

8. Ecology

Introduction

1. This chapter assesses the effects of the proposed development on biodiversity. This includes the likely impacts on statutory and non-statutory designated sites, habitats of nature conservation interest and legally protected and notable species.
2. The chapter has been prepared with reference to the Chartered Institute of Ecology and Environmental Management's (CIEEM) Ecological Impact Assessment Guidelines (CIEEM, 2018)¹. In line with this guidance, the chapter describes the assessment methodology; establishes the baseline conditions, currently existing at the Site and surroundings; the likely significant environmental effects; the mitigation measures required to prevent or reduce any impacts; the likely residual effects after these measures have been employed; and the compensation measures required to offset any residual effects.
3. For reasons of clarity and due to the quantity of baseline ecological information collated during the assessment, the detailed methods, results and associated plans are provided in Appendices 8.1-8.7. These comprise:
 - Appendix 8.1: Bradley Park Golf Course Extended Phase I Habitat Survey
 - Appendix 8.2: HS11 Allocation Site Desk Study Report
 - Appendix 8.3 Bradley Villa Farm Ecological Impact Assessment
 - Appendix 8.4: Bradley Villa Farm Bat Report
 - Appendix 8.5: Bradley Villa Farm Breeding Bird Report
 - Appendix 8.6: Bradley Villa Farm Confidential Badger Report
 - Appendix 8.7: Cumulative Developments
4. The proposed development is allocated in the adopted Kirklees Local Plan (2019) as a housing allocation Site Reference: HS11. The site is a mixture of privately and Council owned land with the Council owned element not currently progressing for development. The Bradley Villa Farm phase of the proposed development is for circa 275 dwellings.
5. The Council owned element encompasses Bradley Park Golf Course. In 2015 an Extended Phase I Habitat Survey was undertaken of this area (Appendix 8.1). The findings of this survey, and an updated Desk Study (Appendix 8.2) have been used to scope the presence or likely absence of protected or notable species and the significance or value of important ecological features for this part of the allocation site. Further surveys to confirm the baseline and impact assessment are to be undertaken in 2021.
6. The privately owned area includes several fields within Bradley Villa Farm and forms one of the phases of the proposed development. An Extended Phase I Habitat Survey and Desk Study were undertaken in 2020 (Appendix 8.3) these were used to scope the level

¹ Chartered Institute of Ecology and Environmental Management (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.

of survey effort required to determine the presence or likely absence of protected or notable species and the significance or value of important ecological features.

7. This chapter has been prepared by K. Haymes, a Senior Ecologist at Futures Ecology Ltd. and Associate Member of CIEEM, who has over 6 years professional and relevant ecological experience.

Legislation and Planning Policy Context

8. The policy and guidance framework for nature conservation is provided by various national, regional and local planning policies as outlined below, with further details, as necessary, within relevant subsequent sections.

Legislative Framework

9. In addition to the National, Regional and Local policies (discussed below), the following legislation and European Directives afford protection to wildlife and have been used to inform this assessment.
- The Conservation of Habitats & Species Regulations 2017 (as amended)²;
 - The EC Habitats Directive (Directive 92/43/EEC)³ as translated into UK law by The Conservation of Habitat and Species Regulations 2017 (as amended);
 - The EC Birds Directive (Directive 79/409/EEC)⁴; as translated into UK law by The Conservation of Habitat and Species Regulations 2017 (as amended);
 - Wildlife and Countryside Act 1981 (as amended) (WCA) ⁵;
 - Natural Environment and Rural Communities Act 2006 (NERC) ⁶.
 - The Protection of Badgers Act 1992⁷.

Conservation of Habitats & Species Regulation 2017 (as amended)

10. The Conservation of Habitats & Species Regulation 2017 (as amended) transposes the European Council Directive 92/43/EEC (EC Habitats Directive) into national law. The purpose of this legislation is to provide protection for natural habitats, wild flora and fauna of International importance. A number of species are afforded wide-ranging protection under Schedule 2 of the Regulations.
11. Part 2 of the Regulations affords protection to sites of International importance for habitats or species which rely on these habitats, such as: RAMSAR sites; SAC (special areas of conservation), and SPA (special protection areas). Part 3 of the Regulations provides protection for species (plant and animals) as listed on Schedules 2 and 4 that are considered to be of importance. Part 5 of the Regulations provides a mechanism by which

² HMSO. The Conservation of Habitats and Species Regulations 2017 (as amended) - No.1012

³ EC (1992) Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora (The EC Habitats Directive).

⁴ EC (1979), Council Directive 79/409/EEC on the Conservation of wild birds (EC Birds Directive).

⁵ HMSO. The Wildlife and Countryside Act 1981 (as amended).

⁶ HMSO. (2006), Natural Environment and Rural Communities Act.

⁷ HMSO. The Protection of Badgers Act 1992 (as amended).

a licence can be obtained for operations that would otherwise be unlawful under the Regulations.

The Wildlife and Countryside Act 1981 (as amended)

12. The Wildlife and Countryside Act 1981 (as amended) provides special protection of selected species. Under Section 1(1) and 1(2), all British bird species, their nests and eggs (excluding some pest and game species) are protected from intentional killing, injury or damage. Under Sections 1(4) and 1(5), special penalties are applied to bird species included in Schedule 1 of the Act and protection is extended for these species to disturbance whilst building, in or near a nest and disturbance to dependent young. Schedule 5 provides special protection to animal species other than birds, through paragraph 9(4) of the Act, against damage to “any structure or place which any wild animal (included in the schedule) uses for shelter and protection” and against disturbance whilst in such places. The Countryside and Rights of Way Act 2000⁸ (CRoW Act) amends Section 1(5) of the Wildlife and Countryside Act 1981 by introducing a new offence of “reckless” disturbance to protected wildlife and making certain offences punishable by imprisonment.
13. Invasive plant species such as Japanese knotweed *Reynoutria japonica* are covered under Schedule 9 of the Act, which makes it illegal to spread any part of a listed plant. Part 2 of the Act provides protection for areas of the countryside recognised for their nature conservation or geological value, including Sites of Special Scientific Interest (SSSIs) and National Parks.

Natural Environment and Rural Communities Act 2006

14. The NERC Act provides protection for habitats or species that are considered to be of principal importance to biodiversity. The legislation requires public authorities, including local planning authorities, to conserve biodiversity when exercising their functions. A list of habitats/species of principal importance, based on the former UK Biodiversity Action Plan (BAP) lists of priority habitats and species, have been produced by the Secretary of State in consultation with Natural England. The Habitats of Principal Importance (HPI) and Species of Principal Importance (SPI) of relevance to the Site are detailed in Table 8.1 below:

Table 8.1: Relevant HPI and SPI	
Relevant Habitats of Principal Importance	Relevant Species of Principal Importance
Lowland Mixed Deciduous Woodland Ponds Hedgerows	White-clawed crayfish <i>Austropotamobius pallipes</i> Great crested newt <i>Triturus cristatus</i> Common toad <i>Bufo bufo</i> Hedgehog <i>Erinaceus europaeus</i> Brown long-eared bat <i>Plecotus auritus</i> Noctule bat <i>Nyctalus noctula</i>

⁸ HMSO. Countryside and Rights of Way Act 2000.

	Soprano pipistrelle bat <i>Pipistrellus pygmaeus</i> House sparrow <i>Passer domesticus</i> Linnet <i>Linaria cannabina</i>
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The Protection of Badgers Act 1992

15. The Protection of Badgers Act 1992 provides protection to badgers and their setts. This legislation is primarily concerned with animal welfare issues and the need to protect badgers from activities such as baiting and deliberate harm. The Act makes it an offence to:

- Wilfully kill, injure, take, possess or cruelly ill-treat a badger *Meles meles*, or attempt to do so; and
- To intentionally or recklessly interfere with a sett (this includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it).

National Policy Context

National Planning Policy Framework

16. The latest National Planning Policy Framework (NPPF)⁹ sets out the Government's planning policies for England and how these are expected to be applied within the planning system. It provides a framework for local councils to produce local plans and determine planning applications in order to achieve more sustainable developments. Planning applications should aim to confirm to principles set out within this framework, which should be reflected at a local level in local development frameworks and other planning policy documents for that local area. Section 15 (paragraphs 170 – 177) is of relevance to this assessment: Conserving and Enhancing the Natural Environment.
17. The ecological assessment has been guided by the requirements of the NPPF by ensuring that the determining authority is in receipt of adequate information to be able to make an informed assessment of the proposed scheme against National and Local planning policies regarding biodiversity.
18. Although the UK Biodiversity Action Plan (BAP) has now been superseded by the UK Post-2010 Biodiversity Framework¹⁰ and Biodiversity 2020¹¹ the former UK Biodiversity Action Plan (BAP) lists of priority habitats and species continue to be regarded as conservation priorities under the Framework, and they have been used to compile the statutory lists of priority species and habitats as required under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (also referred to as Habitats and Species of Principal Importance). Whilst different planning authorities across the country are likely to take differing approaches with regard to delivery of biodiversity within their areas, Local BAPs remain a key element for securing the requirements of the NPPF at a local level,

⁹ Ministry of Housing, Communities and Local Government (2019). National Planning Policy Framework. London

¹⁰ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group) (2012) UK Post-2010 Biodiversity Framework. July 2012.

¹¹ DEFRA (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem services.

consequently this assessment has taken due consideration of the priority habitats and species within the Calderdale BAP.

Local Policy Context

Local Biodiversity Action Plan

19. Consideration is given to the Local Biodiversity Action Plan (LBAP), which for this Site is the Kirklees Biodiversity Action Plan¹². The Plan includes habitats and species which Kirklees Council have identified that require safeguarding and enhancing through conservation measures.
20. The Habitat and Species Action Plans of relevance to the Site are detailed in Table 8.2 below.

Table 8.2: Relevant LBAP Action plans	
Relevant Habitat Action Plans	Relevant Species Action Plans
Lowland Deciduous and Other Woodland Hedgerows Ponds	White-clawed crayfish Great crested newt Common toad Hedgehog Brown long-eared bat Noctule bat Soprano pipistrelle bat Dunnock <i>Prunella modularis</i> House sparrow Linnet Starling <i>Sturnus vulgaris</i>

Local Planning Policy

21. Within Kirklees all planning decisions are based on the Kirklees Local Plan, which was adopted in February 2019¹³. The key local policy concerned with ecology is Policy LP30 which states;

Development proposals will be required to:-

- result in no significant loss or harm to biodiversity in Kirklees through avoidance, adequate mitigation or, as a last resort, compensatory measures secured through the establishment of a legally binding agreement;*
- minimise impact on biodiversity and provide net biodiversity gains through good design by incorporating biodiversity enhancements and habitat creation where opportunities exist;*

¹² <https://www.naturalkirklees.org/resources/kirklees-biodiversity-action-plan/>

¹³ <https://www.kirklees.gov.uk/beta/planning-policy/pdf/local-plan-strategy-and-policies.pdf>

- *safeguard and enhance the function and connectivity of the Kirklees Wildlife Habitat Network at a local and wider landscape-scale unless the loss of the site and its functional role within the network can be fully maintained or compensated for in the long term;*
- *establish additional ecological links to the Kirklees Wildlife Habitat Network where opportunities exist; and*
- *incorporate biodiversity enhancement measures to reflect the priority habitats and species identified for the relevant Kirklees Biodiversity Opportunity Zone.*

Other Guidance

Birds of Conservation Concern

22. Leading governmental and non-governmental conservation organisations in the UK have reviewed the population status of 244 bird species regularly found in Britain and have produced: Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man.
23. Birds are placed into one of three lists - red, amber or green and although these listings offer no further legal protection, they are meant to guide conservation action for the individual species. The listings reflect an individual species' global and European conservation status as well as that within the UK and additionally measure the importance of the UK population in international terms.

Methodology

Scope of Assessment

Assessment Approach

24. This assessment has been undertaken in accordance with The Guidelines for Ecological Impact Assessment (EclA) in the United Kingdom published in 2018 by the Chartered Institute of Ecology and Environmental Management (CIEEM)¹⁴. Baseline information and potential impacts have been quantified as far as practical to inform the assessment, supported by professional judgement and experience as appropriate. Where uncertainties exist, a precautionary approach has been adopted and a 'worse case' scenario approach assumed for the purposes of assessing impacts and recommending mitigation.

¹⁴ 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.

25. The significance of ecological impacts in relation to a proposal can be considered in relation to the importance of affected ecological features and the predicted magnitude of impact upon them.
26. The main source of information for this assessment are:
- Biological records (obtained from the relevant Local Biological Records centre and local interest groups);
 - Online sources of Ecological Data;
 - Review of legislation and land-use policies;
 - Field surveys.

Zone of Influence

27. The CIEEM guidelines require the identification of a 'zone of influence' (Zol) within which the ecological features that may be affected by the proposed scheme can be identified. This will identify the potential impact of the development not just to the Site but also beyond the boundaries of the proposed scheme.
28. The Zol is determined by the source / type of impact, a potential pathway for that impact and the location and sensitivity of the important ecological feature beyond the boundary. For the majority of impacts identified as part of the proposed scheme, the Zol is generally considered as the application site and immediately surrounding areas.
29. The Zol can also vary considerably depending upon the species potentially affected by the proposed scheme. For example, some species may be confined to a specific location whilst others, such as bats and birds are more mobile and can occupy much larger home ranges. The presence of dispersal barriers can also have an effect on the Zol such as roads or rivers which may either reduce the potential of animals crossing them or could cause a potential means of killing or injury. As such, this could isolate areas of potentially suitable habitat within the proposed scheme due to fragmentation. In each case this is considered the nature and scale of the proposed scheme, informed by best practice guidance and professional judgement.
30. Specific study areas were identified for the desk study and field surveys to inform the valuation of ecological features and the selection of 'key' ecological features material to the assessment.

Desk Study

31. In order to compile existing baseline information, relevant ecological information was requested and received from West Yorkshire Ecology Service (WYES) in April 2020, including records of protected or notable species and sites of designated for nature conservation interest.

32. Online sources of ecological data were also sought from the Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic.gov.uk).
33. Further inspection, using colour 1:25,000 OS base maps (www.ordancesurvey.co.uk) and aerial photographs from Google Earth (www.maps.google.co.uk), was also undertaken in order to provide additional context and identify any features of potential importance for nature conservation in the wider countryside.
34. The search area varied depending upon the likely significance and Zol of the data requested, as follows:
- A minimum of a 10km radius around the site was searched for sites with an international statutory designation: Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar sites;
 - A minimum of a 2km radius around the site for sites of national/regional or local importance with a statutory designation: Site of Special Scientific Importance (SSSI), National Nature Reserve (NNR) or Local Nature Reserve (LNR), or non-statutory designation of Site of Importance for Nature Conservation (SINC); and
 - 1km search area for records of notable / protected species, including Species of Principal Importance under S41 of the Natural Environment and Rural Communities Act (NERC) 2006 and local biodiversity action plan species.
35. Further consideration of potential Zols in relation to statutory designated sites of International and National importance. This was through Natural England's SSSI Impact Risk Zone Tool¹⁵ which outlines the likely zone of influence from impacts from a range of development types. Full details of the desk study can be found in Appendix 8.2.

Field Survey

36. The Extended Phase 1 Habitat survey of Bradley Park Golf Course was undertaken on 15th and 21st December 2015. Updated ecological surveys will be undertaken in 2021, the results of which will be incorporated into an addendum report.
37. The surveys at Bradley Villa Farm were based upon current guidance with reference made to the CIEEM Guidelines for Ecological Impact Assessment (EclA) in the United Kingdom (2018). These guidelines aim to give a degree of consistency in approach to evaluating the importance of the ecological features within the site and any effects or impacts a scheme will have upon them.
38. As a result of an Extended Phase I Habitat Survey undertaken on 24th March 2020 (Appendix 8.3), in accordance with guidance, further detailed surveys were undertaken to assess the likely presence, or otherwise, of protected species including badgers, bats and the assemblage of breeding birds.
39. Where available all surveys were undertaken following methodologies published in guidelines accepted by statutory and non-statutory agencies, including Natural England

¹⁵ <https://data.gov.uk/dataset/5ae2af0c-1363-4d40-9d1a-e5a1381449f8/sssi-impact-risk-zones>

and CIEEM. Details of the surveys undertaken, the methodologies used and full results are included in the appendices to this chapter, they comprise;

- Appendix 8.3: Bradley Villa Farm Ecological Impact Assessment
- Appendix 8.4: Bradley Villa Farm Bat Report
- Appendix 8.5: Bradley Villa Farm Breeding Bird Report
- Appendix 8.6: Bradley Villa Farm Confidential Badger Report

Assessment Methodology

40. The impact assessment for ecology has been carried out using guidance from CIEEM, 2018. The impact assessment process involves:
- Identifying and characterising impacts;
 - Incorporating measures to avoid and mitigate (reduce) these impacts;
 - Assessing the significance of any residual effects after mitigation; and
 - Identifying appropriate compensation & enhancement measures to offset significant residual effects.
41. The starting point for the assessment of impacts is to determine the importance of ecological features and as such, which should be subject to detailed assessment. Ecological features can be important for a variety of reasons, for examples, the quality of designated sites or habitats, habitat / species rarity, or their rate of decline (CIEEM, 2018).

Determining Importance

42. CIEEM have identified various characteristics that can be used to identify ecological features or features likely to be important in terms of biodiversity. These include:
- Animal or plant species that are rare or uncommon, either internationally, nationally or more locally;
 - Ecosystems and their component parts, which provide the habitats required by the above species, populations and / or assemblages;
 - Endemic species or locally distinct sub-populations of a species;
 - Habitat diversity, connectivity and or / synergistic associations (e.g. networks of hedgerows and areas of species-rich pasture that provide important feeding habitat for a rare species such as greater horseshoe bat);
 - Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
 - Plant communities (and their associated animals) that are considered to be typical valued natural / semi-natural vegetation types – these will include examples of natural species-poor communities;
 - Species on the edge on their range, particularly where their distribution is changing as a result of global trends and climate change;
 - Species-rich assemblages of plants and animals; and
 - Typical faunal assemblages that are characteristic of homogenous habitats.
43. Once an ecological feature has been identified as being important, guidelines promote the use of characterising this feature with the relevant geographic frame of reference. This allows the scale of significance of effects to be presented in a meaningful way and provides

a focus of maintaining a feature at an appropriate scale. The known or potential value of an ecological feature within this assessment will be considered within the following geographical context:

- International (European)
- National (United Kingdom)
- Regional (North England)
- County (West Yorkshire)
- District (Kirklees Council)
- Local (Bradley)

44. If an ecological feature is not considered to be important, the proposed scheme is not anticipated to have an effect that would be of relevance to the decision maker in terms of the EIA Regulations and these features are not considered further within the assessment. Exceptions to this would be if the species, population or habitat in question was identified as having a high social or economic value or if they are afforded legal protection (e.g. Badgers). While the assessment does include protected species that receive statutory protection and are of material consideration at the local level, the presence of such a species does not necessarily infer value in relation to the proposed scheme but only to the level of protection it receives.
45. As such, the value of the proposed scheme for protected species is considered by the specific ecological feature, taking into account the level of activity, the level of protection it receives and the overall value of habitat to that species within the Site.

Determining Impacts and Effects

46. The CIEEM guidelines, define an impact as an influence on an ecological feature. The effect is the outcome of the influence on the ecological feature. As part of the EcIA it is important to assess whether or not an impact is defined as an effect (negative or positive) on the integrity of a defined site or ecosystem and / or the conservation status of a habitat or species within a given geographical area (CIEEM, 2018).
47. Impacts should be identified and understood to be able to determine their likely effect (consequence) of that impact in relation to the ecological feature.
48. As part of the process of determining whether there is likely to be an effect on the status of an ecological feature, the following questions are considered:
- Will any site / ecosystem process be removed or changed?
 - What will be the effect on the nature, extent, structure and function of component habitats?
 - What will be the effect on the average population size and viability of the component species?

49. A description of parameters that are considered when assessing the degree and type of change are detailed in Table 8.3 below.

Table 8.3: Parameters used to describe effects	
Parameter for describing impacts on ecological structure and function	Definition of the parameter
Positive or Negative	Whether the impact has a positive or negative effect
Extent	The area of which the effect occurs
Magnitude	The size or amount of an effect
Duration	The time for which the effect is predicted to last prior to recovery or replacement of the resource or feature
Reversibility	Whether the effect is permanent (i.e. irreversible) or temporary (i.e. reversible)
Timing and Frequency	How often the effect occurs (e.g. repeated noise from piling work) and when it occurs (e.g. vegetation clearance undertaken outside of the bird breeding season).

50. With reference to the duration of an ecological impact, in addition to other uses, for the purposes of the assessment Table 8.4 defines the timeframes used within the chapter:

Table 8.4: Definition of timeframes	
Term	Definition within this assessment
Short term	1-5 years
Medium term	6-15 years
Long term	16-60 years

51. In addition to considering the effect on the ecological feature an assessment of significance of the residual effect (for the type / nature of change), is provided in Table 5, within the Significance Criteria section below.

Mitigation, Compensation and Enhancement

52. For the purpose of the EcIA, impacts on ecological features are generally assessed without mitigation in place. Although in some situations it is impossible to separate the mitigation as this is embedded into the scheme, in these situations it will be acknowledged and just the residual effects considered.
53. In line with current CIEEM guidelines, a sequential process, known as the 'mitigation hierarchy' should be adopted on negative ecological impacts and effects. This involves:

- Avoid negative ecological effects;
- Reduce negative effects that cannot be avoided (mitigate); and
- Compensate for any remaining significant ecological effects.

Cumulative Effects

54. Consideration of cumulative effects considered the potential effects associated with other relevant development schemes in the vicinity.

Assumptions and Limitations

55. This document is based on the assumption that the 2015 Extended Phase 1 Habitat Survey of Bradley Park Golf Course and an updated Desk Study are adequate to inform a baseline for the impact assessment. Where there are gaps in the data, this is stated in the document.
56. An updated Extended Phase 1 Habitat Survey and series of protected species surveys are to be undertaken in 2021. The results of these surveys will be included within an Addendum Report, with updated impact assessments made for relevant important ecological features.

Significance Criteria

Table 8.5: Classification of the significance of the Effects	
Impact Classification	Explanation
Significant Negative Effect	Likely to create a significant negative effect, including loss, or long-term or irreversible damage on the status of the ecological feature.
Not Significant Negative Effect	Likely to create a negative effect without causing long-term or irreversible damage to the status of ecological feature.
Neutral	Effects are either absent or such that no overall net change to the ecological feature.
Not Significant Positive Effect	Likely to create a positive effect on an ecological feature, or providing a new lower value ecological feature without improving its conservation status.
Significant Positive Effect	The activity is likely to create a significant positive effect, including long-term enhancement and favourable conditions for an existing ecological feature.

57. Once an effect is considered to be significant then the scale of effect is assessed on a geographical scale (i.e. international, national, regional, district etc.). For example, the effect may not be significant at a district scale, but significant at a more local scale. It is important to note that effects on many features will need to be considered at more than one geographical scale.

Baseline Conditions

58. The following section sets out the ecological baseline conditions of the site, that exist in the absence of proposed activities. It presents the summary of findings from the desk study and field surveys. Full detailed descriptions of the ecological baseline conditions can be found within Appendices (8.1-8.6) which accompany this chapter, including detailed figures.

Statutory and Non-statutory Designated Sites

59. Appendix 8.2 provides the detailed results of the desk study which identifies the location of statutory and non-statutory designated sites in the stated zones of influence. The location of all Statutory and Non-statutory sites can be found on Figure 1 within Appendix 8.2.
60. No statutory designated sites of international, national or regional importance were identified within the relevant Zones of Influence.
61. Three non-statutory designated site of nature conservation importance are located within 1km of site. These sites qualify as Local Wildlife Sites (LWS) within West Yorkshire as they support priority biodiversity features and have an intrinsic wildlife value. Bradley Park Woods LWS comprises two small areas of more extensive woodland within Bradley Park Golf Course, which qualify as a LWS due to the bluebell *Hyacinthoides non-scripta* coverage. The two designated areas border the allocation site to the north and the south-east. Clifton Lagoon LWS/SEGI is located 580m north-east of site and is designated for its mosaic of habitats. Sir John Ramsden Canal LWS is located 950m SE of site and is designated for open water habitats with high wildlife value. These sites are considered of importance at a **Local** level.
62. Three sections of woodland within site are mapped under The Kirklees Wildlife Habitat Network. The Wildlife Habitat Network provides a landscape scale approach to the creation, protection, enhancement and management of networks of biodiversity and green infrastructure and is of value at a **County** scale.
63. Various areas of woodland in the surrounding area are classified as ancient woodland. Dyson / Screamer Woods (70m south), Bradley Wood (120m north), Upper Fell Greave (395m south-west) and Clifton Wood (590m east) are classified as ancient, replanted woodland. Lower Fell Greave, located 415m south of site is classified as ancient & semi-natural woodland. These woodlands are considered to be of value at a **County** scale.

Habitats

64. The locations of the habitats described in the following sections can be found on the Phase 1 Habitat Map for all accessible land within Appendix 8.1 and Figure 2 within Appendix 8.3, whilst full details of all habitats present are provided in the body of Appendices 8.1 and 8.3. The findings are summarised in the following paragraphs.

Semi-natural Broadleaved Woodland

65. The land to the north of the Allocated Area is characterised by an embankment covered in semi-natural woodland. This habitat predominantly lies adjacent to the site, with only a small amount falling within the Allocated Area boundaries. The trees within this habitat range up to approximately 150 years of age and show a mixed aged stand. These areas of semi-natural broadleaved woodland recorded within the site would likely be considered as Lowland Mixed Deciduous Woodland Habitat of Principal Importance as listed on Schedule 41 of the NERC Act (2006) as the canopies are composed predominately of native trees; with the ground flora containing a good diversity of species typically associated with established semi-natural woodland. Native Woodland, specifically Lowland Mixed Deciduous, is also a priority habitat under the Kirklees Biodiversity Action Plan. These habitats are of value at a **County** scale.

Mixed Plantation Woodland

66. An abundance of mixed plantation woodland occurs within Bradley Park Golf Course and primarily occur as east to west strips of trees adjacent to fairways. Species composition within these plantations is dominated by broadleaved trees with a small number of conifers mixed in. The understory is relatively open without a definitive shrub layer and basal flora is largely restricted to plantation edges. As a result, this habitat would not be considered a Habitat of Principle Importance. However, three of the woodland strips are mapped under the Kirklees WHN and the habitat offers potential corridors for birds, small mammals including bats, amphibians and invertebrates to disperse through the site. It would therefore be of value at a **Local** scale.

Coniferous Plantation Woodland

67. This habitat is relatively limited within the Allocated Area and occurs as a block of Scots pine adjacent to the north-west corner of Bradley Park Golf Course and as a number of Leyland cypress *Cupressus x leylandii* windbreaks scattered around the site. This habitat did not have any notable understory or basal flora associated with it and would therefore not be considered an IEF.

Standing Water

68. Pond P1 was an ARK site for White-clawed crayfish, with crayfish added to it in 2011. Assuming this species is still present within the pond, P1 would be classified as a HPI under the NERC Act and Kirklees BAP. Pond P2 was a rectangular pond at the north-eastern end of the golf course; it is situated adjacent to a green and acts as a recreational golf course feature. This was dominated by the Schedule 9 species Canadian pondweed *Elodea canadensis*. Pond P3 was a teardrop shaped pond at the north-eastern end of the golf course. This pond lies in conjunction with a ditch which runs through the golf course and into the pond. It is situated in a depression and acts as anaesthetic golf course feature as well as to aid drainage.

69. The three waterbodies recorded within the site provide suitable habitat for a variety of species and add to the overall habitat diversity of the site and would be of importance at a **Local** scale.

Running Water

70. A number of drainage ditches occur within Bradley Park Golf Course, which range between dry and partially running water. Given the water levels at the time of survey, they are likely to dry up during the summer months. The drainage ditches are all approximately 1-2 metres in width and 50cm to 1m in depth. Vegetation communities associated with the ditches are suggestive of sudden water inundation followed by long periods of dry weather. Although the ditches provide some value for wildlife, this would be limited given the fluctuating water levels. The ditches would be considered of importance on a Site level only and will therefore not be considered further within this impact assessment.

Hedgerows

71. Severn hedgerows were present within Bradley Villa Farm. None of the hedgerows are considered important under the wildlife and landscape criteria of the Hedgerow Regulations 1997. Under the HEGS assessment H5 was considered the most valuable in terms of conservation value scoring -2 which is towards the lower end of moderately high conservation value, which is primarily due to it being connected to other hedgerows and woodland. H1, H2, H4, H6 and H7 were assessed as having moderate conservation value with H3 assessed as having low conservation value. With the exception of H2, the hedgerows comprised greater than 80% native UK species and, as such, are considered to represent Habitats of Principal Importance.
72. There were several intact hedgerows within Bradley Park Golf Course. The species composition was poor and dominated by hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa*, elder *Sambucus nigra* and dog rose *Rosa canina*. It is likely that they comprise greater than 80% native UK species, which would classify them as HPI. There is no Regs or HEGs assessment information available for these hedgerows.
73. Given the above and that there is a significant hedgerow resource across the UK, the hedgerow resource recorded within the site would be considered to be of value at a **Local** scale.

Mature Trees

74. The mature, free standing trees recorded across the site provide potential habitats for invertebrates, nesting birds and other local wildlife in addition to providing structural diversity and continuity of habitat. Mature trees would be considered to be of value at a **Local** scale.

Other Habitats

75. As outlined in Appendix 8.1 and Appendix 8.3, the hardstanding, buildings, improved grassland, introduced shrub, amenity grassland and bare ground were considered to be of negligible nature conservation value and no rare or notable plant species were confirmed in these habitat types. Consequently, these habitats are not considered important ecological features in the context of the scheme and are not subject to detailed assessment.

Schedule 9 Species

76. Several non-native invasive species were noted within Bradley Park Golf Course (Appendix 8.1), including Himalayan balsam *Impatiens glandulifera* (Target Note 1), Japanese knotweed *Reynoutria japonica* (Target Note 3), Cotoneaster sp., (Target Note 4), Rhododendron sp. (Target Note 5), and Canadian pondweed (Target Note 6). These species are included on Schedule 9 of the Wildlife and Countryside Act 1981 and are not considered to be an IEF in the context of this assessment but will be subject to further consideration due to their legislative significance.

Protected and Notable Species

77. The desk study returned a list of species records from within 2km of the site's central grid reference. The results were filtered to those from the last 20 years, occurring within the site or within 1km of the site boundary and to protected or notable species that are considered to be pertinent. For full details of the results provided refer to Appendix 8.2: Desk Study Report.

White-clawed Crayfish

78. Pond P1 was selected as an ARK site to relocate white-clawed crayfish to, in an attempt to save the population that exists in Kirklees, following population collapse in Huddersfield Narrow Canal due to the presence of invasive signal crayfish *Pacifastacus leniusculus*. In 2011 a number of white-clawed crayfish were introduced to P1 as part of the conservation programme. Monitoring surveys in 2014, undertaken by Sita and the Environmental Alliance found the population to have survived.
79. In order to comply with the requirements of the Natural England guidance, a full presence or likely absence survey, must be undertaken in 2021. Crayfish surveys are best carried out during the period July to October, the peak time of activity and minimal disturbance. This will be conducted by a crayfish licence holder and will involve searching refugia across the bed of the pond and carrying out torchlight surveys during the night.
80. Without the results of recent presence / likely absence surveys, it is assumed that white-clawed crayfish are present within P1, which are considered important at a **County** scale.

Badgers

81. The value of the habitats within the site for badgers is not considered to be an important ecological feature in the context of this assessment but will be subject to further consideration due to the presence of setts and the legal protection afforded to them.

Bats

82. Thirty-three records of common pipistrelle, soprano pipistrelle, a *Myotis* species, noctule, Leisler's, brown long-eared, a *Pipistrellus* species and an unknown bat species were returned from within the search area.
83. Appendix 8.4: Bat Report, provides full details of the bat surveys undertaken at Bradley Villa Farm. To summarise, no bat roosts were confirmed within the onsite trees, however T1, T2, T3 and T4 do provide Moderate bat roosting potential. The bat activity surveys found that part of the site to be utilised by a low number of common and widespread, generalist bat species. Boundary features, namely hedgerows and mature trees, were of most value for commuting, foraging and roosting. The importance of this part of the site to generalist bat species is considered to be of relevance at a **Local** scale.
84. The preliminary assessment of the wider allocation site found that habitats, such as woodland, plantation, hedgerows and ponds would provide opportunities for the local bat population to forage and commute through the wider landscape. Given the results of the Bradley Villa Farm activity surveys, and the data provided by consultees of bat species recorded in the area, it is assumed that the site will support common and widespread bat species. It is considered that the assemblage will reflect the woodland habitat within the site, with larger numbers of woodland specialists, such as *Myotis* species and brown long-eared bats, in addition to the generalist bat species identified within the western section of the allocation site. Activity surveys, comprising walked transects and static bat detectors will be undertaken in 2021 to confirm the baseline.
85. There were a number of structures within Bradley Park Golf Course that provide bat roosting potential, including trees and buildings. A mature ash tree (Target Note 2 in Appendix 8.1) contained numerous cavities and knot holes, providing bat roosting potential. The various buildings within site also provided opportunities for roosting bats. B1 (Clubhouse) B4, B5 and B6 (Storage buildings) were classified as providing Moderate bat roosting potential. B2 (Pro Shop) and B3 (Driving Range) were classified as providing Low bat roosting potential. Re-assessment of the affected structures is required in 2021, with the necessary nocturnal surveys to ascertain the presence / likely absence of bat roosts to be completed in spring/summer (May to August) period.
86. For the purposes of this assessment, it is assumed that the buildings could support several low status roosts of common / widespread bat species. From the information available, site would be considered important at a **Local** scale for bat populations given the roosting, foraging and commuting opportunities available. However, if during the 2021 detailed surveys a more substantial roost is found / a rare bat species is identified utilising site, a revised impact assessment would be required of this altered baseline.

Birds

87. A Breeding Bird Assessment was undertaken between May and June 2020 at Bradley Villa Farm, the results of which are within Appendix 8.5: Bird Survey Report. A summary is provided below.
88. The small arable fields and hedgerows, all within an urban edge environment, in the site can be found relatively commonly throughout West Yorkshire and Kirklees. Despite this, the site still supports a couple of species of conservation concern, albeit in very low numbers. It is considered that the breeding bird community within the site is not diverse enough to be classed as anything other than of Low Ornithological Value for its Breeding Bird Community and would be considered of relevance at a **Local** scale.
89. During the Extended Phase 1 Survey of Bradley Park Golf Course, a wide diversity of bird species and communities were recorded, particularly communities associated with woodland. Due to the time of the year in which the survey was undertaken it is not possible to determine the breeding bird assemblages which are present on site. However, site was considered not to be of significant value to wintering birds such as wildfowl, waders or passerines.
90. From the information available and given the number of woodland parcels within the surrounding area, site would be considered important at a **Local** scale for breeding bird populations, given the nesting and foraging opportunities available. However, if during the 2021 detailed breeding bird surveys, the breeding bird community is found to be of higher ornithological value, a revised impact assessment would be required of this altered baseline.

Great Crested Newt (GCN)

91. No records of GCN occur within 2km of the Allocated Area. The Extended Phase 1 Habitat Survey found that the terrestrial habitat within Bradley Park Golf Course is excellent for GCN as it provides daytime refugia, foraging areas, hibernation areas and dispersal route ways. The three onsite ponds were given Good to Excellent HSI scores and would be suitable to support breeding newts.
92. An eDNA survey was undertaken on pond P1 on 26th June 2020 (Appendix 8.2). Two samples were taken, one from the eastern half and one from the western half. The result for the western part of P1 was negative and the result for the eastern part was indeterminate with evidence of degradation. This suggests that GCN are likely absent from P1, however surveys of the other onsite ponds have not been conducted/
93. In order to comply with the requirements of the latest Natural England guidance, full presence or likely absence surveys comprising four survey visits to the Allocated Area during the period mid-March to mid-June, with at least two visits during the period between

mid-April to mid-May must be undertaken on all watercourses within 500m of the Allocated Area in 2021.

94. Without full GCN survey data, it is unknown whether GCN are present or likely absent within the Allocation Area. However, given the habitats onsite, for the purpose of further assessment, GCN are assumed present and are considered important at a **District** scale.

Hedgehog

95. No records of hedgehog *Erinaceus europaeus* were returned from the search area. However, the site is suitable to support this NERC listed species of principal importance and the hedgerows and areas of woodland provide excellent habitat and connectivity. It is assumed that hedgehog are present within the site, therefore they are considered important at a **Local** scale.

Common Toad

96. Several records of common toad were returned from within 1km of the site. The site has suitable aquatic and terrestrial habitat for this NERC listed species of principal importance. Common toad are included within Kirklees BAP and are considered to be important at a **Local** scale.

Otter

97. Otter *Lutra lutra* have been scoped out of this impact assessment, for further information see Appendix 4.1: Extended Phase 1 Habitat Survey, January 2016.

Reptiles

98. Reptile species have been scoped out of this impact assessment, for further information see Appendix 8.1: Extended Phase 1 Habitat Survey, January 2016.

Invertebrates

99. A single record of wall butterfly *Lasiommata megera* was returned from within the site. This species is not included in the current Kirklees Biodiversity Action Plan as it is thought to be fairly widespread in the district¹⁶. It is therefore scoped out of the impact assessment.

Nature Conservation Evaluation

100. Table 8.6 provides a summary of the ecological features that this assessment has determined as requiring detailed assessment. As previously discussed, it is only ecological features that are considered to be of importance that require detailed assessment.

¹⁶ <https://www.kirklees.gov.uk/beta/delivering-services/pdf/biodiversity-species.pdf>

Table 8.6: Important Ecological Features	
Ecological Feature	Ecological Frame of Reference
Bradley Park Wood LWS	Local
Clifton Lagoon LWS	Local
Sir John Ramsden Canal LWS	Local
Kirklees Wildlife Habitat Network	County
Ancient Woodland; Dyson / Screamer Woods Bradley Wood, Upper Fell Greave, Clifton Wood, Lower Fell Greave	County
Semi-natural Broadleaved Woodland	County
Mixed Plantation Woodland	Local
Standing Water	Local
Hedgerows	Local
Mature Trees	Local
Schedule 9 plant species	N/A
White-clawed crayfish	County
Badger	N/A
Bat species	Local
Birds species	Local
Great crested newt	District
Hedgehog	Local
Common toad	Local

Assessment of Impact

101. The proposed development is allocated in the adopted Kirklees Local Plan (2019) as a housing allocation Site Reference: HS11. The proposed masterplan for the full allocation comprises a mix of residential housing, 2 form Primary School, public amenity spaces, sports and recreational facilities and retention of 9 Holes of the original Golf Course with additional Driving Range and two 3G pitches. A 5km walking / running route has also been incorporated within the design.

102. Potential impacts prior to mitigation include:

- Direct loss of habitats and associated flora and fauna within the site boundaries, interruption of wildlife corridors, decrease in value to wildlife through reduction in species and/or habitats;
- Indirect impacts on retained vegetation within and bordering the site through increase in noise and disturbance and through local changes in drainage;
- Potential impacts upon protected and notable species through disturbance.

Bradley Park Wood LWS

103. Proposals have sought to buffer the adjacent LWS with areas of green space. However, there are potential impacts during the construction phase, such as damage to retained woodland through soil compaction, increased dust or pollution events. This could cause a temporary to permanent adverse impact, potentially leading to damage / degradation of habitats and the killing of trees. The proposed development could also lead to altered lighting of the habitat, leading to a permanent adverse effect upon dependant fauna, namely crepuscular and nocturnal species, during the operational phase. In addition, there is likely to be an increase in recreational pressure and fly-tipping within the LWS. This could result in a temporary reduction in value, which could become a permanent effect if it leads to habitat loss. These could lead to a significant adverse effect at a **Local** scale.

Clifton Lagoon LWS

104. Clifton Lagoon LWS is located 580m north-east of site, on the opposite bank of the River Calder, therefore no direct impacts are anticipated during the construction phase. Although the LWS is publicly accessible via a number of permissive footpaths, impacts from an increase in visitors is considered imperceptible given the number of alternative public footpaths in close proximity to the site.

Sir John Ramsden Canal LWS

105. Sir John Ramsden Canal is located 950m south-east. Given the intervening distance between the LWS and the Allocation Area no construction phase or operational phase impacts are expected.

Kirklees Wildlife Habitat Network (WHN)

106. The habitats mapped under the Kirklees WHN are to be retained. There are potential working-phase impacts upon these retained habitats, including direct damage from machinery and indirect damage from pollution / dust deposition during the construction phase. In the absence of mitigation, these impacts could result in damage to vegetation and potentially affect associated fauna. Where impacts are severe, some species may disperse from affected areas in the short-term. This would result in a significant adverse effect at a **Local** level and a not-significant adverse effect at a **County** scale.

Ancient Woodland; Dyson / Screamer Woods, Bradley Wood, Upper Fell Greave, Clifton Wood, Lower Fell Greave

107. The proposals would likely result in increased recreational pressure and fly-tipping at Bradley Wood, Upper Fell Greave, Dyson / Screamer Wood and Lower Fell Greave during the operational phase. This could lead to a temporary reduction in value, which could become a permanent effect if it leads to habitat loss. This is considered a significant adverse effect at **Local** level, and a not significant adverse effect at **County** level.

Semi-natural Broadleaved Woodland

108. The masterplan has sought to retain all semi-natural broadleaved woodland habitats within the site. However, direct damage, soil compaction or pollution of these habitats during the construction phase, could negatively impact these habitats in the absence of mitigation in the short-term. This would result in a significant adverse effect at a **Local** level and a not-significant adverse effect at a **County** scale.

Mixed Plantation Woodland

109. The mixed plantation woodland has been retained within the masterplan, where feasible. However, approximately 2.5 ha of mixed plantation woodland will be lost as a result of the proposals. Prior to compensation this would result in a significant adverse effect at a **Local** level.
110. The retained mixed plantation woodland could also be negatively impacted during the construction phase (as above for semi-natural broadleaved woodland). In the absence of mitigation this could lead to a significant adverse effect at a **Local** level.

Standing Water

111. To facilitate proposals, pond P1 will be permanently lost. This would result in a not-significant adverse effect at a **Local** level. Impacts to potential protected faunal species within the pond is discussed later in this assessment.
112. Ponds P2 and P3 will be retained within the 9-hole golf course, therefore no impacts are expected upon P2 and P3 from the proposals.

Hedgerows

113. The hedgerows within Bradley Villa Farm are being retained within the proposals. The hedgerows within Bradley Golf Course are largely lost to facilitate the proposals, which will equate to a total loss of approximately 0.48km of generally species poor hedgerows. This includes the hedgerows within the first phase of the development (Land off Tithe House Way, approved 04/09/2020 under application ref: 2018/93965), which were considered of site value only due to their poor condition¹⁷. The hedgerow loss would therefore result in a not-significant adverse effect at a **Local** level.
114. The retained hedgerows could also be negatively impacted during the construction phase (as above for semi-natural broadleaved woodland). In the absence of mitigation this could lead to a not-significant adverse effect at a **Local** level.

¹⁷ Tithe House Way, Bradley Park, Ecological Impact Assessment (EcIA) Weddle Landscape Design, November 2018

Mature Trees

115. The mature trees will largely be retained within the scheme, including standards within hedgerows (T1, T2, T3 and T4) and those within the semi-natural broadleaved woodland. Parts of the mixed plantation woodland will be lost to facilitate proposals. Generally, the trees were younger than 60 years old and not considered mature. However, the ash with bat potential within Bradley Golf Course (Target Note 2) will be lost. This would result in a not-significant adverse effect at a **Local** level.
116. The retained mature trees could also be negatively impacted during the construction phase (as above for semi-natural broadleaved woodland). In the absence of mitigation this could lead to a significant adverse effect at a **Local** level.

Schedule 9 plant species

117. There is a risk of spreading a Schedule 9 plant species during the construction and operational phases of the proposed development. This could lead to a breach in legislation.

White-clawed crayfish

118. To facilitate proposals, pond P1 will be permanently lost. This could result in a significant adverse effect at a **County** scale, prior to mitigation, if crayfish are still present within the former ARC site due to killing / injury and habitat loss. There is also a possible breach of legislation through 'taking' during pond removal operations.

Badgers

119. During the construction phase, operations could lead to the killing or injury of badgers, as well as the destruction or disturbance of setts, prior to mitigation. This would be a breach of legislation.

Bat Species

120. Structures with potential to support roosting bats (buildings and trees) are to be removed to facilitate proposals. If roosting bats are present within these structures, a breach of legislation is likely to occur, in the absence of mitigation. This could include the destruction of roost sites and/or the killing / injury of individuals. This could result in a significant adverse effect at a **Local** scale on the local bat population.
121. The areas of most value to foraging and commuting bats have been retained within the design, where feasible, however proposals will result in the loss of 0.48 km of hedgerows, 2.5 ha of mixed plantation woodland and standing water (P1). This will reduce the foraging resource and remove commuting routes for a number of common and widespread bat species, such as common pipistrelle.

122. Impacts on foraging and commuting bats are possible as a result of increased levels of noise and artificial light, particularly along the retained hedgerows and woodland edge. Effects could also result from temporary disturbance of retained potential roost sites, as a result of noise and lighting during construction activities, causing reduced usage or exclusion from the site. These potential impacts would result in a not significant adverse effect at a **Local** scale on the local bat population.

Bird Species

123. The loss of hedgerows, mixed plantation woodland and grassland habitats will have a negative impact upon the local breeding bird population, although this is expected to be not-significant adverse at a **Local** scale given the abundance of other suitable habitat in the vicinity.
124. The construction works also likely to disturb and impact on nesting/breeding birds include the initial ground works, vegetation clearance and construction activities, which will result in noise and vibration and loss of suitable breeding habitat. This could also lead to a breach of legislation as all wild bird species are protected while nesting. Increased activity adjacent to areas where species may breed may also result in disturbance to the species. These potential impacts would result in a not significant adverse effect at a **Local** scale on the local breeding bird population.

Great crested newt (GCN)

125. Loss of potential terrestrial and aquatic (P1) habitats to facilitate the development. Although eDNA surveys suggested that GCN are likely absent from P1, as one of the results was inconclusive, their presence cannot be fully ruled out at this stage. If GCN are present within site, works could result in the killing or injury of individuals, which would be a breach of legislation. This could result in a significant adverse effect at a **District** scale, prior to mitigation.

Hedgehog

126. Loss of potential foraging and nesting habitat to facilitate the development. This permanent loss of suitable habitat could lead to a not significant adverse effect at **Local** level.

Common toad

127. Loss of potential terrestrial and aquatic (P1) habitats to facilitate the development. This could cause some displacement of individuals but would be considered not significant adverse at a **Local** level given the abundant suitable habitat in the wider area, including the retained 9-hole golf course.

Environmental Mitigation Measures / Residual Impact Assessment

128. Table 8.7 below details the residual effects on IEFs once mitigation has been implemented and again once the proposed compensation and enhancement measures within the scheme have been fully implemented.

Table 8.7: Residual effects table

Important Ecological Feature	Potential Impact	Nature of Effect	Mitigation	Residual Effect after Mitigation	Compensation & Enhancement Measures	Residual Effect after Compensation & Enhancement
Bradley Park Wood LWS (Local)	Damage to retained woodland through soil compaction	Temporary to permanent impact potentially leading to damage/ degradation of habitats and killing of trees. Significant adverse effect at Local level.	The maintenance of a minimum of 10m buffer throughout the lifetime of the proposed development.	Neutral	N/A	N/A
	Altered hydrology & increased exposure to pollutants and dust	Temporary reduction in value, permanent effect if leads to further habitat loss during construction phase. Significant adverse effect at Local level.	The potential hydrological and pollution impacts will be managed through the adoption of best practice, particularly the control of the rate and amount of surface water run-off.	Neutral	N/A	N/A
	Altered lighting	Permanent adverse effects upon dependant fauna, namely crepuscular and nocturnal species during operational phase. Significant adverse effect at Local level.	Implementation of a sensitive lighting scheme, conditioned as part of any planning approval.	Neutral	N/A	N/A
	Increased recreational pressure and fly-tipping	Potential temporary reduction in value during operational phase, could become a permanent effect if leads to further habitat loss. Significant adverse effect at Local level.	Creation of alternative areas of publicly accessible green space within the development, to allow for activities such as dog walking, exercise and recreation to be undertaken onsite. 5km route incorporated into masterplan.	Neutral	N/A	N/A

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Land North of Bradley Road, Local Plan Allocation Site Ref: HS11

Important Ecological Feature	Potential Impact	Nature of Effect	Mitigation	Residual Effect after Mitigation	Compensation & Enhancement Measures	Residual Effect after Compensation & Enhancement
Ancient Woodland: Dyson / Screamer Woods, Bradley Wood, Upper Fell Greave, Clifton Wood, Lower Fell Greave (County)	Increased recreational pressure and fly-tipping	Potential temporary reduction in value during operational phase, could become a permanent effect if leads to further habitat loss. Significant adverse effect at Local level, and a not significant adverse effect at County level.	As above	Neutral	N/A	N/A
Kirklees WHN (County)	Damage to Kirklees WHN habitats via dust or pollution event	Temporary impact potentially leading to damage/ degradation of habitats during construction phase. Significant adverse effect at Local level, and a not significant adverse effect at County level.	Implementation of Construction Environmental Management Plan (CEMP) detailing pollution prevention measures to be employed during construction phase.	Neutral	N/A	N/A
Semi-natural Broadleaved Woodland (County)	Damage to retained woodlands via physical damage, dust or pollution event	Temporary impact potentially leading to damage/ degradation of habitats	Pollution prevention measures to be employed during construction phase.	Neutral	N/A	N/A
Mixed Plantation Woodland (Local)	Loss of c. 2.5 ha of mixed plantation woodland	Permanent loss leading to an adverse effect at a Local scale.	N/A	Significant adverse effect at a Local scale	Planting of c.2.4 ha of broadleaved woodland to be managed for its value to wildlife in the long term.	Not- significant positive effect at a Local scale in the mid-to-long term.

Environmental Statement
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Important Ecological Feature	Potential Impact	Nature of Effect	Mitigation	Residual Effect after Mitigation	Compensation & Enhancement Measures	Residual Effect after Compensation & Enhancement
	Damage to retained woodlands via physical damage, dust or pollution event	Temporary impact potentially leading to damage/ degradation of habitats	Pollution prevention measures to be employed during construction phase.	Neutral	N/A	N/A
Standing Water (Local)	Direct loss of P1	Permanent loss of P1	N/A	Not significant adverse effect at a Local scale.	None proposed.	Not significant adverse effect at a Local scale.
Hedgerows (Local)	Loss of c. 0.48 km of poor hedgerows	Permanent loss	N/A	Not significant adverse effect at a Local scale.	Provision of native, species rich hedgerows within the scheme to secure a 10% net gain in hedgerow resource.	Significant positive effect at a Local scale in the mid-to-long term once hedgerows have established.
	Damage to retained hedgerows via physical damage, dust or pollution event	Temporary reduction in value, permanent effect if leads to further habitat loss	Fencing and buffers to the retained hedgerows; pollution prevention measures during construction. Implementation of CEMP.	Neutral	N/A	N/A
Mature Trees (Local)	Loss of mature trees to facilitate development	Permanent loss of mature trees	N/A	Not significant adverse at a Local scale in the short-to-mid-term	Native tree planting within development.	Not -significant positive at a Local scale in the long-term once trees have matured
	Damage to retained hedgerows via physical damage, dust or pollution event	Temporary reduction in value, permanent effect if leads to further habitat loss	Fencing and buffers to the retained hedgerows; pollution prevention measures during construction. Implementation of CEMP.	Neutral	N/A	N/A

Environmental Statement
Land North of Bradley Road, Local Plan Allocation Site Ref: HS11

Important Ecological Feature	Potential Impact	Nature of Effect	Mitigation	Residual Effect after Mitigation	Compensation & Enhancement Measures	Residual Effect after Compensation & Enhancement
Schedule 9 Plant Species (N/A)	Spreading of Sch9 species during construction and / or operational phase	Breach of legislation	Follow management / eradication measures set out in CEMP.	Neutral	N/A	N/A
White-clawed crayfish (County)	Killing or injury of individuals.	Significant adverse effect at a County level.	If white-clawed crayfish are found to be present, suitable mitigation, would be secured under a licence with agreement from Natural England.	Neutral	N/A	N/A
	Destruction and permanent loss of habitat (P1).	Permanent loss of suitable habitat for ARC population. Significant adverse effect at a County level.	N/A	Significant adverse effect at a County level.	Habitat provision within Allocation Area. Measures to compensate for the loss of P1 and provide enhancements if the ARC population of white-clawed crayfish is still present.	Not- significant positive effect at a County scale
Badgers (N/A)	Killing or injury of badgers, as well as the destruction or disturbance of setts.	Breach of legislation	Precautionary methods will be followed during any clearance near the sett. Any setts to be impacted will be closed under licence. An updated badger walkover will be undertaken prior to the commencement of each development phase.	Neutral	N/A	N/A
Bat Species (Local)	Loss of potential roosting sites	Breach of legislation	If bat roosts are identified during building / tree nocturnal surveys, a derogation licence to legitimise works would be secured with agreement for Natural England.	Neutral	Measures to secure Favourable Conservation Status (FCS) of bat species secured under Natural England EPS licence (if required) Would likely comprise integrated bat boxes within new buildings /	Not significant positive effect at a Local scale

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Important Ecological Feature	Potential Impact	Nature of Effect	Mitigation	Residual Effect after Mitigation	Compensation & Enhancement Measures	Residual Effect after Compensation & Enhancement
					bat boxes secured to retained trees.	
	Loss of foraging habitat for bats	Permanent loss of hedgerows, mixed plantation woodland, P1 and grassland habitat.	N/A	Significant adverse effect at a Local scale	Compensation with broadleaved woodland planting, native hedgerow planting and inclusion of species-rich grassland where possible within POS. Addition of log piles / bug hotels within POS to encourage invertebrates into site.	Not significant positive effect at a Local scale in the mid to long-term.
	Disturbance of bats in retained habitats due to lighting	Temporary loss of use of habitats	Sensitive lighting design in accordance with BCT Guidance ¹⁸ with particular avoidance upon woodland, hedgerows and new / enhanced habitats.	Neutral	N/A	N/A
Breeding Birds (Local)	Loss of nesting / foraging habitat	Permanent loss of hedgerows, mixed plantation woodland, and grassland habitats.	N/A	Not significant adverse effect at a Local level	Broadleaved woodland planting native hedgerow planting and inclusion of species-rich grassland where possible within POS. Installation of a variety of nest boxes; house martin, swift, starling, house sparrow and general 26mm and 32mm hole-fronted boxes and open-fronted boxes.	Significant positive effect at a Local scale in the mid to long-term.
	Risk of disturbance, killing or injury of nesting birds	Breach of legislation	Vegetation clearance will be carried out outside the nesting bird season (March-September inclusive) or vegetation will be checked by an ecologist and any nesting	Neutral	N/A	N/A

¹⁸ BCT & Institution of Lighting Professionals (2018). Guidance Note 08/18 Bats and artificial lighting in the UK. Bats and the Built Environment series.

Environmental Statement
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Important Ecological Feature	Potential Impact	Nature of Effect	Mitigation	Residual Effect after Mitigation	Compensation & Enhancement Measures	Residual Effect after Compensation & Enhancement
			birds allowed to fledge prior to removal.			
Great crested newt (District)	Killing or injury of GCN	Breach of legislation. Significant adverse effect at a District level.	If GCN are found to be present, suitable mitigation, would be secured under an EPS licence with agreement from Natural England.	Neutral	N/A	N/A
	Destruction and permanent loss of terrestrial / aquatic habitat	Permanent loss of suitable habitat. Significant adverse effect at a District level.	N/A	Significant adverse effect at a District level.	Habitat provision within Allocation Area. Measures to secure FCS of GCN secured under Natural England EPS licence (if required).	Not- significant positive effect at a District scale
Hedgehog (Local)	Loss of potential foraging habitat	Permanent loss of suitable habitat. Not significant adverse effect at a Local scale.	N/A	Not significant adverse effect at a Local scale	Creation of suitable foraging habitat, installation of hedgehog gaps in boundary garden fences	Not-significantly positive at a Local level
	Loss of potential nesting habitat	Permanent loss of suitable habitat. Not significant adverse effect at a Local scale.	N/A	Not significant adverse effect at a Local scale	Provision of hedgehog houses	Not-significantly positive at a Local level
Common toad (Local)	Loss of potential terrestrial habitat	Permanent loss of suitable habitat. Not significant adverse effect at a Local scale.	N/A	Not significant adverse effect at a Local scale	Creation of suitable terrestrial habitat and ponds	Not-significantly positive at a Local level

Cumulative Effects

129. Cumulative impacts have been taken into account from 21 proposed and approved developments as listed in the EIA Scoping with both Kirklees and Calderdale Councils. The majority of developments listed resulted in no residual impacts to relevant IEFs and no cumulative impacts are therefore expected. A number of developments had potential for cumulative impacts and are discussed below. The details of each development, including those scoped out of the below assessment, are provided in Appendix 8.7.

Approved development on part of the allocated site HS11 on land off Tithe House Way (105 dwellings approved 04/09/2020 under application ref: 2018/93965).

130. This approved development falls within the HS11 allocation site. The EclA for the development (Weddle Landscape Design, November 2018) identified three IEF's; the adjacent woodland, bats and birds. Mitigation and compensation measures detailed in the report would ensure no residual impacts would occur as a result of the development and no cumulative effects are expected when assessed against the proposed wider allocation development.

LP1451 - Land between, Bradley Wood and Woodhouse Lane, Rastrick, Brighouse. Housing allocation (Garden Suburb) (indicative capacity: 1,257)

131. The ES Ecology Chapter (Futures Ecology Ltd.) concluded that no residual effects are expected to onsite IEFs. The report did however indicate a rise in visitor numbers to nearby designated areas, Bradley Park Wood LWS and Bradley Wood Replanted Ancient Woodland. Although no adverse residual effect was expected from each allocation site alone, due to the proximity of the allocated sites, increased visitor pressure would be cumulative on these IEFs. The Natural England & Forestry Commission England's Standing Advice for Ancient Woodland & Veteran Trees¹⁹ identifies increased recreational pressure and fly tipping as potential impacts to these IEFs. Both developments have included mitigation measures to protect the habitats and encourage residents to utilise onsite greenspace for recreation, however cumulatively the increased footfall is expected to cause not-significant adverse effects at **Local** level, through some localised degradation of habitats, however this is considered to be a negligible impact at **County** level.

Summary and Conclusions

132. The proposals alone will not result in any residual effects on designated sites within the specified zone of influences. A cumulative effect of visitor pressure on Bradley Park Wood LWS/SEGI and Bradley Wood Replanted Ancient Woodland could be expected considering the proposals with the nearby Calderdale housing allocation at Woodhouse Garden Suburb (Ref. LP1451). Increased footfall to the designated sites is expected to

¹⁹ Natural England & Forestry Commission England (2014) Standing Advice for Ancient Woodland & Veteran Trees – Updated Nov 2018
(<https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>)

cause not-significant adverse effects at **Local** level, however this is considered to be a negligible impact at **District / County** level.

133. Proposals will result in permanent losses of habitats under the footprint of the built environment. The habitats lost are predominantly of low ecological importance, with the exception of c. 2.5 ha of mixed plantation woodland, standing water (P1) and c. 0.48 km of hedgerows.
134. Prior to the extensive compensation and enhancement measures proposed, the loss of mixed plantation woodland will result in significant residual effects at a **Local** scale.
135. Mitigation through design has been utilised to avoid impacts and construction phase impacts will be minimised through careful control of construction activities through industry best practice. As a result, all other predicted effects on important ecological features are not anticipated to be significant.
136. Further protected species surveys are required in 2021 in order to confirm this impact assessment and inform detailed mitigation strategies in relation to bats, great crested newts, badgers and white clawed crayfish (if required).
137. The scheme is predicted to provide net gains for biodiversity as there is scope to provide habitat enhancements within the wider allocation site. Biodiversity Net Gain calculations using the Defra 2.0 metric will be completed by The Wildlife Trust.