris</i>
Crested dog's-tail	<i>Cynosurus cristatus</i>
Meadow fescue	<i>Festuca pratensis</i>
Red fescue	<i>Festuca rubra</i>
Rough meadow-grass	<i>Poa trivialis</i>
Small timothy	<i>Phleum bertolonii</i>
Smooth meadow-grass	<i>Poa pratensis</i>
Sweet vernal-grass	<i>Anthoxanthum odoratum</i>
Yellow oat-grass	<i>Trisetum flavescens</i>

Appendix G

Examples of bat and bird boxes

(images sourced from www.nhbs.com, www.habibat.co.uk, www.manthorpe.co.uk, www.barnowltrust.org.uk and www.greenwoodsecohabitats.co.uk)

<p style="text-align: center;">Integrated bat box Habibat Bat Box</p> 	<p style="text-align: center;">Integrated bat box Bat Block</p> 
<p style="text-align: center;">Standalone bat box 2F Schwegler Bat Box (General purpose)</p> 	<p style="text-align: center;">Standalone bat box Greenwood's Ecohabitats three crevice bat box</p> 

Recommendations for installing bat boxes:

(Sourced from Bat Conservation Trust www.bct.org)

Ideally, several boxes should be put up facing in different directions to provide a range of conditions.

Locate boxes:

- Where bats are known to feed close to hedges and treelines (some bats use a treeline or hedgerow for navigation, putting boxes near these features may help the bats find the box).
- On trees: boxes should be placed on the trunk of a mature tree, where there is a clear flight line/accessible entrance.
- On buildings: boxes should be placed as close to the eaves as possible.
- As high as possible (ideally, at least 3 to 4m above the ground, where safe installation is possible).
- In sunny places, sheltered from strong winds (usually between south-west and south-east).

Make sure the boxes are secured.

Boxes can be installed on trees using adjustable ties to avoid damaging the trees. Otherwise, timber screw bolts or nails can be used. Aluminium alloy nails are less likely to damage saws and chipping machinery.

Bats need time to find and explore new homes, and it may be several months or even years before boxes have residents. Once bats find a place they want to live they can return over and over again. Droppings on the landing area, urine stains around the lower parts of the box and chittering noises from inside on warm afternoons and evenings are signs of occupation.

<p>Small bird nesting box 1B Schwegler Nest Box</p> 	<p>Small bird nesting box 2H Schwegler Robin Box</p> 
<p>Integrated swift box Swift Block</p> 	<p>Integrated swift box Manthorpe Swift Brick</p> 
<p>Integrated sparrow terrace 1SP Schwegler Sparrow Terrace</p> 	<p>Integrated sparrow terrace Terraced Sparrow Box</p> 

Recommendations for installing bird boxes:

(Sourced from British Trust for Ornithology www.bto.org, Manthorpe www.manthorpe.co.uk and Barn Owl Trust www.barnowltrust.org.uk)

The highest priority when siting a nest box must be to provide a safe and comfortable environment in which birds can nest successfully.

Tips for putting up a nest box:

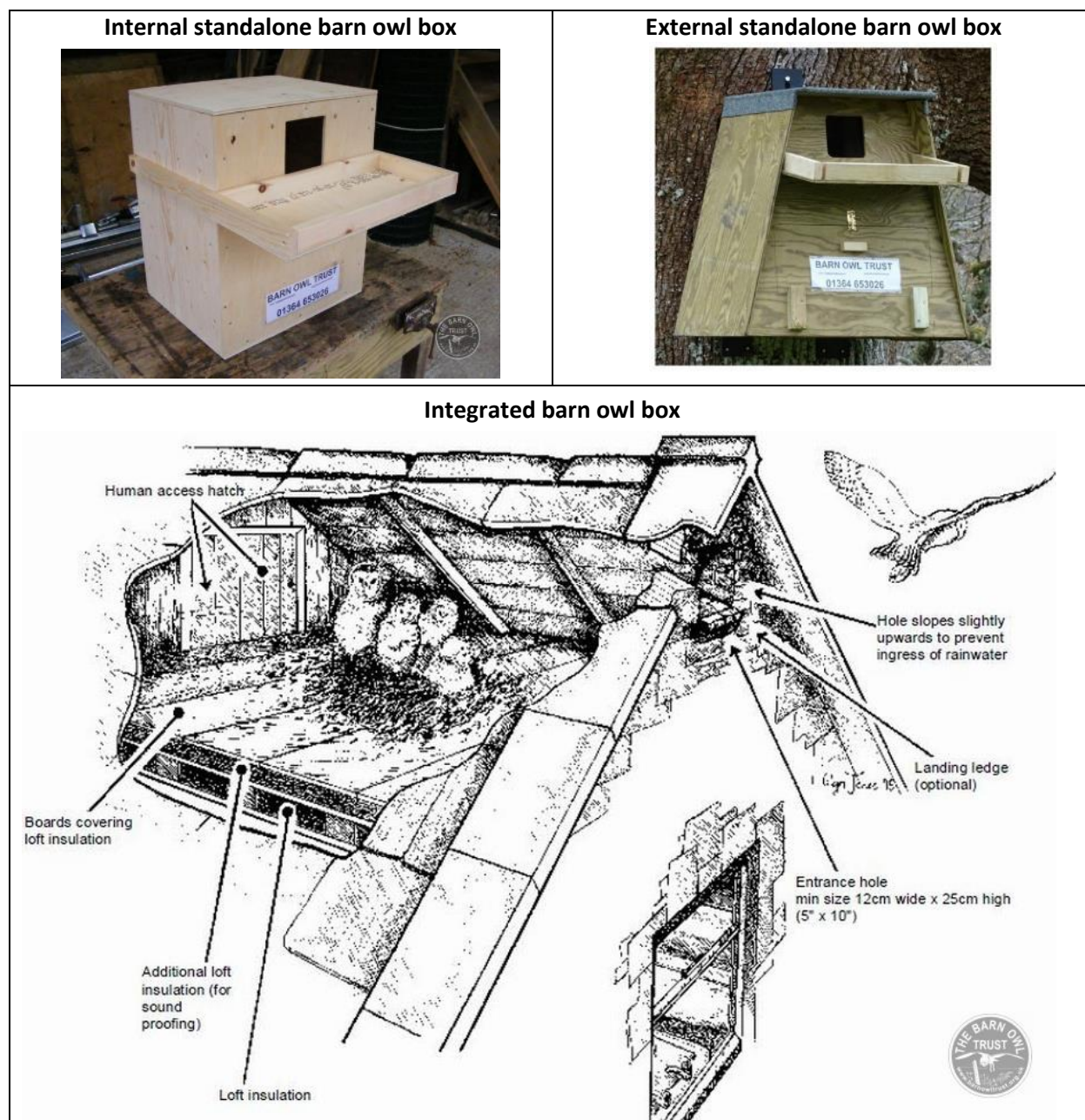
- Boxes should be sited 1-3m from the ground, ideally on tree trunks but can be placed on the side of a shed or wall. Avoid areas where foliage obscures the entrance hole.
- Don't place boxes too close to another nest box of the same type, as this may promote aggressive behaviour between neighbours.
- Shelter your nest box from prevailing wind, rain and strong sunlight. The box should face between north and east, and angled vertically or slightly downwards to prevent rain entering.
- Make sure cats cannot get into the box.
- Keep nest box away from bird feeders.
- Use galvanized or stainless steel screws or nails. If fixing boxes to trees, galvanised wire can be used to tie the box to the trunk or hang it from a branch. Make sure to regularly inspect these fittings (every two or three years) to ensure the box remains securely attached.

Tips for putting up house sparrow terraces and swift bricks/boxes:

- Locate ≥ 5 m high on the gable wall of the property and above the level of the insulation zone.
- Where possible, install in locations that are unlikely to receive large amounts of direct sunlight during the hottest times of the day, ideal places include below the overhang of the verge and barge board.

Tips for putting up barn owl boxes:

- The box should be installed on a building or tree in open farmland, on an isolated hedgerow or along the edge of a woodland.
- Boxes should be sited at least 3m from the ground, with a clear flight-path for entry and exit.
- Where possible, install boxes facing suitable habitat and ideally away from the prevailing wind.
- Nest boxes should ideally be installed in pairs.



Recommendations for installing integrated barn owl box:

(Sourced from Barn Owl Trust www.barnowltrust.org.uk)

Standalone barn owl boxes:

Tips for putting up barn owl boxes:

- The box should be installed on a building or tree in open farmland, on an isolated hedgerow or along the edge of a woodland.
- Boxes should be sited at least 3m from the ground, with a clear flight-path for entry and exit.
- Where possible, install boxes facing suitable habitat and ideally away from the prevailing wind.
- Nest boxes should ideally be installed in pairs.

Integrated barn owl boxes:

Design requirements – entrance hole dimensions and ledge (exercise platform):

- Entrance hole minimum size: 100mm wide x 200mm high, optimum size: 130mm x 250mm, maximum size: 200mm x 300mm.
- The bottom of the hole must not have any sharp edges or narrow gaps in which a toe or talon could get caught.

- Where necessary there can be a 'tunnel', minimum 150mm wide x 200mm high, between the entrance hole and the nest space.
- A grippable ledge (e.g. stone or slatted timber) below the entrance hole provides an exercise platform for emerging owlets.
- In cases where the entrance hole goes directly into a nest space less than 700mm deep, an exercise platform is essential; the bigger the better, but not less than 250mm x 500mm wide with a grippable raised edge.

Design requirements – nest space & dimensions:

- Floor area of nest chamber: absolute minimum 0.4m² (e.g. 500mm wide x 800mm high or 400mm wide x 1m high), ideal size is 1m² (1m x 1m). These dimensions are bigger than those for nestboxes, because built-in provision usually lacks an external exercise platform that would permit maximum wing stretching prior to fledging.
- Where there is no external exercise platform the internal box depth from the bottom of the entrance hole to floor of nesting area must not be less than 700mm. Note: the ideal depth for Barn Owls is at least 1m, which should be achieved wherever space permits.
- Depth from the bottom of the entrance hole to floor of nesting area must be not less than 450mm provided that there will definitely be an easy-to-grip external exercise platform for fledglings to stand on outside the entrance hole.
- In a large loft simply partition off a section behind the owls' entrance hole.
- Stone, brick and timber are all suitable materials. Although owls are not destructive and seem unharmed by soft insulation materials, these are usually best avoided.
- In an unheated building, no insulation is required.
- Lining the space is not essential.
- An internal perch positioned as high or higher than the access hole may be beneficial as long as the space is big enough to accommodate one without resulting in one perched bird defecating on another underneath.

Design requirements – insulation:

- From the owls' point of view, insulation is not required.
- However, there should be some form of moisture insulation between the owl space and the building interior.
- Where space is at a premium, use a highly efficient heat insulation board (e.g. 50mm Celotex polyurethane foam).
- Where space allows, use a more environmentally sustainable (and thicker) heat insulation board (e.g. a wood fibre board like Pavatex) to which a sound insulation board can be added (e.g. 60mm Pavatherm) if required.



Design requirements – human access and cleaning out:

- Human access is essential as the nest space will need to be cleared out very occasionally.
- A generous removable inspection hatch or door in the back of the owl space (accessible from the building interior) is usually the preferred option but in some cases an external arrangement may be a practical option.
- In the case of a loft partition, create an integral crawl-through doorway.
- The access should permit all or most of the nest space floor to be reached by hand.

Appendix H

Examples of hedgehog friendly fencing

(images sourced from www.quercusfencing.com and www.jackson-fencing.co.uk)

<p style="text-align: center;">Quercus Fencing</p> <p style="text-align: center;">Hedgehog friendly oak woven fencing panels</p> 	<p style="text-align: center;">Jacksons-Fencing</p> <p style="text-align: center;">Hedgehog friendly gravel board for use with slotted posts</p> 
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Recommendations for installing hedgehog friendly fencing:

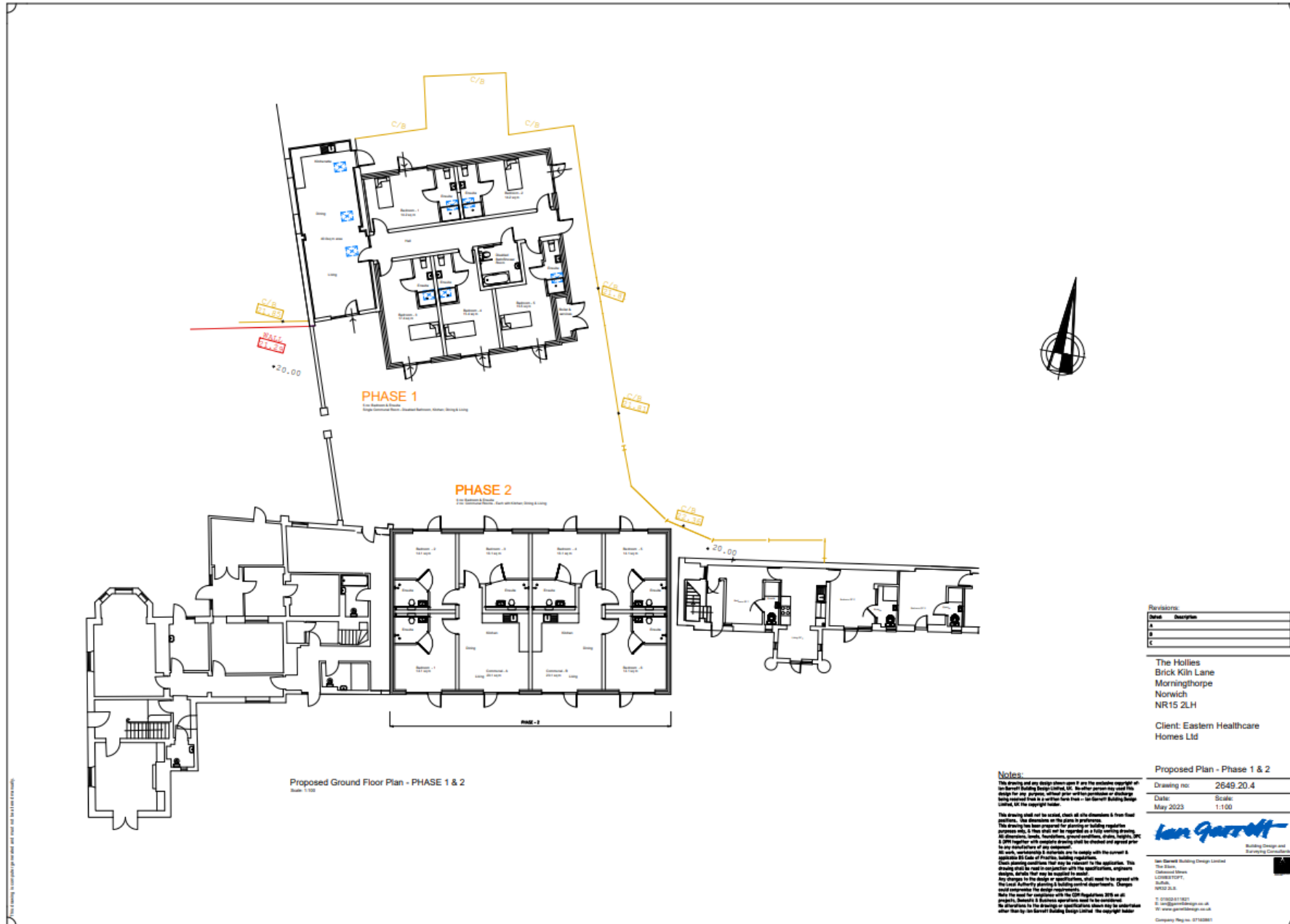
(Sourced from Hedgehog Street www.hedgehogstreet.org)


A hedgehog friendly fence should have a gap measuring at least 13cm by 13cm in the gravel board. These gaps allow any hedgehog to pass through but are too small for nearly all pets.

At least one hedgehog friendly fence panel should be located on each side of your garden, to provide unimpeded access.


Almost all fencing materials can be made hedgehog friendly, but may require DIY adaptations. Please note that some concrete gravel boards contain metal rods running along the length of the boards to provide strength and rigidity, and cannot be cut. To overcome this, a gap can be left between the gravel board and post to provide the required gap.

Appendix I Proposed plans

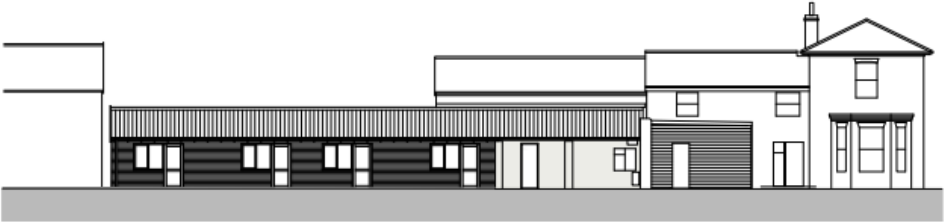





Proposed South Elevation
Scale: 1:100



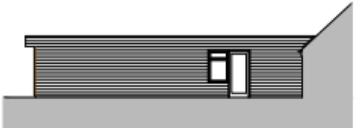
Proposed East Elevation
Scale: 1:100



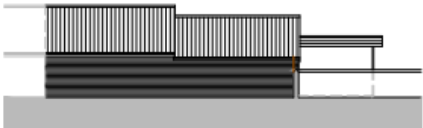
Proposed North Elevation
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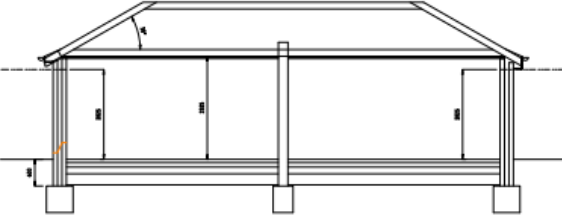
Proposed West Elevation
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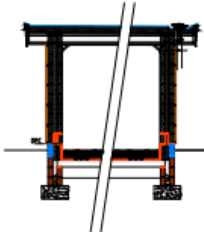
Proposed North Elevation
Scale: 1:100




Proposed West Elevation
Scale: 1:100




Proposed Section - PHASE 2
Scale: 1:100



Proposed Section - PHASE 1
Scale: 1:100



Proposed South Elevation
Scale: 1:100



Proposed East Elevation
Scale: 1:100

Revisions:

Detail	Description
A	
B	
C	

The Hollies
Brick Kiln Lane
Morrington
Norwich
NR15 2LH

Client: Eastern Healthcare
Homes Ltd

Existing Elevations
& Location Plan

Drawing no: 2649.20.5
Date: May 2023 Scale: 1:100

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