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Ecological Consultants
Environmental and Rural Chartered Surveyors

Preliminary Ecological Appraisal

Land at Castle Lane, Garstang

Green at Heart BEN GOLD

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ACCURACY OF REPORT

This report has been compiled based on the methodology as detailed and the professional experience of the surveyor. Whilst the report reflects the situation found as accurately as possible, all of the protected species this survey covers are wild and can move freely from site to site. Their presence or absence detailed in this report does not entirely preclude the possibility of a different past, current or future use of the site surveyed.

We would ask all clients acting upon the contents of this report to show due diligence when undertaking work on their site and/or in their interaction with protected species. If protected species are found during a work programme, and continuing the work programme could result in their disturbance, injury or death, either directly or indirectly an offence may be committed.

If in doubt, stop work and seek further professional advice.

Quality and Environmental Assurance

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1. EXECUTIVE SUMMARY

1.1.1 Envirotech NW Ltd were commissioned in January 2021 by JWPC Limited to carry out a Preliminary Ecological Appraisal of land at Castle Lane in Garstang, Preston. It is proposed that nine residential dwellings will be constructed on the site.

1.1.2 A data search and desk study of the site and an area within 2km of the site were undertaken to establish the presence of protected species and notable habitats.

1.1.3 The site was then visited by an ecologist from Envirotech NW Ltd on the 5th February 2021. A full botanical survey of the site was initially undertaken and this was followed by surveys to establish the presence or absence of notable species at the site or in proximity such that they may be affected by the proposed development.

1.1.4 A buffer strip of vegetation should be created along the eastern boundary of the site associated with the ditch. This will ensure that the potential for species to commute along this feature is maintained.

1.1.5 Hedgerows around the site should be retained or improved and new hedgerow planting should be undertaken across the site to increase connectivity between surrounding habitats. None of the hedgerows around the site perimeter were considered important under the Hedgerow Regulations (1997).

1.1.6 Appropriate control measures are required to ensure no spread of invasive plant species during the development.

1.1.7 Natural England must be consulted prior to works commencing on site with regards to SSSI Impact Risk Zones.

1.1.8 **Further survey work is required with respect to amphibians, although the client may wish to rely upon Natural Englands District Licencing Scheme for Great Crested newts, with the assumption of presence. In which case additional survey need not be undertaken. Access to adjacent ponds at this time has been denied by the landowners.**

1.1.9 Birds are likely to utilise scrub, hedgerows and trees on site for nesting between March and September. Any vegetation clearance should therefore be undertaken outside of this period.

1.1.10 No other notable or protected species were recorded on the site.

2. INTRODUCTION

2.1 Background

2.1.1 In January 2021 Envirotech NW Ltd were commissioned by JMPC Limited to carry out a Preliminary Ecological Appraisal of land at Castle Lane in Garstang, Preston , central grid reference SD496 448 (Figure 1). A site investigation was undertaken and a report compiled which includes recommendations for any future actions and or mitigation required.

2.1.2 The survey was requested in connection with the proposed construction of nine residential dwellings on the site.

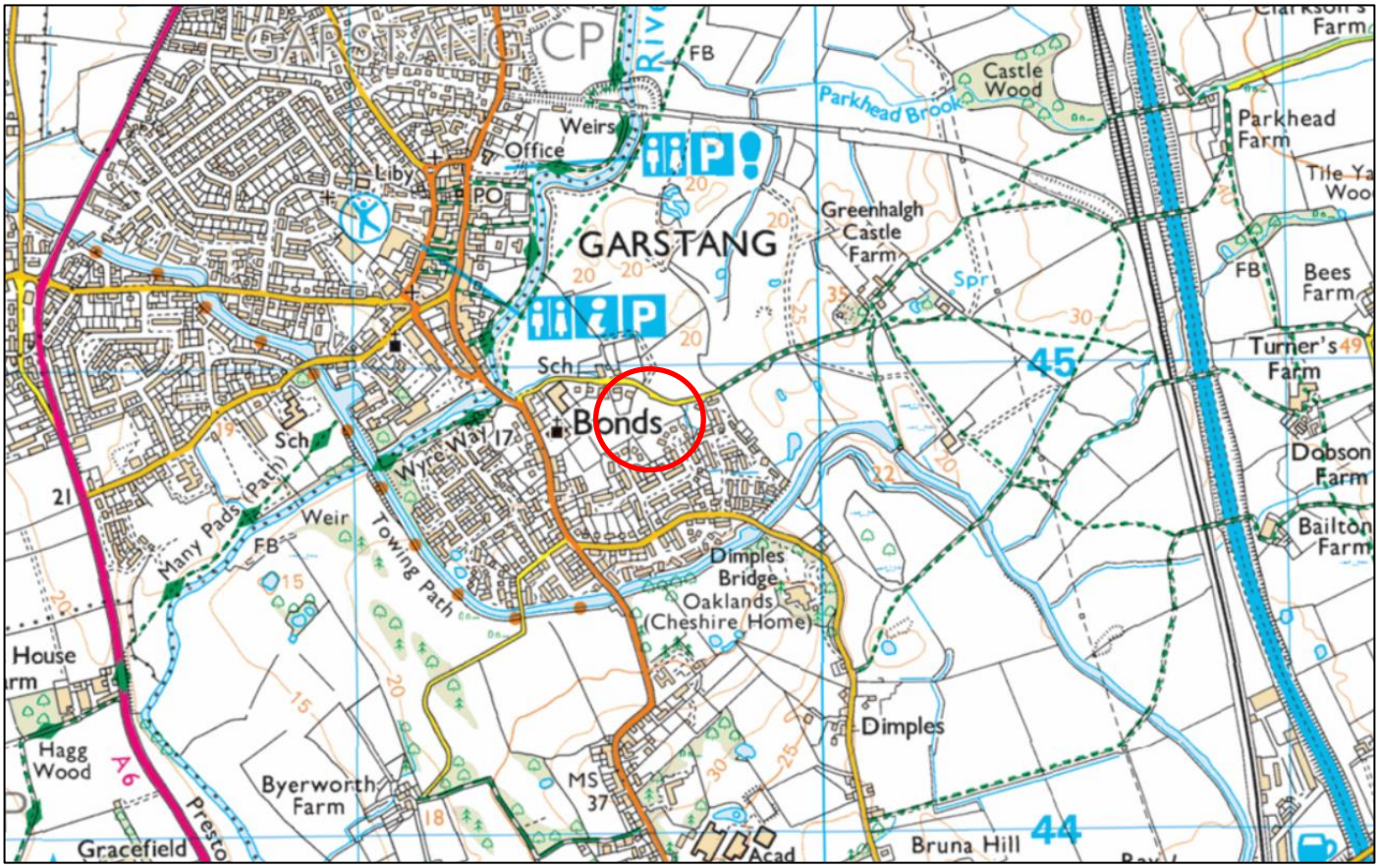

Figure 1 *Site location at SD496 448 circled red.*

2.2 Objectives

2.2.1 The main objectives of the study were:

- The completion of a Phase 1 Habitat Survey including the preparation of a vegetation and habitat map of the site and the immediate surrounding area.
- The survey and assessment of all habitats for statutorily protected species.
- An evaluation of the ecological significance of the site.
- The identification of any potential development constraints and the specification of the scope of mitigation and enhancement required in accordance with wildlife legislation, planning policy and other relevant guidance, and;
- The identification of any further surveys or precautionary assessments that may be required prior to the commencement of any development activities.

3. METHODOLOGY AND SOURCES OF INFORMATION

3.1 Data Search

3.1.1 The Biological Records centre for Lancashire "LERN", the Envirotech dataset, and the Multi-Agency Geographic Information for the Countryside (MAGIC) were searched to establish the presence of any records of statutorily protected, notable or rare species, and any designated sites of international, national, regional or local importance within a 2km radius of the site boundary.

3.1.2 The Envirotech dataset is compiled from extensive field surveys from the period 2004-present, as well as records obtained from third parties during this time.

3.1.3 Google Earth and Google Street View were consulted to establish the presence of any features of ecological importance within the local area.

3.2 Vegetation and Habitats

3.2.1 A vegetation and habitat map was produced for the site and the immediate surrounding area. The mapping is based on the Joint Nature Conservation Committee Phase 1 Habitat Survey methodology (JNCC 2003).

3.2.2 Searches were made for uncommon, rare and statutorily protected plant species, those species listed as protected in the Wildlife and Countryside Act (1981) and indicators of important and uncommon plant communities. All plant nomenclature follows Stace (1991).

3.2.3 Searches were carried out for the presence of invasive species, including those listed on Schedule 9 of the Wildlife and Countryside Act (1981), namely Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*) and giant hogweed (*Heracleum mantegazzianum*) on terrestrial habitat and aquatic species such as floating pennywort (*Hydrocotyle ranunculoides*), water hyacinth (*Eichhornia crassipes*) and New Zealand pygmyweed (*Crassula helmsii*).

3.3 Timing and Personnel

3.3.1 During the visit, weather conditions were suitable for the survey types undertaken.

3.3.2 The site and surrounding land was visited on the 5th February 2021 by

- (SC) Ms Sian Comlay BSc (Hons), Grad CIEEM
  Natural England Great Crested Newt Licence (Level 2)
  Natural England Bat Class Licence (Level 2)

4. SPECIES SURVEY METHODOLOGY

4.1 Amphibian

4.1.1 Great crested newts (*Triturus cristatus*) are protected under Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Schedule 5 of the Wildlife & Countryside Act (1981).

4.1.2 Water-bodies located within or adjacent to the study area were identified and where access was possible were assessed for their potential to support great crested newts.

4.1.3 The criteria used in the assessment are based on those contained in the Herpetofauna Workers Manual and Oldham et al, 2000, and in applying these criteria a precautionary approach was adopted. Following the criteria developed by Oldham et al (2000), the HSI tool developed for use with great crested newts and forming part of Natural England's Licensing process was used to determine the suitability of ponds for great crested newts.

4.1.4 The pond assessment was undertaken in order to determine which water-bodies, based on their potential to support great crested newts, should be subject to presence/absence surveys.

4.2 Badger

4.2.1 Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act (1992). This legislation arises from animal welfare issues (rather than on the basis of nature conservation grounds) and protects badgers from being killed, injured or disturbed whilst occupying a sett.

4.2.2 A disturbance to badgers in their setts may occur as a result of construction operations. Natural England recommends that the use of heavy machinery in proximity of a sett entrance should be avoided, with a 'disturbance free-zone' being established.

4.2.3 The degree of disturbance attributed to construction activity is a function of the background level of activity badgers are accustomed to and that which will be attributed to a proposed activity. The "disturbance free zone" is therefore site specific.

4.2.4 The survey for badgers comprised an assessment of all suitable habitat within and outside the study area boundary (where this was possible) to a distance of 30m for indications of use by badgers.

4.2.5 Signs of badgers which were searched for included:

- Setts - 'D' shaped entrances at least 25cms wide and wider than they are high with large spoil mounds
- Discarded bedding at sett entrances (this includes grass and leaves)
- Scratching posts on shrubs and trees close to a sett entrance
- The presence of badger hairs which are coarse, up to 100mm long with a long black section and a white tip

- Dung pit latrines and footprints
- Habitual runs through vegetation and beneath fences
- Hedgehog carcases

4.3 Bats

4.3.1 All British bat species are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981), and are included on Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, as a Protected Species. Taken together, these pieces of legislation make it an offence to:

- Intentionally or recklessly kill, injure or capture bats;
- Deliberately or recklessly disturb bats (whether in a roost or not);
- Damage, destroy or obstruct access to bat roosts.

4.3.2 The Bat Conservation Trust (Hundt (2012) and Collins, J. (ed) (2016) issued guidelines on bat survey methodology, a key feature of their recommendation is for the undertaking of a pre-survey assessment – an initial desk-study and a walkover assessment of the survey area and its surrounding area to identify the relative value of the habitats present for bats and likely commuting routes. This is to be followed by a survey program that is appropriate to the likely level of bat activity within the survey area to be determined by and based on the experience of the surveyor.

4.3.3 The potential value of the survey area for foraging bats was assessed through consideration of two main factors: professional knowledge of bat ecology and foraging behaviour in combination with the geographical location, topography and habitats present within the survey area and surrounds.

4.3.4 Trees on and within the survey area boundary were assessed for their potential to support roosting or hibernating bats. This comprised a close inspection of all trees on the site to allow an assessment of their potential to be used by bats to be made by a licensed surveyor.

4.3.5 Trees were all assessed in accordance with Collins, J. (ed) (2016).

4.4 Birds

4.4.1 All breeding birds, other than pest species, are protected under the Wildlife and Countryside Act of 1981 when building a nest, rearing young or sitting on eggs. Some bird species, such as barn owl (*Tyto alba*), are protected when near an active nest site. Several birds are listed as UK and or County BAP species.

4.4.2 Bird species and behaviour was noted during the other field surveys. All areas are covered equally, in order to avoid the subjective survey of better quality ‘bird habitat’.

4.5 Brown Hare

4.5.1 The brown hare (*Lepus europaeus*) is a UK BAP species.

4.5.2 The survey method involved walking boundaries and surveying with binoculars. The survey was conducted at a suitable distance to ensure that the hares were not disturbed. Generally, surveys were undertaken throughout the early afternoon and evening when hares are thought to be most active and feeding.

4.5.3 Where present the number of brown hares in each field or hedgerow was recorded, together with the nature and use of the field, climatic conditions and time of day. The presence of forms and faeces where present were also recorded.

4.6 Invertebrates

4.6.1 A general assessment was made of the study area's suitability for supporting invertebrates during the phase 1 survey. The study area's lack of habitat diversity, species-poor composition and uniformity of vegetation structure (i.e., lack of variation in height and microtopography) resulted in our belief that a low diversity of invertebrates would be likely to occur across the site.

4.6.2 The presence of invertebrates was noted during the other surveys which were undertaken. The extent of sampling was limited in that it could be confirmed that no priority or BAP species would be likely to be affected by the proposal.

4.7 Otter

4.7.1 Otters (*Lutra lutra*) are given protection by the Wildlife and Countryside Act (1981) as amended and Schedule 2 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

This protection means that it is an offence to deliberately or recklessly:

- Kill or injure otters;
- Destroy, damage or obstruct their dens, and
- Disturb them whilst in the den.

4.7.2 Watercourses were assessed for their suitability and for the presence of otters within 10m of the banks. The banks and scrub vegetation were carefully searched for spraints, feeding remains, runs, prints and couches/holts.

4.8 Reptiles

4.8.1 All native reptiles are protected in Britain under the Wildlife and Countryside Act of 1981. It is an offence to intentionally kill, injure, sell or advertise to sell any of the six native species.

4.8.2 The survey for these species was based on assessing the habitat type and suitability of the site. This comprised an assessment of satellite imagery for the site and surrounding area as well as comparison of the results from the records searches with habitat types. The general habitat at the site was evaluated in terms of its suitability to reptiles for foraging or breeding.

4.8.3 Habitat at the site was not considered sufficiently suitable for a full presence/ absence survey to be warranted.

4.9 Water Vole

4.9.1 Water voles (*Arvicola amphibious*) and their habitat are fully protected under Schedule 5 of the Wildlife and Countryside Act (1981). This provides protection from killing or taking by certain prohibited methods and their breeding and resting places are fully protected from destruction or obstruction, it is also an offence to disturb them in these places.

4.9.2 There is a ditch present adjacent to the eastern boundary and to the north on the opposite side of Castle Lane. These watercourses were surveyed and assessed for evidence of the presence of water vole.

4.9.3 This involved intensive searches by wading upstream where possible, and observing from the banks where not; looking for burrows and other signs including footprints, droppings and chewed vegetation. This was undertaken up to 5m from the water course.

4.10 Survey limitations

4.10.1 The survey was undertaken in winter. At this time of year plant species are less easily identified and the activity of some species is reduced.

4.10.2 The duration, extent and scope of the surveys were considered sufficient to plan appropriate mitigation and recommend additional precautionary survey work required prior to the commencement of work.

5. RESULTS

5.1 Data Search

5.1.1 Envirotech and LERN hold no records of protected or notable species for the site. There are however records of protected or notable species within 2km (Figure 2). These are discussed in the relevant sections below.

5.1.2 The nearest non-statutory protected site is the Lancaster Canal Whole Length in Lancashire Including Glasson Branch which is designated as a Biological Heritage Site (BHS) located approximately 275m to the south (Figure 3). This is isolated from the site by residential dwellings.

5.1.3 There are no statutory protected sites within 2km of the survey area (Figure 4). However the site does fall within the Site of Special Scientific Interest (SSSI) Impact Risk Zone for multiple SSSIs, the closest being Rough Hey Wood SSSI, located approximately 2.9km to the south east. The proposed development also falls within the SSSI Impact Risk Zone categories for All Planning Applications and Rural Residential. Therefore, Natural England must be consulted prior to commencement of works on the site.

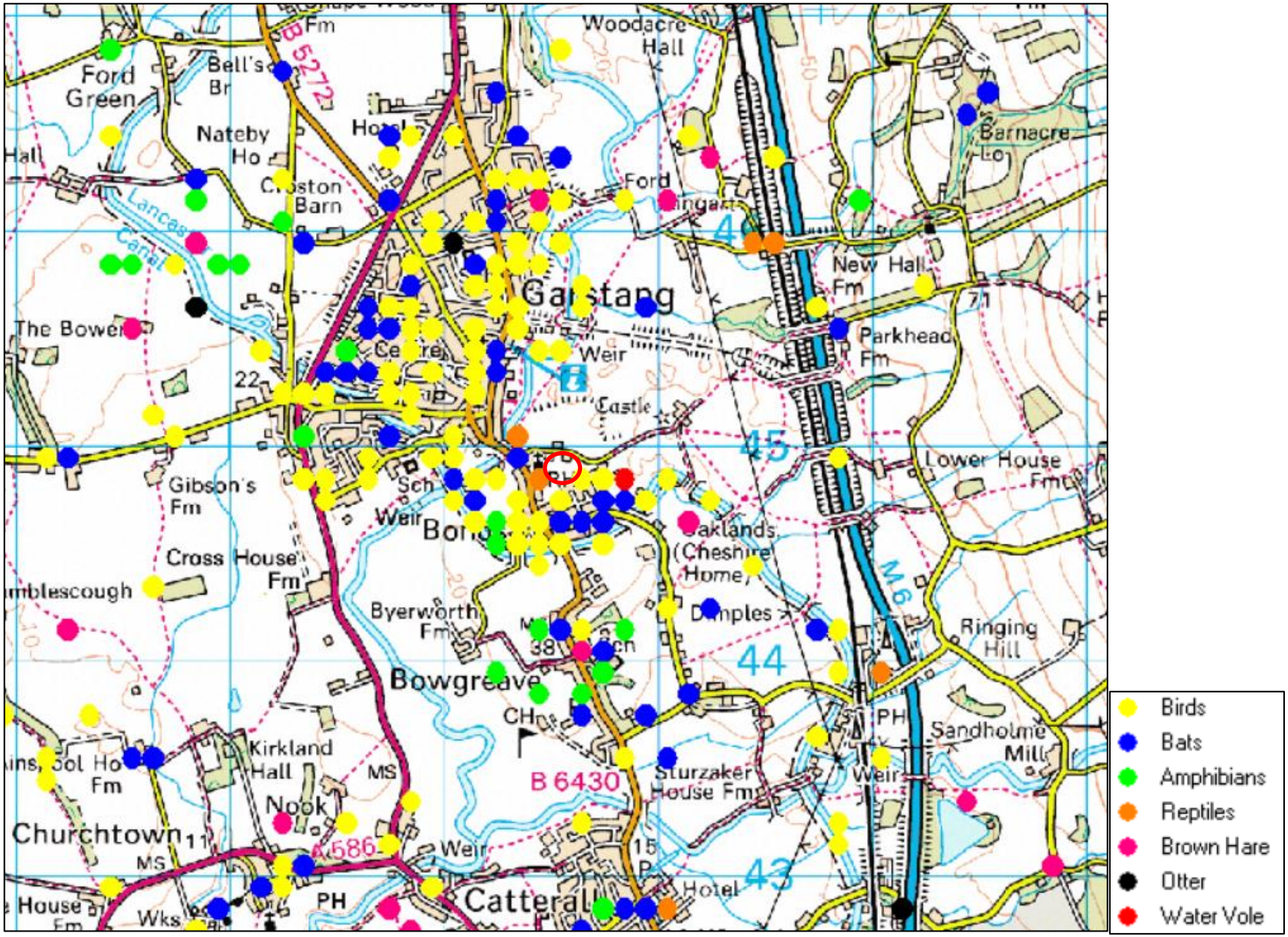

Figure 2 *Notable species records, site location is circled red.*

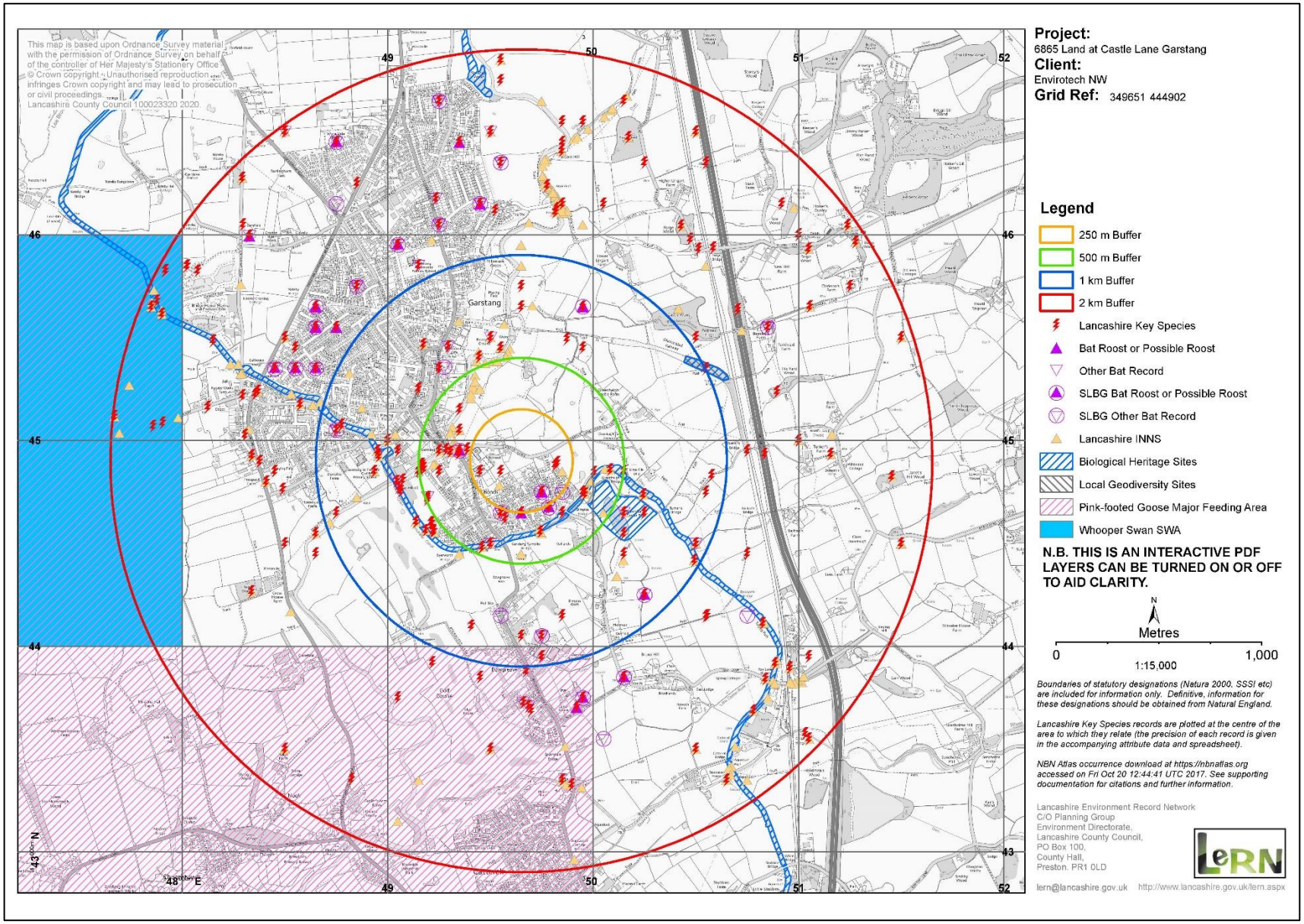

Figure 3 *Non-statutory sites 2km buffer.*

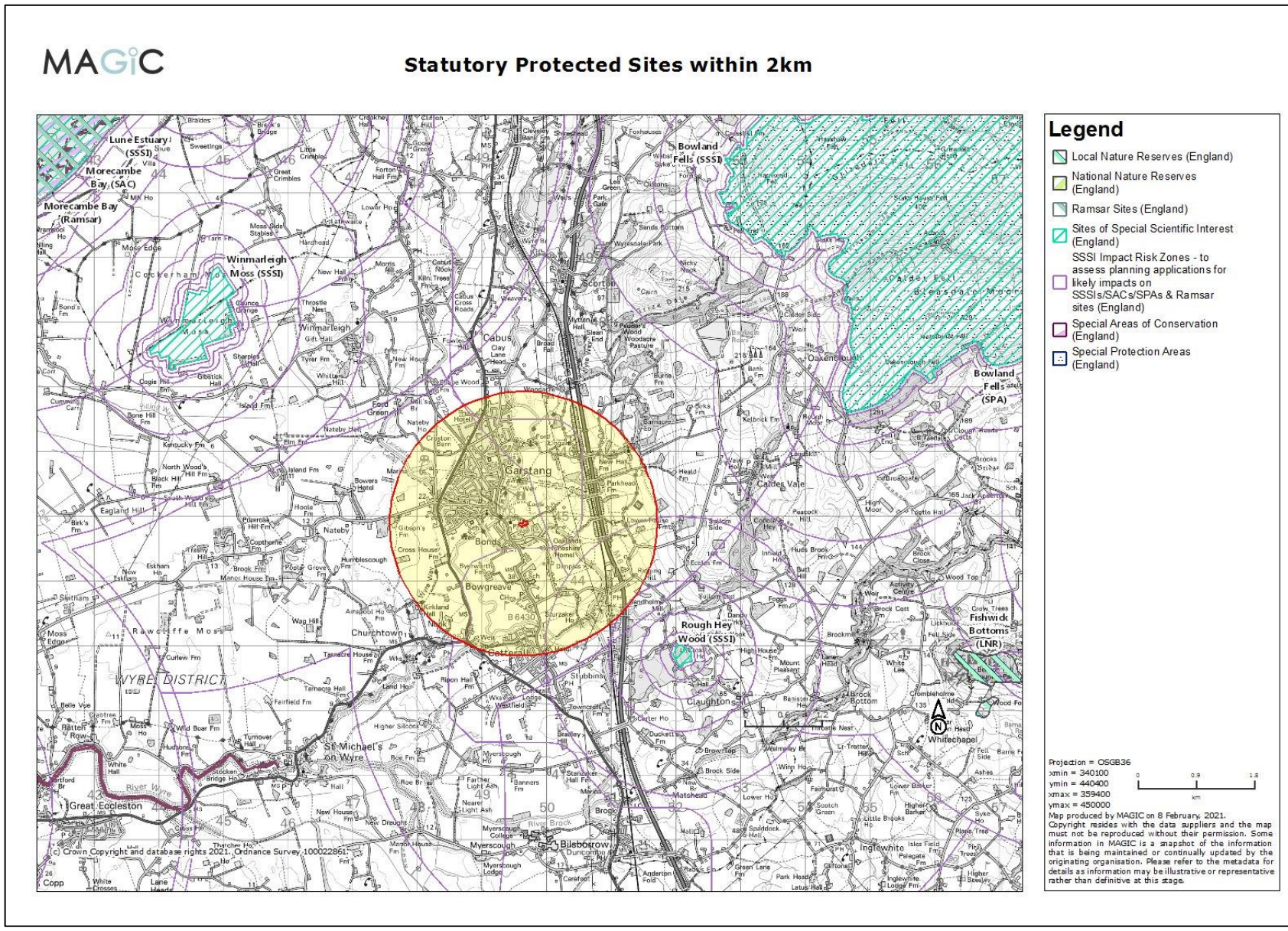

Figure 4 *Statutory designated sites 2km buffer.*

6. PHASE 1 SURVEY RESULTS

6.1 Habitat Results

6.1.1 The site is dominated by poor semi-improved grassland and marshy grassland with hedgerows and scrub around the peripheries. The site is bound by Castle Lane to the north, a ditch and residential dwelling to the east, residential dwellings to the south and a playing field and residential dwelling to the west. The wider landscape is dominated by residential dwelling and agricultural land.

6.1.2 See Figure 5 for the Phase 1 Habitat Plan and Table 1 for the descriptive Target Notes.

Target Note	Description	Comment
TN1	Poor semi-improved grassland	Poor semi-improved grassland dominates the survey area. Species recorded within the grassland include Perennial Ryegrass (*Lolium perenne)*, Yorkshire Fog *(Holcus lanatus)*, Cocksfoot *(Dactylis glomerata)*, Lesser celandine *(Ranunculus ficaria)*, Creeping buttercup *(Ranunculus repens)*, Meadow buttercup *(Ranunculus acris)*, Greater plantain *(Plantago major)* and occasional Soft Rush (*Juncus effusus)* and Broadleaved dock *(Rumex obtusifolius)*. There is evidence that the survey area has previously been grazed with evidence of poaching from livestock.
TN2	Marshy grassland and Standing water	An area of standing water and marshy grassland dominated by Soft Rush with occasional Hard Rush *(Juncus inflexus)* is present in the south eastern corner of the survey area. It is considered that this area is only seasonally wet as grass species were identified within the standing water. A further area of marshy grassland is present in the north of the site, there is no standing water within this area.
TN3	Hedgerow	Hedgerows are present around the peripheries of the site. Hedgerow 1 – managed hedgerow along the northern boundary of the site, a gateway into the field is present along this hedgerow. The hedgerow is dominated by Hawthorn *(Crataegus monogyna)* and Blackthorn *(Prunus spinosa)* with Sycamore (*Acer pseudoplatanus)*, Holly (*Ilex aquifolium)*, Elderberry (*Sambucus nigra)* and English Oak *(Quercus robur)* also present. The ground flora below the hedgerow is sparse, species recorded within this area include Ivy *(Hedera helix)*, Nettle *(Urtica dioica)*, Herb-Robert (*Geranium robertianum*), Cleavers *(Galium aparine)*, Cow parsley *(Anthriscus sylvestris)*, Variegated Yellow Archangel *(Lamium galeobdolon subsp. argentatum)* and *Cyclamen* sp.. Common polypody fern *(Polypodium vulgare)* and Snowdrops *(Galanthus* sp.*)* were identified on the roadside of the hedgerow to the west of the gate. Hedgerow 2 – unmanaged hedgerow along the southern boundary. Hedgerow turns into more of a row of trees at the western extent. This hedgerow is also dominated by Hawthorn and Blackthorn, with Sycamore, Oak *(Quercus* sp.*)* and Alder *(Alnus glutinosa)* also present. The ground flora within this area was also sparse with Ivy, Nettle, Cleavers and bryophytes identified. Hedgerow 3 – unmanaged hedgerow in the west of the site. This hedgerow is dominated by blackthorn with hawthorn also present. The ground flora below this hedgerow was also

		sparse with some nettle and ivy identified. Two trees were present along this hedgerow, a coniferous tree and an Ash *(Fraxinus excelsior)* tree. Hedgerow 4 – managed hedgerow along the north western boundary of the site. This hedgerow is half hawthorn and blackthorn and the other half is holly. The holly section of the hedgerow then continues along the north western boundary of the site. Overhanging trees are present along this boundary from the adjacent residential dwelling.
TN4	Scrub	Bramble *(Rubus fruticosus agg)* Blackthorn scrub is present in the east of the survey area, with scattered bramble scrub also present in the south west of the site.
TN5	Fences	A combination of post and wire and wooden post and rail fences are present around the peripheries of the site.
TN6	Adjacent scrub, scattered trees and ditch	Adjacent to the eastern boundary is an area of scrub, scattered trees and a ditch. The ditch has shallow banks which are sparse with vegetation and a shallow flow of water. Species recorded within this area include Hawthorn, Willow *(Salix* sp.*)*, Sycamore, Blackthorn, Bramble, Ivy, occasional Snow drops *(Galanthus* sp.*)*, Variegated Yellow Archangel, Nettle and Cleavers.
TN7	Aquatic mammals	The ditches within close proximity to the site are considered to provide suboptimal habitat for aquatic mammals such as otter and water vole.
TN8	Birds	Birds may use the vegetation on site for nesting and foraging.
TN9	Bats	The vegetation along the peripheries of the site provide suitable foraging and commuting habitat for bats.

Table 1 *Details of Target Notes.*

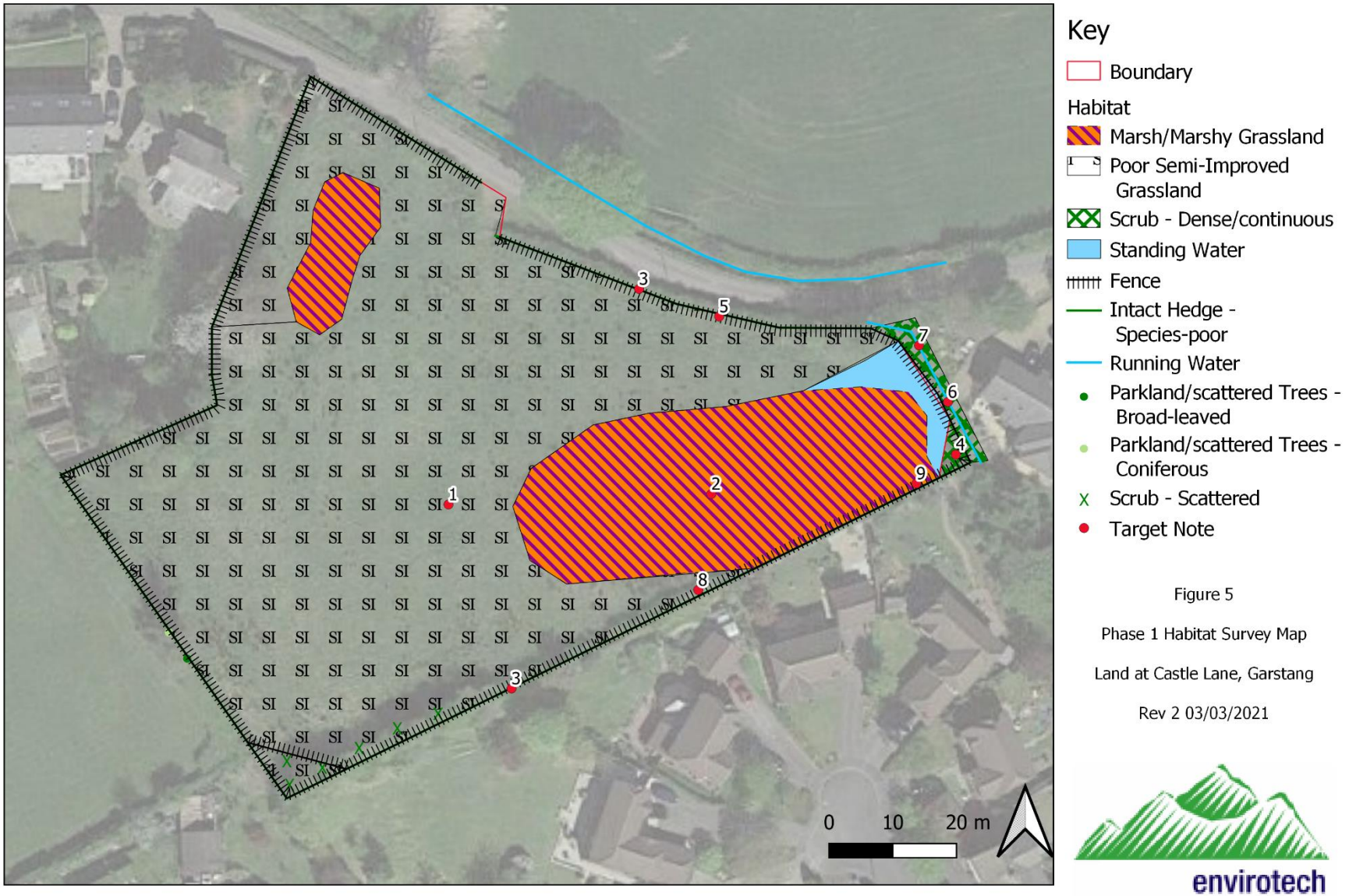

Figure 5

Phase 1 Habitat Survey Map

Land at Castle Lane, Garstang

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	Site dominated by poor semi-improved grassland
	Area of marshy grassland and standing water
	Adjacent scrub, trees and ditch

 	Hedgerows along the boundaries of the site
	Ditch on the opposite side of Castle Lane to the north of the site

Table 2 *Photographs*

6.2 Vegetation

6.2.1 Details of the plant species found on site are included in the target notes. Species recorded are all commonly occurring and undoubtedly occur elsewhere in similar habitats in the local area.

6.2.2 The marshy grassland and poor semi-improved grassland have a very low species diversity and ecological value. Whilst the assemblage of species within it is higher than improved pasture, the species are all indicative of regular grazing and disturbance, this habitat does not constitute a BAP habitat.

6.2.3 The intact hedgerows bounding the site are species poor and contain a low diversity of woody plant species but all hedgerows are a UK BAP habitat. They should be retained in any proposed scheme and where lengths need to be lost, they should be transplanted or new hedges planted as compensation.

6.2.4 None of the hedgerows are classified as important under the Hedgerow Regulations (1997) (See Appendix 1).

6.2.5 Trees within the site boundary comprise early mature to mature specimens.

6.2.6 Variegated yellow archangel was recorded growing within the area of scrub beyond the eastern boundary and along the base of the hedgerow in the north. This species is an invasive species listed on Schedule 9 (Section 14) of the Wildlife and Countryside Act (1981) (as amended).

6.2.7 There is no evidence of Japanese knotweed, giant hogweed, Himalayan balsam or any other invasive or notable weed species listed on Schedule 9 (Section 14) of the Wildlife and Countryside Act (1981) (as amended) identified within the site or adjacent land.

6.3 Amphibian

6.3.1 There are records for amphibians within 2km of the site. The data search provided nine records of Common Toad *(Bufo bufo)*, eight records of Palmate newt *(Lissotriton helveticus)*, 16 records of Smooth newt *(Lissotriton vulgaris)*, 18 records of Common Frog *(Rana temporaria)* and 13 records of Great Crested Newt (GCN) *(Triturus cristatus)* within 2km.

6.3.2 A search of OS mapping data identified four ponds within 250m of the survey area. Access to the pond within the school grounds was not possible due to Covid-19 restrictions and access to the ponds to the east of the site was not possible due to no landowner access permission during the time of the site visit. Pond 1 was viewed from the public footpath, however, due to the topography of the land it was not possible to view the other ponds to the east from the foot path.

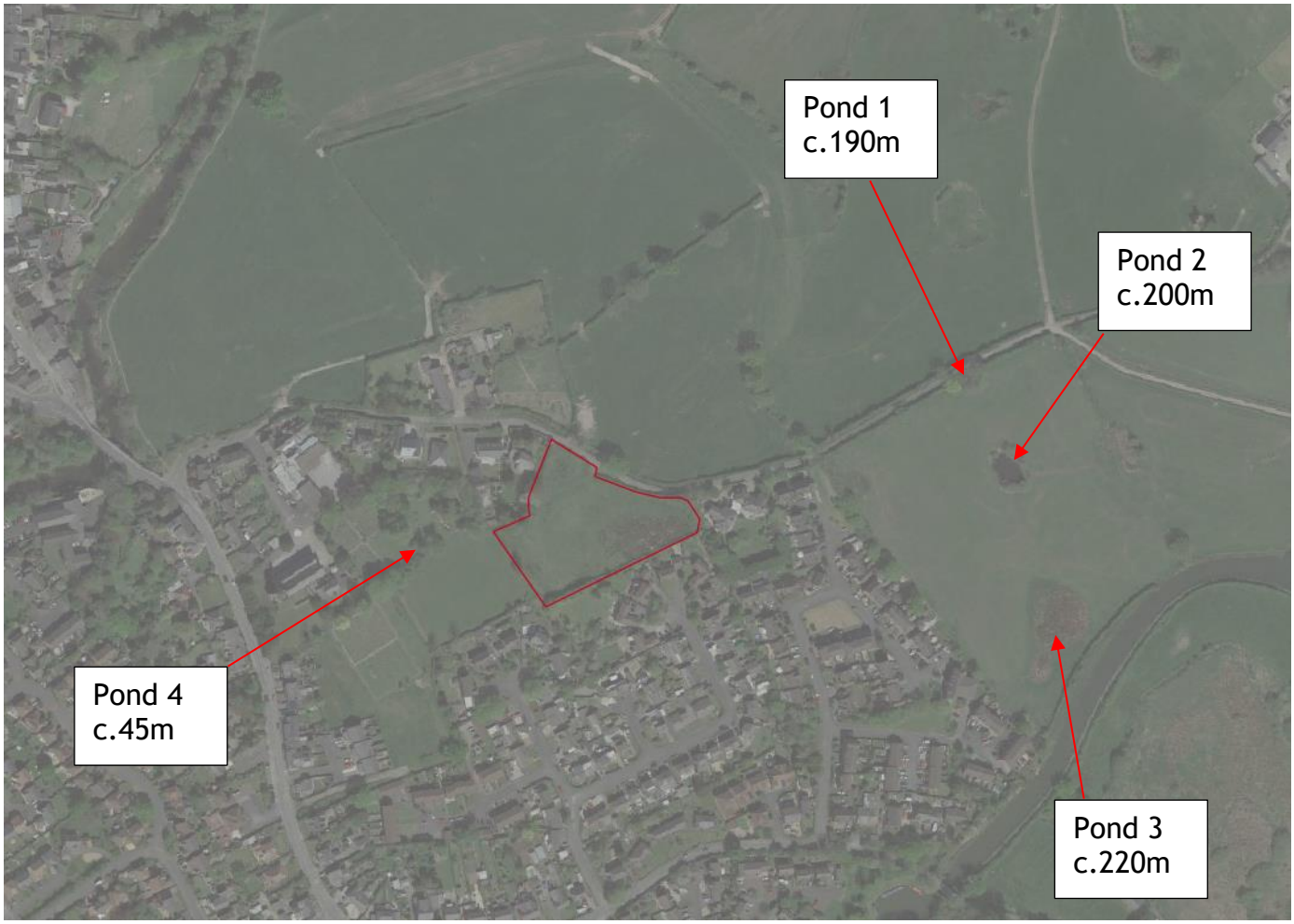

Figure 6 *Ponds within 250m, site outlined in red*

6.3.3 There is potential for amphibians to utilise the area of standing water and marshy grassland on site, however, this area is not considered suitable for breeding due to the area of standing water being ephemeral and drying out. The boundary hedgerows and scrub could also be utilised as refuges and/or hibernacula.

6.3.4 Pond 1 has connectivity to the site via the network of hedgerows along the road and Pond 3 has connectivity to the site via the ditch which from OS mapping data appears to extend from the pond to adjacent to the eastern boundary of the site. As the ditch does not contain fast flowing water this is considered to provide a potential commuting feature between the two areas.

6.3.5 Following the criteria developed by Oldham et al (2000), the HSI tool developed for use with great crested newts and forming part of Natural England's Licensing process was used to determine the suitability of the mill pond for great crested newts. The HSI was developed as a tool to aid fieldworkers to give ponds and their surrounding habitat a numerical score in terms of their suitability for great crested newts. See Table 3.

6.3.6 Within the Natural England Method Statement application form for great crested newt Licences, guidance states the following approach (Natural England, 2008):

6.3.7 'If a pond has a very low HSI score (say <0.5) then there would typically be a minimal chance of great crested newt presence. Hence, with due care and in limited

circumstances, the HSI might be used in the absence of newt survey to help conclude that an offence is highly unlikely and therefore work could proceed in that area without a licence. This application of the HSI should only be used where the predicted impacts - were newts to be present - would be low (eg, development at least 100m from pond, permanent habitat loss <0.5ha or temporary habitat loss <5ha). The developer and consultant should realise that there would still be a risk of committing an offence, but it would typically be so low as to be negligible. Obviously, note that if HSI >0.5, this is not confirmation of newt presence; a newt survey would be required to confirm this'.

6.3.8 Macrophyte cover was omitted from the calculation as the guidance states that this should only be estimated between March and the end of April.

Pond	**1**
Location	1
Pond area	0.2
Pond drying	1
Water quality	0.33
Shade	0.3
Fowl	0.67
Fish	0.67
Ponds	1
Terrestrial habitat	0.33
Macrophytes	-
HSI	*0.52 (Below Average)*

Table 3 *Results of Habitat Suitability Index.*

6.3.9 Based on the current information a Rapid Risk Assessment for GCN was also completed (Table 4), which determine an offence highly likely based on the current assumption that GCN are likely to utilise the ponds within 250m of the site.

Component	**Likely effect** (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.5 - 1 ha lost or damaged	0.7
Land 100-250m from any breeding	0.5 - 1 ha lost or damaged	0.3
Land >250m from any breeding pond(s)	No effect	0
Individual great crested newts	No effect	0
	Maximum:	0.7
Rapid risk assessment result:	RED: OFFENCE HIGHLY LIKELY	

Table 4 *Rapid Risk Assessment*

6.3.10 Due to the connectivity of ponds to the site, the moderate suitability for amphibians to utilise areas of the site and restricted pond access, further survey work with regards to

amphibians at the site and within the surrounding area is required if absence is to be proven.

6.3.11 It is possible under the GCN district licencing scheme (DLS) to forgo additional survey and assume presence, allowing a licence to be issued. The lack of survey need therefore not be a constraint to the issuing of planning consent so long as either the DLS were entered and or additional survey can establish absence of GCN in adjacent ponds.

6.4 Badger

6.4.1 No records of badgers occur within 2km of the site.

6.4.2 A single small mammal push though was identified under the holly hedgerow in the west of the site, the push through was too small for use by badger and rabbit droppings were identified adjacent to the push through, therefore this is considered to be a result of rabbits using the site.

6.4.3 Badger setts do not occur on site and a lack of feeding signs or runs across the site would suggest that they do not occur within 30m of site boundaries.

6.4.4 The proposed development will not impact on any existing badger runs or setts. The porosity of the surrounding fields to the passage of badgers will not be affected.

6.5 Bats

6.5.1 There are 86 records of five species of bat within 2km of the site. Species provided by the data search include Unidentified bat *(Chiroptera* sp.*)*, Myotis bat *(Myotis* sp.*)*, Noctule *(Nyctalus noctula)*, Daubenton's *(Myotis daubentonii)*, Pipistrelle bat *(Pipistrellus* sp.*)*, Common Pipistrelle *(Pipistrellus pipistrellus)*, Soprano Pipistrelle *(Pipistrellus pygmaeus)* and Brown Long-Eared *(Plecotus auritus)* bat. Bats are known to roost within some of the residential dwellings to the south of the site, but not adjacent to the site boundaries.

6.5.2 The foraging habitat at the site is poor for bat species being open and exposed. The poor semi-improved grassland offers negligible foraging opportunities for bats and the marshy grassland only offers very low foraging opportunities. The hedgerow and boundary vegetation and tree lines are poor in terms of their structure, diversity and interconnectivity.

6.5.3 Despite being poor, the trees and hedgerows on the site boundaries offer the best foraging habitat for bats on the site as the remainder of it comprises open and exposed pasture. Whilst these areas of the site are the most structurally diverse they are not considered exceptional in the local area. More extensive areas of medium and high quality habitat occur locally, including the surrounding gardens and water courses.

6.5.4 It is not considered there would be significant degradation of foraging habitat as a result of the proposal so long as the hedgerows and boundary vegetation are retained and or their loss is compensated for in any landscaping scheme.

6.5.5 All trees around the site perimeter were also assessed in accordance with Collins ed. (2016) and assigned a risk category. The two trees on site were category 3 (negligible) risk, however, two of the trees within the adjacent scrub area to the east of the site were category 2 (low) risk (Figure 7). No indications of roosting or highly suitable roost sites were located within the trees. All of the trees could be adequately inspected. Risk categories from Hundt (2012) and the requirement for mitigation for each tree category are shown on Figure 8.

6.5.6 We consider bat species are highly unlikely to rely on the site for feeding but may occur in the local area. Roosting by bats is not considered to occur on the site.

Key

Boundary

Tree Risk Category

Figure 7

Bat Tree Riswk Category Map

Land at Castle Lane, Garstang

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Tree category and description	Stage 1 Initial survey requirements	Stage 2 Further measures to inform proposed mitigation	Stage 3 Likely mitigation
Known or confirmed roost	Follow SNCO guidance and these guidelines wherever possible, to establish the extent to which bats use the site. This is particularly important for roosts of high risk species and/or roosts of district or higher importance and above		The tree can be felled only under EPS licence following the installation of equivalent habitats as a replacement.
Category 1* Trees with multiple, highly suitable features capable of supporting larger roosts	Tree identified on a map and on the ground. Further assessment to provide a best expert judgement on the likely use of the roost, numbers and species of bat, by analysis of droppings or other field evidence. ***A consultant ecologist is required***	Avoid disturbance to trees, where possible. Further dusk and pre-dawn survey to establish more accurately the presence, species, numbers of bats present and the type of roost, and to inform the requirements for mitigation if felling is required.	Felling would be undertaken taking reasonable avoidance measures[3] such as 'soft felling' to minimise the risk of harm to individual bats.
Category 1 Trees with definite bat potential, supporting fewer suitable features that category 1* trees or with potential for use by single bats	Tree identified on a map and on the ground. Further assessed to provide a best expert judgement on the potential use of suitable cavities, based on the habitat preferences of bats. ***A consultant ecologist required***	Avoid disturbance to trees, where possible. More detailed, off the ground visual assessment. Further dusk and pre-dawn survey to establish the presence of bats, and if present, the species and numbers of bats and type of roost, to inform the requirements for mitigation if felling is required.	Trees with confirmed roosts following further survey are upgraded to Category 1* and felled under licence as above. Trees with no confirmed roosts may be downgraded to Category 2 dependent on survey findings
Category 2 Trees with no obvious potential, although the tree is of a size and age that elevated surveys may result in cracks or crevices being found; or the tree supports some features which may have limited potential to support bats.	None. ***A consultant ecologist is unlikely to be required***	Avoid disturbance to trees, where possible. No further surveys.	Trees may be felled taking reasonable avoidance measures. Stop works and seek advice in the event bats are found, in order to comply with relevant legislation.
Category 3 Trees with no potential to support bats	None. ***A consultant ecologist is not required unless new evidence is found***	None.	No mitigation for bats required.

Figure 8 *Tree risk categories from Hundt (2012).*

6.7 Birds

6.7.1 There are numerous records of birds within 2km of the site. Snipe *(Gallinago gallinago)*, Robin *(Erithacus rubecula)*, Carrion Crow *(Corvus corone)*, Blackbird *(Turdus merula)* and Blue tit *(Cyanistes caeruleus)* were noted on site during the survey.

6.7.2 The intact hedgerows and scrub on site offer potential habitat for feeding and nesting birds. The poor semi-improved grassland and marshy grassland has a low potential for use by nesting birds as the grassland is grazed/managed and as such is usually short. Trampling risks are also very high within this area of the site.

6.7.3 There were no rot holes or cracks in the trees within the site boundary which would support tree hole nesting species such as woodpeckers.

6.7.4 Potential nest sites were located within the core development area but the surveys were undertaken at a time of year when nesting had been completed. A risk assessment of the site in respect of its future potential for and value to nesting birds could however be adequately made.

6.7.5 Precautionary mitigation is considered appropriate. The landscaping scheme should include species such as rowan (*Sorbus aucuparia*) which are seed bearing and will provide food for birds in the winter.

6.7.6 The habitat on site is not considered to be of anything more than of local significance, habitats present are well represented in the local area. The impact on nesting birds is therefore considered likely to be minor.

6.8 Brown Hare

6.8.1 Brown hare are a UK BAP priority species. There are six records of brown hares within 2km of the site.

6.8.2 No indication of brown hares was recorded on the site.

6.8.3 The site boundary has some potential for brown hares to create forms but use of the site is likely to be limited due to its open and exposed nature and regular human presence.

6.8.4 A risk assessment of the site in respect of its future potential for and value to brown hares could be adequately made. We consider the risk to brown hares is very low.

6.9 Invertebrates

6.9.1 11 species of invertebrate have been recorded within 2km of the site.

6.9.2 No deadwood or vegetation on site was recorded which would provide an important resource for invertebrates in the local area.

6.9.3 Given the poor quality habitats contained within the site in comparison to the wider area, it is not considered that this site is of any local significance for invertebrates.

6.9.4 Impacts on the species are considered likely to be negligible, post development domestic gardens will create greater habitat diversity in the area than already exists.

6.10 Otter

6.10.1 There are two records of otters within 2km of the site.

6.10.2 No indication of the presence or past use of the adjacent ditches or the site by otter was found. The ditches are considered unlikely to support fish.

6.10.3 However as the ditches extend to the south towards the river corridor, it is possible that these features could occasionally be used by otter for commuting/dispersal across the local landscape as otter are known to travel large distances from their holts.

6.10.4 Whilst the ditches may provide a commuting/dispersal route this species is unlikely to be significantly impacted by site development.

6.10.5 Precautionary mitigation would be appropriate in respect of construction activities which will need to be restricted at night. A buffer of at least 3m between the site and adjacent ditch should be created to ensure the potential for species to commute along this habitat is maintained.

6.11 Reptiles

6.11.1 There are nine records for Slow-worm *(Anguis fragilis)* within 2km of the site.

6.11.2 The majority of the site has a low value to reptiles being devoid of significant ground cover. There are no areas of the core development area which would be particularly favourable to reptiles.

6.11.3 Reptiles may occur along the boundary of the site and this provides linkage across the local landscape. It is however understood that these areas will be unaffected by the proposal.

6.11.4 As a consequence, precautionary mitigation would be appropriate in respect of construction activities so as to ensure reasonable avoidance measures are taken to avoid the killing or injury of these species.

6.12 Water vole

6.12.1 There is a single records of water vole within 2km of the site.

6.12.2 The vegetation growing along the two ditches closest to the site was not considered ideal for this species to forage. There was no significant growth of rushes, reeds, or sedges.

6.12.3 The ditch to the east of the site had very shallow banks and the ditch to the north had corrugated metal sheet sides, both do not provide suitable habitat for burrow construction.

6.12.4 No signs of water voles, such as droppings, feeding piles or footprints were present at the time of the survey. We consider this species is likely to be absent from the site. Precautionary mitigation would be appropriate.

6.13 Other

6.13.1 The boundary hedgerows are species poor and provide little potential for use by hedgehog (*Erinaceus europaeus*). Fragmentation of habitat locally and existing land use do not provide optimal conditions for the free passage of this species across the site and slugs and snails are likely to occur only at very low numbers.

6.13.2 The site may be crossed by species such as fox (*Vulpes vulpes*) and rabbit (*Oryctolagus cuniculus*) are known to occur locally.

6.13.3 The boundary hedgerows may provide suitable habitat for small mammals such as field vole (*Microtus agrestis*) but these areas are small and the sites value to small mammals is limited.

6.14 Statutory and Non-Statutory Sites

Direct Impacts:

6.14.1 There are no statutory or non-statutory sites which are connected to the site such that site development would directly affect the dispersal of species between them or directly impact upon their integrity.

6.14.2 The habitats on site do not represent or are linked to those found in any of the statutory or non-statutory sites locally.

Indirect Impacts:

6.14.3 Natural England must be consulted prior to the commencement of works on the site as the survey area falls within a SSSI Impact Risk Zone category for All Planning Applications and Rural Residential.

6.14.4 There is low potential for contaminants to be transferred to the non-statutory site via the adjacent water courses as the ditches already run though and adjacent to residential developments.

7. MITIGATION/RECOMMENDATIONS

7.1 Compensatory planting and habitat enhancement

7.1.1 The roots of trees on the site and its boundaries should be adequately protected during work in accordance with industry standards. All trees should as far as possible be retained in the scheme.

7.1.2 The landscaping scheme should utilise plants which are native and wildlife friendly. In particular night flowering species would be beneficial to bats. Wildflower seed could be used to plant verges to enhance the ecological value of the site and continuity between the site and the wider area.

7.1.3 Hedgerows around the site should be retained or improved where possible. Any lengths of intact hedgerow to be removed to facilitate development should be transplanted and or replanted in order that there is no net negative impact on this BAP habitat due to development. The roots of hedgerow plants/trees should be adequately protected during development from compaction/ground disturbance.

7.1.4 A buffer strip should be created along the boundary of the site with the ditch in the east. Planting or scattered native shrub species and or hedgerows within and along this buffer will provide shelter and maintain the potential for species to commute along this feature.

7.1.5 Linear planting of shrubs, hedgerows and fruit trees would be beneficial in providing a level of connectivity over the site which does not currently occur. Such new planting will also compensate for any loss of vegetation and scrub.

7.1.6 Care should be undertaken to ensure there is no spread of variegated yellow archangel throughout the proposed development.

7.2 Amphibians

7.2.1 Further survey work is required with regard to amphibians.

7.2.2 Access to the school pond to the west of the site and two ponds within the field to the east of the site are required to confirm use of these area by amphibians, particularly Great Crested Newts. Further assessment will require undertaking a walkover assessment to allow a Habitat Suitability Index Assessment to be completed to determine the suitability of use of the ponds for breeding GCN. This will then be followed by taking a water sample which will be sent off for Environmental DNA analysis, if required. Water samples for eDNA analysis can only be undertaken between 15th April and 30th June, inclusive.

7.2.3 However, it is possible under the GCN district licencing scheme (DLS) to forgo additional survey and assume presence, allowing a licence to be issued. The lack of survey need therefore not be a constraint to the issuing of planning consent so long as either the DLS were entered and or additional survey can establish absence of GCN in adjacent ponds.

7.3 Badger

7.3.1 Badger setts are not known to occur within 2km of the site. However any setts present within 2km will be undisturbed by work but in order to minimise impacts on badgers passing over the site the following points should also be followed.

- All work must take place during daylight hours as badgers are more likely to be commuting over the site at night and this will ensure the risk to any badgers passing through the site will be minimised.

- Should any trenches and excavations be required, an escape route for animals that enter the trench must be provided, especially if left open overnight. Ramps should be no greater than of 45 degrees in angle. Ideally, any holes should be securely covered. This will ensure badgers are not trapped during work.

- All excavations left open overnight or longer should be checked for animals prior to the continuation of works or infilling. Back filling should be completed immediately after any excavations, ideally back filling as an on-going process to the work in hand.

7.4 Bats

7.4.1 Work at night should be restricted, new planting within the site should enhance structural diversity and light spill onto the boundary, particularly the eastern boundary should be minimised.

7.4.2 New roosting provision for crevice dwelling bats could be incorporated into the buildings on site or bat boxes could be erected in retained trees.

7.4.3 Any category 2 trees to be felled should be re-inspected for bats to confirm they remain absent.

7.4.4 Overall it is considered there is more than sufficient scope for mitigation and compensation at the site such that there will be no adverse impact on the favourable conservation status of bats affected by the proposal.

7.5 Birds

7.5.1 Nesting by birds within the development area is considered likely to occur. Birds may nest within hedges and scrub on the peripheries of the site.

7.5.2 Any vegetation to be trimmed or cleared should be checked for nesting birds before it is removed. Ideally this should occur outside the bird nesting period March- September. If vegetation clearance is to occur in the March-September period a check for nesting birds should be conducted first by a suitably qualified individual.

7.5.3 New planting within the site and the retention of trees and shrubs on the site boundary will maintain the ecological functionality of the site for breeding birds.

7.5.4 Artificial bird nesting sites for swallow could be incorporated into the new buildings under the eaves in suitable locations.

7.5.5 If nesting birds are found at the site all site works shall cease and further ecological advice shall be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6 Brown Hares

7.6.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any brown hare activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.6.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for badgers are also applicable to this species.

7.7 Invertebrates

7.7.1 Landscaping should include native or wildlife friendly species including night flowering plants.

7.7.2 Contaminants should not be allowed to enter substrates or water courses during work. To effect this, spill kits should be provided on site. Re-fuelling of all plant and machinery should be undertaken away from open drains and water courses. Drip trays should be used under static machinery.

7.8 Otter

7.8.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any otter activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.8.2 The points in respect of not working at night and leaving open trenches with means of escape detailed for amphibians are also applicable to this species which is only likely to pass through the site at night.

7.8.3 The points in respect of new shrub and tree planting around the site and the creation of a buffer stirp along the eastern boundary associated with the ditch are also likely to maintain the sites potential for future use of this area.

7.9 Reptiles

7.9.1 There is no requirement for specific mitigation for these species. However, as a precautionary measure, in the unlikely event that any signs of any reptile activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

7.9.2 Scrub and hedgerows on the edge of the development site should be retained such that it is in proximity to open areas of ground which will also be suitable for basking.

7.9.3 The points in respect of not leaving open trenches without means of escape detailed for badgers are also applicable to these species.

7.10 Water vole

7.10.1 There is no requirement for specific mitigation for this species. However, as a precautionary measure, in the unlikely event that any signs of any Water vole activity is subsequently found, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

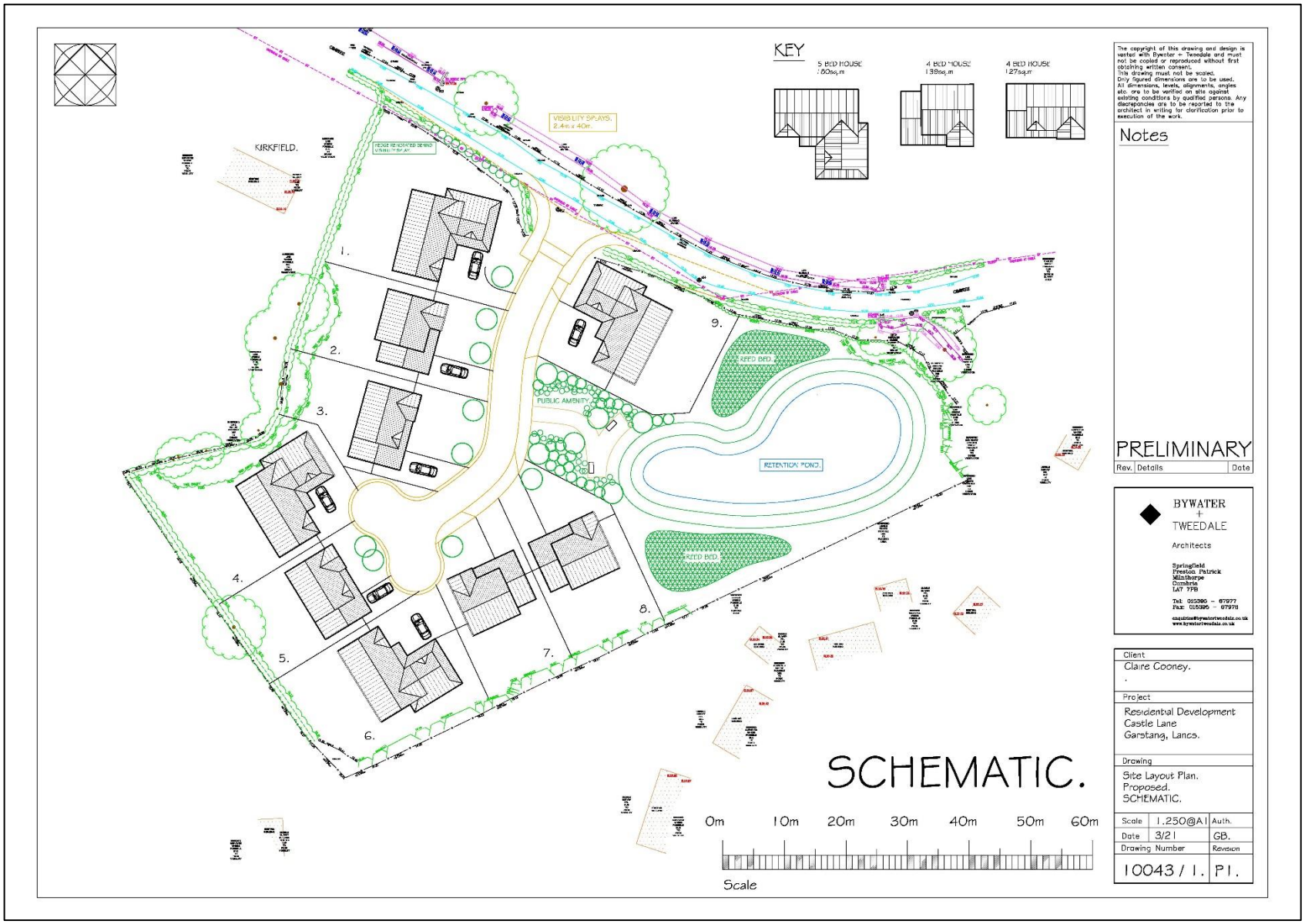

Figure 9 *Proposed Plans*

8. CONCLUSION

8.1.1 Ecological surveys, site appraisals and impact assessments were carried out with respect to land at Castle Lane in Garstang, Preston. It is proposed that nine residential dwellings will be constructed on the site.

8.1.2 Appropriate control measures are required to ensure no spread of invasive plant species during the development.

8.1.3 Natural England must be consulted prior to works commencing on site with regards to SSSI Impact Risk Zones.

8.1.4 Bats, birds, reptiles, otter, water vole and brown hare are known to occur in the local area, there was however no conclusive evidence of any specifically protected species regularly occurring on the site or the surrounding areas which would be negatively affected by site development following the mitigation proposed.

8.1.5 **Further survey work is required with respect to amphibians, although the client may wish to rely upon Natural Englands District Licencing Scheme for Great Crested newts, with the assumption of presence. In which case additional survey need not be undertaken. Access to adjacent ponds at this time has been denied by the landowners.**

8.1.6 The vegetation to be cleared has a low ecological significance in the local area; the trees close to but outside the development area are generally of low quality.

8.1.7 The protection of trees on the site boundary and landscaping will promote structural diversity in both the canopy and at ground level and will maintain the ecological functionality of the site.

8.1.8 A buffer strip of vegetation should be created along the eastern boundary of the site adjacent to the ditch. This will ensure that the potential for species to commute along this feature is maintained.

8.1.9 Contractors will be observant for protected species and all nesting birds. Should any species be found during construction, all site works should cease and further ecological advice should be sought with a view to a detailed method statement and programme of mitigation measures being prepared and implemented.

9. REFERENCES

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10. APPENDIX

Feature / Hedge	Length 20m +	Hedge is not bounding the curtilage of dwelling	Hedge established more than 30years	Hedge boundary of protected or common land or land used for agriculture or forestry	ARCHAEOLOGY AND HISTORY	Archaeological feature which is included in the schedule of monuments	Situated wholly or partly within an archaeological site	Boundary of a pre-1600 AD estate	Integral part of a field system	Protected species records	FEATURES	Bank or wall	Gaps less than 10%	Standard trees	Ditch	Parallel hedge	Footpath/ Bridleway	Connection points	Woody species	Average ground flora species	HEDGE CLASSIFIED AS IMPORTANT
1	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	2	3	2	**No**
2	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	2	3	0	**No**
3	Yes	Yes	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	2	2	0	**No**
4	Yes	No	Yes	Yes		No*	No*	No*	No*	No		No	Yes	No	No	No	No	2	3	0	**No**
	No = Automatic failure					Yes = Automatic pass						7 woody species or 6 woody species + 3 features or 5 woody species + 4 features or highway + 4 woody species and 2 features									

* Historic and archaeological records have not been checked for this site.

Key

Boundary

Hedgerow Number

Hedgerow Regulations Assessment Map

Land off Castle Lane, Garstang

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