

Alton Estate Regeneration
Hybrid Application

**HABITAT
REGULATIONS
SCREENING
ASSESSMENT**

WSP
May 2019



ALTON GREEN

ROEHAMPTON SW15





Redrow Homes Ltd

ALTON ESTATE

Habitats Regulations Screening Assessment

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EXECUTIVE SUMMARY

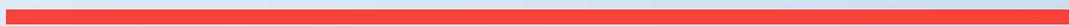


1. EXECUTIVE SUMMARY

- 1.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a Habitat Regulations Screening Assessment (HRSA) to determine the 'Likely Significant Effects' to European sites (Natura 2000 and Ramsar sites) of the proposed redevelopment and regeneration of Alton Estate, Roehampton.
- 1.1.2. Habitat Regulations Assessment is a requirement of the European Council Directive 92/43/EEC 'The Habitats Directive' (as transposed into UK legislation by The Conservation of Habitats and Species Regulations 2017 (as amended)). This report identifies likely impacts of the Project upon areas of nature conservation importance designated/classified under the Directive and screens whether the impacts are likely to be significant.
- 1.1.3. The Alton Estate, developed in the 1950s, is adjacent to Richmond Park Special Area of Conservation (SAC) to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site. The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north. The Site is located within the London Borough of Wandsworth.
- 1.1.4. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a demolition and construction schedule proposed from 2019 – 2030.
- 1.1.5. Richmond Park SAC and Wimbledon Common SAC were included in this assessment through the consideration of their qualifying features and vulnerabilities in relation to the activities of the proposed development.
- 1.1.6. This HRSA concludes that there will be no Likely Significant Effects whether alone or 'in combination' on the qualifying features of Richmond Park SAC or Wimbledon Common SAC.
- 1.1.7. No further assessment, by way of an Appropriate Assessment (Stage 2 of the Habitat Regulations Assessment) is considered necessary.

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INTRODUCTION



2. INTRODUCTION

2.1. OVERVIEW

2.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a Habitat Regulations Screening Assessment (HRSA) to determine the 'Likely Significant Effects' (LSE) to European sites (Natura 2000 and Ramsar sites) of the proposed redevelopment and regeneration of Alton Estate, Roehampton.

2.2. PROJECT DESCRIPTION

2.2.1. Alton Estate comprises the redevelopment and regeneration of Alton Estate (Grid Reference TQ 21807 74113), hereinafter referred to as the 'Site' (Existing Site Location Plan, Appendix A), which was developed in the 1950s. It is adjacent to Richmond Park SAC to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site (Natura 2000 Sites, Appendix B). The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north.

2.2.2. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a phased demolition, construction and refurbishment schedule proposed from 2019 – 2030. The development areas are shown in Application Area Plan (Appendix C).

2.2.3. The proposals are expected to provide homes for an additional 2614 people by 2030¹.

2.3. LOCAL PLANNING AUTHORITIES

2.3.1. The Site is located within the London Borough of Wandsworth. Richmond Park is located within the London Borough of Richmond upon Thames and immediately adjacent to the London Borough of Wandsworth and the Royal Borough of Kingston upon Thames. Wimbledon Common is located in the London Borough of Wandsworth and the London Borough of Merton and immediately adjacent to the Royal Borough of Kingston upon Thames.

2.4. HABITATS REGULATIONS ASSESSMENT

2.4.1. Under Article 6 of the Habitats Directive² an assessment is required where a plan or project, not directly connected with or necessary to the management of a Natura 2000 site, either individually or in combination with other plans or projects, is likely to have a significant effect upon that site.

2.4.2. Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes Special Areas of Conservation (SAC) designated under the Habitats Directive for their habitats and / or species of

¹ Barton Wilmore (2019), Population and Human Health ES Chapter.

² Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:NOT>

European importance and Special Protection Areas (SPA) classified under the Conservation of Wild Birds Directive³ for rare, vulnerable and regularly occurring migratory bird species and internationally important wetlands.

2.4.3. In addition, it is a matter of law that candidate SAC (cSAC) are considered in this process, although potential SAC (pSAC) sites which are proposed in the UK but which are yet to be submitted to the European Commission are not included. It is a matter of Government policy that sites designated under the 1971 Ramsar Convention for their internationally important wetlands (commonly known as Ramsar sites) and potential SPAs (pSPA) are considered.

2.4.4. The requirements of the Habitats Directive are transposed into English and Welsh law by means of the Conservation of Species and Habitats Regulations 2017 (as amended)⁴.

2.4.5. Paragraph 3, Article 6 of the Habitats Directive states that:

'any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives...the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'

2.4.6. Paragraph 4, Article 6 of the Habitats Directive states that:

'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest... the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected...'

2.4.7. These requirements are implemented in the UK through Regulations 61, 62, 66 and 67 of the Habitat Regulations.

2.5. STAGES OF THE HABITATS REGULATIONS ASSESSMENT

2.5.1. The European Commission's guidance on the Habitats Directive sets out four distinct stages for assessment under the Directive, which are detailed in Table 1. This report deals with Stage 1 only.

Table 1 - Stages of Habitats Regulations Assessment

Stage	Description
Stage 1: Screening	The process which initially identifies the likely impacts upon a Natura 2000 site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant.

³ Council Directive 79/409/EEC on the conservation of wild birds:
http://europa.eu/legislation_summaries/environment/nature_and_biodiversity/ev0024_en.htm

⁴ The Conservation of Habitats and Species Regulations 2010/490: <http://www.legislation.gov.uk/ukxi/2010/490/contents/made>

Stage	Description
Stage 2: Appropriate Assessment	The detailed consideration of the impact on the integrity of the Natura 2000 sites of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site. Specific guidance on this stage is provided in Habitat Regulations Guidance Note 15.
Stage 3: Assessment of alternative solutions	The process, which examines alternative ways of achieving the objectives of the plans or projects that avoid adverse impacts on the integrity of the Natura 2000 site.
Stage 4: Assessment	Where no alternative solutions exist and where adverse impacts remain: an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

2.6. SITE AND ZONE OF INFLUENCE

- 2.6.1. A 2km biological record data search was conducted as part of a Preliminary Ecological Appraisal⁶, but also included a 10km search for internationally designated sites. Two SPA and Ramsar designated parcels fall within 10km of the Site, these are part of the South West London Waterbodies SPA and Ramsar. The closest of these is 9.7km to the south-west, due to the distance and lack of pathways to this receptor, these are not considered any further in this report.
- 2.6.2. The proposed project is located adjacent to Richmond Park SAC and approximately 750m west of Wimbledon Common SAC. Plans and projects have the potential to impact on Natura 2000 beyond the confines of the individual sites themselves. The Chartered Institute of Ecology and Environmental Management guidance on Ecological Impact Assessment⁷ states that the 'zone of influence' for a project is the area over which ecological features may be subject to significant effects as a result of the proposed project and associated activities and that this is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond site boundaries. The potential zone of influence is defined as:
- Areas directly within the land take for the proposed development of plans;
 - Areas which will be temporarily affected;
 - Areas likely to be impacted by hydrological disruption; and
 - Areas where there is a risk of pollution and disturbance (e.g. air, access/visitor pressures, invasive species introduction).

⁵ English Nature (2004). Habitat Regulations Guidance Note #1: The Appropriate Assessment (Regulation 48), The Conservation (Natural Habitats &c.) Regulations, 1994.

⁶ WSP (2019) Alton Estate - Preliminary Ecological Appraisal and Badger Report. Report Ref.: 70035188-PEA, WSP, London.

⁷ CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute of Ecology and Environmental Management, Winchester

- 2.6.3. The Highways Agency Design Manual for Roads and Bridges⁸ recommends that a detailed air quality assessment is carried out for designated ecological sites within 200m of a road with an increase in traffic resulting from the development of more than 1000 Annual Average Daily Traffic (AADT).
- 2.6.4. Research indicates that few people are willing to walk for more than five or ten minutes to their local natural open space.⁹ This translates into a distance of around 500 metres.
- 2.6.5. The zone of influence therefore includes the footprint of the works and has been extended to 1km to capture potential indirect impacts on the qualifying features.
- 2.6.6. To assess in-combination impacts a 1km zone around the works and access routes has been used.
- 2.6.7. Habitats located and identified within the zone of influence include:
- Broadleaved woodland
 - Plantation woodland
 - Parkland
 - Scrub;
 - Introduced shrub;
 - Heathland;
 - Amenity grassland;
 - Semi-improved neutral grassland;
 - Acid grassland;
 - Hard standing and buildings; and
 - Ponds
- 2.6.8. These habitats will be considered in context of pathways and effects, as well as the supporting functions for which the Natura 2000 sites are designated or classified (the qualifying species features).

2.7. CONSULTATION

In accordance with best practice this HRSA was issued to Natural England (NE) for their comment. A response was received on 4 December 2018 stating that, 'We [Natural England] *agree with the conclusion that there will be no likely significant effect at Richmond Park SAC and Wimbledon Common SAC*'.

⁸ <http://www.standardsforhighways.co.uk/ha/standards/dmr/vol11/section3/ha20707.pdf> accessed 23/08/2018

⁹ https://www.london.gov.uk/sites/default/files/appendix_5_sinc_selection.pdf accessed 09/01/2018

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RELEVANT NATURA 2000 SITES



3. RELEVANT NATURA 2000 SITES

3.1. OVERVIEW OF RELEVANT NATURA 2000 AND RAMSAR SITES

3.1.1. There are two Natura 2000 sites designated under the Habitats Directive (Council Directive 92/43/EEC) within the zone of influence. There are no Ramsar sites present within 2km of the Site. The individual interest features of each site and key issues and threats identified are summarised in Table 2.

3.2. RICHMOND PARK SAC

3.2.1. Richmond Park has been managed as a royal deer park since the seventeenth century and is of particular importance for its deadwood beetle fauna. It is designated an SAC for the stag beetle *Lucanus cervus* population. The park supports dry acid grassland and neutral unimproved grassland mosaic and has extensive wooded areas, with a population of veteran trees.

3.2.2. There are not any current issues identified in the Natural England Site Improvement Plan¹⁰, but loss of deadwood would affect the stag beetle population. The only measure identified in the management plan is that there should be periodic review to ensure the continuing availability of decaying wood habitat.

3.2.3. The following conservation objectives¹¹ have been set to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:

- The extent and distribution of the habitats of qualifying species;
- The structure and function of the habitats of qualifying species;
- The supporting processes on which the habitats of qualifying species rely;
- The populations of qualifying species; and,
- The distribution of qualifying species within the site.

3.2.4. Richmond Park SAC is also Richmond Park Site of Special Scientific Interest (SSSI). The 2010 SSSI assessments for Richmond Park¹² assessed the condition of all units as unfavourable – recovering. The volume of fallen timber resource varied across the woodland units, with Unit 2 having good levels of lying dead wood, Unit 7 had a high volume of fallen timber, Unit 9 had little dead wood evident, Unit 11 had little deadwood evident, Unit 12 had scarce deadwood, Unit 14 had a good dead wood resource, quantity of fallen timber is good and Unit 15 provides good dead wood resource. Assessment for Units 6 and 9 did not provide information as to the amount of dead wood.

¹⁰ Natural England (2014) Site Improvement Plan: Richmond Park.
<http://publications.naturalengland.org.uk/publication/6625232836100096> accessed 12/12/2017

¹¹ Natural England (2014) Conservation Objectives: Richmond Park SAC
<http://publications.naturalengland.org.uk/publication/5279688851193856> accessed 12/12/2017

¹² <https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1002388&ReportTitle=Richmond Park SSSI> accessed 14/12/2017

VISITORS TO RICHMOND PARK

- 3.2.5. It is estimated that there were 5,461,321 visitors to Richmond Park from 23rd November 2013 – 22nd November 2014¹³. An Ipsos MORI 2014 survey found 88% of visitors were from London, with 6% from the rest of the British Isles and 4% from outside the UK¹⁴.

3.3. WIMBLEDON COMMON SAC

- 3.3.1. Wimbledon Common supports a mosaic of habitats including broadleaved woodland, acid grassland, dry and wet heath, scrub and mire. It is primarily designated an SAC for the stag beetle population and the secondary qualify feature is for dry and wet heaths. Reported sightings of stag beetles¹⁵ has declined since 2014 when there were 73, to 34 in 2015 and 21 in 2016. It is unclear if this is due to under-recording or an actual decline in numbers. A new stag beetle 'loggery' was established in 2016, with further ones planned.
- 3.3.2. Current pressures identified in the Natural England Site Improvement Plan¹⁶ include:
- Public Access/Disturbance – adverse impacts such as compaction around the base of mature trees and removal of fallen timber;
 - Habitat fragmentation;
 - Invasive species - specifically oak processionary moth *Thaumetopoea processionea*; and
 - Air pollution - impact of atmospheric nitrogen deposition.
- 3.3.3. The following conservation objectives¹⁷ have been set to ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring:
- The extent and distribution of qualifying natural habitats and habitats of qualifying species;
 - The structure and function (including typical species) of qualifying natural habitats;
 - The structure and function of the habitats of qualifying species;
 - The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely;
 - The populations of qualifying species; and,
 - The distribution of qualifying species within the site.

¹³ https://www.royalparks.org.uk/_data/assets/pdf_file/0005/53357/Royal-Parks_Final-full-report.pdf accessed 12/12/2017

¹⁴ https://www.royalparks.org.uk/_data/assets/pdf_file/0004/53356/Richmond-Park.pdf accessed 12/12/2017

¹⁵ Wimbledon and Putney Commons Monitoring Report Spring/Summer 2016. <https://www.wpcc.org.uk/downloads/nature/monitoring-report---complete-08.05.17.pdf>

¹⁶ Natural England (2014) Site Improvement Plan: Wimbledon Common <http://publications.naturalengland.org.uk/publication/5638512552443904?category=6149691318206464> accessed 12/12/2017

¹⁷ Natural England (2014) Conservation Objectives: Wimbledon Common SAC <http://publications.naturalengland.org.uk/publication/5706571287887872> accessed 12/12/2017

- 3.3.4. The 2013 and 2014 SSSI assessments for Wimbledon Common¹⁸ assessed the condition of all units as unfavourable – recovering or unfavourable – no change. Unit 1 (heathland) states that there are areas in good condition and there had been recent tree and scrub clearance but there are low structural and age diversity in the vegetation, low cover of bare ground and gaps in the vegetation. Unit 1 showed no indications of significant damaging impacts arising from trampling, burning or disturbance. Unit 6 (Woodland) was assessed as having a good range of decaying wood but some areas lacked large trunks or dead limbs. In areas heavy recreational use was causing soil compaction, which caused prevention of regeneration. Unit 8 (woodland) had frequent decaying wood. Unit 9 (heathland) had signs of gorse control and the rough areas did not seem to be suffering from significant over management/high footfall, the unfavourable status was largely attributed largely to inappropriate cutting.

VISITORS TO WIMBLEDON COMMON

- 3.3.5. Wimbledon Common SAC is un-enclosed and open 24 hours a day, meaning it is difficult to estimate visitor numbers and there is not any accurate information available¹⁹. The Conservation and Engagement Officer has suggested that during the week, the vast majority of people using the Commons are dog walkers, with organised sporting events at the weekends.

¹⁸ [https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1004317&ReportTitle=Wimbledon Common SSSI](https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1004317&ReportTitle=Wimbledon%20Common%20SSSI) accessed 14/12/2017

¹⁹ Peter Haldane, Conservation and Engagement Officer, Wimbledon and Putney Commons, pers. comm., 28th December 2017.

Table 2 - Natura 2000 and Ramsar sites within 2km of the Site

Site name, designation and code	Qualifying Features	Area and distance from the Alton Estate	Current Conditions	Key Issues and Threats
Richmond Park SAC UK0030246	The Annex II species: stag beetle <i>Lucanus cervus</i> .	846.27 hectares Adjacent to south-west	SSSI's: Unit 1: Unfavourable – recovering. Unit 4: Unfavourable – recovering. Unit 5: Unfavourable – recovering. Unit 7: Unfavourable – recovering. Unit 10: Unfavourable – recovering. Unit 11: Unfavourable – recovering. Unit 12: Unfavourable – recovering. Unit 13: Unfavourable – recovering. Unit 14: Unfavourable – recovering. Unit 15: Unfavourable – recovering.	Construction: Disturbance (visual, noise, lighting). Pollution (air quality, dust generation, deposition, run-off). Operational: Recreational disturbance. Urbanisation (e.g. lighting, noise, domestic pets and predation, fly tipping). Hydrology and pollution.
Wimbledon Common SAC UK0030301	The Annex I habitats: 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> and 4030 European dry heaths. The Annex II species: stag beetle <i>Lucanus cervus</i> .	351.38 hectares 0.75km to east	SSSI's: Unit 2 – Unfavourable – recovering. Unit 6 – Unfavourable - recovering. Unit 8 – Unfavourable – recovering. Unit 9 – Unfavourable – no change.	Construction: Disturbance (visual, noise, lighting). Pollution (air quality, dust generation, deposition, run-off). Operational: Recreational disturbance.



Site name, designation and code	Qualifying Features	Area and distance from the Alton Estate	Current Conditions	Key Issues and Threats
				Urbanisation (e.g. lighting, noise, domestic pets and predation, fly tipping). Hydrology and pollution.

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POTENTIAL EFFECTS ON NATURA 2000 SITES



4. POTENTIAL EFFECTS ON NATURA 2000 SITES

4.1. HABITAT LOSS

- 4.1.1. There will be no loss of habitat from relevant Natura 2000 sites as a consequence of this development.
- 4.1.2. The Site contains a limited area of supporting habitats, with a small amount of dead wood and suitable habitats for stag beetles.²⁰ An invertebrate survey by WSP in 2017 did not record stag beetle on the Site.²¹

4.2. CONSTRUCTION PHASE

- 4.2.1. The construction phase is planned from 2020-2030. During the construction phase there is the potential for the following effects to occur:
- Increase in disturbance (visual, noise, lighting); and
 - Increase in pollution (air quality, dust generation, deposition, run-off).

DISTURBANCE

- 4.2.2. Whilst part of the Alton Estate application boundary is immediately adjacent to Richmond Park SAC to the south-west, there would be limited potential for disturbance effects to occur on the qualifying features of the SAC. Construction, demolition and refurbishment activities are limited to intervention areas within the Red Line boundary, with construction not immediately adjacent to Richmond Park SAC.
- 4.2.3. Based on the current design, there will be no light spillage from construction to the south or west, and Minstead Gardens refurbishment is located c.300m east of Richmond Park SAC. Between Minstead Gardens and the SAC, the golf course, existing trees lines and Priory Lane (a busy access road for the Park) offers a buffer between the refurbishment works and the Natura 2000 site. Therefore, it is considered that disturbance during the construction phase would have negligible potential to cause any likely significant effects on Richmond Park SAC. Richmond Park SAC is designated for stag beetles, and the issues and threats associated with disturbance identified are not considered likely to have an impact on the species. Stag beetle populations are dependent primarily on the availability of dead and rotting wood which can be controlled through the management of the habitats where the beetles are found.
- 4.2.4. Wimbledon Common SAC lies approximately 0.75km to the south-east, due to this distance the likelihood of disturbance during the construction phase causing likely significant effects are considered to be negligible.

²⁰ WSP (2017) Alton Estate - Preliminary Ecological Appraisal and Badger Report. Report Ref.: 70035188-PEA, WSP, London.

²¹ WSP (2017) Alton Estate – Invertebrate Survey. Report Ref.: 70035188-INV, WSP, London.

POLLUTION

- 4.2.5. The Air Pollution Information System (APIS) concludes that whilst the woodland habitats are sensitive to nitrogen deposition, stag beetles are not vulnerable. This is due to nitrogen deposition not thought to have a direct, major effect on tree growth in the UK, resulting in the same supply of dead wood. Most of the effects of nitrogen deposition on woodlands are on features other than tree growth, such as ground flora, fungi and lichen populations. Heathlands are more sensitive to air pollutants, with wet heaths considered more sensitive to dry heaths.
- 4.2.6. Wimbledon Common SAC contains wet and dry heath that could be vulnerable to changes in air pollution, which is summarised in Table 4. Wimbledon Common is bordered by the A3 and A219 and could be particularly susceptible to airborne deposition of nitrogen NOx. The A3 and other roads close to the SAC are a source of eutrophication and acidification of the SAC that may lead to changes in vegetation, including loss of sensitive species and transition from dwarf shrub to grass-dominated habitats.
- 4.2.7. The Highways Agency Design Manual for Roads and Bridges²² recommends that a detailed air quality assessment is carried out for designated ecological sites within 200m of a road with an increase in traffic resulting from the development of more than 1000 Annual Average Daily Traffic (AADT). The traffic data shows that traffic associated with the development is not predicted to exceed this threshold on any roads within 200m of either SAC. Therefore, both sites have been excluded from the air quality assessment as impacts on the critical loads/levels are not expected to be significant.
- 4.2.8. Both the traffic and air quality assessments,^{23, 24} conclude that the predicted change in level in airborne pollutants would be insignificant. Therefore, the effects of the Proposed Development on the SACs will be negligible.
- 4.2.9. Dust pollution during construction is likely to be restricted to the Proposed Development footprint and immediately adjacent areas. It will not result in significant habitat change within either SAC i.e. loss of woodland / deadwood habitat, which may affect stag beetle. Furthermore, in the case of the heathland habitat for which Wimbledon Common is designated, this SAC is approximately 0.75km from the construction footprint, and will not be affected by construction related pollution. Therefore there will not be any likely significant effects on the qualifying features of the SACs.
- 4.2.10. There are no watercourses present within the Site and the proposed drainage is unlikely to adversely affect the groundwater on the Site. Existing drainage connections will be utilised where

²² WSP (2017) Alton Estate - Preliminary Ecological Appraisal and Badger Report. Report Ref.: 70035188-PEA, WSP, London.

²² WSP (2017) Alton Estate – Invertebrate Survey. Report Ref.: 70035188-INV, WSP, London

²³ Barton Wilmore (2018) Alton Estate Environmental Statement. Chapter 9: Transport and Access

²⁴ Barton Wilmore (2018). Alton Estate Environmental Statement. Chapter 10: Air Quality

possible and there is expected to be little change in the drainage regime other than providing some betterment to discharge rates in accordance with local policy²⁵.

- 4.2.11. Due to the distance of Wimbledon Common SAC, it is unlikely there is any connectivity between the Site and ground water dependent habitats present. It is therefore considered that during the construction phase there would be negligible potential for any likely significant effects.

SUMMARY

- 4.2.12. No likely significant effects are anticipated to Richmond Park SAC or Wimbledon Common SAC as a result of potential increases in disturbance or pollution associated with the proposed development activities during construction.

4.3. OPERATIONAL PHASE

- 4.3.1. The Proposed Development will lead to an increase in an estimated 2614 new local house occupants, and will potentially lead to an increase in the potential for the following issues and threats:

- Increase in recreational disturbance (excessive trampling, compaction and erosion of soil, disturbance and fouling by dogs and incidental fires);
- Increase in urbanisation (e.g. lighting, noise, domestic pets and predation, fly tipping);
- Changes in hydrology; and
- Increase in air pollution.

RECREATIONAL DISTURBANCE

- 4.3.2. Increased recreational disturbance has many different potential effects. Various recreational activities including hiking, dog walking, cycling, picnicking and horse riding are likely to result in soil compaction and erosion. Walkers with dogs can cause significant disturbance and nutrient enrichment and incidental fires can be a problem. Both Natura 2000 sites have high levels of recreational pressure, due to the urban location. The Wandsworth Local Plan HRA²⁶ highlights recreational pressure as the most commonly-occurring 'threat' to sites.
- 4.3.3. Studies have shown the effects from recreation can be complex, with studies conducted on the effects of heathland sites in a series of English Nature reports^{27, 28, 29, 30}. Dog walking can cause

²⁵ Barton Wilmore (2018). Alton Estate - Flood Risk and Drainage Strategy.

²⁶ Wandsworth Local Plan, Habitats Regulations Assessment, April 2015

²⁷ Land Use Consultants (2005) – Going, going, gone? The cumulative impact of land development on biodiversity in England. *English Nature Research Reports*, No. 626.

²⁸ Rose, R.J. and R.T. Clarke (2005) – Urban impacts on Dorset Heathlands: Analysis of the heathland visitor questionnaire survey and heathland fires incidence data sets. *English Nature Research Reports*, No. 624.

²⁹ Tyldesley, D. and associates (2005) – Urban impacts on Dorset heaths: A review of authoritative planning and related decisions. *English Nature Research Reports*, No. 622.

³⁰ Underhill-Day, J.C. (2005) – A literature review of urban effects on lowland heaths and their wildlife. *English Nature Research Reports*, No. 623.

eutrophication and habitats such as heathland are particularly sensitive to the fertilising effects of increased phosphates, nitrogen and potassium from dog faeces³¹.

- 4.3.4. Richmond Park SAC is estimated to have 5,461,321 visitors per year and when the size of the catchment area for the Park is considered, an increase of approximately 2614 residents is proportionately, likely to be insignificant. Stag beetles are generally not sensitive to trampling or eutrophication effects. Therefore recreation effects on Richmond Park are not considered to have any likely significant effects.
- 4.3.5. The areas of heath on Wimbledon Common could be vulnerable to recreational pressures. From the SSSI Unit maps, the areas of heath are situated to the north and south of Wimbledon Common. The 2013 SSSI condition assessment for Unit 1 states that measures are needed to bring the unit into a favourable condition including increasing the amount of bare ground and gaps and reducing scrub cover. The SSSI condition assessment for Unit 9 states that the rough areas did not seem to be suffering from significant over-management/high footfall and that inappropriate cutting had in the past been implemented.
- 4.3.6. The extent of the heath is increasing due to a programme of tree and scrub removal, although it fails to meet key targets for quality. However, the condition assessment also concludes that there are no indications of significant damaging impacts to the heathland arising from non-native species, drainage, trampling, burning or disturbance. The grassland areas appear to be the main areas for recreation use, rather than the heathland, which do not represent any SAC features. The extent of historic scrub encroachment suggests that a lack of physical disturbance and trampling (which would help limit encroachment) from both people and grazing animals, is more of a concern rather than excessive footfall. It is concluded due to the distance of Wimbledon Common SAC and the proximity of Richmond Park SAC that a general increase in recreational pressure is not likely to impact the areas of heath on Wimbledon Common SAC and the effect of the Proposed Development is considered negligible.
- 4.3.7. It should be noted that access to Richmond Park SAC and Wimbledon Common SAC is encouraged and resources are available to ensure recreational use is managed appropriately. Research indicates that few people are willing to walk for more than five or ten minutes to their local natural open space.³² This translates into a distance of around 500 metres, suggesting that Wimbledon Common SAC (located approximately 750m east of the Site) would be at less potential risk to suffer from recreational pressure.
- 4.3.8. The Site has considerable open space which will be retained and enhanced as part of the regeneration works. There is parkland present within the Site and a pedestrian and cycle loop are planned, which could significantly reduce the likelihood of residents in the development seeking other areas for recreation.

³¹ Shaw, P.J.A., K. Lankey and S.A. Hollingham (1995) – Impacts of trampling and dog fouling on vegetation and soil conditions on Headley Heath. *The London Naturalist*, 74, 77-82.

³² https://www.london.gov.uk/sites/default/files/appendix_5_sinc_selection.pdf accessed 09/01/2018

- 4.3.9. Stag beetle populations are dependent primarily on the availability of dead and rotting wood during its life stages, which can be controlled through the management of habitats. The HRA for the London Borough of Richmond upon Thames Local Plan³³ states that stag beetle populations are affected by habitat management, but not by developments. This is similar with Wimbledon Common SAC, although, the Site Improvement Plan has identified dead wood has been removed by site visitors, which could adversely affect the ability of the SAC to support stag beetles. However, this is a very specific action by individuals and cannot be attributed to, or correlated directly with, increased visitor numbers. It is therefore concluded that increased recreational pressures are not likely to impact stag beetle populations and the effect of the Proposed Development is considered negligible.

URBANISATION

- 4.3.10. Stag beetle predators include cats, foxes, crows and kestrels, with threats directly from humans being crushed by traffic or feet³⁴. There are extensive impacts possible from increased urbanisation, with impacts related to predation from domestic pets and introduction of non-native species through fly-tipping, as both result from increased populations. Fly-tipping can cause the introduction of invasive non-native species with garden waste³⁵ and a 1997 study indicated that nine million British cats brought home 92 million prey items in a five-month period.³⁶ The Site is already urban and built up, with the development focusing largely on regeneration, retaining a similar footprint to the existing estate. The provision and retention and enhancement of greenspace will help to alleviate urbanisation impacts, and with no reduction to the baseline extent of local greenspace (Downshire Field), urbanisation effects are considered negligible.

HYDROLOGY

- 4.3.11. As stated in the construction phase section, there are no watercourses present within the Site and the proposed drainage is unlikely to adversely affect the groundwater on Site. A range of Sustainable Drainage Systems (SuDS) are proposed as part of the development and these will be designed in accordance with the CIRIA C753 publication 'The SuDS Manual'. The drainage will utilise existing drainage connections to the public sewers where possible and there is expected to be little change in the drainage regime other than providing betterment to discharge rates in accordance with regional and local policy³⁷.
- 4.3.12. Based on the current design, it is therefore concluded that there will not be a significant impact on hydrology after construction and any impact on stag beetle populations from the Proposed Development is considered negligible.

³³ LUC (2016) London Borough of Richmond upon Thames. Publication Local Plan. Habitats Regulations Assessment Report. https://www.richmond.gov.uk/media/13322/local_plan_publication_habitats_regulations_assessment_report_2016.pdf accessed 23/08/2018

³⁴ <https://ptes.org/campaigns/stag-beetles/stag-beetle-facts/> accessed 16/04/2018

³⁵ Gilbert, O. & Bevan, D. 1997. The effect of urbanisation on ancient woodlands. *British Wildlife* 8: 213-218

³⁶ Woods, M. et al. 2003. Predation of wildlife by domestic cats *Felis catus* in Great Britain. *Mammal Review* 33, 2 174-188

³⁷ Barton Wilmore (2018). Alton Estate - Flood Risk and Drainage Strategy

INCREASE IN AIR POLLUTION

- 4.3.13. The Highways Agency Design Manual for Roads and Bridges³⁸ recommends that a detailed air quality assessment is carried out for designated ecological sites within 200m of a road with an increase in traffic resulting from the development of more than 1000 Annual Average Daily Traffic (AADT). The traffic data shows that traffic associated with the development is not predicted to exceed this threshold on any roads within 200m of either SAC. In addition, the Major's Transport Strategy states that traffic reduction and improvements in vehicle technology will lead to large scale reductions of 94 percent in NOx by 2050³⁹. Therefore, both sites have been excluded from the air quality assessment as impacts on the critical loads/levels are not expected to be significant.
- 4.3.14. Furthermore, the Air Pollution Information System⁴⁰ states for Richmond Park SAC and Wimbledon Common SAC that although woodland habitat is vulnerable to Nitrogen, Acidity, NH3 and NOx, stag beetle are not sensitive due impacts on this habitat and no negative impact on the species is expected. For consideration of SO2 there has not been a critical level assigned.
- 4.3.15. Both the traffic and air quality assessment conclude that the predicted change in level in airborne pollutants would be insignificant⁴¹. Therefore, the air quality effects of the Proposed Development on the SACs will be negligible.

4.4. POTENTIAL IN-COMBINATION EFFECTS

- 4.4.1. New housing and the associated increase in population presents the greatest scope for potential effects on the European sites.
- 4.4.2. The following scheme is to be considered for in-combination effects of the assessment:
- Digby Stuart and Southlands Colleges, Roehampton Lane, SW15 (ref. 2014/3330, approved 13/10/2014) for the construction of a part 4, part 5 storey building to provide student accommodation, conference suite, academic and support space; construction of a part 4, part 5 storey library building to the west of Digby Stuart lawns; associated landscaping and tree works, closure of existing main vehicular access onto Roehampton Lane, alterations to existing southern pedestrian and vehicular access including boundary walls; formation of new pedestrian and vehicular access onto Roehampton Lane; relocation of car parking; alterations and extension to internal road layout and new pedestrian footpath.

³⁸ <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf> accessed 23/08/2018

³⁹ Mayor's Transport Strategy: Supporting Evidence. Outcomes Summary Report, July 2017. <http://content.tfl.gov.uk/mts-outcomes-summary-report.pdf> accessed 03/01/2018

⁴⁰ <http://www.apis.ac.uk/srcl/select-a-feature?site=UK0030246&SiteType=SAC&submit=Next> accessed 12/12/2017

⁴¹ Barton Wilmore (2018). Alton Estate Environmental Statement. Chapter 10: Air Quality

- 4.4.3. Wandsworth and Merton Councils have adopted Local Plans^{42, 43} that intend to deliver over 30,000 dwellings between c.2015 and c.2030, consisting of 27,180 dwellings in Wandsworth between 2015 and 2030 and 4,800 in Merton between 2011 and 2026. Both Local Plans were subject to HRAs, which concluded that the SAC features of Wimbledon Common were not likely to be affected by the large-scale housing planned either alone or in-combination with other projects and plans.
- 4.4.4. The Royal Borough of Kingston upon Thames adopted Core Strategy is to achieve 5,625 dwellings between 2013 and 2027⁴⁴ and their Core Strategy HRA also concluded that no likely significant effects would arise from growth in the borough, alone or in combination.
- 4.4.5. Richmond Park SAC is considered more likely to be at risk from recreational and urbanisation pressures with the proposed development. However, the expected increase in number of residents is relatively small compared to the annual number of visitors to Richmond Park SAC.
- 4.4.6. Stag beetles are the primary reason for selection of the SACs at Richmond Park and Wimbledon. Stag beetle designations are not expected to be impacted from increase in recreational and urbanisation pressures, as they are dependent on-site management and the provision of deadwood.
- 4.4.7. In summary, no in-combination effects are considered likely for the proposed development.

4.5. CONCLUSION

- 4.5.1. The HRSA for the Alton Estate, Roehampton concludes that there will be no Likely Significant Effects whether alone or 'in combination' on the qualifying features of Richmond Park SAC or Wimbledon Common SAC.
- 4.5.2. This is due to the following criteria being met:
- That the area of Annex 1 habitats (or composite features) will not be reduced;
 - That there will be no changes to the composition of the habitats for which the site was designated (e.g. reduction in species structure, abundance or diversity that comprises the habitat over time);
 - That there will be no direct effect on the population of species for which this site was designated or classified;
 - That there will be no indirect effects on the population of species for which the site was designated or classified due to loss or degradation of their habitat (quantity and/or quality), and;
 - There will be no interruption or degradation of the physical, chemical or biological processes that support habitats and species for which the site was designated or classified.
- 4.5.3. No further assessment, by way of an Appropriate Assessment (Stage 2 of the HRA) is considered necessary.

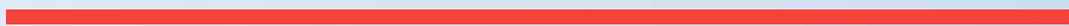
⁴² Wandsworth Local Plan (adopted March 2016) http://www.wandsworth.gov.uk/downloads/file/11500/local_plan_-_core_strategy_adopted_march_2016 accessed 03/01/2018

⁴³ Local Development Framework, Core Planning Strategy https://www2.merton.gov.uk/2011-07-13_merton_core_strategy_adopted.pdf accessed 03/01/2018

⁴⁴ http://www.richmond.gov.uk/local_plan accessed 03/01/2018

5

SCREENING MATRIX



5. SCREENING MATRIX

Table 3 – Screening matrix

Alton Estate	
Brief description of the project	Redrow Homes Ltd propose the redevelopment and regeneration of the Alton Estate, Roehampton.
Brief description of the Natura 2000 sites	<p>Richmond Park SAC is adjacent to the proposed project has been managed as a royal deer park since the seventeenth century and is of particular importance for its deadwood beetle fauna. It is designated an SAC for the stag beetle <i>Lucanus cervus</i> population. The park supports dry acid grassland and neutral unimproved grassland mosaic and has extensive wooded areas, with a population of veteran trees.</p> <p>Wimbledon Common SAC supports a mosaic of habitats including broadleaved woodland, acid grassland, dry and wet heath, scrub and mire. It is primarily designated an SAC for the stag beetle population and the secondary qualify feature is for dry and wet heaths.</p>
Assessment Criteria	
Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site.	<p>The project will involve demolition and construction from 2020 – 2030 and include:</p> <ul style="list-style-type: none"> ▪ New homes for approximately 2614 people ▪ A community hub ▪ A children’s nursery school ▪ A new library ▪ A shopping centre ▪ Road changes ▪ Associated landscaping
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 sites by virtue of:	<p>No land take within the SAC boundaries will occur and no impacts on the SAC sites have been identified.</p> <p>The Design Manual for Roads and Bridges⁴⁵ recommends that a detailed air quality assessment is carried out for designated ecological sites within 200m of a road with an increase in traffic resulting from the development of more than 1000 Annual Average Daily Traffic (AADT). The traffic data shows that traffic associated with the development is not predicted to exceed this threshold on any roads within 200m of either SAC. Therefore, both sites have been excluded from the air quality assessment as</p>

⁴⁵ <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section3/ha20707.pdf> accessed 23/08/2018

Alton Estate	
<ul style="list-style-type: none"> ▪ distance from the Natura 2000 site or key features of the site; ▪ resource requirements (water abstraction etc.); ▪ emissions (disposal to land, water or air); ▪ excavation requirements; ▪ transportation requirements; ▪ duration of construction, operation, decommissioning; ▪ others. 	<p>impacts on the critical loads/levels are not expected to be significant.</p> <p>An increase in recreation is not expected to be significant to the SACs as the Alton Estate has considerable open space which will largely be retained. There is parkland present within the Alton Estate and a pedestrian and cycle loop are planned, which could significantly reduce the likelihood of residents in the development seeking other areas for recreation.</p> <p>Stag beetle designations are not expected to be impacted from increase in recreational and urbanisation pressures, as they are dependent on-site management and the provision of deadwood.</p>
<p>Describe any likely changes to the site arising as a result of:</p> <ul style="list-style-type: none"> ▪ reduction of habitat area; ▪ disturbance to key species; ▪ habitat or species fragmentation; ▪ reduction in species density; ▪ changes in key indicators of conservation value (water quality etc.); ▪ climate change. 	<p>There are no anticipated changes to the habitat area, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value as a result of the development.</p> <p>The presence of Annex II species, stag beetle, is the primary reason for both SAC's designation, this species is unlikely to be significantly impacted by the Proposed Development.</p> <p>The effects of climate change would remain unchanged with regard to habitat connectivity and species mobility.</p>
<p>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</p> <ul style="list-style-type: none"> ▪ interference with the key relationships that define the structure of the site; ▪ interference with key relationships that define the function of the site. 	<p>There are no likely impacts on the SACs as a result of the development.</p>
<p>Provide indicators of significance as a result of the identification of effects set out above in terms of:</p> <ul style="list-style-type: none"> ▪ loss; ▪ fragmentation; ▪ disruption; ▪ disturbance; 	<p>There are no likely impacts on the SACs as a result of the development.</p>

Alton Estate	
<ul style="list-style-type: none"> ▪ change to key elements of the site (e.g. water quality etc.). 	
<p>Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.</p>	<p>Likely significant effects due the project in combination with other projects or plans will not occur.</p>

Appendix A

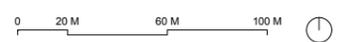


EXISTING SITE LOCATION PLAN



Revisions		
26.07.18	Rev 06	For Information
24.07.18	Rev 07	Design Freeze
26.10.18	Rev 08	Boundary line amended
16.11.18	Rev 09	Final Draft
18.12.18	Rev 10	Boundary line amended
25.01.19	Rev 11	Final Draft
08.02.19	Rev 12	Design Freeze 03

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Job Number	Date	Scale
HB16040	March 2019	1:1000 @ A0
Drawn by	Checked by	Status
JS	ABa	Planning
Drawing No. & Revision		Rev 12
9028-A-Z-M-100-04-0011		

Project	Alton Estate West Roehampton
Drawing	Existing Site Location Plan

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Appendix B

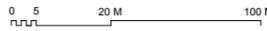


NATURA 2000 SITES

Appendix C



APPLICATION AREA PLAN



Revisions	Rev	Description
25.02.2019	Rev 01	For Information

Key:
— Red Line Boundary

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Job Number	Date	Scale
HB16040	March 2019	1:1000 @ A0
Drawn by	Checked by	Status
MP	ABa	For Information
Drawing No. & Revision	Revision	
SK190225_BlockPlan	Rev 01	

Project	Alton Estate West Roehampton
Drawing	Application Area and Block Plan

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Alton Estate Regeneration
Hybrid Application

**PRELIMINARY
ECOLOGICAL
APPRAISAL AND
BADGER REPORT**

WSP
May 2019





Redrow Homes Ltd

ALTON ESTATE

Preliminary Ecological Appraisal and Badger Report

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70035188

OUR REF. NO. PEA

DATE: FEBRUARY 2019

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	First Issue	Draft for consultation	Draft for consultation	Final Issue
Date	9 October 2017	25 October 2017	September 2018	February 2019
Prepared by	Sharon Yardy	Sharon Yardy	Sharon Yardy	Hing Kin Lee
Signature				
Checked by	Hing Kin Lee	Hing Kin Lee	Hing Kin Lee	Richard Gowing
Signature				
Authorised by	Hing Kin Lee	Hing Kin Lee	Hing Kin Lee	Richard Gowing
Signature				
Project number	70035188	70035188	70035188	70035188
Report number	PEA	PEA	PEA	PEA



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APPLICATION AREA PLAN

APPENDIX B

RELEVANT LEGISLATION

APPENDIX C

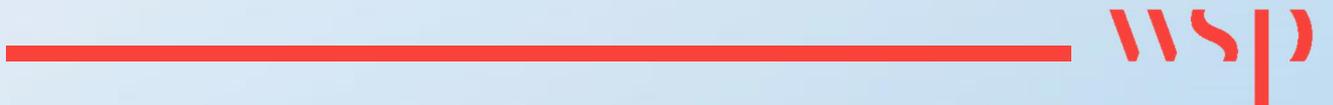
DESIGNATED SITES



APPENDIX D
PHASE 1 MAP
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1

EXECUTIVE SUMMARY

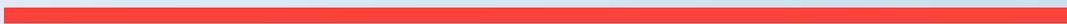


1 EXECUTIVE SUMMARY

- 1.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a Preliminary Ecological Appraisal (PEA) and badger survey of the proposed redevelopment and regeneration of Alton Estate, Roehampton.
- 1.1.2. A desk study and an Extended Phase 1 Habitat Survey were undertaken in August 2017 to assess the ecological importance of habitats on the Site and identify the potential of habitats to support protected and notable species. The aim of the appraisal was to identify potential ecological constraints, to provide recommendations for further surveys, and opportunities for mitigation and compensation.
- 1.1.3. The nearest statutory designated site is Richmond Park Special Area of Conservation, which is adjacent to the Site, with Wimbledon Common Special Area of Conservation located 750m east of the Site.
- 1.1.4. The desktop study and Extended Phase 1 Survey identified suitable habitat for the following species:
- Amphibians;
 - Bats;
 - Badgers;
 - Birds; and
 - Invertebrates.
- 1.1.5. Due to the identification of ecological features which have the potential to support species of conservation concern, WSP recommends that further ecological surveys for great crested newts, bats and invertebrates are undertaken in order to establish their presence or likely absence. Badger surveys have been undertaken as part of this PEA.
- 1.1.6. Japanese knotweed and Cotoneaster species have been confirmed on site and are recommended to be appropriately removed.
- 1.1.7. Mitigation measures are recommended for works on-site (including vegetation clearance), to avoid contravention of relevant legislation, including undertaking vegetation clearance outside of the nesting bird season. A sensitive approach to lighting and retention of mature trees is recommended. Opportunities for compensation and enhancement of features of nature conservation interest include:
- green walls, climbers and biodiverse roofs;
 - planting wildflower areas;
 - bird and bat boxes; and
 - creation of log piles.
- 1.1.8. Further mitigation recommendations will be included in separate reports for great crested newts, bats and invertebrates.

2

INTRODUCTION



2 INTRODUCTION

2.1 BACKGROUND

- 2.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a Preliminary Ecological Appraisal (PEA) and badger survey of the proposed redevelopment and regeneration of Alton Estate, Roehampton (hereinafter referred to as the 'Site').

2.2 PROJECT DESCRIPTION

- 2.2.1. Alton Estate comprises the redevelopment and regeneration of Alton Estate (Grid Reference TQ 21807 74113), hereinafter referred to as the 'Site' (Application Area Plan, Appendix A), which was developed in the 1950s. It is adjacent to Richmond Park SAC to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site. The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north.
- 2.2.2. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a phased demolition, construction and refurbishment schedule proposed from 2019 – 2030. The application Site lies within the administrative authority of Wandsworth Borough Council. The development areas of the Project is shown in Application Area Plan (Appendix A).

2.3 AIMS AND OBJECTIVES

- 2.3.1. The aims and objectives of this PEA are to:
- Undertake a desk study to review the ecological information available for the Site and appropriate zone of influence;
 - Carry out an Extended Phase 1 Habitat Survey, recording habitat types within the Site (focusing on the application area), and identifying habitats with potential to support legally protected or notable¹ species, and signs indicating presence of protected species;
 - Identify the presence of invasive plant species on the Site as listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended;
 - Complete a field survey to search for signs of badger activity; to include recording the presence of setts and their activity status and field signs such as latrines or dung pits, pathways or tracks, prints and snuffle holes where present;
 - Recommend avoidance, mitigation or enhancement measures which may be required to comply with legislation and planning policy; and

Identify, where necessary, requirements for further survey.

¹Including: species of Principle Importance (SPI) as listed under the NERC Act 2006; birds of conservation concern (Eaton, M et al (2015) *Birds of Conservation Concern 4: the population and status of birds in UK, Channel Islands and Isle of Man*. British Birds (108) 708-746); species listed as national notable, nationally rare or nationally scarce on Joint Nature Conservation Committee (2014). *Conservation Designations Spreadsheet* [online] <http://jncc.defra.gov.uk/page-3408>.

RELEVANT LEGISLATION AND POLICY

- 2.3.2. The appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in England. The context and applicability of each item is explained as appropriate in the relevant sections of the report and is summarised below.
- The Conservation of Habitats and Species Regulations 2017 (as amended);
 - Wildlife and Countryside Act 1981 (as amended);
 - The Natural Environment and Rural Communities Act 2006; and
 - National Planning Policy Framework (NPPF) (February 2019);
- 2.3.3. The Natural Environment and Rural Communities Act 2006 requires public bodies, including local authorities, ‘to have regard to the conservation of biodiversity in England’ when carrying out their normal functions. Also under this Act a list of species and habitats of ‘principal importance to biodiversity within England’ was drawn up which acts as an aid to guide public bodies in implementing their duty. The UK Post-2010 Biodiversity Framework covers the period 2011 – 2020 and replaces the UK Biodiversity Action Plan (UKBAP) 1994 – 2010.
- 2.3.4. The National Planning Policy Framework (NPPF) relates to conserving and enhancing the natural environment, requires Local Authorities in England to take measures to:
- Conserve and enhance biodiversity;
 - Protect the habitats of these species from further decline;
 - Protect the species from the adverse effect of development; and
 - Refuse planning permission for development, if significant harm 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.
- 2.3.5. The Wandsworth Local Plan Core Strategy (Adopted March 2016) and Development Management Policies Document (Adopted March 2016) contain a number of relevant policies to this Site, with the principal ones summarised in Table 2-1.

Table 2-1 – Summary of local planning policy

Document	Planning Policy	Purpose
Wandsworth Local Plan Core Strategy (Adopted March 2016)	PL 4 (Open space and the natural environment)	<p>The council will protect and improve public and private open space and green infrastructure in the borough.</p> <p>The biodiversity value of the borough will be protected and enhanced.</p> <p>New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological impacts which do occur.</p>

Document	Planning Policy	Purpose
Development Management Polices Document (Adopted March 2016)	Policy DMO 4 Nature Conservation	<p>Development which would cause harm to a Special Area of Conservation, Site of Special Scientific Interest, Local Nature Reserve, Site of Importance for Nature Conservation, other site with important bio-geodiversity value, or any protected species will not be permitted unless any damaging impacts can be prevented by appropriate mitigation measure or use of conditions.</p> <p>All development proposals should aim to provide gains for biodiversity.</p>
Development Management Polices Document (Adopted March 2016)	Policy DMO 5 Trees	<p>Permission for development which would result in damage to or loss of trees of amenity value will not be permitted unless it is the interests of good arboricultural practice or adequate replacement planting is proposed.</p>

2.3.6. Legalisation and policies specific to individual species likely to be present on site are presented in Appendix B.

3

METHODOLOGY



3 METHODOLOGY

3.1 OVERVIEW

3.1.1. The PEA is based on the following data sources:

- An ecological desk study provided by Greenspace Information for Greater London (GiGL);
- Extended Phase 1 Habitat Survey;
- Publicly available maps and aerial photography; and
- Online databases including Multi Agency Geographic Information for the Countryside (MAGIC) and the Joint Nature Conservation Committee (JNCC).
- AECOM (2015). Alton Estate Due Diligence Site Investigations: Ecological Appraisal. Wandsworth Council;
- Surrey Wildlife Trust (2015) Great Crested Newt Survey Report: Richmond Park and Bushy Park;
- Wimbledon and Putney Commons (2016) – Monitoring Report – Spring/Summer 2016
- A bat survey of Richmond Park May and July 2009. Frank Greenaway.
- Information provided by the Richmond Park Manager, including location of badger setts.

3.2 DESK STUDY

3.2.1. A desk study was undertaken in July 2017 to obtain and review records of designated sites and protected and notable species and habitats within a 2km radius of the Site. A 10km study area was considered for international designations, with a 2km Study Area considered suitable for species records on account of the size of the Site.

3.2.2. The desk study included:

- Records of legally protected and notable species within 2km of the Site provided by Greenspace Information for Greater London (GiGL);
- Information on International nature conservation designations within 10km of the site boundary and statutory designated sites and priority habitats within a 2km radius of the Site available on online databases including MAGIC and the JNCC; and
- Records of non-statutory sites designated for nature conservation value within 2km of the Site provided by Greenspace Information for Greater London (GiGL).

3.3 HABITAT SURVEY

3.3.1. A Phase 1 habitat survey of the Site was carried out on the 8th August and 1st September 2017 in warm and dry weather conditions. The main focus of the surveys was the areas shown in Application Area Plan (Appendix A), a walk-over was completed of the remaining Site and an area extending 30m from the Site boundary on the south-west to include Richmond Golf Course and Richmond Park was covered.

3.3.2. Prior to the Site survey, a map was pre-classified in to Phase 1 symbology using OS mapping, Lidar and aerial photography. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2010). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species are recorded and habitats are classified according to their vegetation types. Where appropriate consideration was given to whether

habitats qualify, or could qualify, as a Habitat of Principal Importance following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008).

- 3.3.3. A list of plant species was compiled in each habitat type with relative plant species abundance estimated using the DAFOR scale². The scientific names for plant species follow those in the New Flora of the British Isles (Stace, 2010).
- 3.3.4. Pre-classified habitats were ground-truthed during the Site survey and subsequently digitised using a Geographical Information System (GIS). Target notes were made to provide information on specific features of ecological interest or habitat features too small to be mapped.
- 3.3.5. Any invasive plant species listed on Schedule 9 of the WCA 1981 (as amended) which were evident during the Phase 1 habitat survey were also target noted.

3.4 PROTECTED SPECIES ASSESSMENT

- 3.4.1. The potential for the Site to support legally protected and notable species was assessed using the desk study results and combined with field observations during the habitat survey. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including: birds (Gilbert et al, 1998 and Bibby et al, 2000), great crested newt (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2016 and Mitchell-Jones, 2004); and badger (Harris et al, 1991 and Roper, 2010).

3.5 BADGER SURVEY

- 3.5.1. The Site was searched for evidence of badger following the standard methodology as outlined by Harris et al. (1991); with regard for recent reviews and comment on these methods (Roper, 2010 and Andrews, 2013). Surveys were carried with adherence to the standing advice provided by Natural England (Natural England, 2015).
- 3.5.2. Where present, evidence indicative of badger presence was recorded; including:
 - Setts;
 - Latrines;
 - Prints and paths or trackways;
 - Hairs caught on rough wood or fencing; and
 - Other evidence including snuffle holes, feeding remains and scratching posts.
- 3.5.3. Sett status is broadly categorised as follows:

² The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover, Abundant (A) – 51-75% cover, Frequent (F) – 26-50% cover, Occasional (O) – 11-25% cover, Rare (R) – 1-10% cover., The term 'Locally' (L) is also used where the frequency and distribution of a species are patchy and 'Edge' (E) is also used where a species only occurs on the edge of a habitat type.

- Main: generally the largest sett within a badger social group home range, with a relatively large number of sett entrances with well-worn pathways between them, and conspicuous spoil mounds. This type of sett tends to be occupied throughout the year and be used for breeding;
- Annex: normally found within 150m of the main sett and comprising multiple entrances, this type of sett may not be occupied throughout the year, and can be used for breeding if there is more than one breeding sow within the social group;
- Subsidiary: similar to an annex sett, but typically located further from the main sett. This type of sett will not be occupied throughout the year and lacks the well-worn paths associated with main and annex setts; and
- Outlier: normally consisting of one or two entrances, this type of sett will tend to be found furthest from the main sett and will only be used sporadically throughout the year.

3.5.4. Sett use or level of activity is broadly categorised as follows:

- Well used sett/hole: shows evidence of current use, such as fresh spoil or bedding, well-worn pathways between entrances and the presence of badger hair;
- Partially used sett/hole: no evidence present indicating current occupation (though hairs may be present, as these can persist for some time), but the sett cannot be categorically described as dis-used and could easily be re-occupied (for example, it may contain some leaves or sticks in tunnel entrances, but these would not be blocked and it would take little effort for a badger to reoccupy it); and
- Disused sett/hole: a badger sett that appears to have been abandoned by a badger social group is described as 'disused'; these differ from partially used setts which can be temporarily disused. Disused setts are often completely blocked with vegetation or have collapsed.

3.5.5. Where encountered, other mammal excavations were recorded during the survey. Information including the location, a description of the type of evidence (i.e. pathway or burrow) and where applicable any signs of current use were recorded.

3.5.6. The overall suitability of the existing habitats within the Site for badger breeding and foraging habitat was also assessed during the field survey.

3.6 NOTES AND LIMITATIONS

3.6.1. Every effort has been made to provide a comprehensive description of the Site, however, the following specific limitations apply to this assessment:

- Ecological survey data is typically valid for two years unless otherwise specified, for example should conditions change on the Site.
- Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.
- The Phase 1 Habitat survey was carried out over the period of two days, as such seasonal variations could not be observed and it is likely that only a selection of all species that occur within the Survey Area will have been in evidence. However, through use of desk study information to supplement site survey data, it is considered that an accurate indication of the potential ecological value was obtained during the survey.
- The Extended Phase 1 Habitat map (Appendix D) has been produced from pre-classification and corrected from field notes and plans. Whilst this provides a sufficient level of detail to fulfil the requirements of a PEA, the maps are not intended to provide exact locations of key habitats.



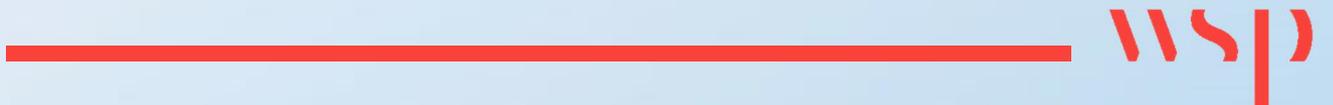
- The badger survey in the adjacent golf course had several areas of scrub that was too dense for the surveyor to enter. In these situations, the perimeter of the scrub was walked in order to identify, where possible, any evidence of badger use of these areas. Whilst it is possible setts are concealed in these areas it is considered unlikely as an entrance pathway leading beneath the scrub would be anticipated.

3.7 PERSONNEL

- 3.7.1. The ecological desk study and site visits were led by Sharon Yardy who is a Graduate members of the Chartered Institute of Ecology and Environmental Management (CIEEM). Sharon holds FISC level 4, a Natural England Level 2 bat licence 2017-28708-CLS-CLS and Natural England Level 1 great crested newt licence 2017-30337-CLS-CLS.

4

RESULTS



4 RESULTS

4.1 DESIGNATED SITES

STATUTORY SITES

- 4.1.1. The Site does not contain any statutory designations.
- 4.1.2. There are two Special Protection Areas/Ramsar designated parcels that fall within 10km of the Site boundary that are part of the South West London Waterbodies. The closest of these is 9.7km to the south-west and due to the distance and the lack of pathways to this receptor, these are not considered any further in this report.
- 4.1.3. There are three sites with statutory nature conservation status within 2km of the Site. A description of the sites are detailed in Table 4-1 and shown in Appendix C.

Table 4-1 – Statutory Designated Sites

Site name	Designation	Size (ha)	Approximate distance and orientation from site	Description
Richmond Park	SAC, SSSI, NNR	846.68	Adjacent to south-west	Designated for its population of stag beetle <i>Lucanus cervus</i> and extensive dry acid grassland.
Wimbledon Common	SAC, SSSI	348.31	0.75km to east	Designated for its habitat types of wet and dry heaths and for its population of stag beetle <i>Lucanus cervus</i> .
Barnes Common	LNR	41.7	1.8km to north	Designated for its acid grassland, acid scrub, woodland and neutral grassland.

NON-STATUTORY SITES

- 4.1.4. There are twelve non-statutory nature conservation sites within 2km of the Site. A description of these sites is detailed in Table 4-2. There are three tiers of sites:
- Sites of Metropolitan Importance (SMINC);
 - Sites of Borough Importance (borough grade I and borough grade II) (SBINC); and
 - Sites of Local Importance (SLINC).

Table 4-2 – Non-statutory Designated Sites

Site name	Designation	Size (ha)	Distance and orientation from site	Description
Richmond Park and associated areas	SMINC	1063.55	Adjacent	See Table 4-1
Roehampton University	SBINC (Grade I)	20.16	Adjacent to north	Acid and amenity grassland, ponds and a small area of woodland.
Roehampton Golf Club	SBINC (Grade II)	34.16	Adjacent to north	Acid grassland, scattered trees and woodland.
Wimbledon Common and Putney Heath	SMINC	448.2	0.75km to east	Error! Reference source not found.
Beverley Brook in Wandsworth	SBINC (Grade I)	1.47	0.8km to north-west	A wildlife-rich brook with scrub and woodland.
Beverley Brook in Kingston	SBINC (Grade II)	3.11	1.4km to south-west	A wildlife-rich brook with water-loving birds and invertebrates.
Beverley Brook from Richmond Park to the River Thames	SBINC (Grade II)	3.86	1.4km to north-west	A variable stretch of river with plants that are scarce in London.
Putney Vale Cemetery	SBINC (Grade II)	18.15	1.2km to south	Amenity and semi-improved grassland with scattered trees.
Putney Park Lane and The Pleasance	SLINC	3.02	1.3km to north-east	Amenity and semi-improved neutral grassland, scattered trees and scrub.
Bank of England Sports Club Grounds	SBINC (Grade II)	15.6	1.3km to north-east	Amenity and semi-improved neutral grassland, scattered trees and woodland.

Site name	Designation	Size (ha)	Distance and orientation from site	Description
Richard Evans Memorial Playing Fields and Stag Lane	SBINC (Grade II)	15.78	1.5km to south-east	Recreation area, with some damp grassland.
Barnes Common	SMINC	51.4	1.8km to north	See Table 4-1

4.2 OTHER HABITATS OF CONSERVATION IMPORTANCE

Ancient woodland

- 4.2.1. There are no parcels of ancient woodland within the Site or within 2km that appear on the ancient woodland inventory.

Habitats of principal importance

- 4.2.2. The Site does not contain any habitats of principal importance. Within 2km of the Site there are numerous parcels of deciduous woodland, lowland dry acid grassland, lowland heathland, good quality semi-improved grassland and one small traditional orchard (Natural England, 2017).

4.3 HABITAT SURVEY

OVERVIEW

- 4.3.1. The habitat types recorded in the Site are presented in this section. Eight habitat types were identified on the Site. The Phase 1 Habitat map is shown in Appendix D. Site photographs are included in Appendix E. Alpha-numeric codes used in this section cross-refer to the JNCC Phase 1 habitat survey classification (JNCC, 2010). The order of the habitat descriptions below reflects their ordering in the Phase 1 habitat survey manual and does not reflect habitat importance. The findings noted during the Phase 1 undertaken by WSP in 2017 were consistent with those recorded by AECOM in 2015, with some minor changes.

BROADLEAVED SEMI-NATURAL WOODLAND – A.1.1.1

- 4.3.2. Broadleaved semi-natural woodland was present along the boundary with Richmond Park Golf Club. This area is unmanaged and contains some dead wood. A stand of Japanese knotweed *Fallopia japonica* (Schedule (9)) is present at approximately TQ 21513 74024 measuring approximately 4m x 3m. The woodland consists of abundant ash *Fraxinus excelsior* with Pedunculate oak *Quercus robur*, yew *Taxus baccata*, cherry laurel *Prunus laurocerasus* and snowberry sp. *Symphoricarpos* sp. occasionally occurring. The ground flora consisted of abundant bramble *Rubus fruticosus* agg., ivy *Hedera helix* and occasional garlic mustard *Alliaria petiolata* and lords-and-ladies *Arum maculatum* rarely.

BROADLEAVED PLANTATION WOODLAND A.1.1.2

- 4.3.3. This small area within Downshire Fields was dominated by birch *Betula* sp., with frequent elder *Sambucus nigra* and occasional dogwood *Cornus sanguinea*.

SCRUB – DENSE – A.2.1

- 4.3.4. There was an area of dense scrub Downshire Fields which consisted dominantly of bramble and frequent ivy.

PARKLAND – BROADLEAVED AND MIXED SCATTERED – A.3.1 & A.3.3

- 4.3.5. There are several areas of parkland on-site and particularly within Downshire Fields. There are conifers and broad-leaved trees present of various ages, although many trees are believed to have been planted in the 1950s. Species present include exotic species, horse chestnut *Aesculus hippocastanum*, sycamore *Acer pseudoplatanus*, Norway maple *Acer platanoides* and London plane *Platanus x acerifolia*.

SEMI-IMPROVED NEUTRAL GRASSLAND – B.2.2

- 4.3.6. One small area of semi-improved neutral grassland was identified within Phase 2c. This had a sward of approximately 10cm and appeared to be less managed than other areas of amenity grassland on-site. Yorkshire fog *Holcus lanatus* was abundant, with perennial rye grass *Lolium perenne* occasionally occurring. Common ragwort *Senecio jacobaea*, ribwort plantain *Plantago lanceolata*, yarrow *Achillea millefolium*, field bindweed *Convolvulus arvensis*, cat's-ear *Hypochaeris radicata* and thyme-leaved speedwell *Veronica serpyllifolia* were present rarely.

AMENITY GRASSLAND – J.1.2

- 4.3.7. There were numerous areas of amenity grassland across the Site (Photographs 1 and 2). The sward was less than 5cm tall and consisted dominantly of perennial rye grass, with annual meadow grass *Poa annua*, dandelion *Taraxacum* sp., daisy *Bellis perennis*, ribwort plantain and white clover *Trifolium repens* occurring rarely.

INTRODUCED SHRUB – J.1.4

- 4.3.8. There were several small areas of introduced shrub on Site, species included cotoneaster sp. *Cotoneaster* sp. cherry laurel, snowberry and Oregon grape *Mahonia aquifolium*.

BUILDINGS AND HARD-STANDING – J.3.6

- 4.3.9. The buildings on-site consist largely of residential tower blocks, which were built in the 1950s. Most of these buildings range from three to eleven storeys and were constructed of concrete with a flat roof. Other buildings consisted of commercial units (Photograph 3), youth club, library and surgery and a private house with pitched roof (190 Roehampton Lane). There are flats above shops at Portswood Place and Danebury Community Hall.
- 4.3.10. There are numerous roads, footpaths, car parking and playground areas with the Site.

TARGET NOTES

- 4.3.11. Target notes that are marked on habitat map (Appendix D) and used to describe features of ecological interest are listed below in Table 4-3.

Table 4-3 – Target notes

Target note number	Features of Ecological Interest
1	Japanese knotweed (Photograph 4)
2	Deadwood (Photograph 5)
3	Brash piles and dead wood (Photograph 6)
4	Disused mammal burrows (likely fox) at TQ21620 73910 and TQ21679 73880 and mammal track under fence. (Photographs 7 and 8)
5	Introduced shrub
6	Introduced shrub
7	Cotoneaster species

4.4 PROTECTED AND NOTABLE SPECIES ASSESSMENT

4.4.1. The potential for the Site to support protected species has been compiled from the desk study results together with the identification of suitable habitat with the potential to support protected or notable species. Desk study records have only been considered below if they are recent (from the last 10 years) and/or if they relate to species that may be supported by habitats at the Site. Based on the desktop study and field survey the following species are considered likely to be supported in habitats present within the Site.

- Amphibians;
- Bats;
- Badgers;
- Birds; and
- Invertebrates

AMPHIBIANS

- 4.4.2. Twelve records of great crested newt were provided within 2km, with the nearest being 619m to the south west from 05/05/2010. The most recent record was 630m south-west from 07/06/2012.
- 4.4.3. 28 records of common toad *Bufo bufo* and 142 records of common frog *Rana temporaria* were provided within 2km, the most recent records for both these species was 2016.
- 4.4.4. No waterbodies were noted on the Site, but several waterbodies were noted within 500m of the red line boundary.
- 4.4.5. The Site largely comprises amenity grassland, buildings and hard standing, and is considered to have negligible suitability to support GCN. There is a small area of woodland along the southern



boundary with Richmond Park Golf Club, but this is outside of where the development will occur and is not thought to be significant.

BADGERS

- 4.4.6. Nineteen records of badger were returned within 2km with the most recent being from 2015.
- 4.4.7. A map provided for Richmond Park - Royal Parks Officer of known setts from 1995-2005 shows the nearest known sett to be over 400m away from the red-line boundary to the west. Widespread field signs were also confirmed from Wimbledon Common in 2016 (Wimbledon and Putney Commons, 2016).
- 4.4.8. No field signs for badger were found within the red-line boundary or within 30m of the boundary on the south-west side. Disused mammal burrows were identified at TQ 21620 73910 and TQ 21679 73880, but these were considered likely to be fox.

BATS

- 4.4.9. Nine species of bat have been recorded within 2km of the Site. These records comprised common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula*, Daubenton's bat *Myotis daubentonii*, Nathusius's pipistrelle *Pipistrellus nathusii*, Natterer's bat *Myotis nattereri*, brown long-eared bat *Plecotus auritus*, Liesler's bat *Nyctalus leisleri* and Serotine *Eptesicus serotinus*.
- 4.4.10. Beverley Brook at Robinhood Gate, which is situated to the south-west of the Site had been confirmed as an important place for bats to cross between Richmond Park and Wimbledon Common (Richmond Park Ecology Officer). Known bat roosts are located in Richmond Park to the west of the Site.
- 4.4.11. The Site had some trees and buildings with features which could potentially provide suitable roosts, these are discussed in a separate Preliminary Bat Roost Assessment Report (PBRA). The landscape to the south-west consisting of Richmond Park was considered to be of high value for roosting, foraging and commuting bats. The urban nature of the Site is thought to have low potential for foraging bats. However, the potential habitat connectivity to Wimbledon Common and Putney Heath and areas of deciduous woodland within 2km should be considered.

BIRDS

- 4.4.12. A number of notable bird species were identified within the 2km study area which are protected under Schedule 1 of the Wildlife and Countryside Act 1981 and/or listed as SPIs on Section 41 of the Natural Environment and Rural Communities Act 2006 or the Birds of Conservation Concern (BoCC) red or amber lists. Notable species recorded, which may utilise the site include species such as house sparrow *Passer domesticus*, swift *Apus apus*, house martin *Delichon urbicum*, swallow *Hirundo rustica*, bullfinch *Pyrrhula pyrrhula*, barn owl *Tyto alba*, starling *Sturnus vulgaris* and turtle dove *Streptopelia turtur*.
- 4.4.13. No targeted bird surveys were undertaken. However, the trees and scrub present on Site have the potential to support common and widespread species of breeding bird. Most of the buildings within different phased areas are flat roofed, providing limited potential for breeding birds. During the site visits in August 2017 species recorded included carrion crow *Corvus corone*, jackdaw *Coleus monedula* and ring-necked parakeet *Psittacula krameri*.

INVERTEBRATES

- 4.4.14. The desk study provided a number of records for red listed, notable, rare and UK BAP Priority species. These included stag beetle *Lucanus cervus*, small heath *Coenonympha pamphilus*, white-letter hairstreak *Satyrrium w-album* and white admiral *Limenitis camilla*.
- 4.4.15. The habitats present on-site were thought to offer limited potential to support invertebrates.

REPTILES

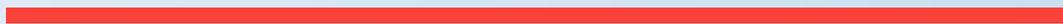
- 4.4.16. Four species of reptile were recorded within 2km, consisting of four records of slow-worm *Anguis fragilis* with the closest being 809m to the north from 1999 and the most recent from 2016 which was 1804m to the north-west. One record of grass snake *Natrix helvetica Helvetica*, with the nearest 1554m to the north-west from 2005, which is also the most recent. Three records of common lizard *Zootoca vivipara* with the nearest one 1056m to the north from 2004 and the most recent 1394m to the north-west in 2011. The adder *Vipera berus* record was from 1999, with no details provided as to location.
- 4.4.17. A reptile survey from Wimbledon Common in 2016 confirmed common lizard (Wimbledon and Putney Commons, 2016).
- 4.4.18. The habitats present on-site were thought to offer negligible to very low potential to support reptiles, with the exception of the area of woodland along the boundary to the south-west.

OTHER MAMMALS

- 4.4.19. There were 79 records of hedgehog *Erinaceus europaeus* within 2km, with the nearest and most recent being 113m to the south-west in 2004.
- 4.4.20. The habitats present on-site were thought to offer negligible to very low potential to support hedgehogs, with the exception of the area of woodland along the boundary to the south-west
- 4.4.21. Numerous grey squirrels *Sciurus carolinensis* and dreys were noted during the survey visits.

5

DISCUSSION AND RECOMMENDATIONS



5 DISCUSSION AND RECOMMENDATIONS

5.1 INTRODUCTION

- 5.1.1. This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the proposed development. Where further surveys or detailed assessment of potential effects are required in order to design suitable mitigation this is identified.

5.2 ENVIRONMENTAL BEST PRACTICE

- 5.2.1. General environmental protection measures must be implemented during the construction phase of the proposed scheme. Such measures include best environmental practice guidance outlined by CIRIA. The following minimum standards must be adhered to prevent ecological impacts beyond the Site boundary:
- Measures should be taken to prevent dust and other emissions from construction affecting land beyond the Site.
 - Excavations should be covered or securely fenced (with no potential access points beneath fencing) when the Site is closed (e.g. overnight) to prevent entrapment of animals;
 - Retained trees should be protected in accordance with British Standard 5837:2012 Trees in relation to design, demolition and construction;
 - Noise and vibration should be controlled and kept to the minimum necessary; and
 - Lighting used for construction should be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Site.

5.3 STATUTORY AND NON-STATUTORY DESIGNATED SITES

- 5.3.1. There is potential for increased light pollution and recreational use to Richmond Park from the proposed development. Richmond Park SAC, SSSI, NNR is adjacent to a small area of the Alton Estate boundary to the south-west. However, the majority of this boundary and the boundary of the Site is adjacent to Richmond Park Golf Club, which is not a statutory designated site.
- 5.3.2. The potential effects on European designated sites within 2km will be addressed fully in a Habitat Regulations Screening Assessment (HRSA).
- 5.3.3. The non-statutory designated sites within 2km are not considered to be relevant to this application, except in consideration of maintaining/improving habitat connectivity.

5.4 HABITATS

- 5.4.1. The ecological importance of the habitats present has been assessed against Section 41 of the Natural Environment and Rural Communities Act (NERC, 2006), the United Kingdom (UK) and Local Biodiversity Action Plans (BAPs) and their potential to support protected or notable species.
- 5.4.2. The habitats recorded on Site, are considered to be of negligible nature conservation value and therefore are not considered to pose a constraint to the Proposed Development and do not require specific mitigation or compensation measures.

5.5 PROTECTED AND NOTABLE SPECIES

- 5.5.1. The results of the desk study, Phase 1 habitat Survey and protected species assessment highlighted the potential presence of several protected species or species of conservation concern within the Site. These included amphibians, badger, bats, birds, and invertebrates. The legal protection afforded to these species is outlined in Appendix B and, where appropriate, the requirement for further survey and/ or mitigation measures is identified.

5.6 INTRODUCTION

- 5.6.1. This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the proposed development. Where further surveys or detailed assessment of potential effects are required in order to design suitable mitigation this is identified.

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 - Lighting used for construction should be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Site.

5.8 STATUTORY AND NON-STATUTORY DESIGNATED SITES

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- 5.8.2. The potential effects on European designated sites within 2km will be addressed fully in a Habitat Regulations Screening Assessment (HRSA).
- 5.8.3. The non-statutory designated sites within 2km are not considered to be relevant to this application, except in consideration of maintaining/improving habitat connectivity.

5.9 HABITATS

- 5.9.1. The ecological importance of the habitats present has been assessed against Section 41 of the Natural Environment and Rural Communities Act (NERC, 2006), the United Kingdom (UK) and Local Biodiversity Action Plans (BAPs) and their potential to support protected or notable species.
- 5.9.2. The habitats recorded on Site, are considered to be of negligible nature conservation value and therefore are not considered to pose a constraint to the Proposed Development and do not require specific mitigation or compensation measures.

5.10 PROTECTED AND NOTABLE SPECIES

- 5.10.1. The results of the desk study, Phase 1 habitat Survey and protected species assessment highlighted the potential presence of several protected species or species of conservation concern within the Site. These included amphibians, badger, bats, birds, and invertebrates. The legal protection afforded to these species is outlined in Appendix B and, where appropriate, the requirement for further survey and/ or mitigation measures is identified.

AMPHIBIANS

- 5.10.2. Great crested newts are protected from killing, injury and disturbance³ and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.
- 5.10.3. Great crested newts and common toad *Bufo bufo* are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.
- 5.10.4. Great crested newts have been confirmed within 2km of the Site. Further surveys are recommended and the results and recommendations will be presented in a separate report.

BADGER

- 5.10.5. The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.
- 5.10.6. Following a badger survey, the species are considered absent from the Site and 30 m buffer zone outside the Site boundary, and are not considered an ecological constraint.

BATS

- 5.10.7. All species of bats recorded within the UK are protected from killing, injury and disturbance⁴ and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.

³ Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

⁴ Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.



- 5.10.8. Certain species of bats, including the Bechstein's bat, greater and lesser horseshoe bats, noctule bat, brown long eared bat and soprano pipistrelle bat are also listed as Species of Principal Importance (SPI) for the conservation of biodiversity in England in accordance with Section 41 of the NERC 2006. Section 40 obliges public bodies (including local planning authorities) to have regard for the conservation of biodiversity (including SPI) when discharging their duties (including determining planning applications).
- 5.10.9. Bats are European Protected Species (EPS) and both individual animals and their roosts are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act, 1981 (as amended).

Roosting Bats

- 5.10.10. Further surveys are required to determine current presence or likely absence of bat roosts on the buildings and trees identified in the Preliminary Bat Roost Report before the impacts on roosting bats can be accurately assessed.

Foraging / Commuting Bats

- 5.10.11. It is also recommended that activity surveys are undertaken of the Site to identify its use for foraging and commuting bats. The further surveys for roosting and foraging/commuting bats will be presented in a separate report. However, below there are a number of general avoidance and mitigation recommendations that are likely to benefit a number of species groups including bats.

BREEDING BIRDS

- 5.10.12. Under the amendments to the Habitat Regulations (16th August 2012) Reg 9A(2) & (3) state that local authorities 'must take such steps in the exercise of their functions as they consider appropriate to contribute to...the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...'. The legislation continues to state that economic and recreation requirements must be taken into consideration in considering which measures are appropriate.
- 5.10.13. Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young.
- 5.10.14. It is considered highly unlikely that bird species on Schedule 1 of the Wildlife and Countryside Act (1981) would be breeding on the Site and therefore they are unlikely to be affected by the proposed development.
- 5.10.15. However, common and widespread breeding bird species, including SPI, are considered potentially present within the Site and are therefore are a potential ecological constraint to the proposed development. As such, there are recommendations below to enable legal compliance during any vegetation clearance and buildings to be demolished.

REPTILES

- 5.10.16. Native widespread reptile species (common or viviparous lizard, adder, grass snake and slow worm) are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection from killing and injury.



- 5.10.17. All reptile species are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.
- 5.10.18. The Site is considered to have negligible to very low potential to support reptiles and they are therefore not considered a constraint.

OTHER MAMMAL SPECIES

- 5.10.19. It is possible that hedgehogs could be present on the Site on account of local records, although there is limited suitable habitat to support hedgehogs. The hedgehog is classified as an SPI under the NERC Act 2006 and therefore the presence of this species on site would be a material consideration in the planning process.
- 5.10.20. The Site is considered to have negligible to very low potential to support reptiles and they are therefore not considered a constraint. No hedgehog surveys are considered to be required however recommendations are provided in below in respect to precautionary working methods to ensure the local status of hedgehogs is not affected as a result of the proposed development.
- 5.10.21. Grey squirrels are present on-site and any removal of trees would need to be undertaken under the knowledge of Wild Mammal Protection Act.

PLANTS

- 5.10.22. The spread in the wild of invasive species listed on Schedule 9 of Wildlife and Countryside Act 1981 (as amended) is not permitted. One Schedule 9 species was confirmed (Japanese knotweed). A Schedule 9 cotoneaster species may be present, and as such, there are recommendations below to enable legal compliance during vegetation clearance to ensure invasive plant species are removed and disposed of correctly.

AMPHIBIANS

- 5.10.23. Great crested newts are protected from killing, injury and disturbance⁵ and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.
- 5.10.24. Great crested newts and common toad *Bufo bufo* are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.
- 5.10.25. Great crested newts have been confirmed within 2km of the Site. Further surveys are recommended and the results and recommendations will be presented in a separate report.

⁵ Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

BADGER

- 5.10.26. The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.
- 5.10.27. Following a badger survey, the species are considered absent from the Site and 30 m buffer zone outside the Site boundary, and are not considered an ecological constraint.

BATS

- 5.10.28. All species of bats recorded within the UK are protected from killing, injury and disturbance⁶ and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by Natural England for certain purposes.
- 5.10.29. Certain species of bats, including the Bechstein's bat, greater and lesser horseshoe bats, noctule bat, brown long eared bat and soprano pipistrelle bat are also listed as Species of Principal Importance (SPI) for the conservation of biodiversity in England in accordance with Section 41 of the NERC 2006. Section 40 obliges public bodies (including local planning authorities) to have regard for the conservation of biodiversity (including SPI) when discharging their duties (including determining planning applications).
- 5.10.30. Bats are European Protected Species (EPS) and both individual animals and their roosts are afforded protection under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act, 1981 (as amended).

Roosting Bats

- 5.10.31. Further surveys are required to determine current presence or likely absence of bat roosts on the buildings and trees identified in the Preliminary Bat Roost Report before the impacts on roosting bats can be accurately assessed.

Foraging / Commuting Bats

- 5.10.32. It is also recommended that activity surveys are undertaken of the Site to identify its use for foraging and commuting bats. The further surveys for roosting and foraging/commuting bats will be presented in a separate report. However, below there are a number of general avoidance and mitigation recommendations that are likely to benefit a number of species groups including bats.

⁶ Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.



BREEDING BIRDS

- 5.10.33. Under the amendments to the Habitat Regulations (16th August 2012) Reg 9A(2) & (3) state that local authorities 'must take such steps in the exercise of their functions as they consider appropriate to contribute to...the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat...'. The legislation continues to state that economic and recreation requirements must be taken into consideration in considering which measures are appropriate.
- 5.10.34. Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young.
- 5.10.35. It is considered highly unlikely that bird species on Schedule 1 of the Wildlife and Countryside Act (1981) would be breeding on the Site and therefore they are unlikely to be affected by the proposed development.
- 5.10.36. However, common and widespread breeding bird species, including SPI, are considered potentially present within the Site and are therefore are a potential ecological constraint to the proposed development. As such, there are recommendations below to enable legal compliance during any vegetation clearance and buildings to be demolished.

REPTILES

- 5.10.37. Native widespread reptile species (common or viviparous lizard, adder, grass snake and slow worm) are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection from killing and injury.
- 5.10.38. All reptile species are also listed as SPI in accordance with Section 41 of the NERC Act 2006. Public bodies have an obligation under Section 40 to have regard for these species when carrying out their functions.
- 5.10.39. The Site is considered to have negligible to very low potential to support reptiles and they are therefore not considered a constraint.

OTHER MAMMAL SPECIES

- 5.10.40. It is possible that hedgehogs could be present on the Site on account of local records, although there is limited suitable habitat to support hedgehogs. The hedgehog is classified as an SPI under the NERC Act 2006 and therefore the presence of this species on site would be a material consideration in the planning process.
- 5.10.41. The Site is considered to have negligible to very low potential to support reptiles and they are therefore not considered a constraint. No hedgehog surveys are considered to be required however recommendations are provided in below in respect to precautionary working methods to ensure the local status of hedgehogs is not affected as a result of the proposed development.
- 5.10.42. Grey squirrels are present on-site and any removal of trees would need to be undertaken under the knowledge of Wild Mammal Protection Act.

PLANTS

5.10.43. The spread in the wild of invasive species listed on Schedule 9 of Wildlife and Countryside Act 1981 (as amended) is not permitted. One Schedule 9 species was confirmed (Japanese knotweed). A Schedule 9 cotoneaster species may be present, and as such, there are recommendations below to enable legal compliance during vegetation clearance to ensure invasive plant species are removed and disposed of correctly.

5.11 FURTHER SURVEY REQUIREMENTS

5.11.1. Potential ecological constraints for which further surveys are required to ensure legal and planning policy compliance are listed in Table 5.1.

Table 5-1 – Further Survey Requirements

Species	Survey Requirements	Seasonal Limitations
Great crested newt	Habitat suitability Index (HSI) on all waterbodies on-site and within 500m from the Site. eDNA sampling to be undertaken.	eDNA sampling to be undertaken from mid-April to the end of June.
Bat	Activity surveys should also be undertaken. Emergence and return to roost surveys to be undertaken on the buildings and trees identified in PBRA report.	Surveys to be undertaken from April to October.
Invertebrates	Survey to be undertaken to assess the importance of the site for invertebrates, specifically stag beetle.	Surveys undertaken from mid-May to early August.

5.12 PRELIMINARY AVOIDANCE, MITIGATION AND COMPENSATION MEASURES

BREEDING BIRDS

- 5.12.1. Buildings that are due to be demolished should first be surveyed to confirm that breeding birds are not present.
- 5.12.2. Removal of suitable nesting bird habitat within the Site (i.e. scattered trees, shrubs and scrub) should be avoided and strictly minimised wherever possible. In the event that removal of suitable habitat is unavoidable, breeding bird mitigation should follow the measures outlined below:
- Vegetation clearance should be undertaken outside the main nesting bird season where possible (i.e. should be undertaken between September to February inclusive).
 - If this is not possible it is recommended that vegetation clearance is completed under an ecological watching brief carried out by a suitably qualified ecologist. In the event that active nests are identified at this stage, works which would otherwise risk damaging the active nest would need to be postponed until the nest is no longer active (i.e. the young have fledged).

INVASIVE PLANT SPECIES

- 5.12.3. Japanese knotweed and Cotoneaster species are within the Site; species of Cotoneaster are hard to identify to species level, however several are included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). It is recommended that the stands of Japanese knotweed and cotoneaster are removed from Site using thorough and appropriate disposal methods (i.e. incineration). This should be completed in advance of any site preparation works to avoid any unintentional spread of these species in the wild.

OTHER SPECIES

- 5.12.4. Hedgehogs should also be specifically watched for during the removal of features considered to provide potential sheltering habitat (i.e. brash piles). If any hedgehogs are found they should be carefully moved to retained areas of vegetation outside of the proposed development footprint.

GENERAL AVOIDANCE AND MITIGATION MEASURES

- 5.12.5. The following general recommendations are likely to benefit a number of species groups and should be considered in conjunction with the detailed design of the proposed development.
- Night time working should be avoided wherever possible to avoid light spill during construction, and hoods, shields or cowls should be used to contain lighting so it illuminates solely the working area if night time working is unavoidable. Consideration should also be given to installing lighting on timers or sensors during the operation phase, with the aim of reducing light pollution between dusk and dawn. Low level bollard lighting could also be used to avoid illumination of adjacent habitats;
 - Minimise the footprint of the proposed development in order to avoid effects upon habitats present and consequent effects upon protected or notable species through habitat loss and fragmentation. Specifically:
 - Protect retained vegetation (scattered trees along the Site boundary) in accordance with BS5387:2012 Trees in Relation to Design, Demolition and Construction; and
 - During the construction phase, cover all deep excavations and leave gaps under the fences (except those preventing access to deep excavations) and ensure any shallow excavations have a means of egress (e.g. a plank) to avoid trapping containing or causing injury to any wildlife such as foxes or hedgehogs; and
 - Re-plant habitats which are lost or damaged as a result of the proposed development construction phase once works are complete; this should include using native, species rich mixes wherever possible. This is in line with the aims of the NPPF as well as providing habitat for a range of species.

5.13 ECOLOGICAL ENHANCEMENT MEASURES

- 5.13.1. The following recommendations should be considered for inclusion within the proposed development, to enhance the value of the Site for ecology, in accordance with the NPPF:
- Green walls, climbers and biodiverse roofs should be considered.
 - Install bat and bird boxes onto any mature trees on site. Pipistrelle species are the species most likely to utilise artificial roosting features, but models used should be targeted towards species recorded during the further surveys. The features should be sited away from overnight lighting and on a variety of aspects, close to vegetation which could provide a commuting corridor into the

wider landscape. Birds that could benefit from nest boxes include swift *Apus apus*, and house sparrow *Passer domesticus*.

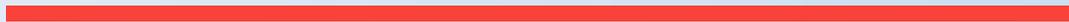
- Consideration should be given to incorporating dead wood habitat piles on the edges of scrub and woodland habitat; these are used by invertebrates such as stag beetles, which are dead wood specialists and by reptiles and widespread amphibians as refugia;
- Seeding appropriate parts of new landscaped areas with a wildflower rich native seed mix (with local provenance) should be considered to maximise the value of these areas in the long term. Species rich grassland provides an important resource for invertebrates and these in turn provide a food source for bats and birds. Native, locally occurring tree and shrub species should also be established where possible to provide habitats for bats, birds and invertebrates. Landscape management should be appropriately designed to enable long-term maintenance of the habitat for wildlife; and
- A sensitive lighting scheme should be using sensitive low UV lighting.

5.14 POTENTIAL RESIDUAL EFFECTS

- 5.14.1. By adhering to the requirement for further survey work in respect to great crested newts, bats and invertebrates the preliminary avoidance and mitigation measures detailed above, the proposed development is not anticipated to result in the contravention of relevant wildlife and countryside legislation, or result in a detrimental impact on protected and notable species and habitats and designated sites.
- 5.14.2. Furthermore, by following the proposed general enhancements recommendations detailed above, the proposed development could increase the suitability or availability of habitat within the Site for a range of protected or notable species and enhance the nature conservation interest of the Site. This would enable the proposed development to meet the target of a 'net gain for biodiversity' in line with the NPPF 2019.

6

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6 BIBLIOGRAPHY

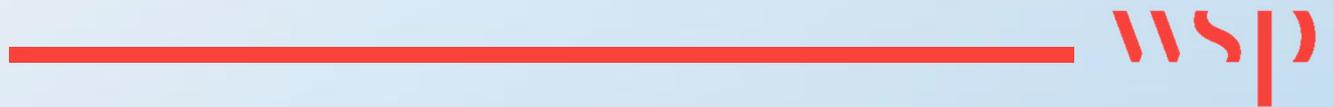
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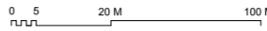
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Appendix A

APPLICATION AREA PLAN





Revisions	Rev	Description
25.02.2019	Rev 01	For Information

Key:
— Red Line Boundary

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Job Number	Date	Scale
HB16040	March 2019	1:1000 @ A0
Drawn by	Checked by	Status
MP	ABa	For Information
Drawing No. & Revision	Revision	
SK190225_BlockPlan	Rev 01	

Project	Application Area and Block Plan
Alton Estate West	
Roehampton	

Project	Alton Estate West
Roehampton	
Application Area and Block Plan	

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Appendix B

RELEVANT LEGISLATION





LEGISLATION AND POLICY CONTEXT

Introduction

The following Appendix sets out details of legislation within the UK and how this legislation applies to particular species groups. The key pieces of international and national legislation are described after which specific legislation pertaining to species or species groups are described in turn.

International and National Legislation

EC Habitats Directive

In 1992 the then European Community adopted Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, known as the Habitats Directive. The main aim of the EC Habitats Directive is to promote the maintenance of biodiversity by requiring member states to introduce protection for these habitats and species of European importance. The mechanism for protection is through designation of Special Areas of Conservation (SACs), both for habitats and for certain species listed within Annex II. There are a number of species listed within Annex II of the Habitats Directive that are present within the UK; these include four lower plant species, nine higher plant species, six species of molluscs, six species of arthropods, eight species of fish, two species of amphibian, and nine species of mammal.

The Bern Convention

The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) came into force in 1982. The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species) listed in Appendix 3. To this end the Convention imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1000 wild animal species.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) was adopted in Bonn, Germany in 1979 and came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix 1 of the Convention), concluding multilateral agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix 2 of the Convention), and by undertaking co-operative research activities.

Convention on Biological Diversity

The Convention on Biological Diversity (Biodiversity Convention or CBD) was adopted at the Earth Summit in Rio de Janeiro, and entered into force in December 1993. It was the first treaty to provide a legal framework for biodiversity conservation. Contracting Parties are required to create and enforce national strategies and action plans to conserve, protect and enhance biological diversity.

Wildlife and Countryside Act 1981 (as amended)



The Wildlife and Countryside Act 1981 (as amended) is the principle mechanism for the legislative protection of wildlife in Great Britain. However, it does not extend to Northern Ireland, the Channel Islands or the Isle of Man. This legislation is the means by which the Convention on the Conservation of European Wildlife and Natural Habitats (the 'Bern Convention') and the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Natural Habitats and Wild Fauna and Flora (92/43/EEC) are implemented in Great Britain.

Conservation of Habitats and Species Regulations 2017 (as amended)

In the UK the Council Directive 92/43/EEC has been transposed into national laws by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended), and the Regulations (Northern Ireland) 1995 (as amended). The Regulations came into force on 30 October 1994, and have been amended several times. Subsequently the Conservation of Habitats and Species Regulations 2017 was created which consolidates all the various amendments made to the 1994 Regulations in respect of England and Wales and is commonly known as the 'the Habitats Regulations'. In Scotland the Habitats Directive is transposed through a combination of the Habitats Regulations 2017 (in relation to reserved matters) and the 1994 Regulations. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

The Regulations contain five Parts and four Schedules, and provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

Other Legislation

Wild Mammals (Protection) Act 1996

The Act protects wild mammals from malicious or intentional harm.

Species and Habitat Specific Legislation

Invasive Species

Schedule 9, Section 14 of the Wildlife and Countryside Act (1981, as amended) prohibits the introduction into the wild of any species that is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or any species of the 69 plants listed on Schedule 9.

The frequently encountered invasive species within proposed development sites include Japanese knotweed *Fallopia japonica*; Giant hogweed *Heracleum mantegazzianum*; Himalayan balsam *Impatiens glandulifera*; Floating pennywort *Hydrocotyle ranunculoides*; New Zealand pygmyweed *Crassula helmsii*; Rhododendron *Rhododendron ponticum*; and certain hybrids of the above, some species may be native yet are listed for conservation purposes.

Plant or soil material contaminated by Japanese knotweed that is to be discarded is considered to be a 'controlled waste' under the Environmental Protection Act 1990 (EPA 1990). It is an offence to deposit, treat, keep, or dispose of controlled waste without a licence. Furthermore, knotweed that has been cut down and removed must be received by an authorised person to be disposed of correctly. A licence can be obtained from the Environment Agency (EA). The release or planting of a listed species in the wild can be permitted under a licence granted by the relevant statutory body.

Reptiles



The four common reptile species, adder, grass snake, common lizard and slow worm, are protected under Schedule 5 of the Wildlife and Countryside Act (1981, as amended) against deliberate and/or intentional killing, injuring and trade.

If common reptile species are found to be present or considered potentially present within a proposed development site. To ensure that no subsequent offence will be committed a precautionary method of working (written by a suitably qualified ecologist) and submitted to the relevant authority may be required to enable works to proceed with limited risks of offences being caused.

Birds

All birds, their nests and eggs are protected by the Wildlife and Countryside Act (1981, as amended). It is an offence to intentionally kill, injure, or take any wild bird, or take or destroy an egg of any wild bird. It is also an offence to damage or destroy the nest of any wild bird (whilst being built, or in use). Therefore, clearance of vegetation within the site boundary, or immediately adjacent to the site during the nesting season could result in an offence occurring under the Act. The bird breeding season can be taken to run between the 1 February and 31 August and is subject to geographical and seasonal factors. There are 79 species of birds listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly disturb any wild bird listed on Schedule 1 while it is nest building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Mammals

All wild mammals are protected under the Wild Mammals (Protection) Act 1996 from certain cruel acts; and for connected purposes. It is an offence to mutilate, kick, beat, nail, or otherwise inflict unnecessary suffering on any wild mammal.

Badgers

Badgers *Meles meles* are protected under the Protection of Badgers Act (1992) and the Wildlife and Countryside Act (1981, as amended). As such it is an offence to wilfully take, kill, injure or ill-treat a badger, or possess a dead badger or any part of a badger. Under the Act their setts are also protected against obstruction, destruction, or damage in any part.

Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England takes this definition to include seasonally used setts.

Work that may disturb badgers or their setts is illegal without a development licence from the relevant statutory body (NE). As a precautionary principle, a buffer distance between a badger sett and the works will be determined, based upon guidance from an appropriately experienced ecologist. This buffer distance should be based upon the size and activity levels at the sett, the topography between the sett and the works and the nature of the works.

Bats

All native UK bat species are fully protected by UK law under Schedule 5 (in respect of section 9(4)(b) and (c) and (5) only) and Schedule 6 of the Wildlife and Countryside Act (1981, as amended), and under Schedule 2 of the Conservation of Habitats and Species Regulations 2017. It



is illegal to deliberately capture, injure or kill a bat or to intentionally or recklessly disturb bats. It is also illegal to damage, destroy or intentionally or recklessly obstruct access to a breeding or resting place used by a bat.

Any activity that would result in a contravention of the above legislation would likely require an EPS licence from the relevant statutory body (NE). Works or mitigation activities involving interference with bats or bat shelters must be carried out by a licensed bat worker.

Tree Felling

Up to 5m³ of standing timber can be felled per quarter without requirement for a felling licence provided that no more than 2m³ is sold. There are a number of exemptions, refer to the Forestry Authority Website.

General Guidance on European Protected Species Licence Applications

Should a European Protected Species (EPS) be found on a development site, and where best practice guidance either cannot be followed or is not applicable an EPS licence will be required. The licence permits operations that otherwise would be unlawful and fall outside the Good Practice Guidance, an application for such a licence should be made to the relevant statutory body (NE) before any works can proceed. It is also possible to obtain a general licence that may cover an area rather than applying in each individual case for a separate specific/individual licence

Should the survey information be considered insufficient or the statutory body is not satisfied with the application, the licence application may be refused. This could potentially result in significant delays to a project, if not considered in time; however, early consideration of the potential presence of EPS on a site and an assessment of suitable mitigation measures to derogate such possibilities early in a project will negate this potential delay.

Biodiversity Policies

The key national policies which influence the ecology and nature conservation assessments are the:

National Planning Policy Framework (NPPF) (MHCLG 2019);

The UK Biodiversity Framework (2011-2020).

The NPPF replaces all Planning Policy Statements and sets out the government's national planning policy on the protection of biodiversity. One of the 12 core planning principal is that planning should contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value.

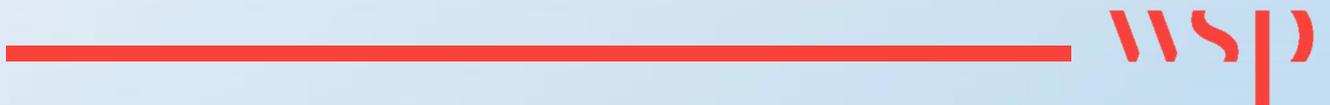
The UK Biodiversity Framework is an important framework that is owned, governed and implemented by the four UK countries, assisted by Defra and JNCC in their UK co-ordination capacities. Although differing in details and approach, the four UK countries have published strategies which promote the same principles and address the same global targets: joining-up our approach to biodiversity across sectors; and identifying, valuing and protecting our 'Natural Capital' to protect national well-being now and in the future. This new framework has been developed to enhance the recovery of priority habitats and species in England (published under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006), thereby contributing to the delivery of the England Biodiversity Strategy. The framework has been developed and endorsed by the England Biodiversity Group and wider partnership. It is the starting point for a more integrated approach to biodiversity conservation in England, building on the strengths of the former UK

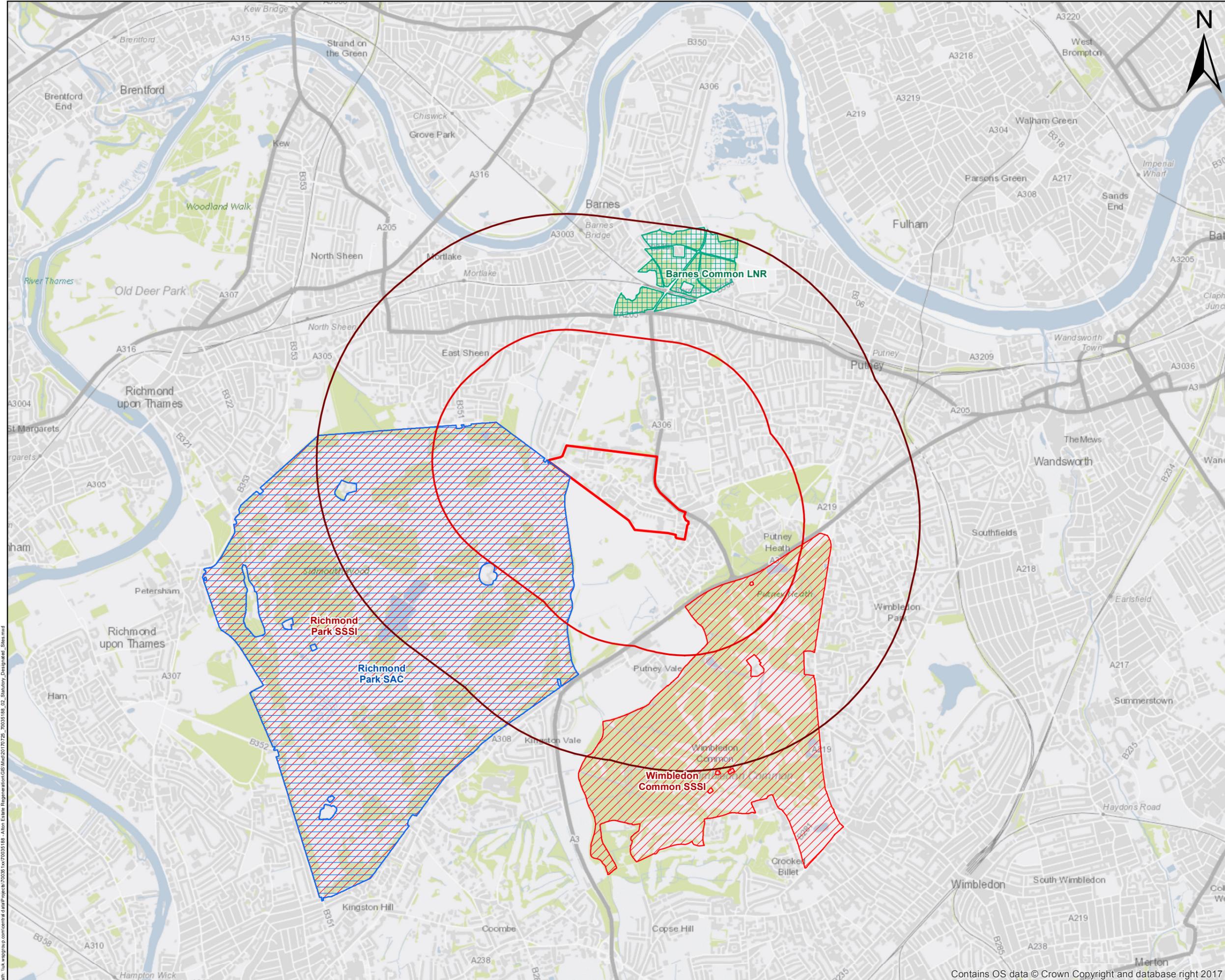


Biodiversity Action Plan (BAP) process and improving those areas where insufficient progress was being made.

Appendix C

DESIGNATED SITES





THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Notes

- Alton Estate
- Alton Estate 1000m Buffer
- Alton Estate 2000m Buffer
- Local Nature Reserve
- Site of Special Scientific Interest
- Special Area of Conservation

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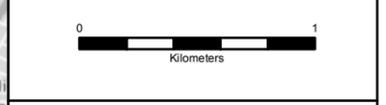
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Drawing Title: **Statutory Designated Sites**

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Path: \\uk.wspgroup.com\central\draw\projects\70035188_02\Alton Estate\Regeneration\GIS\Map\2017\725_70035188_02_Station_Designated_Sites.mxd

Appendix D

PHASE 1 MAP



Appendix E

PHOTOGRAPHS



No.	Image	Description / Comment
1		<p>Amenity grassland with scattered trees. View looking north.</p>
2		<p>Amenity grassland with scattered trees looking towards Minstead Gardens. View looking east.</p>
3		<p>Danebury Avenue. View to west.</p>
4		<p>Japanese knotweed in south-west side of site.</p>
5		<p>Deadwood in an area of semi-natural woodland along the south-west boundary. View looking east.</p>

6		<p>Brash and undergrowth in semi-natural woodland along the south-west boundary. View looking south-west.</p>
7		<p>Disused mammal hole at TQ 21620 73910.</p>
8		<p>Mammal track under fence bordering Richmond Golf Club near to TQ 21620 73910.</p>



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CONFIDENTIAL

Alton Estate Regeneration
Hybrid Application

**PRELIMINARY BAT
ROOST ASSESSMENT
AND EMERGENCE/
RETURN TO ROOST
SURVEYS**

WSP
May 2019



ALTON GREEN

ROEHAMPTON SW15





Redrow Homes Ltd

ALTON ESTATE

Preliminary Bat Roost Assessment and Emergence/Return to
Roost Surveys

FIRST ISSUE (VERSION) CONFIDENTIAL

PROJECT NO. 70035188

OUR REF. NO. BAT-1

DATE: FEBRUARY 2019

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APPENDIX A

APPLICATION AREA PLAN

APPENDIX B

BUILDINGS AND TREES SURVEYED

APPENDIX C

SITE PHOTOGRAPHS

1

EXECUTIVE SUMMARY



1. EXECUTIVE SUMMARY

- 1.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a Preliminary Bat Roost Assessment (PBRA) and follow up emergence and return to roost surveys of buildings and trees within the phased areas for the proposed redevelopment and regeneration of Alton Estate, Roehampton. The Estate has a demolition and construction schedule from 2020 – 2030.
- 1.1.2. The desk study confirmed nine species of bat had been recorded within 2km of the Site.
- 1.1.3. External building inspections and ground level tree roost assessments were undertaken. Seven buildings were categorised as having low potential to support roosting bats and three trees were categorised as having moderate potential to support roosting bats within the phased areas.
- 1.1.4. Emergence and return to roost surveys were carried out with the buildings subject to a survey at dusk on the 21st September or dawn on the 22nd September 2017 and dusk on the 24th July 2018. The tree surveys were carried out at dawn on the 12th, 21st and/or 28th September 2017.
- 1.1.5. No bats were recorded emerging from, or returning to any of the buildings or trees that were surveyed.
- 1.1.6. Four species of bats were recorded incidentally during the survey: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, Nathusius' pipistrelle *Pipistrellus nathusii* and noctule *Nyctalus noctula*.
- 1.1.7. Nil or low levels of incidental commuting or foraging activity were recorded at most survey locations.
- 1.1.8. Due to slight deviation from good practice guidelines with regard to survey timings in 2017, one further survey of B6 was completed in 2018.
- 1.1.9. Due to the length of the demolition programme it is recommended that buildings and trees that are due for removal should be subject to further ground inspections (and surveys where appropriate) where existing survey data is greater than two years old, prior to works commencing. Due to difficulty detecting bats roosting in trees it is recommended that trees are inspected using an endoscope where appropriate, immediately prior to being felled.
- 1.1.10. If a bat is found during any works on Site, all works should cease immediately and a licenced bat ecologist should be contacted to provide advice on the approach to follow.
- 1.1.11. Bat foraging and commuting habitats within the Site, in particular mature trees, should be retained as far as practicable. If habitat clearance is required, it should be compensated for on at least a like-for-like basis, ensuring the functionality of the habitat for bats is maintained.
- 1.1.12. Permanent lighting should be designed to ensure the quality of the foraging and commuting habitat is maintained.
- 1.1.13. The following opportunities for enhancements for the benefit of bats and wildlife are recommended:
 - Features suitable for roosting bats could be incorporated into the new buildings;
 - Provision of bat boxes onto buildings and retained trees; and
 - Landscaping should be designed and managed to maximise invertebrate biomass and diversity and foraging opportunities for bats.
 - Increasing the number of mature deciduous trees and the area of deciduous woodland;

- Installing green walls and green and brown roofs, and planting climbers and creepers to soften walls and railings;
- Maximising hedge and groundcover planting;
- Using Sustainable Drainage Systems (SuDS);
- Creating ponds, possibly as part of SuDS;
- Planting flower-rich meadows and scrub;
- Increasing the connectivity of the landscape for bats, by filling gaps in lines of mature trees for instance;
- Using low-intensity management measures: limited use of fertilisers, herbicides and pesticides, late cut in rotation on part of the grasslands;
- Planting of night scented flowers; and
- Favouring native species in planting schedules.

2

INTRODUCTION



2. INTRODUCTION

2.1. BACKGROUND

2.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a Preliminary Bat Roost Assessment (PBRA) and, where required, emergence/return to roost surveys of the proposed redevelopment and regeneration of Alton Estate, Roehampton (hereinafter referred to as the 'Site'). WSP carried out a Preliminary Ecological Appraisal (PEA) (WSP, 2017a) and static monitoring and walked transects in 2017 (WSP, 2017b).

2.2. PROJECT DESCRIPTION

2.2.1. Alton Estate comprises the redevelopment and regeneration of Alton Estate (Grid Reference TQ 21807 74113), hereinafter referred to as the 'Site' (Application Area Plan, Appendix A), which was developed in the 1950s. It is adjacent to Richmond Park SAC to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site. The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north.

2.2.2. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a phased demolition, construction and refurbishment schedule proposed from 2020 – 2030. The application Site lies within the administrative authority of Wandsworth Borough Council. The proposed development areas of the Project are shown in the Application Area Plan (Appendix A).

2.3. AIMS AND OBJECTIVES

2.3.1. The aims and objectives of this PBRA and emergence/return to roost surveys are to:

- complete an external inspection of all built structures and trees present within and adjacent to the application areas (identified in Appendix A), to identify the potential or otherwise for bat roosts to be present;
- undertake bat emergence and/or return to roost surveys;
- to assess the conservation importance of bats supported within the Site in accordance with the standard guidance; and
- identify mitigation recommendations or further survey requirements where necessary.

2.4. RELEVANT LEGISLATION AND POLICY

2.4.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitat Regulations'), the legislation means that it is an offence to:

- deliberately capture, injure or kill a wild bat;
- deliberately disturb wild bats; '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

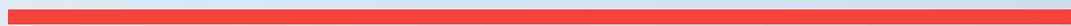
- (b) to affect significantly the local distribution or abundance of the species to which they belong.’ and

- damage or destroy a breeding site or resting place used by this species.

- 2.4.2. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.
- 2.4.3. Due to the high level of protection afforded to bats and their habitat, mitigation for this species is governed by a strict licensing procedure administered by Natural England (normally, planning permission must be obtained before a licence can be sought).
- 2.4.4. Certain species of bats including the noctule *Nyctalus noctula*, brown long-eared *Plecotus auritus* and soprano pipistrelle *Pipistrellus pygmaeus* are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.
- 2.4.5. Bats are protected under local planning policies. Policy PL4 ‘Open space and the natural environment’ of the Wandsworth Local Plan Core Strategy (adopted March 2016) states that “The biodiversity value of the borough will be protected and enhanced. New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological impacts which do occur.” In addition, Policy DMO 4 ‘Nature Conservation’ of the Development Management Policies Document (adopted March 2016) states that “Development which would cause harm to [...] any protected species will not be permitted unless any damaging impacts can be prevented by appropriate mitigation measure or use of conditions. All development proposals should aim to provide gains for biodiversity.”

3

METHODOLOGY



3. METHODOLOGY

3.1. OVERVIEW

3.1.1. Buildings and trees were categorised in line with the descriptions in Table 1. Based on the features present, and the location of the buildings, the potential of different types of bat roost was also considered. For this preliminary roost assessment potential roost types were grouped as follows (Collins, 2016):

- Maternity (breeding roost);
- Summer / transitional; and
- Hibernation.

Table 1 - Categorisation of bat roost types in buildings and trees (Collins, 2016)

Roost Potential Category	Description of Roosting Behaviour	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.	<p>Continuous, high quality habitat that is well connected to the wider landscape that it is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines or trees and woodland edge.</p> <p>High quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined water courses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>
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 (with respect to roost type only- the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	<p>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.</p> <p>Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.</p>
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, appropriate conditions and / or suitable surrounding habitat to be used on a regular basis or by larger numbers of	<p>Habitat that could be used by small numbers of commuting bats such as a gappy hedgerows or a vegetated stream, but isolated, e.g. not very well connected to the surrounding landscape by other habitat.</p> <p>Suitable but isolated habitat that could be used by small numbers of foraging bats</p>

Roost Potential Category	Description of Roosting Behaviour	Commuting and Foraging Habitats
	bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.	such as a lone tree (not in a parkland situation) or a patch of scrub.
Negligible	Negligible habitat features on site likely to be used by roosting bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.

3.2. DESK STUDY

3.2.1. A desk study was undertaken in July 2017 to obtain and review records of designated sites and protected and notable species and habitats within a 2km radius of the Site. A 10km study area was considered for international designations, with a 2km Study Area considered suitable for species records on account of the size of the Site.

3.2.2. The desk study included:

- Records of legally protected and notable species within 2km of the Site provided by Greenspace Information for Greater London (GiGL);
- Information on International nature conservation designations within 10km of the site boundary and statutory designated sites and priority habitats within a 2km radius of the Site available on online databases including MAGIC and the JNCC; and
- Records of non-statutory sites designated for nature conservation value within 2km of the Site provided by Greenspace Information for Greater London (GiGL).

3.3. SURVEY GUIDELINES

3.3.1. Surveys were carried out in accordance with current good practice guidance (Collins, 2016) and with reference to the standing advice provided by Natural England (Natural England, 2015a).

3.4. SITE VISIT

3.4.1. The initial site visits for PBRAs were carried out on the 8th August 2017 and 1st September 2017 in good weather conditions.

3.5. EXTERNAL BUILDING INSPECTION

3.5.1. Buildings within in the application areas were assessed externally inspected using a high-powered torch and binoculars where appropriate.

3.6. GROUND LEVEL TREE ASSESSMENT FOR ROOSTING BATS

3.6.1. Trees were assessed from ground level to determine their potential to provide opportunities for roosting bats. Only trees located within and bordering the application areas were assessed. Information recorded included tree species; description and aspect of feature(s) with potential to support roosting bats such as woodpecker holes, rot holes, splits and cracks, dead limbs, ivy cover and/or flaking bark); and trunk diameter. Locations of the trees were recorded and photographs taken.

3.7. EMERGENCE/RE-ENTRY SURVEYS

3.7.1. Emergence and re-entry surveys were carried out to ascertain the presence or likely absence of roosting bats within buildings B1 to B7 and trees T1 to T3 (Table 2 and Appendix B).

Table 2 - Buildings and trees surveyed

Building or tree code	Building address or tree grid reference
B1	Dunbridge House, London SW15 4QD
B2	Denmead House, London SW15 4PS
B3	Charcot House, London SW15 4PT
B4	Winchfield House, London SW15 4PX
B5	Binley House, London SW15 4PX
B6	190 Roehampton Lane, London SW15 4EX
B7	Allbrook House, Danebury Avenue, London SW15 4HB
T1	London plane, TQ 21706 76053
T2	Larch, TQ 21923 74267
T3	Larch, TQ 21923 74267

BUILDINGS

3.7.2. Buildings 1-7 which were identified as having low potential to support roosting bats were subject to one survey, either at dusk on the 21st September or dawn on the 22nd September 2017. A further survey of Building 6 was carried out on the 24th July 2018.

TREES

3.7.3. Trees 1-3 which were identified as having moderate potential to support roosting bats were subject to two dawn surveys on 12th, 21st and/or 28th September 2017.

3.7.4. Ecologists were stationed at two locations around each of the buildings and at one location near each of the trees. Tree 1 was surveyed using a 1080 HD infrared night vision camera with external infrared light source. The use of infra-red cameras complies with good practice guidelines providing the majority of the site is observed by surveyors, which was the case throughout the survey.

3.7.5. The emergence (dusk) surveys began 15 minutes before sunset and ended 90 minutes after sunset. The return to roost (dawn) surveys began 90 minutes before sunrise and ended 15 minutes after sunrise. Weather conditions including cloud cover, wind, precipitation and air temperature at 1m were recorded by the lead surveyor at the start and end of the survey. The suitability of weather conditions for the bat survey were then categorised in Table 3 (adapted from met office data on the Beaufort scale and BCT Guidance for Onshore Wind Turbine survey). Any limitations that could affect bat behaviour were recorded. The GPS location of each surveyor was recorded and a photograph was taken or a sketch drawn of their survey view.

Table 3 - Guidance of weather conditions

Conditions	Temperature (°C)	Precipitation	Beaufort Windforce Scale
Optimal	>10	Dry	0 to 3 (calm to slight wind)
Suitable	10	Dry	3-4 (slight to moderate winds)
Suitable	10	Dry to light showers/drizzle	3-4 (slight to moderate winds)
Sub-optimal	<10	Moderate rainfall	5 to 7 (fresh to strong winds)
Unsuitable	<10	Heavy rainfall	>7 (near gale)

3.7.6. During the emergence surveys, access points/PRFs were watched continuously by the ecologists, whilst during the re-entry surveys any bats were tracked to see if they returned back to any points/PRFs within the view of ecologists.

3.7.7. Bat activity, including species, number of passes, and presence of any emergences or returns to roost, direction of flight paths, habitat and number of bats was recorded by each ecologist using an Elekon Batlogger M, EM3 or Batbox Duet. An MP3 player with line in cable attached to the Duet or the internal recording function on the Batlogger was used to record all bat passes.

3.7.8. A pass is defined as an unbroken stream of echolocation calls up to five seconds long, heard as a series of 'clicks, slaps, ticks or warbles' on a bat detector as the bat passes in and out of the detectors range.

Table 4 - Summary of survey weather, dates and times

Survey location	Visit number	Weather	Overall weather conditions	Start/End Temperature (°C)	Dusk or Dawn	Start/Finish Time	Date
B1	1	Clear, dry, light wind	Optimal	9/11	Dawn	05:19/07:04	22/09/2017
B2	1	Clear, dry, light wind	Optimal	13/9	Dawn	05:19/07:04	22/09/2017
B3	1	Cloudy, dry, light wind	Optimal	16/15	Dusk	19:21/21:06	21/09/2017
B4	1	Clear, dry, light wind	Optimal	16/15	Dusk	19:21/21:06	21/09/2017
B4	1	Clear, dry, light wind	Optimal	13/9	Dawn	05:19/07:04	22/09/2017
B5	1	Clear, dry, light wind	Optimal	16/15	Dusk	19:21/21:06	21/09/2017

Survey location	Visit number	Weather	Overall weather conditions	Start/End Temperature (°C)	Dusk or Dawn	Start/Finish Time	Date
B6	1	Cloudy, dry, light wind	Optimal	16/15	Dusk	19:21/21:06	21/09/2017
B6	2	Hot, dry, no wind, no cloud	Optimal	27/23	Dusk	20:45/22:30	24/07/2018
B7	1	Cloudy, dry, calm	Optimal	15/14	Dusk	19:21/20:02	21/09/2017
T1	1	Patchy cloud, dry, calm	Suitable	16/15	Dawn	05:15/07:00	21/09/2017
T1	2	Cloudy, drizzle, slight wind	Suitable	17/16	Dawn	05:27/07:12	28/09/2017
T2	1	Patchy cloud, dry, slight wind	Optimal	12/11	Dawn	05:02/06:47	12/09/2017
T2	2	Cloudy, drizzle, light wind	Suitable	17/16	Dawn	05:27/07:12	28/09/2017
T3	1	Patchy cloud, dry, light wind	Optimal	12/11	Dawn	05:02/06:47	12/09/2017
T3	2	Cloudy, drizzle, light wind	Suitable	17/16	Dawn	05:27/07:12	28/09/2017

3.8. DATA ANALYSIS

3.8.1. Sound analysis for 2017 was undertaken by Thomson Ecology. All bat calls were recorded and these were analysed using either Bat Explorer or Adobe Audition software. Quality assurance was undertaken on 10% of the bat call sound and noise files, and for any rare or notable species. Sound analysis for the 2018 was undertaken by WSP, using Kaleidoscope version 4.3.2 and Analook W.

3.9. NOTES AND LIMITATIONS

3.9.1. Every effort has been made to provide a comprehensive description of the Site, however, the following specific limitations apply to this assessment:

- Ecological survey data is typically valid for two years unless otherwise specified, for example should conditions change on the Site.

- Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.
- Buildings were only assessed externally, this was not thought to be a limitation as the majority of buildings were flat roofed and did not have roof voids to search.
- Tree assessments for bats would ideally be carried out from November – April, however it is felt that this was not a limitation, as the majority of trees on-Site were likely 50-60 years old and showed limited amounts of decay which would provide suitable roost for bats.
- Good practice guidelines (Collins, 2016) recommend that buildings with low potential for roosting bats should be surveyed once between May and August. Trees with moderate potential require two surveys at least 15 days apart between May and September, with at least one survey between May and August. Due to project programme constraints, it was not possible to strictly adhere to the guidelines. Nevertheless, the surveys that were undertaken do provide information on the use of trees and buildings as transitional roosts after bats have dispersed from maternity colonies. All trees and buildings identified as having potential for roosting bats were assessed as having low or moderate potential as summer/transitional roosts but negligible potential as maternity or hibernation roosts during the PBRA. Therefore, the results of the emergence and re-entry survey give an indication with regards to the presence of bats throughout the year and activity on the Site.
- Winchfield House (B4) was subject to surveys with two different surveyor locations undertaken on different days.
- On 21st September 2017, the two surveyors located each side of Allbrook House (B7) had to stop the survey and leave the Site 25 minutes after sunset for health and safety reasons relating to anti-social behaviour. This is not thought to be a significant limitation to the survey results as no bats were recorded emerging from the building nor flying in the vicinity of the surveyors during the first 40 minutes of the survey. Moreover, the building is an active residential block that experiences constant disturbance from residents in the form of noise and artificial lighting. The building is well-lit externally by artificial sources including street lamps and adjacent shop fronts. In addition, light spill was noted from large apartment windows on both sides of the building. These features were not apparent during the PBRA however, clearly contribute to the unsuitability of the building as a potential roosting place for bats.
- As a strategy to avoid anti-social behaviour from members of the public, whilst also completing the remaining surveys at the Site, it was decided to undertake all outstanding surveys at dawn. Consequently, the second visit to all three trees identified as having moderate potential was undertaken at dawn, as was the initial visit. This deviates from best practice guidelines, which recommends that such trees are surveyed once at dusk and once at dawn. In addition, the two visits to tree T3 were undertaken one week apart only, whereas best practice guidelines recommend that visits are undertaken at least two weeks apart. This is not thought to be a significant limitation to the survey results as these surveys were undertaken during optimal weather conditions. Moreover, activity levels were nil to low around the trees, in direct contrast to very high levels of activity recorded elsewhere on Site during the same survey visit, suggesting that the trees are not a not heavily utilised by bats.

3.10. PERSONNEL

- 3.10.1. The PBRA Site visits were carried out two experienced WSP ecologists; Sharon Yardy and Katherine Mullin, who are Graduate members of the Chartered Institute of Ecology and



Environmental Management (Grad CIEEM), Sharon holds a Natural England Level 2 bat licence (2017-28708-CLS-CLS). The emergence survey in 2018 was carried out by Sharon Yardy and Genevieve Labram.

- 3.10.2. The emergence and re-entry surveys in 2017 were carried out Thomson Ecology and were conducted by the following surveyors: Anna Clark BSc (Hons) MSc, Stephen Hewitt BSc (Hons) ACIEEM, Oliver Brown BSc (Hons), Shula Cowley BSc (Hons), Daniel Sidoli MRes BSc (Hons) Grad CIEEM, Sarah Coxhead BSc (Hons), and Samantha Tuddenham BSc (Hons) MRes.

4

RESULTS



4. RESULTS

4.1. DESK STUDY

4.1.1. No statutory sites were identified for bats within 10km. Nine species of bat have been recorded within 2km of the Site. These records comprised common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, Daubenton's bat *Myotis daubentonii*, Nathusius' pipistrelle *Pipistrellus nathusii*, Natterer's bat *Myotis nattereri*, brown long-eared bat *Plecotus auritus*, Liesler's bat *Nyctalus leisleri* and serotine *Eptesicus serotinus*.

4.2. BUILDINGS AND TREES WITH POTENTIAL TO SUPPORT A BAT ROOST

4.2.1. Buildings and trees with bat roost potential are detailed in Table 5 and Appendix B, with photographs in Appendix C.

Table 5 – Buildings and trees with features that could support a bat roost

Structure	Description	Features	Potential	Roost type
190 Roehampton Lane (Photograph 1)	Two storey building with pitched tiled roof.	Limited features, minor gaps recorded near the vents.	Low	Summer/transitional
Allbrook House and library (Photograph 2)	Allbrook House is a concrete block of flats. The library is a modern, flat roofed structure	Gaps at base of Allbrook House, where pillars join. Minor gaps between the balconies and concrete slabs.	Low	Summer/transitional
Dunbridge, Denmead, Charcot, Winchfield and Binley (Photograph 3)	Concrete blocks of flats, with flat roof, built on stilts, with the first floor above ground level.	Underside of buildings contain gaps in mortar.	Low	Summer/transitional
Robinia sp. (Photograph 4)	Tree at boundary of Downshire Fields area. TQ 21537 74025	Peeling/cracked bark, north facing, just below where limb has been removed approx. 6m high.	Low	Summer/transitional
Oak (Photograph 5)	Downshire Fields area. TQ 21618 74057	Dead oak, split down trunk, south facing, other tears and cracks from being cut back at 10m.	Low	Summer/transitional

Structure	Description	Features	Potential	Roost type
Larch (Photograph 6)	Downshire Fields area. TQ 21923 74267	Woodpecker holes 20m up south facing.	Moderate	Summer/transitional
Larch	Downshire Fields area. TQ 21923 74267	Woodpecker holes on cut side branch 20m high and on main trunk.	Moderate	Summer/transitional
London plane	Downshire Fields area. TQ 21706 76053	Woodpecker hole 10m high on main trunk, west facing.	Moderate	Summer/transitional
Poplar, horse chestnut and lime	Phase 1 (Block M). Adjacent to 190 Roehampton Lane. TQ 22120 73949	Minor features, unlikely to support bats	Low	Summer/transitional
Broadleaved trees	Downshire Fields area. Adjacent to Clarence Lane. TQ 21901 74266	Minor features, unlikely to support bats	Low	Summer/transitional

4.3. BUILDINGS WITH NEGLIGIBLE POTENTIAL

4.3.1. The flat roof structures within the application area offered limited potential for roosting bats. In addition, it was considered that with the high baseline levels of disturbance and lighting throughout most of the application area, the majority of these buildings were of negligible potential to support bats.

4.3.2. The buildings detailed below were considered to have negligible potential to support bats:

- Downshire Fields area has four blocks of flats that were 12 storeys high – Swaythling, Allenford House, Penwood House and Shalden House (Photograph 8).
- Phases 1, 2a, 2b and 2c consisted of flat roofed buildings with balconies comprising residential and commercial units (Photographs 9 and 10). Roehampton Youth Club, Housing Office and Police Station is constructed of red brick and flat roofed (Photograph 11). Alton Practice Doctors was of brick construction and flat roofed. 166 Roehampton Lane consisted of a modern school building, which was flat roofed. A Senior Citizen Social Club, Danebury Avenue Surgery (Photograph 13) and Portswood Place, which comprised flat roofed residential and commercial units (Photograph 14). Other flat roofed structures were also present.
- Phase 3 consisted of groups of buildings which were prefabricated with flat roofs (Photograph 15).

4.4. TREES WITH NEGLIGIBLE POTENTIAL

4.4.1. The majority of trees within the phased areas were considered to be of negligible potential, due to predominantly being of a young age and being in high disturbance and lighting areas.

4.5. EMERGENCE AND RE-ENTRY SURVEYS

- 4.5.1. Survey dates, times and weather data are provided in Table 4, all surveys were undertaken in optimal or suitable weather conditions. Survey results are summarised in Table 6, with surveyor locations shown in Appendix B.
- 4.5.2. No bats were recorded emerging from, or returning to, any of the buildings or trees on Site during any survey visit.

4.6. INCIDENTAL BAT ACTIVITY

- 4.6.1. Incidental records of four species of bats were recorded during the survey: common pipistrelle, soprano pipistrelle Nathusius' pipistrelle and noctule. In addition, a number of passes were attributed to the pipistrelle genus *Pipistrellus* sp. and one pass to an unidentified bat. A more accurate identification was not possible.
- 4.6.2. Incidental bat activity around the buildings ranged from nil to very high, depending on the survey location.
- 4.6.3. No incidental bat activity was recorded around building B7 (Allbrook House – but the survey had to be stopped early), B2 (Denmead House), and B3 (Charcot House). Low to very low levels of activity were recorded around buildings B1 (Dunbridge House) and B4 (Winchfield House) and trees T1 to T3. High levels of activity in 2017 were recorded in surveyor location L1 at building B6 (east of 190 Roehampton Lane) and location L1 and building B5 (south of Binley House). Low levels of activity were recorded around B6 in 2018.

Table 6 – Dusk emergence and dawn re-entry survey results

Structure	Date and survey time	Species and description of behaviour	Evidence of roost
B1	22/09/2017 Dawn	L1 - One pass of an unidentified bat species was recorded at 06:51, two minutes after sunrise. The bat was commuting. L2 - one pass of a commuting Nathusius pipistrelle was recorded at 06:05, 44 minutes before sunrise.	None
B2	22/09/2017 Dawn	L1 and L2 - No incidental bat activity was recorded at this location.	None
B3	22/09/2017 Dawn	L1 and L2 - No incidental bat activity was recorded at this location.	None
B4	21/09/2017 Dusk	L1 - No incidental bat activity was recorded at this location.	None
B4	22/09/2017 Dawn	L2 - No incidental bat activity was recorded at this location.	None
B5	21/09/2017 Dusk	L1 – 94 passes of soprano pipistrelle, the first at 19:22, 14 minutes before sunset, and the last one at 20:55, 79 minutes after sunset. 8 passes of common pipistrelle and one pass of Nathusius' pipistrelle and 6 passes of an unidentified pipistrelle were also recorded. These passes were mostly attributed to foraging bats. L2 – 4 passes of soprano pipistrelle (first one at 19:26, 10 minutes before sunset), one pass of common pipistrelle, one pass of Nathusius' pipistrelle (last bat recorded at 20:53, 77 minutes after sunset) and one pass of an unidentified pipistrelle were recorded at this location.	None

Structure	Date and survey time	Species and description of behaviour	Evidence of roost
B6	21/09/2017 Dusk	L1 – 85 passes of common pipistrelle were recorded, the first at 19:48, 12 minutes after sunset and the last the 20:54, 78 minutes after sunset. 2 passes of soprano pipistrelle were recorded at 19:36 and 21:05, at sunset and 89 minutes after sunset. L2 – 32 passes of common pipistrelle were recorded, the first at 19:48, 12 minutes after sunset and the last at 20:58, 72 minutes after sunset.	None
B6	24/07/2018 Dusk	L1 – 5 passes of common pipistrelle were recorded, the first at 21:28, 28 minutes after sunset and the last at 22:30. One pass of soprano pipistrelle was recorded at 22:01, 61 minutes after sunset and one pass of noctule was recorded at 21:56, 56 minutes after sunset. L2 – 3 passes of common pipistrelle were recorded, the first at 21:28, 28 minutes after sunset. One pass of a noctule was recorded at 21:54, 54 minutes after sunset.	None
B7	21/09/2017 Dawn	L1 – No incidental bat activity was recorded at this location. The survey was cancelled 26 minutes after sunset due to health and safety. L2 – No incidental bat activity was recorded at this location. The survey was cancelled 26 minutes after sunset due to health and safety.	None
T1	21/09/2017 Dawn	L1 – 8 passes of common pipistrelle and 5 passes of soprano pipistrelle. The first pass (a common pipistrelle) was recorded at 05:21, one hour and 24 minutes before sunrise. The last pass (a common pipistrelle) was recorded at 06:12, 33 minutes before sunrise.	None
T1	28/09/2017 Dawn	L1 – 11 passes of soprano pipistrelle were recorded at this location, the first one at 05:04 (113 minutes before sunrise) and the last one at 05:42 (72 minutes before sunrise). All bats were commuting.	None
T2	12/09/2017 Dawn	L1 – No incidental bat activity was recorded at this location.	None

Structure	Date and survey time	Species and description of behaviour	Evidence of roost
T2	28/09/2017 Dawn	L1 – 2 passes of commuting soprano pipistrelle were recorded, the first one at 06:37, 20 minutes before sunrise and the last one at 06:43, 14 minutes before sunrise.	None
T3	12/09/2017 Dawn	L1 – No incidental bat activity was recorded at this location.	None
T3	28/09/2017 Dawn	L1 – 2 passes of soprano pipistrelle and one pass of an unidentified were recorded, the first one (a soprano pipistrelle) at 06:25, 32 minutes before sunrise and the second (an unidentified pipistrelle) at 06:48, 9 minutes before sunrise. All records were of commuting bats.	None

5

DISCUSSION AND RECOMMENDATIONS



5. DISCUSSION AND RECOMMENDATIONS

5.1. BUILDINGS

- 5.1.1. Roost surveys found no evidence of bats roosting in the buildings surveyed. Varying levels of bat activity were observed in the vicinity of these buildings. Higher levels of activity recorded from two surveyor locations around B5 and B6 in 2017, which is possibly attributable to bats feeding around street lighting.
- 5.1.2. 190 Roehampton Lane (B6) is due for demolition in 2019 and one further survey was carried out here in 2018, in keeping with good practice guidelines. Two other buildings due for demolition in 2019 are 3,11-29 odd Danebury Avenue, Roehampton Youth Club, Housing Office, and Police Station which were categorised as negligible potential to support roosting bats. Proposed demolition works to buildings with negligible roosting potential and 190 Roehampton Lane (B6) can proceed without further survey or constraints, with regards bats.

5.2. TREES

- 5.2.1. Roost surveys found no evidence of bats roosting in the trees surveyed. A low level of bat activity was observed in the vicinity of these trees.
- 5.2.2. There are many difficulties in confirming whether bats are emerging from or re-entering a single tree roost; particularly in low light conditions or in complete darkness. While it is possible to confirm a roost when bats are seen entering or leaving a tree roost feature, it is not always possible to confirm the absence of a roost. Surveyors used their best judgement to make these assessments. This has included a consideration of the levels and types of bat activity observed.
- 5.2.3. Additionally, bat roosts can be temporary and bats may switch roost sites. The surveys reveal absence of bat roosts in these trees based on the evidence at the time of the survey. Although the recommended number of survey visits were undertaken for each tree, guidance maintains that two survey visits is not enough to determine absence of a bat roost in trees. The roost surveys indicate trees were not used by roosting bats on the survey visits. However, these trees have been identified as a roosting resource and it is possible that these trees could be used by roosting bats on other occasions or in the future.

5.3. CONSERVATION STATUS OF BAT SPECIES RECORDED

- 5.3.1. Common and soprano pipistrelle are regarded as common and widespread and as such any development is expected to have limited impact on the overall conservation of bats in this area. A roost of a common species is considered to be of local importance. Nathusius' pipistrelle and noctule are considered rarer, with individuals of up to county importance (Wray *et al.* 2010).

5.4. FELLING OF TREES ON SITE

- 5.4.1. Demolition and construction will be phased and due to start in 2019. Due to difficulty detecting bats roosting in trees it is recommended that any trees to be felled are assessed again by an ecologist prior to works being undertaken and that further surveys or inspection by endoscope are undertaken as considered necessary.

5.5. FURTHER SURVEYS

- 5.5.1. Due to the phasing and length of the demolition programme it is recommended that buildings and trees that are due for removal should be subject to further ground inspections and surveys where appropriate if survey data is greater than two years old.

5.6. COMMUTING AND FORAGING

- 5.6.1. High to very high level of passes were recorded in two locations. Recommendations are made to ensure that the development complies with current legislation and planning policy with regards to foraging and commuting bats.

5.7. BATS FOUND DURING CONSTRUCTION WORKS AND LICENSING

- 5.7.1. In the event that any bats are found during works, all works must cease and the advice of a licenced bat ecologist sought and acted upon. The results of the 2017 surveys do not indicate that it is not necessary to apply for a European Protected Species (EPS) licence to permit works that may cause an offence relating to the species. However, if future surveys confirm a bat roost on Site, an EPS licence application to Natural England may be required for the works to proceed.

5.8. ENHANCEMENT MEASURES

- 5.8.1. Mature trees should be retained, where appropriate, with the inclusion of native planting where possible. Lines and groups of mature trees such as those located to the south and south-east of Binley House and around 190 Roehampton Lane, where high to very high levels of bat activity were recorded, should be maintained. Where the removal of mature trees is required, these should be replaced on at least a like for like basis, ensuring that the connectivity of the landscape for bats is maintained or enhanced.
- 5.8.2. Landscaping should be designed and managed in such a way as to maximise invertebrate biomass and diversity and foraging opportunities for bats. This would involve maximising the floristic diversity of the green infrastructure by:
- Increasing the number of mature deciduous trees and the area of deciduous woodland;
 - Installing green walls and green and brown roofs, and planting climbers and creepers to soften walls and railings;
 - Maximising hedge and groundcover planting;
 - Using Sustainable Drainage Systems (SuDS);
 - Creating ponds, possibly as part of SuDS;
 - Planting flower-rich meadows and scrub;
 - Increasing the connectivity of the landscape for bats, by filling gaps in lines of mature trees for instance;
 - Using low-intensity management measures: limited use of fertilisers, herbicides and pesticides, late cut in rotation on part of the grasslands;
 - Planting of night scented flowers; and
 - Favouring native species in planting schedules.
- 5.8.3. Features suitable for roosting bats could be incorporated into the new buildings, in the form of access into soffit boxes, access into cavity walls, bat bricks incorporated into buildings, access points and cavities created within ridge tiles, access points and cavities created within any external cladding or hanging tiles;

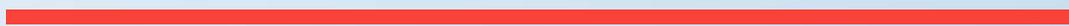
- 5.8.4. Provision of bat boxes onto buildings and/or retained trees, such as a 1FQ Schwegler Bat Roost (for external walls) or Causa 'maternity box' for bats. Boxes should be located at least 4m above the ground and sheltered from strong winds and exposed to the sun for part of the day (usually south or south-west).
- 5.8.5. In order to avoid impacts to bats during the construction and operation stages of the development the lighting scheme will need to be carefully designed. The Bat Conservation Trust has published guidance for mitigating the effects of artificial lighting on bats (Grant *et al.*, 2012). Measures should include:
- No construction works to be undertaken between dusk and dawn;
 - Do not provide excessive lighting. Use only the minimum amount of light needed for safety;
 - Minimise light spill. Eliminate any bare bulbs and any upward pointing light. The spread of light should be kept near to or below the horizontal. Flat cut-off lanterns are best;
 - Use narrow spectrum bulbs to lower the range of species affected by lighting. Use light sources that emit minimal ultra-violet light and avoid the white and blue wavelengths of the light spectrum to avoid attracting lots of insects. (This may cause a reduction of insects in other areas of the Site);
 - Lights should peak higher than 550 nm or use glass lantern covers to filter UV light. While LED lights do not emit UV but have still been shown to disturb slow-flying bat species;
 - Reduce the height of lighting columns;
 - For pedestrian lighting, use low level lighting that is as directional as possible and below 3 lux at ground level but preferably below 1 lux;
 - Increase the spacing of lanterns;
 - Limit the times that lights are on to provide some dark periods;
 - Use lighting design software and professional lighting designers to predict where light spill will occur;
 - Avoid using reflective surfaces under lights; and
 - Use temporary close-boarded fencing until vegetation matures to shield sensitive areas from lighting.

5.9. CONCLUSION

- 5.9.1. The prescribed mitigation and enhancement measures should ensure that there are no negative impacts to bats utilising the Site during the construction and operation stages of the development.

6

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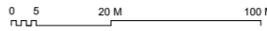
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Appendix A

APPLICATION AREA PLAN





Revisions	Rev	Description
25.02.2019	Rev 01	For Information

Key:
— Red Line Boundary

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Job Number	Date	Scale
HB16040	March 2019	1:1000 @ A0
Drawn by	Checked by	Status
MP	ABa	For Information
Drawing No. & Revision	Revision	
SK190225_BlockPlan	Rev 01	

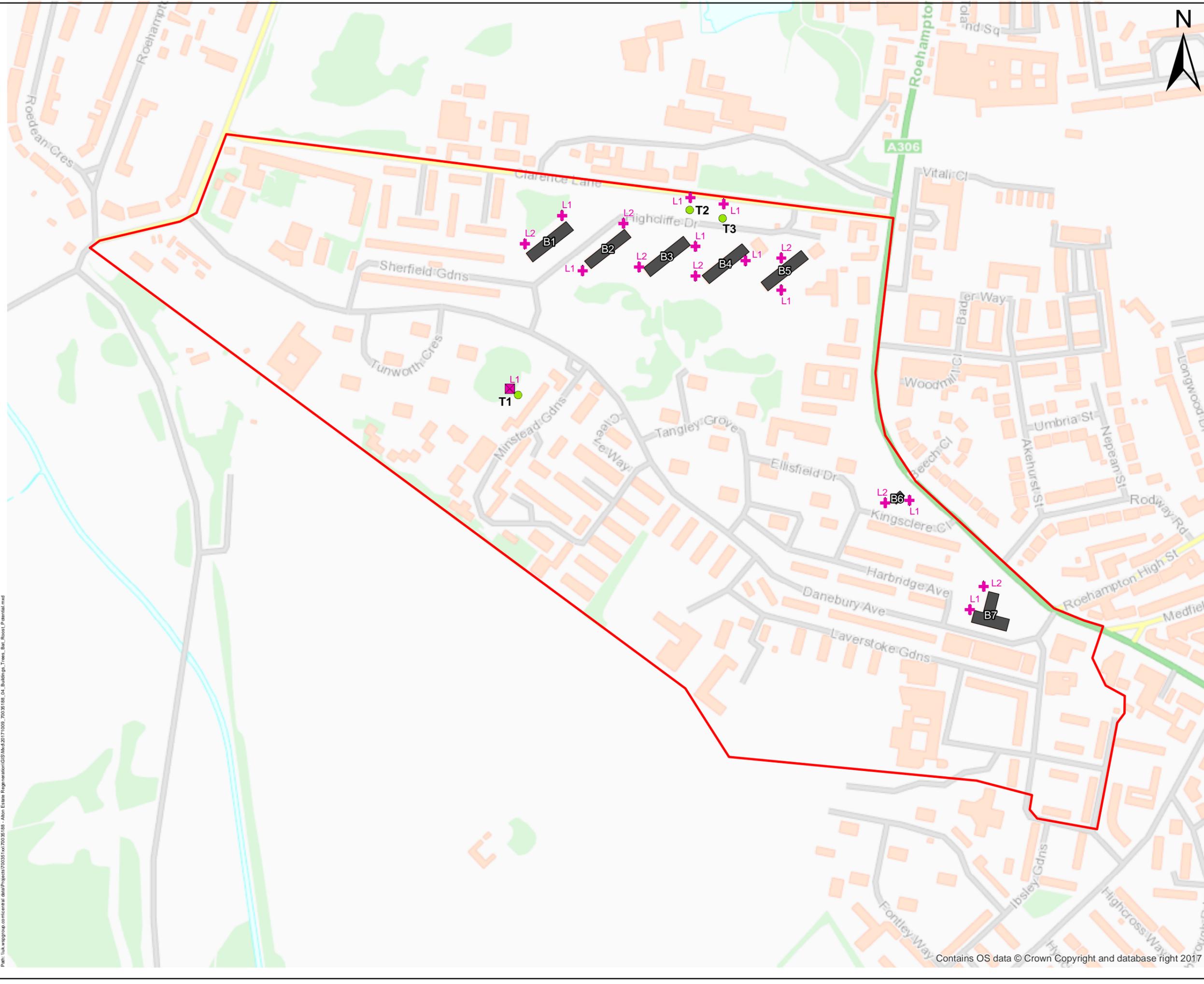
Project
Alton Estate West Roehampton
Drawing
Application Area and Block Plan

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Appendix B

BUILDINGS AND TREES SURVEYED





THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED



- Notes
- + Surveyor Locations
 - + Infrared Camera Location
 - Trees
 - █ Buildings
 - Alton Estate

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Revision Details	By	Date	Scale

Drawing Status: **FINAL**

Job Title: **Alton Estate**

Drawing Title: **Buildings and Trees with Bat Roost Potential**

Scale at A3: **1:4,000**

Drawn	JA		
Stage 1 check	CB	Stage 2 check	LH
		Originated	LH
		Date	27/11/2017



Drawing Number	70035188_04	Rev	-
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Appendix C



SITE PHOTOGRAPHS

No.	Image	Description / Comment
1		190 Roehampton Lane
2		Allbrook House and Library
3		Denmead House (Dunbridge, Charcot, Winchfield and Binley have similar construction)
4		Robinia sp. at TQ 21537 74025
5		Dead oak at TQ 21618 74057

6			Larch at TQ 21923 74267
7			Larch at TQ 21923 74267
8			Swaythling House (Allenford House, Penwood House and Shalden House have similar construction).
9			Danebury Avenue. View looking east.
10			Danebury Avenue. View looking east.

11		Roehampton Youth club
12		Minstead Gardens
13		Danebury Avenue Surgery
14		Portswood Place
15		Danebury Avenue



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Alton Estate Regeneration
Hybrid Application

**BAT ACTIVITY –
TRANSECTS AND
STATIC MONITORING**

WSP
May 2019





Redrow Homes Ltd

ALTON ESTATE

Bat Activity - Transects and Static Monitoring

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

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TRANSECT AND STATIC LOCATIONS

1

EXECUTIVE SUMMARY

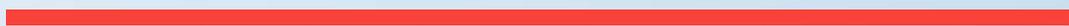


1. EXECUTIVE SUMMARY

- 1.1.1. WSP was commissioned by Redrow Homes Ltd to undertake activity surveys comprising walked transects and the deployment of static detectors for the proposed redevelopment and regeneration of Alton Estate, Roehampton. The Site has a demolition and construction schedule from 2019 – 2030.
- 1.1.2. The desk study confirmed nine species of bat had been recorded within 2km of the Site.
- 1.1.3. Bat activity walked transects and automated static detector surveys were carried out monthly from June – October 2017.
- 1.1.4. Four species of bats were recorded during the walked transects: common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula* and Leisler's bat *Nyctalus leisleri*. The static detectors additionally confirmed the presence of Nathusius' pipistrelle *Pipistrellus nathusii*, a single pass of *Myotis* sp. and a single pass of unidentified *Nyctalus/Eptesicus* sp.
- 1.1.5. Low levels of bat activity were recorded during all surveys, with the exception of the July dusk transect, which registered higher levels of activity.
- 1.1.6. No further activity surveys are recommended.
- 1.1.7. Bat foraging and commuting habitats within the Site, in particular lines of groups of mature trees, should be maintained as far as possible. If habitat clearance is required, it should be compensated for on at least a like-for-like basis, ensuring the functionality of the habitat for bats is maintained.
- 1.1.8. Permanent lighting should be designed to ensure the quality of the foraging and commuting habitat is maintained.
- 1.1.9. The following opportunities for enhancements for the benefit of bats and wildlife are recommended:
- Features suitable for roosting bats could be incorporated into the new buildings;
 - Provision of bat boxes onto buildings and retained trees; and
 - Landscaping should be designed and managed to maximise invertebrate biomass and diversity and foraging opportunities for bats.
 - Increasing the number of mature deciduous trees and the area of deciduous woodland;
 - Installing green walls and green and brown roofs, and planting climbers and creepers to soften walls and railings;
 - Maximising hedge and groundcover planting;
 - Using Sustainable Drainage Systems (SuDS);
 - Creating ponds, possibly as part of SuDS;
 - Planting flower-rich meadows and scrub;
 - Increasing the connectivity of the landscape for bats, by filling gaps in lines of mature trees for instance;
 - Using low-intensity management measures: limited use of fertilisers, herbicides and pesticides, late cut in rotation on part of the grasslands;
 - Planting of night scented flowers; and
 - Favouring native species in planting schedules.

2

INTRODUCTION



2. INTRODUCTION

2.1. BACKGROUND

2.1.1. WSP was commissioned by Redrow Homes Ltd to undertake activity surveys comprising walked transects and the deployment of static detectors for the proposed redevelopment and regeneration of Alton Estate, Roehampton (hereinafter referred to as the 'Site'). WSP have carried out a Preliminary Ecological Appraisal (PEA) (WSP 2017a) a Preliminary Bat Roost Assessment (PBRA) and emergence/return to roost surveys in 2017 (WSP 2017b).

2.2. PROJECT DESCRIPTION

2.2.1. Alton Estate comprises the redevelopment and regeneration of Alton Estate (Grid Reference TQ 21807 74113), hereinafter referred to as the 'Site' (Application Area Plan, Appendix A), which was developed in the 1950s. It is adjacent to Richmond Park SAC to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site. The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north.

2.2.2. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a phased demolition, construction and refurbishment schedule proposed from 2019 – 2030. The application Site lies within the administrative authority of Wandsworth Borough Council. The proposed development areas of the Project are shown in the Application Area Plan (Appendix A).

2.3. AIMS AND OBJECTIVES

2.3.1. The aims and objectives of this report are to:

- identify species composition, flight paths and locations of bat activity with the Site;
- assess potential impacts on important commuting routes or foraging habitats within the Site;
- provide an assessment of the use of the habitats within the Site by bat species;
- to assess the conservation importance of bats supported within the Site in accordance with the standard guidance; and
- identify mitigation recommendations or further survey requirements where necessary.

2.4. RELEVANT LEGISLATION AND POLICY

2.4.1. Bats and their roosts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitat Regulations'), the legislation means that it is an offence to:

- deliberately capture, injure or kill a wild bat;
- deliberately disturb wild bats; '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.'
- damage or destroy a breeding site or resting place used by this species.

- 2.4.2. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.
- 2.4.3. Due to the high level of protection afforded to bats and their habitat, mitigation for this species is governed by a strict licensing procedure administered by Natural England (normally, planning permission must be obtained before a licence can be sought).
- 2.4.4. Certain species of bats including the noctule *Nyctalus noctula*, brown long-eared *Plecotus auritus* and soprano pipistrelle *Pipistrellus pygmaeus* are also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.
- 2.4.5. Bats are protected under local planning policies. Policy PL4 'Open space and the natural environment' of the Wandsworth Local Plan Core Strategy (adopted March 2016) states that "The biodiversity value of the borough will be protected and enhanced. New development should avoid causing ecological damage and propose full mitigation and compensation measures for ecological impacts which do occur." In addition, Policy DMO 4 'Nature Conservation' of the Development Management Policies Document (adopted March 2016) states that "Development which would cause harm to [...] any protected species will not be permitted unless any damaging impacts can be prevented by appropriate mitigation measure or use of conditions. All development proposals should aim to provide gains for biodiversity."

3

METHODOLOGY



3. METHODOLOGY

3.1. DESK STUDY

- 3.1.1. A desk study was undertaken in July 2017 to obtain and review records of designated sites and protected and notable species and habitats within a 2km radius of the Site. A 10km study area was considered for international designations, with a 2km Study Area considered suitable for species records on account of the size of the Site.
- 3.1.2. The desk study included:
- Records of legally protected and notable species within 2km of the Site provided by Greenspace Information for Greater London (GiGL);
 - Information on International nature conservation designations within 10km of the site boundary and statutory designated sites and priority habitats within a 2km radius of the Site available on online databases including MAGIC and the JNCC; and
 - Records of non-statutory sites designated for nature conservation value within 2km of the Site provided by Greenspace Information for Greater London (GiGL).

3.2. SURVEY GUIDELINES

- 3.2.1. Surveys were carried out in accordance with current good practice guidance (Collins, 2016) and with adherence to the standing advice provided by Natural England (Natural England, 2015a).

3.3. BAT ACTIVITY WALKED TRANSECTS

- 3.3.1. One dusk walked transect was undertaken each month between June and October 2017, with a dusk and dawn in July. All surveys were carried out within optimum weather conditions and with good distribution of the Site covered by the transect route. Weather conditions including cloud cover, wind, precipitation and air temperature were recorded by the lead surveyor at the start and end of the survey. The suitability of weather conditions for the bat survey were then categorised as per Table 1 below (adapted from met office data on the Beaufort scale and BCT Guidance for Onshore Wind Turbine survey). Any limitations that could affect bat behaviour were recorded. The dusk and dawn transect surveys commenced approximately 15 minutes before sunset and continued for a total of approximately 3 hours or approximately 3 hours prior to sunrise and 15 minutes after sunrise. Transects were walked clockwise in June, September and the two October visits and anti-clockwise the other months.
- 3.3.2. The transect consisted of nineteen stop-off points, which were chosen to increase the sampling time and provide comparative data across the survey area. The time at these stop-off points was three minutes, with time differing between the different stop points.
- 3.3.3. During each transect the surveyors noted the bat species heard and seen, including the time, location, and, where possible behaviour type and direction of flight. Surveyors were equipped with bat detectors Elekon Batlogger M's to listen to and record bat activity.

Table 1 - Guidance of weather conditions

Conditions	Temperature (°C)	Precipitation	Beaufort Windforce Scale
------------	------------------	---------------	--------------------------

Optimal	>10	Dry	0 to 3 (calm to slight wind)
Suitable	10	Dry	3-4 (slight to moderate winds)
Suitable	10	Dry to light showers/drizzle	3-4 (slight to moderate winds)
Sub-optimal	<10	Moderate rainfall	5 to 7 (fresh to strong winds)
Unsuitable	<10	Heavy rainfall	>7 (near gale)

3.3.4. A summary of the survey dates and weather conditions for each transect are summarised in Table 2.

Table 2 - Activity survey weather conditions

Survey date	Dusk/Dawn	Start time	End time	Maximum and minimum temperature at start of survey	Weather conditions
28/06/2017	Dusk	21:07	00:22	15/18	Light wind and no rain
30/07/2017	Dusk	20:35	23:50	16/17	Light wind and no rain
31/07/2017	Dawn	02:24	05:39	14/15	Light wind and no rain
21/09/2017	Dawn	03:47	06:47	16/14	Light wind and no rain
10/10/2017	Dawn	04:16	07:31	11/12	Light wind and no rain
17/10/2017	Dawn	04:28	07:43	10/12	Light wind and no rain

3.4. REMOTE DETECTOR SURVEYS

- 3.4.1. In combination with the walked transect surveys, additional bat activity data was gathered using automated bat detectors. Automated (static) bat detectors SM4s were installed on Site in pre-determined locations during each of the survey months June – October 2017. The location of the automated detectors is shown in Appendix B.
- 3.4.2. A total of three detectors were deployed in June, July and October, with two in August and September. Locations 1 and 2 provided data for all 5 visits, while location 3 provided data for June and July and location 4 providing data for the final visit. In accordance with the current good practice guidance these were deployed for five nights in each month (Collins 2016). The automated detectors were set to commence recording at least 30 minutes before sunset and cease recording 30 minutes after sunrise. Table 3 contains details of when the detectors were set up to record.

Table 3 - Dates of static detector deployment

Month	First night	Last night
June	28/06/2017	03/07/2017
July	30/07/2017	04/08/2017
September	21/09/2017	26/09/2017
September	28/09/2017	03/10/2017
October	17/10/2017	22/10/2017

3.5. DATA ANALYSIS

- 3.5.1. The recordings of bat echolocation calls collected during the surveys were analysed using specialist computer software BatExplorer v1.11.4.0 and Anlook W v4.2. The analysis enables confirmation of species or species group based on call parameters, and the relative activity of different species of bats by counting the minimum number of bats recorded within discrete sound files. Once triggered by ultrasound, the Batlogger M and SM4 detectors record sound files with a duration of 5 seconds, which may contain a number of individual bat calls (or passes), or discrete groups of ultrasound 'pulses'. The assessment of relative bat activity between species is based on the relative abundance of recorded calls of each species within each survey period (i.e. each walked transect survey or period of static monitoring per month) and across the combined study period.
- 3.5.2. It should be recognised that a series of separate sound files may represent a series of different bats commuting within the range of an automated detector, or a smaller number of bats repeatedly triggering the detector (e.g. bats making repeated foraging passes within the range of a detector).
- 3.5.3. Where possible, bat calls are identified to species level. However, species of the genus *Myotis* are grouped together in most cases as their calls are similar in structure and have overlapping call parameters, making species identification problematic (Russ, 2013). For *Pipistrellus* species the following criteria based on measurements of peak frequency are used to classify calls:
- Common pipistrelle ≥ 42 and <49 KHz;
 - Soprano pipistrelle ≥ 51 KHz;
 - Nathusius' pipistrelle <39 KHz;
 - Common/soprano pipistrelle ≥ 49 and <51 KHz; and
 - Common/Nathusius pipistrelle ≥ 39 and <42 KHz.

In addition, the following categories are used for calls which cannot be identified with confidence due to the overlap in call characteristics between species or species groups:

- *Myotis* sp.
- *Nyctalus/Eptesicus* sp.

3.6. NOTES AND LIMITATIONS

- 3.6.1. Every effort has been made to provide a comprehensive description of the Site, however, the following specific limitations apply to this assessment:

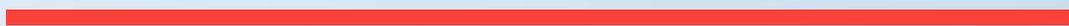
- Ecological survey data is typically valid for one year unless otherwise specified, for example should conditions change on the Site.
- Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.
- Surveys were not started until late June, due to the date of commission.
- One SM4 device was stolen and one damaged during the static monitoring, which resulted in the data being unusable. This resulted in the static location being relocated and the loss of data.
- Due to health and safety concerns and as a strategy to avoid anti-social behaviour from members of the public the final three transects were carried out at dawn. This deviates from best practice guidelines, however, this is not thought to have greatly influenced results, as surveys were undertaken during optimal weather conditions.

3.7. PERSONNEL

- 3.7.1. Surveys and data analysis were carried out by Thomson Ecology and were conducted by the following surveyors: Stephen Hewitt BSc (Hons) ACIEEM, Anna Clark BSc (Hons) MSc, Charlotte Hewitt BSc (Hons) MSc, Matthew Wisby BSc (Hons) MSc, Matthew Banner BSc (Hons) MSc and Shula Cowley BSc (Hons).

4

RESULTS



4. RESULTS

4.1. DESK STUDY

4.1.1. No statutory sites were identified for bats within 10km. Nine species of bat have been recorded within 2km of the Site. These records comprised common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, noctule *Nyctalus noctula*, Daubenton's bat *Myotis daubentonii*, Nathusius' pipistrelle *Pipistrellus nathusii*, Natterer's bat *Myotis nattereri*, brown long-eared bat *Plecotus auritus*, Leisler's bat *Nyctalus leisleri* and Serotine *Eptesicus serotinus*.

4.2. BAT ACTIVITY WALKED TRANSECTS

4.2.1. Four species of bats were confirmed during the walked transects: common pipistrelle, soprano pipistrelle, noctule and Leisler's bat, with passes summarised in Table 4. All surveys were classed as low activity with the exception of the July dusk transect, which registered higher numbers of passes. Higher levels of passes were recorded at points 8,9,10,11,17 and 18.

Table 4 - Transect surveys results

Species	Visit 1 28/06/2017 Dusk	Visit 2 30/07/2017 Dusk	Visit 2 31/07/2017 Dawn	Visit 3 21/09/2017 Dawn	Visit 4 10/10/2017 Dawn	Visit 5 17/10/2017 Dawn	Total bat passes
<i>P. pipistrellus</i>	3	50	34	5	6	5	103
<i>P. pygmaeus</i>	0	16	13	0	0	0	31
<i>Pipistrellus</i> sp.	0	2	0	6	0	0	8
<i>Nyctalus noctula</i>	0	1	0	0	0	0	1
<i>Nyctalus leisleri</i>	0	1	0	0	0	0	1
Total bat passes	3	70	47	11	6	5	142

4.3. REMOTE DETECTOR SURVEYS

4.3.1. Five species of bats were confirmed on Site during the static monitoring as summarised in Table 5. The most frequently recorded species was common pipistrelle, with lower numbers of soprano pipistrelle, with nine passes of noctule, six passes of Nathusius' pipistrelle, a single pass of *Myotis* sp. and a single pass of unidentified noctule/Serotine/Leisler's bat. All static detector locations and visits were classed as very low activity.

Table 5 - Static monitoring results

Location	Visit	P. pip	P. pyg	P. nat	P. sp	M. sp	N. noc	NSL	Total	Location total
1	1	23	1	0	18	0	0	0	42	594
	2	160	0	0	2	0	20	0	164	
	3	128	0	2	39	0	0	0	169	
	4	60	0	4	123	0	0	0	187	
	5	28	2	0	2	0	0	0	32	
2	1	34	91	0	3	1	0	0	129	714
	2	3	2	0	7	0	0	0	14	
	3	275	38	0	4	0	2	0	319	
	4	144	82	0	0	0	1	0	277	
	5	21	1	0	3	0	0	0	25	
3	1	26	4	0	5	0	0	0	35	64
	2	5	14	0	7	0	2	1	29	
4	5	377	30	0	2	0	0	0	409	409
TOTAL		1284	265	6	215	1	9	1	1781	

5

DISCUSSION AND RECOMMENDATIONS



5. DISCUSSION AND RECOMMENDATIONS

5.1. SUMMARY

- 5.1.1. All surveys registered low levels of activity, apart from the July dusk and dawn transects, which registered higher levels of activity. There is parkland present on Site and a small area of woodland along the western boundary, which provide suitable foraging and commuting features. The location of the Site could provide potential commuting routes. There are extensive greenspaces present around the Site, with Richmond Park and Richmond Park Golf Club to the west, Roehampton Golf Club and Roehampton University grounds to the north, Wimbledon Common and Putney Heath to the south-east and east.
- 5.1.2. The Site has high light pollution in places and is primarily used by pipistrelle species of bats that are not light sensitive. Higher levels of activity were recorded along the western edge of the Site from stops 8-11 during the walked transects and around stops 17 and 18. During emergence surveys of buildings Binley House and 190 Roehampton Lane there were high and very high levels of activity recorded (WSP 2017b). This is possible due to foraging around street lighting.

5.2. FURTHER SURVEYS

- 5.2.1. No further activity surveys are recommended.

5.3. CONSERVATION STATUS OF BAT SPECIES RECORDED

- 5.3.1. Common and soprano pipistrelle are regarded as common and widespread and as such any development is expected to have limited impact on the overall conservation of bats in this area. A roost of a common species is considered to be of local importance. Nathusius' pipistrelle, noctule, Leisler's bat and *Myotis* sp. are considered to be rarer, with individuals of up to county importance (Wray *et al.* 2010).

5.4. ENHANCEMENT MEASURES

- 5.4.1. Mature trees should be retained, where appropriate, with the inclusion of native planting where possible. Lines and groups of mature trees such as those located to the south and south-east of Binley House and around 190 Roehampton Lane, where high to very high levels of bat activity were recorded, should be maintained. Where the removal of mature trees is required, these should be replaced on at least a like for like basis, ensuring that the connectivity of the landscape for bats is maintained or enhanced.
- 5.4.2. Landscaping should be designed and managed in such a way as to maximise invertebrate biomass and diversity and foraging opportunities for bats. This would involve maximising the floristic diversity of the green infrastructure by:
- Increasing the number of mature deciduous trees and the area of deciduous woodland;
 - Installing green walls and green and brown roofs, and planting climbers and creepers to soften walls and railings;
 - Maximising hedge and groundcover planting;
 - Using Sustainable Drainage Systems (SuDS);
 - Creating ponds, possibly as part of SuDS;
 - Planting flower-rich meadows and scrub;

- Increasing the connectivity of the landscape for bats, by filling gaps in lines of mature trees for instance;
- Using low-intensity management measures: limited use of fertilisers, herbicides and pesticides, late cut in rotation on part of the grasslands;
- Planting of night scented flowers; and
- Favouring native species in planting schedules.

5.4.3. Features suitable for roosting bats could be incorporated into the new buildings, in the form of access into soffit boxes, access into cavity walls, bat bricks incorporated into buildings, access points and cavities created within ridge tiles, access points and cavities created within any external cladding or hanging tiles.

5.4.4. Provision of bat boxes onto buildings and/or retained trees, such as a 1FQ Schwegler Bat Roost (for external walls) or Causa 'maternity box' for bats. Boxes should be located at least 4m above the ground and sheltered from strong winds and exposed to the sun for part of the day (usually south or south-west).

5.4.5. In order to avoid impacts to bats during the construction and operation stages of the development the lighting scheme will need to be carefully designed. The Bat Conservation Trust has published guidance for mitigating the effects of artificial lighting on bats (Grant et al., 2012). Measures should include:

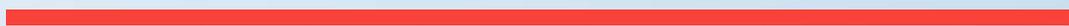
- No construction works to be undertaken between dusk and dawn;
- Do not provide excessive lighting. Use only the minimum amount of light needed for safety;
- Minimise light spill. Eliminate any bare bulbs and any upward pointing light. The spread of light should be kept near to or below the horizontal. Flat cut-off lanterns are best;
- Use narrow spectrum bulbs to lower the range of species affected by lighting. Use light sources that emit minimal ultra-violet light and avoid the white and blue wavelengths of the light spectrum to avoid attracting lots of insects. (This may cause a reduction of insects in other areas of the Site);
- Lights should peak higher than 550 nm or use glass lantern covers to filter UV light. While LED lights do not emit UV but have still been shown to disturb slow-flying bat species;
- Reduce the height of lighting columns;
- For pedestrian lighting, use low level lighting that is as directional as possible and below 3 lux at ground level but preferably below 1 lux;
- Increase the spacing of lanterns;
- Limit the times that lights are on to provide some dark periods;
- Use lighting design software and professional lighting designers to predict where light spill will occur;
- Avoid using reflective surfaces under lights; and
- Use temporary close-boarded fencing until vegetation matures to shield sensitive areas from lighting.

5.5. CONCLUSION

5.5.1. The above mitigation and enhancement measures should ensure that there are no negative impacts to bats utilising the Site during the construction and operation stages of the development.

6

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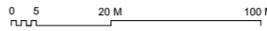
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Appendix A

APPLICATION AREA PLAN





Revisions	Rev	Description
25.02.2019	Rev 01	For Information

Key:
— Red Line Boundary

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Job Number	Date	Scale
HB16040	March 2019	1:1000 @ A0
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Drawing No. & Revision	Revision	
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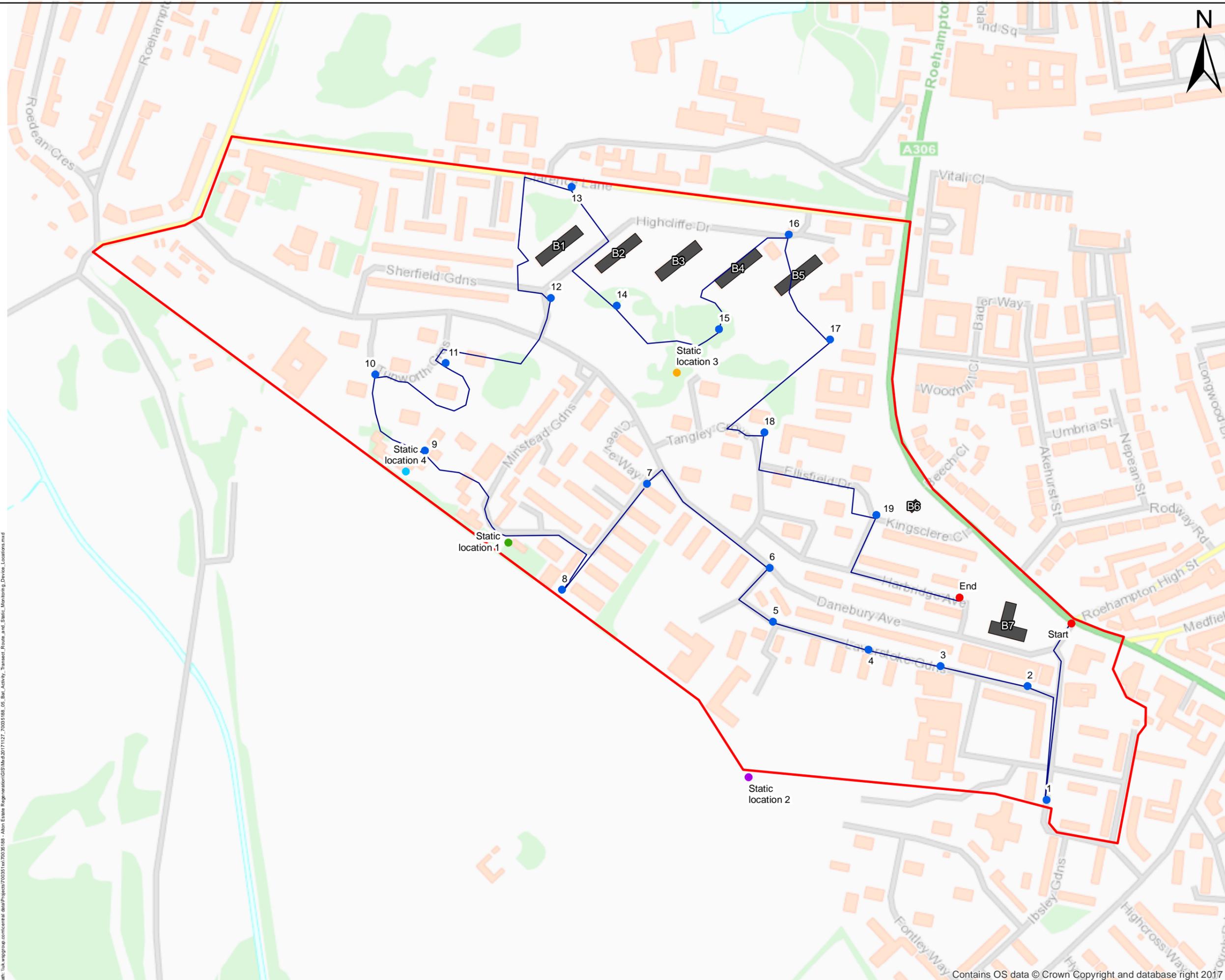
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Alton Estate West	
Roehampton	

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Appendix B

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TRANSECT AND STATIC LOCATIONS



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- Notes
- Start End Point
 - Stopping Point
 - Static Monitoring Device location 1
 - Static Monitoring Device location 2
 - Static Monitoring Device location 3
 - Static Monitoring Device location 4
 - Transect Route
 - Buildings
 - Alton Estate

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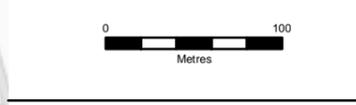
Drawing Status: **FINAL**

Job Title: **Alton Estate**

Drawing Title: **Bat Activity Transect Route and Static Monitoring Device Locations**

Scale at A3: **1:4,000**

Drawn	JA		
Stage 1 check	CB	Stage 2 check	LH
		Originated	LH
		Date	12/12/2017



Drawing Number	70035188_04	Rev	-
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Alton Estate Regeneration
Hybrid Application

GREAT CRESTED NEWT ASSESSMENT

WSP
May 2019



ALTON GREEN

ROEHAMPTON SW15





Redrow Homes Ltd

ALTON ESTATE

Great Crested Newt

TYPE OF DOCUMENT (VERSION) CONFIDENTIAL

PROJECT NO. 70035188

OUR REF. NO. GCN

DATE: FEBRUARY 2019

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	First Issue	Draft for consultation	Draft for consultation	Final Issue
Date	09/10/17	25/10/17	September 2018	February 2019
Prepared by	Sharon Yardy	Sharon Yardy	Sharon Yardy	Hing Kin Lee
Signature				
Checked by	Hing Kin Lee	Hing Kin Lee	Hing Kin Lee	Richard Gowing
Signature				
Authorised by	Hing Kin Lee	Hing Kin Lee	Hing Kin Lee	Richard Gowing
Signature				
Project number	70035188	70035188	70035188	70035188
Report number	GCN	GCN	GCN	GCN

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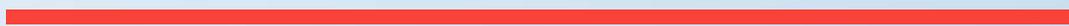
HABITAT SUITABILITY INDICES

APPENDIX E

WATER BODIES WITH BUFFERS

1

EXECUTIVE SUMMARY

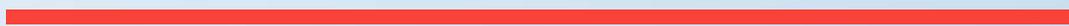


1. EXECUTIVE SUMMARY

- 1.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a great crested newt (GCN) *Triturus cristatus* Habitat Suitability Index (HSI) assessment and eDNA sampling and analysis of waterbodies within 500m of the proposed redevelopment and regeneration of Alton Estate, Roehampton.
- 1.1.2. The purpose of these surveys was to determine the presence or likely absence of GCN within the waterbodies in order to identify any potential ecological constraints and inform any subsequent survey, European Protected Species License (EPSL) and mitigation requirements.
- 1.1.3. Eleven waterbodies within 500 m of the proposed site boundary were identified and visited. All surveys were undertaken in accordance with current best practice survey guidance.
- 1.1.4. A complete HSI assessment could not be undertaken at waterbodies 1, 2, 3, and 13 due to desiccation. Waterbodies 8, 9, 10 and 11 were ornamental ponds and not considered further. Waterbody 12 was identified as being 'poor' for habitat suitability for breeding GCN. Waterbodies 4 and 7 were identified as 'average' and were therefore considered to be potentially suitable to support GCN.
- 1.1.5. Waterbodies 1 and 2 were confirmed as supporting GCN populations in a previous study. eDNA sampling was undertaken at three waterbodies, with waterbody 4 returned as negative, indicating that GCN were absent from the waterbody, although this result is to be treated with caution. Waterbodies 7 and 12 were returned as positive, indicating GCN were present.
- 1.1.6. Due to no waterbodies being identified on Site, lack of suitable terrestrial habitat, poor connectivity and significant barriers to dispersal, GCN are not anticipated to be directly or indirectly affected by the proposed development. Therefore, they are not considered to be an ecological constraint. No further GCN surveys, EPSL or specific mitigation recommendations are considered necessary.

2

INTRODUCTION



2. INTRODUCTION

2.1. BACKGROUND

- 2.1.1. WSP was commissioned by Redrow Homes Ltd to undertake a great crested newt (GCN) *Triturus cristatus* assessment for waterbodies within 500m of the proposed redevelopment and regeneration of Alton Estate, Roehampton (hereinafter referred to as the 'Site').
- 2.1.2. A Due Diligence Site Investigation: Ecological Appraisal was undertaken by AECOM in 2015 (AECOM, 2015). WSP undertook a Preliminary Ecological Appraisal (PEA) in 2017 (WSP, 2017), where biological records were obtained from Greenspace Information for Greater London (GiGL). A Surrey Wildlife Trust report (Surrey Wildlife Trust, 2015) from 2015 was also reviewed to inform the scope of this study.

2.2. PROJECT DESCRIPTION

- 2.2.1. Alton Estate comprises the redevelopment and regeneration of Alton Estate (Grid Reference TQ 21807 74113), hereinafter referred to as the 'Site' (Application Area Plan, Appendix A), which was developed in the 1950s. It is adjacent to Richmond Park SAC to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site. The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north.
- 2.2.2. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a phased demolition, construction and refurbishment schedule proposed from 2019 – 2030. The application Site lies within the administrative authority of Wandsworth Borough Council. The proposed development areas are shown in the Application Area Plan (Appendix A).

2.3. LEGISLATIVE CONTEXT

- 2.3.1. Great crested newts are afforded a high level of protection under the Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitat Regulations'), the legislation means that it is an offence to:
- deliberately capture, injure or kill a wild great crested newt;
 - deliberately disturb wild great crested newts; '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.'
 - damage or destroy a breeding site or resting place used by this species.
- 2.3.2. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of animals when using places of shelter, and obstruction of access to places of shelter.

2.3.3. Due to the high level of protection afforded to great crested newts and their habitat, mitigation for this species is governed by a strict licensing procedure administered by Natural England (normally, planning permission must be obtained before a licence can be sought). Licencing is subject to three tests, as defined under the Habitats Regulations 2017, these must also be applied by the planning authority before granting permission for activities affecting great crested newts. For permission to be granted the following criteria must be satisfied:

- 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’;
- ‘There is no satisfactory alternative’; and
- 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’.

2.3.4. The great crested newt is also listed as a Species of Principal Importance (SPI) for the Conservation of Biodiversity in England in accordance with Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. Under Section 40 of the NERC Act (2006) public bodies (including local planning authorities) have a duty to have regard for the conservation of SPI when carrying out their functions, including determining planning applications.

2.4. PLANNING POLICY COMPLIANCE

2.4.1. At the national level the National Planning Policy Framework (2019) forms the basis for planning system decisions with respect to conserving and enhancing the natural environment, including great crested newts. The ODPM circular 06/2005 also provides supplementary guidance, including confirmation that ‘the presence of a protected species is a material consideration when a planning authority is considering a development proposal’.

2.4.2. The NPPF sets out, amongst other points, how at an overview level the ‘planning system should contribute to and enhance the national and local environment by:

- ...recognising the wider benefits of ecosystem services; and
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government’s commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures...’

2.4.3. A list of principles which local planning authorities should follow when determining planning applications is included in the NPPF, and includes the following:

- ‘- if significant harm resulting from a development cannot be avoided...adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;
- - ...opportunities to incorporate biodiversity in and around developments should be encouraged;
- - planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland...unless the need for, and benefits of, the development in that location clearly outweigh the loss...’

2.4.4. At a local level, Policy DM04 Nature Conservation¹ is relevant by ensuring that there will not be any harm caused to protected species, unless any impacts can be prevented by appropriate mitigation measures or use of conditions.

2.5. AIMS AND OBJECTIVES

2.5.1. To determine the presence or likely absence of GCN within ponds in and adjacent (up to 500m) to the Site, in order to identify any potential ecological constraints and inform any further survey and potential licence and mitigation requirements associated with the species, the survey and subsequent report presented herein sets out to:

- Complete a Habitat Suitability Index (HSI) assessment of water bodies within 500m of the Site boundary to assess their suitability as aquatic habitat for great crested newts and determine if further surveys were required;
- Complete eDNA surveys to determine the presence or likely absence of this species from water bodies providing suitable habitat within 500m of the Site; and
- Where present, evaluate the value of the Site for great crested newts and make recommendations as to how proposals should account for great crested newts in relation to relevant legislation and planning policy.

¹ Wandsworth Borough Council (2016). Wandsworth Local Plan. Development Management Policies Document. Adopted March 2016.

3

METHODS



3. METHODS

3.1. HABITAT SUITABILITY INDEX (HSI) ASSESSMENT

- 3.1.1. A review of the Surrey Wildlife Trust report (2015), 1:25,000 OS mapping and aerial photography was undertaken to identify all water bodies within the Site boundary and within a 500m radius. Water bodies where access was possible were assessed for their suitability to support great crested newts, using the standard HSI assessment method (ARG UK, 2010, based on Oldham et al. (2000).
- 3.1.2. Water bodies were assessed and scored on ten key variables which are known to influence breeding populations of great crested newts, in accordance with standard methods (ARG UK, 2010). These variables are:
- Geographic location;
 - Water body area;
 - Water body permanence;
 - Water quality;
 - Water body shading;
 - Impact of waterfowl;
 - Fish stocks;
 - Number of water bodies within 1km;
 - Terrestrial habitat around the water body; and
 - Macrophyte cover of the water body.
- 3.1.3. Scores for each of the above variables were used to calculate an overall HSI value for each water body. This was then cross referenced with the guidelines (ARG, 2010) to assign the pond to one of five categories, poor, below average, average, good or excellent. Index calculation is not a failsafe method of identifying whether a water body supports great crested newts or not, therefore professional judgement and availability of records of great crested newt in the locality has also been used to inform the requirement for further survey.

3.2. EDNA SAMPLING AND ANALYSIS

- 3.2.1. Environmental DNA (eDNA) sampling and analysis were carried out at three waterbodies in accordance with current best practice guidance (Biggs *et al.*, 2014).
- 3.2.2. eDNA is DNA that is collected from the environment in which an organism lives; GCN shed cellular material into the water via their saliva, urine, faeces, skin cells and dead individuals etc. This DNA may persist for several weeks and can be collected through water sampling, and analysed to determine if GCN have been recently present in the water body.
- 3.2.3. This eDNA sampling and analysis methodology has been approved by Natural England for the determination of GCN presence / likely absence in water bodies.
- 3.2.4. The sampling kits were received on the 8th June 2017 and surveys were carried out during suitable weather conditions during 26th June 2017.
- 3.2.5. Using sampling equipment provided by Wildcare, 20 water samples were taken at evenly spaced locations around the perimeter of each water body surveyed. However, areas in which aquatic

vegetation may be used as egg laying substrate and open water areas which may be using for displaying were targeted specifically.

- 3.2.6. The 20 water samples were then combined in the field. Using a pipette, the combined water sample was then dispensed into six sterile tubes containing 35 mL of ethanol to preserve the eDNA sample.
- 3.2.7. All water samples were stored and transported in accordance with the protocols provided by Wildcare for subsequent eDNA laboratory analysis which was also undertaken by Applied Genomics.

3.3. SURVEY GUIDELINES

- 3.3.1. Surveys were carried out in accordance with current good practice guidance (ARG UK, 2010, based on Oldham *et al.* (2000) and Biggs *et al.*, 2014 with adherence to the standing advice provided by Natural England (Natural England, 2015).

3.4. SURVEY LIMITATIONS

- 3.4.1. There was limited access around waterbodies 4, 7 and 12 with 60%, 80% and 50% of the perimeter accessed. However, DNA was detected in waterbodies 7 and 12, so is not thought access was a limiting factor for Waterbody 4. All samples passed the inhibition control, but waterbody 4 was graded as 'Low' for degradation control, indicating that there should be caution when interpreting the result for this waterbody.

3.5. SURVEY PERSONNEL

- 3.5.1. Surveys were led by Amber Perrett who holds a Natural England Great Crested Newt Licence (Licence no 2016-19777-CLS-CLS). She was assisted by Georgina Young.

4

RESULTS AND EVALUATION



4. RESULTS AND EVALUATION

4.1. OVERVIEW

4.1.1. No waterbodies were identified within the Site, with eleven identified within a 500m radius Appendix B. The data search from GiGL, provided 12 occurrences of GCN within 2km. The data search was based on a central grid reference of the Site, which identified the closest record of great crested newt as 619m to the south-west on 05/05/2010. The most recent record was from 630m to the south-west on 07/06/2012. Surrey Wildlife Trust (2015) indicated that these records are from Waterbodies 1 and 2.

4.2. HABITAT SUITABILITY ASSESSMENT

- 4.2.1. A summary of the HSI results and location information for the water bodies is included in Table 1. Waterbody numbers correspond to those in Appendices A and B, with photographs of each water body in Appendix C. The HSI calculations are included in Appendix D.
- 4.2.2. A complete HSI assessment could not be undertaken at waterbodies 1, 2, and 3 due to desiccation. Water bodies 8, 9, 10, 11 and 13 were ornamental ponds and not considered further. Of the waterbodies that could be assessed for HSI, results indicated that two could potentially provide suitable habitat for GCN, 4 and 7 received scores of 0.65 and 0.67 which corresponds to 'average' habitat suitability. Waterbody 12 received 0.32 and was categorised as 'poor'.

Table 1 - Summary of HSI Results

Water body Ref.	Grid Reference	Habitat Notes	HSI Score	HSI Category	eDNA sampled
Water body 1	TQ 21663 73348	Desiccated pond. Vegetated island in middle of pond. Floor of pond filled with leaf litter and dead wood.	N/A	N/A	N/A
Water body 2	TQ 21614 73291	Desiccated pond, but the bottom was damp/recently dried out. Lined with sedge. Gamekeeper has observed newts in the pond.	N/A	N/A	N/A
Water body 3	TQ 21962 73351	Desiccated ditch, full of vegetation, grassland and woodland bordering. Steep banks, approximately 0.5m deep. Rarely wet but may take flood water.	N/A	N/A	N/A
Water body 4	TQ 22024 73147	Pond with vegetation, approximately 30cm	0.65	Average	Yes

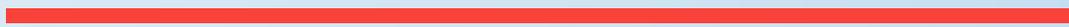
Water body Ref.	Grid Reference	Habitat Notes	HSI Score	HSI Category	eDNA sampled
		deep in centre. Marginal vegetation includes sedge.			
Water body 7	TQ 22825 73403	Pond with vegetation and grass/earth banks and overhanging trees. Some reed and water lillies, over 30cm deep.	0.67	Average	Yes
Water body 8	TQ 22203 74192	Ornamental pond. Not suitable for HSI or eDNA.	N/A	N/A	N/A
Water body 9	TQ 22280 74173	Ornamental pond. Not suitable for HSI or eDNA.	N/A	N/A	N/A
Water body 10	TQ 22234 74282	Ornamental pond. Not suitable for HSI or eDNA.	N/A	N/A	N/A
Water body 11	TQ 22011 74408	Ornamental pond. Not suitable for HSI or eDNA.	N/A	N/A	N/A
Water body 12	TQ 21956 74506	Large pond with grass/earth banks. Waterfowl and fish present. Vegetation included: reeds, water lilies and marginal vegetation. Over 30cm deep.	0.32	Poor	Yes
Water body 13	TQ 22112 74755	Ornamental pond. Not suitable for HSI or eDNA.	N/A	N/A	No

4.3. EDNA SAMPLING AND ANALYSIS

- 4.3.1. eDNA sampling was undertaken at water bodies 4,7 and 12. Waterbodies 7 and 12 were positive, with 2/12 and 6/12 replicates being returned as positive. eDNA analysis was returned as negative for water body 4. Samples were subject to Inhibition and Degradation control tests, with all samples having a normal response for the inhibition control. However, waterbody 4 showed low degradation control when tested, so the results for this water body should be treated with caution.

5

DISCUSSION AND RECOMMENDATIONS



5. DISCUSSION AND RECOMMENDATIONS

5.1. EVALUATION

- 5.1.1. The site does not contain any waterbodies which could offer a breeding opportunity for GCN. The Site consists largely of buildings, hard standing, mixed parkland and amenity grassland, which is considered to be of sub-optimal terrestrial habitat for GCN.
- 5.1.2. The results of this and previous surveys suggest that there are four known waterbodies within 500m that support GCN populations. These are shown with 100m, 250m and 500m buffers in Appendix E.
- 5.1.3. Waterbody 7 is approximately 460m from the Alton Estate Site boundary, but over 500m from the proposed development area (Appendix A). This waterbody tested positive for eDNA, but due to the A3 and A306 presenting a significant barrier, it is not considered that GCN populations would be likely to disperse towards the Site from this location.
- 5.1.4. Waterbody 12 is located to the north of some buildings and approximately 225m from the Alton Estate Site boundary, within the Downshire Fields area. This is separated by Clarence Lane, which although a smaller road, would present a significant barrier to dispersal.
- 5.1.5. Waterbodies 1 and 2 are approximately 400m and 470m from the Alton Estate Site boundary and over 500m from the proposed development area (Appendix A). These were previously confirmed by Surrey Wildlife Trust (2015) as containing GCN, but were desiccated at this survey.
- 5.1.6. Waterbody 4 is approximately 470m from the Alton Estate Site boundary and over 500m from the phased areas, this was returned as negative for eDNA, however, this result needs to be treated with caution due to the degradation control score being returned as low.
- 5.1.7. Waterbodies 4, 7 and 12 were considered to show moderate terrestrial habitat, with significant barriers to dispersal and the distance from the Site it is considered unlikely that GCN would disperse and be present on the Site.

5.2. AVOIDANCE AND MITIGATION MEASURES

- 5.2.1. No further GCN surveys, EPSL licence or specific mitigation recommendations are considered necessary.

6

CONCLUSIONS

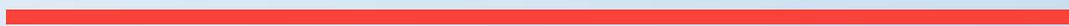


6. CONCLUSIONS

- 6.1.1. The amphibian atlas for Greater London, indicate that GCN show a limited distribution (GiGL, 2017), so the populations within the vicinity of the proposed development could be considered of local importance.
- 6.1.2. The number of ponds, distance from the Site and suitability of terrestrial habitat between them are important attributes for the habitat of GCN. All waterbodies are at a distance from the proposed development areas such that the works are unlikely to cause an offence in relation to GCN. Furthermore, there is poor connectivity from the Site to suitable ponds, and with no waterbodies on site offering a breeding opportunity, the risk of GCN being present on site is considered negligible.

7

BIBLIOGRAPHY



7. BIBLIOGRAPHY

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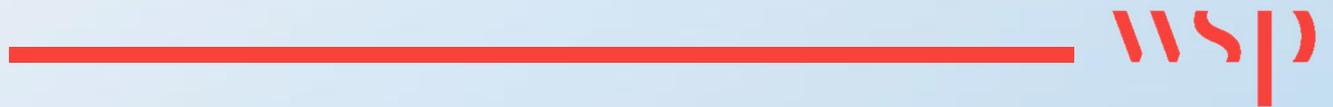
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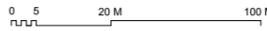
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Appendix A

APPLICATION AREA PLAN





Revisions	Rev	Description
25.02.2019	Rev 01	For Information

Key:
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Appendix B



SITE LOCATION PLAN



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- Notes
- Waterbodies
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 - Red Line Boundary 500m Buffer

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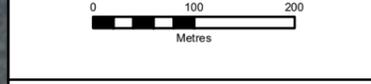
Job Title **Alton Estate**

Drawing Title **Waterbodies**

Scale at A3 **1:7,000**

Drawn **CB**

Stage 1 check SY	Stage 2 check SY	Originated SY	Date 07/08/2017
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Drawing Number **70035188_01**

Rev **-**

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Path: \\uk.wspgroup.com\central_data\Projects\70035188_01\Alton_Estate_Regeneration\GIS\Map\2017\725_70035188_01_Alton_Estate_Waterbodies_Aerial_Beam.mxd

Appendix C

PHOTOGRAPHS



Table 1: Images

Water body	Image	Description / Comment
1		<p>Dry pond. Vegetated island in middle of pond. Floor of pond filled with leaf litter and dead wood.</p>
2		<p>Dry pond, but the bottom was damp/recently dried out. Lined with sedge. Gamekeeper has observed newts in the pond.</p>
3		<p>Dry ditch, Full of vegetation, grassland and woodland bordering. Steep banks, approximately 0.5m deep. Rarely wet but may take flood water.</p>
4		<p>Pond with vegetation, approximately 30cm deep in centre. Marginal vegetation includes sedge.</p>
7		<p>Pond with vegetation and grass/earth banks and overhanging trees. Some reed and water lilies. Over 30cm deep.</p>
8		<p>Ornamental pond. Not suitable for HSI or eDNA.</p>

9		Ornamental pond. Not suitable for HSI or eDNA.
10		Ornamental pond. Not suitable for HSI or eDNA.
11		Ornamental pond. Not suitable for HSI or eDNA.
12		Large pond with grass/earth banks. Waterfowl and fish present. Vegetation included: reeds, water lilies and marginal vegetation. Over 30cm deep.
13		Ornamental pond. Not suitable for HSI or eDNA.

Appendix D

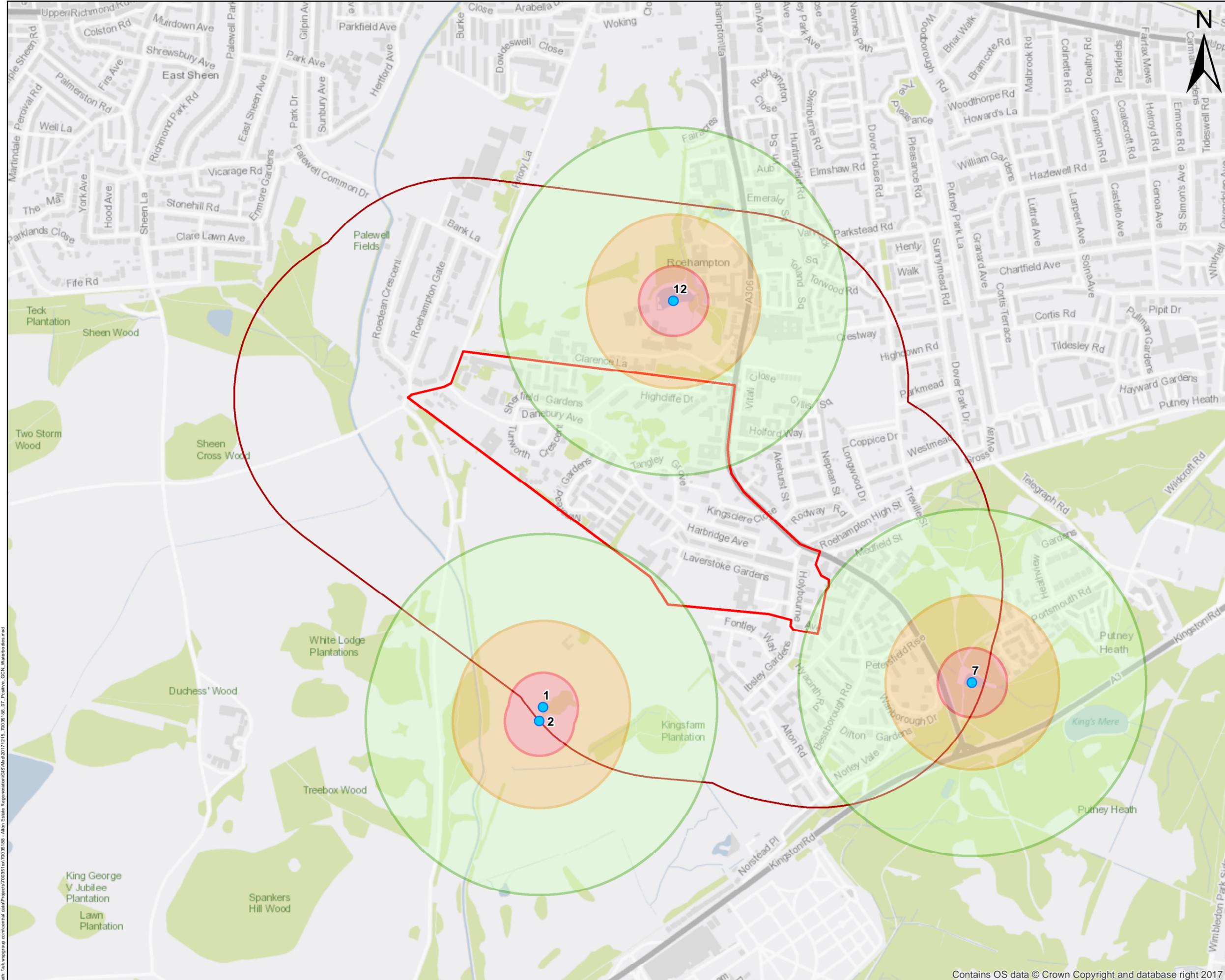
wsp
HABITAT SUITABILITY INDICES

Table 1: HSI Calculations

Pond Ref.	S1: Geographic location	S2: Water body area	S3: Water body permanence	S4: Water quality	S5: % Shade (1m from bank)	S6: Impact of waterfowl	S7: Fish stocks	S8: Number of water bodies <1km	S9: Terrestrial habitat	S10: Macrophyte cover (%cover)	HSI SCORE	HSI CATEGORY
Water body 1	Desiccated pond											
Water body 2	Desiccated pond											
Water body 3	Desiccated ditch											
Water body 4	1.00	0.20	0.90	0.67	1.00	0.67	0.67	1.00	0.67	0.35	0.65	Average
Water body 7	1.00	0.85	1.00	0.33	1.00	0.67	0.33	1.00	0.67	0.45	0.67	Average
Water body 8	Ornamental pond											
Water body 9	Ornamental pond											
Water body 10	Ornamental pond											
Water body 11	Ornamental pond											
Water body 12	1.00	0.90	0.90	0.33	1.00	0.01	0.01	1.00	0.67	0.70	0.32	Poor
Water body 13	Ornamental pond											

Appendix E

WSP
WATER BODIES WITH BUFFERS



THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

- Notes
- Red Line Boundary
 - Red Line Boundary 500m Buffer
 - Positive GCN Waterbodies
 - 100
 - 250
 - 500

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Revision Details	By	Date	Suffix

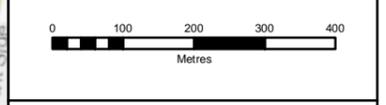
Drawing Status: **FINAL**

Job Title: **Alton Estate**

Drawing Title: **Positive GCN Waterbodies**

Scale at A3: **1:10,000**

Drawn	JA		
Stage 1 check	SY	Stage 2 check	SY
Originated	SY	Date	30/01/2018



Drawing Number	70035188_01	Rev	-
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Path: \\uk.wspgroup.com\csm\data\project\70035188_01\Alton Estate\Registration\GIS\Map\20171215_70035188_01_Positive_GCN_Waterbodies.mxd



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Alton Estate Regeneration
Hybrid Application

INVERTEBRATE SURVEY

WSP
May 2019





Redrow Homes Ltd

ALTON ESTATE

Invertebrate Survey

CONFIDENTIAL

PROJECT NO. 70035188

OUR REF. NO. INVERTEBRATES

DATE: FEBRUARY 2019

Redrow Homes **Ltd**

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	First Issue	Draft for consultation	Draft for consultation	Final Issue
Date	09/10/17	25/10/2017	November 2018	February 2019
Prepared by	Richard Jones	Richard Jones and Sharon Yardy	Richard Jones and Sharon Yardy	Hing Kin Lee
Signature				
Checked by	Hing Kin Lee	Hing Kin Lee	Hing Kin Lee	Richard Gowing
Signature				
Authorised by	Hing Kin Lee	Hing Kin Lee	Hing Kin Lee	Richard Gowing
Signature				
Project number	7035188	7035188	70035188	70035188
Report number	Invertebrate	Invertebrate	Invertebrate	Invertebrate

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APPENDICES

APPENDIX A

APPLICATION AREA PLAN

APPENDIX B

FIGURE

EXECUTIVE SUMMARY

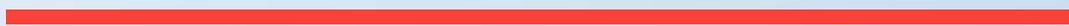
- An invertebrate survey was carried out on at Alton Estate, Roehampton, London, SE15.
 - The site was visited three times: 23 June, 17 July and 8 August 2017.
 - A list of 81 invertebrate species was recorded, an extremely poor list given the relatively large site and mostly good weather.
 - A few unusual and scarce insects were found including:
 - *Agrilus laticornis*, a local jewel beetle
 - *Athous campyloides*, a nationally scarce click beetle
 - *Lasius brunneus*, the nationally scarce brown tree ant
 - *Orsillus depressus*, a ground bug on garden cypress trees
 - *Rhinusa collina*, a nationally scarce weevil on garden toadflax
 - *Rhyparochromus vulgaris*, a ground bug recently arrived in the UK
 - *Taeniapion urticarium*, a scarce weevil on stinging nettles
 - *Urocerus gigas*, the greater horntail wasp, a sawfly that breeds in conifer timber
 - Most of the site is managed as close-cut utility grassland; there are also some planted ornamental trees. The biodiversity of this habitat type is very low. Inaccessible private gardens may have contained other invertebrates, but the overall area of this habitat type was very small, and likely to be poorly managed for wildlife.
 - Proximity to the open spaces of Richmond Park and Wimbledon Common prompted the survey because of the long list of scarce insects found in these naturalistic habitats, in particular the stag beetle (*Lucanus cervus*).
 - It is considered unlikely that many of the scarce or unusual Richmond/ Wimbledon species are breeding in the Alton Estate site.
 - On the off-chance that stag beetles (which have hidden subterranean larvae) are ever found on the Alton Estate, suggestions are made regarding creation of stag beetle breeding habitat, and transference of any live larvae.
-

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1

INTRODUCTION



1. INTRODUCTION

1.1. BACKGROUND

- 1.1.1. WSP was commissioned by Redrow Homes Ltd to undertake an invertebrate survey of the proposed redevelopment and regeneration of Alton Estate, Roehampton, hereinafter referred to as the 'Site'.
- 1.1.2. Stag beetle has been identified in proximity to the Site and suitable habitats with the potential to support the species were recorded within the Site during studies previously undertaken by AECOM (AECOM, 2015). Furthermore, stag beetle is a listed Annex II species that is a primary reason for the selection of Richmond Park Special Area of Conservation (SAC) and Wimbledon Common SAC and their potential presence should be further investigated. Data from this survey may also inform any further Habitat Regulations Screening assessment at the project level.

1.2. PROJECT DESCRIPTION

- 1.2.1. Alton Estate comprises the redevelopment and regeneration of Alton Estate (Grid Reference TQ 21807 74113), hereinafter referred to as the 'Site' (Application Area Plan, Appendix A), which was developed in the 1950s. It is adjacent to Richmond Park SAC to the south-west, with Wimbledon Common SAC located approximately 750m east of the Site. The A306 borders the north-eastern boundary of the Site, with Clarence Lane to the north.
- 1.2.2. The proposals include plans for the provision of new homes, commercial floorspace, community floorspace, play facilities, landscaping and improved access. This is to be implemented in a phased demolition, construction and refurbishment schedule proposed from 2019 – 2030. The application Site lies within the administrative authority of Wandsworth Borough Council. The proposed development areas are shown in the Application Area Plan (Appendix A).

1.3. AIMS AND OBJECTIVES

- 1.3.1. The aims and objectives of this invertebrate surveys are to:
- Undertake a walkover survey of the Site and assess the site's importance for invertebrate species, including stag beetle.
 - Identify deadwood habitats will be recorded alongside other insects that are associated with the dead-wood saproxylic habitats in which stag beetles breed.
 - Recommend avoidance, mitigation or enhancement measures which may be required to comply with legislation and planning policy; and
 - Identify, where necessary, requirements for further survey.

2

METHODOLOGY



2. METHODOLOGY

2.1. SITE VISITS

2.1.1. The Site was visited on 23 June, 17 July and 8 August 2017 by an experienced entomologist, Richard Jones a fellow of the Royal Entomological Society and of the Linnean Society of London, and past president of the British Entomological and Natural History Society. A walk-over assessment of the site was complemented by the collection of specimens for identification.

2.2. SITE COMPARTMENTS

2.2.1. The Site has been divided into five survey areas shown in Figure 1 (Appendix B):

- 1A
- 1B
- 2A
- 2B
- 3

2.2.2. Descriptions of these areas are as follows:

- Housing, shops and library at junction of Danebury Avenue and Roehampton Avenue (1A and 2A).
- Housing and small row of shops around Minstead Gardens (1B and 2B).
- Housing and small open space around Kingsclere Close and Harbridge Avenue (1A).
- Large open space surrounding the apartment blocks of Highcliffe Drive and Tunworth Crescent (3).

2.2.3. In addition, the survey areas were extended to include areas of the estate technically outside the survey areas, but within the outer boundary of the estate. These additional survey areas are shown in Figure 1 (Appendix B) and are described below:

- i. Overgrown rough area between Minstead Gardens and Richmond Park. Occasional mature trees and bramble thicket.
- ii. Grounds of Roehampton Ecumenical Church. Overgrown garden and rough brownfield habitats around small car park.
- iii. Open space at junction of Danebury Avenue and Tangley Grove. Mown grass and small conifer trees.
- iv. Overgrown raised bed near car park corner of Danebury Avenue and Swanwick Close.
- v. North and south verges of Danebury Avenue at west end of estate, and various accessible open areas associated with other buildings.

2.3. LOCATION AND COLLECTION OF SPECIMENS

2.3.1. Invertebrates were located and collected by general methods using sweep net, beating tray and a stout knife. Flowers, leaf surfaces, rocks, bare ground, logs and tree trunks were examined by visual searching. Voucher specimens of all but the most common and characteristic species have been kept.

2.4. TAXONOMIC COVERAGE

- 2.4.1. The survey concentrated on the following major insect groups: Coleoptera (beetles), Diptera (flies), Hemiptera (bugs, froghoppers etc), Hymenoptera (bees, wasps and ants) and Lepidoptera (butterflies and moths). Some examples of other groups were noted if seen.

2.5. SURVEY GUIDELINES

- 2.5.1. Surveys were carried out with reference to the standing advice provided by Natural England (Natural England, 2015).

3

RESULTS



3. RESULTS

3.1. OVERVIEW

3.1.1. A list of 81 invertebrate species was recorded. They represent:

Table 1 - Summary of Major Insect Groups Recorded

Group	Species (No.)
Coleoptera (beetles)	25
Dermaptera (earwigs)	1
Diptera (flies)	17
Hemiptera (bugs)	13
Hymenoptera (bees, wasps etc)	8
Lepidoptera (butterflies & moths)	10
Orthoptera (grasshoppers)	2
Isopoda (woodlice and hoglice)	4
Arachnida (spiders)	1
Total	81

3.1.2. Eighty-one species represents a low number, given the large size of the site and three days of recording effort. It is, however, concomitant with the obviously biodiversity-poor areas which have been created by the intensive and unsympathetic municipal grounds maintenance.

3.2. NOTEWORTHY SPECIES

3.2.1. Most of the insects seen or collected were common and are ubiquitous in Britain; they might be expected to turn up in any area in southern England. However, a few are considered uncommon or otherwise unusual and worthy of comment.

3.2.2. The following species are picked out as being unusual, interesting or especially noteworthy. Criteria for allocation of accepted 'nationally rare' (red data book) and 'nationally scarce' (notable) statuses (JNCC, 2017) are varied and complex, and frequently updated. However, they are listed in brief here.

- Endangered (RDB-1). The rarest taxa. Taxa in danger of extinction in Great Britain; species with very few recorded localities or living in especially vulnerable habitats.
- Vulnerable (RDB-2). Very rare species. Taxa likely to move into the RDB1 category; species declining in their range.
- Rare (RDB-3). Rare species. Taxa with small populations and which are at risk; species estimated to occur in 15 or fewer of the 10-km squares in the national Ordnance Survey grid since 1970.
- Insufficiently known (RDB-K). Species thought to be very rare in Britain, recorded from less than 15 of the 10-km squares of the national Ordnance Survey grid since 1970, and which warrant RDB classification of some sort, but for which there is a recognized lack of accurate information.
- Nationally scarce (notable A). Very local species, thought to occur in 16 to 30 of the 10-km squares of the national Ordnance Survey grid since 1970.
- Nationally scarce (notable B). Very local species, thought to occur in 31 to 100 of the 10-km squares of the national Ordnance Survey grid since 1970.
- Nationally scarce status is sometimes not subdivided into categories A and B, (notable, occurring in 16 to 100 10-km squares).
- Very local status is a much more subjective, but nevertheless useful, measure of scarcity and is based on personal experience, published and unpublished records. It is applied to species that are very limited in distribution or confined to very limited specialist habitats.

3.2.3. The following Table summarises a list of noteworthy species recorded on site during the surveys.

Table 2 - Summary of Noteworthy Species Recorded

Species	Status	Description
<i>Agrilus laticornis</i> (Illiger)	Very Local	A small green jewel beetle (Coleoptera: Buprestidae). Status: very local. This beetle breeds in the rotten bark of dead fungoid oak trees and it is a species particularly associated with old woodland in lowland Britain. It occurs throughout most of England, but is most often found in central southern England especially Surrey, Hampshire and Gloucestershire (Alexander, 2003). This species was originally accorded nationally scarce (notable B) status by Hyman & Parsons, 1992, but this was recently revised. One specimen was found by sweeping in additional survey zone ii, 23.vi.2017.
<i>Athous campyloides</i> (Newman)	Nationally Scarce	A medium-sized brown click beetle (Coleoptera: Elateridae). Status: nationally scarce (notable B, Hyman & Parsons, 1992). This very local species is associated with rough grassy places in south-east England (Mendel & Clarke, 1996). The larvae are thought to feed at the roots of grass and herbs. It was once regarded as an extremely rare species, but appears to have colonized Britain in the early 19 th century, and is still spreading (Jones, 2001). One specimen was found dead in a spider web in additional survey zone ii, 23 June 2017.

Species	Status	Description
<i>Lasius brunneus</i> (Latreille)	Nationally Scarce	A small brown ant (Hymenoptera: Formicidae). Status: nationally scarce (notable A, Falk, 1991). This is a relatively local species restricted mainly to central and southern England from Essex to Shropshire. It seems to be centred on the Thames and Severn Valleys (Edwards, 1998), particularly Surrey (Pontin, 2005), and may be spreading. It nests exclusively in dead wood (logs and standing timber) where it excavates its galleries, and it is particularly associated with old woodlands. Specimens were found crawling on trees in survey area 1A/2A, 23 June 2017.
<i>Orsillus depressus</i> (Dallas)	Very Local	A medium-sized brown 'ground' bug (Hemiptera: Lygaeidae). Status: very local. Despite its common name, this bug lives on cypress trees, feeding on the fruiting bodies. It is a recent colonist to Britain, having first been discovered here in the 1990s. Although fairly common in some areas, it is still more or less confined to Surrey and the London area. Several specimens were beaten from cypress trees in additional survey area ii, 17 July 2017.
<i>Rhinusa collina</i> (Gyll.),	Nationally Scarce	A very small dark weevil (Coleoptera: Curculionidae). Status: nationally scarce (notable A, Hyman & Parsons, 1992). A rare weevil with scattered localities in southern England, that usually occurs on common toadflax, <i>Linaria vulgaris</i> . Many specimens swept from purple toadflax, <i>Linaria purpurea</i> , in additional survey zone ii, 23 June and 17 July 2017.
<i>Rhyparochromus vulgaris</i> (Shilling)	Very Local	A medium-sized mottled ground bug (Hemiptera: Lygaeidae). Status: very local. This is a recent arrival in the UK, first appearing in the London area in 2010/2011, and now relatively common here. Records are from rough grasslands, gardens and open spaces. It is likely to spread widely over the next few years. One specimen was found under a log in survey area 1B/2B, 8 August 2017.
<i>Taeniapion urticarium</i> (Herbst)	Very Local	A minute brown weevil (Coleoptera: Apionidae). Status: very local. A very local, but widespread species which feeds on stinging nettles, <i>Urtica dioica</i> . Despite the common food-plant, the weevil has only scattered localities in central and southern England, often in hot dry places, or on disturbed ground. Although provisionally given nationally scarce (notable B) status by Hyman (1985), this was not confirmed by Hyman &

Species	Status	Description
		Parsons (1992). One specimen was found by sweeping in additional survey area i, 17.vii.2017a.
<i>Urocerus gigas</i> (Linnaeus)	Very Local	The greater horn-tail wasp, (Hymenoptera: Siricidae). Status: very local. Not a wasp, but a large sawfly, its larvae develop in dead conifer timber, fallen logs or standing stumps. Although widespread in Britain, it is not that common in south-east England, and this is the first time I have ever found the insect. Having said this, its large size, striking colours and menacing tail (ovipositor) make it an obvious and noticeable insect and its occurrence is often noticed by members of the public fearing it to be some noxious stinging creature. A single female was seen examining the lone cedar tree in survey area 1A, on 23 June 2017. The tree is sound, so oviposition or breeding seems unlikely here.

4

DISCUSSION AND CONCLUSIONS



4. DISCUSSION AND CONCLUSIONS

4.1. DISCUSSION

- 4.1.1. The main purpose of the survey visits was to make a general assessment of the invertebrate biodiversity potential of the site, and see how this might be reflected in a list of nationally scarce and unusual insect species associated with the greater surrounding area.
- 4.1.2. By far the largest part of the Alton Estate site is dominated by the built environment (buildings, tarmac, paving and other hardstanding) and municipal close-mown grassland. Large trees throughout the site are mostly alien ornamental species. The biodiversity of such habitats is inevitably low and considered to be of negligible importance for invertebrate species. There are a few overgrown gardens, abandoned corner plots, but these are all insignificant in size. Very few native trees were recorded.
- 4.1.3. The few unusual species listed in Table 2 occurred in isolated corners of the Site, and are species capable of rapid colonization, or of short-lived and ephemeral brownfield-type habitats.
- 4.1.4. It seems highly unlikely that any of the scarce species recorded in the Site and surrounding area will be breeding within the Site boundary. Many of these species have been recorded from nearby Richmond Park and Wimbledon Common (to the south and south-west), comprising large semi-natural sites with long-standing wildlife management. These European Designated sites present complex and diverse communities and are run as nature reserves offering ample invertebrate habitat. Many of these flagged-up species are, like the stag beetle, *Lucanus cervus*, are associated with dead and decaying timber, fallen logs, tree stumps and dead standing tree trunks, all in various stages of fungal decay and rot.
- 4.1.5. Within the Site boundary, a single rotten tree stump was located at the extreme south-east corner of survey Area 1A; surrounded by a small area of bramble. Elsewhere within the Site boundary, dead, dying or inconvenient trees appear to have been felled and completely cleared away. Stumps have been ground down leaving no potential suitable deadwood habitat on site. It is possible that some subterranean timber remains, but no evidence of *Lucanus cervus* breeding on site was found. Occurrence here seems unlikely, though flying beetles, exploring after emerging elsewhere in the vicinity, may possibly be recorded at some point in the future.

4.2. POSSIBLE PRESENCE OF BREEDING STAG BEETLE

- 4.2.1. The stag beetle is fairly widespread in South London, now about the only place in Britain where the insect is ever seen regularly. The Site is certainly within the known range of the beetle and nearby Richmond Park is a well-known breeding site and important population of this flagship species. Despite its need for large buried rotten wood, suburban gardens are the major breeding habitat for this creature in London, a legacy of the piece-meal way in which the area was developed during the 18th and 19th centuries, and the fact that the previously heavily wooded habitat is mimicked by modern garden tree cover, a rich mulch of leaf litter, and buried logs or woody roots remaining in the soil. Alton Estate is likely to have been constructed on land which was raised, bulldozed and cleared, and the subsequent management has is currently unsympathetic to the beetle's requirements.

- 4.2.2. It is considered that the beetle very unlikely to be breeding in the Site boundary. When redevelopment works begin, it is considered highly unlikely that a colony of the larvae will be uncovered. However, given that the Site is within the known range of the species, the creation of loggeries will be a significant enhancement for the species.
- 4.2.3. The creation of a stag beetle loggery before excavation or construction will have many benefits. It will attract stag beetles to breed on Site in future, even though they are not yet present. It will create good habitat for a myriad other uncommon dead-wood and fungal-rot insect species. It will also create shelter for other animals, either as short-term roosts or overwintering hibernation.
- 4.2.4. Loggeries take the form of cut logs of various lengths, various diameters and various tree species, up-ended and partially buried, vertically, in the soil. A selection of 10-30 logs, 1.0-2.0 metres long, 10-50 cm in diameter, buried in a large bundle, to different depths can also serve to create a landscape feature. Wood chip should be used to pack in around the logs and in the surrounded soil. This design has been widely used by Wildlife Trusts and other conservation organisations.
- 4.2.5. The key requirement for stag beetle larvae is well-decayed wood, to the point of crumbling woodchip and sawdust, with a moisture content dictated by being partially buried in the clay soil. The species does not do well in dry rotten logs, although its near relative the lesser stag beetle *Dorcus* will use it. Stag beetles often occur in old or ancient woodlands where the main tree (and dead timber) species are oak, elm, ash and beech, but in London, where small gardens are the typical habitat, they will also breed in sycamore, birch and pine timber. It appears to be the moisture content and fungal decay stage that is important, rather than original tree species.
- 4.2.6. Loggeries can be constructed almost anywhere within the site. In the unlikely event stag beetle larvae are uncovered (dug up) during clearance and construction, the loggeries will already be set up to receive the species immediately. Most stag beetle larvae are dug up from 0.1-0.5 metres deep, and will be feeding in dark soil-like wood mould. As much of this wood mould as possible should be collected and transferred to a hole hard up against the loggery, with the larvae placed gently into the centre of the cavity, before they and the feeding substrate are covered by a thick layer of soil.
- 4.2.7. The loggery should remain undisturbed for several years. *Lucanus* larvae can take many years (3-7 recorded) to feed up enough to transform into adults, any disturbance during this time can be fatal for them, exposing them to predators and diseases, or removing the substrate on which they are feeding.
- 4.2.8. Further information on logger creation is provided in guidance by The People's Trust for Endangered Species (PTES) (2017).

4.3. CONCLUSION

- 4.3.1. The Site has very low invertebrate biodiversity potential. It is intensively managed for tidiness and maybe to curb litter and antisocial behaviour. This management has effectively eradicated the invertebrate wildlife.
- 4.3.2. Cost-effective habitat creation would provide significant enhancement measures for invertebrate species and should be incorporated into the landscape design for the Site. This would seek to incorporate deadwood habitats in the form of loggeries, as well as provide connected planting mosaics of native species. Management of the site should be relaxed and seek to incorporate a less intensive regime, maintaining rough margins and uncut connected borders.

5

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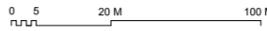
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Appendix A

APPLICATION AREA PLAN





Revisions	Rev	Description
25.02.2019	Rev 01	For Information

Key:
— Red Line Boundary

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Job Number	Date	Scale
HB16040	March 2019	1:1000 @ A0
Drawn by	Checked by	Status
MP	ABa	For Information
Drawing No. & Revision	Revision	
SK190225_BlockPlan	Rev 01	

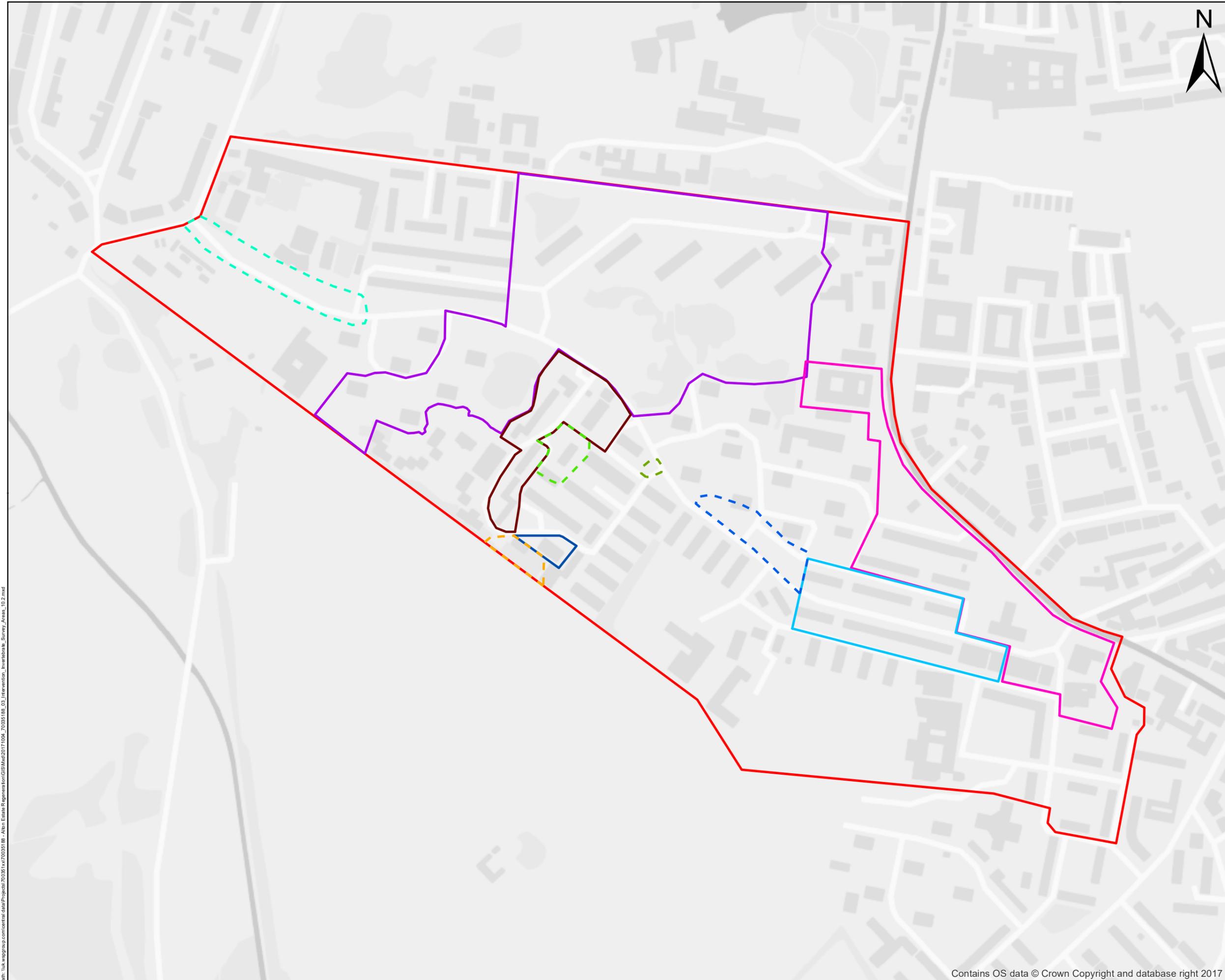
Project	Alton Estate West Roehampton
Drawing	Application Area and Block Plan

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Appendix B

FIGURE





THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

- Notes
- Survey Areas**
- 1A
 - 1B
 - 2A
 - 2B
 - 3
- Additional Survey Zones**
- i
 - ii
 - iii
 - iv
 - v
- Study Area**

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Revision Details	By	Date	Surfix

Drawing Status: **FINAL**

Job Title: **Alton Estate**

Drawing Title: **Figure 1
Intervention and
Invertebrate Survey Areas**

Scale at A3: **1:4,000**

Drawn: **BS**

Stage 1 check	Stage 2 check	Originated	Date
CB	LH	LH	04/10/2017



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