



Ecological Assessment Report

Land at Tuthill's Yard, Therfield, Hertfordshire



Quanta Homes 6 Ltd., 81-83 Fulham High St, London, SW6 3JA

November 2024

20360 R1 v2

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Figure 1 Site Location

Figure 2 Proposed Site Layout Plan (reproduced courtesy of DAP Architecture Ltd)

Figure 3 Locally Designated Sites within 2km of the Site (data provided by HERC)

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Version History:	
20260 R1 v1	July 2024 – submitted to inform planning application
20360 R1 v2	November 2024 – Revised BNG assessment following consultation with LPA ecologist

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Report prepared by Dr J. Huckle for Huckle Ecology Ltd

Executive Summary

- Huckle Ecology was commissioned in June 2024 Quanta Homes 6 Ltd to provide an Ecological Assessment of a proposed planning application for a residential development on land at Tuthill's Yard, Therfield, Hertfordshire (hereafter referred to as the 'Site'). The proposed development comprises a similar scheme to a previous application on the site (submitted in 2021).
- This version of the report (R1v2 - November 2024) incorporates minor amendments following consultation response from the North Herts DC ecological adviser; these included minor amendments to the BNG assessment regarding the definition of grassland habitats present at the western end of the Site and to include the planting of a new hedge between the residential plot 3 and the area of scrub to be created at the western end of the Site.
- The proposed Site comprises a small (approx. developable area of 0.58 ha) plot of land located on the western edge of the village of Therfield, approximately 4 km south west of Royston. It is located at the western edge of the village and accessed via an unnamed road that forms the northern boundary of the site.
- The Site itself comprises a former yard previously used for the storage of agricultural machinery and as an operating depot for heavy good vehicles. The site is currently unused and generally vacant although an open fronted shed is present in the northwest corner of the yard
- A desk study was undertaken in January 2020 and updated in July 2024 to identify features of ecological value that could potentially be affected by the proposed development. Records of statutory and non-statutory designated sites within 2 km were requested from Hertfordshire Environmental Records Centre (HERC), along with records of protected species or species of conservation concern (SoCC). This ecological assessment provides an update to a previous application submitted in December 2021; this report includes information from previous ecological surveys and incorporates several minor amendments and a draft Biodiversity Net Gain Assessment to reflect the implementation of Statutory Biodiversity Net Gain, which became mandatory for planning application in February 2024.
- The desk study and data search have confirmed that the Site does not benefit from any statutory nature conservation designation. Within 2 km of the Site, there are no statutory designated sites, and the closest is Therfield Heath SSSI and LNR located 2.2km north of the Site at its closest point; there are no internationally designated sites within 2km of the Site. Furthermore, within 2km of the Site, there are 13 Local Wildlife Sites, with the closest of these being Therfield Motte and Bailey LWS located approx. 110m SE of the Site.
- Habitat surveys were in October 2019, and updated in April 2021 and most recently in June 2024 to provide an evaluation of the habitats present within the Site, and to assess the potential of the site to support ecologically important features, including habitats or species that benefit from statutory protection and/or are of nature conservation concern.
- The habitats present within the Site comprised made ground consisting of a concrete yard; vegetation was generally sparse and limited to scattered tall herbaceous vegetation around the edges of the yard. At the west end of the yard, a strip of unmade ground comprised an earth bund that supported a mosaic of modified grassland with tall herbaceous vegetation on the eastern side of the mound, and a narrow strip of broad-leaved woodland on the west-facing slopes. These habitats are of very low intrinsic ecological value, being common and widespread and typical of a previously developed sites that are subject to high levels of ongoing disturbance.

- Outside the site boundary, the habitats of most ecological value were associated with the fallow field to the south of the site and the field of improved grassland to the north of the site.
- The HERC data search returned records of ecologically important species within a 2 km radius from the site. The information from the desk study, combined with the findings of the extended phase 1 habitat survey has provided an assessment of the likely value of the habitats present within the site to support ecologically important species.
- It is concluded that the habitats present within the Site, or immediately adjacent to it, have a very limited potential to support a range of ecologically important species, which constitute constraints or material planning considerations, notably bats, breeding birds and badgers.
- No further ecological surveys for any species groups are considered necessary; it is concluded that the baseline information detailed above is sufficient to inform an assessment of the potential effects of the proposed development. Therefore, this PEA report itself is sufficient for planning purposes.
- The potential effects of residential development on ecological receptors has been considered and it has been concluded that there are unlikely to be significant ecological constraints relating to the habitats present within the Site itself or in terms of the potential of the site to support protected species.
- The Biodiversity Net Gain Assessment using the Statutory Biodiversity Metric has been completed using evidence from the habitat survey, combined with CIEEM and Defra guidance to predict the biodiversity gains and losses associated with the proposed development.
- The BNG assessment has shown that the proposed development will result in a net gain of 1.38 (117%) Habitat Biodiversity Units and a net gain of 0.85 (167%) Hedgerow Units. This assessment demonstrates that the proposed development will deliver a quantifiable net gain for biodiversity; this is in excess of the 10% target required for Statutory Biodiversity Gain and is therefore compliant with the requirements established for mandatory Biodiversity Net Gain as well as national and local planning policies.
- Further recommendations have also been made regarding qualitative, ecological enhancements to be incorporated into the proposed scheme which would potentially deliver net benefits for biodiversity. These include the creation of a pond at the eastern end of the site, the retention of the bund and associated habitat at the western end of the site, and the installation of bat and bird boxes within the proposed development.
- Consequently, if the recommended mitigation and enhancement measures are implemented, it is concluded that any future proposed development of the site would be compliant with statutory legislation regarding biodiversity and nature conservation and planning policy including recommendations set out in the NPPF and in local planning policies. Furthermore, the proposed development will provide a net gain for biodiversity compared to the current habitats present within the Site.

1 Introduction

1.1 Terms of Reference

1.1.1 Huckle Ecology was commissioned in June 2024 by Quanta Homes 6 Ltd, to provide an updated

Ecological Assessment of a proposed planning application for a residential development on land at Tuthill's Yard, Therfield, Hertfordshire (hereafter referred to as the 'Site').

- 1.1.2 The revised planning application is for the "Construction of three dwellings, alterations to access and associated infrastructure" on a site located on the northwest edge of the village of Therfield.
- 1.1.3 Previous ecological assessments have been prepared for alternative proposals including:
- An Ecological Assessment (Huckle Ecology, 2020) prepared for a prior planning application for six units which was refused in July 2020 on non-ecological grounds.
 - An updated ecological assessment published in November 2020 (Huckle Ecology, November 2020) for a revised application (which was subsequently withdrawn) for three dwellings, incorporating a layout and design that emulated a traditional farmyard house and setting with ad hoc additions and which represented a more traditional layout in keeping with the rest of the village.
 - An updated layout design (March 2020), which included additional landscaping and tree planting, and a Biodiversity Net Gain (BNG) Assessment to demonstrate the benefits to biodiversity that will be delivered by the scheme.
 - A further revised ecological assessment (Huckle Ecology, December 2021) for the most recent planning application (Planning Ref. 21/03533) that was similar in design and layout to that assessed in the November 2020 ecological assessment, but included:
 - A revised Application Site boundary extended to ensure visibility splays were included within the application;
 - additional landscaping and tree planting to the south boundary to enhance the screening of the site and at the west end of the Site, specified for habitat creation and enhancement to provide benefits for biodiversity; and
 - An updated Biodiversity Net Gain (BNG) Assessment to demonstrate the benefits to biodiversity that will be delivered by the scheme.
- 1.1.4 The previous reports included an ecological assessment of the proposed development that incorporated baseline information regarding the habitats present within the site and the adjacent area. The initial ecological survey was undertaken in October 2019, and comprised an extended Phase 1 Habitat Survey to survey the habitats present and the potential for these habitats to support protected species or species of conservation importance. Updated walkover surveys were undertaken for each of the revisions to ensure that the baseline ecological data was sufficiently up to date and in accordance with guidance from Charter Institute of Ecology and Environmental Management (CIEEM) on the life span of ecological data and reports (CIEEM, 2019). The ecological baseline information has been used to inform the current planning application and updated through an ecological survey undertaken in June 2024 as reported in detail below.
- 1.1.5 The ecological impacts of the proposed schemes have not been raised as material considerations or reasons for refusal and were not an issue that was raised in the 2021 planning application which was refused planning and which was dismissed at appeal on grounds associated with the scale and mass of Plot 3.
- 1.1.6 Much of this report replicated information provided in the previous ecological assessment reports, but updated and amended where appropriate and to reflect the implementation of Statutory Biodiversity Net Gain, which became mandatory for planning application in February 2024.

1.2 Site Description

- 1.2.1 The proposed Site is identical to that assessed in the previous ecological assessment (Huckle Ecology, December 2021) and comprises a small (approx. developable area of 0.58 ha) plot of land located on the western edge of the village of Therfield, a small village approximately 4 km south west of Royston in Hertfordshire. The Site is located at the western edge of the village and accessed via an unnamed road that forms the northern boundary of the site. Existing residential properties are located to the east of the property with a fallow agricultural field to the south, and a large arable field located to the west. Further farmland is located to the north of the Site on the northern side of the unnamed road.
- 1.2.2 The Site itself currently comprises a former yard that was previously used for the storage of agricultural machinery and as an operating depot for heavy good vehicles. The site is currently unused and generally vacant although an open fronted shed is present in the northwest corner of the yard.
- 1.2.3 The Site is approximately centred on National Grid Reference TL 3313 3731.
- 1.2.4 The Site Location is presented in Figure 1 below, with the proposed Site Plan presented in Figure 2.

Figure 1 Site Location



1.3 Biodiversity Net Gain

Statement regarding Biodiversity Net Gain

- 1.3.1 The proposed development is considered to be subject to the requirement to achieve a 10% Biodiversity Net Gain that came into force on February 12th 2024; it is considered that the proposed development would be subject to the general biodiversity gain condition as specified in the statutory framework for

biodiversity net gain as set out under Section 90A and Schedule 7A (Biodiversity Gain in England) of the Town and Country Planning Act 1990.

1.3.2 The following questions are relevant at the planning application stage:

Does the general Biodiversity Gain Condition (as set out in Paragraph 13 of Schedule 7A of the Town and Country Planning Act 1990 (as amended)) would apply?	Yes – the site is greater than 0.5 ha and thus the Full BNG metric is applicable
Please provide the pre-development biodiversity value of onsite habitats on the date of calculation	See Draft BNG Assessment section below for value of on-site habitats and for reference to supporting plan/figure
Please provide the date the onsite pre-development biodiversity value was calculated Note: This should be either the date of the application, or an earlier proposed date	Date of Application (based on survey data collected in June 2024, and confirming status of habitats present assessed in previous surveys)
When was the version of the biodiversity metric used published?	February 2024
Please provide the reference or supporting document/plan names for the: i. Biodiversity metric calculation Therfield_Statutory_Biodiversity_Metric_Calculation_Tool_-_Macro_enabled_02.24	
ii. Onsite irreplaceable habitats (if applicable)	Not applicable
iii. Onsite habitats existing on the date of the application for planning permission (if applicable) BNG Fig1 baseline map A3.pdf	
Has there been any loss (or degradation) of any onsite habitat(s), resulting from activities carried out before the date the onsite pre-development biodiversity value was calculated. Either: - on or after 30 January 2020 which were not in accordance with a planning permission; or - on or after 25 August 2023 which were in accordance with a planning permission?	No
Does the development site have irreplaceable habitats (corresponding to the descriptions in column 1 of [Schedule to the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations (2023)] which are: i. on land to which the application relates; and ii. exist on the date of the application for planning permission, (or an earlier agreed date)	No

1.3.3 A draft BNG assessment using the Statutory Biodiversity Metric calculation tool is included in Section 6 below.

1.4 Aim of this Report

1.4.1 This report presents a preliminary ecological appraisal of the Site and an assessment of the likely effects of the proposed residential development in relation to important ecological features and nature conservation of the Site and the surrounding area. The report follows methods recommended by the

Chartered Institute of Ecology and Environment Management (CIEEM) including guidelines for Preliminary Ecological Appraisal (CIEEM, 2017) and Ecological Impact Assessment (CIEEM, 2016).

1.4.2 The report includes several sections:

- A summary of legislation and planning policy regarding ecology and biodiversity;
- A section setting out the methodological approach adopted in the assessment, including a desk study and field surveys undertaken for the assessment;
- A description of the baseline ecological conditions for the Site, including:
 - Details of relevant designated sites;
 - A description of the habitats present within the site and in areas immediately adjacent to it; and
 - An assessment of the potential use of the site by protected species and species of conservation concern.
- An assessment of the potential ecological constraints that would require consideration in any future development plans for the site, and details of further surveys that may be required to ensure that the baseline ecological information was sufficient to inform an ecological impacts assessment to accompany any future planning application;
- Recommendations for appropriate mitigations measures and/or potential ecological enhancements that may be required or could be potentially designed into any proposed development.

1.4.3 A draft Biodiversity Net Gain (BNG) Assessment undertaken for the Site using the using the Statutory Biodiversity Metric (DEFRA, November 2023), which was published in November 2023 and updated in July 2024 to replace the Defra Biodiversity Metric 4.0 (Natural England, March 2023). It is important to note that the previous ecological assessment (Huckle Ecology, December 2021) included a draft BNG assessment that use the Metric 2.0; as the proposed application has utilised the most recent version of the Statutory Metric, including amendments in the methodology, the details in the habitat and hedgerow units calculated are likely to be different even if there has been no material change in the habitats present.

Figure 2 Proposed Site Layout Plan (reproduced courtesy of Scene Architects – drawing: THSYD-SCN-XX-XX-DR-A-01.002-A3, Rev no. P03)



2 Legislation and planning policy

2.1 Introduction

- 2.1.1 Following the exit of the UK from the European Union in January 2021, legislation has been implemented by the UK Government to ensure that domestic law that transposed EU Directives remained operable from 1 January 2021. The land and marine aspects of the EU Habitats and Wild Birds Directives were transposed into domestic law by the Conservation of Habitats and Species Regulations 2017 (as amended). Changes were made through 2019 Regulations which ensure they were operable from 1 January 2021 and were applicable to England and Wales including inshore waters up to 12 nautical miles.
- 2.1.2 This section of the report provides a brief guide to legislation and planning policy, and it is recommended that the full text of policy and legislation is consulted.

2.2 National Planning Policy

- 1.1.1 The National Planning Policy Framework (NPPF) was published by the government in March 2012 and updated in July 2018, with the most recent update in December 2023 (DLUHC, 2023).
- 1.1.2 The NPPF provides guidance for local authorities, setting out the UK Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans

for housing and other development can be produced. Planning Policy Guidance for the Natural Environment is updated via the UK Government website (UK Government, 2021).

- 1.1.3 The initial publication of the NPPF in 2012 (DCLG, 2012), replaced existing planning policy guidance, including that relating to biodiversity, Planning Policy Statement 9 (PPS9): Biological and Geological Conservation. However, the Government Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System (ODPM, 2006), which accompanied PPS9, remains valid at the time of writing.
- 1.1.4 Section 15 of the NPPF specifies the requirements for conserving and enhancing the natural environment, much of which reaffirms the protection previously afforded by PPS9 to designated sites, priority habitats and species and ancient woodland. The NPPF places a greater emphasis on ecological networks and states that planning policies and decisions should contribute to and enhance the natural and local environment. Paragraph 175 provides the following advice in relation to the consideration of biodiversity in the determination of planning applications:

“When determining planning applications, local planning authorities should apply the following principles:

if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

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

development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁵⁸ and a suitable compensation strategy exists; and

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

Footnote 58 states “For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat.”

- 2.2.1 In the context of the implementation of the NPPF, guidance in relation to biodiversity provided by Circular 06/05 remains valid and is supplemented by the UK Government’s Planning and Development Guidance (UK Government, 2018). Nature conservation legislation relating to protected species is unchanged and is outlined below.

2.3 Local Planning Policy

- 2.3.1 North Hertfordshire Council has identified local planning policies within the Local Development Plan and its policy relating to biodiversity is specified in Policy SP12: Green infrastructure, biodiversity and landscape (North Hertfordshire Council, 2016). Policy SP12 states that the Council will:

“...accommodate significant growth during the plan period whilst ensuring the natural environment is protected and enhanced. We will:

a. Protect, enhance and manage the green infrastructure network and seek opportunities to create new green infrastructure;

- b. Protect, enhance and manage biodiversity networks including wetland and riverine habitats, Local Geological Sites and seek opportunities for net gains for biodiversity; and*
- c. Consider and respect landscape character and locally sensitive features, particularly in relation to the Chilterns Area of Outstanding Natural Beauty.*

2.4 Legislation

- 2.4.1 All public authorities have a requirement to pay due regard to the conservation and enhancement of habitats and species through Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC), which states, "Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". To this end, Section 41 of the NERC Act provides for the establishment of a list of habitat and species that are considered to be of "principal importance for the conservation of biological diversity in England". This list can be viewed on the DEFRA website at www.defra.gov.uk.
- 2.4.2 National legislation for the special protection of selected species is provided in the Wildlife and Countryside Act 1981, as amended (WCA). 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 to birds whilst building, in or near a nest and disturbance to dependant young. Schedule 5 provides special protection to selected animal species other than birds, through Section 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. Section 14 of the WCA prohibits the release of non-native species into the wild, including plants and animal species that are potentially invasive.
- 2.4.3 The Protection of Badgers Act 1992, as amended, provides protection to badgers and their setts and is primarily concerned with animal welfare and makes it an offence to kill or harm a badger or to interfere with a sett.
- 2.4.4 A number of animals, known as European protected species (EPS), are provided full protection through inclusion in Schedule 2 of The Conservation of Habitats and Species Regulations 2017, as amended. The Regulations provide protection against deliberate disturbance to those animals wherever they are present and provides tests against which the permission for a development that may have an effect on a Schedule 2 protected species must be assessed before permission can be given.
- 2.4.5 In addition to species protection, the Wildlife and Countryside Act 1981 (as amended) and Habitats Regulations also set out requirements/procedures for the notification, designation and protection of a range of statutory site designations in order to preserve important nature conservation resources.

2.5 Biodiversity Net Gain

- 2.5.1 Biodiversity Net Gain (BNG) became a mandatory requirement for major developments on 12th February 2024 and minor developments on April 2nd 2024, implemented through a series of Statutory Instruments that are made mandatory through the Environment Act 2021.
- 2.5.2 The statutory framework for Biodiversity Net Gain has been introduced by Schedule 7A of the Town and Country Planning Act 1990 (inserted by the Environment Act 2021). Under this framework, a planning permission is deemed to have been granted subject to a general biodiversity gain condition to secure

the biodiversity gain objective¹. The general biodiversity gain condition is a pre-commencement condition that requires a Biodiversity Gain Plan to be submitted and approved by the planning authority before commencement of the development.

2.5.3 For applications where development would be subject to the biodiversity gain condition, the application must be accompanied by minimum information as detailed in Article 7 of The Town and Country Planning (Development Management Procedure) (England) Order 2015² including:

- a statement as to whether the applicant believes that planning permission, if granted, would be subject to the biodiversity gain condition;
- the pre-development biodiversity value of the onsite habitat on the date of application (or an earlier date) including the completed metric calculation tool used showing the calculations, the publication date and version of the biodiversity metric used to calculate that value;
- where the applicant wishes to use an earlier date, the proposed earlier date and the reasons for proposing that date;
- a statement confirming whether the biodiversity value of the onsite habitat is lower on the date of application (or an earlier date) because of 'degradation' activities in which case the value is to be taken as immediately before the carrying on of those activities, and if degradation has taken place supporting evidence of this;
- a description of any irreplaceable habitat (as set out in column 1 of the Schedule to the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations [2024]) on the land to which the application relates, that exists on the date of application, (or an earlier date); and
- a plan, drawn to an identified scale which must show the direction of North, showing onsite habitat existing on the date of application (or an earlier date), including any irreplaceable habitat.

2.5.4 If a development is required to meet the biodiversity net gain requirements, the metric tool provides a methodology to assess:

- the number of biodiversity units within the proposed development site– its biodiversity value;
- how this value could be lost through development;
- what is required to achieve BNG.

2.5.5 The biodiversity gain objective of 10% gain (or as specified by local planning policies) can be achieved when at least a 10% gain is measured through a combination of

- onsite biodiversity gains measured as part of the post-development biodiversity value of the onsite habitat for the development
- registered offsite biodiversity gains which have been allocated to the development; and
- the purchase of biodiversity credits for the development.

2.5.6 The statutory biodiversity metric is used to calculate the pre-development and post-development biodiversity value of the development's onsite habitat, as well as the value for offsite biodiversity gains and biodiversity credits. It uses habitat information to generate "biodiversity units", a proxy measure for biodiversity value. The statutory biodiversity metric data value inputs include habitat type, size,

¹ [Draft biodiversity net gain planning practice guidance - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/671111/draft-biodiversity-net-gain-planning-practice-guidance.pdf)

² [Draft biodiversity net gain planning practice guidance - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/671111/draft-biodiversity-net-gain-planning-practice-guidance.pdf)

distinctiveness, condition, and its location in the local area.³

3 Methodology

3.1 Desk Study

- 3.1.1 A desk study was undertaken in July 2024 to review and update existing information regarding designated sites, habitats or species that benefit from statutory protection and/or are of nature conservation concern. The findings of this desk study are considered sufficiently up to date to be valid for use in this ecological appraisal of the revised application.
- 3.1.2 The scope of the desk study was to identify features of ecological value that could potentially be affected by the proposed development; for this reason, the scope of the area around the Site to be included within the desk study search has been set at a distance of 2 km which is sufficient to provide an indication of the nature conservation interest in the surrounding area and are considered appropriate for the size of the Site and the nature of the proposed development.
- 3.1.3 Review of existing biological records can be of assistance in establishing the extent to which species that could represent a material consideration in planning terms are likely to be present in suitable habitats locally. The Hertfordshire Environmental Records Centre (HERC) was contacted in 2020 to provide the data they held within a 2 km distance of the centre of the proposed Site; this data search has not been repeated to inform the current planning application but is considered sufficiently up to date to provide contextual information regarding the biological records pertinent to the proposed development.
- 3.1.4 Information on statutory sites was obtained from the UK Government internet site MAGIC (<http://www.magic.gov.uk/>).

3.2 Habitat Survey

- 3.2.1 The following habitats surveys have been undertaken to characterise the baseline habitats present within the Site between 2019 and 2024:
- An extended Phase 1 habitat survey on 29th of October 2019. This involved a Phase 1 habitat survey to record habitat types and characteristic vegetation, as set out in the Handbook for Phase I Habitat Survey – a technique for Environmental Audit (JNCC, 2010). This survey method is extended through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance. This survey method is an established and accepted approach for developing an ecological baseline for a site and is an integral part of both a Preliminary Impact Assessment (CIEEM, 2017) and a more comprehensive Ecological Impact Assessment (CIEEM, 2016)
 - Ecological Walkover/Update Survey – April 2021. An ecological walkover survey was undertaken in April 2021 to update the previous ecological survey results and to validate the assessment of likely ecological effects arising from the proposed development

³ Biodiversity net gain - GOV.UK (www.gov.uk)

- Ecological walkover Survey and UKHab classification and condition assessment – June 2024. An update survey was undertaken to inform the current ecological assessment of the proposed development; this survey included a classification of the habitats using the UKHab methodology and condition assessment to enable the Biodiversity Net Gain metric calculation to be undertaken.
- 3.2.2 All habitat surveys comprised the mapping of habitats with 'target notes' made to describe characteristic habitats, features of ecological interest, or any other features which require ecologically sensitive design or mitigation.
- 3.2.3 Whilst not a full protected species or botanical survey, the 'extended' habitat survey enables a suitably experienced ecologist to obtain sufficient understanding of the ecology of a site that it is possible either:
- to confirm the conservation significance of the site and assess the potential for impacts on habitats/species likely to represent a material consideration in planning terms; or
 - to ascertain that further surveys of some aspect(s) of the site's ecology will be required before such confirmation can be made.
- 3.2.4 All surveys were undertaken by an experienced surveyor (Dr Jon Huckle has over 24 years professional experience of undertaking Phase 1 habitat and other ecological surveys), in good weather conditions and at a time of year (October) that is generally suitable for mapping the habitats present within the survey area. The survey was undertaken to cover the area within the Site itself and extended in scope to include all habitats adjacent to the Site, as shown on Figure 4.

Limitations to the Surveys

- 3.2.5 In any ecological survey, it is important to establish any limitations to the survey that may affect the conclusions that may be drawn from the survey results.
- 3.2.6 The Site was surveyed in fine dry weather, and in optimal conditions for undertaking ecological surveys to map habitats. The survey was undertaken at a sub-optimal time of year (October) for recording plant species, as early flowering plant species may be undetectable or under-recorded. However, this limitation did not affect the ability to record the habitat types present or the dominant species present; consequently, based on the habitats present within the Site, it is concluded that there are no significant limitations associated with the survey.
- 3.2.7 The Chartered Institute of Ecology and Environmental Management (CIEEM) has published an advice note on the lifespan of ecological reports and surveys. The advice note states that for ecological data that is derived from surveys of between 18 months and 3 years old, that:

"A professional ecologist will need to undertake a site visit and may also need to update desk study information (effectively updating the Preliminary Ecological Appraisal) and then review the validity of the report, based on the factors listed below. Some or all of the other ecological surveys may need to be updated. The professional ecologist will need to issue a clear statement, with appropriate justification, on:

- *The validity of the report;*
- *Which, if any, of the surveys need to be updated; and*
- *The appropriate scope, timing and methods for the update survey(s).*

The likelihood of surveys needing to be updated increases with time, and is greater for mobile species or in circumstances where the habitat or its management has changed significantly since the surveys were undertaken. Factors to be considered include (but are not limited to):

- *Whether the site supports, or may support, a mobile species which could have moved on to site, or changed its distribution within a site;*
- *Whether there have been significant changes to the habitats present (and/or the ecological conditions/functions/ecosystem functioning upon which they are dependent) since the surveys were undertaken, including through changes to site management;*
- *Whether the local distribution of a species in the wider area around a site has changed (or knowledge of it increased), increasing the likelihood of its presence."*

3.2.8 Due to the phase 1 habitat survey being undertaken in October 2019, the update walkover surveys in 2021 and 2024 were undertaken to provide an update of the baseline ecological conditions present within the site, and to validate the findings of the previous ecological assessments.

3.3 Biodiversity Net Gain (BNG) Methodology

3.3.1 The quantification of the net gain for biodiversity associated with the proposed development has been calculated using the Statutory Biodiversity Metric (DEFRA, November 2023), which was published in November 2023 to replace the Defra Biodiversity Metric 4.0 (Natural England, March 2023). Details of the Draft BNG Assessment are provided in Section 6 below.

4 Baseline Ecological Conditions

4.1 Designated Sites

Statutory Designated Sites

- 4.1.1 The HERC data search and a review of the UK Government internet site MAGIC have confirmed that the Site does not benefit from any statutory nature conservation designation; within 2 km of the Site, there were no statutory designated site with the closest being Therfield Heath Site of Special Scientific Interest SSSI, located 2.2km N of the Site and on the western side of the town of Royston (Appendix 1.1).
- 4.1.2 Therfield Heath SSSI comprises a large (143 ha) area of chalk grassland that is located to the West of Royston. The chalk grassland includes unimproved pastures that is species-rich botanically and also supports a diverse insect fauna. The SSSI is also designated as a Local Nature Reserve (LNR).

Non-statutory Designated Sites

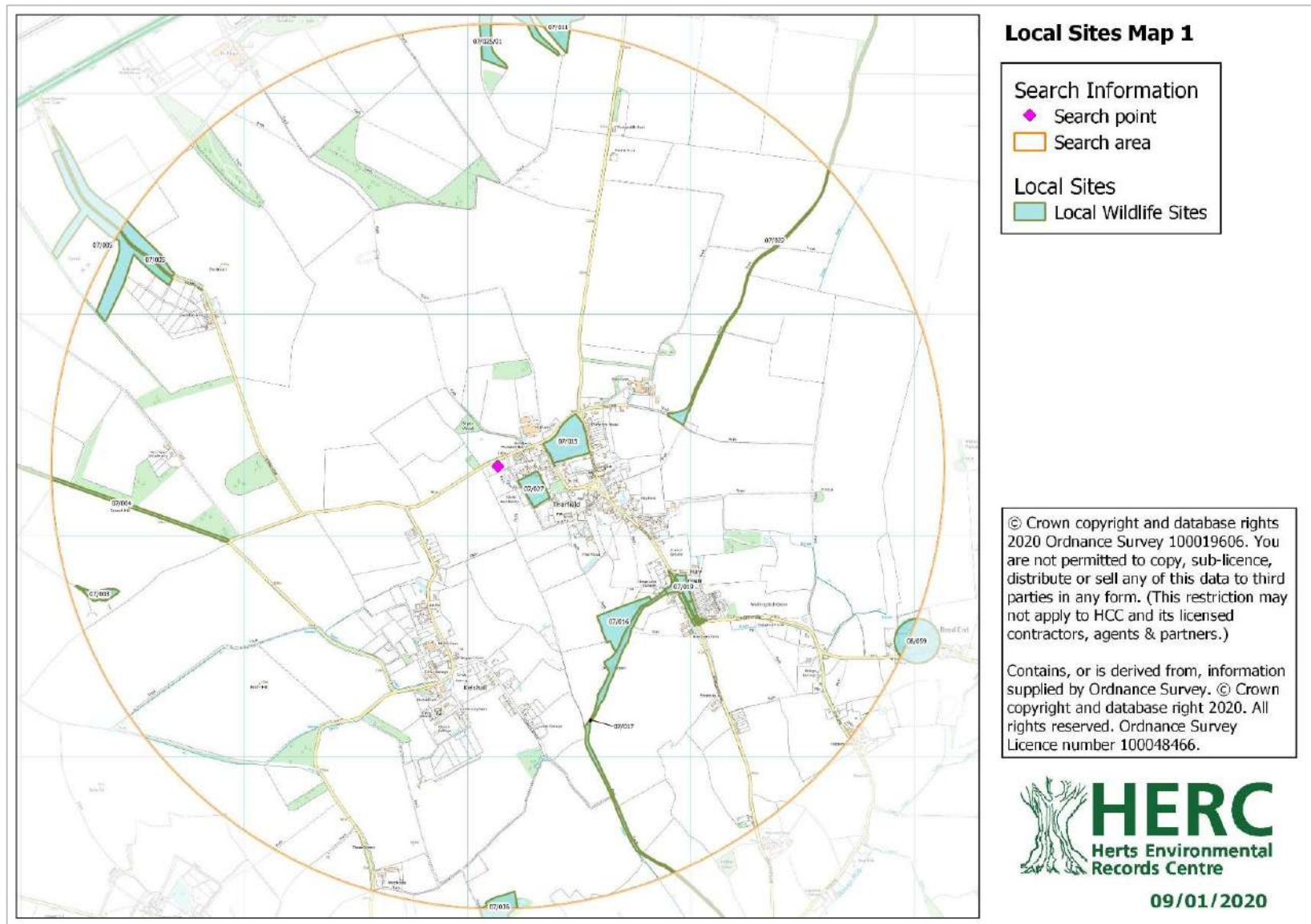
- 4.1.3 Review of the data received from the HERC and CPERC confirmed that the Site does not benefit from any form of non-statutory nature conservation designation.
- 4.1.4 Local Wildlife Sites (LWS) are recognised by national planning policy as having a fundamental role to play in meeting overall national biodiversity targets. LWS are not protected by legislation, but their importance is recognised by local authorities when considering planning applications. Under current planning policy there is a presumption against granting permission for development that would have an adverse impact on a LWS.
- 4.1.5 Data received from the HERC confirmed the presence of 13 LWSs within a 2 km radius of the Site with the closest being Therfield Motte and Bailey, located approximately 110m SE of the Site. A second LWS,

Bell Meadow, is located within the village of Therfield, approx. 230m east of the Site. Both the Therfield LWS comprise grassland habitats with neutral/calcareous assemblages.

- 4.1.6 Each LWS located within a 2 km radius of the Site is presented on Figure 3 below with full details as provided by the HERC provided in Appendix 1.2.

Summary

- 4.1.7 The desk study and data search have confirmed that the Site does not benefit from any statutory nature conservation designation. Within 2 km of the Site, there are no statutory designated sites, and the closest is Therfield Heath SSSI and LNR located 2.2km north of the Site at its closest point; there are no internationally designated sites within 2km of the Site.
- 4.1.8 Furthermore, within 2km of the Site, there are 13 Local Wildlife Sites, with the closest of these being Therfield Motte and Bailey LWS located approx. 110m SE of the Site.

Figure 3 Locally Designated Sites within 2km of the Site (data provided by HERC)

4.2 Habitats

- 4.2.1 The findings of the extended Phase I habitat survey are presented in Figure 4 and described below, with target notes and photographs of features of ecological interest taken during the surveys detailed in Appendix 2.

Habitats Recorded Within the Site

- 4.2.2 As noted above the Site comprises a plot of land that currently comprises a former yard that was previously used for the storage of agricultural machinery and as operating depot for heavy good vehicles with a total developable area of ca. 0.58 ha.
- 4.2.3 The habitats recorded within the Site have been surveyed in 2019, 2021 and most recently in June 2024; the results of these surveys are detailed in Appendix 2 and show that the habitats have not materially changed since the initial 2019 surveys and are predominantly comprised of made ground consisting of a level area of concrete hardstanding that was generally vacant at the time of survey.
- 4.2.4 Vegetation was restricted to localised areas where weed and ruderal plants were becoming established along joints in the concrete or around the edges of the yard.
- 4.2.5 An earth bund was present at the west end of the Site (Tn3) that appeared to have originated from earth generated from the levelling of the Site to create the concrete hard standing. On the east-facing slope, the bund supported a mosaic with unmanaged grassland with tall herbaceous vegetation with locally dominant bramble scrub. The west-facing slope of the earth bund adjacent to the west site boundary comprised a narrow strip of broad-leaved woodland comprising a closed canopy of ash trees, most of which showed signs of ash de-back disease.
- 4.2.6 The ash trees present along the western site boundary were of varying age and possessed some potential roost features such as woodpecker holes or broken limbs and deadwood that could be used as roosting habitat by bats. One mature ash tree had fallen or been felled between 2021 and 2024, probably as a result of Ash Die-back which was noted as having affected many of the ash trees in the local area. A single, but old and currently unused, outlier badger sett was noted in 2019 in the south west corner of the site but was not recorded on subsequent surveys and is likely to be defunct.
- 4.2.7 The Site included no buildings, although it was noted in June 2024 that a timber shelter that had been present in the north west corner of the Site was now dismantled and that the communications tower present in the south west corner of the concrete area had also been dismantled. .
- 4.2.8 The site boundaries to the north, east and south comprised hedgerows with a timber fence alongside. In most areas, the hedgerows were defunct and outgrown.

UKHab Habitats Present in 2024 survey

Developed Land, Sealed Surface (u1b)

- The concrete yard was predominantly comprised of concrete surface with ruderal species of plant growing along the joints and cracks in the concrete. Secondary codes: 81 Ruderal or ephemeral, 82 Vacant or derelict land.

Modified grassland (g4, secondary code 16 Tall forbs)

- Tall herbaceous vegetation present at the western end of the yard on the east-facing slope of the earth bund. In 2024, this habitat was dominated by tall herbaceous vegetation with monospecific stands of common nettle *Urtica dioica* and hemlock *Conium maculatum*, with occasional elder *Sambucus nigra* and bramble *Rubus fruticosus* agg.

Other lowland mixed deciduous woodland (w1f7)

- Area where ash trees (and other species including Field Maple *Acer Campestre* and hawthorn *Crataegus monogyna*) form a closed canopy along the western edge of the site and to the west of the earth bund.

Native Hedgerow (h2a)

- Hedgerows present along the north, east and south boundaries of the Site. Generally consistent with previous surveys and dominated by hawthorn and blackthorn *Prunus spinosa*. The southern boundary comprised a defunct fence with scattered hedgerow species and trees (including Pine *Pinus* sp.) along the fence line.

Habitats Recorded adjacent to the Site

- 4.2.9 Within the immediate surroundings of the Site, the habitats surveyed were associated with the following land uses:

Arable Farmland

- 4.2.10 Arable farmland was present to the west of the Site, where a large field was present, with a strip of improved grassland acting as an access route to a telecoms mast to the southwest of the Site.

Improved grassland

- 4.2.11 The field to the north of the Site and on the opposite side of the unnamed road from the site supported a sward of improved grassland with locally dominant patches of tall herbaceous vegetation.

Tall herbaceous vegetation/ semi-improved grassland

- 4.2.12 The field to the south of the site comprised a mosaic of tall herbaceous vegetation with locally abundant patches of semi-improved grassland. The field appeared to have been fallow for several years and showed evidence of use by rabbits and deer including fallow deer.

Broad-leaved woodland plantation

- 4.2.13 A small area of broad-leaved woodland plantation was present to the south east of the Site, comprising a small plantation of mature poplar trees forming a shelter belt between residential properties.

Residential Gardens

- 4.2.14 Residential properties to the east of the Site comprised relatively established gardens with a variety of lawns, ornamental borders and vegetable plots.

Ecological Update Survey – Summary of April 2021 and June 2024 site visits

- 4.2.15 The habitats present in April 2021 and June 2024 were generally consistent with those surveyed in October 2019 and there were no significant changes in the habitats present.
- 4.2.16 The majority of the site comprised a large area of concrete hardstanding with a smaller area of modified grassland dominated by tall herbaceous vegetation present at the western end of the site; the western boundary comprised a strip of 'woodland' associated with a line of mature Ash trees. These habitats were all as described in the previous survey and consequently the ecological impact assessment and biodiversity net gain assessment, that both utilised this baseline are considered to be valid. A few minor and non-significant variations in habitat were noted including:
- The hedgerow along the roadside (H1) and the eastern boundary (H2) appeared to contain a greater degree of gaps and were consistent with poor condition hedgerows;
 - A small communications tower in the south west corner had been removed, leaving a small area of concrete base.
 - One of the ash trees had been felled as a result of ash die-back.
- 4.2.17 The habitats present were all considered to be of similar composition and condition as those described in October 2019 and it is unlikely that any mobile species is likely to have moved on to the site, or the distribution of such species would have changed to significantly alter the previous ecological impact assessments.

Summary of Habitats

- 4.2.18 Most of the site comprised made ground consisting of a concrete yard; vegetation was generally sparse and limited to scattered tall herbaceous vegetation around the edges of the yard. At the west end of the yard, a strip of unmade ground comprised an earth bund with a mosaic of tall herbaceous vegetation on the eastern side of the mound, and a narrow strip of broad-leaved woodland on the west-facing slopes.
- 4.2.19 These habitats are considered to be of very low intrinsic ecological value, being common and widespread and typical of a previously developed sites that are subject to high levels of ongoing disturbance.

4.3 Potential for Ecologically Important Species

- 1.1.5 The UK Government has provided advice for local authorities to consider when reviewing planning applications (UK Government, 2021), which highlights that an extended habitat survey (as provided in this report) is useful for assessing whether further species-specific surveys are required.
- 4.3.1 This guidance recommends that planning proposals should take steps to avoid affecting protected species, such as be timing works to avoid sensitive times of year, or siting works far enough away from protected species or habitats to avoid any harm. The need for further surveys should be proportionate to the likelihood of protected species being present, and to the risk of them being adversely affected by the development.
- 4.3.2 This section of the report considers each of these species groups in relation to the existing records returned from the data search and the potential for the habitats recorded during the field survey to support them.

Bats

4.3.3 The data search undertaken in January 2019 returned records of six species of bat (with additional records at genus or family level) from within the 2 km search area, including the following:

- Common Pipistrelle bat *Pipistrellus pipistrellus* – 6 records from 2004 to 2016
- Pipistrelle bat species *Pipistrellus* sp. – 9 records from 1978 to 2008
- Soprano pipistrelle *Pipistrellus pygmaeus* – 1 record from 2016
- Nathusius's Pipistrelle *Pipistrellus nathusii* – 1 record from 2014
- Brown long-eared bat *Plecotus auritus* – 7 records from 1985 to 2016
- Natterer's bat *Myotis nattereri* – 2 records from 2000 and 2015
- Serotine *Eptesicus serotinus* – 1 record from 2016

4.3.4 The majority of the bat records were provided a 1km grid square resolution which provides limited information about the exact locations of the records but does provide an indication of the bat species likely to be present in the general area.

4.3.5 Within the Site itself, the concrete yard provided negligible value with the only potential roosting habitat being associated with the line of mature or semi-mature ash trees along the western site boundary; these trees were assessed for their potential to support roosting bats in accordance with the Bat Conservation Trust's 'Bat Surveys for Professional Ecologists' (Collins, 2016).

4.3.6 For each building or tree the PRA assigns a category to each structure according to its potential for supporting bat roosts using the criteria detailed in the BCT survey guidelines (Collins, 2016) and summarised in Table 1 below.

Table 1 Guidelines for assessing the potential suitability of proposed development sites for bats, taken from Collins 2016.

Suitability	Description of roosting habitats	Description of commuting and foraging habitat
Negligible	Negligible habitat features onsite likely to be used by roosting bats.	Negligible habitat features on-site likely to be used by commuting or foraging bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation.) A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens.
High	A structure or tree with one or more potential	Continuous, high-quality habitat that is well

Suitability	Description of roosting habitats	Description of commuting and foraging habitat
	roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. Site is close to and connected to known roosts.

- 4.3.7 The ash trees present within the site generally had limited roosting habitat and were assessed as being of **low** potential, although one tree (T5) had a number of woodpecker holes which could potentially be used by bats and was assessed as providing **moderate** potential for roosting.
- 4.3.8 Other than the tree lines located along the south, north and west site boundaries, the site lacked potential foraging habitat. Consequently, the linear trees and hedges were considered to provide **low-moderate** foraging potential while the majority of the site was considered to be of **negligible** value for commuting or foraging bats.

Summary

- 4.3.9 The habitats and trees within the Site have been assessed for their potential to support bat roosting habitat as well as for commuting and foraging activity. The only trees with bat potential roost features were the mature ash trees along the western boundary of the site, which were of low potential with the exception of one tree (T5) which had moderate potential. The majority of the site was of negligible value for bats, in the context of potential foraging and commuting habitat; the linear boundary habitats were assessed as being of low to moderate potential for foraging and commuting. The adjacent residential gardens and areas of grassland/ tall herbaceous vegetation were considered to provide moderate foraging and commuting habitats, particularly those gardens that support trees and shrubs and are established habitats likely to support potential prey species.
- 4.3.10 The direct loss of the negligible value bat foraging habitat within the Site itself, and potential indirect impacts on minimal areas of adjacent foraging roosting habitat, for example through an increase in artificial lighting at night, are assessed as being of not significant in terms of the conservation status of the local bat populations. Regardless of the non-significant nature of the potential impacts on bats outlined above, measures designed to minimise the potential effects of the scheme on bats and provide potential habitat enhancements for local bat populations are outlined below.
- 4.3.11 No further surveys for bats are considered necessary or proportionate to inform the planning application.

Otters and water voles

- 4.3.12 There were no records of otter *Lutra lutra* or water vole *Arvicola amphibius* returned from the HERC data search.
- 4.3.13 There are no water bodies present within the Site and the habitats present do not provide potential for either species to disperse from aquatic habitats in the surrounding area. Therefore, it is concluded that neither otter nor water vole would be adversely affected by the proposed development. As a result, no significant impacts in respect of these species are predicted as a result of the development and no further surveys are recommended.
- 4.3.14 No further surveys for otter and water vole are required.

Badger

- 4.3.15 The HERC data search returned 34 records of badger *Meles meles* from within the 2km search area.
- 4.3.16 In 2019, a single outlier sett was identified in the west-facing slope of the earth bund in the south west corner of the Site. This sett comprised a single hole, sufficiently wider than high and larger than the numerous rabbit holes nearby. However, there were no signs of recent use and was considered to be disused. No other field signs of badgers, such as badger paths, tracks, latrines, setts or hair were recorded during the field survey of the site. No badger setts were recorded on ecological walkover surveys undertaken in 2021 or 2024.
- 4.3.17 The habitats present within the site are not considered suitable for use by foraging badgers; the earth bund is considered to provide potential habitat for sett building particularly the west facing slopes. However, the area of potential habitat is small relative to the overall site and there are abundant alternative sett building habitats within the local area. Thus, it is concluded that the proposed development is unlikely to affect local populations of badgers and no further survey is considered necessary.
- 4.3.18 The presence of Badger records in the local area combined with suitable foraging habitat within the grassland in the neighbouring fields suggests the local area may be used by Badgers. Therefore, precautionary mitigation measures are recommended to prevent batch is being harmed during construction. These measures are outlined below.
- 4.3.19 No further surveys for badger are required to inform a planning application.

Other terrestrial mammals

- 4.3.20 The data search returned 9 records of brown hare *Lepus europaeus*, from 1977 to 2015. Due to the absence of grassland within the site itself, it is considered unsuitable and therefore it is certain that the proposed development would not significantly affect this species.
- 4.3.21 The data search returned six records of European hedgehog *Erinaceus europaeus*, dating from 1985 to 2013, and three records of harvest mouse *Micromys minutus* from 1985.
- 4.3.22 The site did not contain any habitat suitable for dormice *Muscardinus avellanarius* and the desk study did not return any records within 2km of the Site. .
- 4.3.23 The data search did not return records of any other terrestrial mammals of conservation importance.
- 4.3.24 A fallow deer was observed in 2019, within the fallow field to the south of the site, and a herd of fallow deer was recorded in the grassland field to the north of the site.

Amphibians and Reptiles

- 4.3.25 The desk study returned records of two species of amphibians from within a 2 km radius of the Site; the habitats present within the Site are not considered to be suitable for amphibians comprising developed land subject to high levels of disturbance. The records included:
- Great crested newt *Triturus cristatus* – records from 3x 1km squares; and
 - Common toad *Bufo bufo* – records from 3 grid squares.
- 4.3.26 The desk study indicated that there was one pond within 250m of the proposed site, located to the northeast of the site and to the north of the village. This pond was viewed from a public footpath and assessed for its potential to support great crested newt using the Habitat Suitability Index (ARGUK, 2010),

which incorporates ten suitability indices, which are factors known to affect great crested newt, and combines them to provide an overall score that is used for evaluating the general suitability of a pond or ponds for the species. Using this methodology, the pond was assessed as being of poor suitability (HSI score of 0.47), with factors including its small size, poor water quality and full shading reducing the likelihood of great crested newt being present.

4.3.27 The desk study returned records of two species of reptiles including common lizard *Zootoca vivipara* and slow worm *Anguis fragilis*. The habitats present within the Site are not considered to be suitable for reptiles comprising developed land subject to high levels of disturbance.

4.3.28 No further surveys for reptiles or amphibians are considered necessary to inform a planning application

Breeding Birds

4.3.29 The data search returned 2119 records of 91 species of birds from within a 2km radius of the site (see full details in Appendix C).

4.3.30 The habitats present within the site provide very few nesting locations, associated with the trees and hedgerows along the boundaries of the Site.

4.3.31 The potential impacts associated with the construction of the proposed development are not considered likely to result in significant effects on the local bird assemblage. No further general breeding surveys are considered necessary due to the small footprint of the proposed development.

4.3.32 However, as breeding birds are statutorily protected, to avoid impacts on breeding birds and committing an offence, removal of any structures or woody vegetation (such as hedgerows or trees) should be undertaken outside of the breeding bird season (March – July inclusive). Should this not be possible then all areas identified for clearance must be checked for nests by an ecologist prior to clearance. If any nests are identified, then this area should be clearly delineated, and no works allowed until after chicks have fledged and the nest has been abandoned.

4.3.33 No further surveys for breeding birds are required to inform a planning application.

Invertebrates

4.3.34 The data search returned 409 records from 91 different species, including:

- 4 species of Ants, Bees, Sawflies and Wasps (Hymenoptera)
- 3 species of Beetles (Coleoptera)
- 12 species of butterfly (Lepidoptera) – most recorded on chalk grassland at Therfield Heath SSSI
- 72 species of moth (Lepidoptera);
- 2 species of grasshoppers and crickets (Orthoptera);
- 2 species of true flies (Diptera); and
- 1 species of mollusc, the Roman Snail *Helix pomatia*

4.3.35 Most of the records were recorded from the ecologically important chalk grassland habitats present including those at Therfield Heath SSSI or on other areas of chalk grassland. The habitats present within the Site are likely to be of very limited value to invertebrates and further surveys are not considered necessary for any proposed development.

Flora

- 4.3.36 The data search returned records of 40 plant species including several species of conservation concern, most associated with chalk grassland habitats associated with Therfield Heath.
- 4.3.37 The habitats within the site are widespread habitats and considered to be of low botanical value and no further surveys of vegetation are considered necessary.

Summary of Potential for Species

- 4.3.38 The information from the desk study and the extended phase 1 habitat survey has provided an assessment of the likely value of the habitats present within the site to support ecologically important species.
- 4.3.39 It is concluded that the habitats present within the Site, or immediately adjacent to it, have a very limited potential to support a range of ecologically important species, which constitute constraints or material planning considerations.
- 4.3.40 No further ecological surveys for any species groups are considered necessary; it is concluded that the baseline information detailed above is sufficient to inform an assessment of the potential effects of the proposed development.

5 Conclusions and Recommendations

5.1 Design of the Development

- 5.1.1 As detailed above, the proposed development comprises a revised proposal for three dwellings which has been modified to address the design features that were raised during the appeal process; the modification relate to reductions in the scale and massing effect and do not alter the site footprint of the proposed buildings or garden area associated with each of the three plots. These amendments are not likely to result in differences in the ecological impacts associated with the scheme and the previous ecological impact assessment and proposed mitigation and enhancement measures are considered to be applicable to the proposed development.
- 5.1.2 The proposed development comprises a layout and design that emulates a traditional farmyard house and setting with ad hoc additions and thus represents a more traditional layout compared to the previous application for six dwellings. The revised scheme (see Figure 3) would utilise the existing access from Kelshall Road with the three dwellings located around a courtyard at the eastern end of the Site.
- 5.1.3 The design of the proposed development has incorporated precautionary measures designed to prevent adverse impacts on any ecological features where this is practically possible. Such 'mitigation by design' is an integral component of the mitigation hierarchy that form a key framework embodied in best practice for ecological impact assessment (CIEEM, 2016) and the Biodiversity Code of Practice for planning and development (British Standards Institute, 2013).
- 5.1.4 This mitigation hierarchy involves a sequential process involving the following steps:
- Avoidance – of adverse effects through good design
 - Mitigation – to reduce and minimise adverse impacts

- Compensation – to offset adverse effects, viewed as a last resort where avoidance and reduction of effects cannot be achieved; and
- Enhancement – opportunities to provide beneficial effects as an integral component of the proposal.

5.1.5 The design of the development has retained the ash trees along the western site boundary site boundaries as well as the hedgerows along the north, south and east boundaries far as practically possible. In addition, the revised scheme has retained the small area of broad-leaved woodland at the west end of the site and has included habitat management and creation specifications that are an integral component of the landscape plan for the site and designed to ensure that bund and the trees and scrub habitat present will form an effective screen to the proposed development; the avoidance of potential effects on these habitats will reduce potential effects on ecological receptors such as mammals (badgers, deer, and bats) and breeding birds that may use them. The site design incorporates the creation of scrub habitat to consolidate the woodland at the west end of the Site; these woodland and scrub providing important ecological enhancements that are reflected in the draft BNG calculation summarised below and detailed in Appendix 4.

5.1.6 The remainder of the proposed development has been sensitively designed to incorporate appropriate buffers from the adjacent hedgerows and trees along the Site to ensure that sufficient root protection areas are maintained around each tree, as illustrated on the Proposed Site Plan (Figure 2).

5.1.7 To demonstrate best practice during construction it is recommended that the construction phase will incorporate measures designed to ensure that the habitats to be retained within the proposed development are not adversely affected during the construction of the proposed development. The measures would include:

- Clear demarcation of construction areas and permitted access routes, using standard temporary site fencing and markers.
- Clear marking of tree root protection zones relevant to trees within the Site or adjacent to the Site.
- Identifying that construction activities are undertaken in accordance with best practice advice to prevent pollution including measures to avoid run-off and prevention of pollution of adjacent areas and water courses.
- Tool box talks and issuing of factsheets to contractors to provide information regarding protected species and local ecological constraints.

5.2 Potential Effects on Designated Sites

5.2.1 The desk study has shown that the proposed development Site is not located close to any national/international designated sites, with the nearest statutory site located 2.2km to the north of the Site at its closest point. Although the site is small and the habitats are not functionally linked to designating features of the SSSI, the site does fall within the 2km- 3km distance and is within a SSSI Impact Risk Zones as identified by Natural England (Natural England 2016).

5.2.2 For this designated site, the Impact Risk Zones are useful in identifying whether a proposed development is likely to affect a SSSI and determine whether there is a need to consult with Natural England for advice in relation to the potential impacts on the SSSI.

5.2.3 For rural residential development such as that proposed at the Site, a risk of an effect on a SSSI has been

flagged for "Any residential development of 25 or more houses outside existing settlements/urban areas". As the proposed development is for significantly fewer dwellings than this '25 or more' threshold it is concluded that it is certain that there would be no risk of an effect on the local SSSIs.

- 5.2.4 The HERC data search indicated that the nearest Local Wildlife Site, was Therfield Motte and Bailey located approximately 110m to the south east of the Site. This LWS is not directly adjacent to the site and is separated by residential properties associated with the village of Therfield; it is considered unlikely that the LWS would be adversely affected by the proposed development.

5.3 Potential Effects on Habitats

- 5.3.1 The proposed development would result in the loss of a small area of 0.5 ha of previously developed land which is considered to be of negligible ecological value, and which would not result in a significant ecological effect. A short section (approx. 20m) of hedge to the west of the existing access to the Site will be removed to facilitate visibility splays for the proposed access to the site; this section of the hedgerow comprises a gappy section of individual hawthorn with occasional elder and dogwood shrubs, and is considered to be a poor quality hedge.
- 5.3.2 The proposed development is unlikely to result in any effects on the habitats located within the wider survey area; the trees and woodland located at the west end of the site will be retained post-construction and appropriately protected from harm during the construction phase.
- 5.3.3 With the implementation of best practice measures such as those detailed above, it is considered that site construction would be unlikely to result in adverse significant effects on the ecology of the site and the surrounding area and consequently that potential impacts would be mitigated in an appropriate manner.
- 5.3.4 The revised proposal will result in a significant reduction in the area of developed land with the existing concrete yard being replaced by buildings and gardens which are likely to be of greater ecological value to local biodiversity. In addition, the proposed design will incorporate a pond at the east end of the Site, which will provide a drainage function as a soakaway pond; it is recommended that this pond be designed to include habitat functionality that will deliver benefits for biodiversity as well as being visually appealing. For example, including an area of permanently inundated aquatic habitat as well as variable graded banks will provide a range of aquatic and marginal habitats.
- 5.3.5 The Draft Biodiversity Net Gain calculation (Appendix 4) outlined in Section 6 below illustrates the ecological benefits associated with the habitat creation and enhancement resulting from the proposed development.
- 5.3.6 Consequently, the habitats present within the completed development are likely to represent a significant net gain for biodiversity compared to the current baseline status of the Site.

5.4 Potential Effects on Protected Species

- 5.4.1 As noted above, the habitats present within the Site, or immediately adjacent to it, have a very limited potential to support ecologically important species, which constitute constraints or material planning considerations. The site comprises an area with existing developed land that is not considered to support suitable habitat for amphibians, reptiles or terrestrial mammals, and lacks potential roosting habitat for bats.
- 5.4.2 Although the Site is small, there is potential for the habitats to be used by foraging bats, with the existing

trees along the western edge of the Site also providing limited potential roosting habitat and nesting habitat for breeding birds. The potential effects on these receptors are unlikely to result in significant effects on local populations and would be limited to individuals present within the Site itself.

Bats

- 5.4.3 The retention of the mature ash trees along the western site boundary will avoid potential loss of bat roosting habitat; however, if arboricultural works to these trees are required in the future, then further survey work may be required to elucidate whether the Potential Roost Features present within the tree are appropriate as bat habitat and if so, an appropriate surveillance method to determine whether bats utilise these habitats. However, given that the trees are not required to be removed and are to be retained no further surveys are required to inform this planning application.
- 5.4.4 Based on the potential for bats to forage along the site boundaries it is recommended that the sensitive design of the proposed development should incorporate a number of measures that aim to minimise potential effects on individual bats. In addition, these measures will also mitigate adverse effects on bats using the Site post-construction as well as delivering ecological enhancements relating to bat species.
- Avoidance of any adverse effects of artificial lighting by ensuring that hedgerows and trees retained or planted around the site boundaries are not illuminated, with directional lighting pointing away from these features. Light spill from proposed dwellings will be minimised by using downward pointing lights where possible in the proposed development.
 - Planting of native hedgerow and tree species as internal boundary features and along site boundaries to fill gaps and/or to strengthen boundary habitat features, thereby enhancing potential foraging habitat within the Site;
 - Erection of a group of three bat boxes (total of 3 boxes) in the ash trees to the west of the Site. The bat boxes should be of standard woodcrete construction such as the 'Schwegler 2F' or equivalent to maximise the durability of the bat boxes while minimising maintenance requirements. It is recommended that at least three are installed, facing different directions to provide a greater diversity of roosting opportunities
 - Erection of two wall-mounted bat boxes:
 - One on a gable wall of the south-facing elevation of a building in the south east of the site; and
 - One on the north elevation of the detached dwelling in the northwest corner of the site.
 - The preferred locations would be at a height of at least 5m above ground level. The preferred design would be for an integrated self-cleaning bat box such as the Habibat 003 bat box (www.habibat.co.uk), which would be faced with bricks or other material to blend aesthetically with the new building.
- 5.4.5 Incorporation of these measures is considered to provide appropriate mitigation measures for any potential adverse effects associated with the proposed development and would also provide enhancements to biodiversity across the development site. With the successful implementation of these measures it is considered certain that there would be no likely significant adverse effects on local bat populations.
- 5.4.6 The creation of the pond at the eastern end of the site and strengthening of linear boundaries is likely to result in an enhancement of the foraging and commuting habitats that could potentially be used by

bats and a further net gain for biodiversity.

Breeding Birds

- 5.4.7 Any loss of scrub and individual trees could potentially impact on breeding birds, which are protected during the nesting season. To avoid impacts on breeding birds, removal of any buildings, scrub or woody vegetation (including trees, scrub and hedgerows) should be undertaken outside of the breeding bird season (March – August inclusive). Should this not be possible then all areas identified for clearance must be checked for nests by an ecologist prior to clearance. If any nests are identified, then this area should be clearly delineated, and no works allowed until after chicks have fledged and the nest has been abandoned.
- 5.4.8 To enhance the potential for breeding birds it is recommended that a total of six bird boxes be installed in appropriate locations, sheltered from wind, rain and strong sunlight and approx. 1.5-5 m above ground level. The boxes should include boxes designed for bird species that nest in buildings including, house sparrow and swift.

Badgers

- 5.4.9 A disused, single-hole outlier sett was recorded in the south west corner of the site, on the west facing slope of the earth bund in 2019 but was not recorded on update surveys in 2021 and 2024. No other field signs of badgers were recorded during any surveys undertaken at the Site. Therefore, no significant effects on badgers are likely to occur as a result of the proposed development.
- 5.4.10 As badgers are mobile species, there is potential for badgers to re-use the disused outlier sett or to move into the Site prior to any consented works commencing. As badgers and their setts are legally protected, precautionary measures are recommended to ensure any works associated with the proposed development proceed without an offence being committed.
- 5.4.11 A pre-construction survey for new setts should be made prior to any clearance of vegetation undertaken as enabling works for a consented development; this survey would be included within an Ecological Management Plan that would be recommended as a planning condition.
- 5.4.12 If the survey reveals the presence of an active sett, an appropriate mitigation strategy may be required, incorporating measures to avoid or reduce the risk of harming or disturbing badgers or their setts. To avoid disturbance to an active sett, it is recommended that no building works or excavations should take place within 30 m of the setts, with protective fencing used during construction to prevent accidental disturbance or damage to badger setts.
- 5.4.13 During construction, it is recommended that excavations are covered at night or have slopes built into their sides to allow trapped mammals, including badgers, to escape.
- 5.4.14 Should the proposed development require works that would result in disturbance or destruction of active setts, a Natural England licence may be required; a licence is only likely to permit activities from July to November (inclusive) to avoid the badger breeding season.

6 Draft Biodiversity Net Gain Assessment

6.1 Biodiversity Net Gain (BNG) Methodology

- 6.1.1 The quantification of the net gain for biodiversity associated with the proposed development has been calculated using the Statutory Biodiversity Metric (DEFRA, November 2023), which was published in November 2023 to replace the Defra Biodiversity Metric 4.0 (Natural England, March 2023).
- 6.1.2 The Statutory Biodiversity Metric provides a method of measuring and accounting for the losses and gains resulting from a proposed development or change in management. The Metric comprises a spreadsheet that allows the quantification of baseline habitats present compared to those resulting post-development. The metric calculates 'biodiversity units' associated with a site pre- and post-development and calculates the overall net loss or gain in habitat units. Habitat units include three broad categories that are used in the calculation:
- Habitat Units – area of each parcel of habitat present, measured in hectares;
 - Hedgerow Units – linear habitats, including hedges and tree lines that are measures in length (m or km); and
 - Watercourse units – linear aquatic habitats such as rivers and stream (not relevant to this application).
- 6.1.3 In addition, the Statutory Metric includes a broad habitat type of 'Individual Trees' which records trees as 'urban' or 'rural' and where they are found individually or part of a group and are over 7.5cm in diameter at breast height (dbh). The metric uses values based on the size class of trees present to provide an equivalent area for inclusion in the calculations; the metric spreadsheet uses a 'tree helper' to calculate the area equivalent for baseline and post-intervention individual trees.
- 6.1.4 The pre-construction baseline has utilised the areas of habitats mapped as part of the UKHab habitat survey undertaken in June 2024. The UKHAB survey included a condition assessment of the habitats present.
- 6.1.5 The Statutory Metric methodology requires several stages:
- Calculation and input of the area/length of each habitat type;
 - Selection of habitat condition based on survey information (poor, moderate or good) and Defra guidance;
 - Selection of Strategic Significance (low, medium or high) based on guidance.
- 6.1.6 The draft post-development biodiversity units have been calculated using the proposed illustrative Masterplan included as Figure 2 above.

Technical Competence and Experience

- 6.1.7 All surveys were undertaken by an experienced surveyor (Dr Jon Huckle has over 20 years professional experience of undertaking Phase 1, UKHAB, NVC habitat and other ecological surveys), in good weather conditions. . The survey was undertaken to cover the area within the Site itself and extended in scope to include all habitats adjacent to the Site, as shown on Figure 4 (BNG Figure 1).

Limitations

- 6.1.8 The surveys undertaken in June 2024 were undertaken in summer, at an optimal time of year for mapping the habitats present within the survey area and for determining plant species presence and is not considered a potential limitation to the draft BNG assessment.

6.2 Baseline Ecological Conditions

- 6.2.1 The Habitat Baseline used for the Statutory Metric calculation has used the UKHAB classification system based on a review of the botanical information obtained from ecological habitat surveys undertaken between 2019 and 2024, with the most recent survey in June 2024 including a condition assessment for those habitats where this is applicable. The 2024 surveys confirmed that habitats were consistent with those previously surveyed and was not materially different in terms of species composition or structure. It is relevant to note that there were no hedgerow habitats (linear) or watercourse units identified within the Site.

- 6.2.2 The UKHab Baseline Habitat Map used in the BNG Statutory Metric calculation, is presented in Figure 4 below.

- 6.2.3 As noted above, the on-site habitats present included the following habitat types:

- Developed land, sealed surface – no ecological value and no condition assessment required.
- Modified grassland (g4) – comprising an area of tall herbaceous vegetation on the east-facing slope of the earth bund located at the western end of the Site. This habitat was dominated by stands of common nettle and hemlock. This habitat is typical of nutrient enriched habitat and has been classified as modified grassland (with the appropriate secondary code (16) for tall forbs species). This evaluation is considered more suitable than 'other neutral grassland' as it reflects the artificial origin of the earth bund that was likely created when the Site was levelled to create the concrete hardstanding and is indicative of the nutrient rich edaphic conditions that result in dominance by tall forb species.

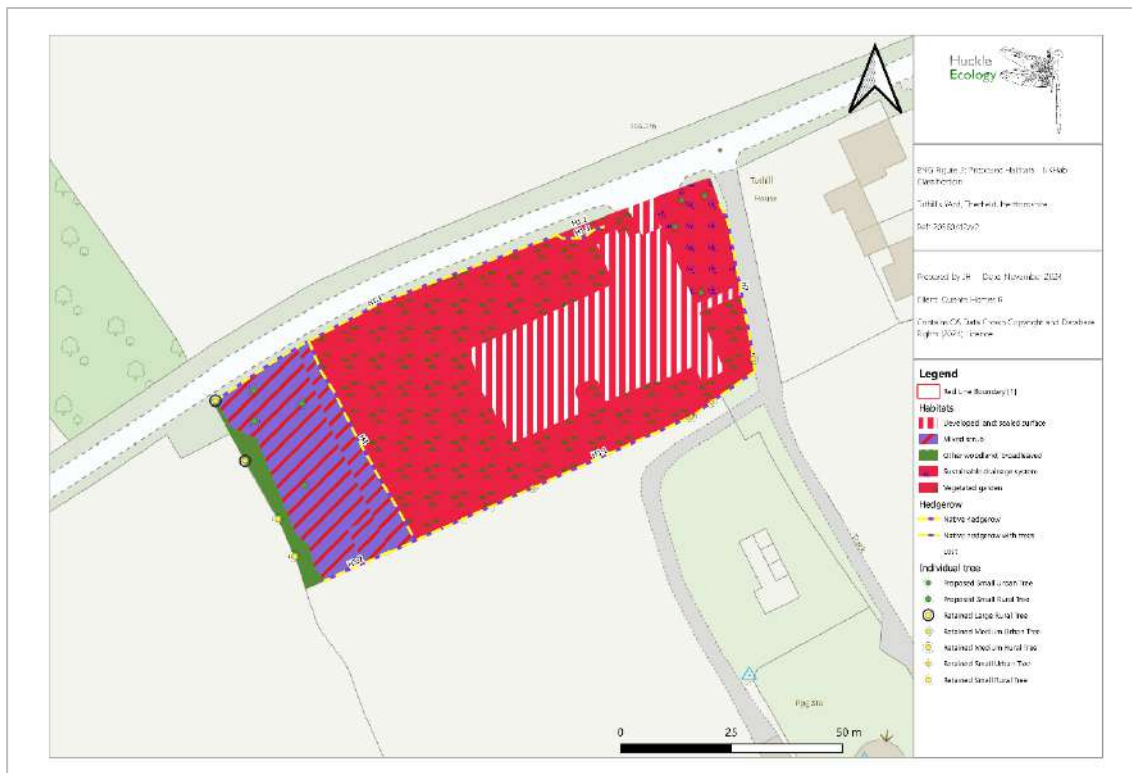
The condition assessment of the Modified grassland was consistent with Poor condition, due to the low species diversity, the high proportion of 'undesirable species' and the lack of a varied structure and range of sward heights.

- Other lowland mixed deciduous woodland (w1f) – a small area of closed canopy that could potentially be described as a line of trees (lacking hedgerow species). The condition assessment was 'Poor' reflecting the condition of the trees, the age structure of the trees present and the lack of a species rich woodland flora.

Figure 4 Baseline Habitats (UKHAB Classification – full size appended to report)



Figure 5 Post-intervention Habitats (Indicative) – full size appended to report



6.3 Biodiversity Net Gain Metric Calculation

Introduction

- 6.3.1 The BNG calculation using the Statutory Biodiversity Metric spreadsheet has enabled a quantitative comparison of the existing baseline habitats with the predicted habitats resulting post-development. The completed Statutory Biodiversity Metric spreadsheet is provided at Appendix 4 to provide the Headline and detailed results of the calculation; the macro-enabled Statutory Biodiversity Metric spreadsheet is provided separately.
- 6.3.2 The Biodiversity Metric enables the use of offsite habitat creation and mitigation to be used within the calculation; however, for this project the assessment has involved only the comparison of onsite habitats before and post-development.
- 6.3.3 No watercourse habitats are likely to be affected by the proposed scheme and have not been included in this assessment.
- 6.3.4 The types of biodiversity units that are generated by the Biodiversity Metric (Area, hedgerow and river habitats) are considered to be unique and cannot be summed, traded or converted (Rule 4; (Natural England, July 2021). Consequently, in this assessment the Metric has been used to calculate the BNG associated with area habitats separately from the other habitat categories.

On-Site – Habitat Baseline (Pre-development)

- 6.3.5 The baseline habitats present within the Site are summarised in Table 2 below.

Table 2 Summary of Pre-construction baseline onsite habitats

Description of habitat	Broad Habitat	Habitat Type	Distinctiveness	Condition	Area of habitat present on site (ha)	Total Habitat Units
Habitat Areas						
Main area of hard standing	Urban	Developed land; sealed surface	V.Low	N/a	0.4909	0
Tall herbaceous vegetation at western end of site	Grassland	Modified grassland (Tall forbs) g4, 16	Medium	Poor	0.0805	0.16
Small area of ash woodland (closed canopy) at west end of site	Woodland and forest	Other woodland; broadleaved	Medium	Poor	0.0140	0.06
2x small and 1x large tree in Poor condition	Individual Trees	Rural tree	Medium	Poor	0.0448	0.18
3x small, 2x medium and 1x large tree in Moderate condition	Individual Trees	Rural tree	Medium	Moderate	0.0977	0.78
Total habitat Area					0.73	1.18

Site Area (excl. individual trees)					0.59	0.22
Hedgerows						
H1 – northern boundary	Native hedgerow		Low	Poor	0.098	0.19
H2 – east boundary	Native hedgerow		Low	Moderate	0.038	0.15
H3 – south boundary	Native hedgerow		Low	Poor	0.080	0.16
					0.223	0.51

On-Site – Habitat (Post-development)

- 6.3.6 The post-development biodiversity units have been calculated based on the area of habitats and lengths of hedgerows calculated from the proposed development site layout. For the purpose of the calculation, the footprints of all proposed dwellings and drives have been calculated as sealed surface with the remaining habitats calculated as either areas of habitat creation or enhancement. Individual trees planted as part of the proposed development have been included as part of the BNG calculation only in areas at the western end of the Site; individual trees within vegetated gardens have not been included in accordance with BNG guidance that refers to the lack of certainty about the future management of habitats within private gardens.
- 6.3.7 The updated BNG calculation has included the loss of a short section of the hedgerow to the west of the access road (H1) and the proposed creation of a new hedgerow to replace the lost section and to the south of the existing hedge line. A total of 8 individual trees have been proposed to be planted at the western end of the Site.
- 6.3.8 The area of post-development habitats (UKHAB classification) as proposed on the site layout plan (Figure 2 above) has been calculated within a GIS package (QGIS 3.34). The baseline and post-development habitats are also presented as BNG Figures 1 and 2 in Appendix 4.
- 6.3.9 It should be noted that the post-intervention habitat includes 'urban' habitats associated with the proposed residential dwellings, notably 'Developed land, sealed surface' and 'vegetated garden', which contribute 'very low' and 'low' biodiversity value respectively. At the western end of the site, the proposed site design includes an area associated with the former earth bund and which has been specified as a habitat enhancement area, with the proposed creation of 'mixed scrub' on areas that support baseline habitats comprising predominantly of a mosaic of 'Modified grassland', with localised areas of scrub and to include the western end of the existing concrete hardstanding. This habitat enhancement will result in 'medium distinctiveness' mixed scrub, and is considered to be achievable and deliver biodiversity gain, through the natural colonisation with scrub and tree species, and would involve a negligible level of management input.
- 6.3.10 The current grassland could be evaluated as 'g4-modified grassland' using the UKHab classification and the enhancement to a medium distinctiveness 'mixed scrub' habitat is compliant with BNG Trading Rules built into the metric calculation.

Table 3 Summary of Post-development habitats (retained, created and enhanced)

Proposed Habitat	Description	Condition	Area (ha)	Biodiversity Units
Habitat Retained Tab A-1				
Urban - Developed land; sealed surface	Buildings, access road and driveways	N/A	0.1391	0
Individual Trees		Poor	0.0448	0.18
Individual Trees		Moderate	0.0977	0.78
Total habitat retained			0.2816	0.96
Habitat Creation Tab A-2				
Urban - Sustainable urban drainage feature	Drainage basing adjacent to site access to included new pond and grassland/wildflower area around edge of pond	Moderate/Good	0.0337	0.11
Urban - Vegetated garden	New gardens of dwellings within Site	N/A	0.2894	0.56
Heathland and shrub - Mixed scrub	New scrub planted at west end of site	Moderate	0.1092	0.73
Individual Trees	8x new trees planted at west end of Site	Moderate	0.0326	0.10
Total Habitat creation Post-development			0.46	1.50
Habitat Enhancement (Tab A-3)				
Woodland and forest - Other woodland; broadleaved	Enhancement of existing woodland habitat (from Fairly poor condition to Moderate)	Fairly Poor - Moderate	0.014	0.10
Total Habitats Enhanced Post-development			0.014	0.10
Hedge Retained/Lost(linear habitat – km) (Tab B-1)				
Native hedgerow	Hedge H2 –hedge retained along E boundary - Moderate condition	Moderate	0.038	0.15
Total hedge retained			0.038	0.15
Hedge Creation (linear habitat – km) (Tab B-2)				
Native hedgerow	Hedge H1 – creation of new hedge to west of access (ca. 11m length)	Moderate	0.011	0.04
Native hedgerow with trees	Hedge H3 – creation of new hedge along S boundary - Moderate condition	Moderate	0.031	0.17
Native hedgerow	Hedge H4 – creation of new hedge between Plot 3 and mixed scrub habitat at west end of Site	Moderate	0.051	0.17
Total Hedge creation			0.09	0.38
Hedge Enhancement (linear habitat – km) (Tab B-3)				
Native Hedgerow	Hedge H1 - Enhancement from Poor condition to Moderate	Poor - Moderate	0.086	0.33
Native Hedgerow to 'Native Hedgerow with Trees'	Hedge H3 - Enhancement from Poor condition to Moderate	Poor - Moderate	0.080	0.50

Proposed Habitat	Description	Condition	Area (ha)	Biodiversity Units
Total Hedge enhancement			0.166	0.83

BNG Analysis

The comparison of the pre- and post-development habitats undertaken within the Metric 2.0 provide the calculations of the change in biodiversity units shown in Table 4 below:

Table 4 Change in Biodiversity Units calculated using Biodiversity Metric

Area Habitats	
Onsite baseline biodiversity Units	1.18 Habitat Units
Onsite post development biodiversity Units	2.55 Habitat Units
Total Net Change in Biodiversity Units	+1.38 Habitat Units
Total Net Change (%)	+116.92%
Linear Habitats (Hedgerows)	
Onsite baseline biodiversity Units	0.51 Hedgerow Units
Onsite post development biodiversity Units	1.36 Hedgerow Units
Total Net Change in Biodiversity Units	+0.85 Hedgerow Units
Total Net Change (%)	+166.91%

6.3.11 The BNG assessment shows that the proposed development will result in a net gain of 1.38 (117%) Habitat Biodiversity Units and a net gain of 0.85 (167%) Hedgerow Units.

6.3.12 This assessment demonstrates that the proposed development will deliver a quantifiable net gain for biodiversity; and this is in excess of the 10% target required for Statutory Biodiversity Gain and is therefore compliant with the requirements established for mandatory Biodiversity Net Gain as well as national and local planning policies.

7 Conclusions

7.1.1 An Ecological Assessment of the proposed application for residential development on a plot of land at Tuthill's Yard, Therfield, has been undertaken, taking into account baseline ecological information derived from ecological site surveys carried out between 2019 and 2024 and a desk study of existing information regarding the site.

7.1.2 The ecological baseline has identified a number of ecological features which are of nature conservation value and/or benefit from statutory protection. These features are potential material considerations for any planning decision maker, and the potential impacts on these features have been assessed.

7.1.3 The proposed development will result in the loss of artificial and semi-natural habitats present on the Site, predominantly concrete hard standing and areas of tall herbaceous vegetation and scrub habitat

located at the western end of the Site. The loss of these habitats will not result in adverse significant impacts on local biodiversity.

- 7.1.4 The revised design of the proposed development will result in habitat creation and enhancements that will contribute to the delivery of Biodiversity Net Gain including the creation of a sustainable drainage feature adjacent to the site access (including a pond and species rich grassland) as well as the enhancement of habitats present on the bund at the western end of the site. In addition, gaps in linear boundaries will be planted up with hedgerow species and new sections of hedgerow created to enhance the habitat connectivity around the site. Consequently, the habitats present post construction will provide a significant net gain for biodiversity.
- 7.1.5 The draft BNG assessment undertaken has shown that the proposed development will result in a net gain of 1.38 (117%) Habitat Biodiversity Units and 0.85 (167%) Hedgerow Units. This draft BNG assessment demonstrates that the proposed development will deliver a quantifiable net gain for biodiversity that easily exceeds the 10% level specified within the Statutory Biodiversity Gain requirements of mandatory Biodiversity Net Gain and would therefore comply with the requirements of the Statutory Biodiversity Gain condition.
- 7.1.6 Based on the desk study and the extended phase 1 habitat survey, it has been concluded that the proposed development could potentially affect local populations of bats, breeding birds and badgers; appropriate mitigation and enhancement measures have been specified that would ensure that any adverse effects on these taxonomic groups would be avoided, reduced or compensated.
- 7.1.7 Consequently, if the recommendations detailed in this report are followed, including the implementation of an Ecological Management Plan, it is concluded that the proposed development would be compliant with statutory legislation regarding biodiversity and nature conservation and planning policy including recommendations set out in the NPPF and in local planning policies.

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Appendix 1 – Details of Sites of Importance for Nature Conservation

Appendix 1.1 Therfield Heath SSSI Citation

County:	Hertfordshire	Site Name:	Therfield Heath
District:	North Hertfordshire		
Status:	Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981		
Local Planning Authority:	North Hertfordshire District Council		
National Grid Reference:	TL 335400	Area:	143.33 (ha) 354.14 (ac)
Ordnance Survey Sheet 1: 50 000:	153, 154	1: 10 000:	TL 33 NW, 33 NE, 34 SW, 34 SE.
Date Notified (Under 1949 Act):	1953	Date of Last Revision:	1969
Date Notified (Under 1981 Act):	1984	Date of Last Revision:	-
Other Information:			
The majority of the site is also a Local Nature Reserve declared under Section 21 of the National Parks and Access to the Countryside Act 1949.			
Reasons for Notification:			
Therfield Heath is a very good example of the East Anglian type of chalk grassland. This plant community has suffered severe losses throughout its range during the post-war period, mainly as a result of agricultural intensification or the cessation of sheep grazing, so the remaining examples are of high conservation value. The site contains some of the richest chalk grassland in England.			
Since the turn of the century the traditional use of the Heath for sheep grazing has gradually given way to a variety of recreational uses, of which golfing has had the greatest impact. Parts of the site were ploughed during the Second World War but have since reverted to grassland.			
The remaining unimproved pasture is dominated by upright brome <i>Bromus erectus</i> and red fescue <i>Festuca rubra</i> . There is a rich assemblage of herbs including such rarities as pasque flower <i>Pulsatilla vulgaris</i> which occurs in abundance at Church Hill, spotted cat's ear <i>Hypochoeris maculata</i> , wild candytuft <i>Iberis amara</i> , bastard toadflax <i>Thesium humifusum</i> , and lesser meadowrue <i>Thalictrum minus</i> .			
The plant communities of the partially improved areas have a lesser, though increasing, diversity of species, including purple milk-vetch <i>Astragalus danicus</i> and horseshoe vetch <i>Hippocrepis comosa</i> .			
The site also includes mixed scrub communities at various stages of development, and two areas of mature beech woodland. The latter is best developed at Fox Covert, where the ground flora includes abundant white helleborine <i>Cephalanthera damasonium</i> .			
The grassland supports a diverse insect fauna, including the chalk hill blue butterfly <i>Lysandra coridon</i> .			

Appendix 1.2 Non-Statutory Designated Sites within 2km of the Site

Table 5 Details of Local Wildlife Sites (LWS) within 2km of the Site (Data provided from HERC)

File Code	Site Name	Grid Reference	Area (ha)	Description	Distance (m)
07/027	Therfield Motte and Bailey	TL332372	1.24	Neutral/calcareous old motte and bailey grassland which is grass and Creeping Buttercup (<i>Ranunculus repens</i>) dominant, surrounded by wire fencing and bordered by a hedgerow of mostly Hawthorn (<i>Crataegus monogyna</i>). The site is situated in a rural village within 85m of a Wildlife Site with a similar species composition, and an adjacent pond. The site is hilly in places and rabbit grazed with moderately sloped banks and some wet/damp depressions. Species diversity and the sites main ecological interest is located mainly on these slopes and depressions. Species recorded include Lady's Bedstraw (<i>Galium verum</i>), Common Knapweed (<i>Centaurea nigra</i> agg.), Bird's-foot-trefoil (<i>Lotus corniculatus</i>), Field Scabious (<i>Knautia arvensis</i>), Cowslip (<i>Primula veris</i>), Meadow Vetchling (<i>Lathyrus pratensis</i>), Brooklime (<i>Veronica beccabunga</i>) and Hard Rush (<i>Juncus inflexus</i>). Wildlife Site criteria: Grassland indicators.	110
07/015	Bell Meadow	TL334374	2.62	A grazed semi-improved neutral grassland with dry calcareous banks, with unimproved flora. The site is located within a rural town and is bordered by residential housing on 3 sides and a road and a field to the North. The site is enclosed by hedgerows comprising of Hawthorn (<i>Crataegus monogyna</i>), Bramble (<i>Rubus fruticosus</i> agg) and Blackthorn (<i>Prunus spinosa</i>). On the Southern side the boundary comprises of Stinging Nettles (<i>Urtica dioica</i>). The main grassland species include Creeping Thistle (<i>Cirsium arvense</i>), Creeping Buttercup (<i>Ranunculus repens</i>), White Clover (<i>Trifolium repens</i>), False Oat-grass (<i>Arrhenatherum elatius</i>), Yorkshire Fog (<i>Holcus lanatus</i>) and Red Fescue (<i>Festuca rubra</i> agg.). The bank to the north of the site is the most herb rich area of the site supporting species such as, Selfheal (<i>Prunella vulgaris</i>), Meadow Buttercup (<i>Ranunculus acris</i>), Red Clover (<i>Trifolium pratense</i>), Black Medick (<i>Medicago lupulina</i>), Burnet Saxifrage (<i>Pimpinella saxifrage</i>), Crested Dog's-tail (<i>Cynosurus cristatus</i>) and Hoary Plantain (<i>Plantago media</i>). Wildlife Site Criteria: Grassland indicators.	230
07/022	Therfield Green Lane	TL343382	2.09	Green lane supporting calcareous grassland and substantial hedges for part of its length. Species present include Greater Knapweed (<i>Centaurea scabiosa</i>), Common Knapweed (<i>Centaurea nigra</i>) and Devil's-bit Scabious (<i>Succisa pratensis</i>). Wildlife Site criteria: Grassland indicators.	790
07/016	Ducks' Green West Meadow	TL336366	2.23	Old meadows supporting unimproved neutral grassland with a good mix of herb and grass species, including much Common Knapweed (<i>Centaurea nigra</i>) and Yellow Rattle (<i>Rhinanthus minor</i>), an uncommon species in the County. The southern meadow contains a pond. Wildlife Site criteria: Grassland indicators.	810
07/017	Ducks' Green & Kelshall Lane	TL337356	2.73	Old green lane, wet in places with marshy vegetation, tall herbs, grasses and bordered by substantial hedges and tree fringes which support a good mix of woody species, including several large Elms (<i>Ulmus</i> sp.), and typical hedgerow flora. Wildlife Site criteria: Green lane with features and structure indicative of an ancient origin.	900
07/019	Hay Green Grassland	TL339367	1.07	A village green, dissected by several roads, supporting predominantly neutral, semi-improved rough amenity	900

				grassland. The grass retains a good mix of grasses and herbs, including locally abundant Common Knapweed (<i>Centaurea nigra</i>). Common Bistort (<i>Persicaria bistorta</i>) has been recorded from a ditch on site. Wildlife Site criteria: Grassland indicators.	
07/00 4	Crouch Hill Road Verge	TL31037 2	2.29	Very large road verge with species-rich calcareous grassland, ditch and remnant hedge enclosures. Species recorded include Greater Knapweed (<i>Centaurea scabiosa</i>), Common Knapweed (<i>Centaurea nigra</i>), Hedge Bedstraw (<i>Galium mollugo</i>), Field Scabious (<i>Knautia arvensis</i>), Burnet-saxifrage (<i>Pimpinella saxifrage</i>), Bird's-foot Trefoil (<i>Lotus corniculatus</i>), Oxeye Daisy (<i>Leucanthemum vulgare</i>) and Knapweed Broomrape (<i>Orobancha elatior</i>). Some former arable areas have been planted with trees. Wildlife Site criteria: Grassland indicators.	1250
07/00 5	Coombe Bottom, Thrift Hill	TL31438 1	9.36	Situated on the chalk escarpment, the site comprises classic dry valleys with two side coombes which support species-rich unimproved chalk grassland. The varied topography gives rise to different grassland associations. Thin rendzinas are dominated by Red Fescue (<i>Festuca rubra</i>) with Upright Brome (<i>Bromopsis erecta</i>), Golden Oat-grass (<i>Trisetum flavescens</i>), Timothy-grass (<i>Phleum pratense</i>) and Crested Hair-grass (<i>Koeleria cristata</i>). Abundant chalk herbs include Clustered Bellflower (<i>Campanula rotundifolia</i>), Common Milkwort (<i>Polygala vulgaris</i>), Dropwort (<i>Filipendula vulgaris</i>), Common Restharrow (<i>Ononis repens</i>), Small Scabious (<i>Scabiosa columbaria</i>), Cowslip (<i>Primula veris</i>) and Salad Burnet (<i>Sanguisorba minor</i>). Deeper soils support species-poor swards. Mixed scrub of Hawthorn (<i>Crataegus monogyna</i>), Blackthorn (<i>Prunus spinosa</i>) and Rose (<i>Rosa</i> sp.) add habitat diversity. Wildlife Site criteria: Grassland indicators.	1680
07/00 3	Mount Hill	TL31336 7	0.60	Abandoned chalk pit site with calcareous grassland, scrub and arable field margins. Species recorded include Clustered Bellflower (<i>Campanula glomerata</i>), Greater Knapweed (<i>Centaurea scabiosa</i>), Common Rock-rose (<i>Helianthemum nummularium</i>), Bird's-foot Trefoil (<i>Lotus corniculatus</i>), Common Milkwort (<i>Polygala vulgaris</i>), Burnet-saxifrage (<i>Pimpinella saxifrage</i>) and Knapweed Broomrape (<i>Orobancha elatior</i>). Wildlife Site criteria: Grassland indicators.	1790
07/02 5/01	Wing Hall Banks North	TL33139 3	3.97	Chalk grassland with old planted broadleaved woodland on the chalk escarpment. The woodland is dominated by Sycamore (<i>Acer pseudoplatanus</i>) with Ash (<i>Fraxinus excelsior</i>) and Beech (<i>Fagus sylvatica</i>). The steep west-facing banks supports species-rich chalk grassland dominated by Upright Brome (<i>Bromopsis erecta</i>), with a range of herbs. A hedge is present within the western area of site. The chalk grassland on the escarpment on Wing Hall Banks is a Local Wildlife Site. The steep west-facing banks supports species-rich chalk grassland dominated by Upright Brome (<i>Bromopsis erecta</i>), with a range of herbs. Wildlife Site criteria: Grassland indicators.	1800
07/01 1	Fordhams Wood	TL33339 4	8.29	Old lynchets with secondary woodland of Sycamore (<i>Acer pseudoplatanus</i>), Beech (<i>Fagus sylvatica</i>) and Ash (<i>Fraxinus excelsior</i>) with a shrub layer predominantly of Hawthorn (<i>Crataegus monogyna</i>) and Elder (<i>Sambucus nigra</i>). Wildlife Site criteria: Woodland.	1890
07/03 6	Lord's Wood (N.E. of Sandon)	TL33135 2	2.25	Ancient semi-natural broadleaf woodland with a high canopy of Ash (<i>Fraxinus excelsior</i>) and Pedunculate Oak (<i>Quercus robur</i>) standards plus Field Maple (<i>Acer campestre</i>). Shrub layer consists of Hawthorn (<i>Crataegus monogyna</i>), Elm	1920

				(Ulmus spp.), Hazel (Corylus avellana) and young Field Maple. Some coppicing of Field Maple and Hazel. Ground flora typically Dog's Mercury (Mercurialis perennis) and Bluebell (Hyacinthoides non-scripta). Wildlife Site criteria: Ancient Woodland Inventory site.	
08/05 9	Mardleybury Area	TL35036 5	0.00	Building and environs important for protected species. Wildlife Site criteria: Species.	1940

Appendix 2 - Phase 1 Habitat Survey Information

Appendix 2.1 2019 Habitat Survey Target Notes

Table 6 Target Notes recorded during Phase 1 Habitat Survey

Target Note	Description
Tn1	Yard / Hardstanding Concrete hardstanding comprising majority of yard, with level ground constructed from formed concrete areas. Most concrete areas were in relatively condition with occasional tall ruderal species present along the joints in the concrete including common nettle <i>Urtica dioica</i>, bristly oxtongue <i>Picris echioides</i>, Spear thistle <i>Cirsium vulgare</i> and rosebay willowherb <i>Chamerion angustifolium</i> with localised areas with relatively extensive bryophyte carpets. The yard was generally unused and uncovered at the time of survey although a small pile of spoil and a larger pile of polythene covered bales was present adjacent to the southern boundary of the yard. In the north west corner, there was an open-ended shelter/shed, of timber construction with several old container units that were used for storage of miscellaneous materials. The yard was accessed from the road to the north via a steel gate in the northeast corner.
	Photo 1 View north east from west end of yard  Photo 2 Site access gate  Photo 3 View west of stored material along S edge of yard  Photo 4 View south east from west end of yard: hedge and trees along site boundary 
Tn2	Area of broken concrete/bare ground in SE corner of yard. Mosaic of bare ground with patches of tall herbaceous vegetation, short ephemeral vegetation and bryophyte layer. Tall herb species dominant included common nettle, bristly oxtongue, creeping thistle <i>Cirsium arvense</i>, Burdock sp. <i>Arctium</i> sp., ragwort <i>Senecio jacobaea</i>, herb Robert <i>Geranium robertianum</i> and Yorkshire fog <i>Holcus lanatus</i>. The south and east site boundaries comprised a timber panel fence, which was dilapidated along the south boundary. Photo 5 View east of vegetated corner of yard 
Tn3	Earth bund at west of Site Probably created from groundworks at the time of the construction of the concrete yard, the bund

Target Description
Note

comprised a gently sloping area adjacent to the yard area and then a steeply sloping earth bund approx. 4m in height along the western edge of the Site.

The area was dominated by tall herbaceous species and becoming colonised by bramble *Rubus fruticosus* agg., which formed locally dominant patches. Tall herb species included common nettle, teasel *Dipsacus fullonum*, Great mullein *Verbascum thapsus*, creeping thistle, creeping cinquefoil, *Potentilla reptans*, broad-leaved dock *Rumex obtusifolius*, hemlock *Conium maculatum* and rosebay willowherb.

At the south end a small, fenced compound housed a telecoms mast, with abundant signs of rabbit and muntjac deer.

Photo 6 View of north end of tall herb dominated area at west end of Site



Photo 7 View of south end of tall herb dominated area at west end of Site



- Tn4** Small area of enclosed canopy of broad-leaved woodland on west-facing slope of earth bund. Canopy comprised of approx. five semi-mature to mature Ash *Fraxinus excelsior* tree along the western boundary of the site. A sparse understorey was present with scattered elder *Sambucus nigra*, and occasional Blackthorn *Prunus spinosa*. The ground layer comprised common nettle with occasional Spear thistle, ground ivy *Glechoma hederacea*, cleavers *Galium aparine* and bramble. The west facing bank supported abundant rabbit burrows and signs of muntjac. At the southern end of the bund, a single old outlier sett was present – there were no signs of current use and the presence of a single hole only suggested use as an outlier sett in the past. The Ash trees included several mature and decaying trees, with all exhibiting early stages of ash die-back including:
- T1 – Mature ash at NW corner of site adjacent to road. Diameter breast height (DBH) = 80cm; Trunk covered with ivy and some crown deadwood. Low to moderate potential to support bat roost
- T2/T3 – pair of Ash on west site boundary. DBH of both – 60cm. T2 has limb damage, and both have minor deadwood in crown. Early signs of ash dieback present
- T4 – Young Ash – DBH – 30cm. Appears to be dying due to ash die-back.
- T5 – Group of three semi-mature ash in SE corner of Site along western boundary. DBH – 20-30cm with some damaged limbs in crown and fissured bark present with several woodpecker holes and rot-holes. All three showing signs of die-back. Moderate – High Bat roost potential due to present of woodpecker holes.

Photo 8 View from roadside of west boundary of Site



Photo 9 View of mature Ash trees present along western site boundary (T2 and T3)



Target Description
Note

Photo 10 Tree T5 showing dieback in crown



-
- Tn5 Arable field to west of Site
 Includes ca. 20m wide strip of improved grassland used as access track to relatively recently constructed telecoms tower to south east of Site (Photo 8)
 Grassland dominated by Yorkshire fog, Cock's-foot *Dactylis glomerata*, and false oat-grass *Arrhenatherum elatius*, with occasional bristly oxtongue, creeping thistle, and common nettle. Deer tracks were noted through the grassland and likely to be muntjac and fallow deer. Red kite and green woodpecker observed.
-
- Tn 6 Fallow field to South of Site
 Majority of field comprised tall herbaceous vegetation with localised area of species-poor semi-improved grassland. Dominant species included teasel, with abundant rosebay willowherb, creeping thistle, ground ivy, and occasional elder scrub.
 Numerous deer tracks were present, and a juvenile fallow deer was disturbed from a resting place.
-
- H1 Gappy hedge and fence along north boundary of Site
 Hedge dominated Hawthorn *Crataegus monogyna*, and unmanaged with individual bushes 4-6m in height, overgrown and patchy in places. Occasional elder, blackthorn, ash and Ivy present in localised areas.
- H2 Intact hedge with timber panel fence along east boundary of Site
 Hedge is ca. 4m in height and 1 to 1.5m wide, dominated by Blackthorn and ivy, with occasional Hawthorn.
- H3 Defunct, gappy hedge with scattered trees along south boundary of Site
 Hedge grown out along a dilapidated post and rail fence.
 Hawthorn dominant species with occasional semi-mature pine *Pinus* sp. trees present. All trees had a DBH of approx. 30cm and lacked potential roost features for bats.
-

Appendix 2.2 2021 Habitat Survey Site Photographs

Photo 11 View west across concrete hardstanding 	Photo 12 View towards south east corner of Site 
Photo 13 View of bund at west end of Site showing tall herbaceous vegetation on slopes 	Photo 14 View of mature ash trees along western boundary of Site. 

Appendix 2.3 2024 Habitat Survey Site Photographs

Photo 15 View from east of site westwards across concrete hardstanding



Photo 16 View along northern site boundary (H1) of Site



Photo 17 View of bund at west end of Site showing tall herbaceous vegetation on slopes



Photo 18 View of bund at west end of Site showing nettle dominated vegetation.



Photo 19 View of south boundary of Site (H3) showing semi-mature pine trees and gappy hedge species.



Photo 20 View of Site Access and ruderal vegetation growing through cracks in concrete.



Appendix 3 Species Records Provided by HERC Data Search

Taxon Group	Common Name	Scientific Name	Count of Scientific Name
Terrestrial Mammals (Bats)	a Bat	<i>Chiroptera</i>	5
	a Pipistrelle Bat	<i>Pipistrellus</i>	3
	Brown Long-eared Bat	<i>Plecotus auritus</i>	15
	Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	10
	Nathusius's Pipistrelle	<i>Pipistrellus nathusii</i>	3
	Natterer's Bat	<i>Myotis nattereri</i>	2
	Pipistrelle	<i>Pipistrellus pipistrellus</i>	9
	Serotine	<i>Eptesicus serotinus</i>	1
	Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	1
Terrestrial Mammals (excl. Bats)	Brown Hare	<i>Lepus europaeus</i>	19
	Chinese Muntjac	<i>Muntiacus reevesi</i>	11
	Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	7
	Eurasian Badger	<i>Meles meles</i>	32
	Eurasian Red Squirrel	<i>Sciurus vulgaris</i>	1
	Harvest Mouse	<i>Micromys minutus</i>	3
	Polecat	<i>Mustela putorius</i>	1
	West European Hedgehog	<i>Erinaceus europaeus</i>	6
Amphibians	Common Toad	<i>Bufo bufo</i>	4
	Great Crested Newt	<i>Triturus cristatus</i>	7
Reptiles	Common Lizard	<i>Zootoca vivipara</i>	4
	Slow worm	<i>Anguis fragilis</i>	2
Birds	Barn Owl	<i>Tyto alba</i>	17
	Black Redstart	<i>Phoenicurus ochruros</i>	10
	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	12
	Blue Tit	<i>Cyanistes caeruleus</i>	32
	Brambling	<i>Fringilla montifringilla</i>	12
	Bullfinch	<i>Pyrrhula pyrrhula</i>	9
	Buzzard	<i>Buteo buteo</i>	107
	Canada Goose	<i>Branta canadensis</i>	1
	Coal Tit	<i>Parus ater</i>	2
	Common Crossbill	<i>Loxia curvirostra</i>	3
	Common Gull	<i>Larus canus</i>	9
	Corn Bunting	<i>Emberiza calandra</i>	96
	Cuckoo	<i>Cuculus canorus</i>	3
	Dotterel	<i>Charadrius morinellus</i>	8
	Dunnock	<i>Prunella modularis</i>	27
	Fieldfare	<i>Turdus pilaris</i>	78
	Firecrest	<i>Regulus ignicapilla</i>	1
	Goldcrest	<i>Regulus regulus</i>	11
	Golden Plover	<i>Pluvialis apricaria</i>	1
	Goldfinch	<i>Carduelis carduelis</i>	39

Taxon Group	Common Name	Scientific Name	Count of Scientific Name
	Great Black-backed Gull	<i>Larus marinus</i>	1
	Great Grey Shrike	<i>Lanius excubitor</i>	63
	Great Spotted Woodpecker	<i>Dendrocopos major</i>	8
	Great Tit	<i>Parus major</i>	32
	Green Woodpecker	<i>Picus viridis</i>	18
	Greenfinch	<i>Chloris chloris</i>	11
	Grey Partridge	<i>Perdix perdix</i>	150
	Grey Plover	<i>Pluvialis squatarola</i>	109
	Grey Wagtail	<i>Motacilla cinerea</i>	2
	Greylag Goose	<i>Anser anser</i>	1
	Hen Harrier	<i>Circus cyaneus</i>	58
	Herring Gull	<i>Larus argentatus</i>	3
	Hobby	<i>Falco subbuteo</i>	7
	House Martin	<i>Delichon urbicum</i>	5
	House Sparrow	<i>Passer domesticus</i>	16
	Kestrel	<i>Falco tinnunculus</i>	60
	Lapwing	<i>Vanellus vanellus</i>	92
	Lesser Black-backed Gull	<i>Larus fuscus</i>	10
	Lesser Redpoll	<i>Acanthis cabaret</i>	5
	Lesser Spotted Woodpecker	<i>Dendrocopos minor</i>	1
	Linnet	<i>Linaria cannabina</i>	72
	Little Owl	<i>Athene noctua</i>	30
	Long-eared Owl	<i>Asio otus</i>	23
	Mallard	<i>Anas platyrhynchos</i>	5
	Mandarin Duck	<i>Aix galericulata</i>	1
	Marsh Harrier	<i>Circus aeruginosus</i>	51
	Marsh Tit	<i>Poecile palustris</i>	8
	Meadow Pipit	<i>Anthus pratensis</i>	28
	Merlin	<i>Falco columbarius</i>	10
	Mistle Thrush	<i>Turdus viscivorus</i>	20
	Moorhen	<i>Gallinula chloropus</i>	3
	Nuthatch	<i>Sitta europaea</i>	4
	Osprey	<i>Pandion haliaetus</i>	1
	Peregrine	<i>Falco peregrinus</i>	11
	Pied Wagtail	<i>Motacilla alba</i>	6
		<i>Motacilla alba subsp. yarrellii</i>	9
	Quail	<i>Coturnix coturnix</i>	4
	Red Kite	<i>Milvus milvus</i>	168
	Redstart	<i>Phoenicurus phoenicurus</i>	5
	Redwing	<i>Turdus iliacus</i>	26
	Reed Bunting	<i>Emberiza schoeniclus</i>	14
	Ring Ouzel	<i>Turdus torquatus</i>	22
	Robin	<i>Erithacus rubecula</i>	43
	Rough-legged Buzzard	<i>Buteo lagopus</i>	10
	Sand Martin	<i>Riparia riparia</i>	1
	Short-eared Owl	<i>Asio flammeus</i>	31

Taxon Group	Common Name	Scientific Name	Count of Scientific Name
	Shoveler	<i>Anas clypeata</i>	1
	Siskin	<i>Spinus spinus</i>	5
	Skylark	<i>Alauda arvensis</i>	47
	Song Thrush	<i>Turdus philomelos</i>	21
	Sparrowhawk	<i>Accipiter nisus</i>	21
	Spotted Flycatcher	<i>Muscicapa striata</i>	12
	Starling	<i>Sturnus vulgaris</i>	21
	Stock Dove	<i>Columba oenas</i>	20
	Stonechat	<i>Saxicola rubicola</i>	2
	Stone-curlew	<i>Burhinus oedicephalus</i>	3
	Swallow	<i>Hirundo rustica</i>	15
	Swift	<i>Apus apus</i>	7
	Tawny Owl	<i>Strix aluco</i>	10
	Tree Pipit	<i>Anthus trivialis</i>	1
	Tree Sparrow	<i>Passer montanus</i>	1
	Treecreeper	<i>Certhia familiaris</i>	9
	Turtle Dove	<i>Streptopelia turtur</i>	20
	Wheatear	<i>Oenanthe oenanthe</i>	15
	Whinchat	<i>Saxicola rubetra</i>	7
	Willow Warbler	<i>Phylloscopus trochilus</i>	5
	Woodcock	<i>Scolopax rusticola</i>	2
	Wren	<i>Troglodytes troglodytes</i>	25
	Yellow Wagtail	<i>Motacilla flava</i>	17
	Yellowhammer	<i>Emberiza citrinella</i>	95
	Yellow-legged Gull	<i>Larus michahellis</i>	1
Fish - Bony (Actinopterygii)	Bullhead	<i>Cottus gobio</i>	2
Invertebrates - Ants, Bees, Sawflies and Wasps (Hymenoptera)	Lobe-spurred Furrow Bee	<i>Lasioglossum (Evylaeus) pauxillum</i>	2
	Myrmica schencki	<i>Myrmica schencki</i>	8
	Small Tiphia	<i>Tiphia minuta</i>	1
	White-footed Furrow Bee	<i>Lasioglossum (Dialictus) leucopus</i>	2
Invertebrates - Beetles (Coleoptera)	Phytoecia cylindrica	<i>Phytoecia cylindrica</i>	1
	Small Bloody-nosed Beetle	<i>Timarcha goettingensis</i>	4
	Wheat Mud Beetle	<i>Helophorus nubilus</i>	1
Invertebrates - Butterflies	Adonis Blue	<i>Polyommatus bellargus</i>	10
	Chalk Hill Blue	<i>Polyommatus coridon</i>	60
	Dark Green Fritillary	<i>Argynnis aglaja</i>	11
		<i>Argynnis aglaja aglaja</i>	3
	Dingy Skipper	<i>Erynnis tages</i>	9
	Essex Skipper	<i>Thymelicus lineola</i>	20
	Grizzled Skipper	<i>Pyrgus malvae</i>	7
	High Brown Fritillary	<i>Argynnis adippe</i>	1
	Silver-spotted Skipper	<i>Hesperia comma</i>	23

Taxon Group	Common Name	Scientific Name	Count of Scientific Name
	Small Heath	<i>Coenonympha pamphilus</i>	27
		<i>Coenonympha pamphilus pamphilus</i>	3
	Small Skipper	<i>Thymelicus sylvestris</i>	19
	Wall	<i>Lasiommata megera</i>	6
	White-letter Hairstreak	<i>Satyrrium w-album</i>	1
Invertebrates - Grasshoppers and Crickets (Orthoptera)	Mottled Grasshopper	<i>Myrmeleotettix maculatus</i>	3
	Stripe-winged Grasshopper	<i>Stenobothrus lineatus</i>	2
Invertebrates - Molluscs	Roman Snail	<i>Helix (Helix) pomatia</i>	1
Invertebrates - Moths	Barred Groundling	<i>Teleiodes sequax</i>	4
	Beaded Chestnut	<i>Agrochola lychnidis</i>	1
	Black Neb	<i>Monochroa luteiventella</i>	1
	Black-bindweed Case-bearer	<i>Coleophora therinella</i>	2
	Brassy Long-horn	<i>Nemophora metallica</i>	3
	Brilliant Neb	<i>Metzneria aprilella</i>	1
	Broom Moth	<i>Ceramica pisi</i>	5
	Brown Cosmet	<i>Mompha miscella</i>	2
	Buckthorn Bent-wing	<i>Bucculatrix frangutella</i>	3
	Buff Ermine	<i>Spilosoma lutea</i>	1
	Centre-barred Sallow	<i>Atethmia centrargo</i>	2
	Chalk Carpet	<i>Scotopteryx bipunctaria cretata</i>	1
	Chalk-hill Lance-wing	<i>Epermenia insecurella</i>	1
	Cinnabar	<i>Tyria jacobaeae</i>	13
	Common Heath	<i>Ematurga atomaria</i>	3
	Copper Owlet	<i>Scythris crassiuscula</i>	1
	Crested Bent-wing	<i>Bucculatrix cristatella</i>	1
	Dark Brocade	<i>Mniotype adusta</i>	2
	Dark-barred Twin-spot Carpet	<i>Xanthorhoe ferrugata</i>	3
	Deep Brown Shade	<i>Neosphaleroptera nubilana</i>	1
	Dingy Knot-horn	<i>Hypochalcia ahenella</i>	4
	Dot Moth	<i>Melanchra persicariae</i>	4
	Double Dart	<i>Graphiphora augur</i>	2
	Downland Bell	<i>Rhopobota stagnana</i>	3
	Dusky Thorn	<i>Ennomos fuscantaria</i>	2
	Ear Moth	<i>Amphipoea oculatea</i>	1
	Elm Button	<i>Acleris kochiella</i>	1
	Feathered Gothic	<i>Tholera decimalis</i>	4
	Fox Moth	<i>Macrothylacia rubi</i>	2
	Garden Dart	<i>Euxoa nigricans</i>	2
	Garden Tiger	<i>Arctia caja</i>	1
	Ghost Moth	<i>Hepialus humuli</i>	4
	Grey Dagger	<i>Acronicta psi</i>	6
	Hedge Rustic	<i>Tholera cespitis</i>	1
	Lackey	<i>Malacosoma neustria</i>	3

Taxon Group	Common Name	Scientific Name	Count of Scientific Name
	Lappet	<i>Gastropacha quercifolia</i>	1
	Large Nutmeg	<i>Apamea anceps</i>	5
	Latticed Heath	<i>Chiasmia clathrata</i>	7
	Light Feathered Rustic	<i>Agrotis cinerea</i>	1
	Little Roller	<i>Ancylis comptana</i>	1
	Meadow-sweet Pigmy	<i>Stigmella filipendulae</i>	1
	Mottled Rustic	<i>Caradrina morpheus</i>	3
	Mouse Moth	<i>Amphipyra tragopoginis</i>	5
	Narrow-bordered Bee Hawk-moth	<i>Hemaris tityus</i>	1
	Northern Drab	<i>Orthosia opima</i>	8
	Oak Hook-tip	<i>Watsonalla binaria</i>	4
	Oblique Striped	<i>Phibalapteryx virgata</i>	1
	Pale Shining Brown	<i>Polia bombycina</i>	2
	Pale Straw Pearl	<i>Udea lutealis</i>	1
	Plain Golden Y	<i>Autographa jota</i>	4
	Powdered Knot-horn	<i>Delplanqueia dilutella</i>	12
	Pretty Chalk Carpet	<i>Melanthia procellata</i>	1
	Rose Bright	<i>Lampronia morosa</i>	1
	Rustic	<i>Hoplodrina blanda</i>	4
	Scarce Rose Bell	<i>Phaneta pauperana</i>	1
	Shaded Broad-bar	<i>Scotopteryx chenopodiata</i>	7
	Shoulder-striped Wainscot	<i>Leucania comma</i>	3
	Small Eggar	<i>Eriogaster lanestris</i>	1
	Small Long-horn	<i>Nemophora minimella</i>	1
	Small Phoenix	<i>Ecliptopera silaceata</i>	1
	Small Plume	<i>Oxyptilus parvidactyla</i>	1
	Small Purple-barred	<i>Phytometra viridaria</i>	4
	Small Square-spot	<i>Diarsia rubi</i>	5
	Streaked Flat-body	<i>Depressaria chaerophylli</i>	1
	Sulphur Pearl	<i>Sitochroa palealis</i>	1
	Tawny Shears	<i>Hadena perplexa perplexa</i>	1
	Two-dotted Dwarf	<i>Elachista biatomella</i>	1
	Violet Cosmet	<i>Panalia leuwenhoekella</i>	1
	Wavy-barred Sable	<i>Pyrausta nigrata</i>	9
	White Ermine	<i>Spilosoma lubricipeda</i>	3
	Willow Bent-wing	<i>Phyllocnistis saligna</i>	1
	Wood Carpet	<i>Epirrhoe rivata</i>	2
Invertebrates - True Flies (Diptera)	Dicranomyia chorea	<i>Dicranomyia chorea</i>	3
	Rhipidia uniseriata	<i>Rhipidia uniseriata</i>	2
Higher Plants - Flowering Plants	Autumn Gentian	<i>Gentianella amarella</i>	1
	Basil Thyme	<i>Clinopodium acinos</i>	2
	Bastard-toadflax	<i>Thesium humifusum</i>	1
	Bluebell	<i>Hyacinthoides non-scripta</i>	5

Taxon Group	Common Name	Scientific Name	Count of Scientific Name
	Burnt Orchid	<i>Neotinea ustulata</i>	2
	Carlina Thistle	<i>Carlina vulgaris</i>	2
	Common Rock-rose	<i>Helianthemum nummularium</i>	6
	Crested Cow-wheat	<i>Melampyrum cristatum</i>	1
	Devil's-bit Scabious	<i>Succisa pratensis</i>	1
	Dwarf Spurge	<i>Euphorbia exigua</i>	5
	Eyebright	<i>Euphrasia pseudokernerii</i>	2
		<i>Tephroseris integrifolia</i> subsp. <i>integrifolia</i>	1
	Field Fleawort		
	Field Gromwell	<i>Lithospermum arvense</i>	2
	Field Scabious	<i>Knautia arvensis</i>	11
	Fine-leaved Sandwort	<i>Minuartia hybrida</i>	1
	Fragrant Orchid	<i>Gymnadenia conopsea</i>	2
	Giant Hogweed	<i>Heracleum mantegazzianum</i>	2
	Harebell	<i>Campanula rotundifolia</i>	6
	Hoary Plantain	<i>Plantago media</i>	8
	Japanese Knotweed	<i>Fallopia japonica</i>	1
	Pasqueflower	<i>Pulsatilla vulgaris</i>	7
	Purple Milk-vetch	<i>Astragalus danicus</i>	1
	Quaking-grass	<i>Briza media</i>	6
	Red Hemp-nettle	<i>Galeopsis angustifolia</i>	5
	Sainfoin	<i>Onobrychis viciifolia</i>	1
	Sanicle	<i>Sanicula europaea</i>	3
	Spiny Restharrow	<i>Ononis spinosa</i>	1
	Stinking Chamomile	<i>Anthemis cotula</i>	2
	Strawberry Clover	<i>Trifolium fragiferum</i>	1
	Treacle-mustard	<i>Erysimum cheiranthoides</i>	2
	Wild Candytuft	<i>Iberis amara</i>	1
	Wild Strawberry	<i>Fragaria vesca</i>	6
Lower Plants - Liverworts	Blueish Veilwort	<i>Metzgeria violacea</i>	3
Lower Plants - Mosses	Many-fruited Thyme-moss	<i>Plagiomnium affine</i>	1
	Short-leaved Pocket-moss	<i>Fissidens incurvus</i>	3
	Slender Beard-moss	<i>Didymodon icmadophilus</i>	3
	Sterile Beardless-moss	<i>Weissia sterilis</i>	5
	Wall Feather-moss	<i>Rhynchostegium murale</i>	3
Lichens	Eagle's claws	<i>Anaptychia ciliaris</i> subsp. <i>ciliaris</i>	1
	Lecanora horiza	<i>Lecanora horiza</i>	2

Figures Presenting Habitat Classification used in BNG Assessment

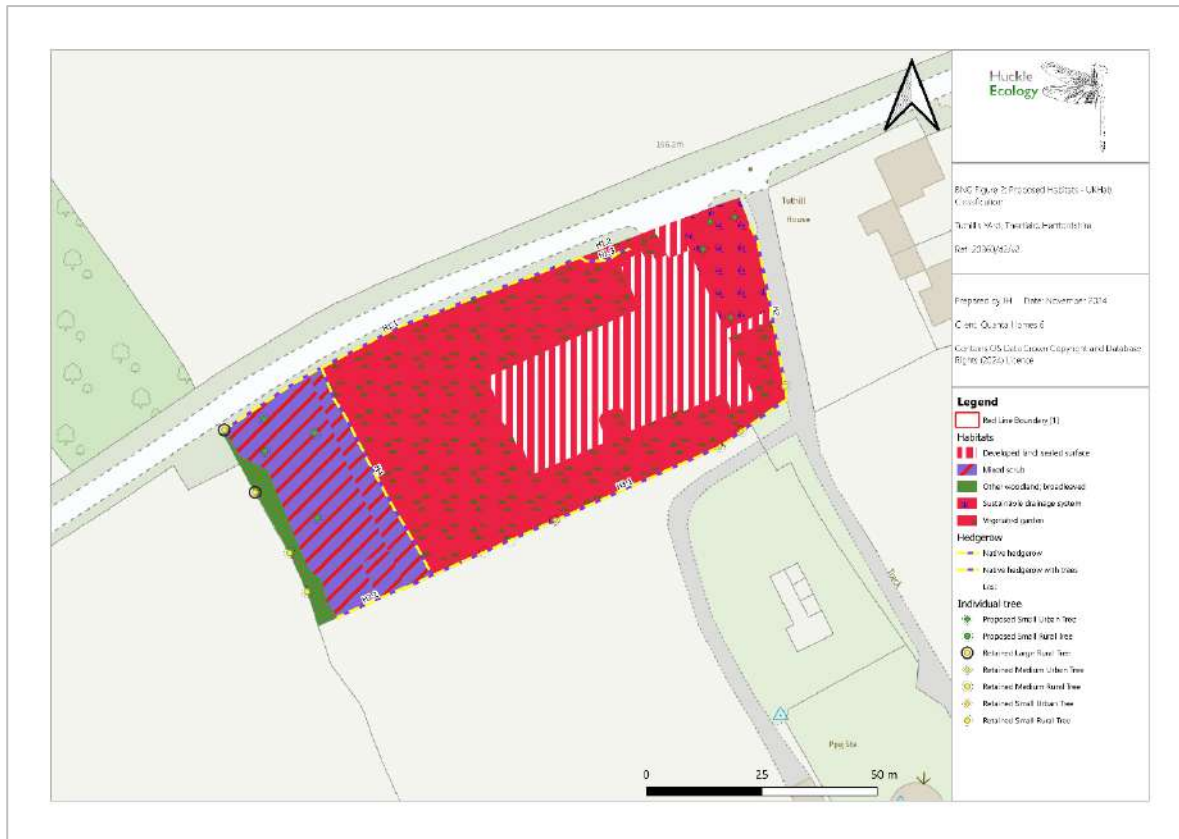
Figure 5 Baseline onsite habitats used in BNG Assessment (Phase 1 habitat classification)



Figure 2 Proposed Site Layout and Roof Plan (used to determine Post-development habitats)



Figure 6 Proposed Post-development onsite habitats (UKHab habitat classification)



Appendix 4 Statutory Biodiversity Metric Results

Appendix 4.1.1 Headline Results

Tuthills Yard

Headline Results

Scroll down for final results ▲

Return to results menu

On-site baseline

Habitat units

1.18

Hedgerow units

0.51

Watercourse units

0.00

On-site post-intervention

(Including habitat retention, creation & enhancement)

Habitat units

2.55

Hedgerow units

1.36

Watercourse units

0.00

On-site net change

(units & percentage)

Habitat units

1.38

116.92%

Hedgerow units

0.85

166.91%

Watercourse units

0.00

0.00%

Off-site baseline

Habitat units

0.00

Hedgerow units

0.00

Watercourse units

0.00

Off-site post-intervention

(Including habitat retention, creation & enhancement)

Habitat units

0.00

Hedgerow units

0.00

Watercourse units

0.00

Off-site net change

(units & percentage)

Habitat units

0.00

0.00%

Hedgerow units

0.00

0.00%

Watercourse units

0.00

0.00%

Combined net unit change

(Including all on-site & off-site habitat retention, creation & enhancement)

Habitat units

1.38

Hedgerow units

0.85

Watercourse units

0.00

Spatial risk multiplier (SRM) deductions

Habitat units

0.00

Hedgerow units

0.00

Watercourse units

0.00

FINAL RESULTS

Total net unit change

(Including all on-site & off-site habitat retention, creation & enhancement)

Habitat units

1.38

Hedgerow units

0.85

Watercourse units

0.00

Total net % change

(Including all on-site & off-site habitat retention, creation & enhancement)

Habitat units

116.92%

Hedgerow units

166.91%

Watercourse units

0.00%

Trading rules satisfied?

Yes ✓

Unit Type

Target

Baseline Units

Units Required

Unit Deficit

Habitat units

10.00%

1.18

1.30

0.00

Hedgerow units

10.00%

0.51

0.56

0.00

Watercourse units

10.00%

0.00

0.00

0.00

No additional area habitat units required to meet target ✓

No additional hedgerow units required to meet target ✓

No additional watercourse units required to meet target ✓

Appendix 4.1.2 Detailed Results

Tuthills Yard

Detailed Results

Return to results menu

Summary Figures

Net project biodiversity units (Including all on-site & off-site habitat retention / creation)	Habitat units	1.38
	Hedgerow units	0.85
	Watercourse units	0.00

Total project biodiversity % change (Including all on-site & off-site habitat creation + retained habitats)	Habitat units	116.92%
	Hedgerow units	166.91%
	Watercourse units	0.00%

Combined habitat retention and enhancement			
	Habitats	Hedgerows	Watercourses
Total on-site and off-site baseline area / length	0.73	0.22	0.00
Total on-site and off-site baseline units	1.18	0.51	0.00
Total on-site and off-site baseline area / length retained	0.28	0.04	0.00
Total on-site and off-site baseline units retained	0.96	0.15	0.00
Total on-site and off-site area / length proposed for enhancement	0.01	0.17	0.00
Total on-site and off-site baseline units proposed for enhancement	0.06	0.33	0.00
Total on-site and off-site baseline area / length lost	0.43	0.01	0.00
Total on-site and off-site baseline units lost	0.16	0.02	0.00

Area Habitats

Area Habitats

Area Habitats

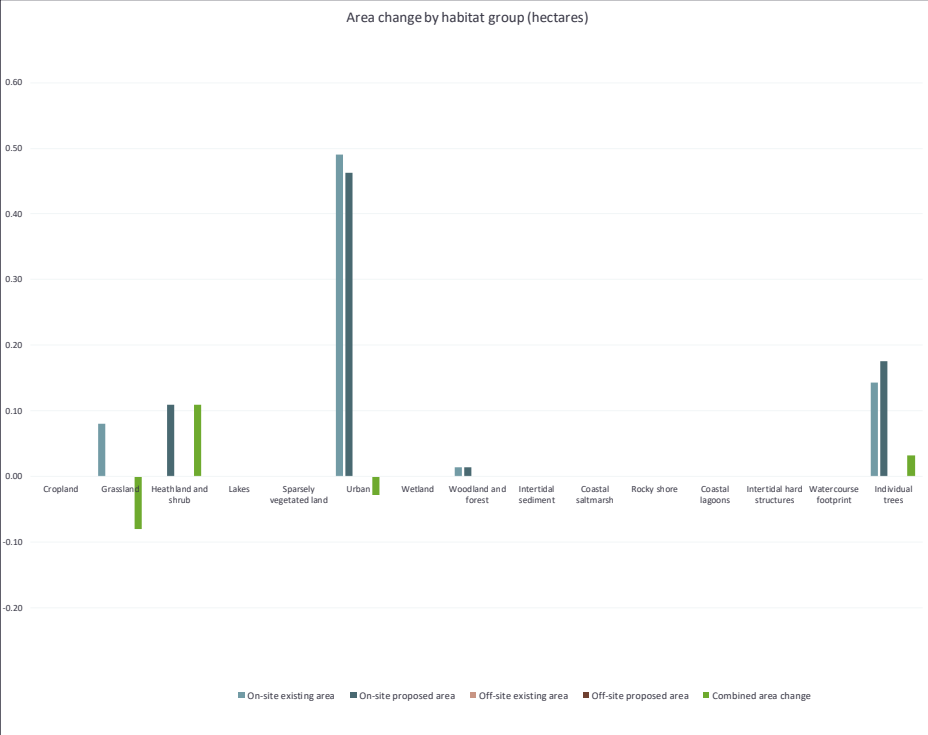
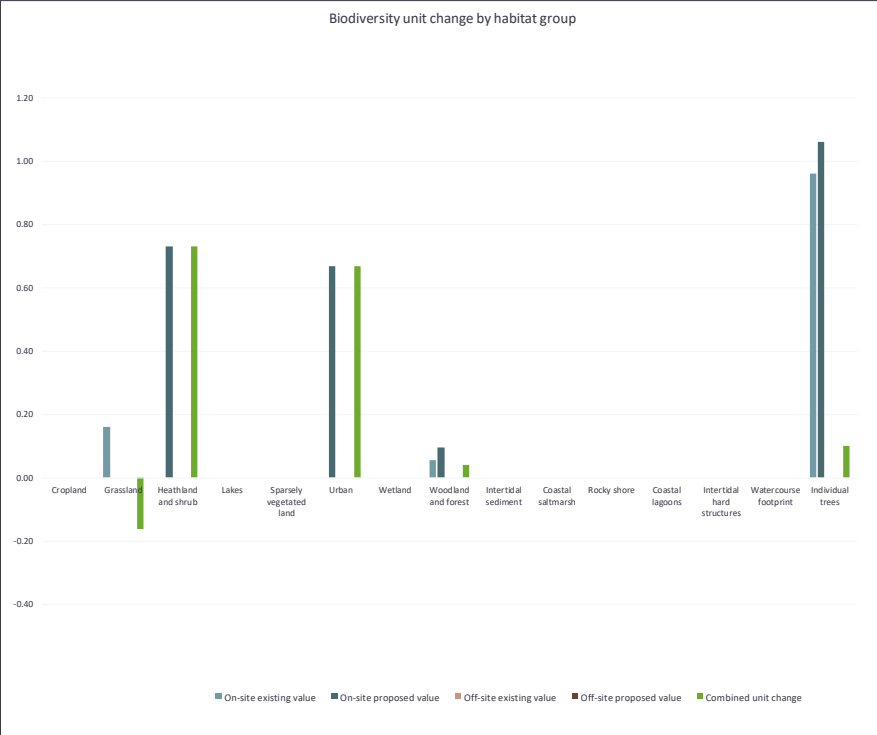
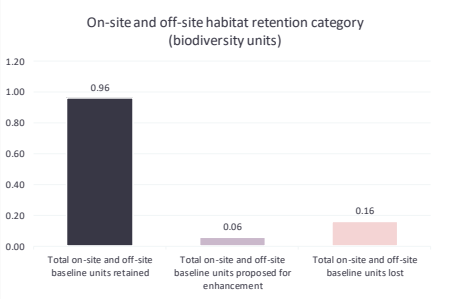
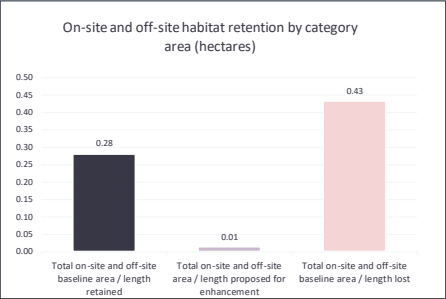
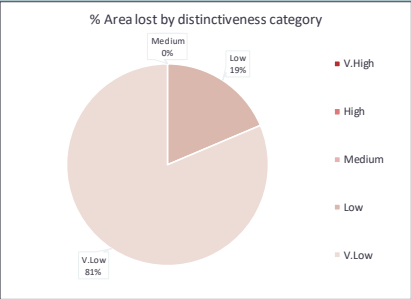
Area habitats

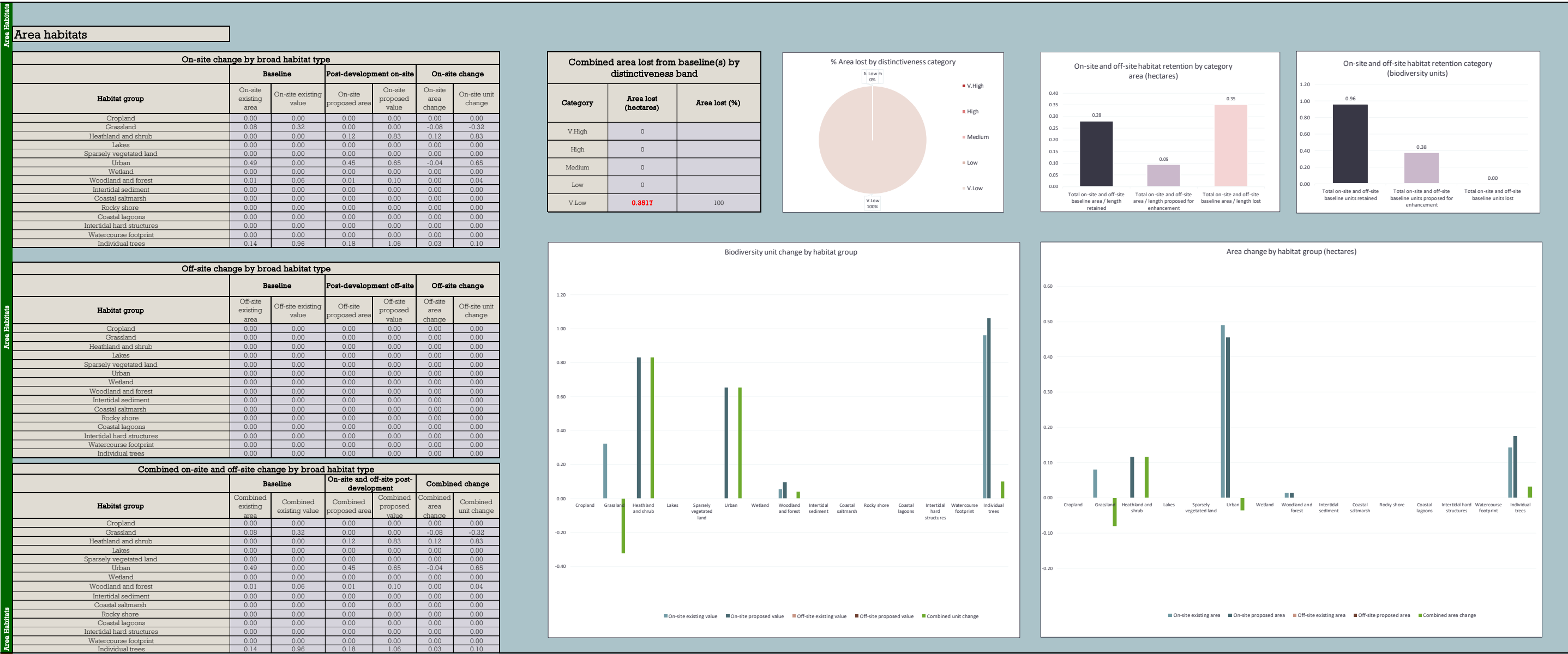
On-site change by broad habitat type						
Habitat group	Baseline		Post-development on-site		On-site change	
	On-site existing area	On-site existing value	On-site proposed area	On-site proposed value	On-site area change	On-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.08	0.16	0.00	0.00	-0.08	-0.16
Heathland and shrub	0.00	0.00	0.11	0.73	0.11	0.73
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.49	0.00	0.46	0.67	-0.03	0.67
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.01	0.06	0.01	0.10	0.00	0.04
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal hard structures	0.00	0.00	0.00	0.00	0.00	0.00
Watercourse footprint	0.00	0.00	0.00	0.00	0.00	0.00
Individual trees	0.14	0.96	0.18	1.06	0.03	0.10

Off-site change by broad habitat type						
Habitat group	Baseline		Post-development off-site		Off-site change	
	Off-site existing area	Off-site existing value	Off-site proposed area	Off-site proposed value	Off-site area change	Off-site unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.00	0.00	0.00	0.00	0.00	0.00
Heathland and shrub	0.00	0.00	0.00	0.00	0.00	0.00
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.00	0.00	0.00	0.00	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal hard structures	0.00	0.00	0.00	0.00	0.00	0.00
Watercourse footprint	0.00	0.00	0.00	0.00	0.00	0.00
Individual trees	0.00	0.00	0.00	0.00	0.00	0.00

Combined on-site and off-site change by broad habitat type						
Habitat group	Baseline		On-site and off-site post-development		Combined change	
	Combined existing area	Combined existing value	Combined proposed area	Combined proposed value	Combined area change	Combined unit change
Cropland	0.00	0.00	0.00	0.00	0.00	0.00
Grassland	0.08	0.16	0.00	0.00	-0.08	-0.16
Heathland and shrub	0.00	0.00	0.11	0.73	0.11	0.73
Lakes	0.00	0.00	0.00	0.00	0.00	0.00
Sparsely vegetated land	0.00	0.00	0.00	0.00	0.00	0.00
Urban	0.49	0.00	0.46	0.67	-0.03	0.67
Wetland	0.00	0.00	0.00	0.00	0.00	0.00
Woodland and forest	0.01	0.06	0.01	0.10	0.00	0.04
Intertidal sediment	0.00	0.00	0.00	0.00	0.00	0.00
Coastal saltmarsh	0.00	0.00	0.00	0.00	0.00	0.00
Rocky shore	0.00	0.00	0.00	0.00	0.00	0.00
Coastal lagoons	0.00	0.00	0.00	0.00	0.00	0.00
Intertidal hard structures	0.00	0.00	0.00	0.00	0.00	0.00
Watercourse footprint	0.00	0.00	0.00	0.00	0.00	0.00
Individual trees	0.14	0.96	0.18	1.06	0.03	0.10

Combined area lost from baseline(s) by distinctiveness band		
Category	Area lost (hectares)	Area lost (%)
V.High	0	
High	0	
Medium	0	
Low	0.0808	19
V.Low	0.3518	81







Appendix 4.2.1 BNG A-1 Site Habitat Baseline

Project Name: Tuthills Yard Map Reference: A-1 On-Site Habitat Baseline					Area habitat summary				
					Total Net Unit Change		1.38		
					Total Net % Change		116.82%		
					Trading Rules Satisfied		Yes ✓		
Condense / Show Columns					Condense / Show Rows				
Main Menu									
Existing area habitats					Distinctiveness	Condition	Strategic significance	Ecological baseline	
Ref	Broad Habitat	Habitat Type	Irreplaceable habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Required Action to Meet Trading Rules	Total habitat units
1	Grassland	Modified grassland	No	0.0605	Low	Poor	Area/compensation not in local strategy/ no local strategy	Same distinctiveness or better habitat required ≥	0.18
2	Urban	Developed land: sealed surface	No	0.0058	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
3	Urban	Developed land: sealed surface	No	0.1354	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
4	Woodland and forest	Other woodland: broadleaved	No	0.014	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (2)	0.06
5	Urban	Developed land: sealed surface	No	0.0016	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
6	Urban	Developed land: sealed surface	No	0.0039	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
7	Urban	Developed land: sealed surface	No	0.0037	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
8	Urban	Developed land: sealed surface	No	0.0298	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
9	Urban	Developed land: sealed surface	No	0.2878	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
10	Urban	Developed land: sealed surface	No	0.0231	V Low	N/A - Other	Area/compensation not in local strategy/ no local strategy	Compensation Not Required	0.00
11	Individual trees	Rural tree	No	0.0448	Medium	Poor	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (2)	0.18
12	Individual trees	Rural tree	No	0.0877	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Same broad habitat or a higher distinctiveness habitat required (2)	0.78
13									
14									
15									
Total habitat area				0.73					1.18
Site Area (Excluding area of individual trees, green walls, intertidal hard structures)				0.59					

Appendix 4.2.2 BNG A-2 Site Habitat Creation

Project Name: Tuthills Yard

Map Reference:

A-2 On-Site Habitat Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Area habitat summary

Total Net Unit Change

1.38

Total Net % Change

116.92%

Trading Rules Satisfied

Yes ✓

Area Check

Area Acceptable ✓

Post intervention habitats												
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty		Habitat units delivered	Comments	
			Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition		Final time to target condition (years)	Final difficulty of creation		User comments	Planning authority comments
Heathland and shrub	Mixed scrub	0.0805	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		5	Low	0.54	Converted from modified grassland	
Heathland and shrub	Mixed scrub	0.0056	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		5	Low	0.04	Area of scrub created on west end of existing hard standing	
Urban	Vegetated garden	0.0018	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		1	Low	0.00		
Urban	Sustainable drainage system	0.0039	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		3	Medium	0.01		
Urban	Sustainable drainage system	0.0298	Low	Good	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		5	Medium	0.10		
Urban	Vegetated garden	0.2878	Low	Condition Assessment N/A	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		1	Low	0.58		
Heathland and shrub	Mixed scrub	0.0231	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		5	Low	0.15		
Individual trees	Rural tree	0.0326	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied		27	Low	0.10	8x small trees planted at western end of Site	
Total habitat area		0.46								1.50		
Site Area (Excluding area of individual trees, green walls, intertidal hard structures)		0.43										

Appendix 4.2.3 BNG A-3 Site Habitat Enhancement

Project Name: Tuthills Yard Map Reference:			Area habitat summary																
A-3 On-Site Habitat Enhancement			Total Net Unit Change		1.38														
			Total Net % Change		116.92%														
			Trading Rules Satisfied		Yes ✓														
Condense / Show Columns			Condense / Show																
Main Menu																			
			Post intervention habitats																
Baseline ref	Baseline habitats	Proposed Habitat (Broad habitat pre-populated but can be overridden)		Change in distinctiveness and condition		Area (hectares)	Distinctiveness	Condition	Strategic significance	Temporal risk multiplier		Difficulty risk multipliers	Habitat units delivered	Comments					
	Baseline habitat	Proposed Broad Habitat	Proposed habitat	Distinctiveness change	Condition change				Strategic significance	Standard or adjusted time to target condition	Final time to target condition (years)	Final difficulty of enhancement		User comments	Planning authority comments	Habitat reference number			
4	Woodland and forest - Other woodland; broadleaved	Woodland and forest	Other woodland; broadleaved	Medium - Medium	Poor - Moderate	0.014	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	10	Low	0.10						
						Total habitat area	0.01									0.10			

Appendix 4.3.1 BNG B-1 Site Hedge Baseline

Project Name: Tuthills Yard Map Reference:				Hedgerow summary														
B-1 On-Site Hedge Baseline				Total Net Unit Change		0.85												
				Total Net % Change		166.91%												
				Trading Rules Satisfied		Yes ✓												
Condense / Show Columns		Condense / Show Rows																
Main Menu																		
	Existing hedgerow habitats			Distinctiveness		Condition		Strategic significance			Required Action to Meet Trading Rules	Ecological baseline						
Ref	Hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier			Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost
1	H1.1	Native hedgerow	0.086	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.17	0	0.086	0.00	0.17	0.00	0.00
2	H2	Native hedgerow	0.038	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.15	0.038	0	0.15	0.00	0.00	0.00
3	H3.1	Native hedgerow	0.08	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.16	0	0.08	0.00	0.16	0.00	0.00
4	H1.2	Native hedgerow	0.012	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.02	0	0	0.00	0.00	0.01	0.02
5																		
6																		
7																		
8																		
9																		
			0.22									0.51	0.04	0.17	0.15	0.33	0.01	0.02

Appendix 4.3.2 BNG B-2 Site Hedge Creation

Project Name: Tuthills Yard

Map Reference:

B-2 On-Site Hedge Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Hedgerow summary

Total Net Unit Change	0.85
Total Net % Change	166.91%
Trading Rules Satisfied	Yes ✓

		Proposed habitats		Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers	Hedge units delivered
Ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition (years)	Final difficulty of creation	
1	H1	Native hedgerow	0.011	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	5	Low	0.04
2	H3	Native hedgerow with trees	0.031	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	10	Low	0.17
3	H4	Native hedgerow	0.051	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	5	Low	0.17
4										
5										
6										
7										
			0.09							0.38

Appendix 4.3.3 BNG B-3 Site Hedge Enhancement

Project Name: Tuthills Yard

Map Reference:

B-3 On-Site Hedge Enhancement

Condense / Show Columns

Condense / Show

Main Menu

Hedgerow summary

Total Net Unit Change

0.85

Total Net % Change

166.91%

Trading Rules Satisfied

Yes ✓

Post intervention habitats												
Baseline ref	Baseline Habitats	Proposed habitat	Change in distinctiveness and condition		Length (km)	Distinctiveness	Condition	Strategic significance	Temporal multiplier		Difficulty risk multipliers	Hedge units delivered
	Baseline habitat		Distinctiveness movement	Condition movement		Distinctiveness	Condition	Strategic significance	Standard or adjusted time to target condition	Final time to target condition (years)	Final difficulty of enhancement	
1	Native hedgerow	Native hedgerow	Low - Low	Poor - Moderate	0.086	Low	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	3	Low	0.33
3	Native hedgerow	Native hedgerow with trees	Low - Medium	Lower Distinctiveness Habitat - Moderate	0.08	Medium	Moderate	Area/compensation not in local strategy/ no local strategy	Standard time to target condition applied	10	Low	0.50
					0.17							0.82



BNG Figure 1: Baseline Habitats - UKHab Classification

Tuthill's YArD, Therfield, Hertfordshire

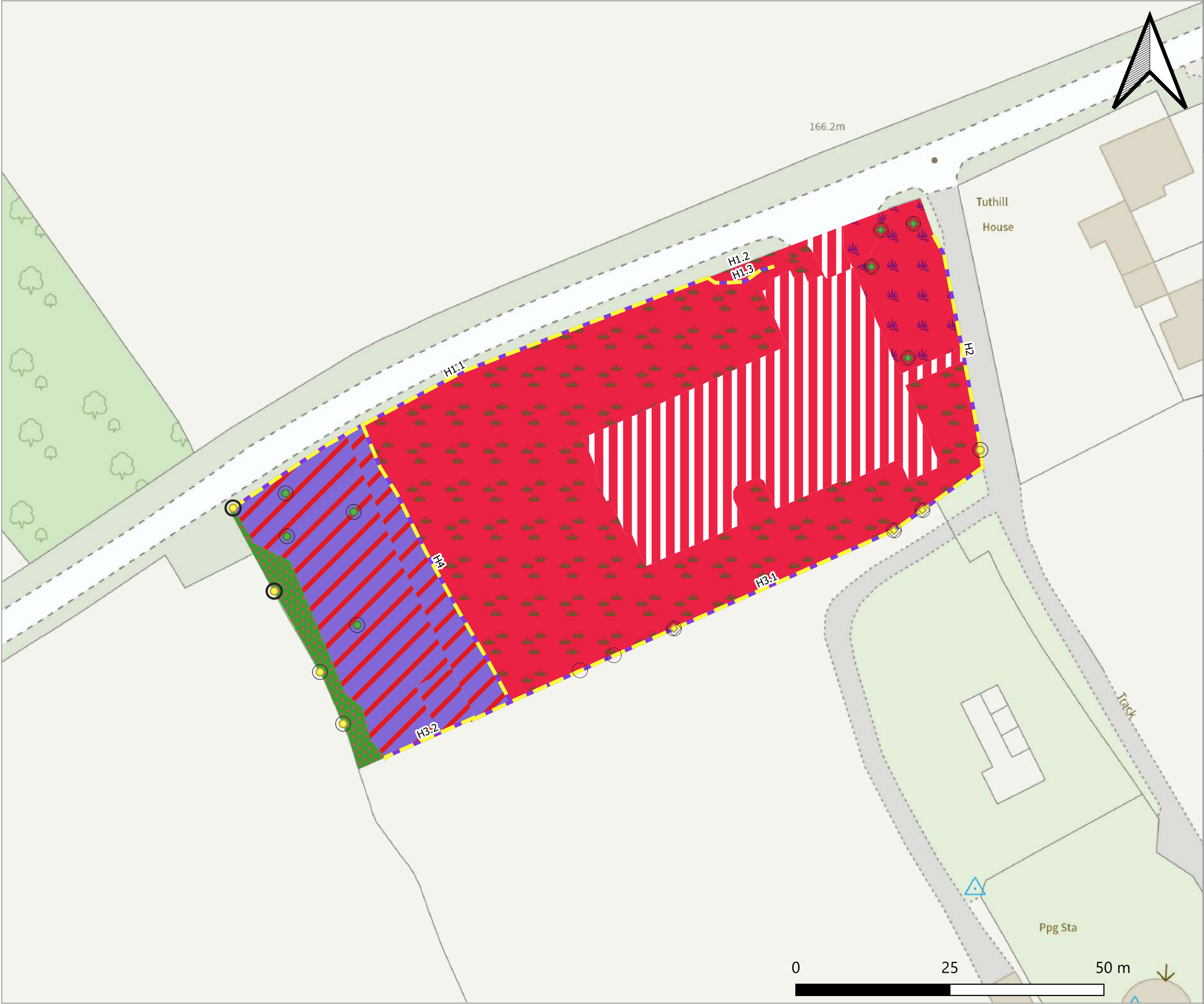
Ref: 20360/d1/v2

Prepared by JH Date: November 2024

Client: Quanta Homes 6

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- Legend**
- Red Line Boundary
 - Hedgerow Baseline**
 - Native hedgerow
 - Habitats Baseline**
 - Developed land; sealed surface
 - Modified grassland
 - Other woodland; broadleaved
 - Individual tree Baseline**
 - Existing Large Rural Tree
 - Existing Medium Urban Tree
 - Existing Medium Rural Tree
 - Existing Small Urban Tree
 - Existing Small Rural Tree



BNG Figure 2: Proposed Habitats - UKHab Classification

Tuthill's YArD, Therfield, Hertfordshire

Ref: 20360/d2/v2

Prepared by JH Date: November 2024

Client: Quanta Homes 6

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Legend

Red Line Boundary [1]

Habitats

- Developed land; sealed surface
- Mixed scrub
- Other woodland; broadleaved
- Sustainable drainage system
- Vegetated garden

Hedgerow

- Native hedgerow
- Native hedgerow with trees
- Lost

Individual tree

- Proposed Small Urban Tree
- Proposed Small Rural Tree
- Retained Large Rural Tree
- Retained Medium Urban Tree
- Retained Medium Rural Tree
- Retained Small Urban Tree
- Retained Small Rural Tree