



Hampshire
County Council

Ecological Appraisal

Land at Smallmead, Island Road, Reading

For

Hampshire County Council Property Services for
Reading Borough Council

August 2021

Hampshire County Council Ecology Team

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Contents

Summary	1
1. Introduction	2
Objectives	2
Site Description	2
Proposed Works	3
Limitations	3
2. Methods	4
Desk-based assessment	4
<i>Zone of influence (Zol)</i>	4
<i>Scoping</i>	4
<i>Data search</i>	4
Field survey	5
<i>Extended Phase 1 Habitat Survey</i>	5
<i>Water vole and otter</i>	7
3. Results	8
Desk-based assessment	8
<i>Designated sites and notable habitats</i>	8
<i>Protected and notable species</i>	8
<i>Fieldwork scoping / Zone of influence</i>	9
Field Survey	9
<i>Habitats</i>	9
<i>Badger</i>	11
<i>Bats – Roosts</i>	12
<i>Bats – Foraging and Commuting</i>	12
<i>Hazel Dormouse</i>	13
<i>Water Vole</i>	13
<i>Otter</i>	13
<i>Birds</i>	14
<i>Reptiles</i>	14
<i>Amphibians</i>	15
Survey results summary	15
4. Impact Assessment	16
Planning policy and legislation	16
Potential impacts on sites, habitats and species	17
<i>Designated sites</i>	17
<i>Vegetation and habitats</i>	17
<i>Bats - Roosts</i>	18
<i>Bats – Foraging and commuting</i>	19
<i>Breeding birds</i>	19
<i>Reptiles</i>	19
Impact assessment summary	19

5. Recommendations for Mitigation and Enhancement	21
Introduction	21
Mitigation and compensation	21
<i>Local Wildlife Sites</i>	21
<i>Net loss of biodiversity</i>	22
<i>Nesting birds and reptiles</i>	23
6. Conclusions	26
References	28
Appendix 1 – Plans and Figures	29
Appendix 2 – Photos.....	35
Appendix 3 – Desk-Based Assessment Findings	37
Appendix 4 – Field Survey Results.....	38
Appendix 5 – Assessment Criteria	39

Summary

An Ecological Appraisal was undertaken at land at Smallmead, Island Road, Reading to support a proposed development for a Gypsy and Traveller transit site. This work included an Extended Phase 1 Habitat survey and more detailed water vole and otter surveys.

Habitats to be directly impacted by the proposed works are bramble scrub and a range of ruderal and ephemeral habitats that are of site value, and marginal vegetation along a watercourse which is a small area of local value due to its relative scarcity in the Borough and its connection as part of the wider ecological network.

The survey work concluded that badgers, hazel dormice, water vole, otter, and great crested newt are likely absent from the site. More established trees on site have low bat roost suitability. The site is likely to support a small population of reptiles, and small numbers of more common species of breeding bird.

In the absence of measures to avoid, mitigate, or compensate for impacts, it is concluded that the development would have the potential for the following impacts:

- Construction and operational phase impacts to downstream Local Wildlife Site (LWS).
- Net loss of biodiversity through loss of habitats.
- Coppicing of trees with low bat roost suitability and possible loss of roosts.
- Destruction of active birds' nests / loss of nesting and breeding habitat.
- Killing or injury of reptiles / loss of habitat.

A summary mitigation strategy is provided, detailing measures to minimise identified impacts and to provide appropriate compensation and enhancement to offset those impacts:

- Implementation of a Construction Environment Management Plan (CEMP) to ensure construction-related impacts to the watercourse and LWS are avoided.
- Inclusion of pollution control devices in the final development.
- Sensitive clearance of the site to avoid impacts to bats, reptiles and birds.
- Habitat enhancements and management plan on the adjacent watercourse and the habitats to the south of the site.

1. Introduction

Objectives

- 1.1. The purpose of this study was to gather ecological information about the site at Island Road, Reading and assess the impacts of the development proposals for the site.
- 1.2. This took the form of a Preliminary Ecological Appraisal (PEA), which comprised an initial desk-based assessment followed by an Extended Phase 1 Habitat Survey. Following this, the PEA, an additional otter and water vole survey was carried out.

Site Description

- 1.3. The site is centred on national grid reference SU 7069 7079. It is a small area of land to the south-west of Reading on the outskirts of the built-up area suburb of Whitley. The site lies between a household waste and recycling centre and a sewage treatment works (STW) towards the western edge of an area of extensive commercial, light industrial, and infrastructure development on the southern edge of the main urban area of Reading.
- 1.4. The site itself broadly comprises bramble scrub with patches of more open habitats. A planted line of trees forms the eastern boundary, beyond which lies a short embankment up to the STW. Island Road forms the northern boundary, and a tributary of the River Kennet flows north along the western boundary before its confluence with the River Kennet. To the south, the land between the river and the STW narrows and continues south as a belt of scrub and rougher habitats.
- 1.5. Location plan and aerial photos of the site showing the site boundary and its setting are shown in Appendix 1. Photos 1 and 2 on the photo sheet in Appendix 2 show the general conditions at the site.

Proposed Works

- 1.6. Reading Borough Council (RBC) proposes the provision of a Gypsy and Traveller transit site. The site will largely be cleared of vegetation to accommodate these plans.
- 1.7. The proposed site plan, current at the time of this report, is shown in Appendix 1.

Limitations

- 1.8. All areas of the site were fully accessible and visible during the Phase 1 survey work. The weather was dry, sunny and clear, with an air temperature of 22°C, a very slight breeze and no cloud. There are therefore no significant limitations to the survey work.
- 1.9. The water vole survey visits were carried out at appropriate times of year and followed appropriate methodologies. Prevailing weather conditions were appropriate – for example, surveys did not take place during or after heavy rain or flood conditions that could have washed away water vole feeding remains or droppings).
- 1.10. Although there were sections of typical marginal and bankside vegetation, the level of this was not a significant constraint. Access along the majority of both banks was possible, and sufficient access through the vegetation to the more suitable water vole habitat was possible.
- 1.11. There are therefore no significant limitations to the water vole survey work.

2. Methods

Desk-based assessment

- 2.1. A desk-based assessment was carried out by HCCET in March 2020. This comprised the following elements:

Zone of influence (Zol)

- 2.2. The development proposals and the site were reviewed to establish the likely extent of impacts from the scheme at which potential ecological receptors might be affected. This was based on established criteria (such as Natural England's Impact Zones for Sites of Special Scientific Interest (SSSI)), or published zones around certain European designated sites. Where established criteria are not present, the Zol was based on the ecologist's professional judgement. Where necessary, the Zol for relevant receptors are discussed in the following sections.

Scoping

- 2.3. An initial review of the site and the proposals were carried out to consider the likelihood of particular ecological receptors being present at the site or nearby (within relevant Zol). Where this scoping confidently concluded that a particular receptor is likely absent (for example there are unlikely to be water vole at a site with no on-site or nearby waterbodies), these are not considered in detail in the report.

Data search

- 2.4. Geographical Information Systems (GIS) mapping was used in order to identify statutory designated sites with a 1km radius of the site. A data request was submitted to the Thames Valley Environmental Records Centre (TVERC) for information on locally-designated nature conservation sites within 1km, as well as protected and notable species records from the search area.
- 2.5. The findings of the desk-based assessment in terms of establishing the local and wider ecological context of the site has also been used where relevant to inform recommendations for biodiversity net gain, as set out in Section 5.

Field survey

Extended Phase 1 Habitat Survey

- 2.6. Field survey work was carried out on 19 May 2020. This followed the Phase 1 Habitat Survey methodology of the Joint Nature Conservation Committee (JNCC, 2010) and the Institute of Environmental Assessment (IEA, 1995). Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. It should be noted that the habitat categories used by the Phase 1 Habitat Survey Methodology do not mirror the habitat types considered to be conservation priorities. Where relevant and necessary, this is discussed further in Section 4.
- 2.7. The site survey entailed two surveyors, Adam Egglesfield (Senior Ecologist) and Jennifer Simpson (Assistant Ecologist) undertaking a methodical investigation of all areas of the site in order to identify the presence of, or habitat considered suitable for supporting, legally-protected species. Assessment of the nature and value of habitats and vegetation at the site was also carried out. A brief description of the survey methods used is provided below.
- 2.8. The site was inspected for field signs of badger *Meles meles* such as badger setts, latrine sites, dung piles, well-used trails, prints, foraging activity, and hairs.
- 2.9. An assessment was made of the suitability of habitat on site to support hazel dormice *Muscardinus avellanarius*. Key habitats for this species are woodland, scrub and hedgerows, particularly where these offer dense vegetation for nesting or hibernation, along with food resources such as hazelnuts, fruiting and nectar-rich plants (e.g., hawthorn, bramble) and honeysuckle (for nesting material). The presence of important landscape-scale habitat linkages between suitable habitats was considered.
- 2.10. The survey also included a consideration of the site's suitability to support breeding bird species. These will utilise a broad range of habitats, including structures such as houses and outbuildings, trees, scrub, isolated shrubs, dense herbaceous vegetation (terrestrial and aquatic) and open grassland.

- 2.11. The site's suitability to support reptiles was also considered. Key habitat features for reptiles include tussocky or patchy grassland, scrub edge, linear watercourses, ponds, compost heaps, brash piles and rubble/soil heaps. Linkage to suitable habitat within the surrounding landscape will increase the potential for reptiles to occur, although populations can occur within isolated or fragmented habitats even within urban areas.
- 2.12. An assessment was made of all water bodies and terrestrial habitat within the site and within the surrounding landscape for their suitability to support populations of amphibians, particularly great crested newt *Triturus cristatus* (GCN). Ponds were assessed where possible according to the Habitat Suitability Index (HSI) assessment method (Oldham et al, 2000).
- 2.13. Any suitable on site or nearby accessible waterbodies such as lakes, rivers, ditches and streams were inspected for signs of water voles and otter. Signs of otter include spraints (droppings), holts and couches (resting places), haul outs, and anal jelly. Water vole signs include burrows (particularly with a grazed 'lawn' around their entrance), runs along the bank, latrines, feeding signs, runs, and footprints.
- 2.14. Trees were assessed for their potential to support bats, using methods guided by and consistent with that set out in Collins (ed) (2016). Relevant trees were inspected from ground level to identify evidence of bat activity and/or identify the presence of any potential roost features (PRFs) such as rot holes, flaking bark, cracks or splits and areas of extensive deadwood.
- 2.15. Trees were inspected using Opticron Discovery 10x42 close-focussing binoculars and where necessary and safely possible, a ladder. High-powered torches (Clulite Clubman CB2 and Lenser P7.2) were used to illuminate potential roost and roost access features.
- 2.16. An assessment was made of the suitability of the site and the surrounding landscape to support foraging, commuting and other flying behaviours such as swarming and social interactions. The assessment was based on the presence of key habitat features such as woodland, scrub, hedgerows, grassland, and open water and watercourses, which are highly attractive to bats as both a

foraging resource and as commuting routes. The presence of such habitats, particularly in a mosaic with other suitable habitats, typically increases the potential for structures to be exploited by bats where suitable roost and access opportunities are present. The presence of unlit semi-natural vegetation and habitat linkages between the site and the surrounding landscape were also considered.

- 2.17. Bat roost suitability and foraging habitat quality was assessed according to the criteria set out in Collins (2016). The table in Appendix 7 sets out the guidelines for assessing roost suitability and foraging habitat quality

Water vole and otter

- 2.18. Surveys for otter and water vole were conducted on 30 June 2020 and 30 September 2020. The survey involved a careful visual inspection of the channel, banks, and riparian zone of the watercourses within the site boundary and wider Zone of Influence. Signs of water vole presence such as droppings/latrine sites, feeding remains, burrow entrances and prints were searched for, with surveys being carried out in accordance with Dean *et al*, 2016.
- 2.19. With respect to otter, the survey involved a careful visual inspection of the channel, banks and riparian zone to look for signs of otter presence such as tracks, spraints, anal jelly, feeding remains, resting places and holts.
- 2.20. Particular attention was given to examinations of typical otter sprainting sites such as in-channel and bankside logs and rocks, as well as searches of bankside mud to identify tracks. The otter survey followed DMRB HA 81/99 *Nature Conservation Advice in Relation to Otters*.
- 2.21. These surveys were carried out by Emma James and Frances King-Smith, experienced water vole and otter surveyors, assisted by HCCET assistant ecologists.

3. Results

Desk-based assessment

Designated sites and notable habitats

- 3.1. Appendix 4 shows the location of the site and its surrounding relevant designated statutory and non-statutory sites.
- 3.2. There are no statutory designated sites such as SSSIs within the search area.
- 3.3. There are several Local Wildlife Sites (LWS) in the surrounding area. These are all associated with the broad expanse of floodplain meadows and grazing marsh at Fobney and along the floodplain of the River Kennet as it flows into Reading, as well as the associated watercourses such as the Holy Brook.
- 3.4. The locations of these are shown in Figure A3.1 in Appendix 3.

Protected and notable species

- 3.5. The data request to TVERC returned numerous records of protected and notable species within the search area. These are summarised in Appendix 4.
- 3.6. Many records of notable birds were returned; these were largely waders and waterfowl, recorded in the large area of watermeadow habitat along the Fobney Meadows area to the north and west of the site as well as several of the flooded gravel pits around the area.
- 3.7. A small number of notable plant records were returned; again, many of these were associated with wetter grassland / riparian habitats.
- 3.8. A large number of bat records were returned – these were largely for bats recorded foraging around the river corridor habitats.
- 3.9. Numerous reptile records were returned – these appeared to mainly originate from nearby development sites to the north-east.

Fieldwork scoping / Zone of influence

- 3.10. The site lies adjacent to a small watercourse and near extensive edge-of-town development that has taken place on previously developed land. The site itself appears to be a small strip of rough ground between two such sites.
- 3.11. The zone of influence for the proposed development is therefore considered to be the site itself with respect to terrestrial receptors. However, the site lies adjacent to a watercourse and therefore the ZOI for water-dependent receptors is the adjacent river and downstream sites. The extent of this will depend on the nature of the potential effect – at scoping stage it is considered to extend as far as the River Kennet and associated local wildlife sites, as well as species associated with the river such as riparian mammals and habitats.

Field Survey

Habitats

- 3.12. The main habitats present at and around the site are shown in the Phase 1 habitat map in Appendix 4.

Scrub

- 3.13. The northern boundary of the site, adjacent to Island Road, is formed by a shallow dry ditch and low earth bank. These features are heavily overgrown with bramble *Rubus fruticosus* scrub. The dense bramble extends south into the northern part of the site, forming a dense, tall belt of bramble (Target Note (TN) 1 on the Phase 1 habitat map). This has occasional tall ruderal (mainly common nettle *Urtica dioica*) vegetation within it and occasional buddleia *Buddleja davidii* and rose *Rosa* sp.
- 3.14. There is belt of mixed willow and bramble scrub extending south down the western side of the watercourse, outside the site boundary, and adjacent to the recycling centre. This belt of scrub is more open, with patches of ruderal vegetation.

Semi-natural woodland

- 3.15. There is a small area of wooded habitat to the north-west corner of the site either side of the watercourse. Tree species are dominated by crack willow *Salix*

fragilis and goat willow *S. caprea*, with occasional hawthorn *Crataegus monogyna*. See Photo 3.

Plantation woodland

3.16. There is a belt of planted deciduous trees along the eastern boundary, which is formed from an earth embankment sloping up to the adjacent STW. The trees are planted along the outside of the site. Tree species include crack willow, goat willow, cherry *Prunus* sp., poplar *Populus* sp., hawthorn, ash *Fraxinus excelsior*, and field maple *Acer campestre*. See Photos 4 and 5. There is also occasional elder *Sambucus nigra*.

3.17. The formal boundary is marked by a steel mesh boundary fence (see Photo 5).

Scattered trees

3.18. There is a small number of young elder, hawthorn, and goat willow trees across the site. These mainly lie along the banks of the watercourse, although a small number are more within the main body of the site and the land that extends southwards.

Tall Ruderal

3.19. A large area of dense, tall ruderal vegetation dominates the majority of the main central area of the site (TN2, Photo 6). Species here are dominated by common nettle and bramble. There is frequent teasel *Dispacus fullonum*, hogweed *Heracleum sphondylium*, spear thistle *Cirsium vulgare*, and occasional dog rose *Rosa canina*. There are occasional ash and hawthorn saplings.

Marginal Vegetation

3.20. There is a strip of marginal vegetation along the eastern bank of the watercourse. This varies in width depending on the bank profile and degree of shading. In some areas, it is sparse with much bare ground, while in the more open areas (such as TN3), there is abundant water mint *Mentha aquatica*, hemlock water-dropwort *Oenanthe crocata*, gypsywort *Lycopus europaeus*, flag iris *Iris pseudacorus*, pendulous sedge *Carex pendula*, and reed sweet grass *Glyceria maxima* as well as more typical ruderal species such as bramble, nettle, thistle, and ragwort *Jacobaea vulgaris*. See Photos 8 to 10.

Short Ephemeral/Perennial Vegetation

- 3.21. There is an area of developing short ephemeral/perennial vegetation in the northern area of the site on an area of more recently disturbed ground. Species present in this area (TN4) include field forget-me-not *Myosotis arvensis*, wild carrot *Daucus carota*, perforate St John's-wort *Hypericum perforatum*, creeping buttercup *Ranunculus repens*, common nettle, lesser burdock *Arctium minus*, broad-leaved dock *Rumex obtusifolius*, wintercress *Barbarea vulgaris*, green alkanet *Pentaglottis sempervirens*, ground ivy *Glechoma hederacea*, dark mullein *Verbascum nigrum*, white dead nettle *Lamium album* and hedge garlic *Alliaria petiolata*. See Photo 11
- 3.22. Small 'bays' of short ephemeral perennial vegetation are present along the bankside, where there appears to have been previous flooding (TN5). Species include black horehound *Ballota nigra*, fleabane *Pulicaria dysenterica*, common comfrey *Symphytum officinale*, lesser burdock and occasional bramble. See Photo 12.

Running water

- 3.23. There is a highly modified watercourse running north along the western boundary of the site. This appears to be a channel taken off the Foudry Brook, a tributary of the River Kennet. To the north of Island Road, the watercourse is highly canalised with concrete piled vertical banks, although has more naturalised banks south of Island Road. Island Road, to the north of the site, crosses the watercourse over a concrete deck bridge with concrete and gabion basket wingwalls.
- 3.24. The banks are mainly bare earth in the more shaded areas; however, as described above, there are some sections of marginal and in-channel vegetation. There is little major variation in channel and bed profile, although some of the adjacent scrub is allowing a small amount of natural woody debris to develop.

Badger

- 3.25. The desk-based assessment returned no records of badger. There are some small areas of suitable sett-building habitat along the eastern site boundary,

although the wooded habitats further to the west are too damp and close to the water line to be suitable for badger setts.

- 3.26. No evidence of badger sett-building or foraging activity was recorded within the surveyed area. Badgers are considered likely absent from the site and surrounding area.

Bats – Roosts

- 3.27. There are no buildings on site.
- 3.28. A line of mature trees is present along the eastern boundary of the site and several mature/semi-mature scattered trees are present across the surveyed area, mainly confined to the banks of the river.
- 3.29. The trees on site are generally younger and the survey work did not identify any obvious potential roost features from the ground level inspection. However, crack willow trees can support smaller fissures not immediately apparent, while the nature of the trees is such that new areas of damage or resultant PRFs can readily develop as these fast-growing trees mature.
- 3.30. Overall, it is considered that the larger willow trees offer low, but not negligible, bat roost suitability.

Bats – Foraging and Commuting

- 3.31. The desk-based assessment returned records indicative of bat foraging or commuting activity within the search area.
- 3.32. The site is dominated by tall ruderal vegetation with strips of denser and taller wooded habitat along a river corridor. This mosaic of habitats on sites are likely to support a range of invertebrate prey species. There is a reasonable degree of external lighting associated with the nearby developed areas and roads, although the wider landscape is darker.
- 3.33. Overall, the site is considered to offer habitat of low to moderate quality as a foraging and commuting resource for bats. However, it is only a small part of a much wider area of higher quality habitat further afield. It is therefore likely to be well used by small numbers of bats on an opportunistic basis but is unlikely to be a significant foraging resource.

Hazel Dormouse

- 3.34. The desk-based assessment returned no records of hazel dormice within 1km of the site.
- 3.35. The vegetation on site is dominated by tall ruderal and does not provide suitable habitat to support dormice as areas of dense scrub are not well connected. The site is not well-connected to the wider landscape, which is largely urban in nature.
- 3.36. It is considered that dormice are likely absent from the site.

Water Vole

- 3.37. The desk-based assessment returned multiple records of water vole and the site itself supports suitable habitats for supporting this species due to the bank profile along several sections of the watercourse and the presence of established marginal vegetation in the more open areas.
- 3.38. Formal water vole presence-absence survey work comprising two separate visits at appropriate times of the year found no evidence of water vole activity such as feeding remains, latrines, runs, lawns, or confirmed burrows.
- 3.39. Brown rat *Rattus norvegicus* footprints were seen in several locations in damp mud along the banks.
- 3.40. It is concluded that water vole are likely absent from the site, although given the proximity of the records and the connectivity between the watercourse and other nearby watercourses, water vole may occasionally disperse along the watercourse, and – depending on how habitats develop over time – may colonise the site in the future.

Otter

- 3.41. The desk-based assessment did not returned records of otter. The site supports limited suitable habitats for supporting otter holts or lie-ups due to the lack of more densely wooded habitat. Nevertheless, the watercourse is linked to other potentially suitable habitat along river corridors in the wider landscape and therefore the site was surveyed for otter activity on two separate occasions.

- 3.42. No signs of otter activity were seen during either of the survey vests.
- 3.43. It is concluded that otters are likely absent from the site.

Birds

- 3.44. During the survey work, several species were noted at the site and associated scrub, including long-tailed tit *Aegithalos caudatus*, blackbird *Turdus merula*, goldfinch *Carduelis carduelis*, and blackcap *Sylvia atricapilla*.
- 3.45. The scrub and trees on site are highly suitable for supporting small numbers of common and widespread bird species. There are therefore likely to be active nests present during the spring and summer.

Reptiles

- 3.46. Two records of reptiles were returned within 1km of the site, and examination of the detail of these suggests a population was present on an area of open waste ground to the north-east of the site (near where Island Road meets the A33), identified and translocated as part of a new development.
- 3.47. The habitat on site is dominated by tall, dense, ruderal habitat and dense bramble scrub. It is likely that the habitats were more suitable for supporting reptiles in the past, but the height and density of the vegetation has now developed to result in less optimal reptile suitability.
- 3.48. The presence of small numbers of more widespread reptiles at the site such as slow worm *Anguis fragilis* and grass snake *Natrix helvetica* cannot be completely discounted; however, given the lack of ground-level cover and heavy shade at ground level, it is concluded that the site does not support any more than a small population.
- 3.49. Consideration was given to undertaking a formal reptile presence-absence survey. However, setting up such a survey would have required a high degree of vegetation clearance, while vegetation would rapidly have grown to cover and obscure any reptile survey mats. Given these constraints, it was concluded that a negative survey finding would not conclusively demonstrate an absence of reptiles.

- 3.50. It is therefore considered that given the relatively low-quality of the habitat, it is appropriate to assess the potential presence of reptiles using nearby records returned from TVERC, on-site habitat quality, and connectivity to other areas of habitat in the surrounding area. On this basis, it is concluded that there is a medium probability that the site supports a small population of reptiles.

Amphibians

- 3.51. Several records of amphibians were returned in the TVERC data, including a single record of great crested newt. This record is from a site 1.7km to the south, on the far side of the M4 motorway. Examination of Ordnance Survey maps finds no likely GCN ponds in the search area, with the majority of the waterbodies appearing to be linked to watercourses or are larger manmade lakes likely to support fish.
- 3.52. It is considered that great crested newts are likely absent from site.

Survey results summary

- 3.53. In summary, it is considered that badgers, hazel dormice, water vole, otter, and great crested newt are likely absent from the site. However, the following ecological receptors are either confirmed or likely to be present at the site or surrounding area within the relevant Zol:
- Nearby ecologically linked LWS
 - Mosaic of common and widespread ruderal, scrub, and riparian habitats on site
 - Low potential for roosting bats in the more mature willow trees
 - Regular opportunistic bat foraging and commuting activity
 - Breeding birds
 - Small population of reptiles
- 3.54. The following section considers the nature and scale of impacts to these in the absence of mitigation or compensation measures.

4. Impact Assessment

Planning policy and legislation

4.1. Paragraph 175 of the National Planning Policy Framework (NPPF) (MHCLG, 2019) requires that when determining planning applications, if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.

4.2. Policy CS36 'Biodiversity and Geology' of the Reading Borough Council Adopted Core Strategy (revised 2015) states that:

"Development should retain, protect and incorporate features of biodiversity or geological interest (including protected species and their habitats) found within the application site into their schemes."

4.3. The supporting text to the policy states that:

"Protected species identified by the Species Action Plan of the Reading Biodiversity Action Plan (BAP) and their habitats must also be protected from any direct or indirect harm resulting from development."

4.4. Many species of animal are legally protected under both domestic or international law (the Wildlife and Countryside Act 1981 (as amended)¹ and the Conservation of Habitats and Species Regulations 2017² respectively). Badgers and their setts are protected under the Badgers Act 1992³.

4.5. With reference to bats, hazel dormice, and great crested newts, these are European Protected Species (EPS). This legislation makes it an offence to kill, injure or disturb them, or to destroy or damage their breeding sites and resting places (even when the animals are not present). For such work to legally proceed, Natural England (the Government's statutory nature conservation

¹ <http://www.legislation.gov.uk/ukpga/1981/69>

² <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

³ <http://www.legislation.gov.uk/ukpga/1992/51/contents>

agency) will issue a licence for the work to be able to proceed legally, subject to the proposals meeting certain criteria.

- 4.6. The following sections consider the potential impacts on any identified ecological features and whether the development would be in accordance with policy and legislation.

Potential impacts on sites, habitats and species

Designated sites

- 4.7. The site lies along a small watercourse that is linked to the River Kennet / Kennet and Avon Canal LWS. Therefore, any construction or operational activity that adversely affects the adjacent watercourse may potentially have downstream impacts on this LWS.
- 4.8. Key impacts of this nature would include construction phase pollution from machinery leaks or fuel spills, mobilisation of silt, runoff from bare / disturbed ground, or other contaminants from the site itself during clearance or construction.
- 4.9. During operation, given the extent of hardstanding and the likely uses at the site related to vehicles and machinery storage or maintenance, there is a risk of pollution of the watercourse from fuels or other liquid contaminants.

Vegetation and habitats

- 4.10. The scrub and ruderal / ephemeral habitats in the main body of the site are common and widespread and are well-represented in the wider area. These are considered to be of value at the site level only.
- 4.11. The adjacent watercourse and the marginal bankside habitats that form the western boundary of the site are of higher value as they are less widespread, being confined to watercourses, and typically support a more specialised assemblage of other species, such as aquatic invertebrates. These habitats are linked to the wider ecological network that is an important part of the ecological interest for this part of the Borough. However, this higher value is tempered by the small extent of the habitats present and affected by the development.

- 4.12. Review of the characteristics of the watercourse and associated marginal habitats against the criteria for Priority Habitats (BRIG, 2011) shows that these features do not meet the criteria for either reedbed or river Priority Habitat. Nevertheless, given their linkages with the wider ecological network (which includes several LWS) and their relative scarcity across the Brough, the bankside habitat is considered to be of local value.
- 4.13. The development would result in the loss of much of the vegetated area within the site boundary. Plans current at the time of producing this report indicate that the wooded part of the site to the north-west corner will be retained, as will the plantation woodland landscape belt of trees along the eastern boundary as these trees are within the adjacent property. There may be some need to lift or reduce the canopy of these; however, the tree stems will remain.
- 4.14. The sectional drawing (see Section B-B on Figure A1.4 in Appendix 1) shows that the development will require land-raising and the construction of a retaining wall and vehicle barrier along the boundary with the watercourse. While this wall will be sufficiently far from the water's edge to retain a strip of vegetated riverbank, the construction phase of the work will require the bankside vegetation to be removed to allow for the land to be raised, the wall to be constructed, and a new bank profile constructed along the boundary. This will result in the loss of all the bankside and marginal vegetation and developing scrub along here, although over time, it is likely that some form of vegetation would re-colonise this area.
- 4.15. In addition to the main development site, flood modelling work has indicated that there will need to be flood compensation and / or Sustainable Drainage System (SuDS) swales constructed near the site. The location and design of these has not been finalised at the time of producing this report; however indicative locations of two possible options are shown in Figure A1.5 in Appendix 1.

Bats - Roosts

- 4.16. Plans current at the time of producing this report show that the more established willow trees to the north-west part of the site are to be retained. However, construction of the retaining wall along the western site boundary may result in

damage or severance of their root structures. It is therefore proposed that if necessary (depending on local conditions at the time of construction) some of these trees may need to be coppiced to reduce their bulk before work starts.

- 4.17. If these trees do support bat roosts then this work would result in the loss of the roosts and potential direct harm to bats if present.

Bats – Foraging and commuting

- 4.18. The site is a small area of low to moderate quality foraging and commuting habitat. The development will result in an overall loss of habitat but given the extent of the loss in relation to the extensive high-quality habitat further afield, this is not considered to be a significant impact.

- 4.19. The development is likely to result in a small increase in external lighting; however, the adjacent sites and road are already lit and therefore the addition of a small amount of new external lighting is unlikely to be a significant impact.

Breeding birds

- 4.20. Clearance of the site would result in a reduction in the extent of available nesting habitat. If active nests were present at the time, this clearance would result in destruction of active nests.

- 4.21. The development would also result in a net loss of suitable breeding habitat.

Reptiles

- 4.22. The site is considered to potentially support a small population of more widespread reptile species. Clearance of the site would therefore result in the killing or injury of any reptiles present at that time.

- 4.23. The development would also result in the loss of reptile habitat.

Impact assessment summary

- 4.24. In summary, in the absence of measures to avoid, mitigate, or compensate for impacts, it is concluded that the development would have the potential for the following impacts:

- Construction and operational phase impacts to the downstream LWS.

- Net loss of biodiversity through loss of habitats.
- Impacts to bat roosts if present in the low-suitability established willow trees on site
- Destruction of active birds' nests / loss of nesting and breeding habitat.
- Killing or injury of reptiles / loss of habitat.

4.25. The following section sets out a strategy to address these impacts.

5. Recommendations for Mitigation and Enhancement

Introduction

- 5.1. This section provides details of recommendations considered necessary in order to ensure that potential ecological constraints are considered fully. This includes recommendations for additional survey works and for mitigation, compensation or enhancement measures to avoid, lessen or offset the identified impacts to ecological features arising from the proposed works.

Mitigation and compensation

Local Wildlife Sites

- 5.2. In order to avoid downstream impacts to the River Kennet, it is recommended that a robust pollution management plan is implemented during the various phases of construction, including the land raising, retaining wall construction, bank re-profiling, and final build. This is likely to require elements of the following:
- Appropriate materials storage, fuel storage, and refuelling measures in place.
 - Appropriate stockpiling of spoil and material for land raising.
 - Management of potential runoff during rain events such as silt barriers along riverbank and silt curtains in the watercourse.
- 5.3. At this stage, the exact details of the construction methods are not known. Therefore, it is likely that the most appropriate means of ensuring adequate protection is through the production and implementation of a Construction Environment Management Plan (CEMP), secured through an appropriate planning condition.
- 5.4. With respect to managing operational impacts to the watercourse, the site should ideally incorporate SuDS to aid removal of waterborne contaminants prior to discharge into the watercourse – however, at this site, this is not practicable given the constraints of the small site and its position between adjacent plots and the watercourse. Therefore, at this site, it is likely that more

hard-engineered solutions will be necessary, including measures such as pollution interceptors.

- 5.5. Again, the detail of these measures has yet to be fully developed. However, the provision of this information could be secured through a planning condition.

Net loss of biodiversity

- 5.6. The majority of the vegetation on site will be permanently lost to the construction, with the developed site being largely tarmac or concrete hardstanding. Bankside habitats along the western boundary of the site will be removed during construction although may re-establish over time.
- 5.7. Given the nature of the development, it is not possible to provide sufficient on-site replacement habitat planting to offset the loss of the existing habitats. However, there is some scope for enhancing the bankside habitats along the watercourse once construction of the retaining wall is complete. While this area is outside the redline boundary, both banks of the watercourse, and much of the land upstream (south) of the site are under the ownership of Reading Borough Council and therefore it is appropriate to utilise these off-site locations to deliver compensation measures to offset the on-site impacts.
- 5.8. It is therefore recommended that the development incorporates a range of habitat enhancement measures along both sides of the watercourse banks. A summary of general prescriptions is set out below, and these should be developed further following discussion with landscape consultants.
- Reduction in shading of watercourse through targeted removal or cutting back of scrub.
 - Planting new native species scrub further up the western bank, further away from the watercourse.
 - Ensuring the re-engineered banks include a variety of different profiles.
 - Incorporating large woody debris from the site clearance arisings into a small number of locations along the bank to allow natural areas of silt deposition and scour to develop over time.
 - Planting scheme to include a wide range of native marginal and aquatic plants.

- 5.9. The areas allocated for the new flood compensation swales should also be landscaped and designed to maximise biodiversity through a suitable planting scheme.
- 5.10. Given the extent of habitat loss at the development site, it is likely that further habitat enhancements will be required to offset this. Therefore, in addition to the measures described above, it is recommended that the strip of ruderal vegetation and bramble scrub running south from the site along the watercourse corridor is subject to a biodiversity enhancement scheme. This should incorporate the following:
- Management of the area to maintain a mosaic of taller and shorter grassland and herb vegetation (NB this is important with respect to mitigating impacts to reptiles – see further, below).
 - Allowing small patches of scrub to develop to provide nesting bird habitat.
 - Continuing channel and bankside enhancements (described above) southwards.
- 5.11. A detailed management plan will need to be drawn up and agreed with the local authority to ensure that these habitats are managed appropriately in the long term.

Bat roosts

- 5.12. A small number of the more established willow trees on site offer low bat roost suitability. As discussed above, no clear roost features were identified; however, as these are crack willows, small fissures can develop at any time as the trees mature and therefore it is not appropriate to conclude that these offer negligible roost suitability.
- 5.13. Trees that are of low roost suitability do not require additional dusk or dawn surveys; however, any work to these needs to be carried out in a careful and sensitive manner.
- 5.14. If coppicing of these becomes necessary due to the construction of the retaining wall along the western site boundary, then this will only be carried out after a further check of the trees has found no suitable roost features or where a

through search using an endoscope has concluded that any potential features are unsuitable.

- 5.15. Any stems that are to be removed will be carefully soft-felled. Any cuts will be made sufficiently far from PRFs to avoid damaging them and harming any bats present. Sections containing PRFs will be left on site overnight before disposal.

Nesting birds and reptiles

- 5.16. At this site, given the need to ensure impacts to reptiles are properly avoided, it will be necessary to manage the site clearance to accommodate both these species groups.
- 5.17. Given the amount of vegetation at the site, it is not recommended to clear any of the taller vegetation suitable for supporting nesting birds during the breeding season, even with a watching brief / ecological supervision, as there is a high risk that nests would be encountered, resulting in delays to the programme.
- 5.18. In order to avoid impacts to both birds and reptiles, it is recommended that the following method is followed:
- 5.19. The following strategy is therefore proposed:

Site clearance method

- A copy of this Method Statement will be retained on site.
- All contractors must read this Precautionary Method Statement at the onset of works.

Stage 1 – Winter:

- Bramble scrub and any of the other woody scrub or small trees that need to be trimmed back will be cut to a height no lower than 200mm.
- This will be carried out using hand tools only such as strimmers, brushcutters, hand-operated saws. No excavators or other similar vehicular machinery will be permitted to carry out site clearance.
- Particular care must be taken by contractors to avoid habitat features such as fallen deadwood, piles of brash and areas of spoil/debris.

Stage 2 – Spring:

- A pre-clearance inspection will be carried out by a suitably qualified ecologist. This inspection will include a careful search of any areas of potential refuge for reptiles.
- If clearance is taking place outside the hibernation season, or if the supervising ecologist deems it safe to do so, potential refugia will be carefully dismantled by hand, by the supervising ecologist.
- If safe to do so, any reptiles will be removed from the work area to suitable nearby habitat to the south of the site.
- Once confirmed clear of reptiles by the supervising ecologist, the vegetation can be cut down to ground level.

5.20. In order to address the impacts associated with loss of habitat, the measures described above with respect to habitat creation in terms of enabling a more structured mosaic of habitat to become established and managed in the long term would ensure that the adjacent areas of habitat will be capable of supporting a larger population of reptiles as well as continuing to provide suitable bird nesting and foraging habitat.

6. Conclusions

- 6.1. The Preliminary Ecological Appraisal at the site at Island Road, Reading, identified that the site supports habitats of lower ecological value, although the adjacent watercourse and associated bankside marginal habitat is of higher value.
- 6.2. The survey work found that badgers, hazel dormice, water vole, otter, and great crested newt are likely absent from the site. More established trees on site have low bat roost suitability, although these will be retained. The site is likely to be well used by bats on an opportunistic basis as a wider part of their foraging and commuting behaviour but does not represent a significant foraging resource.
- 6.3. The development will not adversely affect bat roosts or cause significant adverse impacts to the local bat foraging / commuting resource.
- 6.4. There is potential for the site to support a small population of widespread reptile species as well as small numbers of more common species of breeding bird. In the absence of measures to avoid, mitigate, or compensate for impacts, it is concluded that the development would have the potential for the following impacts:
- Construction and operational phase impacts to the River Kennet / Kennet and Avon Canal Local Wildlife Site.
 - Net loss of biodiversity through loss of habitats.
 - Possible loss of bat roosts if established willow trees require coppicing.
 - Destruction of active birds' nests / loss of nesting and breeding habitat.
 - Killing or injury of reptiles / loss of habitat.
- 6.5. Mitigation and compensation for these impacts include:
- Implementation of a CEMP to ensure construction-related impacts to the watercourse and LWS are avoided.
 - Inclusion of pollution control devices in the final development.
 - Sensitive clearance of the site to avoid impacts to bats, reptiles and birds.
 - Habitat enhancements and management plan on the adjacent watercourse and the habitats to the south of the site.

- 6.6. Provided these recommendations are followed, it is concluded that the development will have no adverse impacts on biodiversity and will deliver biodiversity gains in accordance with policy.
- 6.7. Unless otherwise advised, the findings and recommendations in this report are solely based on the plans and brief provided to HCCET. The results and findings are valid for two years from the date of the initial field survey. HCCET should be contacted if this report is to be used after this period to check if any updating work needs to be undertaken.

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Appendix 1 – Plans and Figures

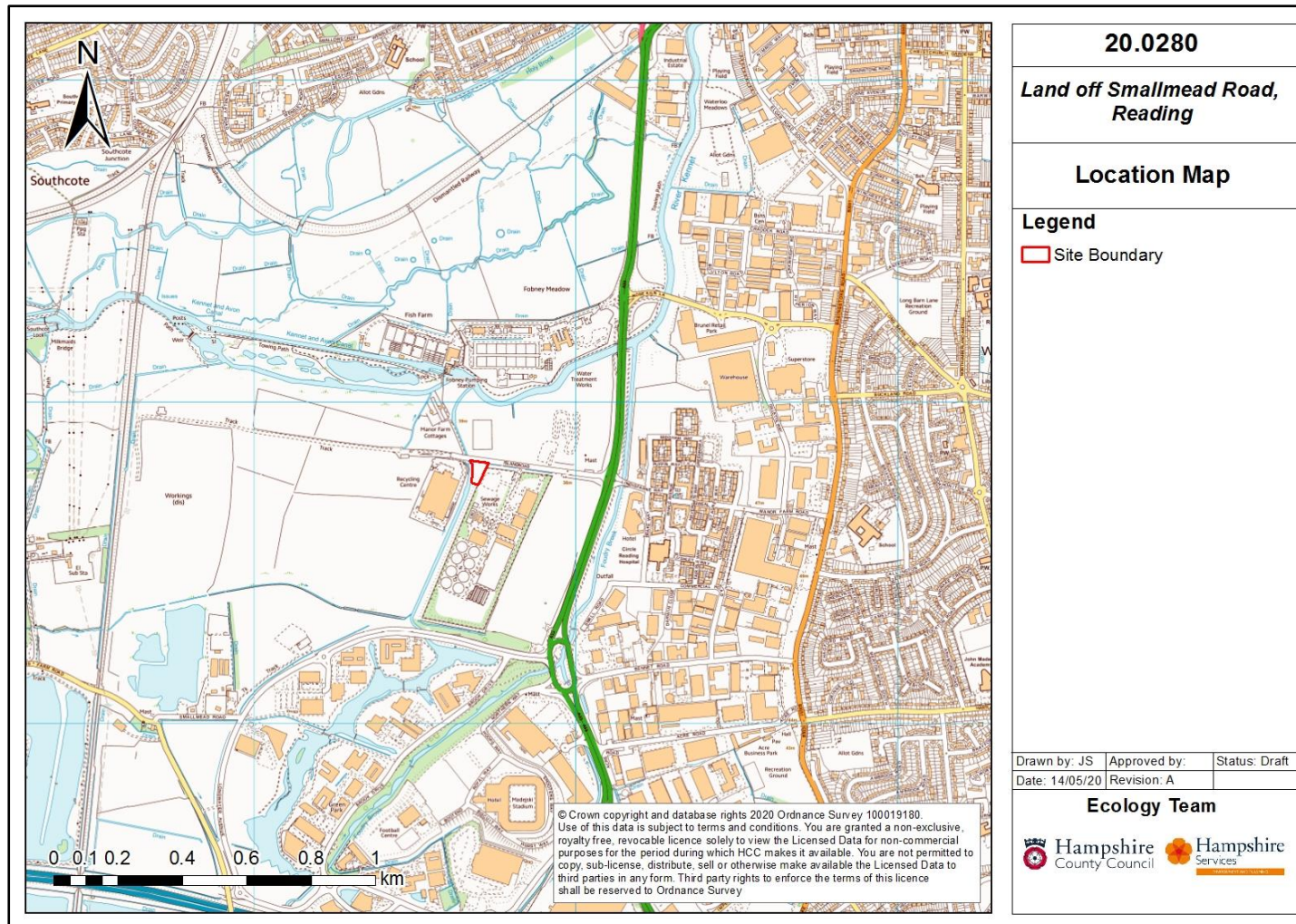


Figure A1.1 Site Location

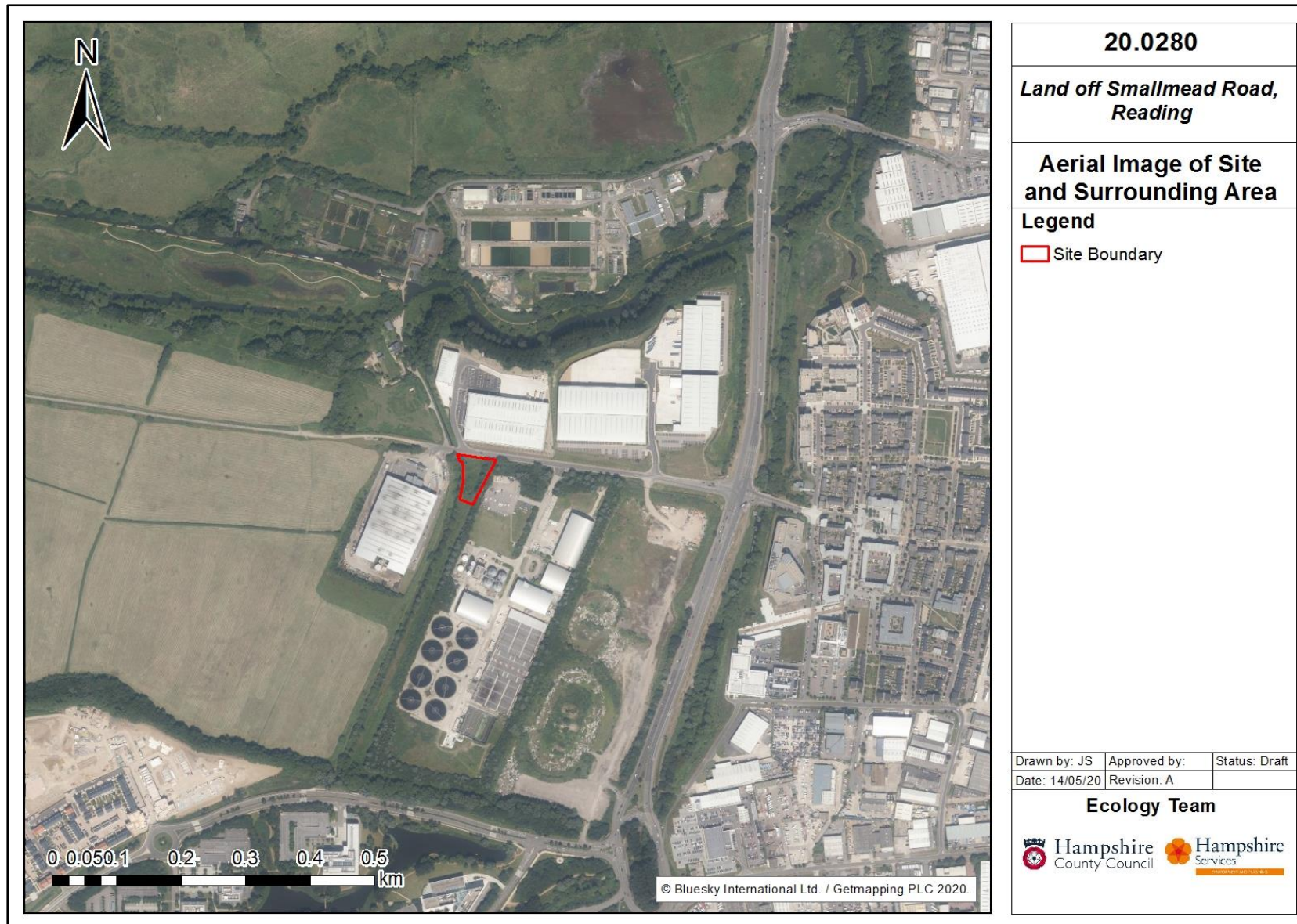


Figure A1.2 Aerial photo of wider landscape

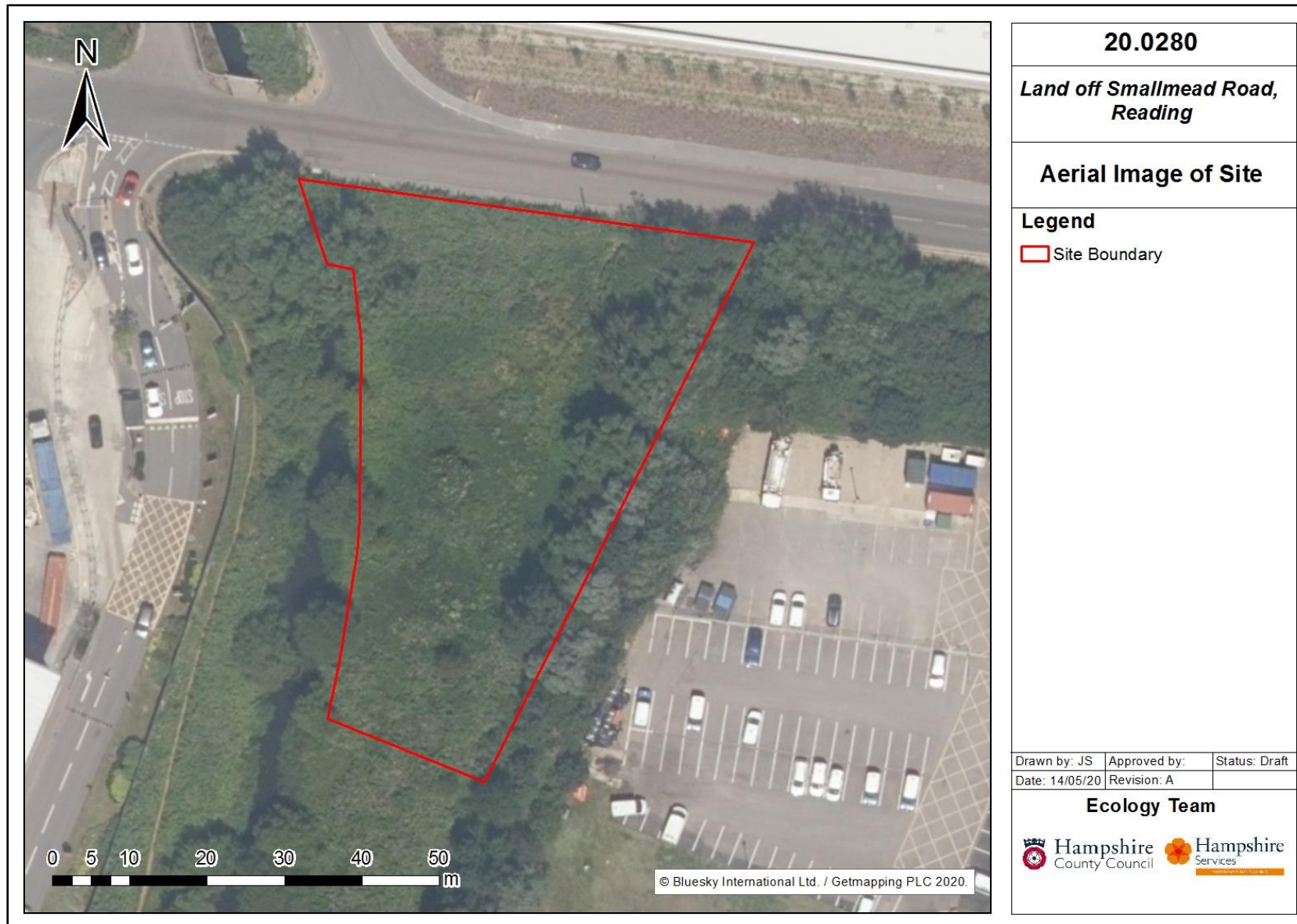
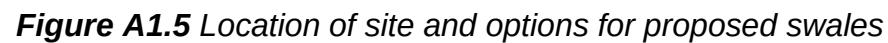


Figure A1.3 Aerial photo of site







Appendix 2 – Photos



Photo 1 *General view of the site looking south from road*



Photo 2 *General view of site looking north*



Photo 3 *Small area of woodland to north-west corner of site*



Photo 4 *Plantation woodland along eastern boundary*



Photo 5 *Eastern boundary fence*



Photo 6 *Ruderal vegetation dominating main area of site*



Photo 7 Ruderal vegetation dominating main area of site



Photo 8 Marginal vegetation



Photo 9 Marginal vegetation



Photo 10 Marginal vegetation



Photo 11 Ephemeral vegetation at TN4



Photo 12 Ephemeral vegetation near watercourse

Appendix 3 – Desk-Based Assessment Findings

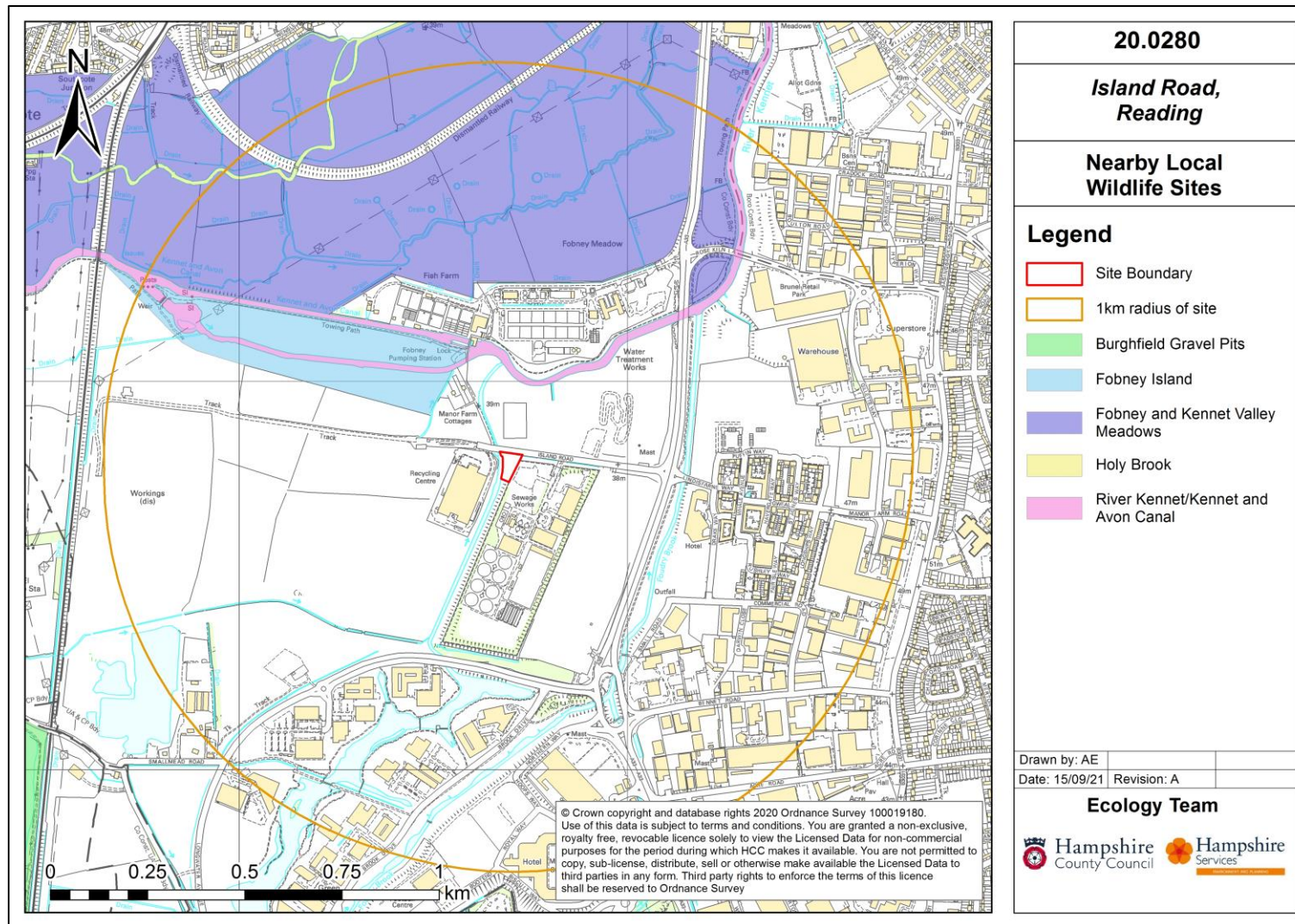


Figure A3.1 Map of nearby Local Wildlife Sites and 1km search area

Appendix 4 – Field Survey Results

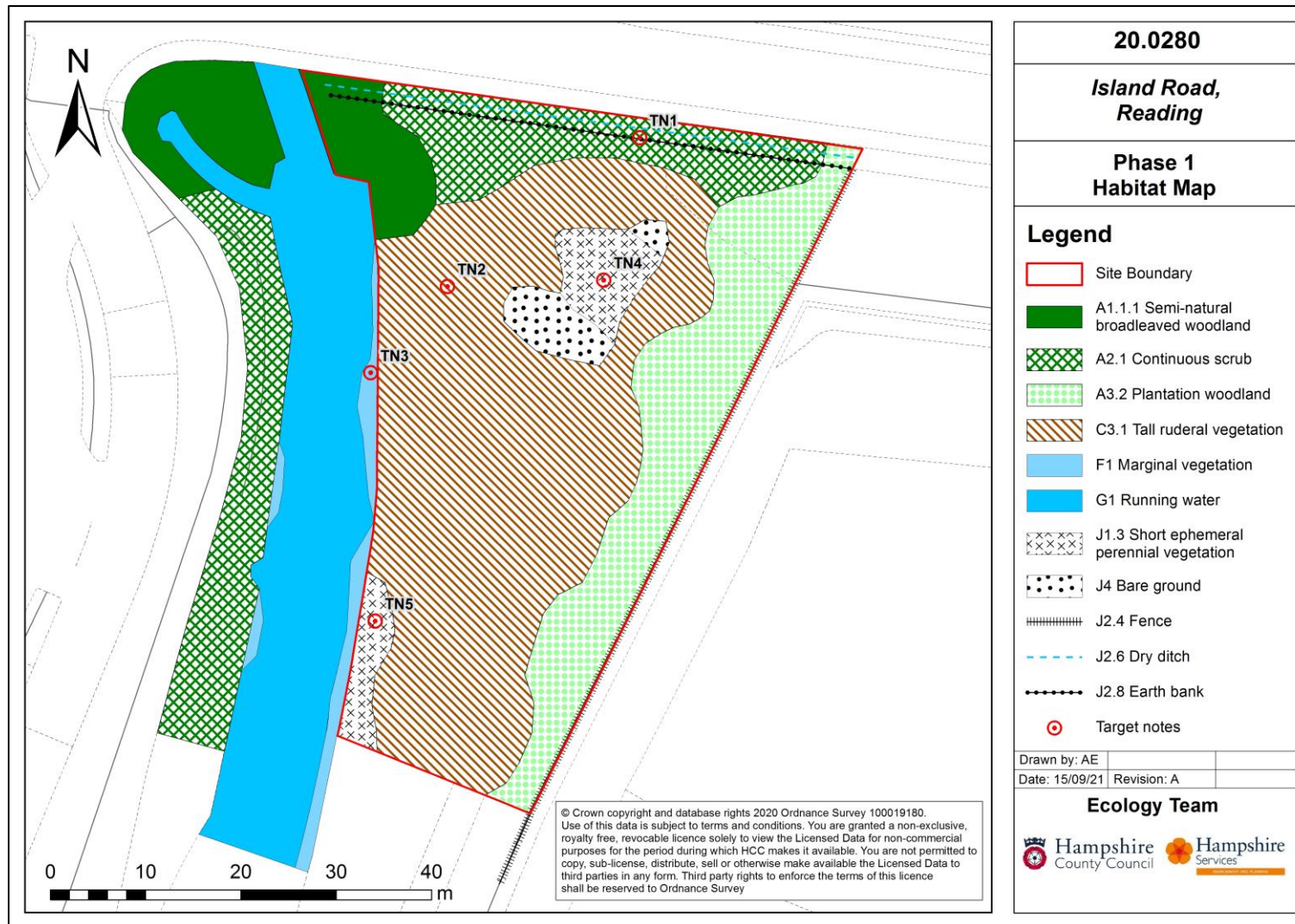


Figure A4.1 Extended Phase 1 Habitat Survey map

Appendix 5 – Assessment Criteria

Table A5.1 Bat roost and activity habitat suitability criteria

Suitability	Roosting habitat	Habitat for foraging, commuting and other activity
<i>Negligible</i>	Negligible habitat features on site likely to be used by bats	Negligible habitat features on site likely to be used by bats
<i>Low</i>	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain Potential Roost Features (PRFs) but with none seen from the ground or features seen with only very limited roost potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
<i>Moderate</i>	A structure or 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 (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
<i>High</i>	A structure or 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, conditions and surrounding habitat	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland

Table A5.2 Protected Species Grading Criteria

Grading Criteria	Justification
<i>Confirmed Presence</i>	Species confirmed on site through direct sighting, presence of field signs (e.g. scat, hair, prints, nest, eggs, habitation etc.) or through desk-based assessment.
<i>High Potential</i>	Presence of optimal habitat features for species. Surveyed site within known range/close to known occurrence. Excellent connectivity to optimal habitat. No justification for discounting presence of species.
<i>Moderate Potential</i>	Presence of some suitable habitat features for species. Surveyed site within/close to known range or known occurrence but factors such as isolation/fragmentation may reduce potential. Presence of species is more likely than not.
<i>Low Potential</i>	Minimal suitable habitat present or, if present, highly degraded/fragmented. Minimal linkage to suitable habitat beyond site. Presence of species unlikely.
<i>Negligible Potential</i>	Site is entirely unsuitable for species. Presence of species highly unlikely.