Preliminary Ecological Appraisal

Mill Meadows, Bexley

On Behalf of:

Cray Mill Leisure Ltd.

May 2021

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Executive Summary

1. This report presents the updated results of a preliminary ecological appraisal (PEA) carried out on land at Mill Meadows, Bexley.

2. The proposal for the site is for the renovation and extension of the stable building, together with the renovation of the large shed by the vehicular entrance. All other buildings, notably those to the west of the stable, are to be demolished.

3. There are three Sites of Special Scientific Interest (SSSI) and four Local Nature Reserve (LNR) sites within 5km. The site does not fall within Natural England SSSI Impact Risk Zones that relate to sports-related planning applications.

4. The site is within a designated "Area of Metropolitan Importance for Nature Conservation" or SINC, due to the proximity of the River Cray. Bexley's SINCs form part of the green infrastructure provision in the borough. Due regard must be given to protecting habitats and species, whilst taking opportunities to enhance them wherever possible.

5. The site predominantly consists of a semi-improved grassland field approximately 2.6ha in size, previously used for grazing. The River Cray runs the length of the site's western and eastern boundary. Broadleaved trees line sections of the river on the eastern boundary. Several buildings occupy the north-east corner of the site, including a brick-built stable block, a corrugated stable block, and several individual stables/outbuildings which are a mix of timber and corrugated sheeting. Hardstanding, bare ground, ephemeral, and tall ruderal growth is present among the buildings, as are several organic and inorganic refuse piles.

6. The Phase 1 survey (which formed part of the PEA) was conducted outside of the optimal survey window, and therefore further botanical surveys have been recommended to assess the semi-improved grassland habitat during optimal survey months.

7. There is a potential badger sett on site, therefore sett monitoring surveys should be undertaken to ascertain the level of activity in each of the setts on site. This should be conducted over a period of 21 days, using infrared cameras placed in front of sett entrances. The results of these surveys would inform mitigation measures if required.

8. The brick-built stable on site is considered to offer high suitability for roosting bats due to the features present and surrounding suitable habitat on site and within the wider area. Previous emergence/re-entry surveys were conducted on this building in June-July 2019 and revealed no bats roosting. Updated surveys on the suitable building on site should be conducted. All other buildings were considered to be of negligible suitability for roosting bats.

9. The site was considered to have potential to support foraging and commuting bats due to the semi-natural character of habitats present as well as good connectivity to the wider landscape. Therefore, a suite of seasonal bat activity surveys have been recommended.

10. The site was considered to have potential to support otter and water vole, due to the presence of the River Cray adjacent to the site. Presence / likely absence surveys are therefore recommended.

11. Following the completion of the above further surveys, an Ecological Impact Assessment should be produced which would set out potential impacts and necessary mitigation requirements for protected and priority species.

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Appendices

1.0 Introduction

1.1 Southern Ecological Solutions Ltd. (SES) was commissioned by Cray Mill Leisure Ltd to undertake a preliminary ecological appraisal (PEA) of Mill Meadows, Bexley. The site is located at Ordnance Survey Grid Reference TQ 49647 73530, is approximately 6.2ha in extent, and is currently occupied by a semi-improved grassland field; dense scrub; semi-improved grassland; woodland; scattered trees; tall ruderal herb; improved grassland; and the River Cray running along the Eastern site boundary.

1.2 A site location plan is provided in Appendix 1.

1.3 The proposal for the site is for the renovation and extension of the stable building, together with the renovation of the large shed by the vehicular entrance and associated works. All other buildings, notably those to the west of the stable, are to be demolished.

1.4 The objectives of this PEA were to:

- Confirm the onsite ecological conditions.
- Map the main ecological features within the site and compile a plant species list for each habitat type;
- Make an initial assessment of the presence or likely absence of species of conservation concern;
- Identify any legal and planning policy constraints relevant to nature conservation which may affect the development;
- Determine any potential further ecological issues;
- Determine the need for further surveys and mitigation;
- Make recommendations for minimising impacts on biodiversity and providing enhancements where possible, in accordance with Chapter 15: *Conserving and Enhancing the Natural Environment*, of the National Planning Policy Framework (NPPF) (MHCLG, 2019), relevant nature conservation policies within the *London Borough of Bexley Core Strategy* (February 2012).

1.5 Details of relevant wildlife legislation and planning policies are provided in Appendix 2.

2.0 Methods

2.1 The following PEA follows guidance and methods as prescribed by the Chartered Institute for Ecology and Environmental Management (CIEEM) *Guidelines for Ecological Appraisal 2nd edition* (2017) and the *Guidelines for Ecological Impact Assessment* (2018). Following these methods, a baseline of rare and/or noted ecological receptors (species and habitats) was established and valued. Predicted significant impacts upon these receptors have been identified and constraints and opportunities identified. This step-wise assessment process has informed likely mitigation and enhancement measures. Recommended phase 2 ecological surveys have been identified as well as a timetable for implementation. These surveys will fully inform the predicted impacts of the scheme in accordance with the NPPF (MHCLG, 2019), local planning policy and relevant wildlife legislation.

Desk Study

2.2 SES commissioned a data search for records of protected and notable species as well as non-statutory designated sites from the Greenspace Information for Greater London (GIGL). The data search encompassed the study area, and up to 2km from the boundary. Data was received on 19 April 2021.

2.3 A web-based search for statutory designated sites via the Multi Agency Geographic Information for the Countryside (MAGIC) spatial data resource www.magic.gov.uk was undertaken on 12 March 2021 for the following designations: European (up to 10km from the site boundary); and national (5km from the site boundary).

2.4 An online search was undertaken for waterbodies within 500m of the site boundary utilising MAGIC Map on 12 March 2021.

2.5 Previous ecology survey and assessment work including a Phase 1 update together with bat and reptile surveys (Hybrid Ecology, July 2019) was reviewed.

Extended Phase 1 Habitat Survey

2.6 An extended Phase 1 Habitat Survey was carried out on 11 March 2021 by suitably qualified ecologist Rosie Tobin-Moss BSc (Hons) MRes in appropriate weather conditions. This is a standard technique for obtaining baseline ecological information for areas of land, including proposed development sites. Phase 1 Habitat Survey methods are set out in the *Handbook for Phase 1 Habitat Survey* (Joint Nature Conservation Committee, 2010). Habitat mapping was undertaken using the standard classification to indicate habitat types. Features of ecological interest and value were highlighted using target notes.

2.7 The dominant and readily identifiable higher plant species identified in each of the various habitat parcels were recorded and their abundances assessed on the DAFOR scale:

- D - Dominant
- A - Abundant
- F - Frequent
- O - Occasional
- R - Rare

2.8 These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2010).

2.9 All impacts upon ecological features have been considered for the purposes of this survey following industry best practice guidance. Only relevant protected and notable species have been discussed within this report to keep its contents concise and relevant to the works being undertaken and for ease of application.

Protected and Notable Species

Badger

2.10 An initial assessment was made to identify areas that might be used by badger *Meles meles* for foraging, commuting and sett creation.

Bats

2.11 The site was assessed for its suitability to support roosting, foraging and commuting bats. Trees were assessed for their potential to support roosting bats using guidelines issued by the Bat Conservation Trust (Collins, 2016). Roosting habitats assigned a level of suitability according to the descriptions outlined in Table 1.

2.12 Good bat foraging habitat generally includes sheltered areas and habitats with good numbers of insects, such as woodland, scrub, ponds lakes and species-rich or rough grassland. Good commuting habitat generally comprises linear features such as well-connected hedgerows, woodland edge, watercourses. The site was assigned a level of suitability according to the descriptions outlined in Table 1 and based on the guidelines provided by Collins (2019).

Table 1: Assessment of the potential habitat suitability for roosting, foraging and commuting bats

Suitability	Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting and foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically but not enough space, shelter, protection and appropriate conditions to be used on a regular basis or by larger numbers of bats. A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting 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 another 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 patch of scrub.
Moderate	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.	Continuous habitat connected 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

Suitability	Roosting habitats	Commuting and foraging habitats
High	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 used regularly by foraging bats such as broad-leaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Birds

2.13 The site was assessed for its potential to support breeding birds. Suitable habitat generally includes scrub, trees and ruderal vegetation but can also include buildings, open grassland and piles of debris.

2.14 The site was also assessed for its potential to support significant wintering and/or migratory bird populations.

Great Crested Newt

2.15 There are no suitable aquatic habitats on site or within in the vicinity of the site to qualify for an assessment for their suitability to support breeding great crested newts *Triturus cristatus* (as well as other amphibians) using the Habitat Suitability Index (HSI).

2.16 Terrestrial habitats were also assessed for their suitability for great crested newt. Suitable terrestrial habitat generally includes rough grassland and woodland where they can forage and hibernate, with good links to the ponds where they breed.

Hazel Dormouse

2.17 Habitats were assessed for their general suitability for hazel dormouse *Muscardinus avellanarius*. This species generally uses areas of dense woody vegetation and are more likely to be found where there is a wide diversity of woody species contributing to a three-dimensional habitat structure, a number of food sources, plants suitable for nest-building materials and good habitat connectivity.

Invertebrates

2.18 The site was assessed for its potential to support rare or notable invertebrate species.

Otter and Water Vole

2.19 The site was assessed for its potential to support otter *Lutra lutra* and water vole *Arvicola amphibius.* Otters have been recorded exploiting virtually all types of waterbodies and waterways in the UK and found on still waters (canals, lakes, ponds and reservoirs) as well as rivers and streams of all sizes (Chanin, 2003). Water voles will inhabit most open water and wetland habitats including streams, canals, wet ditches and ponds.

Reptiles

2.20 The site was assessed for its suitability for the four commoner reptile species; common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, grass snake *Natrix hevetica* and adder *Vipera berus*. Specific habitat requirements vary between species. Common lizard favours rough grassland, however, it can be found in a variety of habitats ranging from woodland glades to walls and pastures. Slow-worm occupies similar habitats to common lizard and is often found in gardens and derelict land. Grass snake has similar habitat requirements to common lizard but has a greater reliance on ponds and wetlands. Adder occupies areas of rough, open countryside and is often associated with woodland edge habitats.

Notable Mammals

2.21 The site was assessed for its potential to support *Natural Environment and Rural Communities (NERC) Act 2006* mammals of principal importance which are likely to occur in the local area.

Assessment of Nature Conservation Value

2.22 CIEEM guidelines for Ecological Assessment in the United Kingdom (2018) have been utilised to assess the impacts upon habitats within the zone of influence of the site. CIEEM suggests that it is best to use the geographical scale (i.e. international, national, regional etc.) at which a feature (i.e. a habitat, species or other ecological resource) may or may not be important as the appropriate measure of value. As such, data from the data search and extended Phase 1 habitat survey have been reviewed and the likely occurrence of protected and notable species/species groups assessed. This has allowed predictions of impacts to be made along with recommendations for mitigation, compensation and enhancement. Further targeted survey will refine the evaluation and associated recommendations.

2.23 The following geographical scale categories are considered appropriate:

- International;
- National (England);
- Regional (South);
- County (Greater London);
- District (South-east London);
- Local (Bexley); and
- Site.

Constraints

2.24 Desktop data searches are a valuable tool in evaluating a site's potential to hold rare and protected species, it is not however an absolute in confirming presence or absence of notable species due to the nature of how the records are collected.

2.25 The survey was undertaken in March, which is a sub-optimal time of year for botanical survey.

2.26 These constraints are not considered to significantly constrain the recommendations of this report given the common habitat types present and the detailed site visit.

3.0 Baseline Ecological Conditions

Site Description

3.1 The site predominantly consists of a semi-improved grassland field approximately 2.6ha in size, previously used for recreation and grazing. The River Cray runs the length of the site's western and eastern boundary. Broadleaved trees line sections of the river on the eastern boundary, and the western boundary. A small section of amenity grassland is located on the northern site boundary, separated from the majority of the site by a wooden fence. A section of dense scrub is present on the northern site boundary, with smaller patches of dense and scattered scrub present throughout the site. Several buildings occupy the north-east corner of the site, including a brick-built stable block, a corrugated stable block, and several individual stables/outbuildings which are a mix of timber and corrugated sheeting. Hardstanding, bare ground, ephemeral, and tall ruderal growth is present among the buildings, as are several organic and inorganic refuse piles. Tall ruderal herb is present along the eastern site boundary. A young stand of semi-natural broadleaved woodland is situated at the northern site boundary, approximately 1ha in size.

Statutory Designated Sites

3.2 There are no sites designated under the Habitat Regulations 2019 considered to be of **international** importance within 10km of the site boundary.

3.3 There are three Sites of Special Scientific Interest (SSSIs) considered to be of **national** importance, within 5km; Wansunt Pit SSSI, Ruxley Gravel Pits SSSI, and Abbey Wood SSSI. The site does not fall within Natural England SSSI Impact Risk Zones that relate to sports-related planning applications.

3.4 There are four statutory designated Local Nature Reserves (LNRs) located within 5km: Foots Cray Meadows LNR, Danson Park Bog Garden LNR, Scadbury Park LNR, and Abbey Wood LNR.

Table 2: Nationally Designated Sites within 5km of the Site

Site Name	Distance Direction	Size (ha)	Description & Reason for Designation
UK Statutory Designated Sites			
Foots Cray Meadows LNR	1km SE	30	Site supports ancient woodland, grassland, wildflower, and river habitats.
Wansunt Pit SSSI	1.9km E	1.44	Site is designated for archaeological reasons.
Danson Park Bog Garden LNR	2.7 NW	1	Site supports a large lake with a bog garden at the western end.
Ruxley Gravel Pits SSSI	3.3km S	18.7	Ruxley Gravel Pits are one of the few areas of relatively undisturbed open water in Greater London south of the Thames. They contain a high diversity of habitats and species; the variety of insects and breeding wetland birds are also notable features
Scadbury Park LNR	4km SW	117	Site supports grassland and woodland habitats and forms a wildlife corridor to other greenspaces in London.
Abbey Wood LNR	4.8km N	73	Site supports ancient woodland, heathland, and hedgerow habitats.

Site Name	Distance Direction	Size (ha)	Description & Reason for Designation
Abbey Wood SSSI	4.8km N	6.7	Site supports ancient woodland, heathland, and hedgerow habitats. An important site for wild daffodil *Narcissus pseudonarcissus*, bluebells *Hyacinthoides non-scripta*, and wood anemones *Anemone nemorosa*. Notable fauna species present include stag beetle *Lucanus cervus*, bats, newts, redwing *Turdus iliacus* and fieldfare Turdus pilaris.

Non-statutory Designated Sites

3.5 There were 20 Sites of Importance for Nature Conservation (SINCs) within 2km of the site. There were five within 1km and which are listed in Table 3. The nearest is River Cray Metropolitan SINC of which Foot's Cray Meadows is located within the site.

Table 3: Non-Statutory Designated sites within 1km of the site

Site Name	Ref	Distance Direction	Size (ha)	Description & Reason for Designation
River Cray	M106	Within Site	184.99	The River Cray is one of the Thames' cleanest tributaries and still possesses a relatively natural profile in places. A chalk stream rising at Priory Gardens in Orpington, the river flows north-east through M105 (Ruxley Gravel Pits) to join the Darent Creek in Bexley. Several associated areas are incorporated within this site, the largest being Footscray Meadows open space, which contains important areas of neutral grassland, species-rich fen and the ancient North Cray Wood.
Sidcup Line Railsides	BxBII23	Adjacent N	14.0	These railsides provide wildlife habitats and an important green corridor extending across the borough boundary into Greenwich, where they are known as Mottingham and New Eltham railsides. The site is a mosaic of woodland, scrub and rough grassland, offering habitats for a range of invertebrates, birds, mammals, reptiles and flowering plants.
Upper College Farm	BxBII17	0.1km SW	29.54	A species-rich wasteland site with several successional stages including bare earth, ruderal communities, grassland and scrubland. Notable plant species include thyme-leaved sandwort (*Arenaria serpyllifolia*) and narrow-leaved birdsfoot-trefoil (*Lotus glaber*). Breeding birds include skylark and a large population of whitethroats.
River Shuttle	BxBII16	0.8km NE	8.05	The River Shuttle is second in importance to the River Cray in Bexley. A large proportion of the river has been straightened, but in recent years stretches of the river have been naturalised. The rivers supports a good wetland flora, including curled pondweed (*Potamogeton crispus*), cyperus sedge (*Carex pseudocyperus*), arrowhead (*Sagittaria sagittifolia*), common club-rush (*Schoenoplectus lacustris*), flowering-rush (*Butomus umbellatus*), brooklime (*Veronica beccabunga*), water

Site Name	Ref	Distance Direction	Size (ha)	Description & Reason for Designation
				forget-me-not (*Myosotis scorpioides*), square-stalked St John's-wort (*Hypericum tetrapterum*) and sea club-rush (*Bolboschoenus maritimus*).The rivers support varied populations of fish, including chub and bullhead, the latter a UK BAP priority species. Breeding birds include kingfisher.
The Warren	BxBI08	0.8km NW	4.83	This small area of probably ancient woodland is dominated by pedunculate oak (Quercus robur) and elm (Ulmus sp). The ground flora is dominated by bramble (Rubus fruticosus agg), and also contains bluebell (Hyacinthoides non-scripta), wood anemone (Anemone nemorosa) and stinking iris (Iris foetidissima). The woodland supports an abundant population of the purple hairstreak butterfly.

Habitats

3.6 A Phase 1 Habitat map of the site is provided within Appendix 3. Plant species recorded per habitat type are tabled in Appendix 4. Site photographs are illustrated in Appendix5.

3.7 The Phase 1 Habitat types (JNCC, 2010) within the site were:

- Broadleaved woodland semi-natural;
- Buildings, hardstanding and bare ground;
- Dense scrub;
- Improved grassland;
- Refuse piles;
- Running water;
- Scattered scrub;
- Scattered trees;
- Semi-Improved grassland; and
- Tall ruderal herb.

Broadleaved woodland semi-natural

3.8 There is a rectangular area of newly developed broadleaved woodland, approximately 1ha in size at roughly the centre of the northern site boundary. This area was previously dense scrub, but stands of young goat willow *Salix caprea*, dog rose *Rosa canina* and poplar *Populus sp* have since emerged. The understory is dominated by bramble *Rubus fruiticosus.*

3.9 A wooded copse fringe is present on the south-eastern site boundary. This habitat contains mature stands of London plane *Platanus × acerifolia*, sycamore *Acer pseudoplatanus*, alder *Alnus sp*, and elder *Sambucus nigra*.

Buildings and hardstanding

3.10 In the north-east corner of the site is some existing development. There are two main existing structures on site, comprising a brick-built stable block (building 1), and a corrugated metal stable block

(building 2). There are also several timber and corrugated built single stable blocks and outbuildings grouped together. Hardstanding is present throughout the developed area.

3.11 The main stable block (B1) is a brick-built structure, with clay tiled roofing, and wooden framed single glazed windows. The building has a rectangular structure comprises several stables within, and is split in two sections, made up of the original building and a more recent extension along the eastern elevation. The recent extension has brick-built elevations with corrugated asbestos roofing.

3.12 The smaller stable block (B2) is a corrugated metal structure, with corrugated asbestos roofing and corrugated plastic windows with metal framing.

3.13 The grouped outbuildings (B3) are smaller windowless stables designed to house 1-2 horses. They are comprised primarily of wooden boarding, shiplap, weatherboarding, and corrugated sheeting, with corrugated asbestos or metal roofing.

Dense scrub

3.14 Dense scrub is present in the centre of the northern site boundary, and along the south-eastern site boundary. Small patches of this habitat are also present on the southern boundary of the goat willow woodland stand. There is also dense scrub in the developed area in the north-east corner of the site. The dominant species is bramble *Rubus fruticosus.*

Improved grassland

3.15 The northern site boundary intersects a small section of a sports field. The habitat present here is amenity grassland and is predominantly perennial rye grass *Lolium perenne* with few herbaceous species present.

Refuse piles

3.16 There are several organic and inorganic refuse piles throughout the developed area in the north-east corner of the site, comprising wood, wooden boards, corrugated sheeting, rubble, and other discarded man-made building materials.

Running water

3.17 Running the entire length of the south-eastern facing site boundary is the river Cray. The flow ran east to west, and the water is oligotrophic in nature. Within the river is aquatic vegetation including: watermint *Mentha aquatica*, iris *Iris sp*, and sedge *Carex sp.*

Scattered scrub

3.18 Areas of scattered scrub were present among the developed area in the north-east corner of the site. The dominant species is bramble *Rubus fruiticosus.*

Scattered trees

3.19 There are several scattered trees within developed area in the north-east corner of the site, comprising young stands of ash *Fraxinus excelsior* and elder. Scattered trees are present along the bank of the river cray, including mature ash stands with dense ivy *Hedera helix* cover.

Semi-Improved grassland

3.20 The majority of the site is made up of a semi-improved grassland field, previously used as horse pasture and approximately 2.6ha in size. The sward shows signs of previous management but is beginning to form small tussocks in some areas. It comprises common grassland species, dominated by perennial rye-grass, with Yorkshire fog *Holcus lanatus*, and cocks-foot *Dactylis glomerata* interspersed. Common herbaceous species are present such as creeping thistle *Cirsium arvense*, common ragwort *Jacobaea vulgaris*, and white clover *Trifolium repens*. The quality of the grassland was difficult to determine because of the grazing pressure and the time of year.

Tall ruderal herb

3.21 Areas of tall ruderal herb are present throughout the developed area in the north-east of the site, and along the length of the south-eastern facing boundary, with a large patch of this habitat in the southern corner of the site. This habitat is dominated by common hogweed and other umbellifers, and also includes common nettle *Urtica dioica*, cleavers *Galium aparine*, broadleaved dock *Rumex obtusifolius*, and bramble.

Summary

3.22 The habitats within the site are considered to be common within the wider landscape but have potential to support protected species and those of conservation concern. Taken together, habitats on site are considered to be of **up to local** value with adjacent habitats being of **up to district** value. Confidence in this assessment is moderate.

Protected Habitats

3.23 The River Cray is one of the Thames' cleanest tributaries and still exhibits relatively natural conditions and good water quality. This river is designated as an Area of Metropolitan Importance for Nature Conservation, also known as a SINC.

Protected and Notable Species

3.24 Protected species are animals and plants which receive protection in the UK under the Conservation of Habitats and Species Regulations 2019 as amended. UK protected species are animals and plants protected within The Wildlife and Countryside Act as amended (WCA) 1981, The Protection of Badgers Act 1992, or listed in Section 40 or 41 of the NERC 2006. Protected and notable species with existing records within 2km of the site are detailed below.

Rare and Notable Flora

3.25 There were recent records of two species listed on Schedule 8 of the WCA and located within 2km of the site; these were stinking goosefoot *Chenopodium vulvaria* (2011) and bluebell *Hyacinthoides non-scripta* (2013).

3.26 There was a wide range (26) of invasive non-native plant species listed on Schedule 9 of the WCA within 2km of the site. In several areas along the eastern boundary Himalayan balsam *Impatiens glandulifera* was observed. This plant has clearly been regularly managed, as growth for this species was new. Giant hogweed *Heracleum mantegazzianum* and Japanese knotweed *Reynoutria japonica* have previously been observed on site, but there was no evidence of these species at the time of survey.

3.27 Generally, flora recorded during the Phase 1 survey comprised of common species that are frequently associated with the common habitats present on site. The site is considered to be of **negligible** importance for rare and notable plants. Confidence in this assessment is moderate, given the sub-optimal survey timing.

Badger

3.28 There were nine confidential records of badger within 2km of the site between 2003 and 2011.

3.29 A possible badger sett was observed at the northern site boundary adjacent to the new woodland stand. This showed signs of active use at present. There were no other field signs observed in the form of additional setts, foraging signs (snuffle holes), hairs, or latrines.

3.30 The grassland, woodland, tall ruderal and scrub habitats on site offer suitable foraging habitats for badgers. In addition, there is suitable foraging habitat within good ecological connectivity to the site in the form of woodland and greenfield land. The site is therefore assessed as being of **site** value for badgers; confidence in this assessment is moderate.

Bats

3.31 A summary of bat records is available in Table 4. There were seven identified bat species recorded within 2km of the site; all apart from Nathusius's pipistrelle *Pipistrellus nathusii* are considered widespread in southern England.

3.32 A search of European Protected species licenses revealed only one for bats within 2km. This was granted in 2009 for the destruction of a non-breeding common pipistrelle *Pipistrellus pipistrellus* roost located approximately 100m south-east of the site.

Table 4: Summary of recent bat records within 2km of the Site

Species	Nearest approximate distance to site (km)	Total No. of Records	Date of Most Recent Record
Bats sp.	>1km	9	2016
Brown long-eared bat *Plecotus auritus*	>1km	3	2010
Common pipistrelle *Pipistrellus pipistrellus*	>1km	15	2011
Nathusius' pipistrelle *Pipistrellus nathusii*	>1km	2	2010
Soprano pipistrelle *Pipistrellus pygmaeus*	0.7km	10	2010
Daubenton's *Myotis daubentonii*	>1km	22	2016
Noctule *Nyctalus noctula*	0.7km	5	2016
Serotine *Eptesicus serotinus*	>1km	3	2010
Myotis sp.	<1km	2	2010

Bats – Roosting

3.33 Trees on site were inspected from ground level. There were several trees along the south-eastern and south-western site boundaries which were considered to be suitable for roosting bats. Roosting features included dense ivy cover, rot holes, and canker holes. Due to the presence of these features, and the immediate surrounding suitable foraging habitat, these trees were considered to be of **high** suitability for roosting bats. See Appendix 3 for approximate locations.

3.34 All of the buildings on site were inspected internally and externally for features with the potential to support roosting bats. All buildings were boarded shut before inspection. Bat emergence/re-entry surveys were carried out on the brick-built stable building throughout June and July 2019. No bats were observed emerging from the building.

3.35 B1 was considered to have high suitability for roosting bats. Due to the level of unsuitability, lack of evidence, and lack of roosting features present within the other two structures on site, all other buildings were considered to be of **negligible** suitability for roosting bats. Table 5 provides the results of the assessment of buildings regarding their suitability for roosting bats.

Table 5: Results of the preliminary bat roost inspection of buildings

Building	Description	Bat roost potential	Evidence of bats	Suitability
1	Brick-built stable building	Poorly maintained building, with deteriorated pointing, and brickwork. Missing and broken tiles in several areas throughout the roof. Interior of the building is wooden boarded with wooden and metal frames. Wooden framed windows and doors, with gaps and crevices under doorframes. The western part of the building has a large hole in the roof, which allows access to the interior of the stables. Walls are breeze blocks, with areas of wooden boarding. No signs of bats.	None found.	High
2	Metal stable building	Several access points to the interior of the building due to holes in the corrugated sheeting. Thick dense cobwebs throughout. No signs of bats. Corrugated structures are associated with temperature fluctuations and therefore unsuitable for roosting bats.	None found.	Negligible
3	Grouped outbuildings/stables	Poorly maintained buildings with access points due to holes in wooden elevations. Gaps underneath boarding throughout. However, no signs of bats were found, and the interiors of each building were full of dense cobwebs, indicating no presence of bats. Thorough searching with torches revealed no signs of bats. Few suitable crevices noted within the buildings, with only a few minor crevices present beneath weatherboarding.	None found.	Negligible

Bats - Foraging/Commuting

3.36 The semi-improved grassland, scrub, tall ruderal, and linear habitats on site on site offer opportunities for foraging and commuting bats. In addition, the boundary features on site offer connection to wider suitable foraging areas in the form of woodland, hedgerows, waterbodies, and green space. The treelined river provides good foraging habitat for rarer more light sensitive species. Therefore, the site as a whole is assessed as being of **moderate** suitability for foraging and commuting bats.

3.37 Overall, the site is considered to be of **up to local** value for roosting, foraging and commuting bats. Confidence in this assessment is moderate.

Birds

3.38 There were records for 81 species of which four species, kingfisher *Alcedo atthis*, red kite *Milvus milvus*, red-backed shrike *Lanius collurio* and marsh harrier *Circus aeruginosus,* were listed under Schedule 1 of the WCA 1981 within 2km.

3.39 Species of bird recorded on site included magpie *Pica pica*, robin *Erithacus rubecula*, great tit *Parus major*, wood pigeon *Columba palumbus*, jackdaw *Corvus monedula*, mallard Anas platyrhynchos, moorhen *Gallinula Chloropus,* canada goose *Branta canadensis* and grey heron *Ardea cinerea.*

3.40 There are no hedgerows or habitats on site suitable for providing high-quality nesting habitat for farmland species of conservation concern. The semi-improved grassland areas are too recently managed so lack the species diversity and long sward needed to provide resources for seed and invertebrate feeding species such as yellowhammer and linnet. It is considered the trees, woodland, and scrub on site may be used by low numbers of common passerine species. Species such as kingfisher may use the river to forage.

3.41 With on-site habitats providing foraging and nesting resources and good connection to the surrounding landscape, the site is considered to be of **site** value for breeding birds; confidence in this assessment is moderate.

Great Crested Newt

3.42 There were two records of great crested newt within 2km of the site, the most recent in 2009 and the nearest >1km from the site. There are no EPS mitigation licenses, District class licenses or surveys for this species within 2km.

3.43 The aquatic habitat on site in the form of the River Cray is not considered suitable breeding habitat for great crested newt due to it being running water. There were no suitable waterbodies within ecological connectivity to the site identified within 500m. A fishing pond approximately 8ha in size is present to immediately south of the site. This waterbody is not considered suitable for great crested newt due to the size, water quality, and presence of fish and waterfowl.

3.44 The scrub, tall ruderal, woodland, and semi-improved grassland areas of the site are considered to provide suitable terrestrial opportunities for sheltering and commuting great crested newt. The organic refuse piles on site may also provide shelter for this species during hibernation.

3.45 These factors, the poor suitability of the site watercourse, and the lack of existing records within 2km, drive the conclusion that the likelihood of great crested newt being present on site is very low. Furthermore, given the limited extent of the terrestrial habitat on site, the risk of an offence in relation to great crested newt occurring as a result of the proposed development is considered to be negligible.

3.46 Habitats on site are therefore assessed as being of **negligible** value for the potential great crested newt population, and this species is not considered further in this report.

Hazel Dormouse

3.47 There were no records of hazel dormouse within 2km of the site. There are no EPS mitigation licenses for hazel dormouse within 2km of the site.

3.48 The woodland and scrub on site have the potential to provide suitable habitat for hazel dormice. There is connectivity from the site to suitable woodland and hedgerow habitats in the wider area to the south east. The A223 road acts as a significant barrier for dispersal to suitable habitats beyond this. The newly developed goat willow woodland stand does not have good ecological connectivity to the wider area. The site is situated within urban development, therefore the suitable habitat that is present within the wider area is not extensive enough to support this species within isolation.

3.49 Given the limited suitable habitat present on site and in the surrounding area, and lack of records, it is considered highly unlikely that dormouse is present on site, and further surveys are not required. The site is considered to be of **negligible** value for hazel dormouse and this species is not considered further in the

Invertebrates

3.50 There were a range of invertebrate records associated with the river such as Odonata species and mature trees including 19 beetle species including stag beetle *Lucanus cervus*.

3.51 The semi-improved grassland, tall ruderal, woodland, and scrub habitats on site were considered suitable for supporting invertebrates. However, the extent and age of these habitats is limited, and it is considered unlikely that the site would support a notable invertebrate assemblage. Therefore, the site is considered to have **site** value for invertebrates; confidence in this assessment is high.

Otter and Water Vole

3.52 There was one record of water vole *Arvicola amphibius* recorded in 2016 0.9km from the site. No field signs for either of these species were observed on site.

3.53 The River Cray located on site is suitable for otter and water vole due to the good water quality, suitable aquatic vegetation, and connection to other waterways to the west. Previous otter and water vole surveys conducted on site in January 2018 revealed no evidence for these species. The site is considered to have **local** value for these species; confidence in this assessment is moderate.

Reptiles

3.54 There were recent records of slow-worm (24), grass snake (15) and common lizard (26) within 2km of the site.

3.55 The scrub, hedgerows, semi-improved grassland, woodland, tall ruderal vegetation, refuse piles, and river were considered to provide suitable habitats for foraging/hunting, sheltering, hibernating, and basking reptiles. There was connectivity from these habitats to suitable habitat in the wider area, and residential gardens.

3.56 Previous reptile surveys on site conducted June-July 2019 found one adult common lizard and one juvenile grass snake along with an adult grass snake slough, confirming presence of both species on the site. Therefore, the site is considered to be of **local** value for reptiles; confidence in this assessment is high.

Notable Mammals

3.57 There were 21 records of West European hedgehog *Erinaceus europaeus*, the most recent from 2020 within 2km of the site and the nearest was 0.8km from the site.

3.58 The semi-improved grassland, improved grassland, tall ruderal, scrub, and organic refuse piles habitats are considered to provide suitable sheltering and foraging habitat for hedgehog. Other notable mammals were considered likely absent.

3.59 The site is considered to have **site** value for European hedgehog; confidence in this assessment is moderate.

Summary

3.60 A summary evaluation of site features is provided in Table 6.

Table 6: Summary evaluation of features

Feature	Summary Description	Value	Confidence
Statutory Designated Sites	Wansunt Pit SSSI, Ruxley Gravel Pits SSSI, and Abbey Wood SSSI. Foots Cray Meadows LNR, Danson Park Bog Garden LNR, Scadbury Park LNR, and Abbey Wood LNR.	National Regional	High
Non-statutory Designated Sites	20 SINC within 2km and 5 of these within 1km; River Cray Metropolitan SINC located within the site.	District	High
Habitats	Majority defined by semi-improved grassland pasture. High intrinsic ecological value habitats include woodland, scrub, trees, river, tall ruderal herb. River Cray is designated a priority habitat.	Up to Local	Moderate
Rare and notable flora	None found on site during PEA however survey undertaken at suboptimal time of year.	Site	Moderate
Non-native invasive flora	Himalayan balsam present on River Cray within site.	-	High
Badger	One possible outlier sett on site. No field signs observed. Suitable foraging habitat on site, and good connectivity to the wider landscape.	Site	High
Bats - roosting	Suitable roosting features on several trees and one building, each on site suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time. Previous surveys of brick-built stable in July 2019 revealed no emergences for bats.	Site	Moderate
Bats – foraging and commuting	Moderate quality foraging and commuting habitat on site and good connectivity to the wider area.	Local	Moderate
Birds	Good quality habitat on site to support a common passerine assemblage.	Site	Moderate
Great crested newt	Likely absent	Negligible	High
Hazel dormouse	Likely absent	Negligible	Moderate

Feature	Summary Description	Value	Confidence
Invertebrates	River Cray likely to support range of species. Limited valuable terrestrial habitat on site. Lacks the structural diversity to support a notable assemblage.	Site	High
Otter and water vole	Record of water vole within 1km. Good quality suitable habitat on site with connectivity to other waterways. Previous surveys in 2018 revealed no evidence.	Local	Moderate
Reptiles	Numerous records for three species. Good quality habitat on site and good connectivity to the wider area. Previous surveys in 2019 revealed a low population of common reptile species.	Local	High
Notable mammals	Suitable habitat for hedgehog.	Site	Moderate

4.0 Preliminary Prediction of Impacts, Recommendations and Mitigation Measures

Description of Proposals

4.1 The proposal for the site is for the renovation and extension of the stable building, together with the renovation of the large shed by the vehicular entrance and associated works. All other buildings, notably those to the west of the stable, are to be demolished.

Statutory Designated Sites

4.2 Due to the distances between the site and the nearest statutory designated site (i.e. at least 1km), direct impacts are not predicted. Due to the small scale and the non-residential nature of the proposed development, it is considered unlikely that there will be significant impacts on these designated sites. Hence effects on statutory designated sites are no considered likely significant and not considered further in this assessment.

Non-statutory Designated Sites

4.3 The site is located within the River Cray Site of Metropolitan Importance for Nature Conservation (SINC). The site is therefore located within an important part of the green infrastructure provision in the borough. Due regard must be given to the legal duties associated with protecting habitats and species, whilst taking opportunities to enhance them wherever possible. The hierarchy of avoid, minimise, compensate must be followed in relation to biodiversity.

4.4 It is recommended that a detailed assessment of the potential impacts to this SINC is undertaken as part of the Ecological Impact Assessment. This assessment should draw on the results of the recommended further surveys and provide suitable mitigation measures (if required) to ensure impacts to the SINC are of negligible significance as well as provision of suitable enhancement measures.

Habitats

4.5 The current proposals indicate that the majority of the ecological valuable habitat on site is to be retained, including the woodland strip on the south-western facing boundary, and all scattered trees. The scrub habitat along the north boundary is also anticipated for retention. As such it is recommended that these habitats are protected during works through the provision of suitable fencing such as Heras fencing.

4.6 The location of the proposed secondary hockey pitch (see Appendix 1) will require the removal of the patch of goat willow-dominated young woodland at the north of the site.

4.7 If new external lighting is required, then a sensitive strategy that avoids lighting of the ecologically valuable areas of the site should be implemented, to help mitigate potential indirect impacts on protected species such as bats which may be utilizing the site and boundary habitats for foraging and commuting.

4.8 The semi-improved grassland has the potential to have a more diverse sward than was observed during the Phase 1 Survey. Higher species diversity within this grassland could lead to its re-classification as a more valuable habitat and reveal a higher value for notable species. For this reason, further botanical surveys of the semi-improved grassland and boundary habitats of the site are needed between May and July.

4.9 Enhancement measures are likely to include sensitive management of edge habitats and the creation of more valuable habitats such as wildflower meadows.

Protected and Notable Species

Rare and Notable Flora

4.10 Although no rare or notable flora observed on site, the survey was undertaken at a suboptimal time of year. Therefore, further botanical surveys are recommended between May and July (as outlined in section 4.8 above).

4.11 The presence of invasive non-native plant species listed on Schedule 9 of the WCA should be re-assessed during the further botanical survey recommended in section 4.8 above. The results of this survey should be used to devise a mitigation strategy if required.

Badger

4.12 There is a potential badger sett on site, and this should be checked by a suitably experienced ecologist to ascertain its current status. If badgers are present, then sett monitoring surveys should be undertaken to ascertain the level of activity on site. This will be conducted over a period of 21 days and using infrared cameras placed in front of sett entrances.

4.13 If the badger sett is found to be in current use, it may need to be closed under a licence from Natural England once planning permission has been granted and prior to the commencement of development if impacts are predicted. Closure of badger setts under licence can only be undertaken between July and November.

4.14 General precautionary techniques sympathetic to badgers (applicable to most sites) are recommended due to the potential for badgers to forage/disperse within the site:

- Covering trenches at night or leaving a plank of wood leant against the side to ensure badgers can escape if they were to accidentally fall in;
- Storing chemicals safely (e.g., locked away); and
- A toolbox talk will be given to on-site operatives detailing these precautionary measures.

Bats

Bats - Roosting

4.15 The brick-built stable (B1) on site is considered to offer **high** suitability for roosting bats due to the features present and surrounding suitable habitat on site and within the wider area. The PEA found that all other buildings on site were of negligible suitability for roosting bats. Previous emergence/re-entry surveys were conducted on B1 in June-July 2019 and revealed no bats roosting. Updated surveys on the suitable building on site should be conducted and these should comprise three dusk emergence / dawn re-entry surveys between May and September, with at least two visits between May and August.

4.16 The trees on site (see Appendix 3) considered to offer **high** suitability for roosting bats are to be retained therefore it is very unlikely that there is a risk of death/injury or disturbance to this species during the construction phase. Therefore, further bat surveys on trees are not considered necessary.

4.17 The site could be enhanced for roosting bats through the provision of traditional bat boxes that could be mounted on retained trees. There are numerous bat box designs, but the improved crevice bat box

provides roosting conditions for crevice inhabiting species including common pipistrelle and Natterer's bat *Myotis nattereri*. See Figure 1 for an illustration.

Figure 1: Improved crevice bat box

Bats - Foraging/Commuting

4.18 The site is assessed as having overall **moderate** suitability with the presence of higher quality habitats at the boundaries, such as rivers, lines of trees and woodlands. Foraging opportunities are present within the semi-improved grassland.

4.19 The majority of the most valuable habitat on site is being retained and protected (i.e., the boundary habitats). The construction of the secondary hockey pitch will involve the loss of the goat willow dominated woodland. The suitability of the semi-improved grassland will be diminished. In order to ascertain how foraging and commuting bats are using the site and the site boundaries, static and activity surveys are recommended.

4.20 Given that the majority of the more valuable habitats will be retained, activity surveys are not required unless and until floodlighting is proposed. A survey should then comprise a suitable scope to assess effects of the floodlights and include a minimum of three visits across the bat active season; one in spring (April/May), another in summer (June/July/August) and the final in autumn (September/October). Surveys should include a walked transect as well as at least five nights of static monitoring surveys at suitable locations across the site per season.

4.21 In general, it is recommended that site lighting around key features likely to be used by roosting, foraging or commuting bats is avoided during both the construction and operational phases. If lighting is necessary, then there are a number of ways to minimise the effect of lighting on bats. The following mitigation strategies have been taken from the Institution of Lighting Professionals and Bat Conservation Trust's Guidance Note 08/18 Bats and artificial lighting in the UK (2018) and other referenced sources:

- In general, light sources should not emit ultra-violet light so as to avoid attracting insects and thus potentially reducing numbers in adjacent areas, which bats may use for foraging. Metal halide and fluorescent sources should not be used.
- LED luminaires should be used where possible. A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component. Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).

- Limiting the height of lighting columns to 8m and increasing the spacing of lighting columns (Fure, 2006) can reduce spill of light into unwanted areas. Only luminaires with an upward light ratio of 0% and with good optical control should be used. Luminaires should always be mounted on the horizontal, i.e., no upward tilt.
- Other ways to reduce light spill include the use of directional luminaires, shields, baffles and/or louvres. Flat, cut-off lanterns are best. Additionally, lights should be located away from reflective surfaces where the reflection of light will spill onto potential foraging/commuting corridors. Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill. Where windows and glass facades etc. cannot be avoided, low transmission glazing treatments may be a suitable option in achieving reduced illuminance targets.
- Lighting that is required for security or access should use a lamp of no greater than 2000 lumens and be PIR sensor activated on a short timer (1 minute), to ensure that the lights are only on when required and turned off when not in use (Jones, 2000; Hundt, 2012). A control management system can be used to dim (typically to 25% or less) or turn off groups of lights when not in use.

Birds

4.22 The site is considered to provide habitat ubiquitous with the surrounding landscape and suitable for common species. Proposals have the potential to impact breeding bird species, such as ground nesting birds, and therefore further surveys are recommended. A suite of breeding bird surveys should be undertaken between April and July. The results of these surveys should be used to guide compensation and mitigation measures, if required.

4.23 Where clearance or trimming of nesting bird habitat (grassland, scattered trees, scrub, hedgerows and woodland) is required, then this should be undertaken outside the nesting bird season (March to August inclusive), or only once a habitat inspection has been carried out by a suitably qualified ecologist immediately prior to clearance.

4.24 Pending the results of further surveys, the loss of nesting and foraging habitat could be mitigated for through the inclusion of native species planting within retained areas. Given that it will take time for newly planted trees and hedges to develop into potential nesting bird habitat, bird-nesting features or boxes should be installed on site to provide additional nesting sites. Appropriate locations should be advised by an appropriately qualified ecologist.

Invertebrates

4.25 The site is considered unlikely to currently support significant assemblages of rare or notable invertebrates due to the common habitats restricting variety and density of micro-habitats available. As such, no further surveys are recommended to adhere to wildlife legislation or planning policy.

4.26 Several of the refuse piles on site are suitable for stag beetle. It is proposed that organic refuse piles containing dead wood are retained and relocated to the boundary habitats on site in order to provide a source of food and shelter for this species. In addition, dead wood piles should be created to provide additional habitat for invertebrates, namely stag beetle.

Otter and water vole

4.27 The adjacent River Cray provides suitable for otter and water vole and although previous otter and water vole surveys revealed no evidence for these species, these surveys were undertaken at a suboptimal time of year.

4.28 Therefore, presence / likely absence surveys are recommended at a suitable time of year. Given that the suitability of habitat for otter and water vole can change markedly over the course of the breeding season, affecting the distribution and apparent population size, two surveys visits should be undertaken: one in the first half of the season (mid-April to end of June) and one in the second half of the season (July to September inclusive). These visits should be at least two months apart.

Reptiles

4.29 The site provides high quality habitat for reptiles in the form of the semi-improved grassland, scrub, tall ruderal, hedgerows, woodland, and river. There is good connectivity to the wider area, and other suitable habitat. Previous reptile surveys conducted in 2019 revealed a low population of common reptiles are present in the boundary habitats on site.

4.30 To prevent reptiles from colonising the main area of site and therefore guarding them against residual risk of harm, it is advised that the semi-improved grassland habitat on site is to be regularly maintained in the period leading up to construction works. The sward should be kept short through regular mowing. Any clearance of the longer grass and ruderal habitats should be undertaken in two phases. The first cut should be to a height of no less than 15cm above ground level, then a minimum of 24 hours should be allowed to elapse before full clearance to ground level, which gives time for any reptiles disturbed to move into the any adjacent suitable habitat offsite. Once these taller vegetative areas are cut, they are to be maintained regularly to keep the sward short. In addition, potential reptile refugia such as the refuse piles should be removed by hand to mitigate risk of death/injury.

4.31 Previous surveys for this species (Hybrid Ecology, 2019) are currently still in date and the boundary habitats where reptiles were found to be present, are to be retained. For these reasons, an update survey for the presence/absence of reptiles on this site is not considered necessary to prevent injury and death to this species during the construction phase. Mitigation in the form of reptile exclusion fencing should be erected around the site boundary to deter reptiles from entering the construction area of the site.

Notable Mammals

4.32 Potential impacts to notable mammals include risk of death/injury to European hedgehog. Loss of habitat is not considered to be a significant effect, given the suitable habitat is largely being retained, and this species can still use the semi-improved grassland area of the site for foraging even after the development.

4.33 General precautionary measures recommended to protect badgers during the construction phase will also serve to protect notable mammals during construction.

4.34 If any suitable hedgehog habitats (refuse piles or tall ruderal vegetation) are to be cleared, this should be undertaken outside of the hedgehog hibernating season (generally November to February inclusive) in a staged way to ensure animals can move from the area (method detailed in 4.22). The optimum time to remove vegetation would be during September/October as this avoids both the nesting bird season and hedgehog hibernation season.

5.0 Conclusions

5.1 It is considered that the site may provide suitable habitat for a number of protected and/or notable species. A summary of likely impacts and mitigation is provided in the table below.

Table 7: Summary of likely impacts, mitigation and enhancement measures and residual effects

Feature	Likely Impacts	Further Surveys / Assessment	Likely Mitigation Measures and Enhancements	Likely Residual Effect
SSSI/LNR	No likely impacts	N/A	No mitigation, consultation either Natural England is considered unnecessary due to the scale and nature of proposed development.	Neutral
SINC	Located within River Cray Metropolitan SINC	Detailed assessment as part of EcIA	Habitat enhancement within wider site to offset loss of grassland from hockey pitches. See habitats section below.	Neutral
Habitats	Damage to retained trees and woodland during construction. Loss of woodland on site. Loss of semi-improved grassland field, which may be re-assessed as a higher value habitat post further botanical surveys. Lighting impacts during/post construction.	Botanical survey during optimal survey season (May-July).	Use of Heras fencing around trees, woodland and scrub. Management of remaining grassland around pitches as wildflower meadows. Implementation of wildlife sensitive lighting.	Neutral
Rare and notable flora	Loss of flora, which may be re-assessed as being of higher value post further botanical surveys.	Botanical survey during optimal survey season (May- July).	Retention and protection of rare / notable flora if found.	Neutral
Badger	Possible badger sett on site. Injury/death during construction	Badger sett update survey If present, badger sett monitoring survey undertaken.	If present, provide an assessment report detailing survey results and mitigation measures including precautionary measures during the construction phase to follow.	Neutral
Bats	Loss of roost if present in brick-built stable building (B1). Diminished quality of foraging and commuting habitat if flood lighting is to be	Emergence/re-entry surveys on B1. Seasonal bat activity surveys if floodlighting	Implementation of wildlife sensitive lighting. Retention of site boundary habitats.	Neutral

Feature	Likely Impacts	Further Surveys / Assessment	Likely Mitigation Measures and Enhancements	Likely Residual Effect
	included within the proposals.	included within proposals.	Demolition of B1 under a licence from Natural England if bats found to be roosting here. Provision of bat boxes as compensation if roost found, or enhancement if roost not found.	
Birds	Injury/death of birds and eggs during construction	Breeding bird checks	Works to clear trees or scrub to be undertaken outside of breeding bird season or after an ecologist has confirmed no active nests are present. Provision of bird boxes	Neutral
Invertebrates	No likely impacts	N/A	Implementation of wildlife sensitive lighting. Relocation of suitable habitat piles to retained habitat. Provision of dead wood for stag beetle and other invertebrates.	Neutral
Reptiles	Risk of Injury/ and or death	N/A	Precautionary methods for vegetation clearance. Exclusion fencing to be erected around the construction area.	Neutral
Notable mammals	Injury/death during construction for European hedgehog.	N/A	Precautionary methods for vegetation clearance. Standard precautionary measures during construction phase (see paragraph 4.22)	Neutral

5.2 Through the above enhancement strategies, it is considered that all significant impacts upon biodiversity, including any potential adverse impacts upon specific protected species, habitats and designated sites, will likely be able to be wholly mitigated in line with relevant wildlife legislation, chapter 15 of the NPPF (MHCLG, 2019); and local policies *CS18* of the *London Borough of Bexley Core Strategy (February 2012).*

6.0 References

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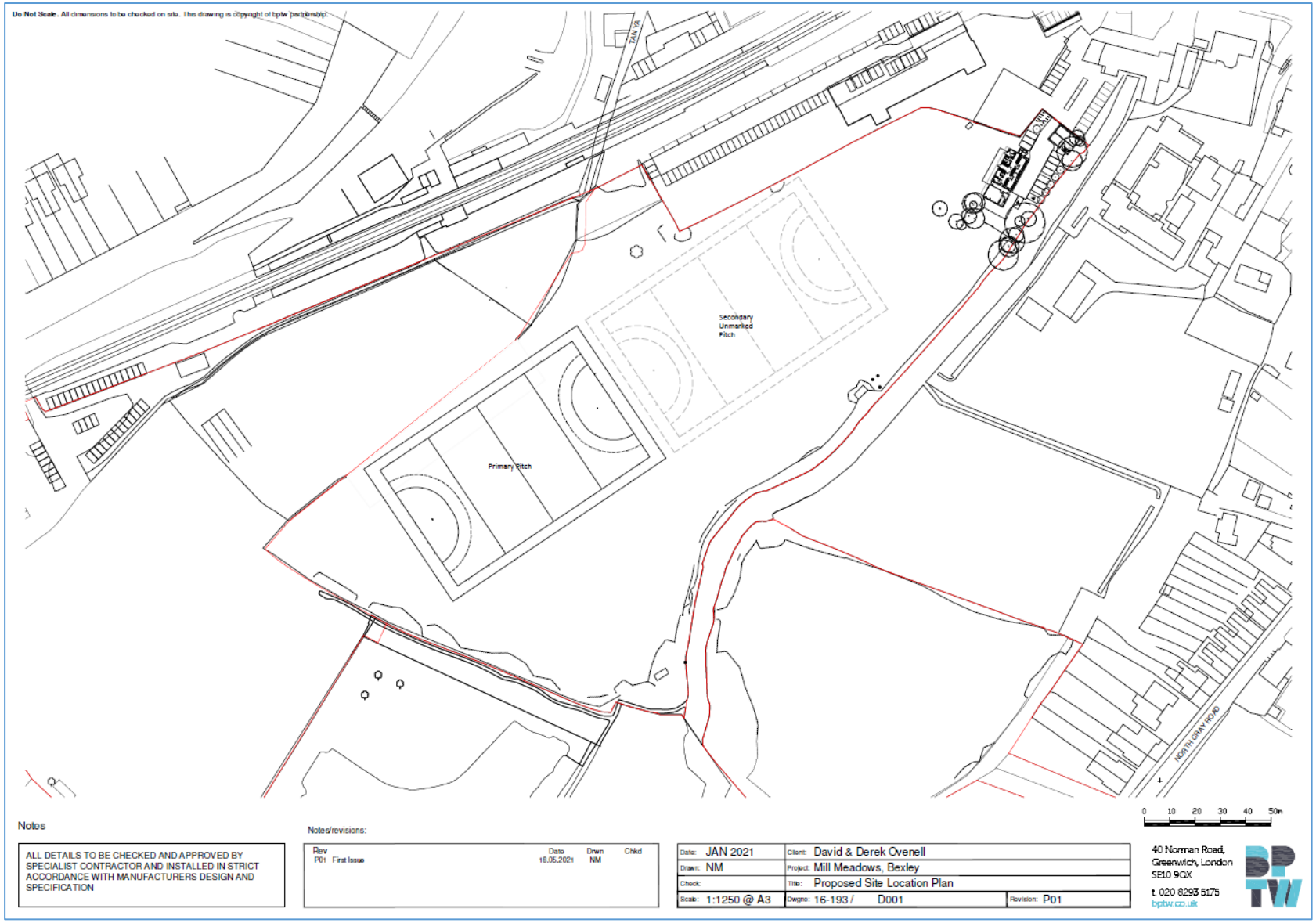
Appendix 1. Site Plans

Site Location Plan

Development Proposal



Appendix 2. Legislative and Policy Framework

National Planning Policy

This document has not been prepared by a legal or planning professional and should be read as an interpretation of relevant statutes and planning policy guidance only. The information presented within this document has been reported in good faith and are the genuine opinion of SES on such matters. SES does not accept any liability resulting from outcomes relating to the use of this information or its interpretation within this document.

National Planning Policy

The NPPF (MHCLG, 2019) states that:

Paragraph 170

Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

Paragraph 175

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.

Local Planning Policy

The policies related to nature conservation *London Borough of Bexley Core Strategy* (February 2012) are set out below.

Policy CS18 Biodiversity and geology

The Council will protect and enhance its biodiversity and geological assets, whilst complying with national and regional policy and guidance by:

- Ensuring development in Bexley does not adversely affect the integrity of any European site of nature conservation importance (including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites) outside the borough. In particular, consideration will be given to potential impacts on the Thames Estuary and Marshes SPA through increased visitor pressure and reduced water quality, and on Epping Forest SAC through reduced air quality;
- Protecting, conserving and enhancing Bexley's Sites of Special Scientific Interest (SSSI) and Sites of Importance for Nature Conservation (SINC);
- Resisting development that will have a significant impact on the population or conservation status of protected species and priority species as identified in the UK, London and Bexley Biodiversity Action Plans;
- Protecting and enhancing the natural habitat as far as practicable, seeking biodiversity enhancements and improved access to nature, particularly in areas of deficiency, through new development, including new residential development and projects that help deliver the Open Space Strategy. Preference will also be given to enhancements which help to deliver the targets for habitats and species set out in the London Plan and Bexley Biodiversity Action Plan;
- Recognising the value of landforms, landscapes, geological processes and soils as contributors to the geodiversity of the borough, and evaluating whether it is appropriate to designate any Regionally or Locally Important Geological Sites (RIGS or LIGS) in the borough;
- Enabling environmental education opportunities at the borough's schools, and investigating opportunities to involve the wider community in biodiversity or geodiversity restoration and enhancement through projects; and
- Seeking opportunities to provide for greening of the built environment, including green roofs and walls in new buildings.

Wildlife Legislation

The two principal wildlife statutes are the Conservation of Habitats and Species Regulations (The Habitats Regulations 2019) that deals with internationally important sites and species, and the Wildlife and Countryside Act (WCA) 1981 that deals with nationally important sites and species.

Certain habitats and species within discrete sites are protected as SSSI under the WCA 1981. A proportion of these are more strictly protected as proposed or designated SPA, SAC and Ramsar sites under the Conservation of Habitats and Species Regulations (2019). These designations protect features and resources listed as being of international importance from both direct and indirect effects arising from a range of issues including proposed development. In addition, non-statutory designated

sites (e.g. Local Wildlife Sites) are protected under the National Parks and Access to the Countryside Act, (1949) Section 21.

Certain species listed on Schedule 5 of the WCA 1981, including all bat species, great crested newt *Triturus cristatus,* hazel dormouse *Muscardinus avellanarius* and otter *Lutra lutra* are also protected under Schedule 2 of the Habitats Regulations 2010 making them European Protected Species (EPS). Taken together it is illegal to:

- Deliberately kill, injure or capture any wild animal of EPS;
- Deliberately disturb wild animals of any EPS in such a way to be likely to significantly affect:
- The ability of any significant groups of animals of that species to survive, breed, rear or nurture their young; or
- The local distribution of that species.
- Recklessly disturb an EPS or obstruct access to their place of rest;
- Damage or destroy breeding sites or resting places of such animals;
- Deliberately take or destroy the eggs of such an animal;
- Possess or transport any part of an EPS, unless acquired legally; and/or
- Sell, barter or exchange any part of an EPS.

A range of species other than birds, including water vole *Arvicola amphibius*, is protected from disturbance and destruction under the WCA 1981 through inclusion on Schedule 5.

All breeding birds are protected from deliberate destruction under the WCA 1981. Certain species are further protected from disturbance at their nest sites being listed on Schedule 1 of the WCA 1981.

Common reptiles including common lizard *Zootoca vivipara,* slow-worm *Anguis fragilis*, grass snake *Natrix helvetica* and adder *Vipera berus* are protected under the WCA 1981, they are listed as schedule 5 species, therefore part of Section 9(1) and section 9(5) apply; the Countryside and Rights of Way Act 2000 (CRoW) also strengthens their protection.

Badger *Meles meles* is protected from sett disturbance and destruction under the Protection of Badgers Act 1992.

Section 40 of The Natural Environment and Rural Communities Act (NERC) 2006 places a legal duty on Local Authorities to conserve biodiversity. Section 41 (S41) sets out a list of 943 species and habitats of principal importance. These species are known as England Biodiversity Priority (EBP) species and are those identified as requiring action under the former UK Biodiversity Action Plan (BAP) and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework.

Native, species-rich hedgerows that fit certain criteria are protected as being 'important' under the Hedgerow Regulations (1997).

Appendix 3. Phase 1 Habitat Plan

Phase 1 Package

Works Layers

Red line

Habitats

Constraints

Trees with bat roost potential

High

Species constraints points

Badger sett identified

Habitats Pt

Broad-leaved tree

Habitats Ply

A1.1.1 - Broadleaved woodland - semi-natura

A2.1 - Scrub - dense/continuous

A2.2 - Scrub - scattered

B2.2 - Neutral grassland - semi-improved

B4 - Improved grassland

C3.1 - Other tall herb and fern - ruderal

J3.6 - Buildings

J4 - Bare ground

Slate Meadows, Bexley

Phase 1 Habitats Plan

March 2021

Southern Ecological Solutions

Appendix 4. Plant Species

Table 7. Plant Assemblages Recorded during Phase 1 Habitat Survey

Common name	Latin name	Woodland	River	Scrub	Improved grassland	Semi-improved grassland	Tall ruderal herb	Trees
Ash	*Fraxinus excelsior*	A						D
Alder	*Alnus sp*	O						
Bramble	*Rubus fruticosus*		F	A			A	
Broadleaved dock	*Rumex obtusifolius*			F		F	A	
Cleavers	*Galium aparine*			F			A	
Cocks foot	*Dacytlis glomerata*					F		
Common nettle	*Urtica dioica*			F			A	
Common ragwort	*Jacobaea vulgaris*					O	O	
Cow parsley	*Anthriscus sylvestris*			O			A	
Creeping cinquefoil	*Potentilla reptans*					R	R	
Creeping thistle	*Cirsium arvense*					R	R	
Cut-leaved cranesbill	*Geranium dissectum*					R	R	
Daffodil	*Narcissus sp.*						R	
Daisy	*Bellis perennis*					F	O	
Dandelion	*Taraxacum officinale*					O	O	
Dog rose	*Rosa canina*	A						
Doves foot cranesbill	*Geranium molle*					R		
Elder	*Sambucus nigra*	A						A
Elm	*Ulmus sp*	F						F
Goat willow	*Salix caprea*	D						
Green alkanet	*Pentaglottis sempervirens*			R			R	
Himalayan balsam	*Impatiens glandulifera*		R					
Hogweed	*Heracleum sphondylium*			O			D	
Holly	*Ilex aquifolium*	R						R
Iris	*Iris sp*		A					
Ivy	*Hedera helix*	A						A
Ornamental tobacco	*Nicotiana sp*	F					A	
London plane	*Platanus × acerifolia*							
Perennial rye grass	*Lolium perenne*				D	D	O	
Poplar	*Populus sp*	F						
Red dead nettle	*Lamium purpureum*			O		O	O	
Ribwort plantain	*Plantago lanceolata*				F	F	F	
Sedge	*Carex sp*		F					
Spear thistle	*Cirsium vulgare*			F			O	
Speedwell	*Veronica sp.*						R	
Sycamore	*Acer pseudoplatanus*	O						
Water mint	*Mentha aquatica*		O					
White clover	*Trifolium repens*				A	F	F	
Yarrow	*Achillea millefolium*				A	O	O	
Yorkshire fog	*Holcus lanatus*					A		

Appendix 5. Site Photographs

Photo 1: Possible badger sett

Photo 2: Young goat willow wooded stand.

Photo 3: Dense scrub.

Photo 4: Semi-improved grassland field.

Photo 5: Improved grassland.

Photo 6: Tree with canker hole (west boundary).

Photo 7: Trees with dense ivy cover (west boundary).

Photo 8: Tall ruderal herb.

Photo 9: Dense scrub.

Photo 10: Tree with dense ivy cover (east boundary).

Photo 11: Refuse piles.

Photo 12: River Cray

Photo 13: Brick-built Stable block.

Photo 14: Brick-built Stable block interior.

Photo 15: Corrugated stable block.

Photo 16: Corrugated stable block interior.

Photo 17: Wooden stable.

Photo 18: Wooden stable.