

THE GOODSYARD

Environmental Statement Addendum Volume 2

September 2019 – Chapter 17 of 21

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CHAPTER 17: ECOLOGY

17.1 INTRODUCTION

17.1.1 The ecological baseline of the site has changed since the previous assessment undertaken in 2015, as a consequence of the succession of areas of open mosaic habitat on site into continuous scrub. As such, update baseline data was collected in 2017 and 2019 to inform the updated assessment. Minor amendments to legislation, planning policy and assessment guidelines have also been updated, although the methodologies used broadly remain the same as the previous assessment. The assessments themselves have all been updated in reference to the latest survey data and the Revised Scheme.

17.2 SCOPE OF ASSESSMENT

17.2.1 This chapter of the ES Addendum assesses the likely significant effects of the Revised Scheme in terms of Ecology and is supported by the Phase 1 Preliminary Ecological Assessment (PEA), and further recommended survey work (**ES Addendum Volume IV, Appendix L: Ecology**).

17.2.2 The chapter describes: the assessment methodology; the baseline conditions currently existing at the site and in the surrounding area; the likely significant environmental effects; the mitigation measures required to prevent, reduce or offset any significant negative effects; the likely residual effects after these measures have been employed; and the cumulative effects associated with the Revised Scheme in combination with other developments within 1 km of the site.

17.3 KEY LEGISLATION, POLICY AND GUIDANCE CONSIDERATIONS

17.3.1 The ecology assessment has been undertaken within the context of relevant planning policies, guidance documents and legislative instruments. These are summarised below.

Legislation and Regulation

17.3.2 The following legislation is of relevance to the site and the sensitive receptors discussed in this assessment. Detailed information on relevant legislation is provided in **ES Addendum Volume 2, Appendix L: Ecology**:

- The Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations 2017')¹ implements the Bern Convention, and the Birds Directive and the Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC, the Habitats Directive) in England and Wales. These Directives specify the designation and protection of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) which are together known as Natura 2000 sites. They also provide protection for various fauna termed European Protected Species (EPS). These include all species of bat. In the UK all EPS receive full protection under the Habitats Regulations through their inclusion on Schedule 2.
- The Wildlife and Countryside Act (WCA), 1981 (as amended)² provides legal protection for Sites of Special Scientific Interest (SSSI) in England and Wales. It also provides varying levels of protection for all wild birds, including those listed on Schedule 1 (Sch1) which receives greater protection whilst breeding, along with animals listed in Schedule 5 of the Act.
- Section 40 of the Natural Environment and Rural Communities Act 2006 (the NERC Act)³ places a legal duty on public bodies, including planning authorities, to 'have regard' to the conservation of biodiversity when carrying out their normal functions, which includes consideration of planning applications.
- In compliance with Section 41 of the NERC Act, the Secretary of State has published a list of species and habitats considered to be of principal importance for conserving biodiversity in England under the UK Post-2010 Biodiversity Framework. This is referred to as the list of Species / Habitats of Principal Importance in England, of which there are 56 habitats and 943 species. The list is used to guide planning authorities in implementing their duty under the NERC Act as well as in their implementation of the National Planning Policy Framework (NPPF)⁴.

- The Countryside and Rights of Way (CROW) Act 2000⁵ strengthens the species enforcement provisions of the WCA by making it an offence to "...recklessly..." harm or disturb a place of rest or shelter of a protected species.).

Planning Policy

17.3.3 Detailed information on planning policy is provided in **ES Addendum Volume 2, Appendix L: Ecology**.

The National Planning Policy Framework (2019)

17.3.4 The NPPF was issued in 2012 and revised in 2018 with minor updates provided in February 2019. This replaced amongst other things Planning Policy Statement 9 (PPS9). In regard to biodiversity the NPPF, inter alia, stresses the importance of minimising impacts on biodiversity and providing net gains in biodiversity.

17.3.5 Under the NPPF the Planning Authority has a responsibility to promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations, linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan.

17.3.6 Also, under the NPPF the planning system should contribute to and enhance the natural and local environment by 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.

Regional Planning Policy

The London Plan

17.3.7 The London Plan, Spatial Development Strategy for Greater London, Adopted July 2011 and consolidated with alterations since, deals directly with biodiversity in Chapter 7. Policy 7.19: Biodiversity and Access to Nature, includes the following relevant guidance on development proposals:

- Development will be required to provide elements of a 'living building'.
- Existing elements of biodiversity value should be protected or replaced within the development and additional habitat provision made to increase biodiversity value.
- Developments which will cause damage to a Site of Importance for Nature Conservation, or significantly harm the population or conservation status of a protected or priority species, will not be supported unless the social or economic benefits of the development clearly outweigh the loss of biodiversity.
- Major development will need to submit an Ecology Assessment demonstrating biodiversity enhancement in accordance with the Council's Local Biodiversity Action Plan...*make a positive contribution to...biodiversity; assist in achieving targets in biodiversity action plans; improve access to nature....*'
- *'avoid adverse impacts, minimise impacts, seek mitigation, and seek appropriate compensation.'*

17.3.8 Policy 7.28 also states that development proposals should restore and enhance the Blue Ribbon Network by increasing habitat value, and protecting the value of the foreshore of the Thames and tidal river. Policy 5.11 states that major development proposals should be designed to include landscape planting of ecological value, and green roofs and walls in particular.

Draft London Plan

17.3.9 Consultation on a new London Plan⁶ closed on the 2 March 2018 and is due for publication in Autumn 2019. The new London Plan contains greater emphasis on green infrastructure and proposes that new developments achieve quantifiable net gain using the 'Urban Greening Factor' tool to achieve a 0.4 (housing) or 0.3 (commercial) increase. The new London Plan is subject to amendment prior to publication.

17.3.10 Connecting with London's Nature: The Mayor's Biodiversity Strategy⁷ complements the London Plan. It sets out how London's biodiversity can be protected, managed and enhanced. It also aims to ensure that people can enjoy and learn about the natural world.

¹ HMSO (2010). The Conservation of Habitats and Species Regulations (as amended).

² HMSO. (1981). The Wildlife and Countryside Act (WCA) (as amended).

³ HMSO. (2006). The Natural Environment and Rural Communities (NERC) Act.

⁴ National Planning Policy Framework, Government (2018). <http://planningguidance.planningportal.gov.uk/> .

⁵ HMSO (2000). The Countryside and Rights of Way Act (CROW)

⁶ Greater London Authority (2017). Draft New London Plan. GLA, London.

⁷ Greater London Authority (GLA) (2002). The Mayor's Biodiversity Strategy. https://www.london.gov.uk/sites/default/files/biodiversity_strategy.pdf

Local Planning Policy:

The Draft Hackney Local Plan 2033 (2019)

- 17.3.11 The new local plan 2033⁸ was submitted in 2019 for examination in public. Biodiversity would be covered in the following proposed policy areas:
- 17.3.12 LP1 Design Quality and Local Character part A.vi – “Incorporate well designed and integrated landscape design, which enhances biodiversity and maximises opportunities for greening;”
- 17.3.13 LP46 Protection and Enhancement of Green Infrastructure part E – “Living roofs are required on major development schemes that include roof plates of over 100sqm. Living roofs and vertical forests are encouraged on all development proposals, including minor schemes, renovations, extensions and conversions.”
- 17.3.14 LP47 Biodiversity and Sites of Importance of Nature Conservation -
- “A. Biodiversity across the borough will be protected and enhanced resulting in a net gain in biodiversity.
 - B. All development should maximise opportunities to create new or make improvements to existing natural environments, nature conservation areas, habitats or biodiversity features and link into the wider green infrastructure network.
 - C. All major development proposals are required to include a biodiversity survey of the site.
 - D. All development schemes involving buildings with an eaves height of 7 metres and above are required to provide nesting boxes for swifts, sparrows, starlings and/or bats as appropriate to help preserve endangered urban biodiversity in Hackney.
 - E. New development on or adjacent to Sites of Importance for Nature Conservation (SINCs), alongside watercourses and wetlands, Walthamstow Reservoirs Special Protection Area and Walthamstow Marshes Sites of Special Scientific Interest (in neighbouring Waltham Forest) must not have a detrimental impact on the biodiversity or nature conservation value of the site. Development will only be permitted where appropriate mitigation or compensatory measures are put in place.”

LBH Core Strategy 2010

- 17.3.15 The following policies within the LBH Core Strategy are relevant to the ecology technical chapter of this ES Addendum.
- 17.3.16 Policy 12 – Health and environment: “encourage development that contributes to an urban and natural environment that enables all Hackney residents to lead a more healthy and active lifestyle” by “creating new publicly accessible open spaces where there are deficiencies”
- 17.3.17 Policy 24- Design: Development in Hackney “should seek to enrich and enhance the built environment and create a sense of place and local distinctiveness that is attractive and accessible” by “ensuring good and optimum arrangement of the site in terms of form, mass and scale, including usable amenity space where appropriate and addressing biodiversity matters”.
- 17.3.18 Policy 26- Open Space Network: “all open and green spaces should be well-managed and enhanced to improve quality, capacity and public accessibility, to support a diverse and multi-functional network of open spaces” and that “new open spaces will be created which are publicly accessible and linked to other open spaces to enhance the borough's green infrastructure”.
- 17.3.19 Policy 27- Biodiversity: This policy aims to “protect, conserve and enhance nature conservation areas, in particular in and around Dalston and Shoreditch for their biodiversity value, and develop a local habitat network contributing to the wider Green Grid” by “encouraging development to include measures that contribute to the borough's natural environment and biodiversity”

Draft LBTH Local Plan 2031 (2017)⁹

- 17.3.20 The new Local Plan sets out how the Borough of Tower Hamlets will grow and develop over the next 15 years. It outlines how and where homes, jobs, services and infrastructure will be delivered to meet future needs and the type of places and environments we want to create. The Tower Hamlets Local Plan has now been submitted to the government to undergo an independent examination. Biodiversity would be covered in the following proposed policy areas:
- 17.3.21 Policy D.ES3: “Development is required to protect and enhance biodiversity, through:
- a. maximising the provision of ‘living building’ elements;

- b. retaining existing habitats and features of biodiversity value or, if this is not possible, replacing them within the development, as well as incorporating additional measures to enhance biodiversity, proportionate to the development proposed; and
- c. protecting and increasing the provision of trees, through:
 - i. protecting all trees, including street trees;
 - ii. incorporating native trees, wherever possible; and
 - iii. providing replacement trees, including street trees, where the loss of or impact on trees in a development is considered acceptable.

Major development is required to submit an ecology assessment demonstrating biodiversity enhancement that contributes to the objectives of the latest Tower Hamlets Local Biodiversity Action Plan and the Thames River Basin Management Plan. 3. Planting and landscaping around developments must not include ‘potentially invasive non-native species’. Invasive non-native species listed in schedule 9 of the Wildlife and Countryside Act must be controlled, and eradicated where possible, as part of redevelopment.

Development must not negatively impact on any designated European site such as Special Protection Areas, Special Areas of Conservation or Ramsar sites. Developments which might have the potential to adversely impact a Special Protection Area or Special Area of Conservation outside the borough will be required to submit Habitat Regulations Assessments.

Developments which affect a Site of Importance for Nature Conservation, or significantly harm the population or conservation status of a protected or priority species, are required to be managed in accordance with the following hierarchy:

- A. Adverse impacts to the biodiversity interest should be avoided.
- B. Where avoidance is not possible, proposals must minimise and mitigate the impact to the biodiversity interest.
- C. As a last resort for exceptional cases where the benefits of the proposal clearly outweigh the biodiversity impacts, appropriate compensation will be sought.
- D. Where appropriate compensation is not possible, planning permission will be refused.

17.3.22 Paragraph 2.5 in Part 4: Delivering Sustainable Places notes that “in line with policy S.SG1, all development in the City Fringe sub-area will seek to ... Improve the ecology of the area and ensure an overall net gain in biodiversity.”

17.3.23 The site allocation for Bishopsgate Goodsyrd states that development on this site would be expected to: *“improve biodiversity and ecology within open space and green infrastructure.”*

London Borough of Tower Hamlets (LBTH) Local Plan 2010

- 17.3.24 The LBTH Local Plan consists of a series of documents including, inter alia, the Core Strategy (adopted September 2010).
- 17.3.25 The following policy is relevant to the ecology technical chapters of the ES Addendum:
- 17.3.26 Policy DM11 Living buildings and biodiversity:
- ‘Development will be required to provide elements of a ‘living building’.
 - Existing elements of biodiversity value should be protected or replaced within the development and additional habitat provision made to increase biodiversity value.
 - Developments which will cause damage to a Site of Importance for Nature Conservation, or significantly harm the population or conservation status of a protected or priority species, will not be supported unless the social or economic benefits of the development clearly outweigh the loss of biodiversity.
 - Major development will need to submit an Ecology Assessment demonstrating biodiversity enhancement in accordance with the Council’s Local Biodiversity Action Plan.’

17.3.27 Consultation on a new Local Plan¹⁰ closed on the 13 November 2017. Once adopted, it will be used to guide development and investment decisions across the borough.

17.3.28 The following policy is relevant to the ecology technical chapters of this ES Addendum:

17.3.29 “Policy D.ES3: Urban greening and biodiversity:

1. Development is required to protect and enhance biodiversity, through:

⁸ LBH (2019) Hackney A Place for Everyone – Proposed Submission Local Plan (LP33) Available at: <https://hackney.gov.uk/media/12597/Proposed-submission-local-plan-2033/pdf/proposed-submission-local-plan-2033-part-1.pdf?m=636778895536570000>

⁹ LBTH (2017) Tower Hamlets Local Plan 2031. Available at: http://towerhamlets-consult.objective.co.uk/portal/planning/newlp/new_local_plan_reg_19/local-plan-reg-19

¹⁰ London Borough of Tower Hamlets (2017). Tower Hamlets Local Plan 2031 (Regulation19).

- a. maximising the provision of 'living building' elements;
- b. retaining existing habitats and features of biodiversity value or, if this is not possible, replacing them within the development, as well as incorporating additional measures to enhance biodiversity, proportionate to the development proposed; and
- c. protecting and increasing the provision of trees, through:
- i. protecting all trees, including street trees;
 - ii. incorporating native trees, wherever possible; and
 - iii. providing replacement trees, including street trees, where the loss of or impact on trees in a development is considered acceptable.
2. Major development is required to submit an ecology assessment demonstrating biodiversity enhancement that contributes to the objectives of the latest Tower Hamlets Local Biodiversity Action Plan and the Thames River Basin Management Plan.
3. Planting and landscaping around developments must not include 'potentially invasive non-native species'. Invasive non-native species listed in schedule 9 of the Wildlife and Countryside Act must be controlled, and eradicated where possible, as part of redevelopment.
4. Development must not negatively impact on any designated European site such as Special Protection Areas, Special Areas of Conservation or Ramsar Sites. Developments which might have the potential to adversely impact a Special Protection Area or Special Area of Conservation outside the borough will be required to submit Habitat Regulations Assessments.
5. Developments which affect a Site of Importance for Nature Conservation, or significantly harm the population or conservation status of a protected or priority species, are required to be managed in accordance with the following hierarchy:
- a. Adverse impacts to the biodiversity interest should be avoided.
 - b. Where avoidance is not possible, proposals must minimise and mitigate the impact to the biodiversity interest.
 - c. As a last resort for exceptional cases where the benefits of the proposal clearly outweigh the biodiversity impacts, appropriate compensation will be sought.
 - d. Where appropriate compensation is not possible, planning permission will be refused."
- Habitats and Species of Principal Importance in England*
- 17.3.30 Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process, but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species. The list of habitats and species remains unchanged and is still derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006.
- 17.3.31 The only Species of Principal Importance potentially relevant to the site are soprano pipistrelle bat, and, house sparrow. The relevant Habitats of Principal Importance are Open Mosaic Habitats on Previously Developed Land (OMHPDL).
- Biodiversity Action Plans*
- 17.3.32 The London BAP¹¹, published by the London Biodiversity Partnership identifies 28 priority habitats and species that are of particular importance in London. Eleven Habitat Action Plans (HAPs) and four additional 'important habitats', and eight Species Action Plans (SAPs) with five additional 'important species' listed.
- 17.3.33 The Tower Hamlets BAP (adopted October 2014)¹², published by Tower Hamlets Council, identifies 31 priority habitats and species, and four HAPs of particular importance in Tower Hamlets.
- 17.3.34 Specific HAPs and SAPs, or other important habitats and species listed in the London BAP and the Tower Hamlets BAP, which are of potential relevance to this site include:
- *Black redstart*
 - *Bats;*
 - *Wasteland; and,*

¹¹ London Biodiversity Partnership (2000). London Biodiversity Action Plan.

- *Built environment.*

Technical Standards and Guidance

- 17.3.35 The following technical standards and guidance has been used to inform all supporting ecology reports. Specific details of the guidance is presented in **ES Addendum Volume 2, Appendix L: Ecology**.
- Habitats: JNCC (2010). Handbook for Phase 1 Habitat Survey – A Technique for Environmental Audit. England Field Unit, Nature Conservancy Council.
 - Bats: Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines. 3rd edition. The Bat Conservation Trust, London.
 - Black Redstart: Gilbert, G., Gibbons, D.W. and Evans, J., (1998); 'Bird Monitoring Methods. A Manual of Techniques of Key UK Species'. RSPB, Sandy.
 - Marchant, J.H. (1983) BTO Common Birds Census Instructions. BTO, Thetford, Norfolk.
 - Terrestrial Invertebrates: English Nature (2005). Organising Surveys to Determine Site Quality for Invertebrates A Framework Guide for Ecologists.
 - Assessment: British Standards Institution (2013). Biodiversity. Code of practice for planning and development: 42020. BSI, London.
 - CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
 - CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal, and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

17.4 CONSULTATION

- 17.4.1 In January 2014 a Scoping Opinion was issued jointly by LBTH (Ref: PA/14/107) and LBH (Ref: 2014/0249) on the Proposed Development (see **ES Addendum Volume 4 – Appendix A. Scoping**). A review of the Scoping Opinion was requested by the Applicant in March 2019 subject to the Revised Scheme. **Table 17.1** outlines the comments received in the 2014 Scoping Opinion and the 2019 Scoping Opinion and where they have been addressed within this documentation.

Table 17.1 LBTH Scoping Opinion Comments and Response

Topic / Section	Summary of Comment	Location within the ES where comments are addressed
Paragraph 4.172 in 2014 Scoping Opinion	Consideration should be given to whether any of all of the site meets the JNCC definition for the UK priority habitat "Open Mosaic Habitats on Previously Developed Land"	Ecology Chapter
Paragraph 4.170 of 2014 Scoping Opinion, updated in 2019 Scoping Opinion Review	<p>"The Summary of Baseline Conditions refers to several baseline studies on habitats and species, which were carried out in 2013 and 2017. The results of these studies have informed the Key Issues and Potential Likely Impacts within Section 1.19, and species such as common reptiles and black redstart appear to have been scoped out of the list of potential receptors on this basis. The baseline studies should therefore be included in the ESA (as appendices) to provide clarity on the baseline environment, in line with CIEEM guidelines.</p> <p>Confirmation should also be provided as to whether the studies were undertaken at an appropriate time of year and in accordance with best practice guidance".</p>	ES Addendum Volume 2, Appendix L: Ecology

¹² London Borough of Tower Hamlets (2010). Local Biodiversity Action Plan.

17.5 ASSESSMENT METHODOLOGY

Determination of Baseline

- 17.5.1
- The baseline was determined through a combination of desk study, extended Phase 1 Habitat survey and Phase 2 surveys for specific Important Ecological Features (IEF) including species of principal importance. The methodologies used to determine the ecological baseline are summarised within this Chapter, with a full description available in the technical reports presented in **ES Volume 2, Appendix L: Ecology**. The baseline for the Revised Scheme has been determined from the baseline surveys conducted in 2013, 2015,2017 and 2019.
- 17.5.2
- Desk study:** Information on non-statutory designated sites within a 1 km radius was requested from Greenspace Information for Greater London (GIGL) in July 2018 as part of the baseline Ecology Report.
- 17.5.3
- Searches for recent data (less than ten years old) were also made and records obtained from the 'MAGIC' on-line mapping service managed by Natural England for the presence of statutory designated sites (10 km for internationally designated sites and 5 km for nationally designated sites) and European protected species¹³.
- 17.5.4
- Field Surveys:** A summary description of the methodologies adopted for the relevant surveys is provided below. Full descriptions are included in **ES Volume 2, Appendix L: Ecology**.
- 17.5.5
- Common names are used where widely accepted – for amphibians, birds, fish, mammals, reptiles and vascular plants. Scientific names are provided for other groups but at first mention only if there is also an accepted common name.

Extended Phase 1 Habitat Survey

- 17.5.6
- An Extended Phase 1 Habitat Survey of the site and adjacent habitats within the zone of influence of the project (the survey area) was carried out by Aecom in May 2013, and, an update to this survey was also undertaken by Aecom in June 2017 and then by The Ecology Consultancy in 2019. Habitats were described and mapped following standard Phase 1 survey methodology¹⁴. This is the most widely used and accepted method of habitat mapping in the UK. The aim of this survey was to map all dominant habitats in the field survey area and identify any that are considered as potentially ecologically important and/or have some potential to support any ecologically important and/or legally protected floral or faunal species. The survey was extended to include an assessment of the potential for protected and notable species.

Bats

- 17.5.7
- A Preliminary Roost Assessment of all the buildings / structures on site and Ground Level Bat Roost Assessment of all trees on Site was undertaken in Aecom in May 2013, and, an update to this survey was undertaken by Aecom in June 2017.
- 17.5.8
- The survey comprised an external inspection of the tunnels and railway arches, as well as the each building and tree, involving a detailed search of all accessible features for bat droppings, urine staining, scratch marks, staining around suitable crevices and feeding remains. This included external features, such as soffit boxes, roof tiles, hanging tiles, ridge areas and window casements. The internal inspection of the buildings comprised a check of all surfaces including floor areas for discarded feeding remains and bat droppings.
- 17.5.9
- Following identification of potential roost features on three of the railway arches, a suite of presence / absence (roost characterisation surveys) were completed by Aecom in 2013 and 2017. This comprised a dusk 'emergence' and dawn 're-entry survey of the archways assessed as having moderate potential and a single dusk 'emergence' survey, of the archways assessed as providing low potential for roosting bats. These were during the bat activity season on the 4 July, 21 August, and 18-19 September 2013. Update surveys were subsequently carried out on the 7 July, 19 July and 7 August 2017.
- 17.5.10
- The purpose of these surveys was to confirm if the archway structures located to the west of Braithwaite Street were being used as a place of rest and shelter by bat species, and if so, the size and type of roost. The most recent emergence/re-entry surveys were carried out in accordance with current guidance¹⁵ and previous surveys were carried out in accordance with the guidance at the time¹⁶.

¹³ MAGIC (2015). Multi-Agency Geographic Information for the Countryside. [On-line]. Available from www.magic.gov.uk

¹⁴ Joint Nature Conservation Committee (2010). Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit. Reprinted by JNCC, Peterborough.

¹⁵ Collins (2016) *Bat Surveys - Good Practice Guidelines 3rd Edition*. Bat Conservation Trust, London.

¹⁶ Hundt (2012) Bat Surveys, Good Practice Guidelines. Bat Conservation Trust, London.

- 17.5.11
- Bat activity surveys were undertaken by Aecom in July, August and September 2013, and, updated in June, July and September 2017. The number of bat activity survey visits, transects and automated static detectors used was determined through consideration of the size of the site and its relative habitat quality for bats, in line with the current best practice survey guidance¹⁷. This led to a conclusion that the site was of low quality habitat and therefore a single activity survey visit per season would be appropriate. A single transect route was required to provide full coverage of the site.
- 17.5.12
- Each activity survey involved two surveyors walking a pre-defined transect route which included a series of 'listening points' located at potentially important features with regards to bats. At each 'listening point', surveyors recorded bat activity for at least three minutes using bat echolocation detectors. Any additional activity encountered whilst walking between points was also noted. The survey route was designed to include potential flight paths or foraging areas within the site. The starting point and direction of the transect was varied during each survey visit in order to ensure all areas of the transect were walked close to dusk.
- 17.5.13
- In addition to the transect surveys, in 2013, static bat detectors were left at up to five different locations in the tunnels and archways not covered by the transect, for at least four consecutive nights during June, July, August and September and for at least fourteen consecutive nights during October and November. Update automated bat detector surveys were conducted in June, July and September 2017. The detectors were placed at four different locations and set to record for five consecutive nights following each deployment. At the end of each survey, all bat registrations were uploaded and analysed using appropriate bat sound analysis software. The purpose of these surveys were to supplement the activity survey data.

Black Redstart Survey

- 17.5.14
- The initial Black redstart survey was conducted by Aecom over five visits between June and July 2013 following the species-specific methods outlined in Bird Monitoring Methods¹⁸, to identify any Black redstarts using the site or its immediate surrounds. Update surveys were subsequently carried out by Aecom between June and July 2017 by suitably qualified ecologists. Surveys commenced an hour before dawn, walking a pre-defined transect route. Evidence of the Black redstart (and other bird species) was recorded through listening for calls and songs and visual sightings.

Terrestrial Invertebrate Surveys

- 17.5.15
- The site was surveyed by experienced field entomologists Graham Hopkins in September 2013, and, Richard Jones in August 2017 on behalf of Aecom.
- 17.5.16
- Invertebrates were located and collected using a sweep net, beating tray and a stout trowel. Flowers, leaf surfaces, rocks, bare ground, logs and tree trunks were examined by visual searching. Specimens of all but the most common and characteristic species were collected for examination under the microscope.
- 17.5.17
- 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.

Reptiles

- 17.5.18
- A presence/likely absence reptile survey was conducted within potentially suitable reptile habitat on the site between June and September 2013. A total of 80 artificial reptile refugia was placed on 19 June, and thereafter checked on seven separate occasions between 26 June and 18 September in weather conditions considered suitable for reptiles to be active, avoiding heavy rain, and air temperatures of less than 10°C and no more than 19°C. These surveys confirmed the likely absence of reptiles from site, and, as such, reptiles are not an ecological receptor to the Revised Scheme and will not be considered further in the assessment.

Prediction Methodology

- 17.5.19
- The impact of the Revised Scheme on ecological features and attributes has been assessed in accordance with Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment (EclA)¹⁹.

¹⁷ Collins (2016) Bat Surveys - Good Practice Guidelines 3rd Edition. Bat Conservation Trust, London.

¹⁸ Gilbert, G., Gibbons, D.W. and Evans, J., (1998); 'Bird Monitoring Methods. A Manual of Techniques of Key UK Species'. RSPB, Sandy.

¹⁹ CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.

17.5.20 In accordance with the CIEEM EcIA guidelines, the zone of influence of the Revised Scheme, i.e. the area over which ecological effects may occur, should be established. Secondly, the ecological features identified must be assigned an importance. Thirdly, the impacts of the Revised Scheme should be predicted taking into account the different stages and activities in the development process. The significance of the identified impacts must then be assessed.

Identification of ‘Zone of Influence’

17.5.21 The zone of influence for this development is within the site boundary only due to its location in an urbanised area, with the exception of the adjacent railway corridor along the southern boundary. Due to the mobile nature of Black redstart, the effect of disturbance could extend to the geographic range of the affected population, on which assessment of importance and significance of effects should will be judged. The zone of influence for roosting bats is restricted to the site boundary as the habitats on site are unlikely support a roost; however, this extends to the adjacent railway corridor for commuting.

Assessment of Importance

17.5.22 Each of the identified statutory and non-statutory sites, habitat types and associated species/populations have been attributed a scale of biodiversity importance reflecting their geographic significance, examples of which are provided below:

- International and European e.g. biodiversity feature that is designated or meets criteria for designation/classification as a SAC, SPA, or Ramsar site;
- National (UK) e.g. biodiversity feature that is designated or meets criteria for designation as an SSSI;
- Regional (South-east) e.g. biodiversity feature which is one of the best examples of its type in the south east of England;
- Metropolitan (London), or, Borough (Tower Hamlets, Hackney), area e.g. biodiversity feature that is designated or warrants designation as a Metropolitan / Borough grade SINCE;
- Local, e.g. biodiversity feature which is one of the best examples of its type in the local context;
- Biodiversity features of importance within the zone of influence of the site only; and
- Biodiversity features of negligible importance.

17.5.23 This evaluation of biodiversity importance includes consideration of the following:

- Presence of sites or features designated for their nature conservation interest. Examples include internationally, nationally or locally designated sites;
- Large areas of important habitats or population of species, which are rare, species-rich assemblages, species which are endemic or on the edge of their range, large populations or concentrations of uncommon or threatened species and/or plant communities that are typical of important natural/semi-natural vegetation types;
- Secondary and supporting importance, for example, habitats or features which provide a buffer to important features or which serve to link otherwise isolated features;
- Habitats and Species of Principal Importance and regional (London) or local (Tower Hamlets, Hackney) BAP habitats and species;
- Presence International Union for Conservation of Nature (IUCN) Red List species²⁰; and
- UK Birds of Conservation Concern²¹.

Assessment of Effects determining Significance

17.5.24 Impacts related to loss, fragmentation or degradation of habitats, death or disturbance of animals and potential changes in species range have been defined and described taking into account:

- Magnitude - the size of an impact in quantitative terms where possible;
- Extent - the area over which an impact may occur;
- Duration - the time for which an impact is expected to last;
- Reversibility - a permanent impact is one that is irreversible in a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it; it is temporary where no short-term recovery is possible; and
- Timing and frequency - whether impacts are constant and ongoing, separated but recurrent or single events and whether they occur during critical seasons or life-stages of habitats and fauna.

17.5.25 Impacts on ecology and nature conservation are assessed under the CIEEM guidance as being:

- A significant positive or negative effect at the relevant geographical scale; or,

- not significant.

17.5.26 Effects are defined as significant if they affect the integrity of a site or ecosystem and/or the conservation status for habitats or species population within a given geographical area.

17.5.27 In order to provide consistent assessment terminology throughout this ES Addendum, the significance established using the CIEEM criteria has then been equated with the categories below in **Table 17.6** at the end of this chapter:

- Major Beneficial: the effect is of a magnitude likely to permanently benefit a nationally/internationally valued ecological receptor;
- Moderate Beneficial: the effect is of a magnitude likely to permanently benefit a borough/metropolitan and/or locally valued ecological receptor;
- Minor Beneficial: the effect is of a magnitude likely to benefit a borough/metropolitan and/or locally valued ecological receptor, but there will be no permanent effect on its integrity/conservation status;
- Neutral: no significant effects to any receptor, or significant effects to receptors valued only in the immediate vicinity;
- Minor Adverse: the effect is of a magnitude likely to be adverse to a borough/metropolitan and/or locally valued ecological receptor, but there will be no permanent effect on its integrity/conservation status; and
- Moderate Adverse: effect is of a magnitude likely to be adverse to a borough/metropolitan and/or locally valued ecological receptor permanently affecting its integrity.
- Major Adverse: effect is of a magnitude likely to be adverse to a nationally/internationally valued ecological receptor

Limitations and Assumptions

17.5.28 The bat activity surveys conducted by Aecom in 2013 and 2017 did not include a survey in the spring season as per the guidance. However, given the low number of recorded bats in the surveys, this was not considered likely to make a significant impact on the assessment.

17.5.29 Three of the five Black redstart surveys carried out by Aecom in 2017 were conducted in July, which is outside of the recommended survey season for this species between April and the end of June as per guidance. Furthermore, all surveys were commenced an hour before dawn and not just after dawn as stated in the guidance. As such, a precautionary approach has been taken in this assessment.

17.5.30 Only a single invertebrate survey was conducted in September 2013 and again in August 2017. As such invertebrate assemblage associated with spring and autumn are likely to have been under-recorded. As such, a precautionary approach has been taken in this assessment.

17.5.31 One of the reptile seven reptile surveys conducted by Aecom in 2013 was carried out in sub-optimal temperatures of 23°C, which is above the maximum recommended surveying temperature of 19°C. The report concluded that as all 6 other surveys were carried out within optimal surveying conditions, that this limitation did not significantly impact the results.

17.6 BASELINE ASSESSMENT AND IDENTIFICATION OF KEY RECEPTORS

Designated Sites

Statutory Sites:

17.6.1 The nearest statutory site of international importance is Lee Valley Ramsar Site, located approximately 5.6 km to the north of the site. Lee Valley Ramsar Site comprises a series of wetlands and reservoirs within Lee Valley. Lee Valley Ramsar Site is designated for supporting populations of bird species of European importance. These include overwintering species: bittern (*Botaurus stellaris*), gadwall (*Anas strepera*), and shoveler (*Spatula clypeata*)²².

17.6.2 Epping Forest SAC is located approximately 8.2 km to the north-east of the site and is primarily designated for its abundance of Annex I Habitat: ‘Atlantic acidophilous beech forests’; and, Annex II species: stag beetle (*Lucanus cervus*). Other Annex I habitats present as a qualifying feature but not a primary reason for designation comprise: ‘Northern Atlantic wet heaths with *Erica tetralix*’ and. ‘European dry heaths’.

²⁰ <http://www.iucnredlist.org>.

²¹ Eaton, M.A., Aebischer, R., Brown, A.F., Hearn, N.J., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D. and Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isles of Man. British Birds, 108: 708-746.

²² <http://jncc.defra.gov.uk/page-2047-theme=default>

- 17.6.3 The closest site of national importance is Epping Forest SSSI, located approximately 5 km to the north-east of the site and is notified as it is one of only a few remaining large-scale examples of ancient wood-pasture in lowland Britain. The site is in part designated for the important habitats of high nature conservation value including ancient semi-natural woodland, old grassland plains and scattered wetland. These habitats support invertebrate fauna of outstanding national significance, significant numbers of five native amphibian species and a diverse community of breeding birds characteristic of woodland and scrub.
- 17.6.4 These three sites are considered to be sufficiently distant from the Revised Scheme to incur any significant negative impacts. Furthermore, there are no suitable supporting habitats for the qualifying species listed above within the Revised Scheme site so no impacts on qualifying species are likely to be affected. As such, these sites have been scoped out of further assessment.
- 17.6.5 There are no statutory sites of local importance for nature conservation within a 1 km radius of the site.

Non-statutory Sites:

- 17.6.6 Six non-statutory designated Local Wildlife Sites are located within a 1 km radius of the site boundary. This includes three Sites of Borough Importance for Nature Conservation (Borough SINC); and, three Sites of Local Importance for Nature Conservation (Local SINC). Details are provided below in **Table 17.2**.

Table 17.2 Non-Statutory sites within a 1 km radius of the site boundary

Designation	Reason for Designation	Size (ha)	Distance and orientation from the site
Spitalfields City Farm and Allen Gardens Borough SINC	The site encompasses a farm, community garden and park. Habitats found are semi-improved neutral grassland, scattered trees, shrubbery, bare ground and a pond. The community garden is within the grounds of the farm and provides an area for local people to grow food, as well as a wildlife area with a pond. Allen Gardens contains extensive wild flower meadows around the edges to enhance biodiversity.	2.05	100 m east
Weavers Fields Borough SINC	The majority of this site is amenity grassland, but there are areas of shrubbery, scrub, semi-improved neutral grassland and scattered trees. There are also areas of wildflower meadow. The east side of the park houses a variety of native trees and shrubs, within which is a nature trail. A range of common birds have been recorded here, including great spotted woodpecker.	6.3	853 m north-east
Bunhill Fields Burial Ground Borough SINC	Cemetery where several 17th century writers are buried. The site comprises amenity grassland, scattered trees and vegetated walls and tombstones. There are many mature trees within the site, and the tombstones house numerous mosses and lichen.	1.63	898 m west
St Botolph's Bishopsgate Church Grounds Local SINC	This small area comprises amenity grassland, scattered trees, vegetated wall and tombstones, hedges and shrubbery. There is an area of enclosed shrubbery that provides undisturbed habitat for birds.	0.27	859 m south-west
Ion Square Gardens Local SINC	An area of amenity grassland, with shrubby borders surrounding much of the site. The western area of the park contains wildflower meadows.	1.04	978 m north-east
Finsbury Circus Local SINC	Amenity grassland, flower beds, planted shrubbery and scattered trees. This site is said to be the oldest park in London and was originally part of the Finsbury Manor Estate. The site contains several mature trees.	0.74	994 m south-west

- 17.6.7 With the exception of Spitalfields City Farm and Allen Gardens SINC, these sites are considered to be sufficiently distant from the Revised Scheme to incur no significant negative impacts and have been scoped out of further assessment.

Habitats and Flora

- 17.6.8 A brief description of habitats along with an approximate area in hectares at the site is provided below. Further details can be obtained by reference to **ES Volume 2, Appendix L: Ecology**.
- 17.6.9 **Open Mosaic Habitats on Previously Developed Land:** A mosaic of habitats was originally (2013 survey) present in the southern extent of the site. This habitat comprised a matrix of scrub, ephemeral/short perennial vegetation, hardstanding and semi-improved neutral grassland. The updated survey carried out in 2019 demonstrated that the area of this habitat had reduced in extent from approximately 1.62ha to 0.53ha, as a consequence of the succession to continuous scrub over much of the area. Whilst none of the individual habitats listed below provide importance beyond the immediate vicinity of the site, in combination they qualified as OMHPDL (a Habitat of Principal Importance in England). This habitat also qualifies as a London/Tower Hamlets BAP habitat and is a rarity within London. The mosaic habitats comprise common and widespread plant species and it does not represent a species rich or notable example of this habitat type. However, in line with CIEEM EclA guidelines, whilst the current baseline condition of a habitat may be suboptimal, its potential value should be considered, including its possible contribution to conservation objectives. Due to the size of the area included within the HPI qualification and its potential value if enhanced through scrub clearance, it is considered to be of **borough importance** at best (no change from previous assessment).
- 17.6.10 **Scrub:** Scrub was recorded across the south of the site, from the eastern boundary to the western boundary. This was dominated by buddleia (*Buddleja davidii*) and bramble (*Rubus fruticosus* agg.) with thistle (*Cirsium vulgare*) and teasel (*Dipsacus fullonum*) growing occasionally. Curled leaved dock (*Rumex crispus*) and fennel (*Foeniculum vulgare*) were also recorded. This habitat has developed from scattered presence in 2013 to a continuous area of dense vegetation covering approximately 1.14ha in 2017. Due to the extent of this habitat it is considered to be of importance within the **immediate vicinity of the site**.
- 17.6.11 **Ephemeral/short** perennial: Small patches of ephemeral grassland were located around the site, often in areas adjacent to scrub habitat. Species recorded include mugwort (*Artemisia vulgaris*), perforate St. John's wort (*Hypericum perforatum*), wall lettuce (*Lactuca muralis*), ribbed melilot (*Melilotus officinalis*), smooth sow-thistle (*Sonchus oleraceus*), and perennial rye-grass (*Lolium perenne*). These habitats were of limited extent and did not contain a diverse range of plant species. Accordingly, this habitat is of **negligible importance** and is, therefore, scoped out of further assessment
- 17.6.12 **Buildings and hardstanding:** The majority of the site comprised hardstanding in the form of concrete and asphalt areas and crushed stone pavements. Hardstanding was also present on the upper levels of the site, forming pathways between the scrub and ephemeral habitats. In addition, a large network of railway arches, remnant arch walls and buildings associated Boxpark and Shoreditch High Street Station were present. These habitats are of **negligible importance** and are, therefore, scoped out of further assessment (no change from previous assessment).
- Fauna**
- Bats**
- 17.6.13 The desk study returned records for at least five different bat species within 2 km of the site. These included noctule (*Nyctalus noctula*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*P. pygmaeus*), nathusius pipistrelle (*P. nathusii*), and daubentons bat (*Myotis daubentonii*).
- 17.6.14 The Preliminary Roost Assessment identified that the railway arches directly east of Braithwaite Street provided moderate potential for roosting bats and arches 14 and 15 provided low potential, however, no evidence of roosting bats was recorded during the survey. The remaining buildings and trees on site were assessed as having negligible potential to support roosting bats. The site was considered to have low potential to support foraging bats due to the presence of grassland and scrub habitats.
- 17.6.15 Following a range of bat surveys undertaken in 2013, no bats were recorded emerging or returning to the structures; however, the site was found to support at least three species of bat, which use the site for foraging purposes. These comprised common pipistrelle, soprano pipistrelle, and nathusius pipistrelle. Updated surveys in 2017 returned similar results, with no bats recorded emerging or re-entering the structures. As well as the species previously recorded, three Myotis species calls were also identified during the static surveys. The most frequently recorded species on the majority of survey visits were common pipistrelles.
- 17.6.16 The assemblage of commuting / foraging bats within the site is considered to be of **local importance** and is of **negligible** importance for roosting bats (no change from previous assessment). The latter has been scoped out of further assessment.
- Black redstart:**
- 17.6.17 The desk study returned records of Black redstart within 1 km of the site boundary and previous surveys in 2005, undertaken as part of the London Overground Extension, identified a breeding pair nesting adjacent to Shoreditch High

Street, within the site confines, and, foraging in the eastern extent of the site²³. A second survey in 2006 also identified two breeding pairs and a solitary male on site²⁴. Both surveys were undertaken prior to the construction of the London Overground Extension. This species is included as a Red-listed Bird of Conservation Concern²⁵ and is on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

17.6.18 Surveys undertaken in 2013 identified a single sub-adult male foraging on the west side of the site on two of the surveys. No breeding activity was recorded during the 2013 surveys. The surveys in 2017 did not identify any Black redstart on site. It is likely that the site no longer regularly supports this species. However, due to limitations associated with the late seasonality of the surveys and pre-dawn survey start time as opposed to the recommended start time of 'just after dawn', the potential presence on site cannot be ruled out. This small and infrequent assemblage is therefore considered to be of **borough importance** (no change from previous assessment).

Breeding birds

17.6.19 The desk study returned numerous records of Species of Principal Importance and Amber and Red-listed Birds of Conservation Concern within 1 km of the site boundary.

17.6.20 Black redstart surveys in 2013 recorded presence of robin (*Erithacus rubecula*), wren (*Troglodytes troglodytes*), feral pigeon (*Columba livia domestica*), greenfinch (*Carduelis chloris*), carrion crow (*Corvus corone*), wood pigeon (*Columba palumbus*), whitethroat (*Sylvia communis*), blackbird (*Turdus merula*) and goldfinch (*Spinus tristis*) on site; and the 2017 surveys recorded blackbird and goldfinch only. None of these species are of conservation concern, and, are widespread, however, similarly large areas of suitable scrub habitat is infrequent in the local area, as such, the bird assemblage on site is considered to be of **local importance** (no change from previous assessment).

Terrestrial Invertebrates

17.6.21 The area of OMHPDL in the south of the site was subject to a specific assessment for invertebrate species. Following the Invertebrate Assessment survey, no species of conservation concern were recorded. The species recorded during the visit are generally of widespread occurrence in anthropogenic and semi-natural situations, but with some species of interest including the common blue butterfly (*Polyommatus Icarus*) and three species of bumblebee: buff-tailed bumblebee (*Bombus terrestris*), tree bumblebee (*B.hypnorum*) and common carder (*B. pascuorum*).

17.6.22 The 2017 survey identified a greater number of invertebrates on site including the following notable species:

- **Brachycarenum tigrinus**: A medium-sized yellow and black ground bug - Recent colonist to Britain.
- **Ceratina cyanea**: A small metallic blue carpenter bee - Nationally rare (red data book category 3)
- **Formica cunicularia**: A medium-sized black and brown ant - Very local
- **Hippodamia variegata**: The Adonis ladybird - Nationally scarce (Notable B)
- **Lindorus forestieri**: A small black ladybird - Recent colonist to Britain
- **Nysius senecionis**: A small pale leaf bug - Very local
- **Olibrus flavicornis**: A minute black flower beetle - Nationally rare but insufficiently known (red data book status K)
- **Philanthus triangulum**: The bee wolf - Vulnerable (red data book category 2); and,
- **Spilomena troglodytes**: A minute black solitary wasp - Very local

17.6.23 Owing to the presence of numerous notable species, and, as a precaution against the limitations associated with the survey data, the invertebrate population on site is considered to be of **borough importance** (no change from previous assessment).

Invasive species

17.6.24 Two stands of Japanese knotweed were recorded on site. This species is listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). Schedule 9 species are not considered an ecological receptor, as they are of negligible intrinsic biodiversity value, although their status as a controlled invasive species requires control measures to prevent their spread during demolition and construction phase of the Revised Scheme.

Summary

17.6.25 **Table 17.3** provides a summary of current nature conservation importance of ecological features.

Table 17.3 Importance of ecological features

Ecological Features	Importance
Spitalfields City Farm and Allen Gardens Borough SINC	Borough
Open Mosaic Habitats on Previously Developed Land	Borough
Terrestrial invertebrates	Borough
Black redstart	Borough
Foraging/commuting bats	Local
Other breeding birds	Local
Buildings and Hardstanding	Negligible

Future baseline

17.6.26 Changes in the baseline conditions within the site without the construction of the Revised Scheme is considered to be limited due to the urban nature / context of the site. The coverage of butterfly-bush and bramble scrub within the areas of OMHPDL are likely to continue to expand and shade the understorey and in ten years' time, if left unmanaged, would dominate this area, thereby degrading the quality and condition of this habitat. In consequence, it is considered that left unmanaged the site would cease to qualify as OMHPDL.

17.7 IDENTIFICATION AND DESCRIPTION OF CHANGES LIKELY TO GENERATE EFFECT

Construction Phase

17.7.1 The following impacts associated with the construction phase are predicted in absence of mitigation:

- SINC degradation: Negative effects on the nearby SINC may result from dust and other pollutants created during construction.
- Habitat loss: Negative effects may result from the loss of OMHPDL and scrub during the construction phase.
- Bats: Negative effects may arise from the loss of habitat suitable to support foraging bats.
- Black redstart: Negative effects may result from the loss of buildings and OMHPDL suitable to support nesting and foraging Black redstart.
- Negative effects may result from the increased level of construction related noise and activity adjacent to retained habitat suitable to support nesting Black redstart.
- Breeding birds: Negative effects may result from the loss of scattered trees and scrub suitable to support a range of breeding bird species.
- Invertebrates: Negative effects may result from the loss of OMHPDL suitable to support a range of invertebrates.

Operational Phase

17.7.2 The following impacts associated with the construction phase are predicted in absence of mitigation:

- Disturbance: Negative effects may result from an increased level of disturbance caused by human activity in the vicinity of ecologically sensitive features. Species such as black redstart and various other breeding birds within the completed Revised Scheme and adjacent to the site may be disturbed by the operational phase.
- Increased visitor pressure: Negative effects on the nearby SINC may occur as a result of an increase in visitor numbers as a result of the development.

²³ Gedge, D., (2005); 'Black Redstart Survey, East London Line Breeding Season 2005

²⁴ Gedge, D., Morrison, D., (2006); 'Black Redstart Survey, East London Line Breeding Season 2006'

²⁵ Eaton, M.A., Aebischer, R., Brown, A.F., Hearn, N.J., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D. and Gregory, R.D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isles of Man. British Birds, 108: 708-746

- Lighting: Negative effects may result from the increased levels of lighting associated with the residential housing and street lighting on species sensitive to such impacts including as foraging bats and birds.
- Predation: Negative effects on species such as bats and birds may result from increased predation associated with domestic pets such as cats and dogs.

17.8 ASSESSMENT OF LIKELY SIGNIFICANT EFFECT

Construction Effects

Embedded Mitigation Measures

- 17.8.1 All mitigation described below is embedded mitigation, the requirements of which will be submitted for approval as part of the Application and the Code of Construction Practice (CoCP).
- 17.8.2 CoCP mitigation measures include the appropriate storage of fuels and chemicals to minimise the risk of accidental spillage. Sources of best construction practice and environmental management include CIRIA guidance²⁶ and various Defra / Environment Agency guidelines²⁷.
- 17.8.3 Where the proposed works require the removal of dense scrub, introduced shrub and scattered trees with potential to support breeding birds, this will be carried out September to February inclusive to avoid any potential offences relating to breeding birds during their main bird breeding season²⁸. Mitigation measures will ensure compliance with Schedule 1 of the WCA²⁹.
- 17.8.4 Landscape proposals for the site include the creation of approximately 0.2 ha of living roof, 0.27 ha of species-rich lawn, 0.1 ha of open mosaic habitat, 0.31 ha of additional landscape planting of wildlife value, 81 m of hedges and 194 trees. Woodcrete bird boxes, suitable to support black redstart and other bird species previously recorded on site will be incorporated in suitable locations throughout all phases of the development.

Anticipated Effects

SINCs

- 17.8.5 Spitalfields City Farm and Allen Gardens SBINC is located approximately 100 m to the east of the site and lacks connectivity through habitat pathways from the Revised Scheme.
- 17.8.6 Potentially significant negative effects from air and waterborne pollution, accidental damage, disturbance through increased levels of lighting and overshadowing will be avoided through the implementation of the CoCP. As such, **no significant effects** on the integrity of this site are predicted, which equates to a **temporary neutral effect**. Therefore, no further consideration will be made in the assessment.

Habitats

- 17.8.7 Construction activities will result in the loss of approximately 0.54 ha of OMHPDL during Phases 1, 2 and 4 of the Revised Scheme. This will result in a **significant negative effect** at the borough level, which equates to a **permanent moderate adverse effect** on the conservation status of the OMHPDL in absence of mitigation.
- 17.8.8 The Tower Hamlets BAP recommends that lost habitat should be replaced by an equal area of similar habitat. Given the species-poor nature of the existing habitat, with a high proportion of dense bramble scrub, this will be addressed by creating a mosaic of habitats (0.87 ha) comprising living roofs, open mosaic habitat, species-rich turf, hedging, climbing vegetation and herbaceous and shrub planting throughout the entirety of the Revised Scheme.
- 17.8.9 As such, **no significant effect** is anticipated, which equates to a **temporary minor adverse effect** on the conservation status of OMHPDL, and, a **permanent neutral effect** following establishment of living roofs and landscape planting. Therefore, no further consideration will be made in the assessment.

Foraging / Commuting Bats

- 17.8.10 The conservation status of the commuting / foraging bats at the site is dependent on the low levels of night-time lighting across the site, during construction, which will be set as part of the CoCP.
- 17.8.11 The construction site will not be significantly illuminated at night, as all works are to be carried out within daylight hours. Construction related activities will result in loss of foraging habitat. However, additional suitable foraging habitat is present in the retained, adjacent habitats within Spitalfield City Farm and Allen Gardens SBINC 100 m to the south-east. Furthermore, the dark commuting corridor along the railway line to the south of the site will be retained and suitable foraging habitat will be created within the park at platform level and living roofs.
- 17.8.12 As such, **no significant effect** is anticipated, which equates to a **temporary minor adverse effect** on the conservation status of foraging / commuting bats at the site, significant at the zone of influence of the site, and, a **permanent neutral effect** following establishment of additional foraging habitat within living roofs and landscape planting post construction. Therefore, no further consideration will be made in the assessment.

Black Redstart

- 17.8.13 Factors important to maintaining the conservation status of breeding and foraging populations of Black redstart include the prevention of killing and/or injury, disturbance during the breeding season, and the presence of sufficient nesting habitat. The Revised Scheme will result in the removal of suitable foraging and nesting habitat for this species. However, no breeding pairs have been recorded on site since 2006 and the subsequent construction of the London Overground line in the north of the site, and, this species was not recorded to be foraging on site during the most recent presence/likely absence surveys in 2017. This indicates that the succession of open mosaic habitats on site to continuous scrub has reduced the suitability of the site for foraging Black redstart, and, it likely no longer forms an important part of their breeding and foraging territory.
- 17.8.14 The construction works on site will result in a **significant negative effect** at the borough level, which equates to a permanent **minor adverse effect** on the conservation status of Black redstart in absence of mitigation.
- 17.8.15 Following the provision of replacement nesting areas, foraging habitat and singing perches on building roofs throughout each stage of the Revised Scheme, **no significant effects** on the conservation status of Black redstart are predicted. This equates to a **permanent neutral effect**. Therefore, no further consideration will be made in the assessment.

Breeding Birds

- 17.8.16 Factors important to maintaining the conservation status of breeding populations of notable bird species include the prevention of killing and/or injury, limited disturbance during the breeding season, and the presence of sufficient nesting habitat. Construction and site clearance works will result in the staged removal of approximately 0.96ha of continuous scrub that is considered suitable to support widespread nesting bird species. This will result in a **significant negative effect** on the conservation status of breeding birds at the local level in absence of mitigation, which equates to a **temporary minor adverse effect**.
- 17.8.17 A combination of living roofs, shrub, perennial, herbaceous, and climbing vegetation, (0.76ha) as well as numerous nest boxes will be introduced during the development, which will provide additional nesting and foraging opportunities. Consequently, no significant effect on the conservation status of breeding birds on the site. This will result in **no negative effect**, which equates to a **permanent neutral effect**. Therefore, no further consideration will be made in the assessment.

Terrestrial Invertebrates

- 17.8.18 The habitats considered to be of importance to the likely terrestrial invertebrate assemblage present within the Revised Scheme site will be completely removed. Given the presence of numerous notable species, based on the latest baseline surveys, as well as other potentially important assemblages not picked up in these seasonally limited surveys, it is anticipated that the development will result in a **significant negative effect** on the conservation status of terrestrial invertebrates at the borough level, in absence of mitigation, which equates to a **permanent moderate adverse effect**.
- 17.8.19 The creation of living roofs, native marginal planting, scrub, and, species-rich grassland will create a mosaic of high-quality habitat for invertebrates associated with OMHPDL habitats. Proposed living roof and OMHPDL habitats will be designed to include a mosaic of dry open ground, ruderal vegetation and large debris such as broken bricks and rubble to cater for the invertebrates previously recorded on site.

²⁶ Connolly, S. & Charles, P. (2015). Environmental good practice on site guide. CIRIA, London.

²⁷ Defra/Environment Agency. Environmental Management Guidance. (2016) <https://www.gov.uk/government/collections/pollution-prevention-guidance-ppg>

²⁸ Newton, J., Nicholson, B., Saunders, R., Willets, R. & Venables, R. (2011) Working with wildlife: guidance for the construction industry (2nd Ed.). CIRIA, London.

²⁹ To include: appropriately timed vegetation clearance which will be predominantly carried out outside of the breeding bird season (March to August inclusive), nesting bird checks prior to vegetation clearance if it is necessary during the breeding bird season and the use of works exclusion zones around active nests as required

17.8.20 The complete loss of existing habitat on site during construction followed by creation of areas of habitat with a higher diversity of plant species and substrates, will result in a **significant negative effect** on terrestrial invertebrates at the borough level. This equates to a **temporary minor-moderate adverse effect**. Therefore, no further consideration will be made in the assessment.

Anticipated Effects of Applying the minimum development parameter

17.8.21 The scale and location of the outline element of the Revised Scheme has been defined by a maximum development parameter submitted in support of the Application. The assessment of the construction phase effects has therefore been based upon application of the maximum parameter. This will give rise to the largest developable area and therefore be a conservative assessment of the likely residual effects. If the minimum development parameter is applied this would not result in any difference in the assessed effects.

Operational Effects

Embedded Mitigation Measures

17.8.22 A Landscape and Ecological Management Plan (LEMP) will be produced following finalisation of the landscape planting scheme. Once finalised, this document will prescribe the necessary management and monitoring measures of the habitats created as part of the construction phase.

17.8.23 These are to include, but not limited to, the changing prescriptions needed as the living roofs mature and maintaining the condition of other landscape features ensuring that the site is monitored for invasive species, pests and diseases. These works will comply with relevant nature conservation legislation e.g. by avoiding disturbance to breeding birds that may be present during any maintenance works etc.

17.8.24 A commitment to monitoring the effectiveness of the proposed mitigation upon the ecological features of the site should be in place and necessary measures will be put in place to address any population declines or degradation of habitats created.

Anticipated Effects

*SINC*s

17.8.25 The height of structures built as part of the Revised Scheme could result in overshadowing of the nearby Spitalfields City Farm and Allen Gardens Borough SINC. However, as part of the Daylight, Sunlight, Overshadowing, Solar Glare and Light Pollution Chapter it has been concluded that the reduced height of the Revised Scheme to the east of the site would now have no significant overshadowing effects on Spitalfields City Farm or Allen Gardens (please see ES Addendum Volume 4, Appendix G: Daylight, Sunlight, Overshadowing, Solar Glare and Light Pollution (Appendix 11.4) for further details.)

17.8.26 Operational lighting of the Revised Scheme has potential to disturb bats and birds which use the SINC. With the use of appropriate lighting measures that will ensure light spill is avoided as far as practically possible, to be detailed in the lighting strategy as part of the proposed LEMP, no significant effects on the SINC are predicted due to lighting.

17.8.27 The provision of additional housing proposed within the site has potential to cause increased visitor pressure on the SINC. However, the provision of a 2.56 ha of public realm and 0.41 ha on consolidated open space in the form of a new park within the development itself will reduce this pressure.

17.8.28 Due the high-rise nature of the residential portion of the development, it is not anticipated that there will be an increase in the numbers of domestic cats within the SINC as a result of the Revised Scheme, as the housing units have no direct external access to ground level. However, will be an increase in dog walkers, contributing to degradation of the SINC through fouling. Whilst provision of on-site greenspace aims to minimise pressures on the SINC, it is likely that there will be a residual **significant negative impact** on the SINC which equates to a **minor adverse effect**.

Habitats

17.8.29 Recreational pressure including trampling, dog fouling, vandalism, and, littering may affect created habitats, including, wildflower meadow, scrub and garden planting. As such, a **minor adverse effect** on the conservation status of newly created habitats is predicted in the absence of mitigation. This will be addressed by ongoing monitoring and adjustments to management in accordance with the LEMP. Once the landscape planting has become established positive effects on value of habitats are expected, of significance at the local level. This equates to a **permanent neutral effect**

Bats

17.8.30 The increased lighting across the site resulting from residential homes and street lights could adversely affect the conservation status of the foraging / commuting bat assemblage at the site by causing disturbance and limiting access to foraging resources. As such a **minor adverse effect** on the conservation status of bats is predicted in the absence of mitigation.

17.8.31 With the use of appropriate lighting measures including ensuring that lighting avoids sensitive areas of the site for bats, to be detailed in the lighting strategy as part of the LEMP, no significant effects on the conservation status of the bats are predicted. This equates to a **permanent neutral effect**.

Breeding birds and Black redstart

17.8.32 The increase in human presence and ongoing site maintenance could result in a permanent increase in disturbance to breeding birds. However, the Revised Scheme is in an urban / industrial environment with high existing levels of disturbance and many of the species assumed as breeding on site are regularly found in such locations, including Black redstart.

17.8.33 Therefore, no significant effects on the conservation status of breeding birds are predicted during the operation of the Revised Scheme. This equates to a **permanent neutral effect**.

Anticipated Effects of Applying the Minimum Development Parameter

17.8.34 The scale and location of the outline element of the Revised Scheme has been defined by a maximum development parameters submitted in support of the Application. The assessment of the operational phase effects has therefore been based upon application of the maximum parameter. This will give rise to the largest developable area and therefore be a conservative assessment of the likely residual effects. If the minimum development parameter is applied this would not result in any difference in the assessed effects.

Summary of Habitat Loss and Creation

17.8.35 **Table 17.4** provides a summary of the habitat loss resulting from the Revised Scheme, the amount of habitat scheduled for creation/enhancement and the phase of development habitat creation will be carried out in. Full details can be found in the Design and Access Statement submitted as part of the Application.

Table 17.4 Habitat Loss and Creation on Ste

Habitats / Species	Existing Habitat Amounts (ha)	Lost during development (ha)	Created during development (ha)	Total remaining
Continuous scrub	1.14	1.14	0	0
Ephemeral/short perennial	0.43	0.43	0	0
OMHPDL (including living roofs)	0.54	0.54	0.4	0.4
Landscape planting of wildlife value	0	0	0.21	0.21
Species-rich lawn	0	0	0.27	0.27

17.9 SCOPE FOR ADDITIONAL MITIGATION MEASURES

Potential Additional Mitigation Measures

- 17.9.1A lighting strategy will be prepared that will minimise light spill onto retained or newly created habitat features such as artificial bat roosts, foraging resources such as the biodiverse roofs and the nearby SINC. Mitigation measures will be in-line with those given by the Bat Conservation Trust³⁰. This will include light exclusion zones along the boundary to the adjacent railway corridor to the south, the use of directional lighting, the use of LED lighting, reduction of blue and UV wavelengths and restriction of lighting levels at dusk and dawn.
- 17.9.2An area of OMHPDL could be partially retained on site throughout the initial part of the phased development until new high-quality equivalent habitat is created on site. The temporary retained habitat could be further enhanced by appropriate clearance of scrub to create a more traditional open mosaic of habitats.
- 17.9.3Provision of dog bins as well as well as a leaflet campaign to all new residents to highlight the importance of cleaning up after their dogs and the importance of the SINC itself.

Likely Effectiveness of Additional Mitigation Measures

- 17.9.4The use of bat sensitive lighting would reduce the impact of the operational development on foraging and commuting bats within the site and using adjacent commuting habitat.
- 17.9.5The retention of an area of OMHPDL for invertebrates until provision of new suitable habitat would ensure that a refuge for invertebrates associated with this habitat is provided throughout construction. Furthermore, appropriate management of this temporary habitat could improve its value for invertebrates, increasing the carrying capacity for certain species. This would result in the effect of construction on invertebrates reducing from a **temporary minor-moderate adverse effect** to a **permanent minor adverse effect**.
- 17.9.6The provisions of dog bins and a leaflet campaign are anticipated to reduce to the impact of the operational development on the nearby SINC, resulting in a **negligible effect** on the conservation status of the SINC, which equates to a **permanent neutral effect**.

Scope for Enhancement Measures

- 17.9.7Planning policy at the national and local level and strategic biodiversity partnerships encourage inclusion of ecological enhancements in development projects. Proposed enhancement measures within the development comprise the incorporation of bat roosting boxes throughout the development. This provides a significant enhancement for roosting bats within the local area.

17.10 RESIDUAL EFFECTS

- 17.10.1**Table 17.5** provides a summary of the residual effects resulting from the Revised Scheme after effective implementation of the embedded and additional mitigation measures proposed above.

Table 17.5 Significant Residual Effects

Phase	Resource or Receptor Affected	Residual Effect under current scheme	Residual Effect under previous scheme
Construction	Spitalfields City Farm and Allen Gardens Borough SINC	negligible	negligible
	Open Mosaic Habitats on Previously Developed Land	negligible	Minor/moderate adverse effect
	Foraging/commuting bats	negligible	negligible

³⁰ Institute of Lighting Professionals (2018) Bats and artificial lighting in the UK. Institute of Lighting Professionals and Bat Conservation Trust [online]. Available from http://www.bats.org.uk/data/files/bats_and_lighting_in_the_uk__final_version_version_3_may_09.pdf

Phase	Resource or Receptor Affected	Residual Effect under current scheme	Residual Effect under previous scheme
	Black redstart	negligible	Minor/moderate
	Other breeding birds	negligible	Minor adverse effect
	Terrestrial invertebrates	Minor adverse effect	Minor/moderate adverse effect
Operation	Spitalfields City Farm and Allen Gardens Borough SINC	negligible	negligible
	Open Mosaic Habitats on Previously Developed Land	negligible	minor beneficial effect
	Foraging/commuting bats	negligible	minor beneficial effect
	Black redstart	negligible	minor beneficial effect
	Other breeding birds	negligible	minor beneficial effect
	Terrestrial invertebrates	negligible	minor beneficial effect

17.11 CUMULATIVE EFFECTS

- 17.11.1Cumulative effects are the combined effects of several development schemes (in conjunction with the Revised Scheme) which may, on an individual basis be insignificant but, cumulatively, have a significant effect.
- 17.11.2The ES Addendum has given consideration to ‘Cumulative ‘Effects’ for schemes located within 1 km radius from the boundary of the site. Of the cumulative schemes outlined in **ES Addendum, Volume 2, Chapter 3 EIA Methodology, Table 3.8**, five schemes did have an ecological component and are detailed below:

Huntingdon Industrial Estate

- 17.11.3The current application for this site has not yet been submitted. However, the construction phase of the development proposed in a previous (lapsed) planning application would have resulted in loss of low suitability foraging habitat for Black redstart. However, this was determined to have a negligible effect on the status of this species during construction.

114-150 Hackney Road

- 17.11.4The site prior to works was considered to provide negligible potential to support black redstart and foraging bats and comprised building and hardstanding only. The development will result in extensive areas of brown roof, which would, contribute to a **minor positive cumulative effect** on black redstart, terrestrial invertebrates, and OMHPDL.

120 Vallance Road / 2-4 Hemming Street

- 17.11.5The site prior to works was considered to provide negligible potential to support black redstart and comprised building and hardstanding only. The development will result in extensive areas of living roof, which would, contribute to a **minor positive cumulative effect** on black redstart, terrestrial invertebrates, and OMHPDL.

Principal Tower

17.11.6 The site was considered to provide suitable nesting and foraging habitat for Black redstart and potential roosting habitat for bats, however, surveys confirmed likely absence of these species from the site and the scheme was determined to have a negligible effect on these species. The extensive proposed areas of living roof were determined to provide a minor beneficial effect for habitats, Black redstart and other breeding birds on site. This would contribute to a **minor positive cumulative effect** on Black redstart, terrestrial invertebrates, and OMHPDL.

The Stage

17.11.7 No ecology surveys were carried out at the site however, it comprised buildings only, however, extensive areas of living roof were proposed on the scheme. This would contribute to a minor positive cumulative effect on black redstart, terrestrial invertebrates, and, OMHPDL.

17.1 QUALITATIVE COMPARISON OF THE 2015 PROPOSED DEVELOPMENT WITH THE 2019 REVISED SCHEME

17.1.1 There is no change in the baseline scenario, pre mitigation or residual effects between the 2015 Proposed Development and 2019 ES Addendum.

17.2 SUMMARY AND CONCLUSIONS

- 17.2.1 The baseline survey revealed that the site supported a number of important ecological features including six non-statutory designated sites present within 1 km of the site, the closest of which (Spitalfields City Farm and Allen Gardens SINCC) is located 100 m to the east of the site and is of Borough importance. Open Mosaic Habitats on Previously Developed Land and the likely terrestrial invertebrate assemblage associated with it are also of borough importance. The nesting bird, foraging bat and the small infrequent black redstart populations are of local importance. All other habitats and species present were assessed as of importance in the vicinity of the site only.
- 17.2.2 Consultation with the Council was carried out in order to gain their opinion on the proposed mitigation measures and, where required, put forward alternative strategies.
- 17.2.3 The assessment was carried out using CIEEM guidelines for Ecological Impact Assessment and all habitats and species within the site were given a biodiversity importance reflecting their geographic significance. To provide a mechanism by which the impacts and effects identified for the proposed develop could be compared across chapters within the ES, the CIEEM terminology was also converted to a matrix approach following DMRB guidelines (REF) The potential impacts of the construction and operational phase were then assessed as either having a positive, negative or negligible effect on the identified habitats and species.
- 17.2.4 The assessment of the residual impacts likely to arise from both the construction and operation phases of the Revised Scheme found that there would be a minor adverse residual effect on invertebrates at the construction phase. For all other receptors there were no significant residual effects which equated to no neutral residual effects on all features.
- 17.2.5 Due to the lack of ecological sensitive species and/or habitats recorded within the relevant development schemes within 1 km of the Application and the creation of numerous extensive areas of living roofs and landscape planting amongst surrounding developments, the cumulative impact is considered to be minor positive.
- 17.2.6 Due to lack of active management, the site has been observed to change through time as successional processes increase the extent and density of scrub in place of sparse vegetation associated with OMHPDL. This has reduced the suitability of the site for foraging black redstart and terrestrial invertebrates in comparison with the original baseline assessment conducted in 2013. Similarly, continued increase in scrub noted during surveys carried out in 2017 and 2019 have further decreased the suitability of the site. Given the continuation of the lack of active management, it is logical to assume that the site has further decreased in suitability since these surveys were carried out. Nevertheless, in the absence of updated species surveys in 2018 / 19 a precautionary approach has been taken whereby the assessment has been based on the conditions as described by the 2017 and 2019 baselines.
- 17.2.7 Furthermore, the availability of refuge habitat, during the phased development, would allow species to re-colonize the site following completion of landscaping and living roofs within the site. This results in the effects on habitats, invertebrates, black redstart and other birds reducing from minor / moderate to negligible, with the exception of invertebrates which reduced to minor adverse.
- 17.2.8 The previous application listed minor beneficial effects in the operational phase for habitats, black redstart, other birds, invertebrates and bats as a result of habitat creation. In this assessment, however, the creation of these habitats forms part of the assessment of the construction phase, as opposed to the ongoing operational phase, as that is when the habitats are implemented. As such, impacts on these receptors have instead been assessed as negligible.

Table 17.6 Summary of Residual Effects

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect	Significance of Residual effect of previous scheme
Construction									
Spitalfields City Farm and Allen Gardens SINC	Borough	Pollution	Pollution controls	Low	Negligible	None	Low	Negligible	<i>Negligible</i>
				Indirect					
				Borough					
				Temporary					
				Unlikely					
Habitats	Borough	Habitat loss	Creation of new habitat of higher value	Moderate	Negligible	Provision of refuge habitat during construction	Low	Negligible	<i>Minor-moderate adverse</i>
				Direct					
				Site					
				Permanent					
				Likely					
Invertebrates	Borough	Habitat loss	Creation of new habitat of higher suitability	Moderate	Minor-moderate adverse	Provision of refuge habitat during construction	Low	Minor adverse	<i>Minor-moderate adverse</i>
				Direct					
				Site					
				Temporary					
				Likely					
Black redstart	Borough	Habitat loss, disturbance and death and injury	Timed works, protection measures, habitat creation and nest box inclusion	High	Negligible	Provision of refuge habitat during construction	Moderate	Negligible	<i>Minor-moderate adverse</i>
				Direct					
				Local					
				Temporary					
				Unlikely					
Other birds	Local	Habitat loss, disturbance and death and injury	Timed works, protection measures and habitat replacement	Moderate	Negligible	Provision of refuge habitat during construction	Low	Negligible	<i>Minor</i>
				Direct					
				Local					
				Temporary					
				Likely					

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect	Significance of Residual effect of previous scheme
Foraging bats	Local	Habitat loss, disturbance	Habitat replacement and limited night lighting	Low	Negligible	Provision of refuge habitat during construction	Low	Negligible	Negligible
				Direct					
				Local					
				Permanent					
				Likely					
Operation									
SINCs	Borough	Increased visitor pressure	New green space within application site will reduce human pressure on nearby SINCs	Low	Negligible	None	Low	Negligible	Negligible
				Indirect					
				Borough					
				Permanent					
				Unlikely					
Habitats	Borough	Degradation	Implementation of habitat management plan	Low	Negligible	None	Low	Negligible	Minor beneficial
				Direct					
				Site					
				Permanent					
				Likely					
Invertebrates	Borough	Degradation of habitat	Implementation of habitat management plan	Low	Negligible	None	Low	Negligible	Minor beneficial
				Direct					
				Site					
				Permanent					
				Likely					
Breeding birds (including black redstart)	Local	Disturbance	None	Low	Negligible	None	Low	Negligible	Minor beneficial
				Indirect					
				Site					
				Permanent					
				Likely					

Receptor/ Affected Group	Value or Sensitivity (Significance) of Receptor	Activity or Impact	Embedded Design Mitigation	Magnitude/ Spatial Extent/ Duration/ Likelihood of Occurrence	Significance of effect	Additional Mitigation	Residual Magnitude of Impact	Significance of Residual effect	<i>Significance of Residual effect of previous scheme</i>
Bats	Local	Disturbance	Creation of additional foraging habitat	Moderate	Negligible	Implementatio n of lighting strategy	Moderate	Negligible	<i>Minor beneficial</i>
				Direct					
				Site					
				Permanent					
				Likely					
Cumulative Effects - Construction									
Living roofs	Borough	Habitat loss/gain	n/a	Moderate	Minor positive effect	n/a	Moderate	Minor positive effect	<i>Negligible</i>
				Direct					
				Borough					
				Permanent					
				Likely					
Black redstart	Borough	Habitat loss/gain	n/a	Low	Minor positive effect	n/a	Low	Minor positive effect	<i>Negligible</i>
				Direct					
				Borough					
				Permanent					
				Likely					
Cumulative Effects - Operation									
Ecological receptors	None								<i>Minor positive effect</i>

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