Ecological Impact Assessment (EcIA)

Land at Trewennack

Helston

Cornwall

Grid Reference: SW67692859

November 2023

Version 1.0

Contents

1. Contract Details

Ecological Impact Assessment	
Grid Reference:	SW67692859
Client:	Rhos Construction Ltd
Architect/Planning Consultant:	Situ8
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Workflow Number	2023363
Surveyor(s):	Extended Phase 1 Habitat Survey: Paul Diamond RHS Cert (Hort), BSc (Hons), MSc, MCIEEM
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Declaration of Compliance
BS 42020:2013
This study has been undertaken in accordance with British Standard 42020:2013 Biodiversity, Code of practice for planning and development, unless specifically stated otherwise.

Code of Professional Conduct
The information which we have prepared is true and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Validity of Survey Data and Report
The findings of this report are valid for 12 months from the date of survey, unless the site has been maintained in exactly the same condition, in which case the report can be considered valid for 24 months. Please be aware that some Local Planning Authorities (LPAs)

require an update once 12 months has elapsed. If work has not commenced within this period, an updated survey by a suitably qualified ecologist may be required.

Legal and Moral Constraints and Responsibilities Summary

An overview of relevant legislation and responsibility is given within the Appendices: Planning Policy and Legislation. Constraints exist for development where specific habitats or species are, or are potentially, within or adjoining a site proposed for development. Therefore, avoidance, mitigation, compensation and enhancement for a site will apply.
In all instances where mitigation is given, also refer to:

- Any further survey work for protected species (Phase 2 Surveys) recommended, or their results.
- General Good Practice during Construction Stage.
- Law and Legislation pertaining to specific species (plants and animals)
- Prevention of the spread of native and non-native invasive plants and animals.
- Avoidance of Wildlife Crime http://www.nwcu.police.uk/

Further advice if species are found onsite during development may be sought from Ecological Surveys Ltd (Tel: 01503 240846 or 07736 458609) or Natural England.

What is an Ecological Impact Assessment (EcIA)?

Ecological Impact Assessment (EcIA) is the term used to describe the 'process of identifying, quantifying and evaluating potential effects of development-related or other proposed actions on habitats, species and ecosystems. The findings of an assessment can help competent authorities understand ecological issues when determining applications for consent. EcIA can be used for the appraisal of projects of any scale including the ecological component of Environmental Impact Assessment (EIA).' (CIEEM, 2016).

The key objectives of an EcIA are:

- To identify and describe all potentially Important Ecological Features, including designated sites, priority habitats and legally protected and notable species.
- To identify and assess all potentially significant ecological effects associated with the proposed development.
- To provide advice and recommendations to avoid or minimise any adverse effects and consider compensation measures if required.
- To identify mitigation measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects.
- To identify and assess the significance of any residual effects.
- To identify appropriate biodiversity enhancement measures and opportunities to increase the diversity if habitats and species on site and to achieve biodiversity gain.
- To identify the requirements for monitoring.

2. Non-technical Summary

Proposed development:	Construction of nine residential properties with associated gardens and roadways.
Purpose of the report:	To present the results of the Extended Phase 1 Habitat Survey and any additional Phase 2 Surveys undertaken at land at Trewennack near Helston in Cornwall, hereafter referred to as 'the Site'; assess the impacts of the proposed development on the Important Ecological Features identified; and detail applicable compensation, mitigation measures and biodiversity enhancements, along with monitoring details, as appropriate.

List of Surveys undertaken	- Extended Phase 1 Habitat Survey
Further Survey Work	- None required.
Further Assessment	- None required.
Habitat Regulation Assessment (HRA) likely?	- An Appropriate Assessment will be required of the proposed development as the site lies within the Fal and Helford Special Area of Conservation (SAC) Natura 2000 Zone of Influence as assessed by Cornwall Council. The relevant Council Appropriate Assessment form needs completing, and a financial contribution made towards the management of the SAC to mitigate any potential likely significant effects.
Important Ecological Features (IEFs)	The presence of an IEF on site, or in a location which could potentially be impacted by the development or post development activities will need to be mitigated for.
IEF Designated sites	**Onsite:** - None **Offsite:** - Fal and Helford Special Area of Conservation (SAC)
IEF Habitats	**Onsite:** - Native species-rich hedgerow with trees and accompanying buffer strip (1m-2m) **Offsite:** - Dense scrub: potential to support nesting birds - Native species-poor hedgerow and accompanying buffer strip (1m-2m)

IEF Species	**Onsite:** - Bats: potentially using the species-rich hedgerow with trees for commuting and feeding - West European hedgehog (*Erinaceus europaeus*): potentially on site - Nesting birds: potentially using the species-rich hedgerow with trees (and the dense scrub and species-poor hedgerow adjacent to the site) - Reptiles: potentially using the hedgerow buffer strips - Species of moth: potentially using the species-rich hedgerow with trees (and the dense scrub and species-poor hedgerow adjacent to the site) **Offsite:** - None
Invasive Non-native Species (Schedule 9 species) If present, you have a legal obligation to avoid spreading these plants into the wider environment	- **On site**: None - **In the immediate vicinity**: None
Key Impacts of Proposed Development on IEFs	- Loss of habitats - Degradation/damage/modification of habitats - Loss of species - Incidental mortality or injury of species - Disturbance of species
Avoidance Measures	You must avoid impacts to the following habitats: - Species-rich hedgerow with trees (with log pile) - Species-poor hedgerow (offsite) - Dense scrub (offsite)
Mitigation Measures	- Retention of the log pile along the south-eastern boundary - Staged clearance of developing semi-improved grassland for reptiles - Construction Exclusion Zones (CEZs) with reptile fencing along the species-rich hedgerow with trees (onsite) and species-poor hedgerow (offsite) and their accompanying buffer strips - Site compound located at least 5m from species-rich hedgerow with trees - Control of disturbance levels (groundworks and construction only on weekdays during daylight hours (08:00 – 18:00)) - Permanent buffers along the species-rich hedgerow with trees (onsite) and species-poor hedgerow

	(offsite) and their accompanying buffer strips, in line with Cornwall Council policy - Appropriate timing of removal of any branches and trimming of the hedgerows (i.e. outside of the bird nesting season which runs from March to September inclusive) - Artificial Lighting Strategy: no artificial light falling on any hedgerow/Cornish hedge and no lighting introduced onsite during groundworks or construction phases of the proposed development - Covered trenching and capped pipes during groundworks and construction phases - Inter-property fences allowing wildlife access (raised 150mm above ground level or having 150mm x 150mm holes)
Enhancement Measures The LPA have an obligation to ensure that all developments result in a 'net biodiversity gain'. Consequently, even if there are no perceived negative biodiversity impacts, you will still have to provide some form of biodiversity enhancement.	- Management and enhancement of existing habitats: species-rich hedgerow with trees - Creation of new habitats: Cornish hedges - Planting of trees - Inclusion of inbuilt bat tubes/bricks in one in every two dwellings (in line with Cornwall Council policy) - Inclusion of inbuilt bird boxes/bricks in one in every two dwellings (in line with Cornwall Council policy) - Inclusion of inbuilt solitary bee bricks in one in every two dwellings (in line with Cornwall Council policy) - Landscaping to benefit wildlife
Monitoring Measures	- Monitoring of all avoidance, mitigation and enhancement measures set out above during the pre-construction/groundworks and construction phases of the proposed development by an Ecological Clerk of Works / suitably experienced ecologist. - Monitoring of newly created habitats by a suitably qualified ecologist post-construction (during the operational phase).
Biodiversity Auditing and Accounting (Biodiversity Metric 4.0)	Biodiversity losses and gains table included in section 11 (minor development so the use of Biodiversity Metric 4.0 is not required).
Landscape and Ecological Management Plan (LEMP) A LEMP clarifies the timings and process which must be followed to ensure the biodiversity protection and enhancement of the site, during and post-	A Landscape and Ecological Management Plan is considered necessary for the proposed development at this site.

development, as well as landscape considerations.	
Important Advisory	Ensure all onsite contractors/personnel are familiar with this report (and any Phase 2 reports associated with this site) and able to act upon the law and legislation governing protection of species and habitats onsite and mitigation specifically pertaining to this site. Should protected species be discovered on site, all works in the vicinity must cease immediately and ecological advice sought urgently.
Other relevant information / advice	- The LPA should ensure that any mitigation and compensation measures identified in this report, together with enhancement and monitoring recommendations are either 'conditioned' where appropriate, or that full permission is withheld pending the agreement of mitigation, compensation (where necessary) and enhancement measures.

Any works which negatively impact the biodiversity of this site, post the results of this ecological survey being received verbally, or in writing, could constitute a Wildlife Crime (refer to Appendix D; http://www.nwcu.police.uk/).

3. Introduction

Ecological Surveys Ltd were commissioned to undertake an Ecological Impact Assessment (EcIA) in support of a planning application for the construction of residential properties with gardens and associated infrastructure on land at Trewennack, near Helston in Cornwall, hereafter known as 'the application site' or 'the site'. This report presents information concerning the ecological conditions on site and the potential nature conservation issues associated with the proposed development of the site. It sets out mitigation measures and enhancements for biodiversity, as well as required monitoring.

This EcIA report includes a desk-based study, with information sought from various websites, including the Defra MAGiC website, followed by a field survey (an Extended Phase 1 Habitat Survey) undertaken by a suitably qualified ecologist on 21 July 2023.

Results of both the desk-based study and all the field surveys were analysed in conjunction with the proposed development plans, and the mitigation hierarchy applied. Mitigation measures and biodiversity enhancements were then identified and set out.

Ecological Surveys Ltd were commissioned to appraise the ecological baseline status of the application site and identify any potential significant ecological impacts associated with development of the site. This report does not address any other potential environmental impacts that may result from the proposed development.

Details of the proposed development, including a layout and design, were provided by the client before any survey work was undertaken. Ecological Surveys Ltd has not been informed of any previous surveys undertaken on this site that need to inform this report.

It should be recognised that ecology is temporally and spatially variable and the findings of this report are based on observations made and data available at the time of the survey. Further survey work will be required if a period of one year passes prior to the commencement of site operations, to ensure compliance with statutory legal responsibilities.

The survey and assessment were based upon the brief and development plans presented at the time of the survey (21 July 2023) – Figure 3.2. The assessment will require re-assessment if there are any changes to the proposed plans, including boundary changes; location of buildings; planting schemes; changes of use etc. to ensure that it is fit for purpose within the planning process.

This Ecological Impact Assessment follows the guidance and standards set out in:

- *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition* (CIEEM, 2016)
- *Guidelines for Ecological Report Writing* (CIEEM, 2017)
- *Biodiversity – Code of practice for planning and development. BS 42020:2013 (*The British Standards Institution, 2013)
- *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)* (Collins, J. (ed.), 2016)
- *Biodiversity Net Gain: Good practice principles for development. Part A: A practical*

guide (Baker, J *et al*, 2019a)

- *Good Practice Requirements for Delivering Biodiversity Net Gain (On- and Off-site). July 2021* (CIEEM, 2021)

It is the responsibility of the client/developer to ensure they familiarise themselves with and comply with any law and/or legislation relating to this survey's findings and recommendations. An overview of planning policy and regulation relating to this survey may be found within Appendix C of this report but is by no means comprehensive. Contractors and visitors to the proposed site should always refer to the law and legislation pertaining to protected species and proceed mindfully.

3.1 Site description

The site comprises the northern section of a field on the southern edge of the village of Trewennack, near Helston in west Cornwall (see Figure 3.1). The field was, until recently, used for horticultural purposes but is now developing into grassland. Two polytunnels remain in the north-eastern corner of the site and there is a small allotment area towards the centre of the site. A native species-rich hedgerow with trees forms the south-eastern site boundary, with a short section of native species-poor hedgerow and a small patch of dense scrub at the southern end of the north-western boundary (offsite).

The village of Trewennack lies to the north-east, with a new residential development immediately to the north of the site. Open fields lie on all other sides, with the main A394 along the site's north-western boundary. A tributary of the Helford River lies approximately 70m to the south-west.

The site occupies approximately 0.3ha and slopes gently down to the south-west.

Overview of Site looking north-east

3.2 Proposed development

Construction of nine residential properties with gardens, entrance road and associated infrastructure.

The proposed layout provided by the client is presented in Figure 3.2.

Figure 3.1. Location map

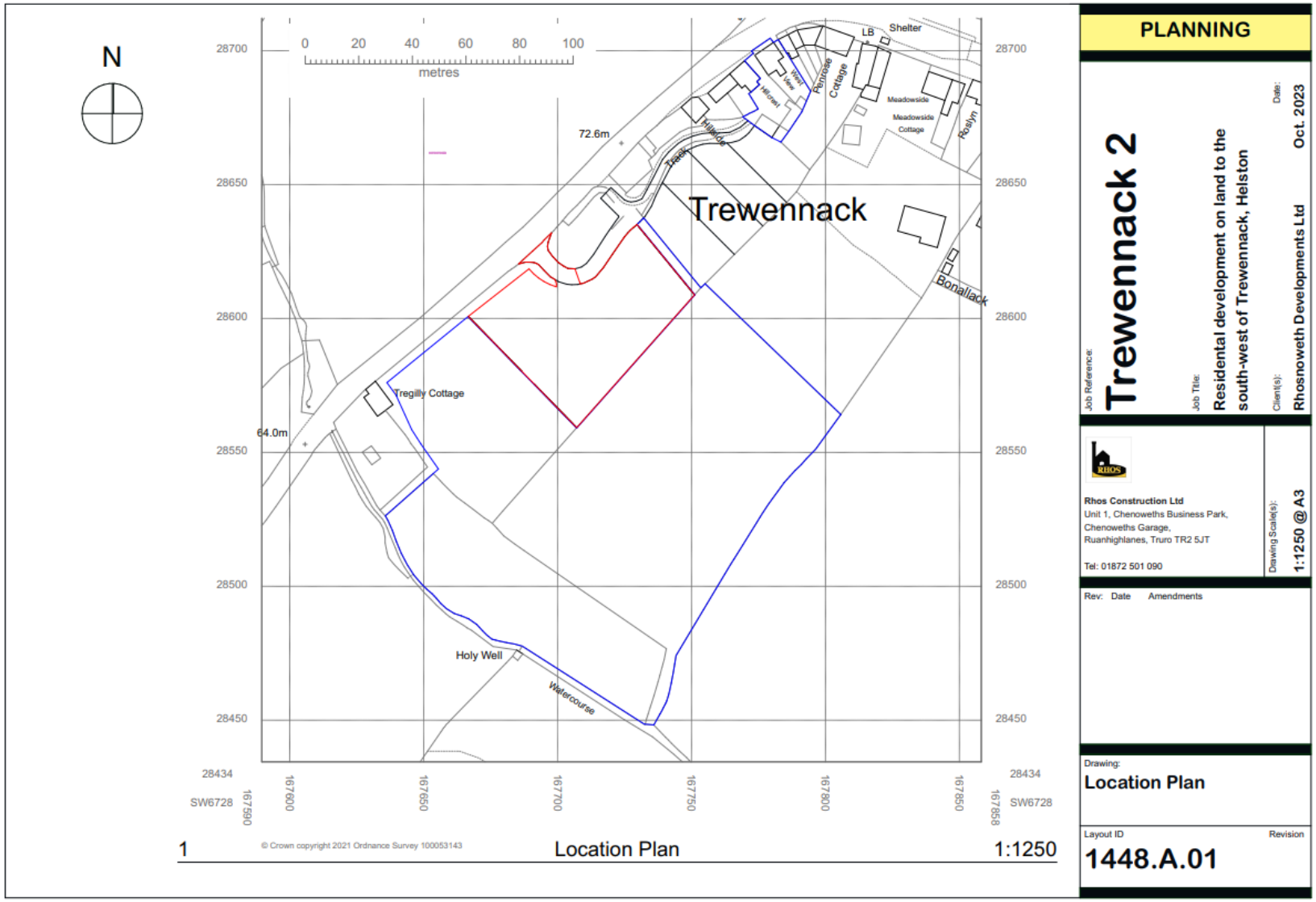
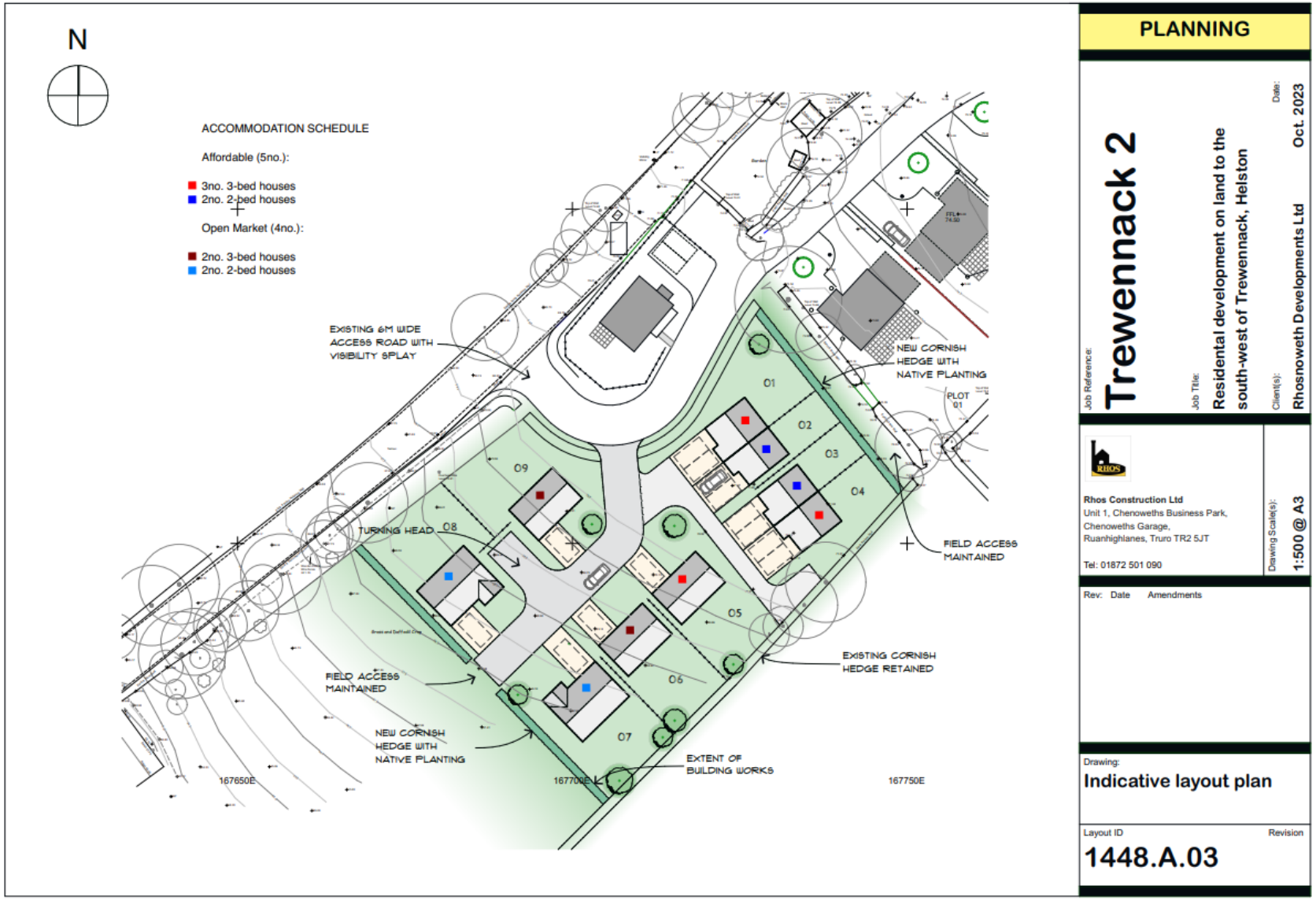


Figure 3.2. Layout of proposed development



4. Planning policy and legislation

4.1 Legislation

The main two pieces of legislation relating to wildlife in the UK are the Wildlife and Countryside Act 1981 as amended (the WCA 1981) and the Conservation of Habitats and Species Regulations 2017, known as "the Habitat Regulations" (and as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019)). These are discussed below, along with other relevant legislation.

The Conservation of Habitats and Species Regulations 2017 (and as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019)) originally transposed the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") and elements of Directive 2009/147/EC on the conservation of wild birds ("the Birds Directive") in England, Wales, and to limited extent, Scotland and Northern Ireland. The objective of the Regulations is to protect biodiversity through the conservation of natural habitats and species of wild fauna and flora. The Regulations set out the rules for the protection, management and exploitation of such habitats and species. They place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species. These sites are known generally as 'European sites' and in the UK form the national sites network (known in Europe as Natura 2000 sites). They include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Refer to Appendices C and E for further details.

Ramsar Sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. Originally intended to protect sites of importance especially as waterfowl habitat, the Convention has broadened its scope over the years to cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.

Notification as a Site of Special Scientific Interest (SSSI) gives legal protection to nationally important sites for wildlife and geology. Natural England is responsible for identifying and protecting the SSSIs in England under the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way Act 2000).

All European Protected Species (EPS) are protected under the WCA 1981 and the Habitat Regulations. Under this legislation it is illegal to:

i. Intentionally or deliberately capture, kill or injure listed species;
ii. Intentionally deliberately or recklessly damage, destroy or obstruct access to any place used for shelter or protection including resting and breeding places, whether occupied or not; and
iii. Deliberately, intentionally or recklessly disturb listed species when in a place of shelter (and elsewhere for EPS).

All the UK bat species are protected under this legislation.

All wild birds in the UK are protected under the WCA 1981. This makes it illegal to:

i. Kill, injure or take any wild bird;
ii. Take, damage or destroy the nest of any wild bird while it is being built or in use;
iii. Take or destroy the eggs of any wild bird; and
iv. Possess or control any wild bird or egg unless obtained legally

The widespread UK reptile species are protected under the WCA 1981 against intentional killing or injury.

Some species, listed on Schedule 1 of the WCA 1981 receive a higher level of protection, making it illegal to intentionally or recklessly disturb any bird listed on Schedule 1 while nest building or at or near a nest containing eggs or young, or to disturb any of its dependent young.

Badgers and their setts are protected under the Protection of Badgers Act 1992 which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. The term 'badger sett' is normally understood to mean the system of tunnels and chambers, in which badgers live, and their entrances Badgers and their setts are protected under the Protection of Badgers Act 1992 which makes it illegal to kill, injure or take badgers or to interfere with a badger sett. The term 'badger sett' is normally understood to mean the system of tunnels and chambers, in which badgers live, and their entrances.

In 2021, the Environment Act, covering England, received Royal Assent on 9 November 2021 (HM Government, 2021b). This Act has a number of key elements, three of which directly concern species and habitats:

- All new developments to deliver 10% increase in biodiversity (biodiversity net gains), to be managed for at least 30 years (reviewable by the Secretary of State), with a Biodiversity Gain Site Register to be implemented and maintained for at least 30 years after the site scheme has completed.
- Introduction of Local Nature Recovery Strategies (LNRSs) – new spatial strategies led by a "responsible authority" in each area. Statutory guidance to be given to Local Planning Authorities (LPAs) explaining how they should take account of the LNRSs.
- Introduction of a new Species Conservation Strategy which places a duty on LPAs to cooperate with Natural England and other LPAs etc. to safeguard the future of 'at risk' species.

Further details concerning legislation and species are given in Appendix C.

4.2 National Policy

The National Planning Policy Framework 2023 (HM Government, 2023) sets out the 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. It states that there is a presumption in favour of sustainable development, as well as stating that planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;

d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

[Taken from NPPF 2023, Section 15. Conserving and enhancing the natural environment, paragraph 174]

Section 15 of the NPPF 2023 goes on to state that 'when determining planning applications, local planning authorities should apply the following principles:

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

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

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

d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.'

[Taken from NPPF 2023, Section 15. Conserving and enhancing the natural environment, paragraph 180]

4.3 Local Policy

Policies in the *Cornwall Local Plan Strategic Policies 2010-2030* relating to the natural environment (including European protected sites) have been consulted, namely policies 22, 23 and 25 as set out below (Cornwall Council, 2016).

Policy 22: European Protected Sites – mitigation of recreational impacts from development:

For residential development and student and tourist accommodation, mitigation measures for recreational impacts on European Sites will be required where development is proposed within the identified zones of influence around those European Sites that are vulnerable to adverse recreational impacts. Residential development, student and tourist accommodation within these zones of influence will be required to provide for appropriate management, mitigation and monitoring on site, and/ or financial contributions towards off site mitigation and management. This will need to be agreed and secured prior to approval of the development.

Mitigation measures will include:

- On site access and management
- Off-site provision of suitable alternative recreational facilities.

The required level of contributions will be set out in more detail in the European Sites Mitigation Strategy Supplementary Planning Document.

Policy 23: Natural environment

Development proposals will need to sustain local distinctiveness and character and protect and where possible enhance Cornwall's natural environment and assets according to their international, national and local significance.

Development should conserve, protect and where possible enhance biodiversity and geodiversity interests and soils commensurate with their status and giving appropriate weight to their importance.

All development must ensure that the importance of habitats and designated sites are taken into account and consider opportunities for the creation of a local and county-wide biodiversity network of wildlife corridors which link County Wildlife Sites and other areas of biodiversity importance, helping to deliver the actions set out in the Cornwall Biodiversity Action Plan.

The highest level of protection will be given to potential and existing Special Protection Areas, candidate and existing Special Areas of Conservation and listed or proposed Ramsar sites. Development will only be permitted where the Council is satisfied that any necessary mitigation is included such that, in combination with other development, there will be no adverse effects on the integrity of European Nature Conservation Sites.

Development proposals within or outside an SSSI or Marine Conservation Zone which would be likely to adversely affect the site (either individually or in combination with other developments) will not be permitted unless the benefits of the development, at this site,

clearly outweigh both the adverse impacts on the site and any adverse impacts on the wider network of SSSIs and Marine Conservation Zones.

Development likely to adversely affect locally designated sites, their features or their function as part of the ecological network, including County Wildlife Sites, Local Geological Sites and sites supporting Biodiversity Action Plan habitats and species, will only be permitted where the need and benefits of the development clearly outweigh the loss and the coherence of the local ecological network is maintained.

Adverse impacts on European and UK protected species and Biodiversity Action Plan habitats and species must be avoided wherever possible (i) subject to the legal tests afforded to them, where applicable (ii) otherwise, unless the need for and benefits clearly outweigh the loss.

Development must avoid the loss or deterioration of ancient woodland and veteran trees, unless the need for, or benefits of, development on that site clearly outweigh the loss.

Development should avoid adverse impact on existing features as a first principle and enable net gains by designing in landscape and biodiversity features and enhancements, and opportunities for geological conservation alongside new development. Where adverse impacts are unavoidable they must be adequately and proportionately mitigated. If full mitigation cannot be provided, compensation will be required as a last resort.

Policy 25: Green infrastructure

The existing green infrastructure network in Cornwall, which is important to recreation, leisure, community use, townscape and landscape quality and visual amenity will be protected and enhanced. Development proposals should contribute to an enhanced connected and functional network of habitat, open spaces and waterscapes by:

1. Retaining and enhancing the most important environmental infrastructure assets and connections that contribute to the functionality of networks of ecosystems and our Strategic Environmental Infrastructure Network in their existing location; and

2. Demonstrating that all the functional environmental infrastructure and connections have been taken into account in the design of the scheme or site layout, including impacts on ecosystem services; biodiversity; coastal processes and recreation within and near to the application site and show how this understanding has positively contributed to place making and influenced the proposal; and

3. Providing appropriate buffers to natural spaces that have community, biodiversity and heritage significance; and

4. Restoring or enhancing connectivity for nature and people through the site and linking to adjacent sites or green routes, helping to provide better links between urban and rural landscapes and coastal areas, creating accessible and attractive places for communities to make regular contact with the natural environment; and

5. Providing accessible and good quality open space and where applicable improved access to coastal space; and

6. Providing clear arrangements for the long-term maintenance and management and/or enhancement of the green infrastructure assets. In exceptional circumstances where

retention of the most important green infrastructure assets and connections is outweighed by the benefits arising from the development proposals and they cannot be retained on site, the loss resulting from the proposed development should be replaced by equivalent or better provision in terms of quantity and quality of ecological or open space value in a suitable location.

Two Supplementary Planning Documents have also been consulted, namely the *European Sites Mitigation SPD* (Cornwall Council, 2021) which is linked with policy 22 mentioned above, and *Cornwall Planning for Biodiversity and Net Gain SPD* (Cornwall Council, 2018) linked with policy 23 mentioned above.

In 2023, Cornwall Council published its *Climate Emergency Development Plan Document* (Cornwall Council, 2023), which sets out particular policies in response to the climate emergence. A number of these policies relate directly to ecology and have been consulted and considered within this EcIA. These are Policy G1 Green Infrastructure Design and Maintenance; Policy G2 Biodiversity Net Gain; Policy G3 Canopy and Policy G4 Local Nature Recovery Network.

Biodiversity Net Gain

Since 1st March 2020, Cornwall Council have required all planning applications for major developments to achieve a net gain in biodiversity of 10% (minimum) for the development as a whole (Cornwall Council, 2020). The new Policy G2 relates to Biodiversity Net Gain and states:

All development proposals (except those defined as exempt in secondary legislation) must achieve a minimum of 10% Biodiversity Net Gain (or any higher percentage mandated by national policy/ legislation) over the pre-development site value as measured by the latest version of the DEFRA Biodiversity Metric.

In advance of national mandating of biodiversity net gain, this policy shall only apply to major development proposals.

1) Proposals for Biodiversity Net Gain must:

a) be supported by core biodiversity gain information;

b) be secured for at least a 30 year period from the substantive completion of the development;

c) be delivered in accordance with an agreed management plan;

d) follow the mitigation hierarchy set out in National Policy and Local Plan Policy 23(3) and (4) and demonstrate evidence of adequate avoidance and mitigation measures. Biodiversity net gain should be additional to any habitat creation required to mitigate or compensate for impacts; and

e) aim to achieve the required net gain onsite within the site boundary.

2) where a proposal adequately demonstrates in the Biodiversity Gain Plan that the mitigation hierarchy has been followed and the required net gain, or any compensation for

lost biodiversity cannot be achieved onsite within the site boundary, it must secure the alternative provision of the required biodiversity units as registered offsite gains through:

a) the purchase of registered offsite biodiversity units to enable provision to be made by an approved biodiversity provider; provided the in-perpetuity management and monitoring of the receptor site can be assured; or

b) direct provision of the habitat types in a suitable location by the applicant provided the in-perpetuity management and monitoring of the offset site can be assured; or

c) a Biodiversity Offset Contribution to the Cornwall Council Habitat Bank.

d) the purchase of statutory Biodiversity Credits from National Government.

3) The receptor site for any local offsite biodiversity gains should have regard to the local priorities for nature as set out in any adopted Local Nature Recovery Strategy to be provided, be in a suitable location where local climatic conditions suit the type of offset offsite habitat to be provided, informed by a comprehensive understanding of habitats and species associated with the site and should avoid the best and most versatile agricultural land.

Minor development (as defined in secondary legislation) shall demonstrate biodiversity net gains in accordance with a Cornwall Council approved Small Site Biodiversity Metric

Canopy Cover

Policy G3 relates to canopy cover and the requirement to reach a minimum of 15% canopy cover within all major developments:

All major development should provide, through the retention of existing and or / the establishment of new, canopy coverage equal to at least 15% of the site area (excluding areas of the site that are priority habitat types) in accordance with a Cornwall Council approved calculator or metric.

1) Any proposal to remove canopy on the site should be justified in accordance with the canopy mitigation hierarchy.

2) Where a pre-development site already contains canopy that exceeds the 15% requirement, the development proposal should ensure the retention of as much canopy as possible on site in line with the mitigation hierarchy and should justify the losses proposed. An alternative canopy cover percentage, as evidenced by a council approved canopy metric, should be agreed with the Local Authority.

3) Where there are significant ecological, historical, landscape or operational reasons to justify a canopy requirement of less than 15% on site and this can be fully evidenced, an alternative percentage of canopy provision shall be agreed with the Council.

4) Minor development sites (with the exception of householder development and Change of Use (not creating new dwellings or additional floorspace) are not required to demonstrate the 15% canopy target but should explore all options in relation to canopy provision, and take appropriate measures to both avoid or reduce harm to existing onsite trees. Proposals shall include where appropriate and practicable provision of new canopy.

5) New canopy should provide a mix of species that are resilient to pests, diseases and climate change and should be delivered in sustainable locations, in a manner that supports the growth and spatial requirements of canopy. New canopy should positively contribute to the climate resilience of the site in a manner which protects and enhances existing canopy.

4.4 Biodiversity Action plans and 'UK Post-2010 Biodiversity Framework'

Biodiversity Action Plans (BAPs) were formulated by the Government in 1994 and set out a broad strategy and objectives for enhancing and conserving species and habitats in the UK. In 1995, the UK Steering Group published a report including detailed proposals for the UK's most critical species and habitats. These plans provided a framework for biodiversity conservation and provided the UK commitment to the Biodiversity Convention signed in Rio in 1992. In addition, the Natural Environment and Rural Communities Act 2006 (as amended) (HM Government, 2006) included a list of 'Species and Habitats of Principal Importance' (s41 for England).

In July 2012, UKBAP was superseded by the UK Post-2010 Biodiversity Framework (JNCC and Defra, 2012) as a result of a change in strategy following the publication of the Convention on Biological Diversity's Strategic Plan for Biodiversity 2011-2020 (Convention on Biological Diversity, 2010). The priority species and habitats agreed under UKBAP (and s41 of NERC Act 2006) still form the basis of biodiversity work i.e. habitats and species in England that were identified as requiring action in the UKBAP continue to be regarded as conservation priorities in the subsequent UK ost-2010 Biodiversity Framework.

The presence of these 'Species and Habitats of Principal Importance' is a material consideration for decision-makers such as public bodies, including local and regional authorities, in determining planning applications and carrying out other functions.

The UK Post-2010 Biodiversity Framework, 'Species and Habitats of Principal Importance' are mentioned where necessary within the appropriate sections of this report.

Further details concerning BAP species are given in Appendix C.

5. Methodology

This Ecological Impact Assessment (EcIA) encompasses the establishment of the ecological baseline by undertaking a desk-based study, drawing on existing information and data, and a field survey; evaluation of the impacts of the proposed development on the designated sites, habitats and species (ecological features) found both on site and in the immediate vicinity of the Site and the identification of measures to mitigate the **significant effects** of these impacts on the **Important Ecological Features**; and the identification of ways to enhance the biodiversity of the area. The monitoring of these mitigation measures and biodiversity enhancements is also outlined.

The study area was defined by Ecological Surveys Limited as the application site and a 2km radius around it as is accepted as an industry standard. Baseline information for this area was collated to determine ecological features that could potentially be affected by the development of the site. These included habitats and species both within and outside the application site but within the study area. The ecological baseline for the assessment was established by undertaking a desk-based study and field surveys of the application site.

5.1 Establishing the Ecological Baseline: Desk-based Study

Ecological baseline conditions are those 'existing in the absence of proposed activities' (CIEEM, 2016). Baseline information for the application site and the study area was collated on the basis of readily available data from the Multi-Agency Geographical Information for the Countryside (MAGiC) website. This includes internationally and nationally designated wildlife and earth science sites; Priority Habitats/Habitats of Principle Importance and granted European Protected Species (EPS) Licence applications. National Network Sites (Special Areas of Conservation (SACs) and Special Protection Areas (SPAs)) were considered for distances up to 10km from the Site or within the same watershed. All other designated sites, Priority Habitats/Habitats of Principle Importance and granted EPS Licence applications were noted within a 2km radius of the site. These distances reflect the zones of influence over which ecological features may be subject to significant effects as a result of the proposed development and associated activities. Any sites that are considered to be functionally linked to the proposed development site have also been included in the assessment process.

Cornwall Council Interactive Mapping was also consulted regarding the presence of local, non-statutory sites within a 2km radius of the site (and those considered be functionally linked to the proposed development site), as well as Natura 2000 Zones of Influence (now known as European sites / national network sites in the UK) and Tree Preservation Orders.

The Cornish Biodiversity Network (CBN) was consulted for records of protected and notable species within the study area. Cornish Biodiversity Network (CBN) provided records of legally protected and/or rare species, as well as 'Species of Principle Importance' (both international, UK and local) recorded since 1999. Locations of designated sites and other land use designations were also obtained. Data was requested for a 2km radius. As mentioned above, these distances reflect the zones of influence over which ecological features may be subject to significant effects as a result of the proposed development and associated activities. Only

records of legally protected/notable species made since 1999 were used in the evaluation, unless more recent records for relevant species had not been made.

Data from publications and on websites are reliant on the information input into the system. The absence of a record of a species in a particular area is not evidence that the particular species does not exist but may simply be due to a lack of survey effort, or a failure to record its presence. Therefore, an absence of evidence (records) should not be interpreted as evidence of absence.

Ordnance Survey (OS) maps and aerial photographs of the site and surrounding area were also consulted.

5.2 Establishing the Ecological Baseline: Field Survey

An Extended Phase 1 Habitat Survey of the application site was undertaken on 21 July 2023 by Paul Diamond RHS Cert (Hort), BSc (Hons), MSc, MCIEEM, MArborA. This consisted of a walkover assessment of the site using Phase 1 Habitat Survey methodology (JNCC, 2010), as amended by the Institute of Environmental Assessment (IEA, 1995), involving the mapping of different habitats in accordance with standard habitat definitions. A Phase 1 Habitat Map was produced, which included target notes detailing any features of nature conservation interest. The Phase 1 Habitat Map is given in Figure 6.1. All areas within the Site were surveyed, the main plant species recorded, and habitat type mapped. Indicators of ecological value were also noted, including the presence or signs of any legally protected or rare species.

Plant species were identified according to Stace (2019).

The habitat survey undertaken included an assessment of the potential of the application site to support protected species and/or species of nature conservation importance. This included the identification of potentially suitable habitat for such species. Any direct observations of species and/or field signs were also noted.

Any buildings onsite were assessed for their potential to support roosting bats (using the criteria set out in Appendix F). Buildings were examined both externally and internally to consider the potential and actual use by bats, as well as by nesting birds.

Any hedges present have been assessed for their 'importance' under the 1997 Hedgerows Regulations (HM Government, 1997). As all native hedgerows over 20m in length are now classified as a priority habitat feature; these too were recorded.

A search was also made to identify the presence of any invasive non-native species (particularly those listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended)), including Japanese knotweed (*Reynoutria japonica*) and Himalyan balsam (*Impatiens glandulifera*).

Areas outside of the development site boundary were assessed where possible, if evidence from the site indicated that legally protected/rare species may be present in close proximity to the site. Examples include badger trails, potential nesting or roosting habitat adjoining the site.

All the surveys undertaken on Site (including any species-specific Phase 2 surveys) are given in Table 5.1 below.

Table 5.1. Surveys undertaken

Survey type	Date(s)	Weather conditions	Surveyors(s)	Equipment used
Extended Phase 1 Habitat Survey	21/07/2023	Sunny with some cloud	Paul Diamond RHS Cert (Hort), BSc (Hons), MSc, MCIEEM, MArborA	Binoculars, digital camera

5.3 Impact Assessment and Mitigation Measures

All ecological data and information gained through both the desk-based study and the survey work were evaluated. The Important Ecological Features were identified and evaluated against the potential impacts/effects that the proposed development may have on the ecology of the site and surrounding area. The impact assessment determines how the conditions, focusing on the Important Ecological Features identified, will change in relation to the baseline conditions to allow a clear understanding of the effects of the proposed development.

The impact assessment has been carried out in accordance with the *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition* (CIEEM, 2016) and *Guidelines for Ecological Report Writing, second edition* (CIEEM, 2017).

The intrinsic ecological value of the feature has been considered for the purposes of determining ecological impacts and has been considered independently of any legal protection afforded. For instance, European badger (*Meles meles*) is common, widespread and of little conservation concern in much of the UK but is a protected species. When considering impacts on badgers the conservation status may not be affected, but there may be legal consequences of effects of a scheme. In section 8, *Assessment of Effects and Mitigation Measures*, the ecological impact is noted and if there are legal implications these are also noted separately.

The ecological importance of existing habitats and species on the application site has been determined using the evaluation scale below, whereby ecological features are assessed for their importance in a geographical context:

i. International
ii. National (i.e. England)
iii. Regional (i.e. south-west);
iv. Local

Various characteristics contribute to the importance of ecological features. These include recognised and published criteria (e.g. Ratcliffe, 1977; CIEEM, 2016) where the ecological features are assessed in relation to their size, diversity, naturalness, rarity, fragility, typicality, connectivity with surroundings, intrinsic value, recorded history and potential value.

A wide range or sources can be used to assign importance to ecological features, including legislation, policy, published methods, or professional judgment. In the case of designated sites, their importance reflects the geographic context of the designation.

When assessing the impact of the development and changes to the baseline conditions on site, predictions will be made which focus solely on the zone of influence whilst taking into consideration the lifespan of the development and the significant impacts as identified from the proposed work operations throughout the lifespan of the development.

Impacts likely to result from the construction and operation of the proposed development on ecological receptors were identified through liaison with the client and a review of layout options for the development.

The proposed development aims to firstly avoid and then mitigate against any potential effects/impacts on the local ecology/biodiversity, ensuring compliance with nature conservation legislation. It aims to achieve this by applying the mitigation hierarchy (as mentioned in the National Planning Policy Framework and detailed in Paragraph: 018 Reference ID: 8-018-20140306 of National Planning Practice Guidance) and delivering mitigation measures that:

- avoid significant negative ecological impacts/effects;
- reduce negative impacts/effects that cannot be avoided; and
- compensate for any remaining significant negative ecological impacts/effects.

Appropriate measures to avoid and/or minimise the significant negative effects on the Important Ecological Features have been identified. These mitigation measures aim firstly to avoid the overall effect/impact, or for those that cannot be avoided, reduce their overall effect value. It is not always possible to fully mitigate an adverse effect to neutral levels and so an assessment is made of residual effects following the proposed mitigation measures.

Thus, the mitigation hierarchy should be applied when considering the impacts of developments and local planning decisions on the natural environment, with the protection of important wildlife sites, habitats, species and ecosystem services; the avoidance of impacts, mitigating these impacts where appropriate, and then achieving biodiversity net gain through enhancements.

There is a requirement within the EcIA process to consider the cumulative effect of other plans or projects in combination with the site under assessment. Cumulative impacts are those additional changes caused by a proposed development in conjunction with similar developments, or as the combined effect of several developments taken together.

Ideally adjacent developments should include existing developments, either under construction or operational, approved developments and proposals awaiting determination with sufficient data available within the public domain.

Cumulative impacts arising from two or more developments may be:

- Additive - effects are summed
- Antagonistic – the cumulative impacts are less than their summed values

- Synergistic – the cumulative impact is greater than the summed impact

5.4 Biodiversity Enhancement

The aim of development should be to deliver net ecological gain on site as well as limiting damage to Important Ecological Features. This aim is supported by the recently published *Biodiversity Net Gain: Good practice principles for development. Part A: A practical guide* (Baker, J *et al*, 2019a), as well as stated in Section 15 of the NPPF 2023 (as mentioned in section 5.3 above).

As mentioned in section 4.3 above, Policy 23: Natural environment in the Cornwall Local Plan Strategic Policies 2010-2030 states that:

'*Development should avoid adverse impact on existing features as a first principle and enable net gains by designing in landscape and biodiversity features and enhancements, and opportunities for geological conservation alongside new development.*'

[Cornwall Council, 2016, page 75]

Using the information gained during the desk-based study and the Extended Phase 1 Habitat Survey, and the ecological requirements of habitats, species and local environmental conditions, biodiversity enhancements for the site have been considered, providing opportunities to increase the diversity of habitats and species on site.

Enhancement (measures that improve the biodiversity/ecological condition) of all sites post-development is a planning requirement. The law, central government planning policy and local planning policy point towards the enhancement of a site's biodiversity as part of the development process.

Ecological enhancement measures must be over and above any avoidance, mitigation and compensation measures required to neutralise the impacts of the development on wildlife. An increased need for effective enhancement has been reinforced by recent research conducted by a United Nations-backed panel called the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) stating up to million plant and animal species face extinction. Whilst we in the UK are not directly responsible for all of this loss, we can try to protect the threatened species within the UK.

Enhancements for biodiversity have made reference to the combined habitat networks map for England resulting from the work undertaken by Natural England regarding the mapping of national habitat networks (Natural England, 2020). This combined habitat networks map provides a national overview of the distribution of habitat networks focused on the priority habitats with suggestions for future action to enhance biodiversity, looking specifically at habitat creation and restoration in the vicinity of existing habitat. The map shows:

A. Existing Habitat with four components mapped: the primary habitat itself; associated habitat; areas where habitat creation/restoration is underway; and restorable habitat (where the primary habitat is present in a degraded or fragmented form and which are likely to be suitable for restoration).
B. Network Enhancement and Expansion, with four components mapped: Network Enhancement Zone 1 (land connecting existing patches of primary and associated habitats which is likely to be suitable for creation of the primary habitat); Network

Enhancement Zone 2 (land connecting existing patches of primary and associated habitats which is less likely to be suitable for creation of the primary habitat); Fragmentation Action Zone (land within Enhancement Zone 1 that connects existing patches of primary and associated habitats which are currently highly fragmented and where fragmentation could be reduced by habitat creation); and Network Expansion Zone (land beyond the Network Enhancement Zones with potential for expanding, linking/joining networks across the landscape.

The opportunity maps for various habitats produced for Cornwall have also been consulted, as has the Local Nature Recovery Network map and the strategic net-gain zones map (www.lagas.co.uk). These display strategic opportunity areas for woodland, wetland and lowland heath restoration and creation, prioritised on the basis of their potential benefits and suitability for habitat creation.

5.5 Biodiversity Impact Assessment: Biodiversity Losses and Gains

The biodiversity impact assessment calculations, to determine the biodiversity losses and gains associated with the proposed development, can be undertaken using the Department for Environment, Food and Rural Affairs (Defra) Biodiversity Metric 4.0. This metric uses habitat to describe biodiversity, which is converted into measurable 'biodiversity units' according to the area of each type of habitat. The metric scores different habitat types (e.g. woodland, grassland) according to their relative biodiversity value and adjusts this according to the condition and location of the habitat. Where new habitat is created or existing habitat is enhanced then the associated risks of doing so are factored into the metric.

The metric can be used as an auditing tool to quantity the biodiversity value of habitats on a patch of land and it can be used to calculate the losses and gains in biodiversity from actions such as development or from positive conservation management.

It should be noted that the metric for biodiversity offsetting only considers habitats, both those currently present on site and those proposed as mitigation and biodiversity enhancements for the proposed development. The metric does not take account of species onsite, or enhancements proposed to delivery biodiversity gain for species (except where they equate to gain in semi-natural habitats).

As stated in section 4.3 above, from 1 March 2020 Cornwall Council are requiring all planning applications for major developments to achieve a net gain in biodiversity of 10% (minimum) for the development as a whole.

5.6 Constraints / Limitations

All areas of the Site were readily accessible to enable the Extended Phase 1 Habitat Survey to be undertaken, and the time spent on site was considered appropriate to obtain all the details required for each habitat and species to enable an assessment to be made.

Although some plant species would not have been visible during the survey period, the botanical diversity was considered sufficient to be able to classify and assess the habitats present, as well as their potential for supporting legally protected and notable species.

The weather conditions were sunny with some cloud. All surveys were undertaken by suitable-skilled and experienced surveyors.

However, it is worth remembering that any single survey gives a snapshot of species and habitats present on site on a particular day. The presence or absence of species recorded on site that day, particularly mobile species with larger home ranges, will vary and does not therefore necessarily represent the total species using the site over time, hence the undertaking of further surveys (as listed in Table 5.1 above) for potential species using the site, as identified during the Extended Phase 1 Habitat Survey.

6. Baseline Ecological Conditions/Results

6.1 Designated Sites of Nature Conservation

6.1.1 Internationally Designated Sites

The site at Trewennack does not lie within any internationally designated sites of nature conservation, nor are there any within a 2km radius of the site.

The nearest internationally designated site is the Fal and Helford Special Area of Conservation (SAC), which lies approximately 4km to the south-east, at Gweek. The proposed development site is therefore located within the Fal and Helford SAC Natura 2000 Zone of Influence, as identified by Cornwall Council, with any increase in recreational use deemed to have a significant likely effect on the SAC. Increased recreational use could result from an increase in residential development within this Zone of Influence. Fal and Helford SAC is therefore assessed as being an Important Ecological Feature (IEF).

6.1.2 Nationally Designated Sites

The proposed development site does not lie within any nationally designated sites of nature conservation, nor are there any within a 2km radius of the site.

One section of the Cornwall and West Devon Mining Landscape World Heritage Site lies approximately 1.6km to the north, near Coverack Bridges.

The Site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone but the type of development (rural residential) does not require the Local Planning Authority (LPA) to consult with Natural England.

6.1.3 Locally Designated Sites

The proposed development site does not lie within any locally designated sites of nature conservation.

There are three sites of local importance within the study area, all three are County Wildlife Sites (CWS):

- Grambla and Polglase Woods CWS, lying approximately 1.5km to the east
- Upper Cober Valley, lying approximately 1.6km to the north-west
- Lower Cober Valley, lying approximately 1.9km to the west

None of these are considered an Important Ecological Feature (IEF) with respect to the proposed development at Trewennack.

Designated sites considered Important Ecological Features with respect to the proposed development	- Fal and Helford SAC

6.2 Habitats

This section details the habitats present on the Site and recorded during the Extended Phase 1 Habitat Survey, along with important habitats within the vicinity of the Site. Figure 6.1 maps the Phase 1 habitats recorded onsite during the field survey and Table 6.1 summarises the area of each of these habitats.

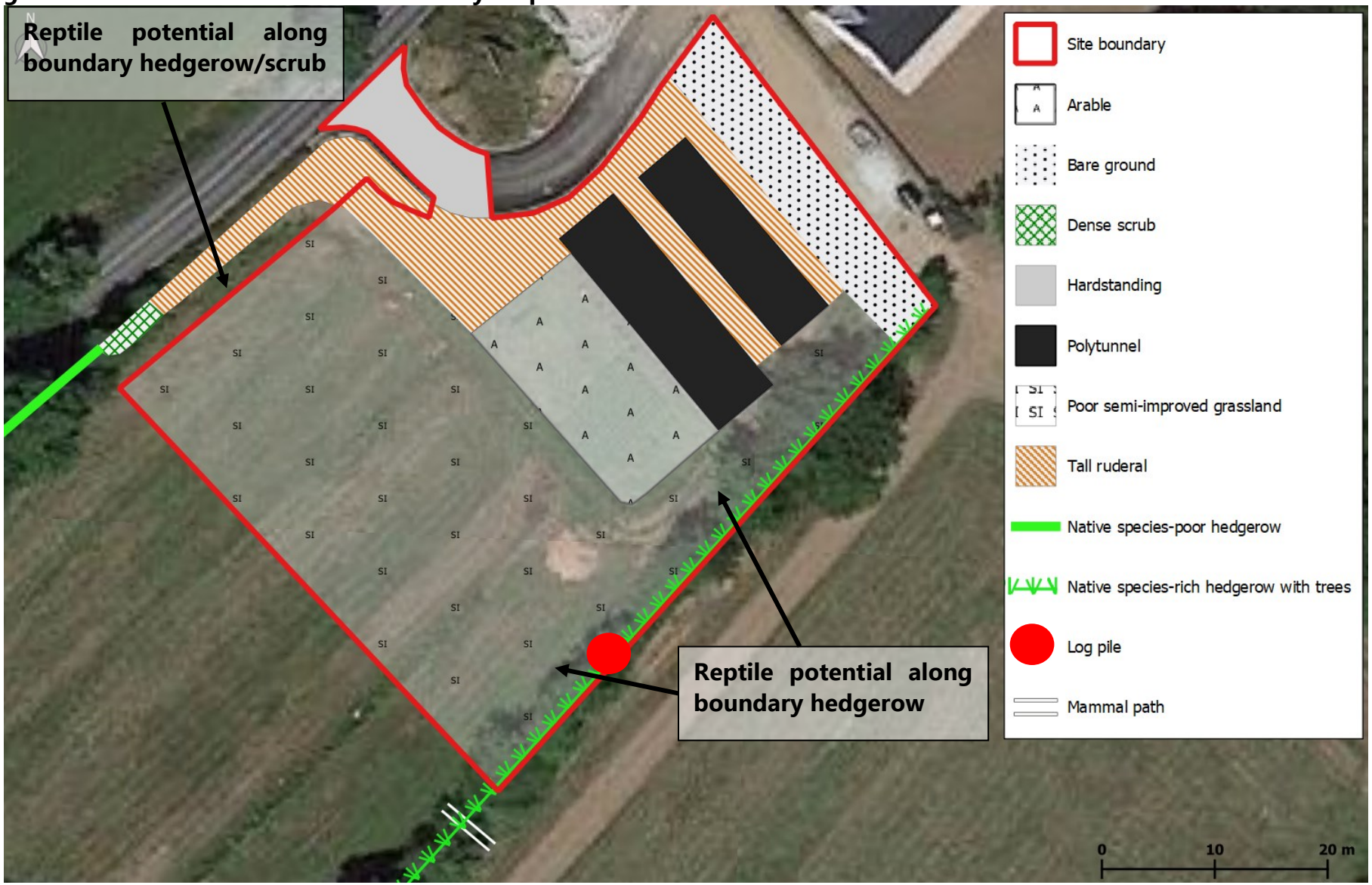
Table 6.1. Phase 1 habitats associated with the site and their extent.

Phase 1 habitat type	Area or length
Poor semi-improved grassland	0.179ha
Tall ruderal	0.035ha
Arable	0.029ha
Bare ground (site compound)	0.023ha
Hardstanding (entrance road)	0.011ha
Building (polytunnel)	0.031ha
Native species-rich hedgerow with trees	0.065km

Semi-natural Broadleaved Woodland

Onsite	None.
Phase 2 Botanical Survey undertaken	No (not required)
Area of semi-natural broadleaved woodland on site	0ha
Offsite	There are a limited number of woodlands in the surrounding landscape, mainly within the small river valleys of tributaries of the Rivers Cober and Helford. Several woodlands designated as Habitats of Principal Importance under the NERC Act 2006 lie with a 2km radius of the site. The closest of Deciduous Woodland priority habitat is lies approximately 600m to the south-east of the Site. The nearest ancient and semi-natural woodland is Grambla Wood, approximately 1.5km to the east (and part of Grambla and Polglase Woods County Wildlife Site). There is also a few Traditional Orchards within 2km of the Site, the closest one being some 1.2km to the north, near Trevenen Bal.
Legal Constraints	None
Important Ecological Feature (IEF)	No
Habitat loss/gain	0ha

Figure 6.1. Extended Phase 1 Habitat Survey Map



Dense Scrub

Dense scrub offsite, but adjacent to the north-western boundary	
Onsite	There is no scrub onsite.
Phase 2 Botanical Survey undertaken	No (not required)
Area of scrub on site	0ha
Offsite	There is a small area of dense scrub towards the southern end of the north-western boundary. This scrub comprises bramble (*Rubus fruticosus* agg.), elm (*Ulmus* spp.) and sycamore (*Acer pseudoplatanus*), with one cider gum (*Eucalyptus gunnii*).
Legal Constraints	The scrub (offsite) offers habitat for protected species.
Important Ecological Feature (IEF)	Yes – for protected species
Habitat loss/gain	No loss or gain

Poor Semi-improved Grassland

Poor semi-improved grassland across the southern half of the site	
Onsite	The southern half of the site comprises poor semi-improved grassland, which continues along the eastern end of the polytunnels. This grassland has developed following the cessation of the growing of horticultural crops – note the ridge system. Plant species recorded include Yorkshire-fog (*Holcus lanatus*), false oat-grass (*Arrhenatherum elatius*), wild oat (*Avena fatua*), common cat's-ear (*Hypochaeris radicata*), creeping buttercup (*Ranunculus repens*), hogweed (*Heracleum sphondylium*), wood avens (*Geum urbanum*), ribwort plantain (*Plantago lanceolata*), American willowherb (*Epilobium ciliatum*), common ragwort (*Jacobaea vulgare*), ivy (*Hedera* spp.), Asiatic lily (*Lilium* spp.) and peony (*Paeonia* spp.). Grassland along the hedgerows is more tussocky in nature and has the potential to support reptiles.
Phase 2 Botanical Survey undertaken	No (not required)
Area of semi-improved grassland on site	0.179ha
Offsite	The surrounding fields appear to comprise of semi-improved grassland. There are no grasslands designated as Habitats of Principal Importance under the NERC Act 2006 lying with a 2km radius of the site.
Legal Constraints	None
Important Ecological Feature (IEF)	No

Habitat loss/gain	Loss of 0.166ha

Arable

Allotment area adjacent to the polytunnels

Onsite	There is an allotment area immediately south of the polytunnels. Vegetables and fruit bushes are growing here, including potatoes, onions, runner beans, blueberries and sunflowers.
Phase 2 Botanical Survey undertaken	No (not required)
Area of arable on site	0.029ha
Condition of arable on site	N/a
Offsite	Unknown.
Legal Constraints	None.
Important Ecological Feature (IEF)	No
Habitat loss/gain	Loss of 0.029ha

Tall Ruderal

Tall ruderal vegetation adjacent to the entrance road

Onsite	Tall ruderal vegetation grows adjacent to the site entrance road. Species recorded here include American willowherb (*Epilobium ciliatum*), ribwort plantain (*Plantago lanceolata*), common ragwort (*Jacobaea vulgare*), fat hen (*Chenopodium album*), Sowthistle (*Sonchus* spp.), hedge bindweed (*Calystegia sepium*), common cat's-ear (*Hypochaeris radicata*), Yorkshire-fog (*Holcus lanatus*), broad-leaved dock (*Rumex obtusifolius*), oilseed rape (*Brassica napus* ssp. *napus*), spear thistle (*Cirsium vulgare*) and oxeye daisy (*Leucanthemum vulgare*).
Phase 2 Botanical Survey undertaken	No (not required)
Area of tall ruderal on site	0.035ha
Offsite	The tall ruderal vegetation continues offsite, along the north-western boundary, alongside the main A394 road.
Legal Constraints	None
Important Ecological Feature (IEF)	No
Habitat loss/gain	Loss of 0.035ha

Bare Ground

Onsite	There is an area of bare ground on site adjacent to the northern boundary. This is being used as the site compound for the adjacent construction site and contains a hut and material storage.

Phase 2 Botanical Survey undertaken	No (not required)
Area of bare ground on site	0.023ha
Offsite	Unknown.
Legal Constraints	None.
Important Ecological Feature (IEF)	No
Habitat loss/gain	Loss of 0.023ha

Hardstanding

Entrance road comprising of hardstanding

Onsite	There is an area of hardstanding at the site entrance – a tarmac road leading off the main A394 road. This hardstanding is edged by a low stone wall.
Phase 2 Botanical Survey undertaken	No (not required)
Area of hardstanding on site	0.011ha
Offsite	Unknown.
Legal Constraints	None.
Important Ecological Feature (IEF)	No
Habitat loss/gain	Gain of 0.071ha

Buildings/Structures

Polytunnel at northern end of the site

Onsite	There are two polytunnels onsite, at the northern end. One is complete, whilst the other is missing a cover. These structures have no potential for roosting bats or nesting birds.
Phase 2 Botanical Survey undertaken	No (not required)
Area of buildings/structures on site	0.031ha
Offsite	There is a new residential development immediately to the north of the site, with the village of Trewennack beyond.
Legal Constraints	None.
Important Ecological Feature (IEF)	No
Habitat loss/gain	Loss of 0.031ha but gain of 0.050ha in new buildings

Running Water

Onsite	None.
Phase 2 Botanical Survey undertaken	No (not required)
Length of running water on site	0km
Condition of running water on site	n/a

Offsite	A tributary of the Helford River lies approximately 70m to the south-west. This flows into the Fal and Helford SAC, some 5km downstream.
Legal Constraints	None
Important Ecological Feature (IEF)	No
Habitat loss/gain	0

Hedgerows

Species-rich hedgerow with trees forming the south-eastern boundary

Species-poor hedgerow (offsite, close to north-western

Onsite	A **native intact species-rich hedgerow with trees** forms the south-eastern site boundary. The following woody species are present: hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), elm (*Ulmus* sp.), ash (*Fraxinus excelsior*), holly (*Ilex aquifolium*), grey willow (*Salix cinerea* agg.), willow (*Salix* spp.) and dog-rose (*Rosa canina* agg.) with bramble (*Rubus fruticosus* agg.). The hedgerow is gappy, with several gaps wider than 5m. The hedgerow edge comprises false oat-grass (*Arrhenatherum elatius*), Yorkshire-fog (*Holcus lanatus*), common nettle (*Urtica dioica*), red campion (*Silene dioica*), hogweed (*Heracleum sphondylium*) and bracken (*Pteridium aquilinum*). Alongside the hedgerow within the hedge buffer strip (1m-2m), as well as along the north-western site boundary at the edge of the field, these is tussocky grassland with the potential to support reptiles. Hedgerows are important for several animal species and provide habitat for potential protected species such as small mammals and nesting birds. They are an important biodiversity feature providing an area of semi-natural habitat for a range of species,

	and corridors through the landscape for the dispersal of small animals.
Phase 2 Botanical Survey undertaken	No (not required)
Length of hedgerows on site	Intact species-rich hedge and trees: 0.065km
Offsite	There is a native intact species-poor hedgerow close to the southern end of the north-western boundary. This hedgerow comprises of elm and sycamore (*Acer pseudoplatanus*), with bramble. Hedgerows are a feature of the surrounding landscape and connect the site to habitats within the wider landscape.
Legal Constraints	The hedgerow forming the south-eastern boundary is considered to be a Habitat of Principle Importance under the NERC Act 2006 and 'Important' under The Hedgerow Regulations (1997). The hedgerow, along with the tussocky grassland within it's buffer strip, also offers habitat for protected species.
Important Ecological Feature (IEF)	Yes
Habitat loss/gain	No loss; gain of 0.083km in Cornish hedge

6.3 Species

This section includes details concerning the species recorded on site during the Extended Phase 1 Habitat Survey, as well as legally protected and/or notable species recorded within a 2km radius of the development site. The potential for the presence of legally protected and/or notable species on site has also been included, based on the habitats recorded on site and adjacent land.

Where there is no potential for a species or species group to be present within the site, they have been scoped out at this stage. Appendix A lists the flora found on site and Appendix B lists the fauna.

Bats

Phase 2 Bat Surveys undertaken	No (not required)
Onsite	[The use of any buildings/structures on site by bats has been included in section *6.2 Habitats*, in the *Buildings/Structures* section.] There are no trees present on site that have potential for roosting.

	The species-rich hedgerow with trees along the south-eastern site boundary provides opportunities for foraging and commuting bats, with connectivity out into the wider landscape via mature hedgerows and tree-lined river valleys, predominantly to the south and east. Consequently, low potential for navigation exists along the hedgerow.
Offsite	The area immediately surrounding the site is bisected with Cornish hedges, hedgerows and small watercourses, providing commuting routes for bats across the landscape. There are also woodlands, predominantly to the south and east, connected by the Cornish hedge/hedgerow network, making the surrounding area suitable for commuting, foraging and roosting bats. All bat species are legally protected; the following bat species have recorded roosts within a 2km radius of the Site (recorded since the year 1999): common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*p. pygmaeus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), brown long-eared bat (*Plecotus auritus*), lesser horseshoe bat (*Rhinolophus hipposideros*), whiskered bat (*Myotis mystacinus*) and Natterer's bat (*Myotis nattereri*).
Legal Constraints	The habitat has been assessed as capable of supporting protected bat species: - legal constraints apply: legal protection under The Conservation of Habitats and Species Regulations 2010, the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006.
Important Ecological Feature (IEF)	Yes

European Badger (*Meles meles*)

Phase 2 Badger Survey undertaken	No (not required)
Onsite	No signs of European badger (*Meles meles*) using the Site were recorded during the field survey: no setts, latrines, snuffle holes or badger tracks were recorded.
Offsite	No signs of badger were recorded within the immediate vicinity of the site. However, a mammal path was noted crossing the native species-rich hedgerow with trees immediately to the south-west of the site. Badger has been recorded within a 2km radius of the site since the year 1999.

Legal Constraints	None
Important Ecological Feature (IEF)	No

Common Dormouse (*Muscardinus avellanarius*)

Phase 2 Common Dormouse Survey undertaken	No (not required)
Onsite	No signs of common dormouse (*Muscardinus avellanarius*) using the Site were recorded during the field survey. The hedgerow along the south-eastern site boundary is too gappy to support dormice.
Offsite	Common dormouse has not been recorded within a 2km radius of the site since the year 1999. Dormice are not thought to be present in Cornwall west of Truro.
Legal Constraints	None
Important Ecological Feature (IEF)	No

Eurasian Otter (*Lutra lutra*)

Phase 2 Eurasian Otter Survey undertaken	No (not required)
Onsite	No signs of Eurasian otter (*Lutra lutra*) using the Site were recorded during the field survey. The habitats present onsite are not suitable for supporting otters.
Offsite	There are small watercourses within the vicinity of the site with the potential to support otters. Otter has been recorded within a 2km radius of the site since the year 1999: at Coverack Bridges to the north of the main A394 road in 2004.
Legal Constraints	None
Important Ecological Feature (IEF)	No

Other Mammals

Phase 2 Survey(s) undertaken	No (not required)
Onsite	No signs of mammals onsite were recorded during the survey. However, the species-rich hedgerow with trees and it's accompanying buffer strip along the south-eastern site boundary has the potential to support West European hedgehog (*Erinaceus europaeus*).
Offsite	The area immediately surrounding the site has the potential to support West European hedgehog; this species has been recorded within a 2km radius of the Site.
Legal Constraints	The habitat has been assessed as capable of supporting protected mammal species: - legal constraints apply: legal protection under the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006.
Important Ecological Feature (IEF)	Yes – West European hedgehog

Birds

Phase 2 Breeding Bird Survey undertaken	No (not required)
Onsite	The species-rich hedgerow with trees is likely to support nesting birds. All bird species are protected whilst nesting, breeding and rearing young.
Offsite	The dense scrub and the species-poor hedgerow immediately to the north-west of the site have the potential to support nesting birds. There are a number of legally protected and/or notable birds that have been recorded within a 2km radius of the site since the year 1999. These include waterfowl such as Eurasian teal (*Anas cracca*), mallard (*A. platyrhynchos*), and dipper (*Cinclus cinclus*) which are unlikely to be present onsite due to the lack of a waterbody, and common swift (*Apus apus*), skylark (*Alauda arvensis*), house sparrow (*Passer domesticus*), hedge accentor (*Prunella modularis*), song thrush (*Turdus philomelos*) and winter wren (*Troglodytes troglodytes*). The latter four species may be using the species-rich hedgerow with trees onsite.

Legal Constraints	The habitat has been assessed as capable of supporting protected bird species: - legal constraints apply: legal protection under the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006.
Important Ecological Feature (IEF)	Yes – nesting birds

Reptiles

Phase 2 Reptile Survey undertaken	No (not required)
Onsite	The site has some potential to support reptiles around the edges of the site – within the hedgerow buffer strips. There is also a log pile along the south-eastern boundary hedgerow (approximately halfway along). No reptiles have been recorded on site.
Offsite	The following legally protected and/or notable reptile species have been recorded within a 2km radius of the site since the year 1999: slow-worm (*Anguis fragilis*).
Legal Constraints	The habitat has been assessed as capable of supporting protected reptile species: - legal constraints apply: legal protection under The Conservation of Habitats and Species Regulations 2010, the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006.
Important Ecological Feature (IEF)	Yes

Amphibians

Phase 2 Amphibian / Great Crested Newt eDNA Survey undertaken	No (not required)
Onsite	No amphibians have been recorded on site and there are no habitats present with the potential to support this species group.
Offsite	The following legally protected and/or notable amphibian species have been recorded within a 2km radius of the site since the year 1999: common toad (*Bufo bufo*). There appears to be no ponds within 500m of the Site.
Legal Constraints	None

Important Ecological Feature (IEF)	No

Invertebrates

Phase 2 Invertebrate Survey(s) undertaken	No (not required)
Onsite	Habitats at this site are likely to support common and widespread invertebrates. No legally protected and/or notable invertebrates have been recorded on site.
Offsite	A number of legally protected and/or notable invertebrate species have been recorded within a 2km radius of the Site since the year 1999: Butterflies: small heath (*Coenonympha pamphilus*), grayling (*Hipparchia semele*) and wall (*Lasiommata megera*). Moths: the spectacle (*Abrostola tripartita*), knot grass (*Acronicta rumicis*), beaded chestnut (*Agrochola lychnidis*), the lackey (*Malacosoma neustria*), dot moth (*Melanchra persicariae*), powdered quaker (*Orthosia gracilis*), mullein wave (*Scopula marginepunctata*), white ermine (*Spilosoma lubricipeda*), buff ermine (*S. lutea*) and blood-vein (*Timandra comae*). Molluscs: worm slug (*Boettgerilla pallens*) and Jenkin's spire shell (*Potamopyrgus antipodarum*). Some of the moth species are potentially using the site – predominantly the hedgerow.
Legal Constraints	The habitat has been assessed as capable of supporting protected amphibian species: - legal constraints apply: legal protection under The Conservation of Habitats and Species Regulations 2010, the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006.
Important Ecological Feature (IEF)	Yes – moth species

Vascular Plants

Phase 2 Botanical Survey undertaken	No (not required)
Onsite	The site has a low floral diversity, due to being dominated by arable/horticulture reverting in part to grassland. A list of plants

	recorded on site during the Extended Phase 1 Habitat Survey is set out in Appendix A. No legally protected and/or notable vascular plant species have been recorded on site.
Offsite	A number of legally protected and/or notable vascular plant species have been recorded within a 2km radius of the site since the year 1999. These include cornflower (*Centaurea cyanus*), corn marigold (*Glebionis segetum*), Jersey cudweed (*Laphangium luteoalbum*), lesser snapdragon (*Misopates orontium*), small-flowered catchfly (*Silene gallica* var. *anglica*), corn spurrey (*Spergula arvensis*) and field woundwort (*Stachys arvensis*). Only one of these species has been recorded in the vicinity of the site – corn spurrey recorded somewhere along the main A394 road in SW6728 (in 2007). It is possible that some of these arable weeds are present within the soil but require disturbance and cultivation.
Legal Constraints	None.
Important Ecological Feature (IEF)	No

Invasive Non-native Species

Onsite	No invasive non-native invasive species were recorded on site during the survey.
Offsite	The following invasive non-native species have been recorded within a 2km radius of the site since the year 1999: Japanese knotweed (*Reynoutria japonica*), Himalayan balsam (*Impatiens glandulifera*), variegated yellow archangel (*Lamiastrum galeobdolon* ssp. *argentatum*), three-cornered garlic (*Allium triquetrum*), montbretia (*Crocosmia* x *crocosmiiflora*), rhododendron (*Rhododendron ponticum*), wall cotoneaster (*Cotoneaster horizontalis*), small-leaved cotoneaster (*C. integrifolius*), Himalayan cotoneaster (*C. simonsii*), giant-rhubarb (*Gunnera tinctoria*), Japanese rose (*Rosa rugosa*), Virginia-creeper (Parthenocissus quinquefolia) and parrot's feather (*Myriophyllum aquaticum*). Only montbretia has been recorded within the immediate vicinity of the site, to the north-east; this area is now residential.
Legal Constraints	None.

Important Ecological Feature (IEF)	No

6.4 Summary of Important Ecological Features

Table 6.2 summarises the Important Ecological Features as identified from the baseline conditions, with respect to the proposed development of the construction of residential properties with gardens and associated infrastructure at Trewennack near Helston.

Table 6.2. Summary of Important Ecological Features (IEFs)

Important Ecological Feature (IEF)	Level of importance	Specific reason
Designated sites		
Fal and Helford Special Area of Conservation (SAC)	International	Proposed development site lies within the Fal and Helford SAC Natura 2000 Zone of Influence as assessed by Cornwall Council.
Habitats		
Native species-rich hedgerow with trees and accompanying hedgerow buffer (1m-2m)	Site	Habitat of Principal Importance and an 'Important' hedgerow, with potential to support bats and nesting birds. Tussocky grassland within the buffer strip has the potential to support reptiles.
Native species-poor hedgerow and accompanying hedgerow buffer (1m-2m) (offsite)	-	Habitat of Principal Importance with potential to support bats and nesting birds. Tussocky grassland within the buffer strip has the potential to support reptiles.
Dense scrub (offsite)	-	Potential to support nesting birds.
Species		
Bats	Local	Potential for using the hedgerows for commuting and foraging. Lesser horseshoe bat has been recorded within a 2km radius of the site.

West European hedgehog	Site	Possibly using the hedgerows and their buffers (on- and off-site).
Birds (nesting)	Site	Potential for nesting in the species-rich hedgerow with trees, as well as the offsite dense scrub and species-poor hedgerow.
Reptiles	Site	The hedgerow buffer strips have the potential to support reptile species.
Species of moth	Site	Potentially using the species-rich hedgerow with trees (and the dense scrub and species-poor hedgerow adjacent to the site).

7. Proposed development

The proposed development comprises the construction of nine residential properties with gardens, an entrance road and associated infrastructure.

The native species-rich hedgerow with trees along the south-eastern site boundary will be retained and enhanced. Lengths of Cornish hedge with woody species atop will be constructed along the north-eastern and south-western site boundaries.

The proposed layout provided by the client is presented in Figure 3.2.

8. Assessment of Effects and Mitigation Measures

Figure 3.2 shows the location and layout of the proposed development comprising the construction of residential properties within an existing agricultural field comprising poor semi-improved grassland and arable with a species-rich hedgerow with trees along the south-eastern boundary.

The construction of the residential properties with gardens and associated infrastructure during the groundworks/pre-construction and construction phases, all have the potential to lead to both direct and indirect effects on the ecology of the site and its immediate environs. The operational/occupational phase will lead to an increase in people, pets and vehicles in the area. These effects are listed in Table 8.1 below.

Each of the Important Ecological Features identified from the existing baseline conditions (summarised in section 6.4 above) are assessed against the potential effects from the proposed development, with the potential significant impacts identified. The mitigation hierarchy is then applied, with the aim of firstly avoiding any loss or damage/degradation to any of the Important Ecological Features. If avoidance is not possible then the impacts/effects of the operational procedures of the development will be minimised and reduced as much as possible; with mitigation measures set out. Any residual effects are identified at the end of this section.

The scale of any mitigation scheme should be proportional to the proposed development with a guiding principle of minimising intervention in any given habitat. All mitigation measures are summarised in Table 8.2 in section 8.5, with any residual effects set out in section 8.6. The mitigation measures (as well as the enhancements) are mapped in the Ecological Constraints and Opportunities Plan (ECOP) set out in Appendix H.

A Landscape and Ecological Management Plan (LEMP) should be produced, detailing how the landscape and ecological mitigation measures, as well as the landscape proposals and biodiversity enhancements, will be delivered throughout the various stages of this development, from the groundworks stage through the construction, to the future use of the site. This LEMP should also include monitoring requirements. The delivery of the LEMP at each stage of the development should be overseen by an Ecological Clerk of Works or a suitably experienced ecologist.

8.1 Designated Sites (IEFs)

The proposed development site does not lie within any statutory or non-statutory designated wildlife or earth science sites, notified at the international, national or local scale. However, it does lie within the Fal and Helford SAC Natura 2000 Zone of Influence, as identified by Cornwall Council, with any increase in recreational use deemed to have a significant likely effect on the SAC. Increased recreational use could result from an increase in residential development within this Zone of Influence. Therefore, an Appropriate Assessment will be required of the proposed development; the relevant Council Appropriate Assessment form needs completing, and a financial contribution made towards the management of the SAC to mitigate any potential likely significant effects.

Table 8.1. Potential effects on the ecology during the various phases of development

Phase of development	Potential effects on ecology	Impacts
Groundworks / pre-construction	• Vegetation/habitat clearance • Movement of materials to/from or within a site • Provision of services and utilities e.g. underground power lines, water supply and drainage • Setup and subsequent removal of site officers/compounds and final site clearance after construction; storage areas for construction/excavated materials • Removal of structures • Burning of waste	• Loss of habitats • Degradation/damage/modification of habitats • Incidental mortality or injury of species • Disturbance of species
Construction	• Access and travel on/off site • Areas for plant maintenance and for storage of oils, fuels and chemicals • Movement of materials to/from or within a site • Provision of services and utilities e.g. underground power lines, water supply and drainage • Acoustic disturbance and vibration from construction activities • Environmental incidents and accidents e.g. spillage, noise and emissions • Burning of waste • Lighting • Structural works for new building and engineering	• Loss of habitats • Degradation/damage/modification of habitats • Loss of species • Incidental mortality or injury of species • Disturbance of species
Operational	• Access to site (both route and means) • Implementation of landscape design and habitat management (type and location)	• Degradation/damage/modification of habitats • Loss of species • Incidental mortality or injury of species

	• Presence of people, vehicles and their activities e.g. increased public access and recreational pressure, risk of fires, vandalism etc. • Presence of pets • Lighting • Site operation and management e.g. maintenance operations, lighting, noise, air and water pollution, use of road by traffic	• Disturbance of species

The Site lies within a Site of Special Scientific Interest (SSSI) Impact Risk Zone but the type of development (rural residential) does not require the Local Planning Authority (LPA) to consult with Natural England.

There are no statutory sites designated for wildlife or earth science within a 2km radius of the proposed development site. There are three non-statutory sites within a 2km radius, all are County Wildlife Sites (CWS). None of these are deemed Important Ecological Features with respect to the proposed development at Trewennack.

8.2 Habitats (IEFs)

The site contains the following habitats that have been identified as Important Ecological Features:

- ✓ Native species-rich hedgerow with trees and accompanying buffer strip

The following habitats are considered Important Ecological Features (IEF) and are found adjacent to/in the vicinity of the proposed development site:

- ✓ Native species-poor hedgerow and accompanying buffer strip
- ✓ Dense scrub

The native species-rich hedgerow with trees and species-poor hedgerow, with their accompanying buffer strips are assessed together below. The dense scrub has been assigned an IEF due to its potential to support nesting birds and therefore is assessed in *Nesting birds* section in *8.3 Species (IEFs)* below.

Native Hedgerows with accompanying buffer strips

Both the native species-rich hedgerow with trees and the native species-poor hedgerow are Habitats of Principal Importance, as well as having the potential to support nesting birds, commuting and foraging bats and notable species of moth. The native species-rich hedgerow with trees is also considered 'Important' under The Hedgerow Regulations 1997.

The buffer strip accompanying the hedgerows (1m-2m wide) have the potential to support West European hedgehog and reptiles.

The native species-rich hedgerow with trees forms the south-eastern site boundary, whilst the native species-poor hedgerow is offsite but immediately adjacent to the southern end of the north-western site boundary. Both hedgerows will be retained within the proposed development.

Potential impacts

The potential impacts on the hedgerows have been identified as follow:

- Loss of hedgerow buffer strip caused by machinery and vehicles undertaking groundworks for utilities, drainage etc., as well as by the storage of materials for build (groundworks/pre-construction and construction phases)
- Loss of hedgerow and buffer strip within residential gardens (operational phase)
- Damage to hedgerow and accompanying buffer strip by machinery and vehicles undertaking groundworks for utilities, drainage etc., as well as damage by storage of

materials for build (groundworks/pre-construction and construction phases)

- Damage to hedgerow and accompanying buffer strip by residents (operational phase)
- Incidental mortality or injury of species (most notably reptile species) by machinery and vehicles undertaking groundworks for utilities, drainage etc. (groundworks/pre-construction and construction phases)
- Disturbance to species associated with the hedgerow by artificial light falling on hedgerow (all phases)
- Disturbance to species associated with the hedgerow and accompanying buffer strip due to the presence of people and pets (operational phase)

Avoidance/Mitigation Measures

The following measures need to be put in place to avoid/mitigate against the potential impacts and their effects of the proposed development on the species-rich hedgerows:

- Staged clearance of vegetation across the site towards the 2m hedgerow buffers to protect reptile species. This will be done prior to the Construction Exclusion Zone fencing being erected. This clearance will take during the period when reptiles are active, between April and September inclusive, and will reduce the sward height gradually over a period of days.
- Construction Exclusion Zone (CEZ) along the hedgerows (minimum of 2m wide CEZ) to protect the hedgerows, buffer strips and associated species from damage during the groundworks/pre-construction and construction phases of the development.

  Temporary fencing (Heras or similar) with reptile fencing along the bottom will be erected at the appropriate distance(s) (as mentioned above); this will be accompanied by appropriate signage. The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

  No development or any associated works will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones. Appropriate signs will be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance (for example CONSTRUCTION EXCLUSION ZONE – NO ACCESS).
- The site compound, including the area used for storing construction materials and chemicals, will not be sited within 5m of the native species-rich hedgerow.
- A permanent buffer of 2m (minimum) will be maintained along the hedgerows in line with Cornwall Council policy. A chainlink or post-and-rail fence will be erected along the edge of the 2m buffer if the hedgerow would otherwise form the boundary of a residential garden i.e. the hedgerows should not be within private gardens.
- Appropriate timing of removal of any branches/trimming of the hedgerows outside of the bird nesting season (i.e. not between March and September inclusive).

- Artificial Lighting Strategy, with no artificial light falling onto the hedgerows. No artificial lighting to be introduced onsite during the groundworks or construction phases of the proposed development.

Residual effects

There are likely to be no residual effects on the native hedgerows, as long as the avoidance/mitigation measures listed above are put in place.

8.3 Species (IEFs)

The site contains the following species/species groups that have been identified as Important Ecological Features:

- ✓ Bats
- ✓ West European hedgehog
- ✓ Nesting birds
- ✓ Reptiles
- ✓ Species of moth

No additional species/species groups considered Important Ecological Features are found adjacent to/in the vicinity of the proposed development site.

Bats

There are no structures or trees onsite that have bat roosting potential. The native species-rich hedgerow with trees (forming the south-eastern site boundary) and the native species-poor hedgerow (offsite to the north-west) have the potential to support commuting and foraging bats.

Potential impacts

The potential impacts on the bat species onsite have been identified as follow:

- Loss / damage of foraging/commuting habitat due to damage to hedgerows by machinery and vehicles undertaking groundworks for utilities, drainage etc., as well as damage by storage of materials for build (groundworks/pre-construction and construction phases)
- Loss / damage of foraging/commuting habitat due to degradation or removal of hedgerow by residents (operational phase)
- Disturbance due to noise and vibration from construction activities (groundworks/pre-construction and construction phases)
- Disturbance due to artificial lighting falling on bat flight lines and foraging/commuting habitats (hedgerows) (all phases)

Avoidance/Mitigation Measures

The following measures need to be put in place to avoid/mitigate against the potential impacts and their effects of the proposed development on bat species:

- Construction Exclusion Zone (CEZ) along the hedgerows (minimum of 2m wide CEZ) to protect the hedgerows and associated species from damage during the

groundworks/pre-construction and construction phases of the development.

Temporary fencing (Heras or similar) with reptile fencing along the bottom will be erected at the appropriate distance(s) (as mentioned above); this will be accompanied by appropriate signage. The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

No development or any associated works will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones. Appropriate signs will be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance (for example CONSTRUCTION EXCLUSION ZONE – NO ACCESS).

- The site compound, including the area used for storing construction materials and chemicals, will not be sited within 5m of the native species-rich hedgerow.
- Control of disturbance levels with works undertaken during daylight hours only (08:00 – 18:00).
- A permanent buffer of 2m (minimum) will be maintained along the hedgerows in line with Cornwall Council policy. A chainlink or post-and-rail fence will be erected along the edge of the 2m buffer if the hedgerow would otherwise form the boundary of a residential garden i.e. the hedgerows should not be within private gardens.
- Artificial Lighting Strategy, with no artificial light falling onto the hedgerows. No artificial lighting to be introduced onsite during the groundworks or construction phases of the proposed development.

Residual effects

There are likely to be no residual effects on bat species onsite, as long as the avoidance/mitigation measures listed above are put in place.

West European Hedgehog

West European hedgehog has been recorded within a 2km radius of the proposed development site and could therefore be using the hedgerows and buffer strips.

Potential impacts

The potential impacts on West European hedgehog onsite have been identified as follow:

- Degradation/damage to hedgerow habitat (including the buffer strips) by machinery and vehicles undertaking groundworks for utilities, drainage etc., as well as damage by storage of materials for build (groundworks/pre-construction and construction phases)
- Incidental mortality of species due to increase movement of vehicles to and from the Site (all phases)
- Disturbance to species through artificial light falling on hedgerows and buffer strips

(all phases)

Avoidance/Mitigation Measures

The following measures need to be put in place to avoid/mitigate against the potential impacts and their effects of the proposed development on the West European hedgehog:

- Trenches or large excavations will be covered overnight during the groundworks and construction phases to prevent wildlife such as badgers or hedgehogs falling in and failing to escape. If this is not possible then a strategically placed plank will be installed to provide a means of escape. Any large bore pipes should be capped at the end of the day to reduce the potential for badgers and other wildlife entering and becoming trapped.
- Control of disturbance levels by working only during daylight hours (08:00 – 18:00) on weekdays.
- Construction Exclusion Zones (CEZs) along the hedgerows (minimum of 2m wide CEZ) to protect the hedgerows, buffer strips and associated species from damage during the groundworks/pre-construction and construction phases of the development.

  Temporary fencing (Heras or similar) with appropriate signage will be erected at the appropriate distance(s) (as mentioned above). The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

  No development or any associated works will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones. Appropriate signs will be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance (for example CONSTRUCTION EXCLUSION ZONE – NO ACCESS).
- A permanent buffer of 2m (minimum) will be maintained along the hedgerows in line with Cornwall Council policy. A chain-link or post-and-rail fence will be erected along the edge of the 2m buffer if the hedgerow would otherwise form the boundary of a residential garden i.e. the hedgerows should not be within private gardens.
- Artificial Lighting Strategy, with no artificial light falling onto the hedgerows. No artificial lighting to be introduced onsite during the groundworks or construction phases of the proposed development.
- Any fences onsite post-construction, including those between residential properties, will allow the movement of animals through/across the site unimpeded by either being raised at least 150mm above ground level or by having small square holes at least 130mm x 130mm in size cut into them at the back of gardens (lining up with each other).

Residual effects

There are likely to be no residual effects on West European hedgehog onsite, as long as the avoidance/mitigation measures listed above are put in place.

Nesting Birds

The species-rich hedgerow with trees (onsite), along with the species-poor hedgerow and dense scrub (offsite), have the potential to support nesting birds.

Potential impacts

The potential impacts on bird species onsite have been identified as follow:

- Loss of / damage to nesting sites due to damage to hedgerows by machinery and vehicles undertaking groundworks for utilities, drainage etc., as well as damage by storage of materials for build (groundworks/pre-construction and construction phases)
- Loss / damage of nesting habitat due to degradation or removal of hedgerow by residents (operational phase)
- Disturbance due to noise and vibration from construction activities (groundworks/pre-construction and construction phases)
- Disturbance due to artificial lighting falling on hedgerows (all phases)

Avoidance/Mitigation Measures

The following measures need to be put in place to avoid/mitigate against the potential impacts and their effects of the proposed development on bird species:

- Control of disturbance levels by working only during daylight hours (08:00 – 18:00) on weekdays.
- Construction Exclusion Zones (CEZs) along the hedgerows (minimum of 2m wide CEZ) to protect the hedgerows, buffer strips and associated species from damage during the groundworks/pre-construction and construction phases of the development.

  Temporary fencing (Heras or similar) with appropriate signage will be erected at the appropriate distance(s) (as mentioned above). The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

  No development or any associated works will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones. Appropriate signs will be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance (for example CONSTRUCTION EXCLUSION ZONE – NO ACCESS).
- The site compound, including the area used for storing construction materials and chemicals, will not be sited within 5m of the native species-rich hedgerow.
- Appropriate timing of removal of any branches/trimming of the hedgerows outside of the bird nesting season (i.e. not between March and September inclusive).
- A permanent buffer of 2m (minimum) will be maintained along the hedgerows in line with Cornwall Council policy. A chainlink or post-and-rail fence will be erected along

the edge of the 2m buffer if the hedgerow would otherwise form the boundary of a residential garden i.e. the hedgerows should not be within private gardens.

- Artificial Lighting Strategy, with no artificial light falling onto the hedgerows. No artificial lighting to be introduced onsite during the groundworks or construction phases of the proposed development.

Residual effects

There are likely to be no residual effects on bird species onsite, as long as the avoidance/mitigation measures listed above are put in place.

Reptiles

The site has some potential to support reptiles around the edges of the site – within the hedgerow buffer strips. There is also a log pile along the south-eastern boundary hedgerow (approximately halfway along).

Potential impacts

The potential impacts on reptile species onsite have been identified as follow:

- Loss of potential habitat through removal of log pile and damage to hedgerow buffer strip by machinery (groundworks/pre-construction and construction phases)
- Incidental mortality by machinery and vehicles undertaking groundworks for utilities, drainage etc. (groundworks/pre-construction and construction phases)
- Disturbance due to noise and vibration from construction activities (groundworks/pre-construction and construction phases)

Avoidance/Mitigation Measures

The following measures need to be put in place to avoid/mitigate against the potential impacts and their effects of the proposed development on the reptile species:

- Staged clearance of vegetation across the site towards the 2m hedgerow buffers to protect reptile species. This will be done prior to the Construction Exclusion Zone fencing being erected. This clearance will take during the period when reptiles are active, between April and September inclusive, and will reduce the sward height gradually over a period of days.
- Retention of the log pile along the south-eastern boundary.
- Construction Exclusion Zone (CEZ) along the hedgerows (minimum of 2m wide CEZ) to protect the hedgerows, buffer strips and associated species from damage during the groundworks/pre-construction and construction phases of the development.

  Temporary fencing (Heras or similar) with reptile fencing along the bottom will be erected at the appropriate distance(s) (as mentioned above); this will be accompanied by appropriate signage. The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

No development or any associated works will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones. Appropriate signs will be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance (for example CONSTRUCTION EXCLUSION ZONE – NO ACCESS).

- Trenches or large excavations will be covered overnight during the groundworks and construction phases to prevent wildlife such as reptiles or hedgehogs falling in and failing to escape. If this is not possible then a strategically placed plank will be installed to provide a means of escape. Any large bore pipes should be capped at the end of the day to reduce the potential for reptiles and other wildlife entering and becoming trapped.
- A permanent buffer of 2m (minimum) will be maintained along the hedgerows in line with Cornwall Council policy. A chainlink or post-and-rail fence will be erected along the edge of the 2m buffer if the hedgerow would otherwise form the boundary of a residential garden i.e. the hedgerows should not be within private gardens.
- Artificial Lighting Strategy, with no artificial light falling onto the hedgerows. No artificial lighting to be introduced onsite during the groundworks or construction phases of the proposed development.
- Any fences onsite post-construction, including those between residential properties, will allow the movement of animals through/across the site unimpeded by either being raised at least 150mm above ground level or by having small square holes at least 130mm x 130mm in size cut into them at the back of gardens (lining up with each other).

Residual effects

There are likely to be no residual effects on reptile species onsite, as long as the avoidance/mitigation measures listed above are put in place.

Species of Moth

Several species of moth have been recorded within a 2km radius of the site, many associated with hedgerow and tree species.

Potential impacts

The potential impacts on moth species in the vicinity of the proposed development site have been identified as follow:

- Degradation/damage to their habitats, predominantly hedgerows and trees (all phases)

Avoidance/Mitigation Measures

The following measures need to be put in place to avoid/mitigate against the potential impacts and their effects of the proposed development on the species of moth:

- Construction Exclusion Zone (CEZ) along the hedgerows (minimum of 2m wide CEZ) to protect the hedgerows, buffer strips and associated species from damage during

the groundworks/pre-construction and construction phases of the development.

Temporary fencing (Heras or similar) with reptile fencing along the bottom will be erected at the appropriate distance(s) (as mentioned above); this will be accompanied by appropriate signage. The only exception to this is at existing access points. Heras fencing is not intended to restrict the access of species to other areas of the site, therefore, mindful procedure by site workers and visitors to the site is always necessary.

No development or any associated works will be undertaken within the CEZs and no materials, machinery, chemicals etc. will be stored within these zones. Appropriate signs will be placed at regular intervals along the fencing to ensure everyone on site is aware of the CEZ and understands its relevance (for example CONSTRUCTION EXCLUSION ZONE – NO ACCESS).

- A permanent buffer of 2m (minimum) will be maintained along the hedgerows in line with Cornwall Council policy. A chain-link or post-and-rail fence will be erected along the edge of the 2m buffer if the hedgerow would otherwise form the boundary of a residential garden i.e. the hedgerows should not be within private gardens.
- Artificial Lighting Strategy, with no artificial light falling onto the hedgerows. No artificial lighting to be introduced onsite during the groundworks or construction phases of the proposed development.

Residual effects

There are likely to be no residual effects on species of moth onsite, as long as the avoidance/mitigation measures listed above are put in place.

8.4 General Advice to Avoid Damage to the Environment

All activities on site should bear in mind the potential for wildlife or the environment being harmed through the process of development from inception to end, with a proactive approach occurring for lawful protection of wildlife and the environment regarding use of materials, machines, chemicals, and human activity on site.

- ✓ All contractors will be given a toolbox talk by an ecologist/ecological clerk of works ahead of the commencement of groundworks/demolition works. The talk will include the identification of sensitive ecological features and methods of working that minimise the risk of harm to these features. This talk will be adapted and given at appropriate stages throughout the development, particularly at the stage of each stage of development as well as when there are new groundworks/construction teams onsite.
- ✓ Contractors must ensure that no harm can come to wildlife by maintaining the site efficiently, clearing away any material such as wire in which animals can become entangled and preventing access to toxic substances.
- ✓ If there is a substantial delay before development commences, the site should be maintained in a way that would prevent wildlife colonising it and causing constraints in the future. Such management should include mowing grassland at least twice a year and preventing scrub encroachment.

- ✓ Erection of signage to inform of any Health and Safety considerations during development and post development for the benefit of residents.
- ✓ If any species is discovered during any stage of the works, any vegetation, materials etc. should be replaced to re-establish a level of cover allowing the animal to move away of its own accord. If required further advice should be sought from Ecological Surveys Ltd (Tel: 01503 240846 or 07736 458609) or Natural England.

8.5 Summary of Mitigation Measures

Table 8.2 summarises the mitigation measures required for the proposed development of this site.

Table 8.2. Mitigation measures

Mitigation measure	Development Phase	Important Ecological Feature(s) initially impacted upon / effected	Avoidance / reduction in effect
Retention of habitats	All	Species-rich hedgerow with trees, log pile, bats, West European hedgehog, nesting birds, reptiles, species of moth	Avoidance
Staged clearance of semi-improved grassland for reptiles	Prior to groundworks commencing	Reptiles	Avoidance
Retention of log pile	All	Reptiles	Avoidance
Control of disturbance levels	Groundworks/pre-construction Construction	Bats, West European hedgehog, nesting birds, species of moth	Reduction
Site compound minimum distance of 5m from species-rich hedgerow with trees	Groundworks/pre-construction Construction	Species-rich hedgerow with trees, bats, West European hedgehog, nesting birds, reptiles, species of moth	Avoidance
Construction Exclusion Zones with reptile fencing along species-rich hedgerow with trees and species-poor hedgerow at a minimum distance of 2m	Groundworks/pre-construction Construction	Species-rich hedgerow with trees, species-poor hedgerow, bats, West European hedgehog, nesting birds, reptiles, species of moth	Avoidance / Reduction
Appropriate timing of woody species cutting back/trimming of hedgerow	All	Nesting birds	Avoidance

Covered trenching and capped pipework	Groundworks/pre-construction Construction	Mammals, reptiles	Avoidance
Artificial Lighting Strategy	All	Bats, West European hedgehog, nesting birds, reptiles, species of moth	Avoidance
Permanent buffers along hedgerows (minimum 2m wide)	Operational	Species-rich hedgerow with trees, species-poor hedgerow, bats, West European hedgehog, nesting birds, reptiles, species of moth	Avoidance

8.6 Residual Effects and Compensation

The mitigation and initial compensation measures set out above, and summarised in Table 8.2, seek to address the potential effects/impacts of the development (rural residential development). There are no residual effects/impacts resulting on any of the Important Ecological Features once these mitigation and initial compensation measures have been carried out.

9. Enhancement for Biodiversity

There is an opportunity within the proposed development to increase biodiversity on the site through pro-active enhancement measures. The proposed enhancements for biodiversity are outlined below and mapped in the Ecological Constraints and Opportunities Plan (ECOP) set out in Appendix H (along with the mitigation and compensation measures).

As mentioned in section 8 above, a Landscape and Ecological Management Plan (LEMP) should be produced, detailing how the landscape and ecological mitigation measures, as well as the landscape proposals and biodiversity enhancements, will be delivered throughout the various stages of this development, from the groundworks stage through the construction, to the future use of the site. This LEMP should also include monitoring requirements. The delivery of the LEMP at each stage of the development should be overseen by an Ecological Clerk of Works or a suitably qualified ecologist.

9.1 Management of Existing Habitats

Hedgerow management and enhancement

Hedgerows will be trimmed only every three years (or less frequently if possible) and maintained at a height of at least three, and preferably four, metres. It is important not to cut all hedgerows in an area at the same time, so that some heavily fruiting hedgerows are always present. As a guide, it is suggested that cutting only 10 to 30 per cent in any one year is advisable.

Gaps in the native species-rich hedgerow with trees will be infilled with native species. When plugging gaps in existing hedgerows, at least five and preferably seven different native shrub/tree species, ideally of local provenance, should be planted. Woody species to include hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), hazel (*Corylus avellana*), field maple (*Acer campestre*), pedunculate oak (*Quercus robur*), holly (*Ilex aquifolium*), elder (*Sambucus nigra*), eared willow (*Salix aurita*), and dog-rose (*Rosa canina* agg.).

- Use two-year-old pot grown shrubs planted in a double, staggered row at a rate of at least four plants per metre.
- Apply a layer mulch to a depth of 75mm around shrub base to supress weeds.
- Plan a monitoring programme during first year of growth. Any saplings which fail to thrive should be re-planted in order to prevent the development of gaps.
- Trim lightly during the first three years.

Hedgerow management for dormice is given below.

Hedgerow Management Good Practice, for the Benefit of Dormice and Hedgerow Biodiversity Ref: *The Dormouse Conservation Handbook Second Edition*.	
1	Except where road safety or access, preclude it, hedgerows should be trimmed only every three years (or less frequently if possible) and maintained at a height of at least three, and preferably four metres.

2	Ideally, about one third of hedgerows should be left to grow for 7 to 10 years.
3	It is important not to cut all hedgerows in an area at once, so that some heavily fruiting hedgerows are always present. As a guide, we suggest cutting only 10 to 30 per cent in any one year.
4	In some places, it may be feasible to cut only one side of the hedge, cutting the other a year or two later, thus not removing all the food sources at once and allowing some regrowth before further cutting takes place. If possible, flails should not be used to manage hedgerows.
5	Coppicing or, even better, laying should be used to manage hedgerows that become gappy or lack dense branches at their base. Fencing may be needed to prevent stock from causing damage before new growth has become established.
6	If hedgerow size needs to be reduced, it is better to avoid cutting the top and to cut one side only.
7	When creating new hedgerows, or plugging gaps in existing ones, at least five and preferably seven different shrub/tree species should be planted. The best species to plant are hawthorn (for its flowers and berries) and hazel (nuts and insects); with a diversity of other species to offer flowers insects and fruits at different times Bramble would make a valuable addition but may arrive naturally.
8	Where new roads or other developments cut across hedges, the 'loose ends' should be linked up by suitable plantings. Mixtures of hawthorn and hazel are the preferred species where early results are needed.

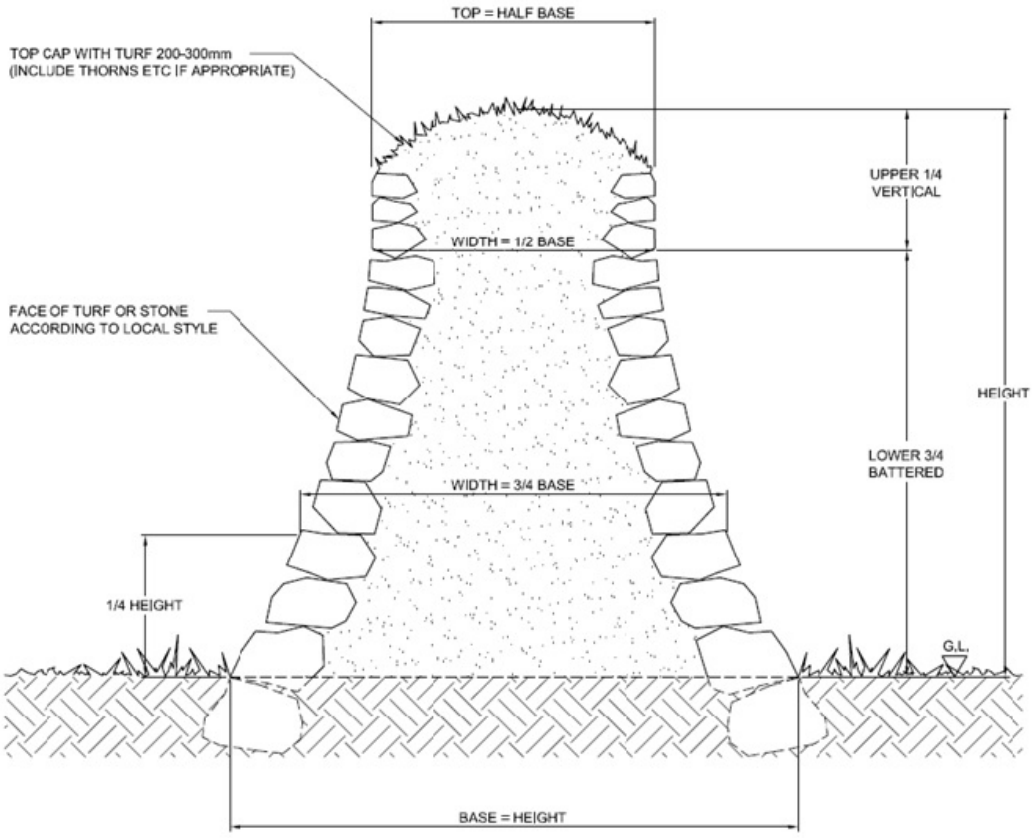
9.2 Habitat Creation

Cornish hedge creation

New sections of Cornish hedge will be created along the north-eastern and south-western site boundaries. The Cornish hedges will connect with existing hedgerow, thus increasing landscape connectivity.

- The Guild of Cornish Hedgers good practice guidelines will be followed in the construction and the subsequent management of the Cornish hedge (see Menneer, 2008 and www.cornishhedges.co.uk). Ideally a member of the Guild of Cornish Hedgers will be employed to construct the hedge.
- The hedges will be built to a height of 1.5m, with a base width of 1.5m and will be built in the style consistent with the local area. They will be constructed using the Cornwall Council plan shown in Figure 9.1 below.

Figure 9.1 Construction of a Cornish Hedge



These new hedges will strengthen ecological networks and landscape connectivity, as well as providing an increase in suitable habitat for reptiles, bats etc.

The Cornish hedges will be managed for wildlife, with the four actions for management stated by the Guild of Cornish Hedgers being adhered to. Bramble will be cut right back, as many of the hedges have become dominated by bramble at the expense of other species (Menneer, 2008b).

Lengths of hedgerow will be planted on top of the new Cornish hedges. These hedgerows will be created by planting native woody species including hawthorn (*Crataegus monogyna*) for its flowers and berries; hazel (*Corylus avellana*) for its nuts and attracting insects; blackthorn (*Prunus spinosa*); and gorse (*Ulex europaeus*).

- The hedgerows will be created from planting native species ideally of local provenance.
- Use two-year-old pot grown shrubs planted in a double, staggered row at a rate of at least four plants per metre.
- Apply a layer mulch to a depth of 75mm around shrub base to supress weeds.
- Plan a monitoring programme during first year of growth. Any saplings which fail to thrive will be re-planted in order to prevent the development of gaps.
- Trim lightly during the first three years.
- Approximately three years following planting, an appropriate management scheme will be established to ensure that it develops into a dense hedgerow which is optimal for protected species. Refer to section 9.1 above for hedgerow management advice.

Planting of trees

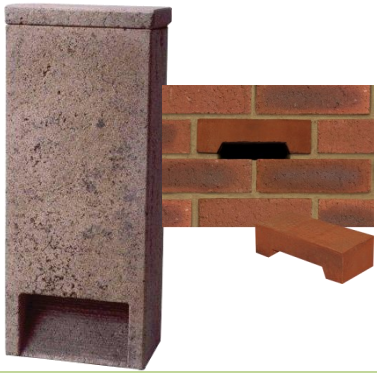
A mix of native trees, ideally of local provenance, will be planted within the residential gardens. Tree species suitable for planting on site include pedunculate oak (*Quercus robur*), downy birch (*Betulus pubescens*), rowan (*Sorbus aucuparia*), alder (*Alnus glutinosa*) and fruit trees of Cornish varieties.

Bat Roosting Provision

Bat tubes/bricks must be built into the new properties, with one tube/brick for every two properties, in line with Cornwall Council policy (Cornwall Council, 2018). A total of four bat tubes/bricks will therefore be placed on site.

Bat boxes erected on properties offer potential bat roosts and augment the natural roosting opportunities. These boxes will be erected not less than three metres high and ideally four metres plus, will be placed on the southern and western aspects.

- Where bat-tubes are unsuited owing to the type of construction of the proposed structures, other bat boxes or specifically designed bat habitation of an equally durable condition may be substituted for bat-tubes (subject to LPA approval.)
- Where enhancement recommends bat tubes or bat boxes on structures, aspects of the Artificial Lighting Strategy must be followed to ensure artificial lighting does not shine on the access points/boxes or flight paths.

		
Bat Tube **Enclosed Bat Box**	**Enclosed Bat Box suited to Pipistrelles**	**Weather Board**

Bird Nesting Provision

Bird bricks/boxes must be built into the new properties, with one brick/box for every two properties, in line with Cornwall Council policy (Cornwall Council, 2018). A total of five in-built bird bricks/boxes will therefore be placed on site.

In-built bird bricks provide a long-lasting solution. Fixing to trees or external wall mountings will only last as long as the nail / screw or branch lasts. Often this is less than ten years. Built in features are likely to last as long as the structure they are built into which might be hundreds of years. Obviously, there may be occasions where built in solutions are not applicable. Local planning authority (LPA) approval of external mounted boxes is generally required.

- Only boxes of robust or permanent construction are suitable. Some account must be taken of the potential need to maintain and replace boxes after a number of years in use.
- Boxes/bricks should be positioned with orientation preferably between north and east with external positions of not less than three metres high to avoid cat predation and vandalism.
- Site nest boxes in locations that are accessible for maintenance, but away from bird feeders. Ideally boxes should be a discrete distance away from other nest boxes, except for house sparrows, as they like to nest in colonies.
- For further information concerning swallows, swifts and house martins refer to Cornwall Council's guidance notes (Cornwall Council, 2017) https://www.cornwall.gov.uk/media/3626630/Accommodating-swallows-swifts-and-house-martins.pdf.

		
House Sparrow Terrace	**Swift**	**Bird brick 24,25,26 to suit varying bird sizes:**

Solitary Bee Provision

One solitary bee brick will be built into one in every two properties, in line with Cornwall Council policy (Cornwall Council, 2018).

Solitary bee bricks can be built into buildings, walls and other structures. Each bee brick provides multiple cavities for solitary bees to lay their eggs. The bricks should ideally be built into south-facing, sunny walls, at between one and two metres above ground level and with nectar sources nearby.

Example of solitary bee bricks

9.3 Landscaping for the Benefit of Wildlife

Landscaping in sympathy with the needs of native wildlife is relevant to all important wildlife species. It helps to support birds by providing plant species which carry seeds, fruits, nuts, and/or support insects (nectar and pollen) upon which birds feed and supports bats by attracting insects to the garden.

The list below is not exhaustive, neither is it prescriptive, and recommendations in italics can be applied with discretion. The implementation of a combination of recommendations here fulfils the obligation of the client/agent to leave the site in an enhanced state.

- ✓ The landscape architect/or appointed person should plant a variety of flowering plants, biased towards native and near-native species. Exotics are not required; however, a selection of exotics to extend the flowering season and potentially provide resources for specialist groups now and in the future, is becoming increasingly important owing to climatic changes, and should be given serious consideration by any with a view to protecting and sustaining present and future biodiversity. Plant holistically for biodiversity value: nectar rich plants/shrubs which yield fruits /nuts of benefit to a multitude of species.
- ✓ Where grass is planted, use a grass mix other than low amenity lawn grass. Plant mixes with diverse grass species support a wealth of insects when allowed to seed and flower before being cut back.
- ✓ Provide green corridors (hedges/trees/water features/lawns or mixed diversity species and beds) with attention to other neighbouring green spaces. The garden itself, when taken as one of many within the neighbourhood, will become part of a wider green corridor.
- ✓ Select a variety of plants that will produce foods in different seasons. For winter residents as well as migrants that return early in spring, plants that hold their fruits throughout the winter ("winter-persistent" plants) are a vital food source.
- ✓ Leave rough areas of vegetation and native trees and shrubs around the vicinity of any replacement building will also maintain nesting opportunities.
- ✓ Avoid pesticide and insecticide use.
- ✓ For garden areas: improve the area of green habitat within the garden wherever feasible and where paved spaces and balconies must be used also consider:
  - Planters and raised beds
  - Courtyard trees, low level shrubs, hedges
  - Planting climbers and creepers.
- Include features such as bird tables and feeders raised up or protected at the base from squirrel or cat ascent.
- Provide shelter using low shrubs, thickets or hedges where birds can nest, perch, and escape from predators.
- Leave tree stumps, dead wood (where safe to do so) tree limbs, leaf piles and compost to encourage insects and worms for birds to feed on.
- Keep a lid on any water butts.
- Appropriate aftercare and management should ensure that these areas are maintained to give optimum benefit to wildlife.

10. Monitoring

The monitoring of both the mitigation measures and the biodiversity enhancements will be undertaken to ensure they are put in place and carried out correctly. The monitoring will be undertaken by a suitably qualified ecologist or an Ecological Clerk of Works. Table 10.1 below outlines the monitoring required.

Table 10.1 Monitoring required of mitigation and biodiversity enhancement measures.

Mitigation/ enhancement measure	Monitoring requirement		
	Groundworks/ demolition phase	Construction phase	Operational phase
Staged clearance of semi-improved grassland for reptiles.	ECoW[1] to oversee.	N/a	N/a
Retention of species-rich hedgerow with trees and log pile.	ECoW[1] to check.	ECoW[1] to check.	ECoW[1] to check.
Control of disturbance levels (work hours weekdays, 08:00-18:00)	ECoW[1] to check.	ECoW[1] to check.	N/a
Creation of Construction Exclusion Zones with reptile fencing along hedgerows (minimum of 2m).	ECoW[1] to check CEZ fencing.	ECoW[1] to check CEZ fencing.	N/a
Site compound at least 5m from native species-rich hedgerow with trees	ECoW[1] to check.	ECoW[1] to check.	N/a
Appropriate timing of branch removal/hedge trimming.	ECoW[1] to check.	ECoW[1] to check.	ECoW[1] to check.
Artificial Lighting Strategy.	ECoW[1] to check.	ECoW[1] to check.	ECoW[1] to check.
Covered trenching and capped pipes at night or have appropriately sloping sides.	ECoW[1] to check.	ECoW[1] to check.	N/a
Creation of permanent buffers along hedgerows (minimum of 2m).	N/a	ECoW[1] to check.	ECoW[1] to check.
Installation of in-built bat tubes/bricks.	N/a	ECoW[1] to check.	N/a
Installation of in-built bird boxes/bricks.	N/a	ECoW[1] to check.	N/a
Installation of in-built bee bricks.	N/a	ECoW[1] to check.	N/a
Inter-property fences along wildlife access.	N/a	ECoW[1] to check.	ECoW[1] to check.

Cornish hedge creation.	N/a	Landscape architect / ECoW[1] to oversee, including the sourcing of plants.	Landscape architect / ECoW[1] to check.
Planting of trees.	N/a	Landscape architect / ECoW[1] to oversee, including the sourcing of plants.	Landscape architect / ECoW[1] to check.

[ECoW[1] = Ecological clerk of works or suitably experienced/qualified ecologist]

11. Biodiversity Impact Assessment: Losses and Gains

The proposed development is classed as a minor development and therefore, at the present time, there is no requirement for the Department for Environment, Food and Rural Affairs (Defra)/Natural England Biodiversity Metric 4.0 to be used to calculate the biodiversity losses and gains associated with the development – a 10% biodiversity net gain (BNG) is not required. However, in line with the *National Planning Policy Framework 2021* and Cornwall Council policy, which requires that all development must provide BNG throughout the development process, Table 11.1 shows the losses and gains for the habitats on site if the proposed development goes ahead.

Table 11.1. Habitat losses and gains for the proposed development at this site

Habitat	Area / length lost	Area / length gained	Overall biodiversity gain
Poor semi-improved grassland	0.166ha	0	Overall loss of 0.166ha
Arable	0.029ha	0	Overall loss of 0.029ha
Tall ruderal	0.035ha	0	Overall loss of 0.035ha
Bare ground	0.023ha	0	Overall loss of 0.023ha
Buildings/Structures	0.031ha	0.050ha	Overall gain of 0.019ha
Hardstanding/roads	0	0.071ha	Overall gain of 0.071ha
Vegetated garden	0	0.163ha	Overall gain of 0.176ha
Native species-rich hedgerow with trees	0	0	No overall loss or gain
Cornish hedge	0	0.083km	Overall gain of 0.083km

12. Conclusions

The proposed development site is of low-moderate ecological value, being an agricultural field comprising poor semi-improved grassland and arable with a species-rich hedgerow with trees along the south-eastern boundary.

The Extended Phase 1 Habitat Survey that was undertaken on 21 July 2023 along with the desktop survey, are considered to have collected enough information about the ecological condition of the site to have been able to adequately assess the impact of the proposed development. Further survey work is therefore not required.

The Important Ecological Features were identified and evaluated against the potential impacts/effects that the proposed development may have on the ecology of the site and surrounding area. The impact assessment determined how the conditions, focusing on the Important Ecological Features identified, are likely to change in relation to the baseline conditions, allowing a clear understanding of the effects of the proposed development.

Avoidance, mitigation and compensation measures have been set out to avoid and reduce the effects/impacts of the development on the Important Ecological Features and the local environment as a whole. These include, but are not limited to, staged clearance of the semi-improved grassland for reptiles, Construction Exclusion Zones with reptile fencing, permanent hedgerow buffers, artificial lighting strategy, covered trenching and capped pipework and control of disturbance levels. All measures should be included as a planning condition for the proposed development.

Enhancement measures for biodiversity have also been set out, including the management and enhancement of the species-rich hedgerow with trees for wildlife, the provision of in-built bat tubes/bricks, bird bricks/boxes and bee bricks and the construction of new Cornish hedges. These enhancements should be included as a planning condition for the proposed development.

All the avoidance, mitigation, compensation and enhancement measures require monitoring; this has been outlined in tabular format and should also be included as a planning condition for the proposed development.

An Appropriate Assessment will be required of the proposed development as the site lies within the Fal and Helford Special Area of Conservation (SAC) Natura 2000 Zone of Influence as assessed by Cornwall Council. The relevant Council Appropriate Assessment form needs completing, and a financial contribution made towards the management of the SAC to mitigate any potential likely significant effects.

Providing the recommendations within this Ecological Impact Assessment (EcIA) are adhered to, with the mitigation measures and enhancements agreed, there would appear to be no ecological constraints to prevent this development. The local planning authority (LPA) should ensure that the mitigation measures, together with enhancement recommendations, are either 'conditioned' where appropriate, or that full permission is withheld pending the agreement of mitigation, compensation (where necessary) and enhancement measures. A Landscape and Ecological Management Plan (LEMP) should also be 'conditioned' for the proposed development at the site.

An Ecological Clerk of Works or a suitably experienced/qualified ecologist should oversee the implementation of the ecological mitigation measures and the enhancements for biodiversity.

It is the responsibility of all those involved with the proposed development works at Trewennack near Helston, to ensure that wildlife protection and nature conservation legislation is complied with throughout the lifespan of the development, at every stage. Care should therefore be taken during all stages of the development and if any protected are discovered they must not be handled; works must stop immediately, and advice sought from a licensed ecologist.

13. References

- Badger Trust (2023) *Badger Protection: Best Practice Guidance for Developers, Ecologists and Planners (England). August 2023.* Badget Trust.
- Baker, J., Hoskin, R. and Butterworth, T. (2019a) *Biodiversity net gain: Good practice principles for development. Part A: A practical guide. CIRIA, C776a, RP1048*. CIRIA, London.
- Baker, J., Hoskin, R. and Butterworth, T. (2019b) *Biodiversity net gain: Good practice principles for development. Part B: Case studies. CIRIA, C776b, RP1048*. CIRIA, London.
- Bat Conservation Trust (BCT) "Landscape and Urban Design for Bats and Biodiversity," by Kelly Gunnell, Gary Grant and Dr. Carol Williams.
- Bat Conservation Trust and Institution of Lighting Professionals (2023) *Bats and Artificial Lighting At Night. Guidance Note GN08/23.* Institution of Lighting Professionals, Rugby.
- Bennallick, Ian *et al* (2009) *Red Data Book for Cornwall and the Isles of Scilly. 2nd Edition.* Croceago Press, Praze-an-Beeble.
- Bibby *et al*. (1992) *Bird Census Techniques. 2nd Ed*. Academic Press, London.
- Biggs, J. *et al* (2014) *Analytical and methodological development for improved surveillance of the Great Created Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA*. Freshwater Habitats Trust, Oxford.
- Bright P., Morris P., and Mitchell-Jones, A. (2006) *The dormouse conservation handbook*; second edition, English Nature, Peterborough.
- Chanin and Woods (2003) *Surveying dormice using nest tubes: results and experiences from the South West Dormouse Project*. English Nature Research Report No 524. Peterborough: English Nature.
- CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition.* Chartered Institute of Ecology and Environmental Management, Winchester. www.cieem.net
- CIEEM (2017) *Guidelines on Ecological Report Writing*. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM (2021) *Good Practice Requirements for Delivering Biodiversity Net Gain (On- and Off-site). July 2021.* Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.).* The Bat Conservation Trust, London.
- Cornwall Council (2016) *Cornwall Local Plan Strategic Policies 2010-2030. Adopted November 2016*. Cornwall Council, Truro.
- Cornwall Council (2017) *Accommodating swallows, swifts and house martins: Guidance for developers, builders, surveyors, architects and householders.* Cornwall Council, Truro. https://www.cornwall.gov.uk/media/3626630/Accommodating-swallows-swifts-and-house-martins.pdf
- Cornwall Council (2018) *Cornwall Planning for Biodiversity and Net Gain Supplementary Planning Document.* Cornwall Council, Truro.

- Cornwall Council (2020) *Draft Chief Planning Officer's Advice Note: Biodiversity Net Gain in Cornwall. March 2020.* Cornwall Council, Truro.
- Cornwall Council (2021) *European Sites Mitigation Supplementary Planning Document.* Cornwall Council, Truro.
- Cornwall Council (2023) *Climate Emergency Development Plan Document. February 2023.* Cornwall Council, Truro.
- Department of the Environment (1997) *The Hedgerows Regulations 1997: A guide to the law and good practice.* Department of the Environment, London.
- DEFRA (2007a) *Securing a Healthy Natural Environment: an action plan for embedding an ecosystems approach.* PB12853. DEFRA, London.
- DEFRA (2007b) *An Introductory Guide to Valuing Ecosystem Services.* PB12852. DEFRA, London.
- Defra (2012). *Biodiversity Offsetting Pilots. Technical Paper: the metric for the biodiversity offsetting pilot in England. March 2012*. Natural England and Defra. https://www.gov.uk/government/collections/biodiversity-offsetting.
- English Nature (2005) *Reptiles: guidelines for development* English Nature, Peterborough.
- EOAC (1979) *Categories of Breeding Bird Evidence.* European Ornithological Atlas Committee.
- Froglife (1999) *Reptile survey methods. Froglife Advice Sheet 10.* Herpetological Conservation Trust, Peterborough.
- Gent, T., and Gibson, S. (1998) *Herpetofauna Workers Manual*; *revised 2003.* JNCC, Peterborough.
- Groves, D. (editor) (2013) *The Mammals of Cornwall and the Isles of Scilly.* Environmental Records Centre for Cornwall and the Isles of Scilly, Truro.
- Harris, S., Cresswell P. and Jeffries, D. (1989). Surveying Badgers. *Issue 9 of Occasional Publication of the Mammal Society*. Mammal Society, London. http://www.mammal.org.uk/sites/default/files/Surveying%20Badgers%20%201989%20-%20Whole%20Book.pdf
- HM Government (1981) *The Wildlife and Countryside Act 1981.* HMSO, London.
- HM Government (1991) *The Wildlife and Countryside (Amendment) Act.* HMSO, London.
- HM Government (1992a) *Statutory Instrument 1992 No. 2350* [Variations to Schedules 5 and 8 of the Wildlife and Countryside Act]. HMSO, London
- HM Government (1992b) Protection of Badgers Act 1992. HMSO, London.
- HM Government (1994) *The Conservation (Natural Habitats, & C) Regulation 1994.* HMSO, London.
- HM Government (1997) *The Hedgerow Regulations 1997*. HMSO, London.
- HM Government (1998) *Statutory Instrument 1998 No. 878* [Variations to Schedules 5 and 8 of the Wildlife and Countryside Act]. HMSO, London.
- HM Government (2000) *The Countryside and Rights of Way Act 2000.* HMSO, London.
- HM Government (2006) *Natural Environment and Rural Communities Act 2006.* HMSO, London.
- HM Government (2017) *The Conservation of Habitats and Species Regulations 2017*. HMSO, London.

- HM Government (2021) *Environment Act 2021.*
- HM Government (2023) *National Planning Policy Framework. September 2023* HMSO. www.gov.uk/government/publications
- Institute of Environmental Assessment (IEA), 1995. Guidelines for Baseline Ecological Assessment, Institute of Environmental Assessment. E&FN Spon, aJn Imprint of Chapman and Hall. London.
- Joint Nature Conservation Committee (2004) *Bat Workers Manual,* Joint Nature Conservation Committee, Peterborough.
- Joint Nature Conservation Committee (2010) *Handbook for Phase 1 habitat survey - a technique for environmental audit*. JNCC, Peterborough.
- JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), 2012. UK Post-2010 Biodiversity Framework. July 2012.
- Langton, T., Beckett, C. and Foster, J. (2001) *Great Crested Newt Conservation Handbook*. Froglife, Suffolk.
- Menneer, Robin (2008a). *Building hedges in Cornwall: How to build a Cornish hedge.* Guild of Cornish Hedgers.
- Menneer, Robin (2008b). *How to look after a Cornish Hedge.* Guild of Cornish Hedgers.
- Natural England (2007) *Badgers and Development; A guide to best practice and licensing.* Natural England, Peterborough.
- Natural England (2009) *Protection of Badgers Act (1992) as amended: Interpretation of 'Disturbance' in relation to Badgers occupying a sett*, Natural England, Peterborough.
- Natural England (2010) *Higher Level Stewardship Farm Environment Plan (FEP) Manual. Technical guidance on the completion of the FEP and identification, condition assessment and recording of HLS FEP features. Third Edition – March 2010.* Natural England.
- Natural England (2020) *National Habitat Network Maps. User Guidance v. 2. May 2020.* Natural England.
- Natural England (2023) *The Biodiversity Metric 4.0. User Guide. First published March 2023.* Natural England Joint Publication JP039.
- Nature crisis: Humans 'threaten 1m species with extinction' (2019) Matt McGrath accessed 06/05/2019 https://www.bbc.co.uk/news/science-environment-48169783
- Ratcliffe, Derek (1977) *A Nature Conservation Review.* Cambridge University Press, Cambridge.
- Reason, P.F. and Wray, S. (2023) *UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation doe developments affecting bats.* Chartered Institute for Ecology and Environmental Management, Ampfield.
- Russ, J. & Montgomery, W. (2002) Habitat associations of bats in Northern Ireland: Implications for conservation. *Biological Conservation 108: 49-58.*
- Stace, Clive, A. (2019) *New Flora of the British Isles. Fourth edition*. C & M Floristics, Suffolk.
- The British Standards Institution (2013) *Biodiversity – Code of practice for planning and development. BS42020:2013.* The British Standards Institution Limited.

- The British Standards Institution (2012) *Trees in relation to design, demolition and construction – Recommendations. BS5837:2012*. The British Standards Institution Limited.
- Voigt, C.C. *et al* (2018): *Guidelines for consideration of bats in lighting projects.* EUROBATS Publications Series No. 8. UNEP/EUROBATS Secretariat, Bonn, Germany, 62pp.
- Williams, C. (2010) *Biodiversity for Low and Zero Carbon Buildings: a technical guide for new build,* RIBA Publishing, London. www.chaninweb.co.uk/Chanin%20&%20Gubert2012_Lutra_55_1_LOWRES.pdf

Data Search Websites

- Barn Owl Trust: www.barnowltrust.org.uk
- Cornwall Biodiversity Action Plan: www.cornwallwildlifetrust.org.uk/bap
- Cornwall Council Interactive Map: https://map.cornwall.gov.uk/
- Cornwall Planning for Biodiversity Guide (2018): https://www.cornwall.gov.uk/media/35514048/biodiversity-spd-v7.pdf
- Cornwall Wildlife Trust: www.cornwallwildlifetrust.org.uk
- Freshwater Habitats Trust: https://freshwaterhabitats.org.uk/projects/million-ponds/pond-creation-toolkit/#Core
- GB non-native species secretariat: www.nonnativespecies.org
- LAGAS: www.lagas.co.uk
- Multi Agency Geographical Information for the Countryside: www.magic.defra.gov.uk
- National Biodiversity Network Atlas: www.nbnatlas.org
- Prevent the spread of harmful invasive plants: www.gov.uk/prevent-the-spread-of-harmful-invasive-and-non-native-plants
- UK Biodiversity Action Plan: www.ukbap.org.uk/NewPriorityList.aspx

Appendices

Appendix A. Flora Species Recorded Onsite During Extended Phase 1 Habitat Survey

N.B. Seasonal constraints may mean specific species were not identifiable and may be on site but not found.

Common Name	Scientific Name
American willowherb	*Epilobium ciliatum*
Ash	*Fraxinus excelsior*
Asiatic lily	*Fraxinus excelsior*
Blackthorn	*Prunus spinosa*
Bracken	*Pteridium aquilinum*
Bramble	*Rubus fruticosus* agg.
Broad-leaved dock	*Rumex obtusifolius*
Common cat's-ear	*Hypochaeris radicata*
Common nettle	*Urtica dioica*
Common ragwort	*Jacobaea vulgare*
Creeping buttercup	*Ranunculus repens*
Dog-rose	*Rosa canina* agg.
Elm	*Ulmus* spp.
False oat-grass	*Arrhenatherum elatius*
Fat hen	*Chenopodium album*
Grey willow	*Salix cinerea* agg.
Hawthorn	*Crataegus monogyna*
Hedge bindweed	*Calystegia sepium*
Hogweed	*Heracleum sphondylium*
Holly	*Ilex aquifolium*
Ivy	*Hedera* spp.
Oilseed rape	*Brassica napus* ssp. *napus*
Oxeye daisy	*Leucanthemum vulgare*
Peony	*Paeonia* spp.
Red campion	*Silene dioica*
Ribwort plantain	*Plantago lanceolata*
Sowthistle	*Sonchus spp.*
Spear thistle	*Cirsium vulgare*
Wild oat	*Avena fatua*

Willow	*Salix* spp.
Wood avens	*Geum urbanum*
Yorkshire-fog	*Holcus lanatus*

Appendix B. Faunal Species Recorded Onsite During Survey Work

None recorded.

Appendix C. Summary of the Legislation and Policy relating to Habitats and Species

The Wildlife and Countryside Act (WCA) 1981 (as amended)

This Act is the primary legislation that protects animals, plants and certain habitats in the UK. It is the means by which the Bern Convention and the Birds Directive and Habitats Directive are implemented in Britain. Protected birds, animals and plants are listed in Schedules 1, 5 and 8 respectively of the Wildlife and Countryside Act.

Schedule 1 Part 1 – Birds which are protected by special penalties at all times from being intentionally killed, injured, or taken and whose eggs, nests or dependent young are also protected from being disturbed.

Schedule 5 Section 9 Part 1 (killing/injuring) – Animals which are protected from being intentionally killed or injured.

Schedule 5 Section 9 Part 1 (taking) – Animals which are protected from being taken.

Schedule 5 Section 9 Part 4a – Animals which are protected from intentional damage to, destruction of, or obstruction of access to any structure or place used for shelter or protection.

Schedule 5 Section 9 Part 4b – Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection.

Schedule 5 Section 9 Part 4c – Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed.

Schedule 6 - Animals which are protected from being killed or taken by certain methods under Section 11(1). The methods listed are: self-locking snares, bows, crossbows, explosives (other than ammunition for a firearm), or live decoys.

Schedule 8 – Plants and fungi which, subject to exceptions, are protected from: intentional picking, uprooting or destruction; selling, offering for sale, possessing or transporting for the purpose of sale; advertising for buying or selling.

Schedule 9 – Plant and animal species that are prohibited from introducing into the wild as they may cause ecological or environmental harm or where they pose a threat to the native habitats and species. Under Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) it is a criminal offence to cause any of 48 non-native plant species (6/4/2010) and (non-native animals) to spread into the wild where they cause damage to the environment/ economy/health/lifestyle.

The site owner has a responsibility to:

- Prevent invasive, non-native plants on their land spreading into the wild and causing a nuisance.
- Prevent harmful weeds on their land spreading onto a neighbour's property

The owner of the site must not plant in the wild or cause certain invasive and non-native plants to grow in the wild. This can include moving contaminated soil or plant cuttings. If this occurs there is a fine or prison term for up to 2 years. The site owner is not legally obliged to remove these plants or to control them on site. However, at the point of change**: development, mulching, earth moving operations**: it is important that they are identified, and their spread controlled in the most appropriate way.

Environmental Protection Act 1990

Environmental Protection Act 1990 allows for the potential classification of soil and other waste containing viable propagules of invasive non-native plant species as controlled waste.

This has been applied to Japanese Knotweed with the result that waste containing this species must be disposed of in accordance with the duty of care set out in section 34 of the Act. The Environment Agency have issued guidance which will be of use in complying with the duty of care.
In addition:

- Any Schedule 9 plant material, or soil containing root or rhizome fragments, may be classified as 'controlled waste' under the Environmental Protection Act 1990 (EPA).
- In addition to a criminal prosecution under the Wildlife & Countryside Act, infringement of the EPA can result in an *unlimited fine*.
- The owner may also be held liable for costs incurred from the spread into adjacent properties and for disposal of contaminated soil off site during development, which later leads to the spread on another site.

Protection of Badgers Act 1992
Both badgers and their setts are protected, making it illegal to kill, injure or take, possess or cruelly ill-treat badgers or to interfere with a badger sett (including blocking tunnels or damaging the sett in any way).

The Hedgerow Regulations 1997
Any hedgerows classified as 'important' under the 1997 Hedgerows Regulations cannot be removed without a Hedgerow Removal Notice issued by the relevant Local Authority unless previously approved as part of a planning permission. The UK Biodiversity Action Plan (BAP) now classifies any native hedge over 20m in length as a priority habitat feature. Priority hedgerows should be those comprising 80% or more cover of any native tree/shrub species. The Local Authority is the arbiter as to classification of hedgerows.

The Countryside and Rights of Way (CRoW) Act 2000
This Act increases measures for the management and protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation.

Natural Environment and Rural Communities Act 2006
The Act made amendments to the both the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way (CROW) Act 2000. For example, it extended the CROW biodiversity duty to public bodies and statutory undertakers. The Act also makes provisions in respect of pesticides harmful to wildlife, the protection of birds, and in respect of invasive non-native species, and also alters enforcement powers in connection with wildlife protection, and extends time limits for prosecuting certain wildlife offences.
Section 41 of the Act requires that the Secretary of State publishes a list of species of flora and fauna considered to be of principal importance for the purpose of conserving biodiversity in England. The list is intended to be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006 'to have regard' to the conservation of biodiversity in England, when carrying out their normal functions.
The UK BAP list of 1149 species, published in 2007, was used to draw up a list of 938 species, also known as the 'England Biodiversity List', comprising those species found in England which have been identified as requiring action under the UK BAP. In addition, the Hen Harrier has also been included on the list because without continued conservation action it is

unlikely that the Hen Harrier population will increase from its current very low levels in England.
The list of species of principal importance was first published in 2002 by DEFRA under Section 74 of the Countryside and Rights of Way (CRoW) Act 2000, and was identical to the UK BAP list at that time. The CRoW Act Section 74 list has now been replaced by the Section 41 list.

Sixty-five (65) habitats are listed as being of principal importance, in the Secretary of State's opinion, for the purposes of conserving biodiversity. Under section 41 (England) of the NERC Act (2006) there is a need for these habitats to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. These habitats are the subject of National and Local Biodiversity Action Plans.

The Anti-social Behaviour, Crime and Policing Act 2014
Anti-social Behaviour, Crime and Policing Act 2014 enables community protection notices to be served by local authorities or the Police against individuals who are acting unreasonably and who persistently or continually act in a way that has a detrimental effect on the quality of life of those in the locality. These powers are designed to be flexible and could be used to address specific problems caused by widespread species such as Japanese knotweed.

The Conservation of Habitats and Species Regulations 2017 (as amended)
The Conservation of Habitats and Species Regulations 2017 (and as amended by The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019)) originally transposed the Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ("the Habitats Directive") and elements of Directive 2009/147/EC on the conservation of wild birds ("the Birds Directive") in England, Wales, and to limited extent, Scotland and Northern Ireland. The objective of the Regulations is to protect biodiversity through the conservation of natural habitats and species of wild fauna and flora. The Regulations set out the rules for the protection, management and exploitation of such habitats and species. They place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species. These sites are known generally as 'European sites' and in the UK form the national sites network (known in Europe as Natura 2000 sites). They include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

Environment Act 2021
The Environment Act 2021 received Royal Assent on 9 November 2021. It only applies to England. Key elements of the Act include:

- All new developments to deliver 10% increase in biodiversity (biodiversity net gains), to be managed for at least 30 years (reviewable by the Secretary of State), with a Biodiversity Gain Site Register to be implemented and maintained for at least 30 years after the site scheme has completed.
- Introduction of Local Nature Recovery Strategies (LNRSs) – new spatial strategies led by a "responsible authority" in each area. Statutory guidance to be given to Local Planning Authorities (LPAs) explaining how they should take account of the LNRSs.

- Introduction of a new Species Conservation Strategy which places a duty on LPAs to cooperate with Natural England and other LPAs etc. to safeguard the future of 'at risk' species.
- LPAs to produce Biodiversity Reports every five years, describing action taken and the impact it has had on local biodiversity.
- Establishment of the Office for Environmental Protection (OEP), a green 'watchdog' to ensure the enforcement of the environmental legislation in England and Northern Ireland.
- Introduction of the five Principles to which organisations must have regard:
    (i) Integration (environmental protection should be integrated into the making of policies);
    (ii) Prevention (preventative action should be taken to avert environmental damage);
    (iii) Precautionary (a precautionary approach should be taken to the possibility of environmental harm);
    (iv) Rectification At Source (where possible any environmental harm should be rectified at source);
    (v) Polluter Pays (the person(s) who causes the harm must suffer the financial penalty both in terms of mitigation and compensation)
- Long-term (at least 15 years, starting in 2022) legally binding targets on air quality, biodiversity, water, resource efficiency and waste reduction.

Circular 06/2005 Biodiversity and geological conservation – statutory obligations and their impact within the planning system

This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the national planning policy in the National Planning Policy Framework and the Planning Practice Guidance.

UK Post-2010 Biodiversity Framework, 2012

The 'UK Post-2010 Biodiversity Framework', published in July 2012, succeeds the UK BAP and 'Conserving Biodiversity – the UK Approach', and is the result of a change in strategic thinking.

National Planning Policy Framework, 2023

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are expected to be applied. It contains a number of policies relating to ecology including "minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures". Under NPPF, local planning authorities have an obligation to promote the preservation, restoration and recreation of priority habitats, ecological networks and the protection and recovery of priority species as identified

under the Natural Environment and Rural Communities Act (2006). Local Planning Authorities will seek to produce a net gain in biodiversity, by requiring developers to design wildlife into their plans and to ensure that any unavoidable impacts are appropriately mitigated for. The NPPF 2023 version replaces the first NPPF published in March 2012 and includes minor clarifications to the revised versions published in 2018, 2019 and 2021.

The natural choice: securing the value of nature (2011) (Natural Environment White Paper)

This White Paper outlines the Governments vision for the future of landscape and ecosystem services.

Biodiversity 2020

This is a national strategy for England's wildlife and ecosystem services based on the White Paper.

European Red Data lists (IUCN, 2000)

International Union for Conservation of Nature (IUCN and the European Commission have been working together on an initiative to assess around 6,000 European species according to IUCN regional Red Listing Guidelines. Through this process they have produced a European Red List identifying those species which are threatened with extinction at the European level so that appropriate conservation action can be taken to improve their status.

Appendix D. Wildlife Crime

http://www.nwcu.police.uk/what-is-wildlife-crime/

In general, wildlife crime is any action which contravenes current legislation governing the protection of the UK's wild animals and plants.

A wildlife crime may also be reported and recorded where advice has been given regarding the potential or actual presence of a protected species within a habitat with that habitat then removed/impacted causing actual disturbance/harm/death to that species. Examples in relation to this report may be seasonally pertinent but could include cutting back or removal of a hedgerow where birds and dormice are nesting; removing or doing works to trees where bats roost; cutting grass where reptiles such as slow-worms are inhabiting; filling in or blocking access to badger setts. Specific legislation should be referred to regarding the protection of any animal species or habitat.

Appendix E. Habitats Regulation Assessment (HRA)

Appropriate assessment (or 'Habitats Regulation Assessment', HRA) is one of the most powerful tools currently available to control the environmental impacts of development. Whereas sustainability appraisal is a decision-informing tool, appropriate assessment is often described as a decision-making tool because has the potential to stop development.

Appropriate assessment tests whether a plan or a project is likely to have a significant negative impact on any:

- Special Protection Area (SPA) – a European designation which protects birds
- Special Area of Conservation (SAC) – a European designation which protects habitats
- RAMSAR site – a European designation which protects wetlands.

Jointly, these sites are known generally as 'European sites' and in the UK form the national sites network (known in Europe as Natura 2000 sites). Appropriate assessment does not apply to other designations, like Sites of Special Scientific Interest (SSSI) or Areas of Outstanding Natural Beauty (AONB).

If the proposed development has the potential to impact up on any of the European sites, the local planning authority (LPA) can request an HRA be conducted. The responsibility for conducting such an HRA lies with the LPA, but they can insist that all relevant information is provided to them by the developer.

Proximity to a site is not the defining factor, potential 'impact' is, and for large projects this could be up to 15km from the site. The closer to a protected site, the more likely it is that an HRA will be required, even for a very small site.

Appendix F. Assessing the Potential Value for Buildings for Roosting Bats

Survey Method of Buildings.

Where appropriate, the building exteriors and interiors are searched visually, using binoculars, for field evidence of bats, with particular attention being paid to sheltered areas such as window ledges and pipes where bat droppings might lie undisturbed from the weather, insect prey remains, urine stains, oil stains from bats repeatedly moving over a small area and polishing the surface, and the potential presence of bats either dead or alive.

Classification Criteria

It should be noted that the grading system below only reports on the situation at the time of survey; should bat activity levels change after the initial survey, or should the buildings be modified (for example if roof tiles are removed or facia boards develop cracks), the category may need revision.

Category (Potential value)	Description
Please note: Intermediate categories (e.g. Low – Moderate value) may apply**.**	
No/Negligible value	Buildings with no or very few features capable of supporting roosting bats. Often buildings are of 'sound' well- sealed structure or have a single skin and no roof void. They tend to have high interior light-levels, and little or no insulation. Buildings without any roofs may also fall into this category.
Low value	Buildings of largely unsuitable construction, but with a few features of potential value to bats (e.g. gaps above windows, apparently shallow crevices). No supporting evidence (e.g. droppings / staining) found. Buildings may be surrounded by poor or sub-optimal bat foraging habitat, as is often the case in urban-centre locations.
Moderate value	Buildings usually of brick or stone construction with a number of features of obvious potential value to roosting bats e.g. loose roof / ridge tiles, gaps in brickwork, gaps under fascia boards, and/or warm sealed roof-spaces with under-felt.
High value	Buildings with a large number of features of obvious potential value to bats (as above). Bats may be suspected to roost within the building (at least at certain times of year), but no supporting evidence found.
Confirmed roost	Bats discovered roosting within the building or recorded emerging from / entering the building at dusk and / or dawn. Building found to contain conclusive evidence of occupation by bats, such as bat droppings. A confirmed record (as supplied by an established source such as the local bat group) would also apply to this category.

Appendix G. Bat Activity and Bat Emergence Survey Information

Survey Method of Buildings.

Where appropriate, the building exteriors and interiors are searched visually, using binoculars, for field evidence of bats, with particular attention being paid to sheltered areas such as window ledges and pipes where bat droppings might lie undisturbed from the weather, insect prey remains, urine stains, oil stains from bats repeatedly moving over a small area and polishing the surface, and the potential presence of bats either dead or alive.

BCT Tree Categories 2016

- **1*** - Tree with multiple, highly suitable features capable of supporting larger roosts.
- **1 -** Tree with definite potential, supporting fewer suitable features than Category 1* trees or capable of supporting roosts for single/low numbers of bats.
- **2 -** Tree with no obvious potential for roosting bats although due to its size and maturity the tree may support some features with limited potential to support bats.
- **3 -** Tree with no roosting potential.

Development and Planning Trigger for Bat Surveys

Bat Emergence

The Emergence Surveys are required to confirm the species, extent of use (in terms of numbers of bats), type of bat use (in terms of seasonality and functionality of use) and bat access points. These details are required to ascertain the requirement for a Natural England EPSL and to provide the information **required by Natural England should** an application prove necessary.

It is dependent upon the results of Emergence Surveys as to whether Natural England (NE) European Protected Species Licences (EPSL) will be required prior to any construction work commencing. Protected Species surveys, such as bat emergence surveys, cannot be conditioned by the LPA and must be completed prior to Planning Applications being determined. Bat Conservation Trust (BCT) guidelines recommend the level of Bat Emergence Surveys required for each circumstance.

Development and planning trigger list for bat surveys, which can be adapted to local circumstances, taken from the Association for Local Government Ecologists (ALGE) template for biodiversity and geological conservation validation checklists 2007, available from **http://alge.org.uk/publications/index.php**

(1) **Conversion, modification, demolition or removal of buildings (including hotels, schools, hospitals, churches, commercial premises and derelict buildings) which are:**

- Agricultural buildings (e.g. farmhouses, barns and outbuildings) of traditional brick or stone construction and/or with exposed wooden beams;
- Buildings with weather boarding and/or hanging tiles that are within 200m of woodland and/or water;
- Pre-1960 detached buildings and structures within 200m of woodland and/or water;
- Pre-1914 buildings within 400m of woodland and/or water;
- Pre-1914 buildings with gable ends or slate roofs, regardless of location;

- Located within, or immediately adjacent to woodland and/or immediately adjacent to water;
- Dutch barns or livestock buildings with a single skin roof and board-and-gap or Yorkshire boarding if, following a preliminary roost assessment, the site appears to be particularly suited to bats.

(2) **Development affecting built structures:**

- Tunnels, mines, kilns, ice-houses, adits, military fortifications, air-raid shelters, cellars and similar underground ducts and structures; unused industrial chimneys that are unlined and brick/stone construction;
- Bridge structures, aqueducts and viaducts (especially over water and wet ground).

(3) **Floodlighting of**

- Churches and list buildings, green space (e.g. sports pitches) within 50m of woodland, water, field hedgerows or lines of trees with connectivity to woodland or water;
- Any building meeting the criteria listed in (1) above.

(4) **Felling, removal or lopping of:**

- Woodland;
- Field hedgerows and/or lines of trees with connectivity to woodland or water bodies;
- Old and veteran trees that are more than 100 years old;
- Mature trees with obvious holes, cracks or cavities, or that are covered with mature ivy (including large dead trees).

(5) **Proposals affecting water bodies:**

- In or within 200m of rivers, streams, canals, lakes, reed beds or other aquatic habitats.

(6) **Proposal located in or immediately adjacent to:**

- Quarries or gravel pits;
- Natural cliff faces and rock outcrops with crevices or caves and swallets.

(7) **Proposals for wind farm developments**

- of multiple wind turbines and single wind turbines (depending on the size and location) (NE TIN 051 – undergoing updates at the time of writing)

(8) **All proposals in sites where bats are known to be present[1]**

- This may include proposed development affecting any type of buildings, structures, features or location.

Notes:

1. Where sites are of international importance to bats, they may be designated as SACs. Developers of large sites 5-10km away from such SACs may be required to undertake a HRA.

BCT Emergence and Activity Guidelines

Bat Emergence Survey Requirements Extracted from - Table 7.3 & 7.1 BCT Recommended Minimum Survey **Effort**		
Low Roost Suitability	**Moderate Roost Suitability**	**High / Confirmed roost Suitability**
One Survey visit – One dusk or dawn re-entry survey	Two separate survey visits – One dusk and one dawn re-entry survey	Three separate survey visits – at least one must be a dawn re-entry and one a dusk emergence, the other can be either.
Structures that have been categorized as low potential can be problematic and the number of surveys required should be judged on a case by case basis. If there is a possibility that quiet calling, late emerging species are present then a dawn survey may be more appropriate, providing weather conditions are suitable. In some cases, more than one survey may be needed, particularly where there are several buildings in this category. Multiple survey visits should be spread out to sample as much of the recommended survey period as possible, it is recommended that surveys are spaced at least two weeks apart, preferably more. A dawn survey immediately after a dusk one is considered only one visit.		
EMERGENCE – RE-ENTRY Survey Dates		
May to August (structures) No further survey required (trees)	May to September with at least one between May and August	May to September with at least two, between May and August
September surveys are both weather and location dependent. Conditions may become unsuitable in these months, particularly in more northerly latitudes, which may reduce the length of the survey season. Multiple survey visits should be spread out as much as possible; it is recommended that surveys are spaced at least two weeks apart, preferably more, unless there are specific ecological reasons for the surveys to be closer together (for example a more accurate count of a maternity colony is required but it is likely that the colony will soon disperse) if there is potential for a maternity colony then consideration must be given to detectability. A survey on 31st august followed by a mid-September survey is unlikely to pick up a maternity colony. An ecologist should use their professional judgement to design the most appropriate survey regime.		

Bat Activity Survey Requirements Extracted from - Table 8.3. BCT Recommended Minimum Survey Effort.		
Transect/spot count/timed search surveys		
Low Habitat Value	**Moderate Habitat Value**	**High / Confirmed Habitat Value**
One Survey visit per season (Spring- April/May, summer- June/July/August, autumn- September/October) in appropriate weather conditions for bats. Further surveys may be required if these survey visits reveal higher levels of bat activity than predicted by habitat alone.	One survey visit per month (April to October) in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24 hr period.	Up to two survey visits per month (April to October) in appropriate weather conditions for bats. At least one of the surveys should comprise dusk and pre-dawn (or dusk to dawn) within one 24hr period.
Automatic / static bat detector surveys		
One location per transect, data to be collected on five consecutive nights per season (spring- April/May; summer- June/July/August; autumn- September/ October) in appropriate weather conditions for bats.	Two locations per transect, data to be collected on five consecutive nights per month (April to October) in appropriate weather conditions for bats.	Three locations per transect; data to be collected on five consecutive nights per month (April to October) in appropriate weather conditions for bats)
Refer to BCT guidelines document Table 8.3 for further details and dependent conditions where the survey effort is not straightforward.		

Appendix H. Ecological Constraints and Opportunities Plan

Ecological Constraint	
Native species-rich hedgerow with trees, with buffer strip, Habitat of Principal Importance – potential for foraging and commuting bats, West European hedgehog, nesting birds, reptiles and moth species: - To be retained, enhanced and managed for wildlife - Construction Exclusion Zone with reptile fencing (minimum 2m) - Site compound at least 5m away from hedgerow - Permanent buffer (minimum 2m) - Appropriate timing of trimming - Artificial Lighting Strategy required	
Native species-poor hedgerow, with buffer strip (offsite), Habitat of Principal Importance – potential for foraging and commuting bats, West European hedgehog, nesting birds, reptiles and moth species: - Construction Exclusion Zone with reptile fencing (minimum 2m) - Permanent buffer (minimum 2m) - Appropriate timing of trimming - Artificial Lighting Strategy required	
Dense scrub (offsite) – potential for nesting birds: - Appropriate timing of trimming - Artificial Lighting Strategy required	
Log pile – potential for West European hedgehog and reptiles: - Retention of log pile in permanent buffer	
Inter-property fencing allowing wildlife access – as potential for West European hedgehog onsite	
Covered trenching and capped pipework; works restricted to weekdays 08:00-18:00.	
Ecological Opportunity	
Construction of Cornish hedge	
In-built bat tube/box	
In-built bird brick/box	
In-built bee brick	
Tree planting across site within the residential gardens (native trees and fruit trees of Cornish varieties