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Elleray Community and Housing Scheme

Ecological Appraisal (EA)

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	Name	**Position**	**Date**
Originated	Jamie Peacock	Ecologist	11 June 2021
Reviewed	Anna Muckle	Principal Ecologist	12 July 2021
Approved for issue to client	Anna Muckle	Principal Ecologist	12 July 2021
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Contents

1 Summary

Client and commission date	BSG Ecology was commissioned by London Borough of Richmond Upon Thames on 07 September 2020 to undertake a Ecological Appraisal of three sites associated with the Elleray Community and Housing Scheme.
Date and method of surveys	An extended Phase 1 habitat survey was carried out at all three sites on 18 September 2020, with a building assessment for roosting bats based on industry methods undertaken at Elleray Hall (Site 1). Two emergence / re-entry bat surveys were undertaken on the Elleray Hall building (Building 1) at Site 1 in 2021, one on the 20th May and one on the 2nd July following guidance set out by Collins 2016.
Key findings	The Sites consist of negligible to low ecological value habitats (hardstanding, buildings, introduced shrub, amenity grassland and scattered trees). At site 1, Building 1 was given a precautionary assessment as being of moderate suitability to support roosting bats. Buildings 2 to 4 are of negligible suitability. Both emergence surveys recorded no bats emerging from or returning to Building 1. Very low levels of bat activity were recorded during the second survey with soprano pipistrelle the only species recorded. Both sites 1 and 2 offer opportunities for nesting birds. Site 1 offers very limited suitable habitat for low numbers of reptiles, amphibians (common frog, common toad) and hedgehog.
Potential impacts and recommendations to avoid / reduce impacts	The proposed development will result in the loss of habitats of negligible to low ecological value. It is possible that Site preparation / construction works could impact nesting birds, possibly low numbers of reptiles and amphibians as well as foxes and hedgehog. It is therefore recommended that pre-works checks of vegetation and buildings are undertaken and that works are timed to avoid the nesting bird season (March to August inclusive), where possible. Increased / inappropriate lighting associated with the proposed development could deter bats and other nocturnal species from using the Site. A sensitively designed lighting strategy will be implemented to ensure that impacts on nocturnal species (particularly bats) are minimal.

Ecological enhancement opportunities and biodiversity net gain	A range of ecological enhancements (habitat creation, provision for bats, birds and invertebrates) are recommended in Section 5 to ensure that the proposals result in a net gain in biodiversity. Biodiversity net gain calculations using the Defra 2.0 metric assessed the proposed plans for site 1 will result in a net gain as follows: • Approximately 250% increase in net gain in habitat units • Approximately 14,500% net gain increase in hedgerow units.

2 Introduction

Background to commission

2.1 BSG Ecology was commissioned on 07 September 2020 by the London Borough of Richmond upon Thames Council to carry out an Ecological Appraisal (EA) of three sites (site 1 Elleray Hall, site 2 North Lane Depot and site 3 East Car Park) in Teddington, TW11, centred at Ordnance Survey National Grid Reference TQ 15699 70873 (where appropriate, these are collectively referred to as the 'Site'). This involved undertaking a desk study, extended Phase 1 habitat survey, bat building inspections and emergence / re-entry bat surveys the results of which are included in this report, along with an assessment of potential ecological impacts of the proposed development, and provision of mitigation measures where appropriate. A biodiversity net gain assessment was undertaken for site 1 with an assessment of biodiversity net gain for site 2 and 3 being assessed via BREEAM 2018.

Site description

2.2 The Site, which is approximately 0.23 ha in extent, is made up of three separate sites. Site 1 is located south of middle lane and is surrounded by housing, with buildings and garden making up 0.13 ha. Site 2 and site 3 are located east of North Lane and north of Middle lane and are also enclosed by residential areas to the north, east and south with another carpark located to the west. Site 2 is made up of a securely locked compound area whilst site 3 is an existing car park. Site 2 and 3 make up the remaining 0.1 ha. The Sites are shown on Figure 1.

Description of project

2.3 The proposed plans for the Site are to redevelop site 1 into residential units; 16 flats across two floors, a communal garden area, seven resident gardens, landscaping including tree planting, hedgerow and edge planting and a single disabled parking space. Site 2 and 3 will be developed with the construction of a replacement community centre and communal garden with areas of terrace, hedgerow / edge planting, bike racks, parking space for a minibus as well as visitor, staff, disabled and car club parking spaces.

Aims of study

2.4 The aims of this study are as follows:

- To undertake an ecological desk study and an extended Phase 1 habitat survey of the Site to gain information on the habitats present, and to establish the potential for the Site to support protected or otherwise notable species.
- To carry out further surveys for bats and undertake a biodiversity net gain assessment at site 1.
- To identify the likely ecological impacts of the proposed development and to make recommendations for the implementation of avoidance, mitigation, compensation and enhancement measures to ensure that current legislation and planning policy requirements with regard to wildlife and biodiversity are met.

3 Methods

Desk study

3.1 A desk study was undertaken in order to collate existing ecological records and data in relation to the Site and the surrounding area. Greenspace Information for Greater London (GiGL) was contacted in October 2020 in order to provide records for protected and notable species[1], and non-statutory designated sites within a 2 km radius of the Site centre. The data was received on 16 October 2020. The London Bat Group was contacted in October 2020 for further bat records within 2 km of the Site. The data was received on 20 October 2020.

3.2 The Multi Agency Geographic Information for the Countryside (MAGIC) interactive database was also reviewed to identify any statutory designated sites within 2 km of the Site, as well as any previous European Protected Species Mitigation (EPSM) licences granted in the vicinity of the Site. Ordnance Survey and aerial mapping was also reviewed to assess the connectivity of the Site to semi-natural habitat, including waterbodies, within the wider landscape.

Field survey

Extended Phase 1 habitat survey

3.3 An extended Phase 1 habitat survey of the Site was undertaken on the 18 September 2020 by Anna Muckle, Principal Ecologist at BSG Ecology (see https://www.bsg-ecology.com/people/). The survey method was based on that described in JNCC (2010). Habitats within the Site were identified and mapped; these are shown on Figure 1. Any features of ecological interest were noted. The survey was 'extended' to include an assessment of the potential for the Site to support protected species and other species of conservation importance. The weather conditions during the survey were warm, 17 Degrees Celsius, with a light breeze and no rain.

Building assessment for roosting bats

3.4 An external survey based on industry guidelines (Collins, 2016) was undertaken of the Elleray Community Hall building (B1a and B1b) as well as three buildings located within the garden to the south (B2, B3, B4). The inspection was undertaken using close focusing binoculars, and a high powered torch to search for potential roost features (PRFs), potential access points and signs of bats (droppings, urine staining and bats themselves). The building was assigned a category for its suitability to support roosting bats.

3.5 The suitability of the buildings for bats was identified as being high, moderate, low or negligible using the criteria set out in Table 1.

[1] 'Notable species' covers species that are not legally protected but are of material consideration for the assessment of planning applications. This includes species listed as Species of Principal Importance (SPI) for the Conservation of Biodiversity in England in accordance with Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006. It also includes declining species either nationally or locally or those that are rare within the county or local area. Such species may be included under local Biodiversity Action Plans or lists such as the Birds of Conservation Concern (BoCC) (Eaton et al, 2015).

Table 1: Criteria for assessing bat roosting suitability of buildings (adapted from Collins, 2016).

Suitability	Description of roosting habitat
Negligible	No habitat features likely to be used by roosting bats
Low	A building 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).
Moderate	A building 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	A building 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 a and surrounding habitat.

Emergence / re-entry surveys

3.6 Two surveys (one dusk emergence survey and one dawn re-entry survey) were carried out on B1 in line with guidance for buildings assessed as having moderate suitability to support roosting bats. These were undertaken to determine the presence or likely absence of bats.

3.7 In accordance with industry guidance (Collins, 2016), the dusk emergence survey started 15 minutes before sunset and continued for one hour and 30 minutes after sunset. The dawn survey started one hour and 30 minutes before sunrise and finished at sunrise. Surveyors were each equipped with hand-held electronic bat detectors which allowed them to record bat calls for later analysis. The surveyors were positioned so that all potential bat access points could be observed. Four surveyors were utilised on both surveys, with a licenced bat ecologist present on both surveys; surveyor locations are shown on Figure 2.

3.8 Table 2 below shows detailed information relating to each of the surveys carried out on B1.

Table 2: Survey information

Survey date	Sunset/ sunrise time	Start time	End time	Surveyors	Weather conditions (start and end of survey)
20/5/2021	20:53	20:38	22:23	Anna Muckle (CL18-Level2: 2015-11522-CLS-CLS) Jamie Peacock Laurie O'Neil Matthew Simmons	Cloud: 8/8-8/8 (oktas) Wind: 4/7-4/7 (Beaufort scale) Temperature:13-12 (degrees celsius)
02/07/2021	04:49	03:19	04:49	Jamie Peacock Anna Muckle (CL18-Level2:	Cloud: 6/8-8/8 (oktas) Wind: 0/7-0/7 (Beaufort scale)

				2015-11522-CLS-CLS) Bill Haines Kai Hayes	Temperature: 15/-15 (degrees celsius)

Biodiversity net gain

3.9 Existing Government policy for England on biodiversity net gain is set out in the National Planning Policy Framework (NPPF, 2019) (see Appendix 1). Biodiversity net gain is also reflected within the Government's 25 Year Plan to Improve the Environment (2018) and the Emerging Environment Bill. Net gain is also addressed within the London Borough of Richmond Upon Thames Local Plan (LBRuT, 2018) under section 5.4 Biodiversity (Policy LP 15) and states;

"*major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible*."

3.10 A biodiversity net gain calculation was carried out to compare the current and future biodiversity value of site 1 using the Defra Metric Biodiversity Impact Assessment calculator, version 2.0. Sites 2 and 3 were assessed through the BREEAM 2018 report (BSG Ecology, 2021)

3.11 The calculation of baseline biodiversity value of site 1 used habitat type and area data from the Phase one habitat survey of the Site undertaken by BSG Ecology on 18 September 2020. The biodiversity calculator habitat categories shown as Phase 1 habitats at the Site are indicated in Figure 1.

3.12 The calculation of the post-development biodiversity value of the Site is based on the current layout plan and landscape plan (Appendix 2). The land use categories within the landscape plan were converted into categories of proposed habitat as identified by the UK Habitat Classification system.

Limitations to methods

3.13 An internal assessment of roof voids within B1a and B1b was not conducted due to health and safety considerations. The roof void of B1a could not be safely accessed due to its height (double extension ladder required). Asbestos information relating to the roof void of B1b stated that the ceiling void had not been accessed and therefore asbestos was 'assumed present'; it was also advised by the Site Manager that safe access could not be guaranteed. Owing to the lack of internal information, a precautionary assessment of the suitability of the building to support roosting bats has been made with an initial assessment of 'low' suitability increased to 'moderate'.

4 Results and Interpretation

Designated sites

4.1 No designated sites overlap with the boundaries of the Site.

Statutory designated sites

4.2 There are two statutory designated sites within 2 km of the Site. These consist of Bushy Park and Home Park Site of Special Scientific interest (SSSI) and Ham Lands Local Nature Reserve (LNR). These are described below in Table 2.

Table 3: Statutory designated sites within 2 km of the Site

Site name and designation	Description of Site	Distance and direction from Site
Bushy Park and Home Park (SSSI)	Bushy Park and Home Park SSSI is of special interest for its nationally important saproxylic (dead and decaying wood associated) invertebrate assemblage, population of veteran trees and acid grassland communities.	0.35 Km south west
Ham Lands (LNR)	An area of infilled gravel pits, old water meadows and a narrow belt of woodland.	1.18 km north east

Non-statutory designated sites

4.3 A total of 12 SINCs (Site of Importance for Nature Conservation) which are of Metropolitan, Borough Grade II and Local importance, are located within 2 km of the Site. These are described in Table 3 below.

Table 4: Non-statutory sites within 2 km of the Site

Site name and designation	Tier	Description of Site	Distance and direction from Site
Bushy Park and Home Park	Metropolitan	Described above in Table 2.	0.35 km south west
Churchyard of St Mary with St Alban, Teddington	Local	A churchyard with a small area of flower rich meadow that is cut annually in late summer.	0.8 km north east
Teddington Cemetery	Local	A Victorian cemetery with mature trees (mostly conifers with some ornamental cherries (*Prunus sp*.).	0.8 km north
Strawberry Hill Golf Course	Borough Grade II	A small golf course with areas of woodland, acid grassland, scrub and a small amount of heather.	0.84 km north
River Thames and	Metropolitan	The River Thames and its tributaries	1 km north east

tidal tributaries		which, combined, form an important wildlife corridor through the capital.	
Ham Lands	Metropolitan	Described above in Table 2.	1.18 km north east
Fulwell and Twickenham Golf Courses	Borough Grade II	These two adjacent golf courses contain some acid grassland, with small areas of woodland and scrub, several wet ditches and a pond.	1.38 km north west
The Copse at Hampton Wick and Normansfield Hospital	Local	The copse is a small educational nature reserve, run by the Borough Council. It is largely wooded, with a canopy of sycamore *Acer pseudoplatanus* over an understorey of birch *Betula pendula*, elder *Sambucus nigra* and willow (*Salix sp.)*.	1.41 km south east
Longford River in Richmond	Borough Grade II	A section of the Longford River with a wide range of wetland plants and good fish populations.	1.49 km west
St James' Churchyard, Hampton Hill	Local	A variety of mature trees. Woodland ground flora is developing. The more open, southern half is mostly grassland, which is managed as a wildflower meadow.	1.64 north west
Royal Park Gate Open Space	Local	Consists of scrub, trees and a significant area of semi-improved neutral grassland, where patches of rough grassland are interspersed with frequently-mown grass paths.	1.71 km east
Hampton Court House Grounds	Local	Landscaped garden with acid grassland, flower beds, marsh/swamp, planted shrubbery, pond and scattered trees.	1.78 km south west

Habitats

4.4 The habitats present on Site are shown on the Phase 1 habitat plan (Figure 1).

Site 1

Amenity grassland

4.5 A small area of amenity grassland was noted within the garden to the south of site 1. Dominant species include perennial ryegrass *Lolium perenne* and white clover *Trifolium* repens. This habitat does not meet the criteria for any Habitats of Principal Importance[2] (HPI) as defined by Maddock (2011).

Introduced shrub

4.6 Areas of introduced shrub were noted within the garden area to the east, south and west of B1. This habitat does not meet the criteria for any HPI as defined by Maddock (2011).

[2] Habitats of Principal Importance (HPI) are those listed in response to Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 for the purposes of conserving biodiversity in England.

Scattered trees

4.7 Trees recorded on Site included an immature silver birch *Betula pendula* within the garden of site 1. This habitat does not meet the criteria for any HPI as defined by Maddock (2011).

Buildings

4.8 There are four buildings on Site; B1 (Elleray Hall) and three sheds B2, B3 and B4 which are located to the south of B1 (see Photographs 1 to 5).

4.9 Elleray Hall (B1) is a mix of brick and asbestos cement cladding. The original section, referred to as B1a, has a pitched roof which is constructed with cement tiles, barge boarding and areas of lead flashing, whilst the new extension, referred to as B1b, is formed of a hipped roof and is made up of slate tiles. Building 1b also contains barge boarding, boxed eaves and soffits under the eaves.

4.10 Buildings 2 and 3 are parallel to each other south of B1.Both sheds have a gentle sloped corrugated roof and are constructed from both wood and breeze block. Wooden fascia was noted on the northern aspect of B3 (see Photographs 4 and 5). Building 4 is a small wooden shed located south of B2 and B3 which has a pitched roof formed of felt (see Photograph 5).

4.11 This habitat is not HPI, as defined by Maddock (2011).

Hardstanding

4.12 Hardstanding at site 1, includes areas of tarmac to the west (car park) and east (footpath) of B1. Paving was noted within the garden area and around the south west of B1 (see Photographs 9 to 11).

Disturbed ground

4.13 An area of disturbed ground was noted to the east and south of B1a. This habitat is not HPI, as defined by Maddock (2011).

Site 2

Introduced shrub

4.14 The boarded up compound area contains parcels of introduced shrub with colonising / pioneering species, such as buddleia *Buddleja davidii*, young sycamore *Acer pseudoplatanus* and birch *Betula sp*. This habitat does not meet the criteria for any HPI as defined by Maddock (2011) (see Photographs 12 and 13 and Target Note 1 on Figure1).

Hardstanding

4.15 Tarmac was noted across the area within the compound.

Site 3

4.16 The only vegetation on site 3 is an area of sparse ivy cover from an adjacent garden (see Target Note 2 on Figure 1).

Hardstanding

4.17 Site 3 is primarily a used carpark with a tarmac surface (see Photographs 14 and 15).

Target notes

- **Target Note 1**: patches of introduced shrub and pioneering plant species.
- **Target Note 2**: ivy *Hedera helix* covering area of fencing from adjacent garden.

Protected and notable species

Bats

4.18 Bats and their roosts receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and under the Wildlife & Countryside Act 1981 (as amended). Of the species noted in the desk study (see below), Soprano pipistrelle and brown long-eared bat are Species of Principal Importance (SPI).

4.19 Desk study data revealed ten species within a 2 km radius from the centre of the Site. These consisted of all three pipistrelle species (common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus* and Nathusius' pipistrelle *Pipistrellus nathusii*), both nyctalus species (noctule *Nyctalus noctula* and Leisler *Nyctalus leisleri*), serotine *Eptesicus serotinus*, myotis species including Daubenton's bat *Myotis daubentonii*, whiskered / Brandt's *Myotis mystacinus/brandtii* and Natterer's bat *Myotis nattereri* and brown long-eared bat *Plecotus auritus*. All of these species, with the exception of common pipistrelle, are local species of conservation concern.

4.20 The nearest record was noted 388 m north west from the Site in 2017. The closest licence on MAGIC is 1.2 km east from the Site which was issued for the destruction of a resting place for soprano pipistrelle in 2014. Data from the London Bat Group showed Natterer's bat, brown long-eared bat, soprano pipistrelle and common pipistrelle have all been recorded roosting within 2 km of the Site. The closest of these records are from 1983, a pipistrelle species, and 2008 which was not identified to species level. The most recent record was for a pipistrelle roost, which was recorded in 2016, 1.2 km south east from the Site.

Site 1

4.21 Site 1 offers limited suitable foraging habitat for bats within the garden area to the south, which in turn connects to residential gardens in the vicinity.

Building assessments

4.22 Of the four buildings surveyed, B1 was assessed as being of moderate suitability to support roosting bats. This was a precautionary assessment due to no internal survey being undertaken (see limitations in Section 3). Potential access points noted during the survey of B1a included a vent on the south east aspect allowing potential access into an internal cavity. Building 1a was also noted as having a large roof void within the roof structure which could support bats.

4.23 Potential roosting features for crevice dwelling species were recorded on B1b including lifted tiles along the roof of the southern aspect. Gaps along the soffit at the southern and western aspect of B1b also provide potential access points into the eaves and roof void.

4.24 Buildings B2 to B4 were assessed as having negligible suitability for roosting bats.

4.25 The results of the building assessments are shown on Figure 2.

Emergence / re-entry surveys

4.26 The dusk emergence survey carried out on the 20 May 2021 recorded no bats emerging from or returning to potential access or egress points from B1. No bats were recorded foraging or commuting within the vicinity of the garden or around B1 during the entire survey.

4.27 The dawn re-entry survey recorded no bats returning to B1. Very low bat activity was recorded, with only six soprano pipistrelle passes recorded during the survey.

Tree assessment

4.28 The ground level assessment noted trees on / adjacent to the Site as having negligible suitability for roosting bats due to the lack of potential roost features.

Sites 2 and 3

4.29 Sites 2 and 3 offer poor and negligible foraging opportunities for bats respectively. They do not provide any roosting opportunities for this species group.

Birds

4.30 Wild birds and their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended). Birds listed on Schedule 1 of this Act receive additional protection from disturbance whilst nesting.

4.31 The desk study returned records of a wide range of bird species protected under Schedule 1 of the Wildlife and Countryside Act (WCA 1), Section 41 species (SPI) under the NERC act (2006) or amber (A) or red (R) listed on the list of Birds of Conservation Concern[3] (BoCC).

Site 1

4.32 Site 1 provides suitable nesting and foraging habitat for tree and shrub nesting species of birds associated with garden habitats. It is not considered therefore that site 1 will support anything more than a range of common and widespread breeding birds in low numbers. Of the species identified in the desk study, this may include house sparrow *Passer domesticus*, starling *Sturnus vulgaris* and dunnock *Prunella modularis*, all of which are local species of conservation concern.

Sites 2 and 3

4.33 Site 2 also provides suitable nesting and foraging habitat for birds within areas of scrub, specifically the immature trees, birch and sycamore, as well as the Buddleja. Site 2 is considered likely to support a limited range of common and widespread breeding birds in low numbers.

4.34 Site 3 offers no suitability for nesting birds with no suitable vegetation present. Nesting birds are therefore not considered further on site 3.

Invertebrates

4.35 Three hundred and forty nine invertebrate species records were noted within the desk study; these consisted of multiple taxon groups. A stag beetle *Lucanus cervus* recorded in 2016 was the nearest record to the Site, located approximately 90 m north east from the Site. Stag beetle are the only species offered any formal protection, listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), that was noted within the desk study. Other species were noted as being SPI's, BAP priority species in London and the UK, Nationally notable and local species of conservation concern.

4.36 Owing to the lack of optimal habitat on any of the Sites, there is unlikely to be an important assemblage of notable species present. This species group is therefore not considered further.

Reptiles

4.37 Two species were noted in the desk study; grass snake *Natrix helvetica* and slow worm *Anguis fragilis*. The nearest records to the Site were noted 974 m south and 1300 m north east respectively. Both species are protected under the Wildlife and Countryside Act, 1981 (as amended) and are also SPI's as well as local species of conservation concern.

[3] Species of conservation concern included in Birds of Conservation Concern 4 (Eaton et al., 2015)

Site 1

4.38 There is very limited suitable habitat for reptiles at site 1. The garden offers some opportunities for low numbers of slow worm although connectivity to surrounding suitable habitat is poor. It is therefore unlikely that reptiles will be present at site 1 in any numbers.

Sites 2 and 3

4.39 There is no suitable habitat for reptiles on sites 2 and 3.

Amphibians

4.40 Four species of amphibian were noted within the data search. These consisted of common frog *Rana temporaria*, common toad *Bufo bufo*, palmate newt *Lissotriton helveticus* and great crested newt (GCN) *Triturus cristatus*. Great crested newt are a European protected species making it an offence to intentionally kill, capture or injure individuals of this species, or to destroy or damage its resting or breeding place. Common toad are an SPI. All four species are local species of conservation concern.

4.41 The most recent GCN record was from 2018, however, the nearest recorded individual was 939 m south of the Site and dated back to 1999. There were no records of GCN EPSM licences granted on MAGIC within 2 km. The closest record of GCN was approximately 3.7 km east from the Site beyond the River Thames.

Site 1

4.42 There are no ponds within 500 m of site 1, with the exception of a single drain which is approximately 418 m south west from site 1. This drain is isolated from site 1 with physical barriers, specifically roads, and urban habitat.

4.43 Due to the lack of waterbodies in the locality and the limited suitable habitat on site 1, GCN are considered likely absent. Whilst the garden could provide opportunities for common frog and common toad, this habitat is relatively isolated from other suitable habitat offsite; it is therefore unlikely that they would be present in significant numbers.

Sites 2 and 3

4.44 There are no ponds within 500 m of site 2 and 3, with the exception of a single drain which is approximately 406 m south west from site 2. This drain is isolated from site 2 and 3 with physical barriers, specifically roads, and urban habitat.

4.45 There is no suitable habitat on sites 2 and 3 to support GCN or other amphibians. These species are therefore considered absent.

Botanicals

4.46 Thirty seven notable botanical species were noted within 2 km of the Site. There are no habitats on any of the Sites of elevated conservation value that would support such species. Rare plants are therefore not considered further.

Badger

4.47 Badger *Meles meles,* which are protected under the Protection of Badgers Act 1992 along with their setts, were noted within the desk study. However, no setts were recorded on any of the Sites, nor is there any suitable habitat present to support them.

4.48 Badgers are therefore not considered further.

Other Mammals

4.49 Hedgehog *Erinaceus europaeus* is an SPI and local species of conservation concern. Foxes are protected under the Animal Welfare Act 2006, preventing unnecessary suffering to an animal.

Site 1

4.50 Hedgehog were noted within the desk study with the nearest record noted 184 m north from the Site. The garden area within site 1 offers limited opportunities to support foraging hedgehog.

4.51 A fox was recorded during the dusk emergence surveys undertaken at site 1.

Sites 2 and 3

4.52 There is no suitable habitat on sites 2 and 3 to support hedgehog.

Other protected species

4.53 Although the data search returned records of further protected species, most notably watervole *Arvicola amphibius*, Hazel dormouse *Muscardinus avellanarius* and red squirrel *Sciurus vulgaris*, no further consideration is required owing to the lack of suitable habitat on any of the Sites to support them.

London Invasive species

4.54 Thirty eight records of invasive species were noted within the desk study.

Site 1

4.55 Buddleia *Buddleja davidii* was recorded during the extended Phase 1 habitat survey of site 1 within the garden south west of B1.

Sites 2 and 3

4.56 Buddleia *Buddleja davidii* was also recorded at site 2.

Biodiversity net gain

Results

4.57 The Defra Metric Biodiversity Calculator yields the following key results:

- **Habitat existing score**: 0.04 units
- **Habitat proposed score**: 0.13 units
- **Habitat biodiversity gain**: + 0.09 units
- **Total net change (i.e. biodiversity gain or loss)**: +254.16% net gain

- **Hedgerow existing score**: 0.00 units
- **Hedgerow proposed score**: 0.30 units
- **Hedgerow biodiversity gain**: 0.30 units

- **Total net change (i.e. biodiversity gain or loss)**: +14,761% net gain

4.58 The Defra Metric Biodiversity Impact Assessment calculator spreadsheet can be found in Appendix 3.

5 Potential Impacts and Recommendations

Designated sites

5.1 All of the statutory and non-statutory designated sites within 2 km of the Site are sufficiently distant (0.35 km or more) from the Site that no direct or indirect impacts upon them are likely. Although site 1 will be redeveloped for residential use, a total of 16 flats will not result in a significant increase in visitor pressure on Bushy Park and Home Park (SSSI) which is the closest designated site. Sites 2 and 3 will be developed into a new replacement community hall; this is likely to result in a reduction in existing levels of traffic and associated air pollution given the current use is a car park. It is also unlikely that this element of the proposed development will result in an increase in visitor pressure on Bushy Park and Home Park (SSSI) which is the closest designated site.

5.2 Designated sites are therefore not considered further.

Habitats

Potential impacts

5.3 The proposed development is likely to result in the loss of the majority of habitats on all three Sites. These habitats are of negligible to low ecological value.

Recommendations

5.4 The landscape proposals indicate that site 1 will be planted with scattered trees as well as hedgerow, turf, clover lawn and edge shrub/flower planting. A communal garden is also included to the south of the new residential building. Landscape plans for the new community centre on sites 2 and 3 include similar planting proposals with hedgerow, scattered trees, amenity grass areas as well as a pond, species rich grass and edge planting around the boundaries of the Sites and a communal garden with patio areas.

5.5 It is recommended that planting throughout the Site offer opportunities to invertebrate and birds species; this should include native flowering plant species and small fruiting tree species.

5.6 Beneficial management of hedgerows and trees for biodiversity with pruning / management undertaken at appropriate times of the year to avoid nesting birds and allow shrubs and trees to flower and fruit.

Protected and notable species

Bats

Potential impacts

5.7 Bats and their roosts receive full protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and under the Wildlife and Countryside Act 1981 (as amended). Soprano pipistrelle is listed as Species of Principal Importance (SPI)[4]. Details of the legislation and planning policy that afford this species protection are included in Appendix 1.

5.8 Emergence / re-entry surveys confirmed the likely absence of roosting bats from B1. Bat activity levels at site 1 were very low and commuting / foraging opportunities at all sites very limited. The trees on Site offer no suitability for roosting bats. This species group do not therefore pose a constraint to the proposed development.

[4] Species of Principal Importance are those listed in response to Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 for the purposes of conserving biodiversity in England.

Recommendations

5.9 In order to encourage bats to the area, a sensitive lighting plan should be developed. This would focus on the avoidance of artificial lighting of ecologically sensitive areas, including boundary features such as the hedgerows on all Sites.

5.10 Where it is not possible to avoid lighting, directional lighting, either facing directly downwards or away from suitable features, should be used in order to avoid light spillage into habitats to minimise the risk of disturbance to animals. This complies with paragraph 180 of the National Planning Policy Framework (NPPF) which states that '*decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation*.'

5.11 Where possible any lighting used should follow the guidelines set out by the Institute of Lighting Professionals and Bat Conservation trust (BCT and ILP, 2018). In summary these recommend:

- The use of LEDs throughout the external lighting scheme.
- The use of downward directional luminaires.
- Lights to have a 0% upward light ratio.
- LEDs to have a peak wavelength of >550 nm.
- A warm white spectrum < 2700 Kelvin.

5.12 It is recommended that the Sites are planted with invertebrate friendly plant species (flowering and fruiting species); increasing invertebrates will in turn provide a food resource for bats in the vicinity.

5.13 Installation of bat boxes is recommended within site 1 to offer roosting opportunities to bats. These will be positioned appropriately in co-ordination with an ecologist on the new building. An example of a suitable box includes the Eco Bat Box (https://www.nestbox.co.uk/products/eco-bat-box).

Breeding birds

Potential impacts

5.14 In the absence of appropriate mitigation (such as protection measures during Site clearance), development at sites 1 and 2 has the potential to result in the killing or injury of nesting birds, and the destruction of nests. Birds nests whilst in use and eggs of all species of wild bird are protected under the Wildlife and Countryside Act 1981 (as amended) from damage and destruction.

Recommendation

5.15 It is therefore recommended that any vegetation that requires removal at the Site should be removed outside the bird breeding season (typically considered to be March to August inclusive). It may be possible to remove some such habitat during the nesting season, subject to a check for nesting birds prior to works commencing by a professional ecologist. Any active nests will need to be left in-situ (with a suitable protection zone) until they are no longer active.

5.16 It is recommended the Site is enhanced for nesting birds through the provision of bird boxes within the fabric of the building, if practical, and on fences within the garden areas. Examples of boxes include Eco Sparrow tower, sparrow terrace and starling boxes. These should be positioned as advised by an ecologist.

5.17 Small species of tree such as Rowan *Sorbus aucuparia* and crab apple *Malus sylvestris* are recommended to be planted within the garden areas to offer further nesting opportunities as well as

foraging resource and cover. It is recommended that management of fruiting species is undertaken to allow fruiting to occur and offer birds further opportunities and outside of the nesting bird season.

Other species

Potential impacts

5.18 Although there is very limited suitable habitat for reptiles, amphibians and mammals (such as fox and hedgehog) within site 1, it is not possible to entirely rule out the presence of individuals / very low numbers. There is therefore the potential for them to become injured or trapped within open excavations during the construction phase and during Site clearance of the proposed development.

Recommendations

5.19 It is therefore recommended that as a precaution, a careful visual check of areas of suitable vegetation and areas of refuge is conducted immediately prior to vegetation clearance.

5.20 Excavations created during site works should be covered up or ramps installed overnight to allow any mammals to escape should they enter the excavation.

5.21 The new garden areas within site 1 will offer opportunities for these species / species groups, with areas of shrub planting and hedgerow offering cover and foraging opportunities.

London invasive species

5.22 Buddleija was the only recorded invasive species on Site. All buddleija, which is listed as a species of high concern under the London Invasive species Initiative (LISI, 2014), should be removed from the Site and disposed of appropriately.

Biodiversity Net Gain and Enhancements

Site 1

5.23 Site 1 currently supports common habitats of negligible / low ecological value. However, given there will be some loss in habitat, enhancements to achieve a net gain in biodiversity include:

- Planting of native hedgerows at the Site boundaries to provide foraging and nesting opportunities for invertebrates and birds. This habitat would also be of value to any hedgehog utilising the area. Species include blackthorn *Prunus spinosa*, common beech *Fagus sylvatica* and wild privet *Ligustrum vulgare*.
- Green roofs incorporated within the new building. See the GRO Green Roof Code (2014) which provides further guidance on the creation of biodiverse roofs. This will offer foraging and nesting opportunities for invertebrates and foraging chances for both birds and bats.
- Biodiversity friendly gardens will be achieved with the planting of small species of fruiting trees such as, rowan and crab apple. Planting of flowering species including climbers such as honey suckle *Lonicera periclymenum* and dog rose *Rosa canina*. These would offer opportunities for invertebrates and birds. Bats would also likely benefit from increased foraging opportunities.
- Provision of bird boxes, ideally within the fabric of the buildings themselves. Target species include house sparrow and starling which are both species of local conservation concern and London Biodiversity Action Plan (BAP) priority species, whilst house sparrows are also an SPI. Boxes such as the 1SP Schwegler sparrow terrace[5] and starling box[6], or similar should be incorporated within or onto the proposed buildings. The specification and location of boxes should be agreed with an Ecologist.

[5] https://www.nhbs.com/1sp-schwegler-sparrow-terrace
[6] https://www.nhbs.com/starling-box-smooth-brick

- Inclusion of invertebrate hotels within the communal garden.

Site 2 and 3

5.24 Sites 2 and 3 currently support common habitats of negligible / low ecological value. However, given there will be some loss in habitat, enhancements to achieve a net gain in biodiversity include:

- Planting of hedgerows at the Site boundaries to provide foraging and nesting opportunities for invertebrates and birds. This habitat would also be of value to hedgehog utilising the area.

- Green roofs incorporated within the design of the new shed. See the GRO Green Roof Code (2014) which provides further guidance on the creation of biodiverse roofs. These will offer foraging and nesting opportunities for invertebrates and foraging opportunities for both birds and bats.

- Biodiversity friendly gardens will be achieved with the planting of small species of fruiting trees such as, rowan and crab apple. These would offer opportunities for invertebrates and birds. Bats would also likely benefit from increased foraging opportunities.

- Provision of bird boxes, ideally within the fabric of the buildings themselves. Target species include house sparrow and starling which are both species of local conservation concern and London Biodiversity Action Plan (BAP) priority species, whilst house sparrows are also an SPI. Boxes such as the CedarPlus Triple Sparrow House[7] and starling box[5], or similar should be incorporated within the communal garden. The specification and location of boxes should be agreed with an Ecologist.

- Inclusion of invertebrate hotels within the proposed garden area with access to garden planting.
- The inclusion of a pond which will offer suitable habitat for local amphibian species, specifically common frog and common toad, as well as breeding opportunities for both species. This will also offer opportunities to a range of other species including invertebrates, mammals such as hedgehog and bats, and birds.

[7] CedarPlus Triple Sparrow House | NHBS Practical Conservation Equipment

6 References

BCT and ILP (2018). *Guidance Note 08/18 - Bats and artificial lighting in the UK*. Bats and the Built Environment series.

BSG Ecology (2021) Elleray Road Community and Housing Scheme. BREEAM 2018.

Collins, J. (ed.) (2016). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London.

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D. (2015). *Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds* **108**: 708–746. (BoCC4).

GRO Green Roof Code. (2014). *The GRO Green Roof Code*. Green Roof Code of Best Practice for the UK 2014.

JNCC (2010). *Handbook for Phase 1 habitat survey - a technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.

LBRT. (2018). *Local Plan*. Adopted July 2018 by the London Borough of Richmond upon Thames. [accessed 26/10/2020]

LISI. (2014). London Invasive Species Initiative – Species of Concern. http://www.londonisi.org.uk/wp-content/uploads/2013/10/LISI-species-of-concern_-Nov_2014.pdf [accessed 26/10/2020]

Maddock (2011) UK *Biodiversity Action Plan; Priority Habitat Descriptions.* BRIG (ed. Ant Maddock) 2008. (Updated 2011).

MAGIC. http://www.magic.gov.uk/MagicMap.aspx [accessed 22.10.2020]

NPPF. (2019). *National Planning Policy Framework*. Published 2012. Updated 2019.

7 Figures

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BSG ecology

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JOB REF: P20-826

PROJECT TITLE
ELLERAY COMMUNITY AND HOUSING SCHEME

DRAWING TITLE
Figure 1: Phase one habitat map

DATE: 28/10/2020 CHECKED: JP SCALE: 1:350
DRAWN: KW APPROVED: AM VERSION: 1.3

LEGEND

- Site boundary
- 1 Target note
- Tree
- Wall
- Fence
- A Amenity grassland
- Disturbed ground
- B1a Building
- Hardstanding
- Introduced shrub

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JOB REF: P20-826

PROJECT TITLE
ELLERAY COMMUNITY AND HOUSING SCHEME

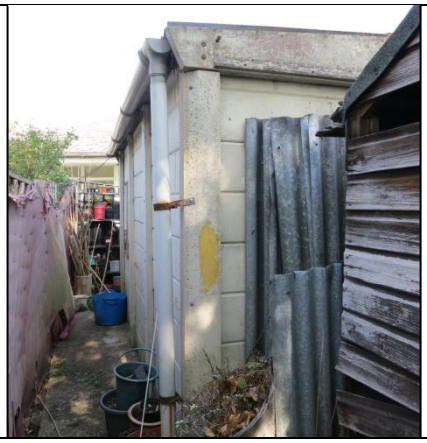
DRAWING TITLE
Figure 2: Building suitability to support roosting bats and surveyor locations

DATE: 09/07/2021 CHECKED: JP SCALE: 1:275
DRAWN: LA APPROVED: AM VERSION: 1.4

LEGEND

- Surveyor location
- Site boundary
- Moderate suitability to support roosting bats
- Negligible suitability to support roosting bats

8 Photographs

Photograph 1: Site 1 B1a northern aspect.	**Photograph 2: Site 1 B1a northern aspect.**
	
Photograph 3: Site 1 B1b eastern aspect.	**Photograph 4: Site 1 B2 and B3 northern aspect.**
	
Photograph 5: Site 1 B2 and B4 south west aspect.	**Photograph 6: Site 1 B1b western aspect and amenity grassland.**
	
Photograph 7: Site 1 B1b south western aspect and amenity grassland.	**Photograph 8: Site 1 B1a southern aspect.**

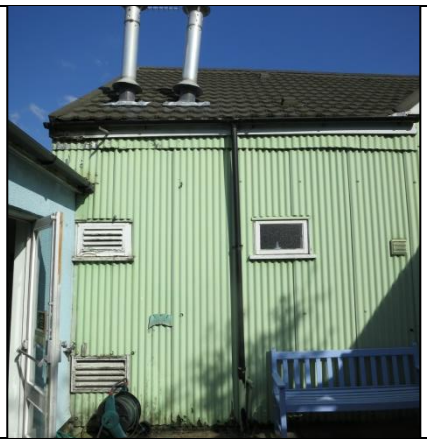
	
Photograph 9: Garden area south of site 1	**Photograph 10: Hardstanding to the west of site 1**
	
Photograph 11: Hardstanding to the west of site 1	**Photograph 12: Scrub within site 2 (south west corner).**
	
Photograph 13: Site 2 from North Lane.	**Photograph 14: Hardstanding within site 3 (looking west).**

Photograph 15: Hardstanding looking west of site 3.

Photograph 16: Southern aspect of B1a.

Photograph 17: Gap in soffit of B1b.

Photograph 18: Vent on B1a southern aspect.



Appendix 1: Summaries of Relevant Policy, Legislation and Other Instruments

This section briefly summarises the legislation, policy and related issues that are relevant to the main text of the report. The following text does not constitute legal or planning advice.

National Planning Policy Framework

The Government revised the National Planning Policy Framework (NPPF) on 19 February 2019. Text excerpts from the NPPF are shown where they may be relevant to planning applications and biodiversity including protected sites, habitats and species.

The Government sets out the three objectives for sustainable development (economy, social and environmental) at paragraphs 8-10 to be delivered through the plan preparation and implementation level and 'are not criteria against which every decision can or should be judged.' At paragraph 8c) the planning system's environmental objective refers to 'protecting and enhancing our natural, built and historic environment' and to 'helping to improve biodiversity'

In conserving and enhancing the natural environment, the NPPF (Paragraph 170) states that 'planning policies and decisions should contribute to and enhance the natural and local environment' by:

- Protecting and enhancing...sites of biodiversity value... '(in a manner commensurate with their statutory status or identified quality in the development plan)'.
- Recognising the wider benefits from natural capital and ecosystem services including trees and woodland.
- Minimising impacts on and providing net gains in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
- Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.

In respect of protected sites, at paragraph 171, the NPPF requires local planning authorities to distinguish, at the plan level, '…between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value...take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.'

Paragraph 174 refers to how plans should aim to protect and enhance biodiversity. Plans should: 'identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity [a footnote refers to ODPM Circular 06/2005 for further guidance in respect of statutory obligations for biodiversity in the planning system], wildlife corridors and stepping stones that connect them and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation;' and to 'promote the conservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.'

Paragraph 175 advises that, when determining planning applications, '…local planning authorities should apply the following principles:

a. 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;

b. development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments) should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;

c. development resulting in the loss or deterioration of irreplaceable habitats, (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

d. development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.'

In paragraph 176, the following should be given the same protection as habitats sites[8]:

i. potential Special Protection Areas and possible Special Areas of Conservation

ii. listed or proposed Ramsar sites; and

iii. sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.'

In paragraph 177 the NPPF refers back to sustainable development in relation to appropriate assessment and states: 'the presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site'.

In paragraph 178, the NPPF refers to planning policies and decisions taking account of ground conditions and risks arising from land instability and contamination at sites. In relation to risks associated with land remediation account is to be taken of 'potential impacts on the natural environment' that arise from land remediation.

In paragraph 180 the NPPF states that planning policies and decisions should ensure that development is appropriate to the location and take into account likely effects (including cumulative) on the natural environment and , in doing so, they 'should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Government Circular ODPM 06/2005 Biodiversity and Geological Conservation

Paragraph 98 of Government Circular 06/2005 advises 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. Local authorities should consult Natural England before granting planning permission. They should consider attaching appropriate planning conditions or entering into planning obligations under which the developer would take steps to secure the long-term protection of the species. They should also advise developers that they must comply with any statutory species' protection provisions affecting the site concerned..."

Paragraph 99 of Government Circular 06/2005[9] advises that "it is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant

[8] Habitats sites are defined in the glossary as 'Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 (as amended) for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites.'
[9] *ODPM Circular 06/2005. Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System* (2005). HMSO Norwich.

material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted".

Standing Advice (GOV.UK)

The GOV.UK website provides information regarding protected species and sites in relation to development proposals: 'Local planning authorities should take advice from Natural England or the Environment Agency about planning applications for developments that may affect protected species.' GOV.UK advises that 'some species have standing advice which you can use to help with planning decisions. For others you should contact Natural England or the Environment Agency for an individual response.'

The standing advice (originally from Natural England and now held and updated on GOV.UK[10]) provides advice to planners on deciding if there is a 'reasonable likelihood' of protected species being present. It also provides advice on survey and mitigation requirements.

When determining an application for development that is covered by standing advice, in accordance with guidance in Government Circular 06/2005, Local planning authorities are required to take the standing advice into account. In paragraph 82 of the aforementioned Circular, it is stated that: 'The standing advice will be a material consideration in the determination of the planning application in the same way as any advice received from a statutory consultee…it is up to the planning authority to decide the weight to be attached to the standing advice, in the same way as it would decide the weight to be attached to a response from a statutory consultee.'

Natural Environment and Rural Communities (NERC) Act 2006 – Habitats and species of principal importance

The Natural Environment and Rural Communities (NERC) Act came into force on 1st October 2006. Section 41 (S41) of the Act require the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England as required by the Act. In accordance with the Act the Secretary of State keeps this list under review and will publish a revised list if necessary, in consultation with Natural England.

The S41 list is used to guide decision-makers such as public bodies, including local authorities and utilities companies, in implementing their duty under Section 40 of the NERC Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions, including development control and planning. This is commonly referred to as the 'Biodiversity Duty.'

Guidance for public authorities on implementing the Biodiversity Duty[11] has been published by Defra. One of the key messages in this document is that 'conserving biodiversity includes restoring and enhancing species populations and habitats, as well as protecting them.' In England the administration of the planning system and licensing schemes are highlighted as having a 'profound influence on biodiversity conservation.' Local authorities are required to take measures to "promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species. The guidance states that 'the duty aims to raise the profile and visibility of biodiversity, clarify existing commitments with regard to biodiversity, and to make it a natural and integral part of policy and decision making.'

In 2007, the UK Biodiversity Action Plan (BAP) Partnership published an updated list of priority UK species and habitats covering terrestrial, freshwater and marine biodiversity to focus conservation action for rarer species and habitats in the UK. The UK Post-2010 Biodiversity Framework[12], which covers the period from 2011 to 2020, now succeeds the UK BAP. The UK priority list contained

[10] https://www.gov.uk/protected-species-and-sites-how-to-review-planning-proposals#standing-advice-for-protected-species
[11] Defra, 2007. *Guidance for Public Authorities on Implementing The Biodiversity Duty*. (http://www.defra.gov.uk/publications/files/pb12585-pa-guid-english-070516.pdf)
[12] JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. *UK Post-2010 Biodiversity Framework*. July 2012. (http://jncc.defra.gov.uk/page-6189)

1150 species and 65 habitats requiring special protection and has been used as a reference to draw up the lists of species and habitats of principal importance in England.

In England, there are 56 habitats of principal importance and 943 species of principal importance on the S41 list. These are all the habitats and species found in England that were identified as requiring action in the UK BAP and which continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework.

European protected species (Animals)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidates various amendments that have been made to the original (1994) Regulations which transposed the EC Habitats Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Council Directive 92/43/EEC) into national law.

"European protected species" (EPS) of animal are those which are shown on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). They are subject to the provisions of Regulation 43 of those Regulations. All EPS are also protected under the Wildlife and Countryside Act 1981 (as amended). Taken together, these pieces of legislation make it an offence to:

a. Intentionally or deliberately capture, injure or kill any wild animal included amongst these species
b. Possess or control any live or dead specimens or any part of, or anything derived from a these species
c. deliberately disturb wild animals of any such species
d. deliberately take or destroy the eggs of such an animal, or
e. intentionally, deliberately or recklessly damage or destroy a breeding site or resting place of such an animal, or obstruct access to such a place

For the purposes of paragraph (c), disturbance of animals includes in particular any disturbance which is likely—

a. to impair their ability—
    i. to survive, to breed or reproduce, or to rear or nurture their young, or
    ii. in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
b. to affect significantly the local distribution or abundance of the species to which they belong.

Although the law provides strict protection to these species, it also allows this protection to be set aside (derogated) through the issuing of licences. The licences in England are currently determined by Natural England (NE) for development works and by Natural Resources Wales in Wales. In accordance with the requirements of the Regulations (2017, as amended), a licence can only be issued where the following requirements are satisfied:

a. The proposal is necessary 'to preserve public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment'
b. 'There is no satisfactory alternative'
c. The proposals 'will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Definition of breeding sites and resting places

Guidance for all European Protected Species of animal, including bats and great crested newt, regarding the definition of breeding and of breeding and resting places is provided by The European Council (EC) which has prepared specific guidance in respect of the interpretation of

various Articles of the EC Habitats Directive.[13] Section II.3.4.b) provides definitions and examples of both breeding and resting places at paragraphs 57 and 59 respectively. This guidance states that 'The provision in Article 12(1)(d) [of the EC Habitats Directive] should therefore be understood as aiming to safeguard the ecological functionality of breeding sites and resting places.' Further the guidance states: 'It thus follows from Article 12(1)(d) that such breeding sites and resting places also need to be protected when they are not being used, but where there is a reasonably high probability that the species concerned will return to these sites and places. If for example a certain cave is used every year by a number of bats for hibernation (because the species has the habit of returning to the same winter roost every year), the functionality of this cave as a hibernating site should be protected in summer as well so that the bats can re-use it in winter. On the other hand, if a certain cave is used only occasionally for breeding or resting purposes, it is very likely that the site does not qualify as a breeding site or resting place.'

Competent authorities

Under Regulation 7 of the Conservation of Habitats and Species Regulations 2017 (as amended) a "competent authority" includes "any Minister of the Crown…, government department, statutory undertaker, public body of any description or person holding a public office.

In accordance with Regulation 9, "a competent authority must exercise their functions which are relevant to nature conservation, including marine conservation, so as to secure compliance with the requirements of the [Habitats and Birds] Directives. This means for instance that when considering development proposals a competent authority should consider whether EPS or European Protected Sites are to be affected by those works and, if so, must show that they have given consideration as to whether derogation requirements can be met.

Birds

All nesting birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally kill, injure or take any wild bird or take, damage or destroy its nest whilst in use or being built, or take or destroy its eggs. In addition to this, for some rarer species (listed on Schedule 1 of the Act), it is an offence to disturb them whilst they are nest building or at or near a nest with eggs or young, or to disturb the dependent young of such a bird.

The Conservation of Habitats and Species Regulations 2017 (as amended) places duties on competent authorities (including Local Authorities and National Park Authorities) in relation to wild bird habitat. These provisions relate back to Articles 1, 2 and 3 of the EC Directive on the conservation of wild birds (2009/147/EC, 'Birds Directive'[14]) (Regulation 10 (3)) requires that the objective is the 'preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the United Kingdom, including by means of the upkeep, management and creation of such habitat, as appropriate, having regard to the requirements of Article 2 of the new Wild Birds Directive…' Regulation 10 (7) states: 'In considering which measures may be appropriate for the purpose of security or contributing to the objective in [Regulation 10 (3)] Paragraph 3, appropriate account must be taken of economic and recreational requirements'.

In relation to the duties placed on competent authorities under the 2017 Regulations, Regulation 10 (8) states: 'So far as lies within their powers, a competent authority in exercising any function [including in relation to town and country planning] in or in relation to the United Kingdom must use all reasonable endeavours to avoid any pollution or deterioration of habitats of wild birds (except habitats beyond the outer limits of the area to which the new Wild Birds Directive applies).'

Wild mammals in general

The Wild Mammals (Protection) Act 1996 (as amended) makes provision for the protection of wild mammals from certain cruel acts, making it an offence for any person to intentionally cause

[13] Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC. (February 2007), EC.
[14] 2009/147/EC Birds Directive (30 November 2009. European Parliament and the Council of the European Union.

suffering to any wild mammal. In the context of development sites, for example, this may apply to rabbits in their burrows.

Invasive non-native species

An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment.

Under the Wildlife and Countryside Act 1981 (as amended) it is an offence to release, or to allow to escape into the wild, any animal which is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state or is listed under Schedule 9 of the Act.

It is an offence to plant or otherwise cause to grow in the wild invasive non-native plants listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

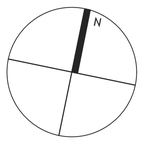
Appendix 2: Layout plan

NEW
COMMUNITY
CENTRE

NEW
RESIDENTIAL
DEVELOPMENT
2 STOREYS

KEY:

- PLANNING APPLICATION BOUNDARY
- EXISTING BUILDING TO BE DEMOLISHED
- GARDEN FENCE
- EXISTING NEIGHBOURING BUILDINGS
- PROPOSED HEDGES & EDGE PLANTING
- PROPOSED HARD LANDSCAPING
- EXISTING TREES
- PROPOSED TREES
- B CATEGORY RPA
- C CATEGORY RPA
- U CATEGORY TREE
- CURRENT CROWN SPREADS
- TREES TO BE REMOVED



1:200 SCALE BAR

SCHEDULE OF ACCOMMODATION

RESIDENTIAL DEVELOPMENT (USE CLASS C3(A)):

12 No. 1B/2P apartments @ 50.0M²
2 No. 2B/3P apartments @ 61.0M²
2 No. 1B/2P wheelchair unit @ 61.0M²
Communal Circulation (current) @ 31.0m²

Density: 120 Dwellings Per Hectare

TOTAL GIA - 947m2

COMMUNITY CENTRE (USE CLASS F2(B)):

· Foyer / Reception / Office – 20m² & 15m²
· Toilets - 2 female / 2 male / 1 disabled
· 2 Specialist rooms – 10m² each
· Kitchen - 30m²
· Café - 33m²
· Lounge - 41m²
· Quiet Room – 10m²
· Hall & Storage – 143m²
· 1st Floor Activity Rooms x 2 – 39m² & 28m²
· 1st Floor Office /admin – 17m²
· Garden - 268m²
· Sheddington – external store/workshop

TOTAL GIA - 519m2

PLANNING

Project
ELLERAY HALL SITE, TEDDINGTON
Drawing
MASTERPLAN - PROPOSED SITE LAYOUT & ROOF PLANS

Drawing No.	Scale	Date
EHT-02	1:200 @ A1	19.04.2021

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Appendix 3: Defra Metric Net gain calculator for Site 1

Table 5: Site habitat baseline

	Habitats and areas			Habitat distinctiveness		Habitat condition		Ecological connectivity			Strategic significance			Suggested action to address habitat losses	Ecological baseline		Retention category biodiversity value								Bespoke compensation agreed for unacceptable losses
Ref	Broad Habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier		Total habitat units		Area retained	Area enhanced	Area succession	Baseline units retained	Baseline units enhanced	Baseline units succession	Area lost	Units lost	
1	Urban	Urban - Vegetated garden	0.016	Low	2	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	0.03					0.00	0.00	0.00	0.02	0.03	
2	Urban	Urban - Developed land; sealed surface	0.109	V.Low	0	N/A - Other	0	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00					0.00	0.00	0.00	0.11	0.00	
3	Urban	Urban - Street Tree	0.001	Low	2	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	0.00					0.00	0.00	0.00	0.00	0.00	
		Total site area ha	**0.13**											Total site baseline	0.04		0	0	0	0	0	0	0.13	0.04	

Table 6: Site habitat creation

Post development/ post intervention habitats																
Proposed habitat	Area (hectares)	Distinctiveness	Score	Condition	Score	Ecological connectivity			Strategic significance			Temporal multiplier		Difficulty multipliers		Habitat units delivered
						Ecological connectivity	Connectivity	Connectivity multiplier	Strategic significance	Strategic significance	Strategic position multiplier	Time to target condition/years	Time to target multiplier	Difficulty of creation category	Difficulty of creation multiplier	
Urban - Vegetated garden	0.042	Low	2	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0.965	Low	1	0.08
Urban - Street Tree	0.005	Low	2	Moderate	2	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	27	0.382	Low	1	0.01
Urban - Extensive green roof	0.015	Medium	4	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0.965	Medium	0.67	0.04
Urban - Developed land; sealed surface	0.069	V.Low	0	N/A - Other	0	N/A	Assessment not appropriate	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	1.000	Low	1	0.00
Total	**0.13**														**Total units**	**0.13**

Table 7: Site Hedgerow baseline (in order to ascertain a netgain score a minimal length was included although not present on site).

	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Ecological connectivity			Strategic significance				Ecological baseline		Retention category biodiversity value					
Baseline ref	**Hedge number**	**Hedgerow type**	**length KM**	**Distinctiveness**	**Score**	**Condition**	**Score**	**Ecological connectivity**	**Connectivity**	**Connectivity multiplier**	**Strategic significance**	**Strategic significance**	**Strategic position multiplier**	**Suggested action to address habitat losses**	**Total hedgerow units**		**Length retained**	**Length enhanced**	**Units retained**	**Units enhanced**	**Length lost**	**Units lost**
1	1	Native Hedgerow	0.001	Low	2	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.002				0	0	0.001	0.002
		Total site length/km	**0.00**											**Total Site baseline**	**0.00**		0	0	0	0	0	0

Table 8: Site hedgerow creation

								Spatial quality						Temporal multiplier		Difficulty of creation multiplier	Hedge units delivered
		Proposed habitats		**Habitat distinctiveness**		**Habitat condition**		**Ecological connectivity**			**Strategic significance**						
Baseline ref	**New hedge number**	**Habitat type**	**Length km**	**Distinctiveness**	**Score**	**Condition**	**Score**	**Ecological connectivity**	**Connectivity**	**Connectivity multiplier**	**Strategic significance**	**Strategic significance**	**Strategic position multiplier**	**Time to target condition/years**	**Time to target multiplier**		
1		Native Hedgerow	0.154	Low	2	Poor	1	Low	Unconnected habitat	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0.965	1	0.30
		Creation/Length	**0.15**													**Total units**	**0.30**