Ecology and Geology

Ecological Appraisal

St Mary Magdalene's Church, Stockland
Bristol

Report date:	15/08/2023
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Document History

Version	Purpose description	Originated	Checked	Authorised	Date
V0.1	Internal draft	DC	-	.	21/07/2023
V1.0	Final	DC	JF	KJ	08/08/2023

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The information and advice which Geckoella has provided has been produced using all reasonable skill and care and prepared in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. The opinions expressed are our true and professional bon fide opinions.

Please be aware that a report of this nature can only provide a snapshot of the site's ecological importance. The survey results and any recommendations contained within this report will remain valid for two years following the date of survey, assuming no significant change in the site.

Geckoella Ltd

Executive Summary

Purpose of the Report	Geckoella Ltd was commissioned by John McVerry to undertake a Preliminary Ecological Appraisal (PEA) of land situated at St Mary Magdalene's Church, Stockland Bristol, Bridgwater TA5 2PZ to inform proposals for the enhancement and repair work at the site. This report has been produced to outline the assessment of the existing ecological value of the site and the potential ecological constraints and opportunities relating to the proposed development and future habitat management.
Description of the Scheme	The proposals for the site include roof repair works to the vestry, nave and north aisle, and creation of a community education space within the north aisle. Repair is also required to the belltower and stairwell, in addition to general repointing works across the whole structure. Mature Yew trees along the northern boundary may also be subject to pruning. No works affecting the woodland and grassland of the site are proposed. Precise proposals are yet to be finalised at the time of writing.
Baseline Ecological Conditions	The Site itself is not subject to any statutory or non-statutory wildlife designation. There are three statutory designations within 2 km of the Site, the closest being Somerset Wetlands National Nature Reserve. The site comprises a church building set in a churchyard with broadleaved mixed and Yew woodland, other neutral grassland and priority hedgerow which is a Habitat of Principal Importance listed under Section 41 of the NERC Act 2006 (HMSO, 2006). A single Greater Horseshoe bat found in the boiler room confirmed bat roost presence. Bat droppings were also found in multiple places in the church including the belltower stairwell, the north aisle, chancel, and nave. Additional features were identified during the building inspection that were assessed as high suitability for bats. The site also has habitats with potential to support nesting birds, barn owl, hazel dormouse, invertebrates, reptiles, and section 41 species such as hedgehog.
Recommendations	A bat licence from Natural England will be required if features used by roosting bats will be affected by the works. This is likely to include the planned works to the boiler room roof/vestry floor; further survey work is needed to understand whether the license should also cover works to other areas/features. A Method Statement approach may be appropriate for general repair/maintenance where impacts can be avoided by following ecological advice. Any hedgerow or woodland vegetation to be removed must be subject to a check by the ECoW prior to start of works to check for evidence of protected species presence including nesting birds and dormice. Assuming the implementation of effective mitigation measures as set out in this report, no significant adverse ecological effects are predicted. Enhancements to the grassland, hedgerow and woodland habitat will benefit the Site for a variety of species present on site and in the surrounding areas. The inclusion of an artificial refugia should be incorporated and bat and bird boxes should also be included to enhance the Site for these species.

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1. Introduction

1.1. Report Scope and Approach

1.1.1. This report has been prepared by Geckoella Ltd for John McVerry. This report has been written following the approach laid out in CIEEM's 'Guidelines for Ecological Report Writing' (CIEEM, 2017).

1.1.2. It provides the details of an ecological assessment for land located at St Mary Magdalene's Church, Stockland Bristol, Bridgwater TA5 2PZ, hereafter referred to as 'the Site'.

1.1.3. The land is subject to proposed roof repair works to the vestry, nave and north aisle, and creation of a community education area within the north aisle. Major repair is required to the belltower and stairwell and general repointing works across the whole structure. There are also plans to reduce the size of the mature Yew trees on the northern boundary.

1.1.4. The objectives of the report are to:

- describe the baseline ecological conditions at the site
- map habitats within the survey area and evaluate their importance in the context of the wider environment
- describe the suitability of those habitats for notable or protected species
- identify significant ecological impacts relating to the development proposals
- summarize the requirements for further surveys and mitigation measures
- ensure that the proposed development will be acceptable in terms of planning legislation or other statutory consent and will comply with current wildlife legislation.

1.1.5. To meet these objectives, a field survey of the site was conducted by suitably qualified and experienced ecologists (Table 1) in suitable conditions (Table 2). The data collected has been used to inform the assessment of the existing ecological value of the site and enable the identification of potential ecological constraints and opportunities relating to the proposed development.

1.1.6. The data has also been used to inform any recommendations for mitigation, compensation, enhancement and/or further surveys that are made within this report.

1.2. Site Description and Location

1.2.1. The site is located on land at OS Central Grid Reference ST 24015 43619. The survey location and area are shown in Figure 1. Land up to 10 m from the site boundary was also checked where practical.

1.2.2. The site comprises a Grade II listed church building and associated churchyard with a small woodland area to the west. The total site area is 0.27 hectares.

1.2.3. The site is bordered by agricultural pasture to the North and South, with a minor public highway running along the southern border. WWT Steart Marshes Nature Reserve lies beyond to the north. Low-density residential housing and associated gardens lie to the west and east.

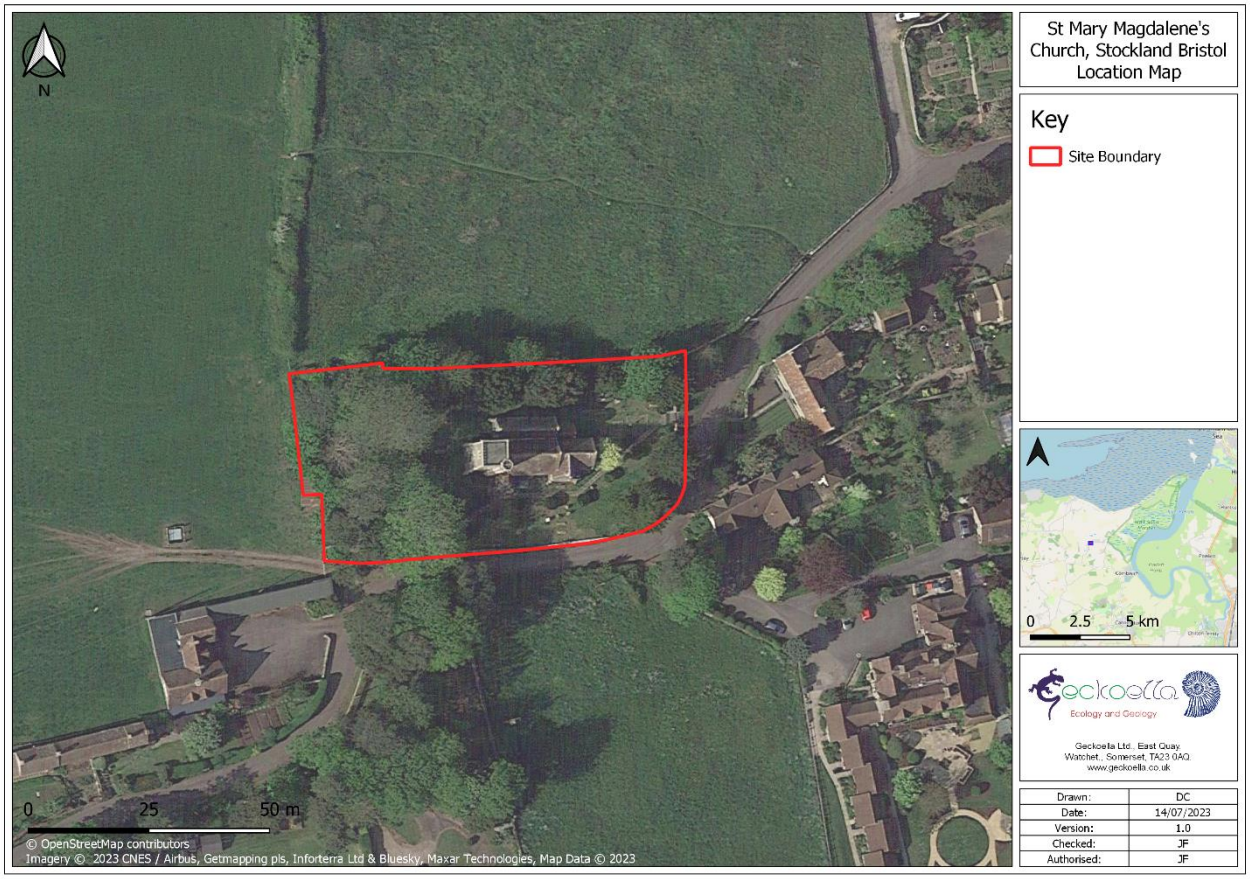

Figure 1. Site Location Plan

2. Development Proposals

2.1. Preliminary Site Layout

2.1.1. Current ordering of the church building (Figure 2) and the proposals (Figure 3) at the time of writing, include creation of a community education space within the north aisle with a toilet located in the current vestry space and accessed through a new hole in the east wall of the north aisle. This requires major works to re-align the floor level of the vestry to create a level access toilet, which will require alteration to the boiler room roof.

2.1.2. External works are confined to repair/maintenance works. The vestry, nave and north aisle require re-roofing, major works are required to the belltower and stairwell and general repointing and repairs are required throughout the building.

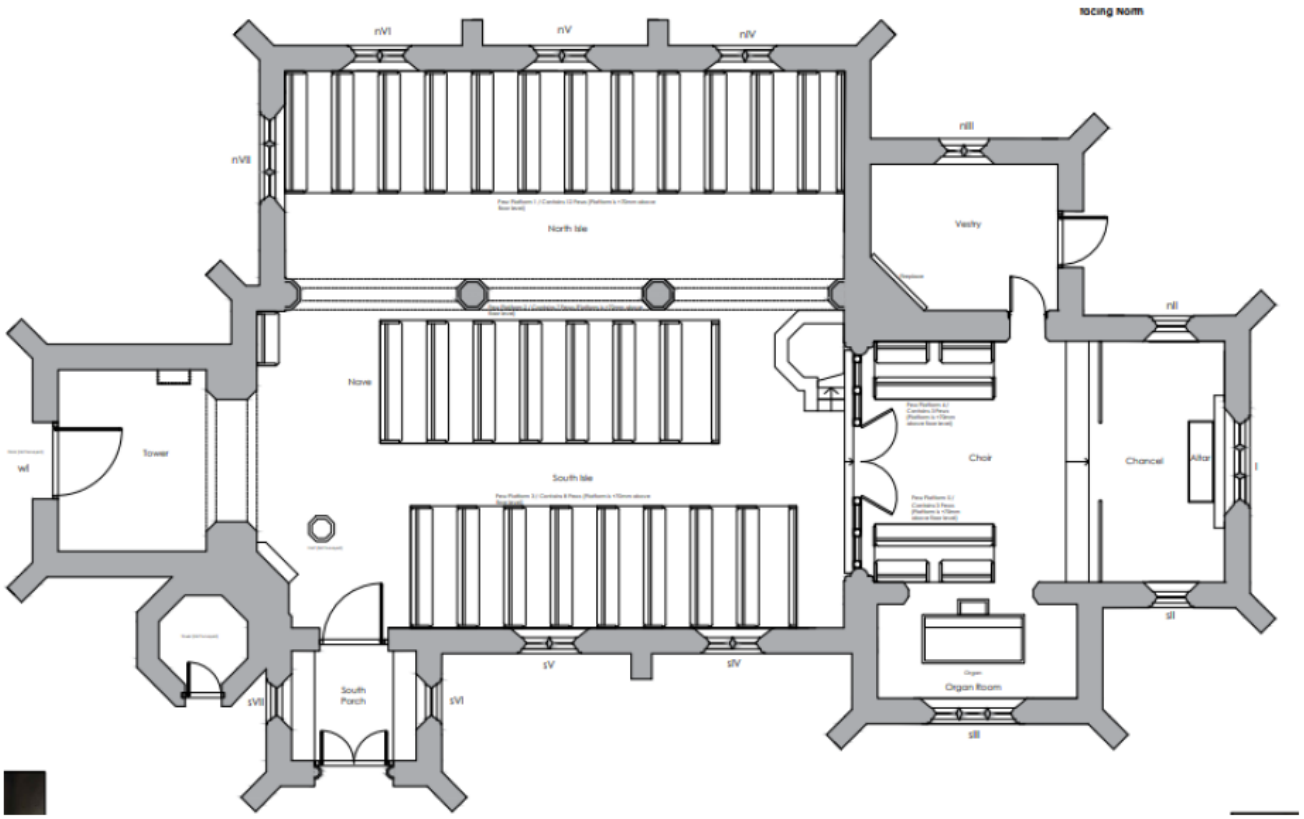

Figure 2. Current Layout of Church Building

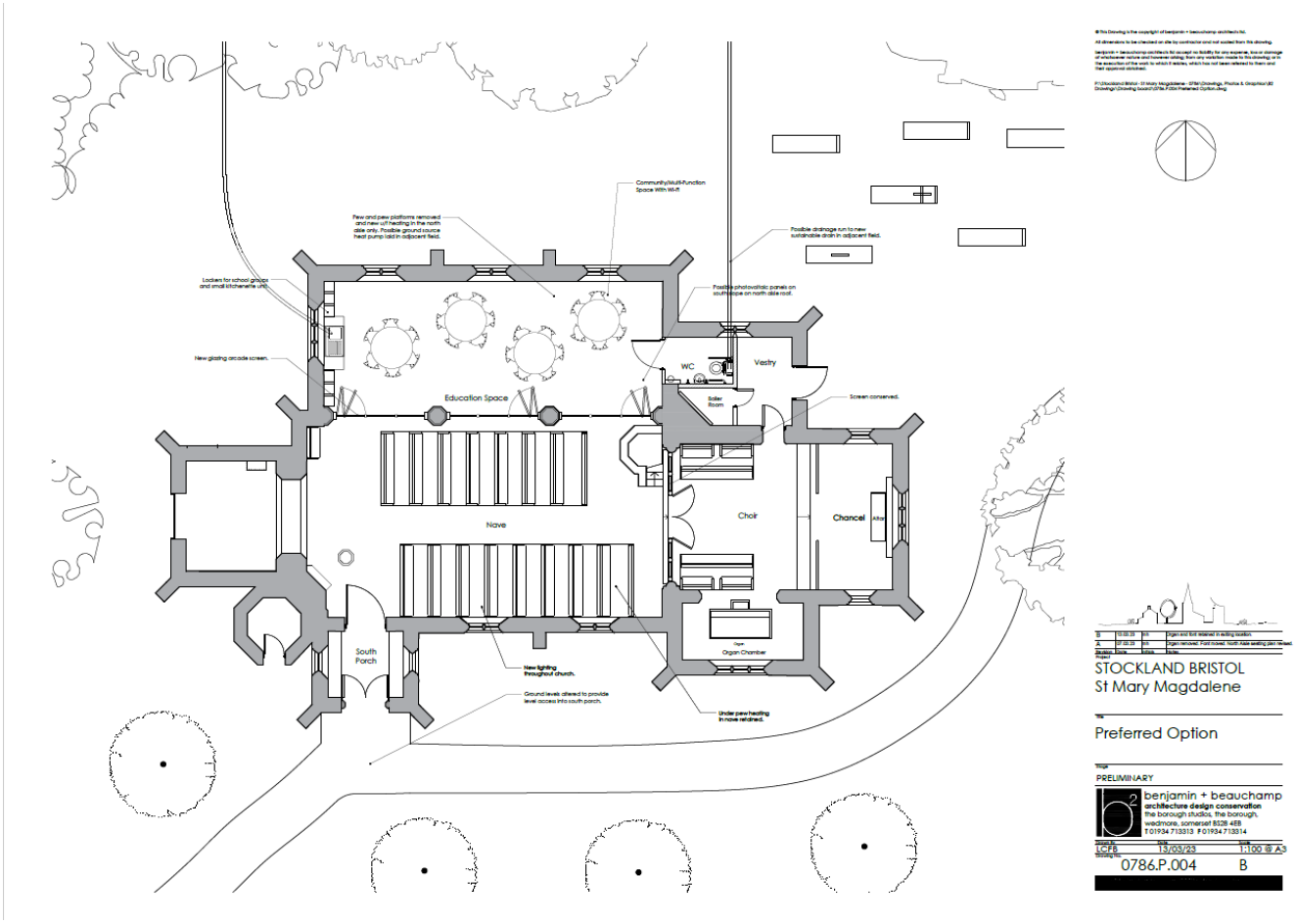

Figure 3. Development Proposals

3. Methodology

3.1. Scope of the Assessment

3.1.1. This assessment has been undertaken following the approach set out in the 'Guidelines for Preliminary Ecological Appraisal 2nd Edition' (CIEEM, 2017) and BS42020 'Code of practice for planning and development'. The assessment has considered 'Important Ecological Features' that are present within the 'Zone of Influence' of the project.

3.1.2. The Zone of Influence (ZoI) is the area over which the project could have an influence on ecological features. The ZoI is likely to vary for different features. However, in general terms the ZoI for this development proposal is considered to comprise the land within the red line boundary as well as immediate adjacent habitat features. It also includes designated nature conservation sites in the surrounding area, to the extent that these may be impacted by increases in visitor numbers.

3.1.3. The scope of the assessment was informed by a desk study undertaken in June 2023 and a field survey undertaken on 7th June 2023. The purpose of this was to identify the habitats on site, their potential for protected species and to establish the scope of surveys that would be required to inform a future planning application at the site.

3.2. Desk Study

3.2.1. A search for designated sites, priority habitats and granted European Protected Species (EPS) licences within 2 km of the site boundary was undertaken using publicly available information (Natural England, 2019).

3.2.2. A full data search was not commissioned for this ecological appraisal. In-line with guidance from CIEEM (2017b), because of the small scale of the proposals and the limited risk of impacts in the immediate surroundings and away from the site, this was not considered to be a significant limitation to the project.

3.3. Field Survey

3.3.1. An ecological walkover of the site was undertaken on 7th June 2023. Suitably qualified and experienced ecologists conducted the field survey.

Table 1. Details and experience of survey personnel

Date	Activity	Ecologist	Qualification / Licence	Experience
07/06/2023	Preliminary Appraisal and PBRA	Kate Jeffreys	BSc (Hons), MSc, MCIEEM Natural England class licence for bats level two	Co-Director and Head of Ecology at Geckoella, with over 20 years' experience in ecological consultancy.
07/06/2023	Preliminary Appraisal and PBRA	Dela Collins	BSc (Hons), MSc, Qualifying member of CIEEM	Dela is an Ecologist at Geckoella with three years' experience on a range of projects including protected species and habitat surveys and Ecological Clerk of Works for a major infrastructure project.

Date	Activity	Ecologist	Qualification / Licence	Experience
07/06/2023	Preliminary Appraisal and PBRA	Sophie Pearce	BSc (Hons), Student member of CIEEM	Sophie is an Assistant Ecologist at Geckoella. She has experience across a range of projects including protected species and habitat surveys and Ecological Clerk of Works for a major infrastructure project.

Table 2. Weather

Date	Activity	Temperature (°C)	Rain (0-5)	Cloud cover (Oktas[1])	Wind (Bft[2])
07/06/2023	Preliminary Appraisal	15	0	3	0

[1] An okta is a unit of measurement to describe the amount of cloud cover, it is measured on a scale ranging from 0 oktas (completely clear sky) through to 8 oktas (completely overcast).
[2] Beaufort is a measurement to describe wind speed, it is measured on a scale ranging from 0 (completely calm) to 12 (hurricane conditions).

3.4. Extended UK Habitat Classification Survey

3.4.1. A habitat survey of the Site was carried out using the UK Habitat Classification Survey version 1.1 methodology (Butcher, et al., 2020). This involved a survey of the Application Site to identify broad vegetation types, which were then classified within habitat categories and descriptions, using a minimum mapping unit of 25m2. A Habitat Survey map is provided in Appendix 2 and a botanical species list in Appendix 4. Vascular plant names recorded during this survey follow (Stace, 2019).

3.4.2. This survey technique allows the habitats identified to be evaluated for their potential to support legally protected species and other species of conservation concern, including species listed on the UK Post-2010 Biodiversity Framework (supersedes the UK Biodiversity Action Plan), and mammals assessed as being of conservation concern (The Mammal Society, 2018).

3.4.3. Target notes were used to record any habitats or features of ecological interest such as evidence of, or habitats with potential to support protected species, or to provide supplementary information on features which were significant to specific construction proposals, or too small to map, or to provide additional details, for example relating to species composition and structure.

3.5. Preliminary Bat Roost Assessment

3.5.1. The suitability of the buildings to support roosting bats was determined as part of the walkover survey. A Preliminary Bat Roost Assessment was carried out with reference to guidance published by the Bat Conservation Trust (Collins, 2016). This is an inspection of the building that includes searches for droppings, feeding remains, live or dead bats and characteristic staining associated with active roosts. All buildings were inspected internally where structurally safe to do so. Structures within the Application Site were checked for dark void spaces that could be suitable for maternity or other types of bat roost. This included, for example, spaces behind hanging or roof tiles, cracks in bricks and stone features, or any loft or similar roof voids, if accessible. The assessment looked for the presence of potential roost access features such as loose or missing roof tiles, lifted lead flashing, cracks in stonework or gaps in weather boards in the case of buildings.

3.5.2. Where possible, features were categorised as high, moderate, low, or negligible potential as set out in guidance to best practice (Collins, 2016) outlined in Table 3 below.

3.5.3. Where droppings are found a sample will be taken to allow for the sample to be sent off for DNA analysis, to confirm species identification if there is still a question of the species roosting on site following any further recommended surveys.

3.5.4. Equipment used included a bat detector, binoculars, camera, endoscope, gloves (disposable), head torch, ladder (3m), ladder base support device.

3.6. Other Protected and Notable Species

3.6.1. An assessment of the potential of the site to support other protected and notable species, including Section 41 species (NERC Act, 2006) was carried out, such as badgers, reptiles, and hedgehogs.

3.7. Limitations

3.7.1. The site was fully accessible, and the surveys were undertaken in suitable conditions.

3.7.2. The entire site was surveyed, with the exception of the roof space above the Nave and North Aisle where access was not possible. This limitation will be addressed through taking a precautionary approach within the appraisal and recommendations. Therefore, it was considered that there were no significant limitations to the assessment.

Table 3. Guidelines for Assessing the Potential Suitability of Buildings/Structures (Collins 2016)

Category	Indicators (Buildings only)
Negligible	**Negligible habitat features on site likely to be used by roosting bats.**
Low	**A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roosts sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation).**
Moderate	**A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status.**
High	**A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.**
Known roost	**Structures with known current use by bats, sightings of bat emergence, re-entry or swarming, presence of bats within roost, audible social calls by bats or fresh bat droppings.**

4. Baseline Ecological Conditions

4.1. Designated Sites

4.1.1. The Site itself is not subject to any statutory or non-statutory nature conservation designation. However, the Somerset Wetlands National Nature Reserve (WWT Steart Marshes Reserve) is located 150m north of the Site.

4.1.2. A list of statutory and non-statutory sites within 2km of the Site boundary is shown in Table 4.

Table 4. Summary of Ecology Designations

Designated Site Name	Designation	Distance	Description / Relevance
Somerset Wetlands	NNR	150m	An archipelago of interconnected nature reserves in the Somerset Levels and Moors, which is the largest remaining area of lowland wetland in England. Includes a range of wetland habitats which hold nationally and internationally important populations of wildfowl and wading birds.
Severn Estuary	RAMSAR/SAC/SPA/SSSI	1.6km	An extensive intertidal zone comprising intertidal mudflats, sand banks, saltmarsh, shingle, and rocky platforms. Flora and fauna communities typical of extreme physical conditions occur at the site

4.1.3. Given the scale and nature of the development and distance from designated areas, it is anticipated that there will be no direct or indirect impacts on the statutory designated areas within 2km of the Site. Statutory designated areas are therefore not considered further in this assessment.

4.2. Habitats

4.2.1. The Site is set in a rural landscape comprising low density housing, woodland, arable and agricultural fields intersected by hedgerows. An unnamed minor public highway was located along the southern boundary of the Site.

4.2.2. The Site comprised the main church building with associated churchyard and woodland within the curtilage. The potential impacts caused by the proposed works to the building are discussed in the individual protected/notable species sections below.

4.2.3. The habitats found within the Site are described below and shown on the UK Habitat Classification Map in Appendix 2. The alphanumeric codes correspond to habitat categories in the UK Habitat Classification system and habitat reference codes are provided in brackets throughout which correspond with those on the habitat map.

4.2.4. The site comprises two areas of 'other neutral grassland' (UK Hab Code g3c, secondary code 820, (Habitat references 1 & 2), approximately 1814m^2 and 344m^2, respectively. The grassland was considered to best match the habitat type, as the sensitive management is enhancing species richness with a good population of Primrose. The grasslands contain scattered mature yew *Taxus baccata*, Field Maple *Acer campestre*, Elder *Sambucus nigra* and other coniferous *conifer sp.* Trees (Target Note 1 in Appendix 2) and frequently mown paths allowing access to graves.

4.2.5. The larger grassland (Habitat reference 1) comprised the main churchyard area with mostly graves surrounding the church building (UK Hab Code u1b5, habitat reference 6). There was a concrete path (UK Hab Code u1e, habitat reference 7) leading from the two access gates at either end of the site to the main door of the church. This path was lined with 14 mature yew trees (Target Note 2 in Appendix 2). The area was more species-rich than the other grassland area and dominated by species such as Crested Dog's-tail *Cynosurus cristatus*, False Oat-grass *Arrhenatherum elatius*, Beaked Hawk's-beard *Crepis vesicaria*, Daisy *Bellis perennis* and Cowslip *Primula veris*. Other species included Perennial Rye-grass *Lolium perenne,* Oxeye Daisy *Leucanthemum vulgare*, Wood Avens *Geum urbanum*, Herb-Robert *Geranium robertianum*, Wild Madder *Rubia peregrina*, Common Sorrel *Rumex acetosa subsp. acetosa*, Primrose *Primula vulgaris*, Yellow-rattle *Rhinanthus minor*, Creeping Buttercup *Ranunculus repens*, Hogweed *Heracleum sphondylium*, Bramble *Rubus fruticosus agg*., Wood Dock *Rumex sanguineus*, Meadow Buttercup *Ranunculus acris*, Common Dandelion *Taraxacum officinale*, Germander Speedwell *Veronica chamaedrys*, White Clover *Trifolium repens*, Greater Plantain *Plantago major*, Ribwort Plantain *Plantago lanceolata*.

4.2.6. A strip of grassland (Habitat reference 2) on the northern boundary displayed indicators of transitional habitat between grassland and woodland ground flora and was more species-poor than the larger area of grassland. It was dominated by False Brome *Brachypodium sylvaticum* and various tree species saplings such as Sycamore *Acer pseudoplatanus*, Hawthorn *Cretaegus monogyna*, and Common Nettle *Urtica dioica*. Other species present included Wood Dock, Wood Avens, Bramble, Hogweed, Sow-Thistle *Sonchus sp*., Greater Plantain, Ribwort Plantain, *Iris sp*, Black Bryony *Tamus communis*, Lords-and-Ladies *Arum maculatum* and Hedge Mustard *Sisymbrium officinale*. The whole area was overshadowed by a line of large mature yew trees which likely date back to at least the 1860s.

4.2.7. A hedgerow (priority habitat) (UK Hab Code h2a, habitat reference 5) was present along the northern boundary comprising of a range of native woody species such as, Holly *Ilex aquifolium*, Elder, Sycamore, Hawthorn, Dogwood *Cornus sanguinea* and Wild Privet *Ligustrum vulgare* with Common Ivy *Hedera helix s.s*., Bramble, Common Nettle, and mixed species of tree saplings dominating the ground flora. The hedgerow was interspersed with mature yew trees. The hedgerow was a poor example of the habitat type likely due to overshadowing by these mature trees.

4.2.8. To the west of the church building is a broadleaved mixed and Yew woodland (UK Hab Code w1, habitat reference 8) approximately 479m^2. The area was primarily mature tree species including Sycamore, Yew, *Conifer sp*., Beech, and Turkey Oak *Quercus cerris*. With an Elder and Wild Privet understorey. Ground cover was dominated by Common Ivy and Dog's Mercury *Mercurialis perennis*, Common Nettle and Cleavers *Galium aparine* were also present. A Beech tree and two Conifers were displaying signs of stress with dead wood in canopy and minimal lower branches, respectively.

4.2.9. The site is surrounded by two built linear features (UK Hab Code u1e, habitat references 3 & 4), mostly a low mortared wall (Habitat reference 3) with exception to the north western corner where a barbed wire fence (Habitat reference 4) completes the boundary. An extension of the low mortared wall separates the woodland and grassland areas with an access gap to the north. Common Ivy heavily covered these mortared wall features.

4.2.10. Several compost heaps were present of site. Two smaller piles consisting predominantly grass cuttings (Target Note 3a in Appendix 2) and one larger pile with a mix of vegetation detritus (Target Note 3b in Appendix 2).

4.3. Section 41 Priority Habitats

4.3.1. The MAGIC online mapping application (DEFRA, 2019) includes datasets that identify areas with high potential of comprising priority habitats as defined by Section 41 the NERC Act (2006).

4.3.2. MAGIC shows two priority habitat parcels nearby. A parcel of Traditional Orchard which is approximately 90m to the east of the Site and a large parcel of Coastal and Floodplain Grazing Marsh which is approximately 140m to the north. This habitat is likely associated with the WWT Steart Reserve.

4.3.3. The hedgerow (Habitat reference 5) on site is a priority habitat as defined by Bickmore (2002) as such as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less that 20m wide consisting predominantly (i.e., 80% or more cover) of at least one woody UK native species. This feature is currently poor in condition likely due to the overshadowing caused by mature Yew trees along the hedgerow. There is no anticipated potential impact on this habitat however it would benefit from enhancement, which is further discussed in section 6.

4.4. Badger

4.4.1. No evidence of badgers was found on Site. However, it is possible that badgers may use the Site for foraging or commuting and therefore, they should be considered during construction. Precautionary recommendations are therefore made in Section 5.

4.5. Bats – Preliminary Bat Roost Assessment

4.5.1. A search returned one granted European Protected Species License (EPSL) for bat species including, common pipistrelle and soprano pipistrelle approximately 100m from Site.

4.5.2. Personal communication with the client highlighted the historical presence of roosting bats in the boiler room below the vestry in January 2020.

4.5.3. The church building is a Grade II listed building dating back to the 1860s, constructed primarily of Blue Lias building stone with Bath Stone ashlar. It is a single storey building with a three-storey belltower to the western end. The stonework had multiple crevices and gaps at roof height providing access for bats. There is also a basement-level boiler room beneath the vestry, in the north-eastern corner, which had suitable access points for bats above the door leading from the stone access steps and via the disused coal shute, partially covered by a metal plate. The main roof covering was a mixture of mostly clay tiles with lead flashing, decorative features, and ornate stonework. Much of this was in poor repair with potential access points and roost features in flashing/leadwork, ridge and roof tiles, wall stonework and crevices/gaps created by missing mortar. Internally, the roof has sarking boards and was vaulted in most locations. There were solid stone floors with grills leading to small cavities beneath the floor. The stone floor also provided a stone ceiling in the boiler room. There were multiple windows, all in good condition and likely providing no suitable access points.

4.5.4. Evidence of roosting bats was found in multiple locations throughout the building. A single hanging greater horseshoe bat was recorded roosting in the boiler room. Scattered bat droppings of mixed ages and sizes were found throughout the north aisle, nave, and chancel with some accumulation beneath potential access points in the internal ceiling. There is likely potential access to the space between boards and tiles via roof features which then provides access to the church interior from gaps between boards and walls. A hatch between the main interior and the belltower could also provide access. It is likely that two species are using the interior space. A cluster of droppings (potential greater horseshoe bat) were found below a potential hanging spot at the door of the bell ringing chamber in the belltower stairwell. Further to this, potential feeding remains (tortoiseshell butterfly wings) were found in the bell ringing chamber within the belltower. Potential access point is likely the door at the top of the stairwell which has a gap suitable for bats or gaps in stonework. However, the noise from the bells may limit use by bats. The space is likely limited to a night roost only by daylight from windows throughout stairwell.

4.5.5. The locations of exterior potential access points as well as evidence of bats, i.e., identified live bat, bat droppings and feeding remains seen inside the buildings can be seen in Appendix 3.

4.5.6. The building was assessed to have known potential for roosting bats and will be further discussed in Section 5.

4.5.7. The Site does have habitats suitable for use for foraging and commuting bats including trees, hedgerow, woodland, and grasslands. These habitats connect to a wider landscape which could be used by bats for foraging. The hedgerow and woodland on site also provide suitable commuting routes to the wider landscape. The site was assessed to have high potential for foraging and commuting bats (Collins, 2016).

4.5.8. The Site currently has no artificial lighting, and none present within proximity of the Site.

4.6. Birds

4.6.1. Although the Site is close to sites designated for overwintering and breeding wading birds, there are no suitable habitats on site to support large assemblages however, individual birds may occasionally use the site.

4.6.2. Several common species were observed using the habitats on Site. Suitable habitats, include hedgerow, woodland, grassland, and trees. It is also possible that species could utilise the structure of the building for nesting.

4.6.3. Within the woodland, there was evidence of heavy use of the area by corvid species *Corvidae sp.*, likely Rook *Corvus frugilegus* nesting in the mature trees (pers. Comm, resident 2023).

4.6.4. A Barn Owl *Tyto alba* nest box (TN4) was noted in a mature beech tree to the north of the woodland, suggesting this species is present within the local landscape. Although the box appeared inactive, it does not rule out future use. As birds may pose a constraint to the proposed development, recommendations are provided in Section 5.

4.7. Dormice

4.7.1. The habitats on site are suitable for dormice because of the species diversity and connectivity with the wider landscape via hedgerows. Due to this, they may pose a constraint to the proposed development and recommendations are provided in Section 5.

4.8. Great Crested Newt

4.8.1. No suitable breeding habitat for Great Crested Newt, has been recorded within the Site. However, nearby waterbodies are suitable as is the terrestrial habitat on Site therefore, a precautionary method statement approach is recommended to protect this species from harm during construction and is detailed in Section 5.

4.9. Invertebrates

4.9.1. Grassland and scrub habitat present on Site are suitable for invertebrates, however the proposals are unlikely to impact on this species group and therefore they will not be discussed further.

4.10. Otter and Water Vole

4.10.1. No suitable habitat was found within the Site and therefore these species will not be discussed further

4.11. Reptiles

4.11.1. Habitats within the Site are suitable for use by reptiles, with areas of grassland and scrub, suitable for basking. A precautionary method statement approach is recommended to protect this species from harm during construction and is detailed in Section 5

4.12. Hedgehog

4.12.1. Given that habitats are present on Site that are suitable for use by hedgehog, precautions to protect them from harm during construction are given in Section 5. Hedgehogs are a species of principal importance under S41 of the NERC Act (2006)

4.13. Invasive Species

4.13.1. No non-native invasive species were found within the Site and will therefore not be discussed further in this report.

5. Recommendations

5.1.1. General mitigation, compensation and enhancement measures are described below where appropriate; however, these should be updated as appropriate following recommended surveys.

5.2. Designated Sites

5.2.1. Due to the scale and nature of the proposals and distance of the site from and designated areas, no designated sites will be directly impacted.

5.2.2. The site is within the SSSI Impact Risk zone in relation to the Severn Estuary SAC/SPA/Ramsar/SSSI. However due to the nature of the planned works any potential impact on the SSSI is extremely unlikely.

5.2.3. The development is of insufficient scale and potential impact to require formal consultation with Natural England.

5.3. Habitats

5.3.1. Given the proposals for the development, no loss of habitat will occur.

5.3.2. There will be no impacts on Section 41 Priority Habitats.

5.4. General Protected Species Mitigation

5.4.1. The following general mitigation measures are recommended although they may be added to following the completion of further survey work. The following recommendations are advised during the construction phase of the project to avoid causing harm to mammals such as badger and otter using, or passing through, the Site:

- Excavations to be covered at night and open pipework larger than 150mm outside diameter to be blanked off at the end of each working day; any ditches, pits or trenches will be covered or excluded to prevent wildlife from becoming trapped; additionally, a wildlife ramp should be laid from the bottom of the pit to the surface, at a 45-degree angle, to allow wildlife to escape from the pit.

- Avoidance of overnight lighting during the construction phase (e.g., security lighting) to avoid impact on bats and other nocturnal species.

- Any necessary piling of materials will be kept on pallets (i.e., off the ground) to avoid creating refugia for species such as reptiles or hedgehogs, which could be injured or killed when the materials are moved.

- Storage of equipment and materials (i.e., COSHH, waste etc.) should be in line with construction good practice measures thus avoiding harm to animals using the Site.

5.5. Bats

5.5.1. The proposals are likely to directly impact roosting bat habitat. This is due to the proposal leading to alteration and renovation of multiple parts of the building structure.

5.5.2. Bat roosts have been confirmed in two locations, boiler room and belltower stairwell There is likely roost presence behind roof boards and under tiles in the chancel and east gable and bats free flying in the north aisle and nave. There is also high potential for bats elsewhere in the building.

5.5.3. As such further surveys are recommended prior to carrying out the proposed re-roof of vestry, nave & north aisle and major works to belltower and stairwell. As presence has already been confirmed within the building, roost characterisation surveys should be conducted to collect sufficient information to inform impact assessment and design of mitigation measures. Roost characterisation surveys should include emergence/re-entry surveys. A minimum of three separate survey visits are required. This information may be required to inform the construction of a like-for-like replacement roost where the original roost will be lost and is essential when applying for an EPS licence (Collins, 2016).

5.5.4. DNA analysis of collected droppings is recommended to determine species present. The use of automated/static bat detectors throughout the year is also recommended to determine pattern of use. However, it is possible that bats flying outside a structure may be detected through windows and gaps in the building structure therefore this should be used as a complementary method to the above.

5.5.5. Further inspections are recommended to assist with the development of a Method Statement to aid general repointing and maintenance tasks, as well as determining pattern of use. However, a bat licence may be required for works that will affect features used by roosting bats as highlighted from surveys recommended above as there is potential additional risk for indirect effects of disturbance / obstruction of bat access points to known roosts.

5.5.6. Due to confirmation of presence within the boiler room, a bat license from Natural England will be required for the planned works to the boiler room roof/vestry floor area. It is essential that any works or further inspections are carried out either within or close to this area are only carried out under the guidance of a licensed bat ecologist.

5.6. Birds

5.6.1. To mitigate potential direct and indirect impacts on nesting birds, disturbance should be kept to a minimum, localised to the Site location and not encroach on the hedgerow (Habitat reference 5) and woodland (Habitat reference 8) habitat.

5.6.2. Works around bird nesting habitats should be undertaken outside of the nesting bird season (April – September incl.) and should avoid dawn and dusk, to account for Barn Owl sensitivity to noise and vibration.

5.6.3. If building works or vegetation removal must be undertaken during the nesting bird season, the area must be checked in advance, by an appointed Ecological Clerk of Works (ECoW). If there is no evidence of nesting birds, the vegetation clearance work must be completed / building works begun within 48 hours of inspection. If any active nests are identified, works must cease and an appropriate buffer zone established around the nest (as determined by the ecologist, usually approximately 5m). The buffer zone must remain intact until it has been confirmed that the young have fledged, and the nest is no longer in use.

5.7. Dormice

5.7.1. As main works are constrained to the church building itself, there is unlikely to be impact on dormice. To ensure this, works should not encroach on the hedgerow (Habitat reference 5) and woodland (Habitat reference 8) habitat, and this should be included in an exclusion zone set out by the ECoW.

5.7.2. There is potential that part of the proposed development may involve pruning some Yew trees along the northern boundary (pers. comms, resident 2023). To mitigate potential impacts, the trees and surrounding suitable habitat features must be checked in advance, by the ECoW. Vegetation removal works must be completed within 48hrs of inspection.

5.8. Great Crested Newt and Reptiles

5.8.1. The main works are constrained to the church building itself however, to facilitate access to the building, works will likely cause disturbance to the grassland habitat and has the potential to cause impact on Great Crested Newts or reptiles.

5.8.2. Working areas will be subject to a method statement which should include habitat manipulation, hand searches of potential amphibian/reptile refugia habitat and targeted works supervision. It may be necessary to undertake a staged strimming regime under ECoW supervision to encourage GCN and reptiles to leave the working area and also dissuade them from re-entering the area.

6. Enhancements and Opportunities

6.1. Habitats

6.1.1. The existing sensitive management of the grassland (Habitat reference 1 & 2) is benefitting biodiversity and should be continued. Management should include one cut per year which should be undertaken in late summer to allow for wildflowers to set seed, and sward arisings should be removed to reduce nutrient levels favouring wildflowers. Footpaths should continue to be maintained regularly to prevent unwanted foot traffic across grassy buffers. Additionally, the grassland could be supplementary planted using plug planting with species suitable for loamy/clay soils or using a technique such as ‘green hay’ to promote local species diversity which can be sourced locally through nature reserves or hay meadow pasture.

6.1.2. We recommend a management plan to bring together all aspects, set out stages for each habitat and monitor progress. Example churchyard management plans can be found here, Wilder Churches | Somerset Wildlife Trust. This could provide opportunity to enable connections with nature for visitors improving health and wellbeing as well as roles for volunteers involving management and monitoring.

6.1.3. The existing hedgerow (Habitat reference 5) could be improved through a range of management techniques such as hedge laying to promote new stronger growth from within creating a thicker healthier habitat for a variety of species. Supplementary planting of a range of native species and those of known value to wildlife such as, Honeysuckle *Lonicera periclymenum*, Guelder-rose *Viburnum opulus* and Blackthorn *Prunus spinosa* will further enhance the habitat. The hedgerow (Habitat reference 5) and surrounding ground flora (Habitat reference 2) are heavily overshadowed by the mature Yew trees. Pruning some of these trees may benefit the hedgerow, allowing more light penetration and supplementary planting of shade-tolerant species such as Snowdrop *Galanthus nivalis,* Common Dog-violet *Viola riviniana,* Honesty *Lunaria annua,* Lesser Periwinkle *Vinca minor,* Lily Of The Valley *Convallaria majalis* and Primrose, will further enhance the Site.

6.1.4. The woodland (Habitat reference 8) would benefit from management, pruning and thinning out of unhealthy and non-native trees will allow more light penetration to the understorey and ground flora. The ground flora should be improved through clearing of dense Ivy growth and supplementary planting of a woodland seed mix such as Emorsgate Seeds mixture.

6.1.5. A transitional buffer between the woodland edge (Habitat reference 8) and grassland (Habitat references 1 & 2) using scrub species such as Hazel *Corylus avellana*, Hawthorn, Blackthorn and Bramble would benefit the grading between habitat types.

6.2. Species

6.2.1. The installation of bat and bird (for common species) boxes on mature trees in the woodland at a height of >3m.

6.2.2. A range of flowering and fruiting plants, including those listed above and species recommended by the bat conservation trust, such as Common Knapweed *Centaurea nigra*, should be incorporated into the grassland to enhance value of the site for pollinators by providing suitable foraging resources for wildlife, including invertebrates, bats, and birds (Bat Conservation Trust, 2015).

6.2.3. Management of the woodland canopy and ground flora will enhance foraging opportunities for a range of protected/notable species including bats, invertebrates, and birds. Supplementary woodland and scrub planting at woodland (Habitat reference 8) edge and laying the hedgerow will enhance to provision of refugia and foraging opportunities for a range of invertebrate, bird and small mammal species including hedgehog.

6.2.4. Dead wood and any woody material should be retained onsite and stacked into refugia piles, for example near the hedgerow (Habitat reference 5) and creation of a specific compost area will provide habitat for invertebrates and herptiles.

7. Conclusion

7.1.1. Confirmed bat roost presence was found on Site and further roost characterisation surveys are recommended to determine species and pattern of use and the impact their presence may cause on proposed works.

7.1.2. Given the proposals for the development, there will be loss of a bat roost and likely disturbance of other roosts. There is also potential for impact on other protected species.

7.1.3. The timing of works needs to be undertaken outside of nesting bird season, to minimise any potential risk, or be subject to a pre-works check for nesting birds.

7.1.4. Any hedgerow or woodland vegetation to be removed must be subject to a check by the ECoW prior to start of works to check for evidence of protected species presence including dormice.

7.1.5. Enhancements for the habitats as well as foraging, commuting, and nesting opportunities for a range of protected /notable species are included and detailed in Section 6.

7.1.6. A Management Plan is recommended to detail the timescale and location of works to benefit wildlife, and to encourage community engagement in monitoring and management.

7.2. Data longevity

7.2.1. A re-fresh of the field and desk study data is recommended if works are delayed by two years or more from the date of this report. This is because wildlife changes with time, so the ecological importance of different features within the Site may also change with time.

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Appendices

Appendix 1: Legislation and Policy

The Environment Act 2021

The Act aims to improve the environment in various aspects including biodiversity, it includes long-term targets and measures to protect nature and reduce pollution including provisions to strengthen and improve the duty on public bodies to conserve and enhance biodiversity, including mandating a biodiversity net gain through the planning system.

Biodiversity Net Gain (BNG) is a concept of achieving a measurable improvement in biodiversity as a result of development projects or land use changes. In the UK, this approach has gained increasing attention in recent years, with policymakers and developers recognizing the need to protect and enhance the UK's natural environment. The Environment Act 2021 includes provision for a new mandatory requirement for proposed developments to provide 10% BNG

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

The conservation of Habitats and Species Regulations transpose the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora ("The Habitats Directive") into law.

The Regulations consolidated the various amendments made to the Conservation (Natural Habitats, &c.) Regulations 1994 and the Conservation of Habitats and Species Regulations, 2010 (as amended), in respect of England and Wales. The regulations provide for:

- Designation and protection of Special Protection Areas (SPA) and Special Areas of Conservation (SAC) including the need for Appropriate Assessment of plans and proposals.
- Protection of protected species.
- Adaptation of planning and other controls for the protection of Sites; and
- Make it an offence (subject to exceptions) to deliberately capture, kill, disturb, or trade inthe animals listed in Schedule 2 of The Habitats Directive.

No steps that will impact upon a protected species or its habitat can be undertaken unless authorised by a European Protected Species license issued by Natural England. Such a license is granted after planning consent has been granted and once Natural England are satisfied that adequate measures are to be put in place to mitigate for the impact of the development.

Wildlife and Countryside Act 1981 (as amended)

The Act implements the Convention of European Wildlife and Natural Habitats (The Bern Convention) and the Directive 2009/147/EC 'The Birds Directive'.

The 1981 Act has been amended by the Countryside and Rights of Way (CROW) Act 2000.

Schedules 1 (birds) and 5 (animals) of the Act identify species of bird and other animal in relation to which the Act makes killing, injury, taking and disturbance an offence while Schedule 8 to the Act lists species of plant in relation to which the Act makes it an offence to intentionally pick, uproot or destroy.

Section 14(2) of the Act makes it an offence to cause any species of animal or plant listed in Schedule 9 of the Act to grow in the wild. Of these species, those encountered frequently in

land development and regeneration projects include Japanese knotweed, giant hogweed, floating pennywort.

The Act further provides for notification and confirmation of Sites of Special Scientific Interest (SSSI) for their flora, fauna, geological or physiographical features. It also contains measures for the protection and management of SSSIs.

The Natural Environmental and Rural Communities Act 2006 ('NERC')

NERC sets a duty on public bodies (including Local Authorities) to have due regard for habitats and Species of Principal Importance for biodiversity in England when carrying outtheir duties.

Section 41 (S.41) the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list is used by decision-makers, such as Local Authorities, in implementing their protection duties under this Act when carrying out their functions.

The S.41 list includes 56 habitats and almost 1000 Species of Principal Importance in England. Since the UN Convention on Biological Diversity (CBD) in 2010 the UK identify these habitats and species as conservation priorities under the UK Post-2010 Biodiversity Framework (they were formerly identified as UK BAP habitats and species).

Protection of Badgers Act 1992

The Act protects badgers from persecution rather than being a response to unfavourable conservation status. The Act makes it an offence to:

- Wilfully kill, injure, take, possess, or cruelly ill-treat a badger; or attempt to do so; or
- To intentionally, or recklessly, interfere with a sett.

Badgers and their setts are frequently encountered in both urban and rural areas and as such land development and regeneration projects have the potential to affect badgers and/or their setts. If an offence is likely to result an effective mitigation plan much be agreed with Natural England and authorised by licence before work proceeds.

Wild Mammals (Protection) Act, 1996

Under the Wild Mammals (Protection) Act 1996 it is an offence to cause unnecessary suffering to wild mammals, including crushing and asphyxiating. This Act is primarily concerned with animal welfare and aims to prevent cruelty. As a result, offences include those actions with theintent to inflict unnecessary suffering. A wild mammal includes any mammal which is not domestic or captive. Red foxes, wild deer, and other mammals such as rabbits are therefore covered by the Act.

National Planning Policy Framework (NPPF) July 2021

The NPPF (Ministry of Housing, Communities and Local Government, July 2021) sets out a broad framework of policies for the planning system in England and how they should be applied. Underpinning the framework is the principal aim of 'sustainable development' which

is to be pursued through the fulfilment of interdependent economic, social, and environmental objectives.

Chapter 15 of the NPPF details core policy principles with respect to conserving and enhancing the natural environment. Securing 'measurable net gains' for biodiversity, in accordance with the Government's 'A Green Future; Our 25 Year Plan to Improve the Environment' paper is a key theme running through the Chapter, whereby planning decisions are required to contribute to and enhance the natural environment by "*minimising impacts on and providing net gains for biodiversity*", and plans should "*identify and pursue opportunities for securing measurable net gains for biodiversity*". The Chapter also places planning decisions in the context of the mitigation hierarchy where, if impacts on biodiversity cannot be avoided, mitigated, or as a last resort compensated for, then planning permission should be refused.

British Standard BS4202: 2013 'Biodiversity – Code of practice for planning and development'

British Standard to promote a rigorous professional scientific and consistent approach to gathering, analysing, presenting, and reviewing ecological information at key stages of the planning application process.

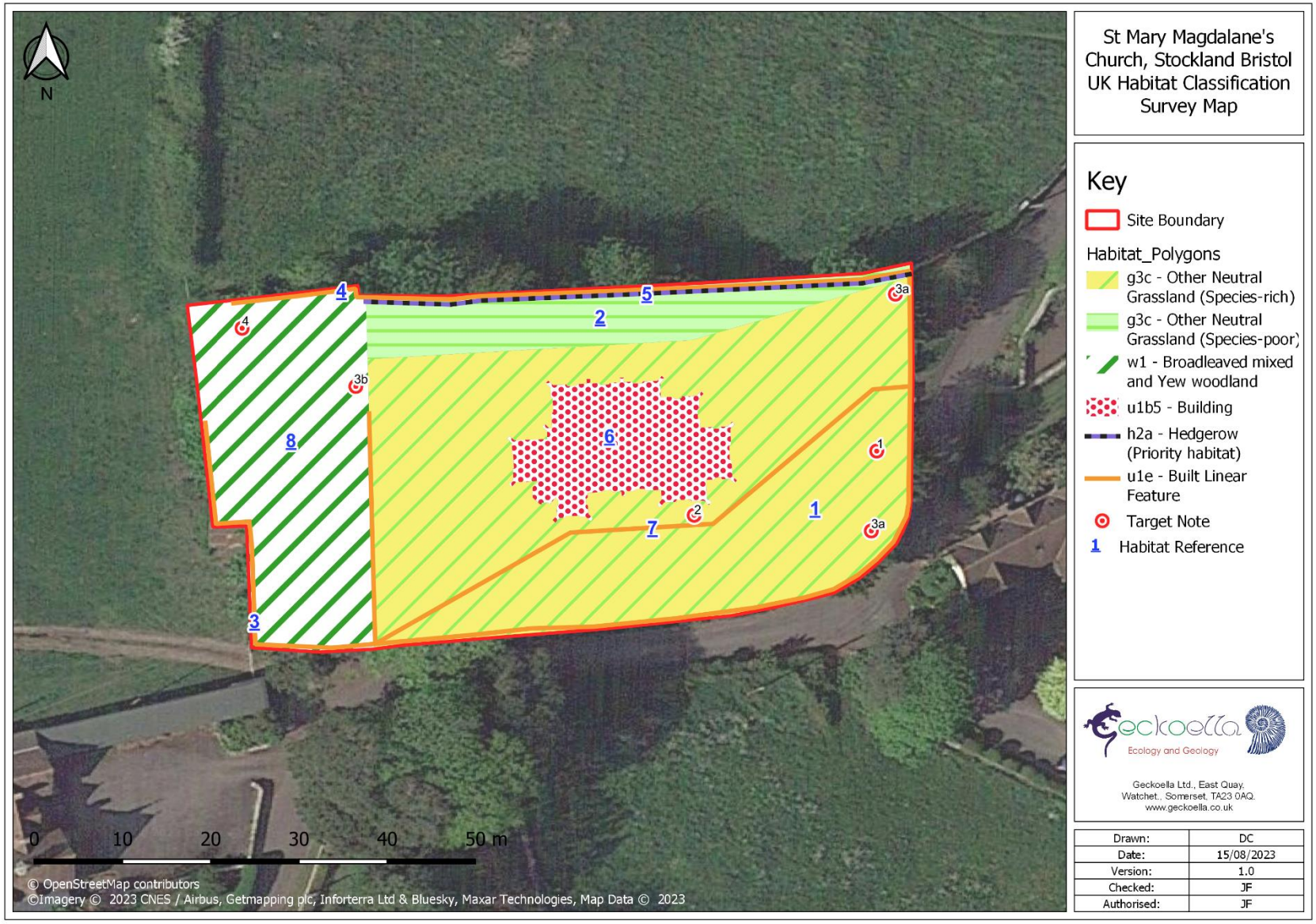
BS4202:2013 ISBN 978 0 580 77917 6 sets out a standard approach intended to promote submission of transparent and consistent ecological information of appropriate quality to inform with planning applications and applications for other regulatory approvals.

Sedgemoor Local Plan 2011 – 2032

Sedgemoor Local Plan sets out a framework of policies relating to the Sedgemoor District.

Policy D20 of the Sedgemoor Local Plan refers to Biodiversity and Geodiversity. The policy discusses the requirement for development to contribute to maintaining and enhancing biodiversity. It states that developments will be supported where they retain or enhance ecological features of interest and that in the first instance development should avoid significant harm to these features.

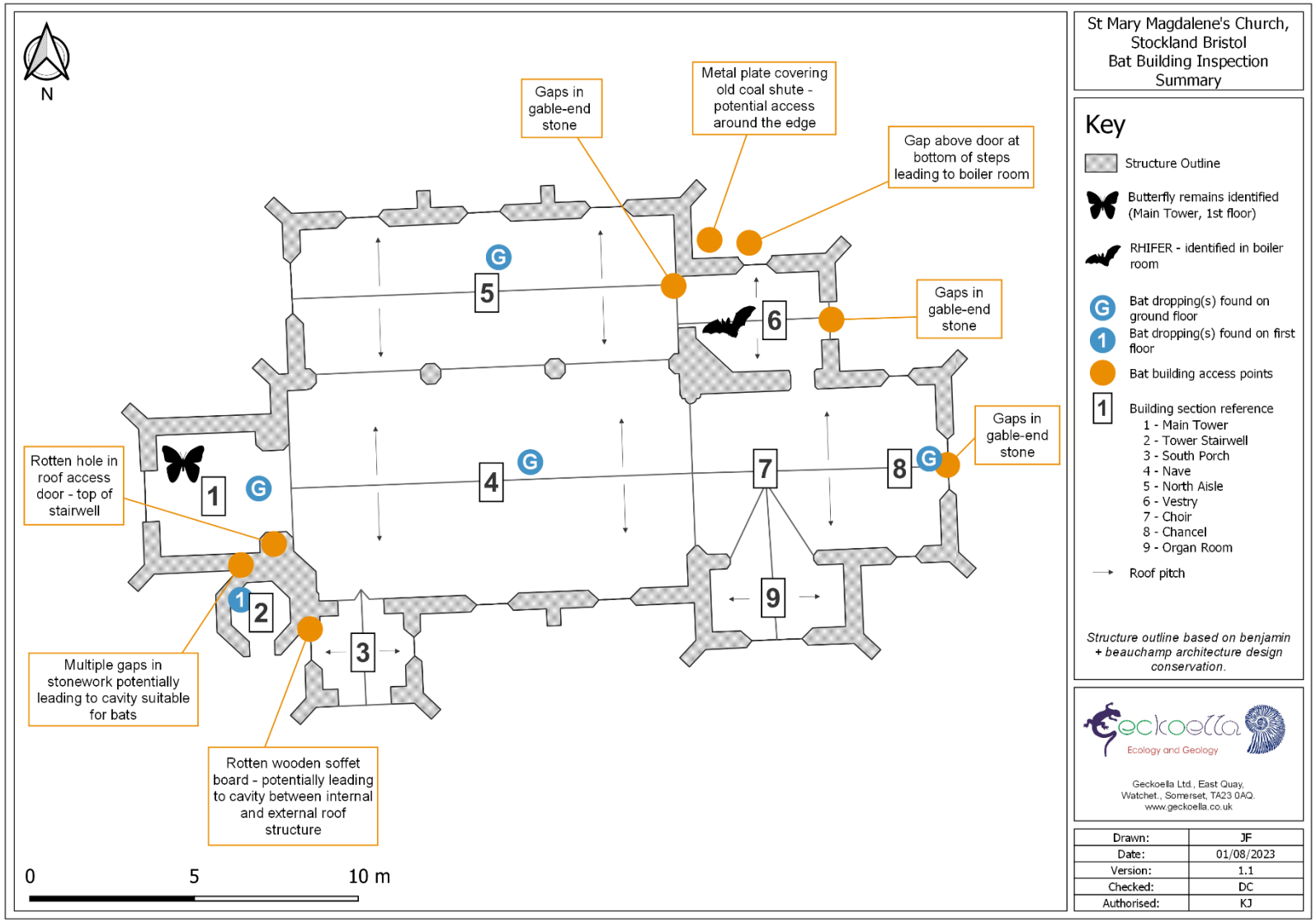
Appendix 2: UK Habitat Classification Survey map and Target Notes



Appendix 2 (continued):

Target note	Description
1	Scattered trees – Yew, Conifer sp, Elder and Field Maple
2	14 Yew trees lining paths
3a	Small compost pile – primarily grass cuttings
3b	Large compost pile with mixed vegetation detritus
4	Barn Owl box in Beech tree

Appendix 3: Bat Roost Assessment



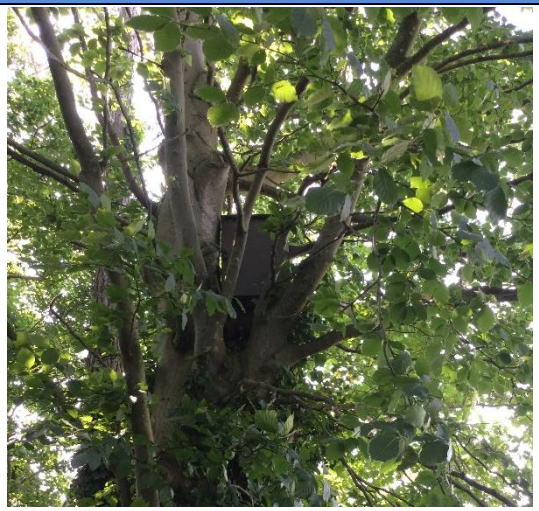
Appendix 4: Site photographs

4.1 TN1: Scattered *Conifer sp.* tree with Elder at base**.**

4.2 TN2: 14 Yew trees lining paths.

4.3 TN3a: Small compost pile – primarily grass cuttings.

4.4 TN3b: Large compost pile with mixed vegetation detritus.



4.5 TN4: Barn Owl box in beech tree.

4.6 Other neutral grassland g3c (1) on south side of church showing area of mown grass.

4.7 Other neutral grassland g3c (2) on northern boundary which is overshadowed by Yew trees.

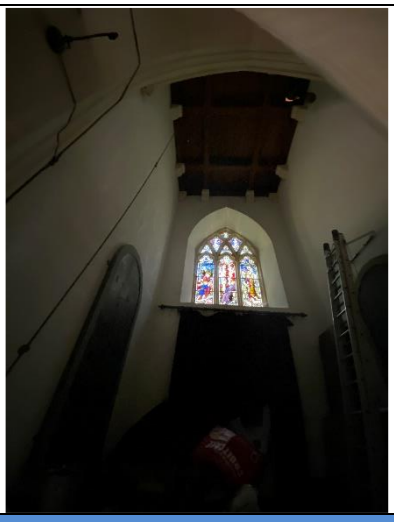
4.8 Low wall (3) around churchyard on southern boundary with patches of ivy and lichens.

4.9 Low wall (3) on western boundary with thick covering of ivy, small white gate in the corner.

4.10 Priority hedgerow (5) on northern boundary showing mature Yew trees.

4.11 Church building (6) from eastern boundary.

4.12 Concrete path (7) through centre of site to south of church building.



4.13 Ground floor of tower looking towards ceiling. One old bat dropping found in this area.

4.14 Nave with north aisle (to left) and vaulted ceilings. Multiple bat droppings found across pews.

4.15 Choir, and chancel with organ room (to right) and vestry (to left).

4.16 Scattered bat droppings found in chancel above altar.

4.17 North aisle, area proposed for community education space.

4.18 Scattered bat droppings of varying ages and sizes across pews in north aisle.

4.19 Bell-ringing chamber on 1st floor of tower, butterfly remains found in this area.

4.20 Bat droppings found on step within tower stairwell, in front of access door to the bell-ringing chamber.

4.21 Bell chamber on 2nd floor of tower.

4.22 Roof access door at top of tower stairwell. Red circle indicates likely bat access point.

4.23 Boiler room and access stairs beneath vestry. Red circle indicates likely bat access point.

4.24 Disused coal shute into the boiler room. Red circle indicates potential bat access point.

4.25 Greater horseshoe bat roosting in boiler room beneath vestry.

4.26 View of roof structure of whole church building from tower roof.

4.27 Rotten soffit board above drain. Red circle indicates likely bat access point.

4.28 Lifting leadwork around edge of tiles. Red circle indicates potential bat access point.

4.29 Cracks and crevices in stonework within tower stairwell provide potential bat roosting sites.

4.30 Cracks and crevices in stonework on outside of building provide potential bat roosting sites.

4.31 Cracks and crevices in stonework on gable ends of building provide potential bat roosting sites.

4.32 Cracks and crevices in stonework on outside of building provide potential bat roosting sites.

Appendix 5: Botanical Species List

Scientific Name	Common Name
Acer pseudoplatanus	Sycamore
Acer campestre	Field Maple
Arrhenatherum elatius	False Oat-grass
Arum maculatum	Lords-and-Ladies
Bellis perennis	Daisy
Brachypodium sylvaticum	False Brome
Conifer sp	Conifer
Cornus sanguinea	Dogwood
Crepis vesicaria	Beaked Hawk's-beard
Cretaegus monogyna	Hawthorn
Cynosurus cristatus	Crested Dog's-tail
Fagus sylvatica	Beech
Galium aparine	Cleavers
Geranium robertianum	Herb-Robert
Geum urbanum	Wood Avens
Hedera helix s.s.	Common Ivy
Heracleum sphondylium	Hogweed
Ilex aquifolium	Holly
Iris sp.	Iris
Leucanthemum vulgare	Oxeye Daisy
Ligustrum vulgare	Wild Privet
Lolium perenne	Perennial Rye-grass
Mercurialis perennis	Dog's Mercury
Plantago lanceolata	Ribwort plantain
Primula veris	Cowslip
Primula vulgaris	Primrose
Quercus cerris	Turkey Oak
Ranunculus acris	Meadow Buttercup
Ranunculus repens	Creeping Buttercup
Rhinanthus minor	Yellow-rattle
Rubia peregrina	Wild Madder
Rubus fruticosus agg.	Bramble

Scientific Name	Common Name
Rumex acetosa subsp. acetosa	Common Sorrel
Rumex sanguineus	Wood Dock
Sambucus nigra	Elder
Sisymbrium officinale	Hedge Mustard
Tamus communis	Black Bryony
Taraxacum officinale	Common Dandelion
Taxus baccata	Yew
Trifolium repens	White Clover
Urtica dioica	Common Nettle
Veronica chamaedrys	Germander Speedwell