

Ecological Impact Assessment

Site location:

Land Adjacent to Pen-An-Vre, Trenance

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Executive Summary

This survey report details the findings of an Ecological Impact Assessment (EiA) conducted of a plot of land on which it is proposed to construct two houses. The site is located within the hamlet of Trenance, to the south of St Issey, Wadebridge, Cornwall. The EiA includes a Data Search, UK Habitat Classification survey and Ecological Building Survey.

It is proposed to re-develop the site by demolishing the existing small barn and constructing two new houses on the site. All the boundaries on site will be retained and protected during the development, including the western hedgebank and the single trees on the boundaries. The small barn was assessed with negligible suitability to support roosting bats, however it has previously been used by nesting swallows and an unknown small bird. The hedgebank and trees are also suitable for nesting birds. The suburban mosaic of grassland and hard surfaces is used by slow worms and a translocation is currently being undertaken to re-locate the slow worms to garden and hedgerow habitats off site, but within the client's ownership.

The western hedgebank is also suitable for dormice and likely to be used by foraging bats, and the site as a whole likely to be used by hedgehog.

Demolition of the barn will be undertaken outside of the bird nesting period i.e. between September and February and the grassland within the site will be stripped under ecological supervision with any hedgehogs or reptiles relocated to retained hedgebanks outside the site boundary. External lighting of the site post development will be follow the guidelines set out in the Institute of Lighting Professionals (2023) Bats in the Built Environment Series ILP Guidance Note 08/23, details provided in the text and avoid illuminating the western hedgebank.

Post development, bat and bird roosting and nesting provisions will be included within the fabric of the proposed houses together with a single bee brick for each house. Wildflower grassland and areas of longer grassland will be established to provide habitats for hedgehogs and reptiles such as slow worms as well as small mammals. Log, stone and brash piles will be installed at the western boundary to provide additional sheltering and hibernation opportunities. A Cornish hedgebank will be planted to divide the two houses; hedgerow shrubs will be planted along an existing earth bank on the northern boundary, and infill native shrubs and trees planted along the western boundary to replace dead and dying ash and elm trees.

This summary is only an extract of the report. Please ensure the report is read in its entirety for detailed survey findings and recommendations.

1. Introduction

1.1. Background and Purpose of Survey

Moor to Sea Ecology has been commissioned by MSG ArcBuild Ltd to undertake an updated Ecological Impact Assessment (EclA) comprising a Data Search, UK Habitat Classification Survey and Ecological Building Survey Assessment of an approximately 0.2ha area of land, located within the hamlet of Trenance, St Issey.

The Data Search will identify any statutory and non-statutory sites designated for wildlife as well as identifying protected and notable species which could be affected by the proposed works. The UK Habitat Classification survey aims to describe baseline ecological conditions and determine potential ecological constraints in the form of legally protected and notable species. The Ecological Building Survey aims to describe baseline ecological conditions and determine potential ecological constraints in the form of legally protected and notable bat and bird species. Refer to Appendix 1 for details of relevant policies and legislation.

The assessment is based upon the Guidelines for Preliminary Ecological Appraisal and the Guidelines for Ecological Report Writing, both produced by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2017). The Bat Surveys for Professional Ecologists. Good Practice Guidelines (4th edition) (Collins, 2023) and UK Bat Mitigation Guidelines Reason et al. (2023). The EclA uses the Guidelines for Ecological Impact Assessment in the UK and Ireland (2019) and BS42020 Biodiversity - Code of practice for planning and development.

The site was originally surveyed in 2016 by Lee Ecology (Phase 1 Habitat Survey & Reptile Survey) and then updated in 2020 by JL Ecology (Ecological Impact Assessment). Outline planning permission has been obtained from Cornwall Council PA20/08435. The purposes of this EclA is to update the previous surveys and to provide full ecological mitigation and enhancement measures appropriate for the site. This report will be submitted to the council as part of a reserved matters application.

1.2. Site Location & Description

The site is located in the centre of the hamlet of Trenance, and approximately 0.9km to the south of the village of St Issey. It is also approximately 6.5km to the west of the town of Wadebridge, Cornwall. The site is situated on the western outskirts of Trenance and to the rear of several residential dwellings, (OS Grid Reference at approximate centre of site: SW 9278 7093). It is understood that the site previously comprised a farmyard with several buildings and large expanses of concrete, however it now comprises an area of garden to the north, rough grassland with several log and stone piles, areas of concrete and bare ground and single small barn. The site is bound to the west by a tree lined hedgebank, to the north by an earth bank and single species hedgerow, to the east by residential dwellings and to the south by a track.

Figure 1 shows the approximate area surveyed (in red), with the barn surveyed in the south west corner.

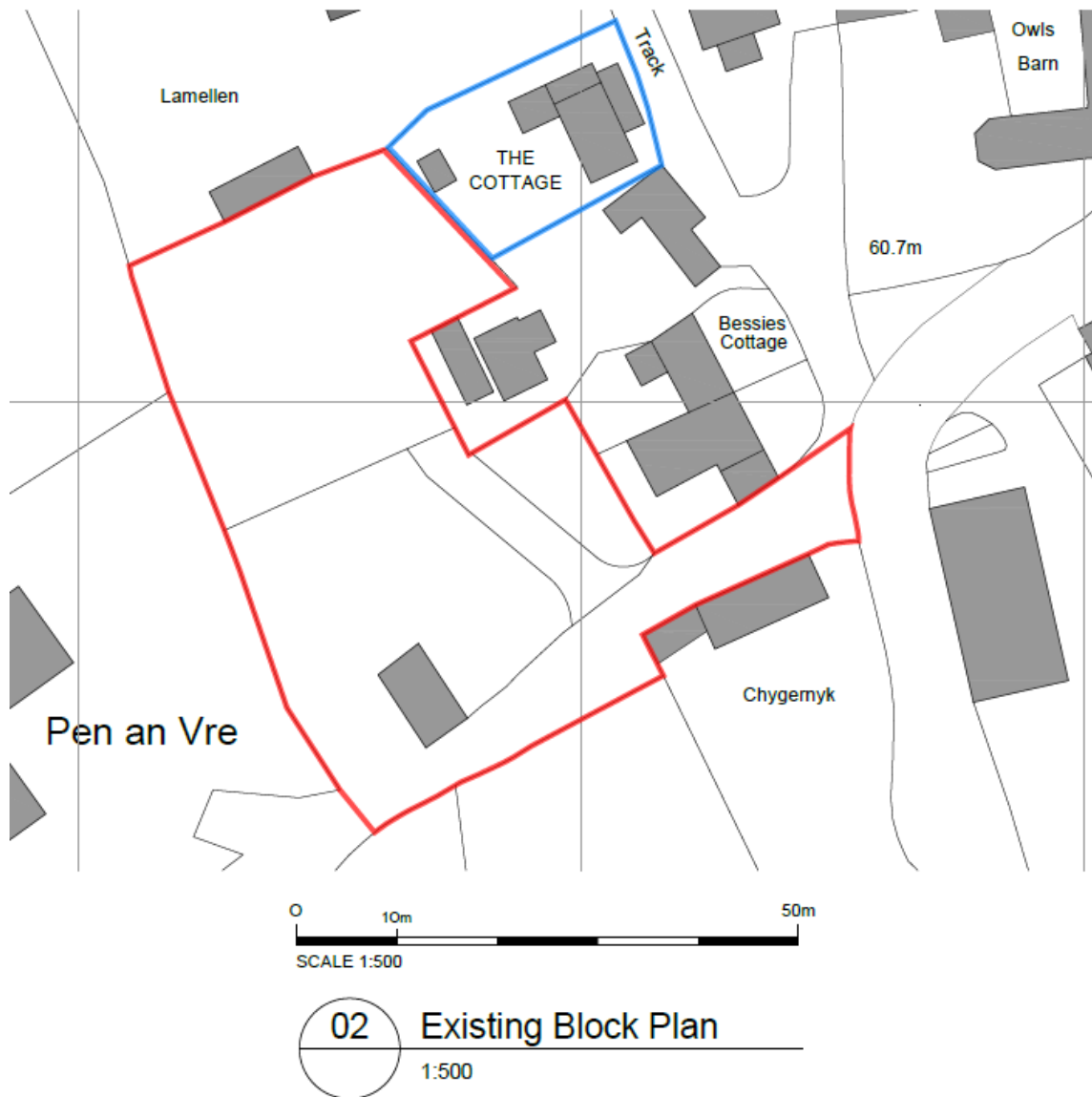


Figure 1. Area surveyed

1.3. Proposed Works

It is understood that is proposed to build 2 houses on the site. The existing barn would be demolished and a Cornish hedgebank installed to separate the two plots. It is understood that the southern plot would be built first. See Proposed Site Layout Plan Drawing No. P02, dated October 2021 in Appendix 3.

2. Survey Methods

2.1. Zone of Influence

The Zone of Influence is the area encompassing all predicted negative ecological effects from the proposed scheme and is informed by the habitats present within the site and the nature of the proposals. Due to the scale and nature of the proposals under consideration, it is considered that a zone of 1km from the centre of the site is appropriate for the gathering of information on non-statutory sites and protected and notable species, and 5km for gathering information on statutory designated sites.

2.2. Desk Study

A desk study was undertaken by obtaining a biological records search from the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) in October 2023. The search area comprises a radius of 1km from the central grid reference SW 9278 7093 and includes non-statutory designated sites and protected and/or notable species.

A review of Magic was also undertaken to identify statutory designated sites within a 5km radius of the site.

Geological designations have not been included within the report unless they lie within or adjacent to the site.

2.3. UK Habitats Classification

The field survey used UK Habitat Classification (UKHab) combined with species specific field observation techniques to provide a standardised system to record natural and semi-natural vegetation, other wildlife habitats and indication of protected species potential. The UK Habitat Classification is a unified and comprehensive approach to classifying habitats, designed to provide a simple and robust approach to survey and monitoring. The classification covers terrestrial and freshwater habitats and is flexible enough for use in a wide range of survey types from walkover surveys of small urban sites to regional and national scale rural habitat mapping. The classification is a valuable tool for ecological impact assessments and biodiversity net gain assessments.

Observations during the survey included:

- field signs of protected species;
- individual protected species – flora and fauna;
- botanically diverse habitats
- invasive non-native species;
- habitats with the potential to support protected species; and,

- habitat connectivity to surrounding habitats.

The nature conservation value of ecological features that may be affected by development (ecological receptors) is adapted from the Chartered Institute of Ecology & Environmental Management (CIEEM) guidelines for Preliminary Ecological Appraisal (CIEEM, 2017).

Site photographs are provided in Section 3.5. The results of the survey are detailed on a UK Habs Classification Plan presented in Appendix 2 with Target notes (TN) used to identify specific features of ecological interest. A list of the flora identified is provided in Appendix 5.

The survey area includes the red line planning boundary. Land beyond the site boundary was not accessible for survey.

The hedgebank on the western boundary, was not surveyed under the Hedgerow Regulations Assessments (1997) because the site bounds a residential dwelling, and therefore is not considered important under the regulations.

2.4. Ecological Building Survey

The building was inspected both externally and internally using a surveyor's ladder, high powered torch, frequency division bat detector (Peersonic RPA3) and video endoscope where necessary to assess the likelihood of the structure to support roosting bats or nesting birds. Evidence of roosting bats could include live animals, carcasses, droppings and feeding remains and evidence of nesting birds could include feathers, nesting material and eggs. Wall and beam tops were inspected for barn owl nesting debris or whitewash, and the floors were checked for the presence of owl pellets associated with roosting barn owl.

A rating of between negligible and high suitability was assigned to the building based on the likelihood of supporting roosting bats (Collins, 2023). These levels of suitability are listed below:

- **Negligible:** Negligible habitat features on site likely to be used by roosting bats;
- **Low:** A structure with one or more potential roost sites which could be used by individual bats opportunistically, but due to the size, shelter, conditions and surrounding landscape are unlikely to be used by bats on a regular basis or by large numbers of bats i.e. for maternity or hibernation;
- **Moderate:** A structure with one or more potential roost sites which could be used by bats, due to the size, shelter, conditions and surrounding landscape but are unlikely to support a roost of high conservation concern such as a maternity or hibernation roost; and,
- **High:** A structure with one or more roost sites which are obviously suitable for use by larger numbers of bats on a regular basis and potentially for a longer period of time due to size, shelter, conditions and surrounding landscape. Suitable for maternity or hibernation roosts.

2.5. Survey Details

Table 1 details the surveyor used and licences where applicable, together with the weather conditions.

Date:	25 th September 2023
Surveyor & Licence No's:	Katie Jones (Principal Ecologist) , MCIEEM Natural England Class Licence CL18 (level 2) Bat 2015-11763-CLS-CLS, Natural England Class Licence CL08 (level 1) Great Crested Newt 2015-18016-CLS-CLS, Natural England Class Licence (level 1) Dormouse 2020-45028-CLS-CLS
Weather conditions:	Dry, wind force 1, 19.5°C, cloud cover 50%

Table 1. *Surveyor details and weather conditions*

2.6. Survey Limitations

Desk Study

Desk study results only give an indication of species presence in a location. The absence of recent records for certain species in an area may be due to low levels of biological recording or the non-submission of records, rather than absence. Many species records are also at low geographical resolution, do not indicate their exact location and provide little detail about abundance.

UK Habitat Classification Survey

It is possible that some species may have been overlooked in the field or were not recorded because they were not evident at the time of survey. No account can be taken for the presence or absence of a species on any particular day.

It should be noted that the full botanical diversity of a site may not be apparent during a survey carried out in September; however a visit at this time is still considered sufficient to identify the habitat/s present and the potential presence of protected species to inform the Ecological Impact Assessment.

Ecological Building Survey

A number of bat species roost in very small crevices, and therefore it is possible that individual bats and bat droppings may have been missed. In addition, bird nests in concealed locations may not have been visible to the surveyor.

2.7. Assessment

Significant ecological features recorded during the survey were considered within a defined geographical context as described in Table 2.

Additional criteria in assessing the importance of the site in terms of habitats and species were employed from the following:

- Schedules and Annexes of UK and European wildlife legislation (e.g. Wildlife and Countryside Act (1981) (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended)).
- International conventions on wildlife (e.g. Bern Convention, Bonn convention).
- Habitats and species of Principal Importance¹.
- Taxi-specific conservation lists (e.g. Red Data Lists; Red/Amber List)

International value	Internationally designated sites, or sites meeting criteria for international designation. Sites supporting populations of internationally important species
National value	Nationally designated sites (e.g. SSSIs) or sites meeting SSSI selection criteria. Sites containing viable areas of threatened Priority Habitat or supporting a viable population of Red Data Book species or supplying critical elements of their habitat requirements
Regional value	Sites exceeding county-level designations but not meeting SSSI criteria. Sites containing viable areas of threatened habitats on the Regional BAP, supporting viable populations of species that are nationally scarce or included in the regional BAP due to rarity
County value	Sites meeting criteria for county or metropolitan designations. Site containing a viable area of a threatened habitat identified on the county BAP or supporting viable populations of county or metropolitan rarities e.g. county BAP or county 'Red Data Book' species
District value	Undesignated sites or features that are considered to appreciably enrich the habitat resource within the context of the Borough or District
Local	Areas of habitat considered to appreciably enrich the habitat resource within the context of a parish or neighbourhood
Not significant	Features of no geographic ecological significance.

Table 2: *Assessment of the importance of ecological features in a geographic context.*

¹ Listed under S41 of the Natural Environment and Rural Communities Act 2006
<http://publications.naturalengland.org.uk/publication/4958719460769792>

3. Baseline Ecological Conditions

3.1. Desk Study

3.1.1. Statutory designated sites

There are no statutory designated sites for nature conservation located either within the site or on the boundaries. Within a 5km radius of the site, there are four statutory designated sites.

These are:

- Trelow Downs Site of Special Scientific Interest (SSSI). Located approximately 1.9km to the south-west and designated for lowland dwarf shrub heath.
- Rosenannon Bog & Downs SSSI. Located approximately 3.6km to the south-east. Designated for lowland dwarf shrub heath.
- Borlasevath and Retallack Moor SSSI. Located approximately 3.7km to the south. Designated for a rich mix of fen and associated vegetation types
- Rock Dunes SSSI. Located approximately 4.8km to the north. Designated for calcareous dunes with a diverse flora and species-rich, unimproved calcareous maritime grassland

3.1.2. Non-statutory designated sites

There are no non-statutory designated sites of nature conservation either within the site or on the site boundaries, however there are three non-statutory designated sites within a 1km radius of the site. These are:

- A record of little robin *Geranium purpureum*, a nationally scarce plant species located approximately 0.7km to the north of the site.
- Trevillador County Wildlife Site (CWS). Located approximately 0.7km to the west and designated for ancient broadleaved woodland with a stream running through it.
- A tree protected by a Tree Preservation Order (TPO) located approximately 0.9km to the north of the site.

See Appendix 4 for the location of the designated sites in relation to the site surveyed.

3.1.3. Protected and Notable species

ERCCIS provided 2915 records of protected, rare, threatened, and Biodiversity Action Plan species within a 1km radius of the site. Records relating to species noted on Schedule 1, 5 or 9 of the Wildlife and Countryside Act (1981), Habitats Regulations (1994) includes those now covered by Conservation of Habitats and Species Regulations (2017) and/ Habitat Regulations and Protected Species from Habitats and Species Directive II and IV or Protection of Badgers Act are summarised in Section 4.2.

The legislation and conservation status is provided in Appendix 1 and a summary of the desk study is presented in Appendix 4.

3.1.4. Priority Habitats

There are no priority habitats on or immediately adjacent to the site. However within a 500m radius of the site, there are several areas of broadleaved woodland, the closest of which is approximately 175m to the north-east of the site. See Appendix 4 for a map showing the priority habitats

3.2. Extended UK Habitat Classification survey

A UK Habs map was produced, refer to Appendix 2 to provide further detail on the location and extent of habitats outlined below. The site contains 10 UK Habitat Classification types including:

- g4 846 Modified grassland with flower beds
- g4 81 Modified grassland with tall ruderal/ephemeral
- g4 112 Modified grassland with an earth bank
- h2a 70 Hedgerow (priority habitat)
- h2a6 Other native hedgerow
- h3d Bramble scrub
- u1b Developed land, sealed surface
- u1b5 Buildings
- u1c Artificial, un-vegetated land, unsealed surface
- u1d Suburban mosaic of developed and natural surfaces
- u1e Built linear features

g4 846 Modified grassland with flower beds

The northern end of the site, is currently used as an extension to the client's garden and comprises an area of mown modified grassland, with play equipment on. The grassland sward attained an approximate height of 5cm and was dominated by perennial rye grass *Lolium perenne* and annual meadow grass *Poa annua*. Herb species recorded included creeping buttercup *Ranunculus repens*, white clover *Trifolium repens*, dandelion *Taraxacum officinalis* agg. and localised areas of self-heal *Prunella vulgaris*.

A margin of primarily non-native wildflower meadow (846) bounds the modified grassland to the north, west and east and comprises sunflower *Helianthus annuus*, Mexican aster *Cosmos bipinnatus*, Californian poppy *Eschscholzia californica*, marigold *Calendula officinalis*, borage *Borago officinalis* as well as the native species: chicory *Cichorium intybus*, oxeye daisy *Leucanthemum vulgare*, and spotted medick *Medicago arabica*.

In the north-eastern corner, there are number of raised beds with vegetables such as squash and flowers.

g4 81 Modified grassland with tall ruderal or ephemeral

A curved bank of grassland, tall ruderals and garden plants is present in the south-eastern extent of the site, this habitat forms a boundary between the artificial, un-vegetated land, unsealed surface and the suburban mosaic of developed and natural surfaces in the centre of the site. The sward height was up to 30cm and included grass species such as cocks foot *Dactylis glomerata* and tall herbs such as greater plantain *Plantago major*, white clover *Trifolium repens*, broadleaved dock *Rumex obtusifolius*, field woundwort *Stachys arvensis* and garlic mustard *Alliaria petiolata*. Garden species included Californian poppy and Argentinian vervain *Verbena bonariensis*.

g4 112 Modified grassland with an earth bank

The northern boundary comprises a 26m bare earth bank with occasional semi-mature trees, comprising a dead tree, a hawthorn *Crataegus monogyna* and a damson *Prunus domestica subsp. insititia*

h2a 70– Hedgerow (priority habitat)

The site is bound to the west by approximately 50m of species rich hedgebank with trees. The bank is approximately 1.5m high and the trees on the bank are approximately 5m tall. The hedgebank links to other hedgebanks outside of the site to the north. It appears to be unmanaged, and is dominated by sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior* and English elm *Ulmus procera*. Blackthorn *Prunus spinosa* and rose *Rosa* sp. were recorded occasionally. Many of the elm trees were either dead or dying, and ash dieback also appeared to be affecting several of the ash trees. Ground flora in the hedgebank was dominated by ivy *Hedera helix*, with harts tongue fern *Asplenium scolopendrium*, nettle *Urtica dioica*, red campion *Silene dioica* and foxglove *Digitalis purpureum*.

h2a6 – Other native hedgerow

A short length of hazel *Corylus avellana* hedge is present along the north-eastern boundary of the site.

h3d – Dense bramble scrub

Scrub dominated by bramble lies adjacent to the northern and western elevation of the small barn. Species indicative of damper conditions such as common figwort *Scrophularia nodosa* and soft rush *Juncus effusus*, are also present. The scrub is dense and approximately 1.5m high, other species present included cocks foot, male fern *Dryopteris felix-mas*, great mullein *Verbascum thapsus* and field woundwort.

u1b – Developed land, sealed surface

A rectangular area of concrete lies directly adjacent to the eastern elevation of the small barn. It has various piles of corrugated sheet metal and piles of slates on pallets at the edges.

u1b5 – Buildings

There are two buildings within the site, a small barn located adjacent to the southern boundary and a greenhouse situated in the centre of the eastern boundary. The small barn is described in more detail in Section 3.4. The greenhouse is metal framed structure used by the client.

u1c – Artificial, un-vegetated land, unsealed surface

The south-eastern extent of the site comprises stone chippings and compacted earth. The edges of this habitats are being colonised with infrequent white clover, bramble, hedge bindweed *Calystegia sepium* and ivy. The north-eastern corner is used for storage and comprises bare ground with a number of sheds and storage boxes.

u1d Suburban mosaic of developed and natural surfaces

It is understood that this site was previously used as farmyard, and had numerous area of concrete and bare ground. At the time of the survey, grassland had established over the majority of the hard standing resulting in a mosaic of unmanaged grassland attaining a height of approximately 30cm, with areas of bare ground, hard standing and numerous log and stone piles. Species present include cocksfoot, white clover, broadleaved dock, red campion and common mallow *Malva sylvestris*.

u1e – Built linear features

The southern boundary along the track and the south-eastern boundary are delineated by a stone wall grown with vegetation such as maidenhair spleenwort *Asplenium trichomanes*, ivy and hedge bindweed. The remainder of the eastern boundary comprises various fences.

3.3. Species

Badger

ERCCIS provided three records of badger within a 1km radius of the site, the closest of which was identified approximately 0.7km north of the site.

No evidence of badgers was identified within the site, however it is considered likely that badgers pass through the site on occasion.

Bat species

ERCCIS provided three records of unidentified pipistrelle *Pipistrellus* spp bats in flight within a 1km radius of the site.

Foraging bats

The western hedgebank boundary is likely to be well used by foraging bats, as it is a well-defined boundary which is currently unlit and backs on to open countryside. The track along the southern boundary may also be used by foraging bats as it is sheltered and further west has a number of trees and hedgerows adjacent to it. It also terminates at a hedgerow junction which will provide a clear route for bats to fly along and forage above. The northern and eastern boundaries are open and lie adjacent to residential dwellings and are therefore less likely to be used as they are likely to be relatively illuminated and have fewer habitats used by invertebrate prey.

Roosting bats

There are no trees on site that will be affected by the proposed works. The roosting suitability of the small barn is presented in Section 3.4. The greenhouse was assessed with negligible suitability to support roosting bats.

Dormice

There are no dormice *Muscardinus avellanarius* within a 1km radius of the site, however dormice are often under-recorded and may still be present if the habitats are suitable.

The western hedgebank is most likely to support dormice, as it is species rich, dense and connects to other hedgerows outside the site. This hedgerow will be retained and enhanced by adding new shrubs to it, to replace the dead and dying ash and elm trees.

Hedgehog

There are six records of hedgehog *Erinaceus europaeus* within a 1km radius of the site, the closest of which is approximately 0.7km to the north of the site. Hedgehogs have previously been seen in the adjacent garden and a hedgehog house (TN7) was noted in the grassland near the western hedgerow. See Appendix 2 for the location of the hedgehog house.

Reptile species

Three records of reptiles, comprising two records of common lizard *Zootoca vivipara* and one record of slow worm *Anguis fragilis* were provided from within a 1km radius of the site. The closest record is approximately 0.6km to the east of the site.

A reptile survey was undertaken in 2016 which confirmed that a low population of slow worm was present. The client has also seen low numbers of slow worm within the site and adjacent garden on several occasions. During this survey, a single juvenile slow worm was seen beneath a stone slab near the western boundary.

The mosaic of long and short grass, in addition to numerous log, and stone piles, vegetated piles of stone and wood, and areas of bare ground are very suitable for foraging, basking and hibernating reptiles. A reptile translocation is currently being undertaken to relocate any slow worms present within Plot B (the southern plot) to the clients land to the north and east of the site.

Bird species

ERCCIS provided 239 records of common and widespread birds within a 1km radius of the site including great spotted woodpecker *Dendrocopus major*, house martin *Delichon urbica*, swallow *Hirundo rustica*, and brambling *Fringilla montifringilla*.

The hedgebank, barn and trees are suitable nesting habitats for common and widespread garden birds. There are also numerous bird boxes (TN3, Appendix 2), which have been installed in the trees along the western hedgebank, which are suitable for garden birds.

Plant species

ERCCIS provided 502 records of plant species within a 1km radius of the site including 7 records of plant species identified as invasive such as Japanese knotweed *Fallopia japonica*., montbretia *Crocsmia pottsii x aurea = C. x crocosmiiflora*, and variegated yellow archangel *Lamium galeobdolon* subsp. *Argentatum*.

No evidence of invasive or notable species were identified on site. The species recorded are common and widespread within the surrounding area.

3.4. Ecological building survey

3.4.1. Building description

A small, single storey barn (approximately 45m²) is present in the south-western corner of the site. The northern, southern and western walls of the barn are constructed of stone, whilst the eastern wall is breezeblock. The stone walls have a thin covering of ivy, which extends onto the stone wall which bounds the track to the south. The roof is hipped and laid with slate with a brick ridge. The slates at the wall tops, on all elevations apart from the southern aspect have been removed and there is no underlining to the roof. Internally, there is a breezeblock dividing wall, dividing the space into two areas, which are used for storage.

Potential access points suitable for bats and birds include: the open door on the eastern elevation, the space between the walls and the roof where the slate have been removed, and internal and external cracks in the stone work.

3.4.2. Evidence of roosting bats

No evidence of roosting bats was observed within the barn and all internal and external cracks were checked with an endoscope. As the majority of slates had been removed to reveal the wall tops, all concealed features had been removed. The absence of slates at the wall tops, has resulted in the interior of the barn being very light, which has enabled harts tongue fern and ivy to grow on the interior walls, it also means that there is limited protection from the weather. Therefore, the barn was assessed with negligible suitability to support roosting bats.

3.4.3. Evidence of nesting birds

Four swallow nests were noted on the ridge beam of the barn and a disused nest was noted in a crevice in the stonework within the western wall, see TN9, Appendix 2.

3.5. Habitat and Species photo plates

The images below provide further details on the habitats and species noted on site during the survey.



Plate 1. The southern extent of the site



Plate 2. The central part of the site



Plate 3. View from the northern boundary looking south towards the track



Plate 4. The western boundary of the site



Plate 5. The northern elevation of the barn



Plate 6. The southern track and southern wall of the barn



Plate 7. The eastern aspect of the barn



Plate 8. The eastern aspect of the barn and southern track



Plate 9. The interior of the barn



Plate 10. The internal northern wall of the barn



Plate 11. The internal eastern wall of the barn



Plate 12. The underside of the roof showing a swallow nest



Plate 13. Reptile translocation fencing



Plate 14. Sub-adult slow worm found under a tile within the southern plot

4. Assessment of Impacts and Mitigation

Site evaluation has been undertaken based on the current level of survey findings including a Data Search, Extended UK Habitat Classification survey and Ecological Building survey. A reptile translocation is currently also being undertaken.

If the site or habitats within it changes (or if development proposals alter) the potential impacts on habitats and species may change accordingly. Moor to Sea Ecology should be contacted for advice in such situations. Legislation is summarised within Section 5; Appendix 1 provides full details of the legislation relating to species.

4.1. Designated Sites

There are four statutory designated sites within a 5km radius and three non-statutory designated sites for nature conservation within a 1km radius of the site. However as the closest site is 0.7km from the survey area and designated for broadleaved woodland. As the proposed works will be limited to the site, it is considered that the proposed works are very unlikely to impact on these designated sites. Therefore there are no further recommendations regarding designated sites.

4.2. Habitats

4.2.1 Building & hard standing

Impact

Approximately 590m² of building and hard standing will be removed to facilitate the construction of the two houses. The proposed site area is 510m² which is a reduction in built form area, and an increase in soft landscaping. Demolition of the barn will result in the loss of nesting sites for swallow. See 4.3.6 for mitigation relating to nesting birds.

4.2.2 Modified grassland with tall ruderal & suburban mosaic of developed and natural surfaces

Impact

It is understood that approximately 660m² of modified grassland with tall ruderal and suburban mosaic of developed and natural surfaces will be removed to allow for the construction of the two houses and drives. These types of habitat are not habitats of specific biodiversity value in Cornwall and comprise widespread, common species of limited floristic diversity.

Mitigation

Approximately 800m² of formal lawn, orchard, wildflowers and vegetable garden will be created around the two houses post development. There will be a reduction in habitat areas that comprise concrete and bare ground, which will increase the biodiversity value and support a wider variety of species.

4.2.3 Hedgerow (priority habitat)

Impact

Hedgerows are a Priority habitat (NERC, 2006), and of county importance within Cornwall. The hedgebank along the western boundary is species rich, but not considered important under the Hedgerow Regulations (1997) as it mark the boundary of a residential dwelling. It is understood that this hedgebank along the western boundary and the native hedgerow in the north-eastern corner will be retained in full.

Mitigation

The western boundary hedgebank and hedgerow in the north-eastern corner will be protected during construction works by appropriate buffers (such as Heras fencing) of no less than 2m from the edge of the hedge, this increases where the hedgerow also supports trees, this will also protect associated ground flora species. Tree protection measures are outlined in BS5837:2012 Tree in relation to design, demolition and construction. An arboricultural survey can advise on the root protection zones for given boundaries.

Infill hedgerow planting will also be undertaken along the length of the western boundary (approximately 50m) to replace any dead or dying trees such as elm and ash and to fill in any gaps. Approximately 26m of new hedgerow planting will be undertaken along the northern boundary.

4.2.4 Dense scrub

Impact

It is understood that approximately 300m² of dense scrub will be removed from around the small barn and isolated, short areas throughout the site. Dense scrub is a widespread and common habitat in Cornwall, although it may be utilised by nesting birds and invertebrates such as bees

Mitigation

Approximately 240m² of longer grassland, shrubs and planting along the hedgebanks will be undertaken. In addition, infill planting will take place along the 50m length of western hedgebank, 26m of Cornish hedgebank will be installed to separate Plot A and B, and 26m of hedgerow will be planted along the northern boundary of the site. As these habitats develop over the medium to long-term, they will increase the areas available for nesting birds and invertebrates together with improving the habitats on site for foraging bats and birds, reptiles and hedgehogs as well as other small mammals and amphibians.

Two bee bricks will be installed at least 1m from ground level on the southern elevation of the proposed houses (one per house).

4.3. Species

4.3.1 Badger

Impact

Badgers are protected under the Protection of Badgers Act (1992). Under this legislation, it is an offence to kill or injure a badger, damage or destroy a sett or disturb a badger whilst it occupies a sett.

No evidence of badger was identified at the time of survey however it is considered likely that badgers pass through the site on occasion. Impact of the works would be at a site level to any badgers passing through.

Mitigation

If evidence of a badger sett becomes available at any stage in the works, an ecologist will be contacted for advice. During construction works, any trenches (e.g. foundations or utility trenches) left exposed overnight should be provided with a means of escape for mammals such as badger, such as a shallow sloped edge or angled board (minimum 30cm width), positioned at a maximum angle of 30°.

Heras fencing protecting hedgerows bordering the site will allow badgers to pass through. A gap of at least 25cm should be left between the ground and the base of fencing to allow access for badgers. Alternatively, holes of at least 30cm width and 25cm height could be cut into the bottom sections of Heras panels at 20m intervals. If this option is chosen then efforts to ensure no sharp edges are protruding from ends of cut mesh must be taken to ensure that mammals cannot be harmed.

4.3.2 Bat species

Impact

British bat species are protected under the Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2017 (as amended). This makes it an offence to kill or injure bats or damage or destroy a place of shelter or protection. Deliberate or reckless disturbance of bats which could affect the ability of any significant group of animals to survive, breed, rear or nurture their young may also result in an offence.

Roosting bats

The small barn was surveyed and assessed with negligible suitability to support roosting bats due to an absence of concealed roosting features, the high levels of light within the barn and the fact that the barn lets in water, all of which render the barn unsuitable for roosting bats. The impact of demolishing the barn on roosting bats is negligible.

Foraging bats

The site is likely to be used by foraging bats, with the western hedgebank likely to be particularly favoured as it backs onto countryside and links to other hedgerows outside the site as well as being species rich and likely to support an array of invertebrate prey. The western boundary will be retained

in full, without mitigation there is a possibility that external illumination could impact on foraging bats flying through the site, this would be a site level impact.

Mitigation

There are no recommendations relating to roosting bats.

The western boundary hedgebank and north-eastern hedgerow will be retained in full and protected during the works, in line with the recommendations presented in Section 4.2.2. Infill planting will be undertaken along the length of the western boundary, which is approximately 50m.

Any proposed external lighting will follow the guidelines set out in the Institute of Lighting Professionals (2023) Bats in the Built Environment Series ILP Guidance Note 08/23. In summary:

- All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used;
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component;
- Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012);
- Way marking in-ground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges;
- Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt;
- Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate;
- Use of a Central Management System (CMS) with additional web-enabled devices to light on demand; and,
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the effect of cowls and baffles is often far less than anticipated and so should not be relied upon.

4.3.3 Dormice

Impact

Dormice are protected under the Wildlife and Countryside Act 1981 (as amended) and Conservation of Habitats and Species Regulations 2017 (as amended). This makes it an offence to kill or injure dormice or damage or destroy a place of shelter or protection. Deliberate or reckless disturbance of dormice which could affect the ability of any significant group of animals to survive, breed, rear or nurture their young may also result in an offence.

Dormouse is listed as a Priority species.

The western hedgebank is suitable for this species, it will be retained in full, and therefore there will be no impact to dormice and therefore no mitigation is required.

4.3.4 Hedgehog

Impact

Hedgehog is listed under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) and is a Priority species.

The grassland, hedgerow habitats and log piles provide optimal habitats for this species; vegetation clearance and development of the site has the potential to injure and kill hedgehogs.

Mitigation

A search for hedgehogs will be undertaken by an ecologist during vegetation clearance. Post construction, the boundaries will remain open allowing hedgehogs to access the site. Additional hedgerow planting, wildflower planting along the hedgebanks and brash piles will be situated along the western boundary to provide food and sheltering opportunities.

4.3.5 Reptiles

Impact

Widespread reptile species are protected under the Wildlife and Countryside Act 1981 (as amended). This makes it an offence to kill or injure reptile species including common lizard, slow worm, grass snake and adder.

Adder, common lizard, grass snake and slow worm are Priority species. The site supports a 'low population of slow worm.

Mitigation

A translocation is underway, with plastic fencing surrounding Plot B, as this area will be developed first. The slow worms are being relocated to the northern boundary and garden to the east of the site. Once the translocation is completed, the fence will remain in-situ until the topsoil has been scraped off, with an ecologist present, and the site comprises only bare soil.

Additional hedgerow planting, wildflower planting along the hedgebanks, and brash and stone piles will be situated along the western boundary to provide food and sheltering opportunities.

4.3.6 Bird species

Impact

Under the Wildlife and Countryside Act 1981 (as amended) it is illegal to take, damage or destroy the nests of wild birds whilst being built or in use.

Hedgerows, trees and the barn on site provide suitable nesting habitat for widespread nesting birds. The site is considered unlikely to support an assemblage of birds of more than site level of

importance, however the demolition of the barn, will, without mitigation, impact on nesting birds. The hedgerow and trees will be retained.

Mitigation

The demolition of the barn has potential to harm nesting birds such as swallows, damage active nests or exclude birds from active nests. Therefore, it is recommended that construction works avoid the main nesting period (beginning of March to mid-September). It should be noted that nesting may extend outside of this period and is dependent on weather conditions and species. If works which have potential to damage bird nests need to be carried out during the nesting period (March – end of August) a check will be made for any nesting birds by an ecologist, the day before works are due to commence. Any birds identified nesting, will be left to complete their breeding (i.e. until the young have fully fledged) before carrying out works where birds are nesting. The ecologist can help identify the location of any nesting positions and provide advice on avoiding impacts on nesting birds if required.

Approximately 26m of Cornish hedgebank will be planted along the dividing wall between Plot B in the south of the site and Plot A in the north of the site. Additionally infill hedgerow planting will be undertaken along the length of the 50m western boundary, which will make this habitat denser and more suitable for nesting birds. Approximately 26m of hedgerow will be planted along the northern boundary of the site on a currently primarily un-vegetated earth bank. Four swallow nesting cups will be installed in the open fronted cart shed proposed for Plot B, and one house sparrow terrace will be installed within the cavity wall on the northern or eastern elevations of each house.

4.4 Biodiversity Enhancements

Biodiversity enhancement recommendations are required in line with the National Planning Policy Framework (NPPF) which sets out the government's policies on achieving net biodiversity gain through the planning system. Detailed enhancement recommendations are presented below:

4.4.1 Habitats

- Approximately 800m² of formal lawn, orchard, wildflowers & vegetable garden
- Approximately 26m of Cornish hedgebank to be planted to separate Plot A and B.
- Approximately 26m of hedgerow planted on top of the existing earth bank along the northern boundary of the site
- Woodland wildflower meadow planted on the banks of the western boundary (50m) and northern boundary bank (26m)

4.4.2 Species

- One in-built bat tube will be installed on each house proposed for the site. The tube will be installed within the cavity wall, on the southern or western elevations of each new house.

- Two house sparrow terraces installed on the northern and/or eastern elevations of both houses.
- One bee brick will be installed on the southern elevation of each house
- Five dormouse boxes will be installed on trees along the western boundary hedgerow to provide additional nesting opportunities for dormice.
- Brash and stone piles installed along the western boundary to provide sheltering and hibernation opportunities for reptiles, small mammals and invertebrates

4.5 Habitats Losses and Gains Table

Table 3 presents a summary of the losses of habitat likely due to the proposed works and the gains provided through mitigation and enhancement.

Broad Habitat Type	Habitat or Species	Area/ Length to be lost	On site Mitigation	Residual loss	On-site enhancements/Net gain	Significance of residual effect
Building & hard standing	Urban	590m ²	Two houses to be built but consolidation of hard standing leads to a reduction in built form. Proposed building & hard standing = 510m ²	None	See below	N/A
Modified grassland with ruderal & suburban mosaic	Grassland	660m ²	Creation of 800m ² of formal lawn, orchard, wildflowers & vegetable garden	None	140m ² increase in area although diversity of a grassland likely to be greater than current.	Beneficial effect in the medium-long term
Hedgerows	W boundary: species rich	None	Infill hedgerow shrub planting along a 50m length to fill in the gaps and replace dead and dying ash and English elm trees	None	26m of species rich Cornish hedgebank to be planted between Plot A and Plot B. Connects to the western hedgebank. 26m of hedgerow planted along the northern boundary of the site	Beneficial effect in the medium-long term
Dense scrub	Bramble scrub & ruderal vegetation	300m ²	240m ² of longer grassland, shrubs and planting along the hedgebanks	60m ²	Woodland/shrub planting along the 50m of western hedgebank and 52m of new hedgerow (Cornish hedgebank & northern boundary hedgerow)	Neutral to beneficial in the medium to long term
Building	Nesting birds	50m ²	Four swallow cups installed within the open sided cart shed within Plot B.	None	Two house sparrow terraces installed on the northern and/or eastern elevations, one per house	Neutral to beneficial in the medium to long term
Building	Roosting bats	50m ²	N/A	N/A	One integral bat tube installed on the southern or western elevations of each house	Beneficial in the medium to long term
Hedgerow	Dormice	None	N/A	N/A	Five dormouse boxes installed in the western hedgebank. 26m of Cornish hedgebank planted. & 26m of hedgerow along the northern boundary Native shrubs infilled in gaps and to replace dead/dying elm and ash trees on the western boundary	Positive impact in the medium to long-term
Modified grassland/suburban mosaic	Hedgehog	660 m ²	Ecologist to undertake hand search for hedgehogs during vegetation clearance. Post construction, the boundaries will remain open allowing hedgehogs to access the site.	None	26m of Cornish hedgebank planted & 26m of hedgerow along the northern boundary. Wildflower planting on both hedgerow banks Native shrubs infilled in gaps and to replace dead/dying trees Hibernacula adjacent to the western hedgebank 800m ² of formal lawn, orchard, wildflowers & vegetable garden	Neutral to beneficial in the medium to long term
Modified grassland/suburban mosaic	Reptiles	660 m ²	Reptile translocation currently being undertaken	None	26m of Cornish hedgebank planted & 26m of hedgerow along the northern boundary. Wildflower planting on the hedgerow banks. Native shrubs infilled in gaps and to replace dead/dying trees Log & stone piles located adjacent to western hedgebank	Adverse short term impact at a local level. beneficial in the medium to long term

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Appendix 1 Summary of Relevant Policies, Wildlife Legislation & Designated Site Explanations

This includes a brief summary of relevant policy and legislation relevant to wildlife. The original texts of the relevant legislation or specific legal advice should be consulted in individual cases where appropriate. This section does not constitute legal advice.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) was published on the 24th July 2018. It replaces the first NPPF published in March 2012.

Sections of the NPPF with particular relevance to biological conservation include:

Paragraph 8 and 8 c):

8. Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

c) an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

Paragraph 170 d):

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

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;

Paragraph 171:

171. Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.

Paragraph 174:

174. To protect and enhance biodiversity and geodiversity, plans should:

- a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity⁵⁶; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation⁵⁷; and
- b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Paragraph 175:

175. 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 reasons⁵⁸ 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 encouraged, especially where this can secure measurable net gains for biodiversity.

Paragraph 176:

176. The following should be given the same protection as habitats sites:

- a) potential Special Protection Areas and possible Special Areas of Conservation;
- b) listed or proposed Ramsar sites⁵⁹; and
- c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

Paragraph 177:

177. The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined.

⁵⁶ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system. ⁵⁷ Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them. ⁵⁸ For example, infrastructure projects (including nationally significant infrastructure projects, orders under the Transport and Works Act and hybrid bills), where the public benefit would clearly outweigh the loss or deterioration of habitat. ⁵⁹ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

Protected Species

Protected Species (PS) include those species present on Schedule 2 of the Conservation of Habitats and Species Regulations 2017 (as amended). The Conservation of Habitats and Species Regulations 2017 transpose Council Directive 92/43/EEC on the Conservation of Natural Habitats and Wild Flora (Habitats Directive) into English Law. PS referred to within the evaluation and recommendation section of this report include:

- **Bat species**
- **Dormice**

All PS also receive legal protection under the national legislation within the Wildlife and Countryside Act 1981 (as amended). When these two pieces of legislation are considered together, it makes it an offence to:

- Deliberately capture (or take), injure or kill any wild animal of these species.
- Possess or control any live or dead specimens or any part, or anything derived from animals of these species.
- Deliberately disturb wild animals of such species, where the disturbance is likely to:
 - a) impair their ability to
 - i) survive, breed or reproduce, or to rear or nurture their young, or
 - ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate
- 35) affect significantly the local distribution or abundance of the species.
- Intentionally, deliberately or recklessly damage or destroy the breeding or resting place of such an animal, or obstruct access to such a place.
- Sell (or offer for sale) or exchange parts of these species (alive or dead).

European Protected Species Licences (EPSL)

A European Protected Species Licence (EPSL) issued by the Statutory Nature Conservation Organisation (e.g. Natural England in England) is required for any activity which is considered likely to result in an offence. This includes damage or destruction to a bat roost as well as any significant disturbance to bats (see above). In order to obtain a licence for works which would otherwise result in an offence to a European Protected Species (EPS), Natural England (and local planning authorities) assesses applications against the following three tests:

Test 1 – **Regulation 53(2)** states: a licence can be granted for the purposes of “preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment”.

Test 2 – **Regulation 53(9)(a)** states: the appropriate authority shall not grant a licence unless they are satisfied “that there is no satisfactory alternative”.

Test 3 – **Regulation 53(9)(b)** states: the appropriate authority shall not grant a licence unless they are satisfied “that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.”

Please note that Natural England take 30 working days to assess licence applications. Where planning permission is required for a project, this will be required *prior* to submission of a licence application to Natural England.

Badgers

Badgers are protected in the UK by the Protection of Badgers Act, 1992 (as amended). This makes it an offence to:

- Wilfully kill, injure, take or attempt to kill a badger.
- Cruelly ill-treat a badger.
- Intentionally or recklessly damage, destroy or obstruct access to any structure which displays signs indicating current use by a badger (e.g. a sett).
- Disturb a badger while it is occupying such a place.

A licence may be applied for to Natural England to undertake works in respect of a development activity which would otherwise result in an offence listed above (e.g. damage or destruction of a sett). Licences are typically only granted during the period 1st July to 30th November to avoid periods when dependant juveniles may be present. Methods to mitigate for works impacting badger setts may require setts to be closed with the use of one-way gates.

Please note that Natural England take 30 working days to assess licence applications. Where planning permission is required for a project, this will be required *prior* to submission of a licence application.

Hedgehog

Hedgehog is listed under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended) which makes it illegal to kill or take them using certain methods.

Reptile Species

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

Nesting Birds

All wild birds are protected under Section 1 of the Wildlife and Countryside Act 1981 (as amended). It is therefore an offence in the UK to:

- Take damage or destroy the nest of any wild bird whilst it is being built or in use.
- Kill, injure or take any wild bird.
- Take or destroy the eggs of any wild bird.

In order to avoid committing an offence with regards nesting birds no works which may impact bird nests whilst in use (e.g. whilst nests are being constructed, eggs incubated or dependant juveniles reared) should take place. Such works should only take place once all young have fully fledged.

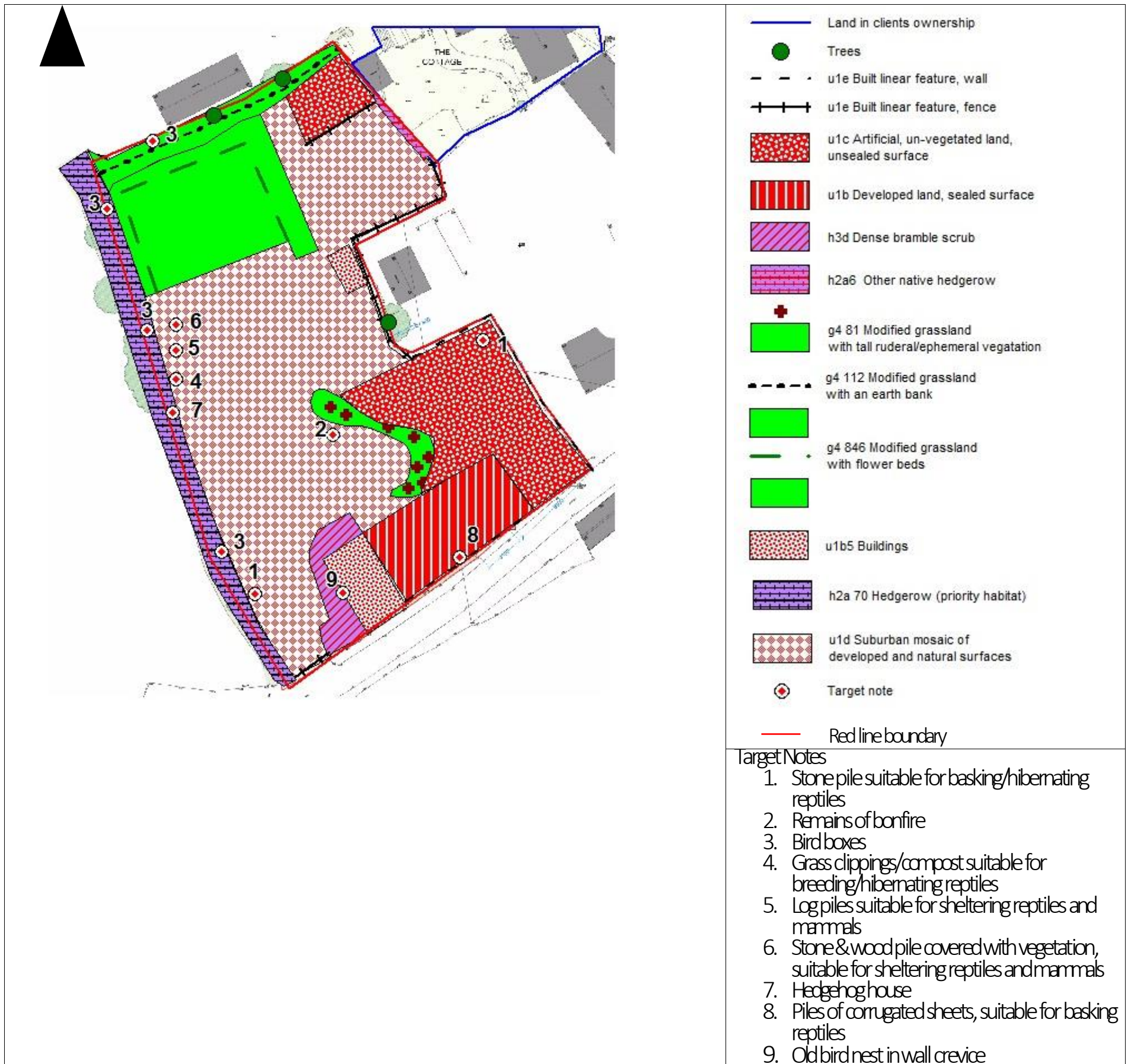
Certain bird species which are listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) receive special protection. These species are also protected from any form of intentional or reckless disturbance when they are nesting or rearing dependant young. Cirl buntings are an example of a species listed on Schedule 1 of the Act which nest within buildings. A list of other Schedule 1 bird species can be provided on request.

Designated Site Explanations

Site of Special Scientific Interest (SSSI)

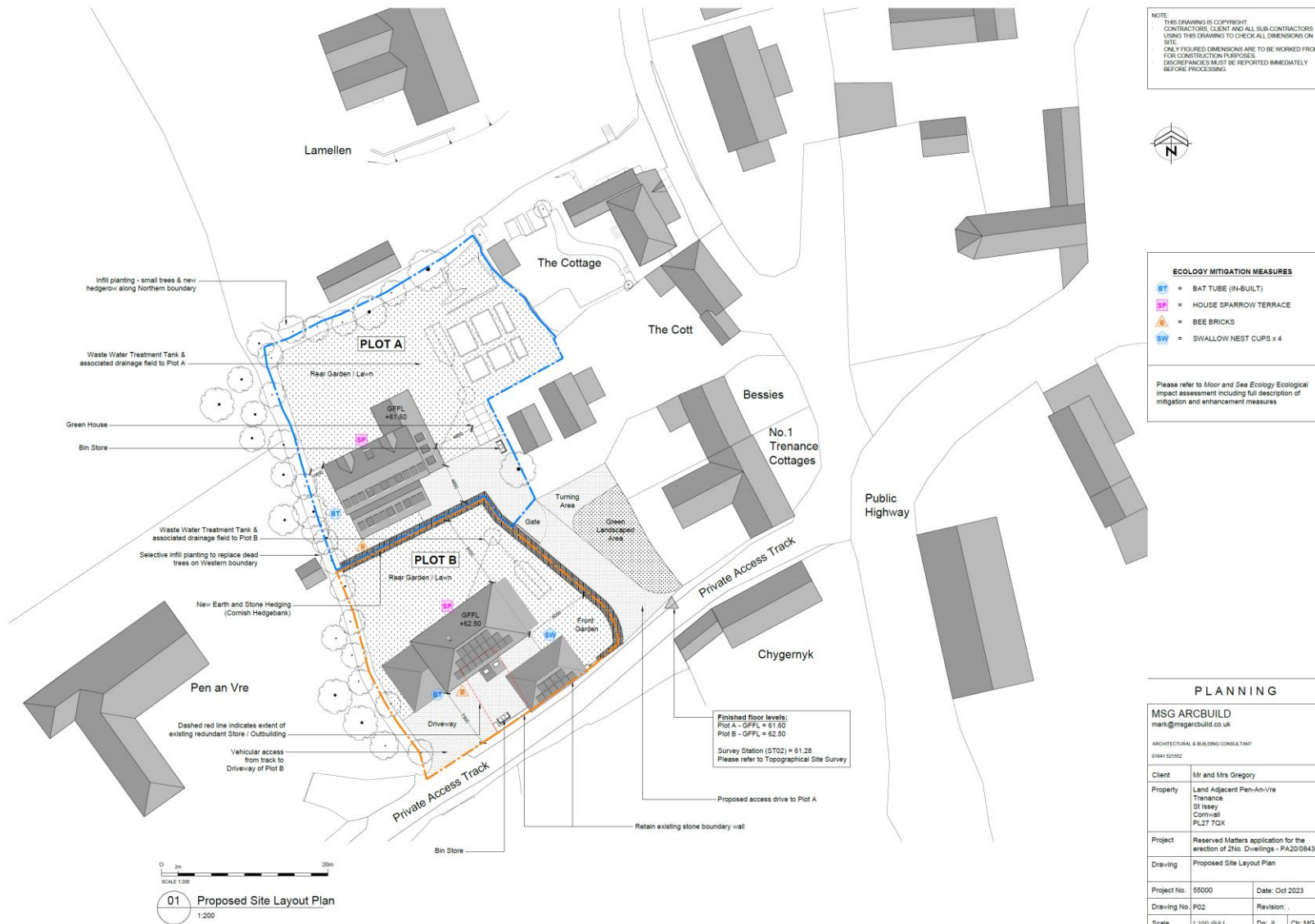
These are notified by Natural England because of their plants, animals or geological features (the latter are geological SSSIs or gSSSI). Natural England needs to be consulted before any operations likely to damage the special interest are undertaken. SSSI is a statutory designation with legal implications.

Appendix 2 UK Habs Classification Plan



Appendix 3 Proposed Site Plan

On following page.

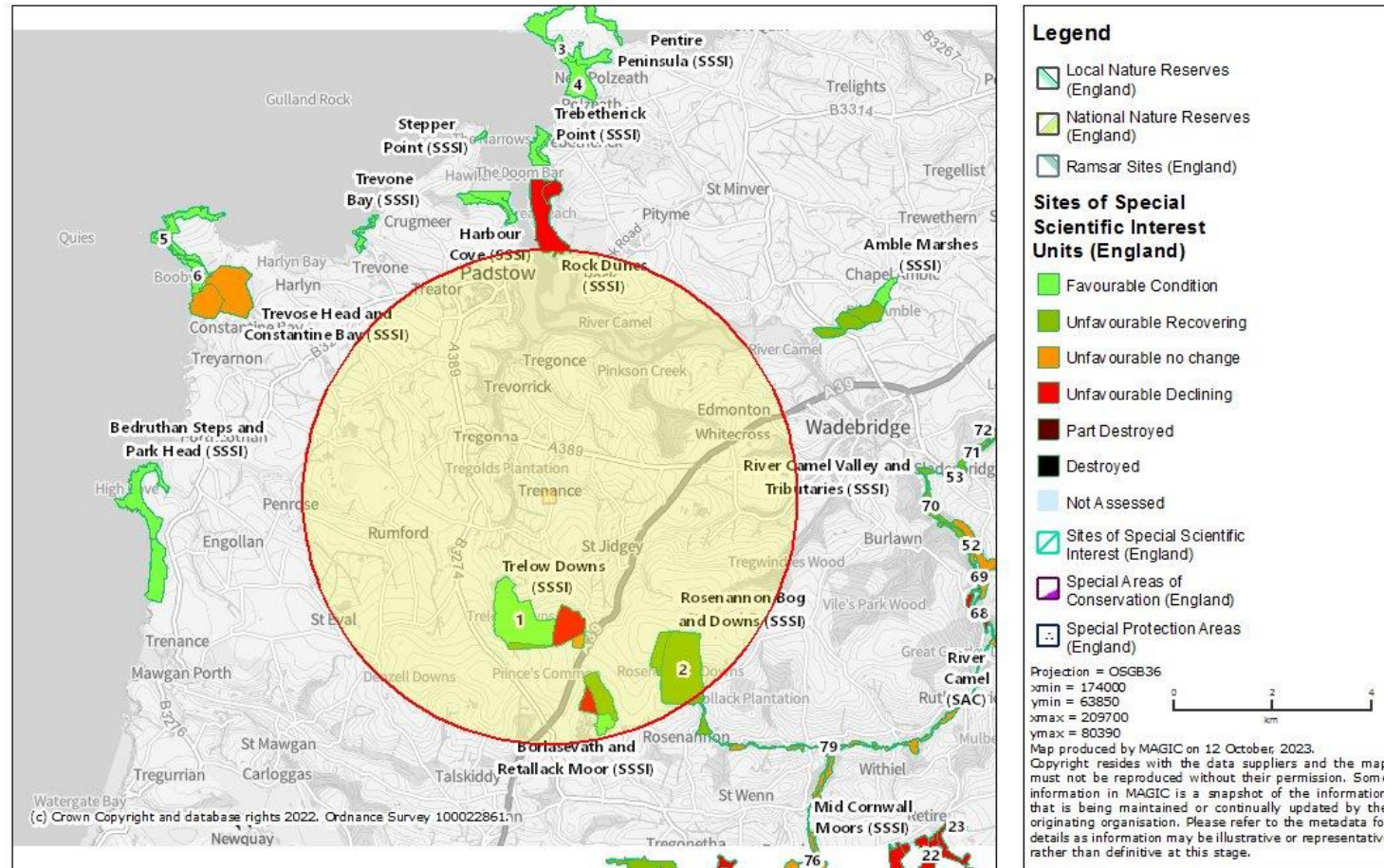


Appendix 4 Data Search Summary

On following pages.

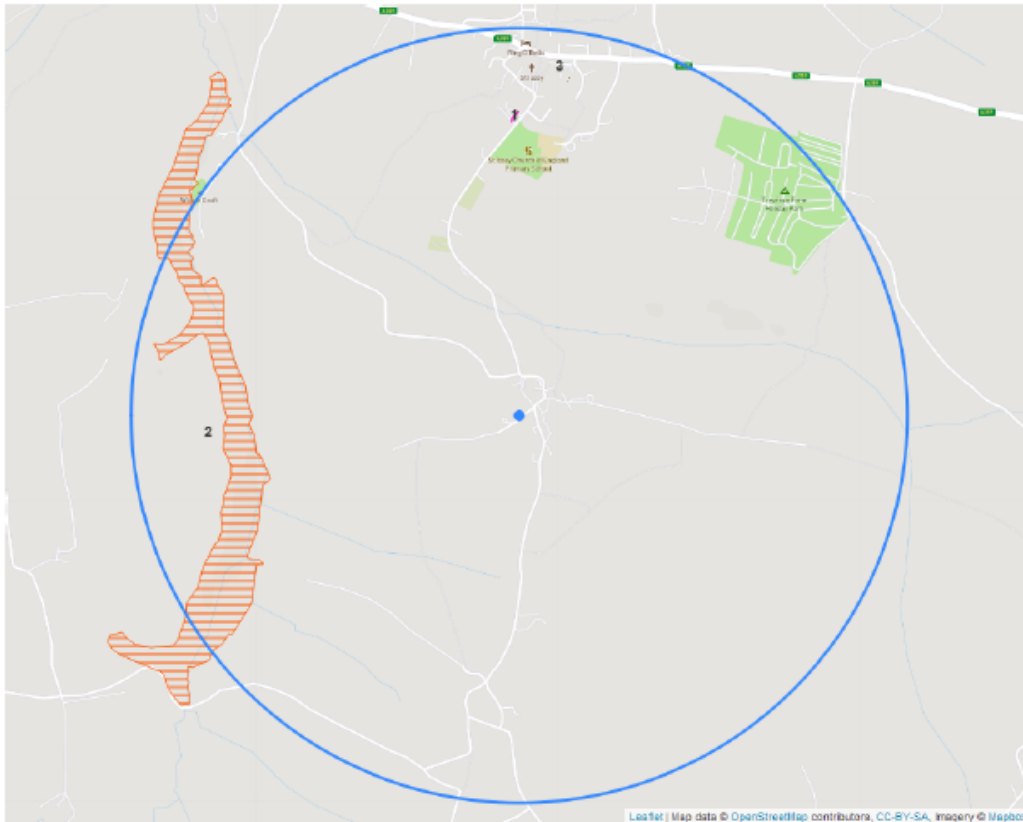


Statutory sites within a 5km radius





Non-Statutory Sites & Reserves Map

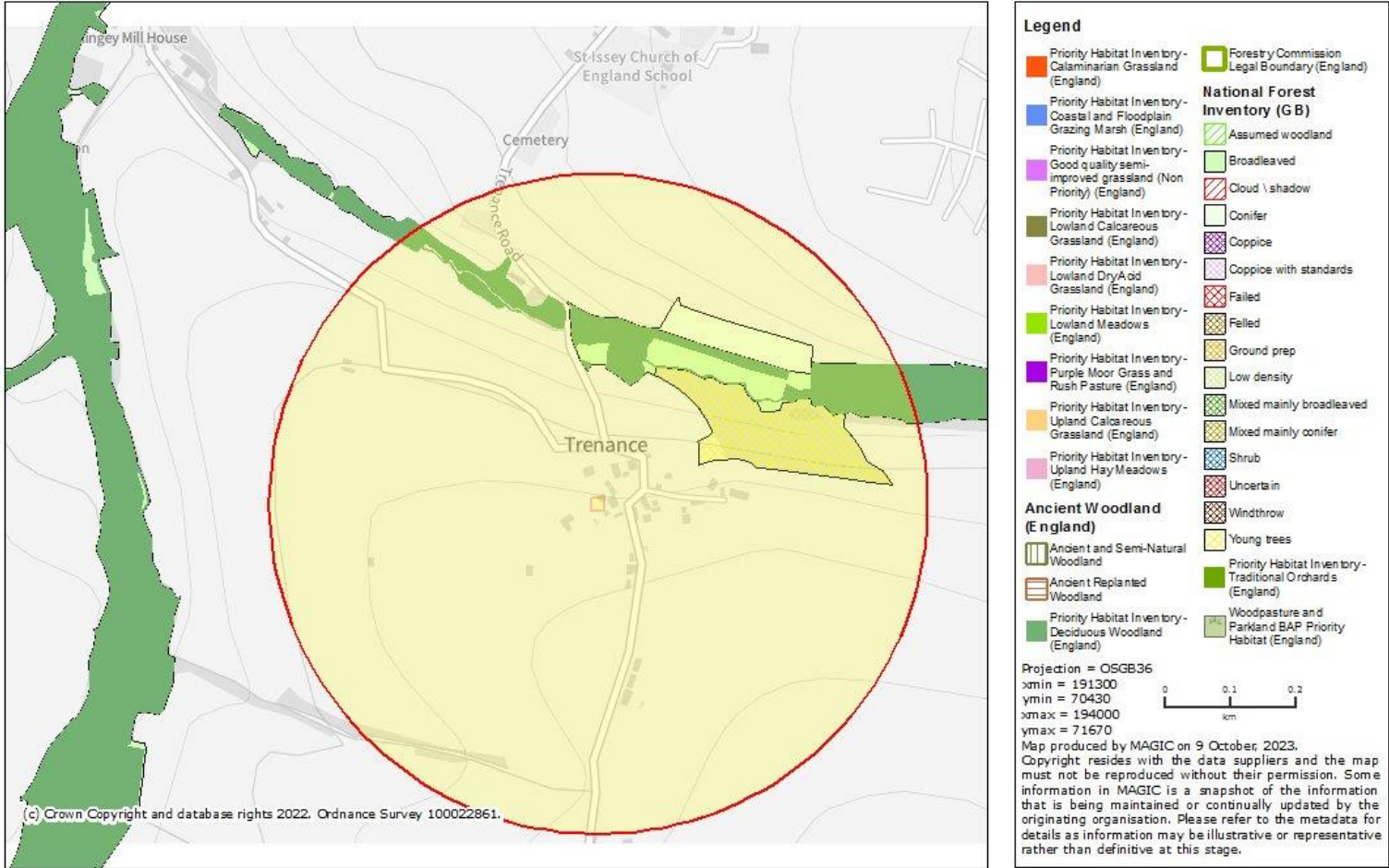


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Location	Site Code	Site Type	Site Name	Colour
1	BS 162	CRVI Bio	n/a	
2	NC66	CWS	Trevillador	
3	8K7B6/123T1	TPO Site	Old Vicarage, St Issey	



MAGiC priority habitats within a 500m radius of the site



Appendix 5 Botanical Species List

Common name	Scientific name	Abundance (DAFOR)
Modified grassland with flower beds, tall ruderal/ephemeral & an earth bank		
Annual meadow grass	<i>Poa annua</i>	D
Perennial rye grass	<i>Lolium perenne</i>	D
Cocksfoot	<i>Dactylis glomerata</i>	D
Red campion	<i>Silene dioica</i>	A
Bramble	<i>Rubus fruticosus</i> agg.	A
Harts tongue fern	<i>Asplenium scolopendrium</i>	F
Greater plantain	<i>Plantago major</i>	F
Broadleaved dock	<i>Rumex obtusifolius</i>	F
Yorkshire fog	<i>Holcus lanatus</i>	F
False oat grass	<i>Arrhenatherum elatius</i>	F
Creeping buttercup	<i>Ranunculus repens</i>	F
White clover	<i>Trifolium repens</i>	F
Dandelion	<i>Taraxacum officinalis</i> agg.	F
Great willowherb	<i>Epilobium hirsutum</i>	F
Spear thistle	<i>Cirsium vulgare</i>	F
Prickly lettuce	<i>Lactuca serriola</i>	F
Ribwort plantain	<i>Plantago lanceolata</i>	F
Chickweed	<i>Stellaria</i> sp.	O
Mint	<i>Mentha</i> sp.	O
Wood millet	<i>Milium effusum</i>	O
Common mallow	<i>Malus sylvestris</i>	O
Self-heal	<i>Prunella vulgaris</i>	O
Field woundwort	<i>Stachys arvensis</i>	O
Garlic mustard	<i>Alliaria petiolata</i>	O
Californian poppy	<i>Eschscholzia californica</i>	O
Argentinian vervain	<i>Verbena bonariensis</i>	O
Marigold	<i>Calendula officinalis</i>	O
Sunflower	<i>Helianthus annuus</i>	O
Mexican aster	<i>Cosmos bipinnatus</i>	O
Chicory	<i>Cichorium intybus</i>	O
Oxeye daisy	<i>Leucanthemum vulgare</i>	O
Spotted medick	<i>Medicago arabica</i>	O
Hedgebank, Hedgerow & Trees		
Sycamore	<i>Acer pseudoplatnaus</i>	D
Ash	<i>Fraxinus excelsior</i>	D
English elm	<i>Ulmus procera</i>	D
Hazel	<i>Corylus avellana</i>	D
Rose	<i>Rosa</i> sp.	F
Blackthorn	<i>Prunus spinosa</i>	O
Hawthorn	<i>Crataegus monogyna</i>	R
Ivy	<i>Hedera helix</i>	D
Red campion	<i>Silene dioica</i>	F
Foxglove	<i>Digitalis purpureum</i>	F
Harts tongue fern	<i>Asplenium scolopendrium</i>	F
Nettle	<i>Urtica dioica</i>	F
Alexanders	<i>Smyrnum olusatrum</i>	F

Herb Robert	<i>Geranium robertianum</i>	O
Hedge bedstraw	<i>Galium mollugo</i>	O
Damson	<i>Prunus domestica subsp. insititia</i>	O
Scrub		
Bramble	<i>Rubus fruticosus agg.</i>	D
Cocksfoot	<i>Dactylis glomerata</i>	A
Male fern	<i>Dryopteris felix-mas</i>	F
Hedge bedstraw	<i>Galium mollugo</i>	F
Hedge bindweed	<i>Calystegia sepium</i>	F
Red campion	<i>Silene dioica</i>	O
Herb Robert	<i>Geranium robertianum</i>	O
White clover	<i>Trifolium reptans</i>	O
Field woundwort	<i>Stachys sylvatica</i>	O
Soft rush	<i>Juncus effusus</i>	O
Common figwort	<i>Scrophularia nodosa</i>	O
Great mullein	<i>Verbascum thapsus</i>	R
Suburban mosaic of developed and natural surface		
Bramble	<i>Rubus fruticosus agg.</i>	D
Cocksfoot	<i>Dactylis glomerata</i>	A
Ivy	<i>Hedera helix</i>	A
Nettle	<i>Urtica dioica</i>	A
White clover	<i>Trifolium reptans</i>	A
Hedge bindweed	<i>Calystegia sepium</i>	F
Broadleaved dock	<i>Rumex obtusifolius</i>	F
Red campion	<i>Silene dioica</i>	O
Common mallow	<i>Malva sylvestris</i>	O
Built linear features		
Ivy	<i>Hedera helix</i>	D
Hedge bindweed	<i>Calystegia sepium</i>	D
Red valerian	<i>Centranthus ruber</i>	F
Maidenhair spleenwort	<i>Asplenium trichomanes</i>	O