ALTON SEWAGE TREATMENT WORKS, STOKE-ON-TRENT, STAFFORDSHIRE

PRELIMINARY ECOLOGICAL APPRAISAL

A Report to: Severn Trent Water PLC

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REPORT VERIFICATION AND DECLARATION OF COMPLIANCE

This study has been undertaken in accordance with British Standard 42020:2013 “Biodiversity, Code of practice for planning and development”.

Report Version	Date	Completed by:	Checked by:	Approved by:
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The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management’s Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

DISCLAIMER

The contents of this report are the responsibility of Middlemarch Environmental Ltd. It should be noted that, whilst every effort is made to meet the client’s brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch Environmental Ltd accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

VALIDITY OF DATA

The findings of this study are valid for a period of 24 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified ecologist to assess any changes in the habitats present on site, and to inform a review of the conclusions and recommendations made.

NON-TECHNICAL SUMMARY

Middlemarch Environmental Ltd was commissioned by Severn Trent Water PLC to carry out a Preliminary Ecological Appraisal at the site of a proposed development at Alton Sewage Treatment Works in Stoke-on-Trent, Staffordshire. To fulfil this brief, an ecological desk study and a walkover survey (in accordance with Phase 1 Habitat Survey methodology) were undertaken.

The ecological desk study identified no European statutory sites within 5 km of the survey area, two UK statutory sites and 23 parcels of ancient woodland within 2 km, and twelve non-statutory sites within 1 km. The site is not located within 10 km of a statutory site designated for bats. The desk study also revealed records of protected/notable species within 1 km of the survey area, including bats, terrestrial mammals, birds and reptiles.

The walkover survey was undertaken on 2nd May 2019 by Victoria Worrall (Senior Ecological Consultant). The site comprised buildings and infrastructure associated with the active sewage treatment works, which were surrounded by areas of hardstanding, including a concrete road and pathways providing access to the water treatment infrastructure. Other habitats included improved grassland, scrub and scattered trees. The site was bordered by the Churnet Valley railway path and a drainage channel to the north, beyond which was Abbey Wood and Alton Towers leisure park, and the River Churnet to the south and west, beyond which was Castle Wood. To the east, the site was bordered by an area of grassland which contained a row of solar panels.

The key ecological features on and surrounding the site in relation to the works proposed include the adjacent River Churnet, several local wildlife sites (LWS) within 50 m of the site, a parcel of ancient woodland within 20 m of the site and mature scattered trees on site. Whilst no works are proposed to directly impact the watercourse and surrounding nature conservation sites, there is potential for them to be negatively impacted in the absence of appropriate protection measures. The habitats on site and in the immediate surroundings have the potential to support a range of protected/notable species, which may be impacted by the proposed works.

In order to ensure compliance with wildlife legislation and relevant planning policy, the following recommendations are made (full recommendation text is provided in Chapter 7):

- **Sites of Special Scientific Interest:** Natural England should be consulted prior to any works commencing to determine how works may proceed without adversely impacting Saltersford Lane Meadows SSSI and Dimmings Dale and The Ranger SSSI.
- **Ancient Woodland Sites:** Consideration should be given to the guidelines set out by the NPPF regarding ancient woodland sites (see Chapter 3). Natural England's Standing Advice regarding ancient woodlands should also be reviewed and Natural England, the Forestry Commission and the Local Planning Authority ecologist consulted.
- **Local Wildlife Sites:** A Construction Ecological Management Plan (CEcMP) should be compiled for the site. This document should be agreed with the Local Planning Authority ecologist prior to any works commencing.
- **Habitat Retention and Protection:** The development proposals should be designed (where feasible) to allow for the retention and protection of existing notable habitats including the mature trees and the River Churnet.
- **Biodiversity Enhancement:** Biodiversity enhancement measures should be incorporated into the landscaping scheme to work towards delivering net gains for biodiversity.
- **Lighting:** In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species.
- **Protected/Notable Species:** Further surveys may be required for bats, water vole, otter and white-clawed crayfish; individual recommendations are made in Section 7.2. A reasonable avoidance method statement should be compiled detailing how the proposed works will be undertaken in a sensitive manner to avoid any potential breach of legislation (including working methods, timings and details of any ecological control measures that will be implemented e.g. vegetation management and ecological supervision). Vegetation and building clearance should be undertaken outside the nesting bird season, but if this is not possible then any vegetation/buildings to be removed or disturbed should be checked by an experienced ecologist for nesting birds immediately prior to works commencing. Any excavations that need to be left overnight should be covered or fitted with mammal ramps to ensure that any animals that enter can safely escape. Any open pipework with an outside diameter of greater than 120 mm must be covered at the end of each work day to prevent animals entering/becoming trapped.
- **Himalayan Balsam:** If any works are to be undertaken within 10 m of the Himalayan balsam, then a Method Statement must be developed for the proposed works to ensure that they do not result in the spread of Himalayan balsam. This method statement should reflect established best management practices for the treatment of the species.

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1. INTRODUCTION

1.1 PROJECT BACKGROUND

In April 2019, Severn Trent Water PLC commissioned Middlemarch Environmental Ltd to undertake a Preliminary Ecological Appraisal of the site of a proposed development at Alton Sewage Treatment Works (STW) in Stoke-on-Trent, Staffordshire. This assessment is required to inform a planning application associated with minor improvements across the site, including the installation of a new ferric dosing unit and new Tertiary Solids Removal (TSR) structures.

To assess the existing ecological interest of the site an ecological desk study was carried out, and a walkover survey was undertaken on the 2nd May 2019.

1.2 SITE DESCRIPTION AND CONTEXT

The site under consideration is a rectangular shaped parcel of land located in the Churnet Valley to the north of the village of Alton. It measures approximately 0.92 ha in size and is centred at National Grid Reference SK 07448 42643.

The site comprised buildings and infrastructure associated with the active sewage treatment works, which were surrounded by areas of hardstanding, including a concrete road and pathways providing access to the water treatment infrastructure. Other habitats included improved grassland, scrub and scattered trees.

The site was bordered by the Churnet Valley railway path and drainage channel to the north, beyond which was Abbey Wood and Alton Towers leisure park, and the River Churnet to the south and west, beyond which was Castle Wood. To the east, the site was bordered by an area of grassland which contained a row of solar panels.

The wider landscape was dominated by the sprawling village of Alton and the leisure park, which were surrounded by agricultural fields and large pockets of woodland.

2. METHODOLOGIES

2.1 DESK STUDY

An ecological desk study was undertaken to determine the presence of any designated nature conservation sites and protected species in proximity to the site. This involved contacting appropriate statutory and non-statutory organisations which hold ecological data relating to the survey area. Middlemarch Environmental Ltd then assimilated and reviewed the desk study data provided by these organisations.

The consultees for the desk study were:

- Natural England - *MAGIC* website for statutory conservation sites; and,
- Staffordshire Ecological Record.

The desk study included a search for European statutory nature conservation sites within a 5 km radius of the site (extended to 10 km for any statutory site designated for bats), UK statutory sites within a 2 km radius and non-statutory sites and protected/notable species records within a 1 km radius.

The data collected from the consultees is discussed in Chapter 4. Selected raw data are provided in Appendix 1. In compliance with the terms and conditions relating to its commercial use, the full desk study data is not provided within this report.

The desk study also included a review of relevant local planning policy with regard to biodiversity and nature conservation (see Chapter 3).

2.2 PHASE 1 HABITAT SURVEY

The walkover survey was conducted following the Phase 1 Habitat Survey methodology of the Joint Nature Conservation Committee (JNCC, 2010) and the Institute of Environmental Assessment (IEA, 1995). Phase 1 Habitat Survey is a standard technique for classifying and mapping British habitats. The aim is to provide a record of habitats that are present on site. During the survey, the presence, or potential presence, of protected species was noted.

Whilst every effort is made to notify the client of any plant species listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended) present on site, it should be noted that this is not a specific survey for these species.

Data recorded during the field survey are discussed in Chapter 5.

3. LEGISLATION AND POLICY

This chapter provides an overview of the framework of legislation and policy which underpins nature conservation and is a material consideration in the planning process in England. The reader should refer to the original legislation for the definitive interpretation.

3.1 GENERAL BIODIVERSITY LEGISLATION AND POLICY

Conservation of Habitats and Species Regulations 2017 (The Habitats Regulations 2017)
The Habitats Regulations 2017 consolidate and update the Habitats Regulations 2010 (as amended). The Habitat Regulations 2017 are the principal means by which the EEC Council Directive 92/43 (The Habitats Directive) as amended is transposed into English and Welsh law.

The Habitats Regulations 2017 place duty upon the relevant authority of government to identify sites which are of importance to the habitats and species listed in Annexes I and II of the Habitats Directive. Those sites which meet the criteria are, in conjunction with the European Commission, designated as Sites of Community Importance, which are subsequently identified as Special Areas of Conservation (SAC) by the European Union member states. The regulations also place a duty upon the government to maintain a register of European protected sites designated as a result of EC Directive 79/409/EEC on the Conservation of Wild Birds (The Birds Directive). These sites are termed Special Protection Areas (SPA) and, in conjunction with SACs, form a network of sites known as Natura 2000. The Habitats Directive introduces for the first time for protected areas, the precautionary principle; that is that projects can only be permitted having ascertained no adverse effect on the integrity of the site. Projects may still be permitted if there are no alternatives, and there are imperative reasons of overriding public interest.

The Habitats Regulations 2017 also provide for the protection of individual species of fauna and flora of European conservation concern listed in Schedules 2 and 5 respectively. Schedule 2 includes species such as otter and great crested newt for which the UK population represents a significant proportion of the total European population. It is an offence to deliberately kill, injure, disturb or trade these species. Schedule 5 plant species are protected from unlawful destruction, uprooting or trade under the regulations.

The Wildlife and Countryside Act (WCA) 1981 (as amended)
The WCA, as amended, consolidates and amends pre-existing national wildlife legislation in order to implement the Bern Convention and the Birds Directive. It complements the Habitat Regulations 2017, offering protection to a wider range of species. The Act also provides for the designation and protection of national conservation sites of value for their floral, faunal or geological features, termed Sites of Special Scientific Interest (SSSIs).

Schedules of the act provide lists of protected species, both flora and fauna, and detail the possible offences that apply to these species.

The Countryside and Rights of Way (CRoW) Act 2000
The CROW Act, introduced in England and Wales in 2000, amends and strengthens existing wildlife legislation detailed in the WCA. It places a duty on government departments and the National Assembly for Wales to have regard for biodiversity, and provides increased powers for the protection and maintenance of SSSIs. The Act also contains lists of habitats and species (Section 74) for which conservation measures should be promoted, in accordance with the recommendations of the Convention on Biological Diversity (Rio Earth Summit) 1992.

The Natural Environment and Rural Communities (NERC) Act 2006
Section 40 of the NERC Act places a duty upon all local authorities and public bodies in England and Wales to promote and enhance biodiversity in all of their functions. Sections 41 (England) and 42 (Wales) list habitats and species of principal importance to the conservation of biodiversity. These lists superseded Section 74 of the CRoW Act 2000.

The Hedgerow Regulations 1997
The Hedgerow Regulations make provision for the identification of important hedgerows which may not be removed without permission from the Local Planning Authority.

UK Post-2010 Biodiversity Framework

The UK Biodiversity Action Plan (BAP), published in 1994, was the UK Government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. The new UK Post-2010 Biodiversity Framework replaces the previous UK level BAP. The UK Post-2010 Biodiversity Framework covers the period 2011-2020 and forms the UK Government's response to the new strategic plan of the United Nations Convention on Biological Diversity (CBD), published in 2010 at the CBD meeting in Nagoya, Japan. This includes five internationally agreed strategic goals and supporting targets to be achieved by 2020. The five strategic goals agreed were:

- Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society;
- Reduce the direct pressures on biodiversity and promote sustainable use;
- To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity;
- Enhance the benefits to all from biodiversity and ecosystem services; and,
- Enhance implementation through participatory planning, knowledge management and capacity building.

The Framework recognises that most work which was previously carried out under the UK BAP is now focused on the four individual countries of the United Kingdom and Northern Ireland, and delivered through the countries' own strategies. Following the publication of the new Framework the UK BAP partnership no longer operates but many of the tools and resources originally developed under the UK BAP still remain of use and form the basis of much biodiversity work at country level. In England the focus is on delivering the outcomes set out in the Government's 'Biodiversity 2020: a Strategy for England's Wildlife and Ecosystem Services' (DEFRA, 2011). This sets out how the quality of our environment on land and at sea will be improved over the next ten years and follows on from policies contained in the Natural Environment White Paper.

Species and Habitats of Material Consideration for Planning in England

Previous planning policy (and some supporting guidance which is still current, e.g. ODPM Circular 06/2005, now under revision), refers to UK BAP habitats and species as being a material consideration in the planning process. Equally many local plans refer to BAP priority habitats and species. Both remain as material considerations in the planning process but such habitats and species are now described as Species and Habitats of Principal Importance for Conservation in England, or simply priority habitats and priority species under the UK Post-2010 Biodiversity Framework. The list of habitats and species remains unchanged and is still derived from Section 41 list of the Natural Environmental and Rural Communities (NERC) Act 2006. As was previously the case when it was a BAP priority species hen harrier continues to be regarded as a priority species although it does not appear on the Section 41 list.

3.2 NATIONAL PLANNING POLICY FRAMEWORK AND PRACTICE GUIDANCE

In February 2019, the National Planning Policy Framework (NPPF) was updated, replacing the previous framework published in 2012 and revised in 2018. The government circular 06/05: Biodiversity and Geological Conservation - Statutory Obligations and Their Impact within the Planning System, which accompanied PPS9, still remains valid. A presumption towards sustainable development is at the heart of the NPPF. This presumption does not apply however where developments require appropriate assessment under the Birds or Habitats Directives.

Chapter 15, on conserving and enhancing the natural environment, sets out how the planning system should contribute to and enhance the natural and local environment by:

- protecting and enhancing existing sites of biodiversity value;
- minimising impacts on and providing net gains for biodiversity; and,
- establishing coherent ecological networks.

If a proposed development would result in significant harm to the natural environment which cannot be avoided (through the use of an alternative site with less harmful impacts), mitigated or compensated for (as a last resort) then planning permission should be refused. With respect to development on land within or outside of a Site of Special Scientific Interest (SSSI) which is likely to have an adverse effect (either alone or in-combination with other developments) would only be permitted where the benefits of the proposed development clearly outweigh the impacts on the SSSI itself, and the wider network of SSSIs. Development resulting in the loss of deterioration of irreplaceable habitats (such as ancient woodland and ancient or

veteran trees) should be refused unless there are wholly exceptional reasons for the development, and a suitable compensation strategy is provided.

Chapter 15 identifies that development whose primary objective is to conserve or enhance biodiversity should be supported and opportunities to incorporate biodiversity improvements in and around development should be encouraged, especially where this can secure measurable net gains for biodiversity.

Chapter 11, making effective use of the land, sets out how the planning system should promote use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Substantial weight should be given to the value of using suitable brownfield land within settlements for homes and other identified needs. Opportunities for achieving net environmental gains, including new habitat creation, are encouraged.

In March 2014 the Department for Communities and Local Government released guidance to support the National Planning Policy Framework (NPPF), known as the National Planning Practice Guidance (NPPG).

This has been produced to provide guidance for planners and communities which will help deliver high quality development and sustainable growth in England. The guidance includes a section entitled 'Natural Environment: Biodiversity, ecosystems and green infrastructure' which sets out information with respect to the following:

- the statutory basis for minimising impacts on biodiversity and providing net gains where possible;
- the local planning authority's requirements for planning for biodiversity;
- what local ecological networks are and how to identify and map them;
- the sources of ecological evidence;
- the legal obligations on local planning authorities and developers regarding statutory designated sites and protected species;
- the considerations for local (non-statutory) designated sites;
- definition of green infrastructure;
- where biodiversity should be taken into account in preparing a planning application;
- how development can enhance biodiversity;
- how policy is applied to avoid, mitigate or compensate for significant harm to biodiversity and how mitigation and compensation measures can be ensured; and,
- the consideration of ancient woodlands and veteran trees in planning decisions.

3.3 LOCAL PLANNING POLICY

https://www.staffsmoorlands.gov.uk/article/771/Planning-Policy

The Local Plan consists of a portfolio of Local Development Documents (LDDs) that set out the spatial planning strategy for the District. The key document in the Local Plan is the Core Strategy.

The area within the Peak District National Park is the responsibility of the Peak District National Park Authority, a separate local planning authority who have prepared their own Core Strategy.

Core Strategy

The Core Strategy was adopted on the 26th March 2014 and is a district wide plan which influences how and where the Staffordshire Moorlands will develop in the future. The policies of relevance to ecology are:

Policy C3 – Green Infrastructure

The Council will, through partnership working with local communities, organisations, landowners and developers, develop an integrated network of high quality and multi-functional green infrastructure that will:

- Support and improve the provision of open space, sport and recreational facilities for local communities and enhance the settings of neighbourhoods;
- Link existing and potential sites of nature conservation value and historic landscape features, create new wildlife habitats, increase biodiversity, and increase tree cover where it is appropriate to the landscape;

- Enhance the natural, man-made and cultural features that are crucial to the local landscape and create opportunities for the restoration of degraded landscapes and the enhancement of the urban fringe;
- Mitigate the negative effects of climate change and maximise potential climate change benefits including effective flood risk and waterways management;
- Create appropriate access for a wide range of users to enjoy the countryside, including improved linkages to and provision of formal and informal recreation opportunities and accessible woodland areas, encouraging walking, cycling and horse riding;
- Contribute to the diversification of the local economy and tourist development through the enhancement of existing, and provision of new facilities.

The Council will identify, protect and enhance Green Infrastructure assets through the Site Allocations DPD and the Green Infrastructure Strategy.

Policy NE1 - Biodiversity and Geological Resources
The biodiversity and geological resources of the District and neighbouring areas will be conserved and enhanced by positive management and strict control of development by:
1. Resisting any proposed development that could have an adverse effect on the integrity of a European site alone or in combination with other plans or projects unless it can be demonstrated that the legislative provisions to protect such sites can be fully met.
2. Conserving and enhancing any Sites of Special Scientific Interest. The Council will not permit any development proposal which would directly or indirectly (either individually or in combination with other developments) have an adverse effect on a Site of Special Scientific Interest.
3. Conserving and enhancing regional and locally designated sites. The Council will not permit any development proposal which would directly or indirectly result in significant harm to geological and biodiversity conservation interests including ancient woodland, unless it can be demonstrated that: there is no appropriate alternative site available; and all statutory and regulatory requirements relating to any such proposal have been satisfied; and appropriate conservation and mitigation measures are provided; or if it is demonstrated that this is not possible the need for, and benefit of, the development is demonstrated to clearly outweigh the need to safeguard the intrinsic nature conservation value of the site and compensatory measures are implemented.
4. Supporting opportunities to improve site management and increase public access to wildlife sites including supporting the objectives of the Staffordshire County Council Rights of Way Improvement Plan.
5. Ensuring development, where appropriate, produces a net gain in biodiversity, and ensuring that any unavoidable impacts are appropriately mitigated for.
6. Ensuring development promotes the appropriate maintenance, enhancement, restoration and/or re-creation of biodiversity through its proposed nature, scale, location and design. The Staffordshire Moorlands Biodiversity Opportunity Map, in conjunction with the Staffordshire Biodiversity Action Plan, will be used to guide biodiversity enhancement measures to be included in development proposals as appropriate to the nature and scale of development proposed and other environmental interest, in particular supporting opportunities to increase grassland and heathland habitats including supporting targets in the UK and Staffordshire Biodiversity Action Plan.
7. Protecting and enhancing habitats and species of principal importance for the conservation of biodiversity as identified in legislation, and recognising and implementing appropriate measures, including landscape-scale conservation management, to take account of the fact that the distribution of habitats and species will be affected by climate change.
8. Recognising the value of the natural environment for sport and leisure activities and the need to manage such activities to ensure there is no conflict.
9. Ensuring the provision and protection of green infrastructure networks in line with Policy C3.

4. DESK STUDY RESULTS

4.1 INTRODUCTION

The data search was carried out in April 2019 by Staffordshire Ecological Record. All relevant ecological data provided by the consultees was reviewed and the results from these investigations are summarised in Sections 4.2 to 4.4. Selected data are provided in Appendix 1.

4.2 NATURE CONSERVATION SITES

Statutory and non-statutory nature conservation sites located in proximity to the survey area are summarised in Table 4.1.

Site Name	Designation	Proximity to Survey Area	Description
UK Statutory Sites			
Saltersford Lane Meadows	SSSI	850 m south-east	Saltersford Lane Meadows encompasses two species-rich meadows, both examples of a traditionally managed hay-meadow. Major grasses comprise sweet vernal-grass *Anthoxanthum odoratum*, meadow foxtail *Alopecurus pratensis* and creeping bent *Agrostis stolonifera* with herbs including yellow rattle *Rhinanthus minor*, common knapweed *Centaurea nigra* and birds-foot-trefoil *Lotus corniculatus*. Other species which occur in this field which are uncommon in Staffordshire are common twayblade *Listera ovata*, common spotted-orchid *Dactylorhiza fuchsii* and adders-tongue *Ophioglossum vulgatum*.
Dimmings Dale and The Ranger	SSSI	1,240 m north-west	Dimmings Dale is predominately a wooded valley located about two miles east of Cheadle. The stream, a tributary of the River Churnet, carries exceptionally clean water which hosts a rich invertebrate fauna including nationally scarce species and supports a population of white-clawed crayfish *Austropotamobius pallipes*. The surrounding vegetation comprises woodland dominated by oak *Quercus* sp., birch *Betula* sp. and rowan *Sorbus aucuparia* with a species-poor ground flora. Additionally, there is a community of mosses and liverworts including nationally scarce species such as *Calypogeia integristipula* and *Lophozia longiflora*. To the north between Dimmings Dale and the main Churnet Valley there is a mosaic of wet and dry lowland heath, valley mire and acidic grassland, with some areas of scrub which comprise county rare species.
Non-Statutory Sites			
Churnet Valley Railway	LWS	Adjacent to northern boundary	A broadleaved woodland alongside a railway consisting of dry and wet woodland flora as well as a stream that runs through part of the site and a pool containing a mix of species within its marginal vegetation.
Barbary Gutter	LWS, AWS	20 m north	A broadleaved woodland with a stream running through it. The understory vegetation comprises of rhododendron *Rhododendron ponticum* and open areas of bracken *Pteridium aquilinum*. In addition, ancient woodland indicators can be found near the banks of the stream.
Castle Wood	LWS	20 m south	An area of mature birch/oak woodland on a steep north-facing slope with exposed sandstone rock faces across the slope which are known as Alton Cliffs.
Abbey Wood	LWS	40 m north	A large expanse of woodland surrounding Alton Towers. There are sycamore *Acer pseudoplatanus* plantations, but the main core of woodland is semi-natural showing a good age structure of trees comprising mature beech *Fagus sylvatica*, yew *Taxus baccata* and maturing oak.

Table 4.1: Summary of Nature Conservation Sites (continues)

Site Name	Designation	Proximity to Survey Area	Description
Toothill Wood	BAS	330 m South-west	A predominantly oak and birch wood on a steep bank above the River Churnet with abundant bracken and frequent occurrences of ancient woodland indicator species earlier in the season.
Crump Wood	LWS, AWS	470 m east	An area of broad-leaved woodland dominated by birch with mature beech along the crest. Additionally, there are areas of unimproved acid and neutral grassland and a small area of heathland.
Saltersford Lane	LWS	720 m south-east	A green lane which runs from Alton in the west towards Denstone. The lane is quite wide and is bound by diverse hedges. Between the hedges there is a grassy area to one side of which flag stones have been laid to form a narrow-surfaced path.
Rakes Dale	LWS	760 m west	Two steep-sided converging valleys with a stream at the bottom containing a mixture of poor semi-improved grassland, remnant acid grassland and broadleaved woodland.
Crump Wood Fields, Caldon Canal and Park Banks Meadow	LWS	780 m east	An area of unimproved and damp grassland with a ditch running east-west across the field. Species include betony *Stachys officinalis* and common spotted orchid.
Rainroach Rock	LWS	850 m west	A broadleaved woodland with extensive bracken and bramble *Rubus fruticosus* agg. which also supports ancient woodland indicator species near the path and on the slopes above the paths.
Lord's Bridge	LWS	925 m north-west	A disused section of canal running through an area of ancient semi-natural woodland.
Alton Park	LWS	955 m north-east	A lowland wood pasture with numerous veteran trees in the southern field. In the north-east there is an abundance of scattered oak and sweet chestnut *Castanea sativa* situated over poor semi-improved grassland on a north facing slope.
Key: SSSI: Site of Special Scientific Interest. LWS: Local Wildlife Site. BAS: Biodiversity Alert Site. AWS: Ancient Woodland Site.			

Table 4.1 (continued): Summary of Nature Conservation Sites

The desk study revealed the presence of 23 parcels of ancient woodland within the 2 km search area. The closest of these is Barbary Gutter, which is located adjacent to the northern boundary of the survey area.

4.3 PROTECTED / NOTABLE SPECIES

Table 4.2 and the following text provide a summary of protected and notable species records within a 1 km radius of the study area. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Species of Principal Importance?	Legislation / Conservation Status
Mammals - bats					
Leisler's bat *Nyctalus leisleri*	1	2006	70 m west	-	ECH 4, WCA 5, WCA 6
Common pipistrelle *Pipistrellus pipistrellus*	16	2014	390 m south	-	ECH 4, WCA 5, WCA 6
Pipistrelle *Pipistrellus* sp.	1	2013	710 m south	#	ECH 4, WCA 5, WCA 6
Brown long-eared bat *Plecotus auritus*	5	1996	710 m south	✓	ECH 4, WCA 5, WCA 6
Unidentified bat *Chiroptera* sp.	2	2014	1,000 m south	#	ECH 2 #, ECH 4, WCA 5, WCA 6

Table 4.2: Summary of Protected/Notable Species Records Within 1 km of Survey Area (cont)

Species	No. of Records	Most Recent Record	Proximity of Nearest Record to Study Area	Species of Principal Importance?	Legislation / Conservation Status
Mammals - other					
Badger *Meles meles*	24	2015	†	-	WCA 6, PBA
Water vole *Arvicola amphibius*	3	1997	170 m west	✓	WCA 5
Polecat *Mustela putorius*	1	2000	Potentially within 1 km of site*	✓	WCA 6
Reptiles					
Grass snake *Natrix natrix*	20	2016	10 m north	-	WCA 5 S9(1) WCA 5 S9(5)
Birds					
Greylag goose *Anser anser*	12	2018	Potentially within 1 km of site*	-	WCA1ii
Red kite *Milvus milvus*	5	2018	Potentially within 1 km of site*	-	WCA1i
Eurasian hobby *Falco subbuteo*	7	2017	Potentially within 1 km of site*	-	WCA1i
Kingfisher *Alcedo atthis*	11	2016	Potentially within 1 km of site*	-	WCA1i
Crossbill *Loxia curvirostra*	3	2015	Potentially within 1 km of site*	-	WCA1i
Goldeneye *Bucephala clangula*	1	2015	Potentially within 1 km of site*	-	WCA 1i
Fieldfare *Turdus pilaris*	5	2013	Potentially within 1 km of site*	-	WCA1i
Barn owl *Tyto alba*	15	2012	Potentially within 1 km of site*	-	WCA1i
Redwing *Turdus iliacus*	13	2012	Potentially within 1 km of site*	-	WCA1i
Brambling *Fringilla montifringilla*	3	2012	Potentially within 1 km of site*	-	WCA1i
Whooper swan *Cygnus cygnus*	1	2008	Potentially within 1 km of site*	-	WCA1i
Peregrine *Falco peregrinus*	2	2006	Potentially within 1 km of site*	-	WCA1i
Goshawk *Accipiter gentilis*	3	2004	Potentially within 1 km of site*	-	WCA 1i
Merlin *Falco columbarius*	1	2003	Potentially within 1 km of site*	-	WCA1i

Key:
†: Badger records are confidential and therefore proximity is not provided within the report.
*: Grid reference is only four figures.
#: Dependent on species.

ECH 2: Annex II of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest whose conservation requires the designation of Special Areas of Conservation.
ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal and plant species of community interest in need of strict protection.

PBA: Protection of Badgers Act 1992.

WCA 1i: Schedule 1 Part 1 of Wildlife and Countryside Act 1981 (as amended). Birds protected by special penalties at all times.
WCA 1ii: Schedule 1 Part 2 of Wildlife and Countryside Act 1981 (as amended). Birds protected by special penalties during close season.
WCA 5: Schedule 5 of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds).
WCA 5 S9(1): Schedule 5 Section 9(1) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to intentional killing, injury or taking.

Table 4.2 (cont'd): Summary of Protected/Notable Species Records Within 1 km of Survey Area (cont)

WCA 5 S9(5): Schedule 5 Section 9(5) of Wildlife and Countryside Act 1981 (as amended). Protected animals (other than birds). Protection limited to selling, offering for sale, processing or transporting for purpose of sale, or advertising for sale, any live or dead animal, or any part of, or anything derived from, such animal. WCA 6: Schedule 6 of Wildlife and Countryside Act 1981 (as amended). Animals which may not be killed or taken by certain methods. Species of Principal Importance: Species of Principal Importance for Nature Conservation in England. Note. This table does not include reference to the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats), the Bonn Convention on the Conservation of Migratory Species of Wild Animals or the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

Table 4.2 (cont'd): Summary of Protected/Notable Species Records Within 1 km of Survey Area

Birds
The desk study provided records of 22 species of birds listed as Species of Principal Importance within 1 km of the survey area including hawfinch *Coccothraustes coccothraustes*, house sparrow *Passer domesticus*, lesser redpoll *Acanthis cabaret*, skylark *Alauda arvensis*, spotted flycatcher *Muscicapa striata,* starling *Sturnus vulgaris,* tree sparrow *Passer montanus* and yellowhammer *Emberiza citronella.*

The desk study also provided records of 25 species of birds on the RSPB Red list including grey wagtail *Motacilla cinereal*, pied flycatcher *Ficedula hypoleuca* and woodcock *Scolopax rusticola*, as well as 22 species on the RSPB Amber list including house martin *Delichon urbicum*, mallard *Anas platyrhynchos* and swift *Apus apus*.

Invertebrates
The desk study provided records of two species of butterflies and 18 species of moths listed as Species of Principle Importance within 1 km of the survey area including; small heath butterfly *Coenonympha pamphilus*, wall butterfly *Lasiommata megera*, buff ermine moth *Spilosoma lutea*, ghost moth *Hepialus humuli* and small phoenix moth *Ecliptopera silaceata*.

4.4 INVASIVE SPECIES

The desk study revealed no records of invasive species within a 1 km radius. It should be noted that the absence of records should not be taken as confirmation that a species is absent from the search area.

5. PHASE 1 HABITAT SURVEY

5.1 INTRODUCTION

The results of the Phase 1 Habitat Survey are presented in the following sections. An annotated Phase 1 Habitat Survey Drawing (Drawing C130286-08-01) is provided in Chapter 8. This drawing illustrates the location and extent of all habitat types recorded on site. Any notable features or features too small to map are detailed using target notes. Photographs taken during the field survey are presented in Chapter 9.

The survey was carried out on 2nd May 2019 by Victoria Worrall (Senior Ecological Consultant). Table 5.1 details the weather conditions at the time of the survey.

Parameter	Condition
Temperature (ºC)	12
Cloud (%)	20
Wind (Beaufort)	F2
Precipitation	Nil

Table 5.1: Weather Conditions During Field Survey

5.2 SURVEY CONSTRAINTS AND LIMITATIONS

No constraints were experienced during the field survey.

5.3 HABITATS

The following habitat types were recorded on site during the field survey:

- Boundaries;
- Buildings;
- Hardstanding;
- Improved grassland;
- Scattered scrub; and,
- Scattered trees.

These habitats are described below. They are ordered alphabetically, not in order of ecological importance.

Boundaries
Metal palisade fencing delineated the site boundaries with the exception of the southern site boundary, which was abutted by the River Churnet (Plates 9.1 and 9.2). There were no significant stands of vegetation associated with the fencing. Vegetation was, however, encroaching from outside of the site boundaries through the fencing.

Buildings
Three buildings were present on site amongst various other structures, including the water treatment facilities. Two of the buildings were of brick construction with pitched tiled roofs (Plate 9.3 and 9.4). The other was a portacabin with a flat roof (Plate 9.5). The buildings did not support any significant stands of vegetation at the time of the survey.

Hardstanding
A concrete road and pathways provide access to the infrastructure of the site (visible in Plate 9.1). Parts of the roads had kerbstones and occasionally gave way to areas of improved grassland. Some of the pathways were overgrown with moss due to infrequent use.

Improved grassland
Improved grassland dominated the western portion of the site and was regularly managed. The grassland did extend into the south-eastern portion of the site but was only managed in areas around the water treatment infrastructures (Plate 9.6). The sward height was approximately 10 cm high at the time of the survey. The grassland was characterised by species such as annual meadow-grass *Poa annua,* cock's-foot *Dactylis*

glomerata, perennial ryegrass *Lolium perenne,* daisy *Bellis perennis*, dandelion *Taraxacum officinale*, dock *Rumex* sp. and ribwort plantain *Plantago lanceolata.*

Management of the grassland declined in areas towards the River Churnet. Here, further species were noted including bluebell *Hyacinthoides* sp., bugle *Ajuga reptans*, forget-me-not *Myosotis* sp., herb Robert *Geranium robertianum,* lesser celandine *Ranunculus ficaria*, red campion *Silene dioica* and wild garlic *Allium ursinum*. This grassland area progressed into areas of scrub.

Scattered scrub
Areas of scattered scrub were located in the western portion of the site adjacent to the site entrance, as well as along the River Churnet (Plate 9.7). These areas of scrub were overgrown due to lack of management. Species included bramble *Rubus fruticosus* agg., common nettle *Urtica dioica* and hawthorn *Crataegus monogyna,* with birch *Betula pendula* and sycamore *Acer pseudoplatanus* saplings. A single patch of dogwood *Cornus sanguinea* was also present adjacent to the site entrance.

Scattered scrub was present beneath scattered trees along the riverbanks associated with the western and southern boundaries of the site. This combination of habitats formed a natural boundary along the river in the western portion of the site but gradually disappeared along the riverbank to the south. A small area of scrub was also present along the northern site boundary, with species comprising field maple *Acer campestre*, hawthorn and hazel *Corylus avellana.*

Himalayan balsam *Impatiens glandulifera* was present along the entire length of the riverbank associated with the southern site boundary.

Scattered trees
Mature scattered trees were present along the riverbank associated with the southern site boundary, including alder *Alnus glutinosa*, sycamore and willow *Salix* sp. A small group of trees was present adjacent to the site entrance, including ash *Fraxinus excelsior*, dogwood, lime *Tilia* sp. and silver birch *Betula pendula*, and a small group of young crack willow *Salix fragilis* resided in the south-eastern corner along with a block of young alder trees (visible in Plate 9.7). Scattered hawthorn and hazel trees were present across the site.

5.4 FAUNA

During the survey field signs of faunal species were recorded. The time of year at which the survey is undertaken will affect species or field signs directly recorded during the survey.

Birds
The following bird species were observed on site during the field survey: blackbird *Turdus merula*, dunnock *Prunella modularis*, grey wagtail *Motacilla cinerea*, mallard *Anas platyrhynchos*, pheasant *Phasianus colchicus* and song thrush *Turdus philomelos*.

5.5 INVASIVE PLANT SPECIES

Himalayan balsam was extensive along the riverbank associated with the southern site boundary, extending from the south-western corner around the concrete sewage structures up to the small patch of young alder trees in the south-eastern corner. Himalayan balsam is listed as invasive under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

6. DISCUSSIONS AND CONCLUSIONS

6.1 SUMMARY OF PROPOSALS

The final proposed plans were not available at the time of writing; however, via liaison with the client it is understood that the proposed works comprise the implementation of minor improvements across the site, including the installation of a new ferric dosing unit and new Tertiary Solids Removal (TSR) structures.

6.2 NATURE CONSERVATION SITES

The desk study exercise identified no European statutory sites within 5 km of the survey area, two UK statutory sites and 23 parcels of ancient woodland within 2 km, and twelve non-statutory sites within 1 km. The site is not located within 10 km of a statutory site designated for bats. The significance of these sites to the proposed development is discussed below.

UK Statutory Sites
Two SSSIs were identified within the 2 km search area: Saltersford Lane Meadows SSSI and Dimmings Dale and The Ranger SSSI are located 850 m south-east and 1,240 m north-west respectively. Although no direct impacts are anticipated on the SSSIs, the STW site lies within the SSSI Risk Impact Zone for both SSSIs. As such a recommendation for consultation is made in Section 7.1.

Non-Statutory Sites
Churnet Valley Railway LWS is located adjacent to the northern boundary of the STW site. A further three non-statutory sites are located within 50 m of the STW site: Barbary Gutter LWS, Castle Wood LWS and Abbey Wood LWS. In the absence of mitigation, it is likely that these conservation sites may be indirectly impacted as a result of the proposed works, due to increases in pollution, dust, noise and lighting during the construction phase of the development. Therefore, these sites are notable considerations with regards to the proposed works and a recommendation has been made in Section 7.1.

The remaining non-statutory nature conservation sites are located over 330 m away from the STW site. Given the spatial separation between these sites and the survey area and the small-scale nature of the proposed works, the risk of significant impacts on these conservation sites is considered negligible.

Ancient Woodland Sites
23 parcels of ancient woodland were identified within the 2 km search area. The nearest of these ancient woodland sites forms part of Barbary Gutter LWS, which is located 20 m north of the STW site. In the absence of appropriate avoidance measures and mitigation, there is potential for the ancient woodland to be negatively impacted due to its close proximity to the proposed development site. Therefore, a recommendation is made in Section 7.1.

6.3 HABITATS

The ecological importance of the habitats present on site is determined by their presence on the list of Habitats of Principal Importance in England and on the Local BAP. It also takes into account the intrinsic value of the habitat. Those habitats which are considered to be of intrinsic importance and have the potential to be impacted by the site proposals are highlighted as notable considerations.

A discussion of the implications of the site proposals with regard to the habitats present on site is provided in the text below. A separate discussion of the value of the habitats on site to protected or notable species is provided in Section 6.4.

Adjacent watercourse
'Rivers' (encompassing all natural and near-natural running waters in the UK) are a Habitat of Principal Importance for Nature Conservation in England if they are considered to be near-natural, or if they fulfill one or more of the relevant criteria (e.g. support Annex II Habitats Directive species). In addition, rivers and streams are listed under the Staffordshire Biodiversity Action Plan. An initial site visit does not allow for a detailed assessment of the adjacent River Churnet against these criteria, and as such there is potential for this watercourse to qualify as a Habitat of Principal Importance. It is not certain whether the banks of the watercourse will be directly impacted by the proposed works however there is also potential for indirect

impacts such as increase in pollution and dust during construction. As such, a recommendation is made in Section 7.2.

Scattered trees
The mature trees on site are of intrinsic value as they cannot be easily replaced in the short to medium term. Mature trees are, therefore, a notable consideration in relation to the proposed development and should be retained and protected where possible. If loss of this habitat cannot be avoided, then appropriate mitigation and compensation measures will need to be implemented. Recommendations are provided in Section 7.2.

Boundaries, buildings, hardstanding, improved grassland and scattered scrub
The remaining habitats are well represented locally, have low species diversity or can be easily recreated post development. Any loss of these habitats would be considered to have minimal impact on the ecology of the local area. These habitats are therefore not considered to be notable consideration.

Habitats considered to be of relevance to the proposed development are summarised in Table 6.1.

Habitat Type	Habitat of Principal Importance?	Local BAP Habitat?	Summary of Potential Impacts
Adjacent watercourse	#	✓	Degradation via runoff (pollution)
Scattered trees	-	-	Habitat loss and structural damage (to roots and canopy)
Key: #: Dependent on fulfilment of Habitat of Principal Importance criteria.			

Table 6.1: Summary of Potential Impacts on Notable Habitats

6.4 PROTECTED/NOTABLE SPECIES

The following paragraphs consider the likely impact of the site proposals on protected or notable species. This is based on those species highlighted in the desk study exercise (Chapter 4) and other species for which potentially suitable habitat occurs within or adjacent to the survey area.

Mammals
Bats
The desk study provided records of three species of bat and two unidentified bat species within a 1 km radius of the survey area, the closest of which was Leisler's bat located 70 m to the west. Although many of the trees on site were mature, they were in good condition and did not possess any features suitable for roosting bats. The two brick buildings on site possessed several features that could potentially be used by roosting bats, including lifted tiles and gaps along the roof verges. It is understood that these buildings will not be directly impacted by the proposed works. Providing that this remains true, roosting bats are not a notable consideration with regards to the proposed works.

The scattered trees, scrub and improved grassland on site provide excellent habitat for foraging and commuting bats as they connect to woodland and the River Churnet. If the scattered trees, shrubs and grassland are to be adversely impacted as a result of the proposed works, this will have a negative impact on foraging and commuting bats. As such, a recommendation regarding the retention and enhancement (where possible) of suitable foraging/commuting habitat and sensitive lighting has been made in Section 7.2.

Badger
The desk study provided twenty-four records of badger within a 1 km radius of the survey area. No signs of badger activity, such as setts, latrines or prints, were observed during the field survey. Given the presence of suitable sett building habitat in the surrounding area and suitable foraging habitat on site, it is likely that badgers may pass through the site on occasion or utilise the site for foraging opportunities. In the absence of appropriate mitigation, there is the potential for the works to directly impact badgers (e.g. they may fall into open excavations or become trapped). Therefore, badgers are a notable consideration with regards to the proposed works and a recommendation has been made in Section 7.3.

Hedgehog
The desk study did not provide any records of hedgehog within a 1 km radius of the survey area. The improved grassland, scattered scrub and woodland present on site and in the wider landscape provide suitable foraging and refuge opportunities for hedgehog, with links to suitable habitat in the surrounding area. As such, it is likely that hedgehogs may commute through the site or utilise it for foraging on occasion. In the absence of appropriate mitigation, there is the potential for the works to directly impact hedgehogs (e.g. they may fall into open excavations or become trapped). Therefore, hedgehogs are a notable consideration with regards to the proposed works and a recommendation has been made in Section 7.3.

Polecat
The desk study provided a single record of polecat located potentially within a 1 km radius of the survey area. The site is not considered to be optimal for polecat but given the presence of scrub on site and good connectivity to woodland in the wider landscape, it is possible that polecat may pass through the site on occasion. In the absence of appropriate mitigation, there is the potential for the works to directly impact polecat (e.g. they may fall into open excavations or become trapped). Therefore, polecats are a notable consideration with regards to the proposed works and a recommendation has been made in Section 7.3.

Water vole and otter
The desk study provided three records of water vole within a 1 km radius of the survey area, with the closest record located 170 m to the west. No records of otter were provided. There was no field evidence of either of these species; however, an initial site visit did not allow for a detailed assessment of the adjacent River Churnet to support these species. Providing works are not undertaken within 10 m of the banks and appropriate pollution prevention measures are implemented, the risk to these species is considered negligible. However, if works are undertaken within 10 m of the banks, there is potential for works to adversely impact both of these species, such as through direct harm/injury. Therefore, a precautionary recommendation for further survey work has been provided in Section 7.3.

Amphibians
The desk study did not provide any records of amphibians, including great crested newts, within a 1 km radius of the survey area. The site provides suitable terrestrial habitat for amphibians, such as unmanaged grassland and scrub; however, there are no suitable waterbodies on site to provide breeding habitat. Reference to Ordnance Survey mapped data and aerial imagery indicates that there are two ponds within a 500 m radius of the survey area, both of which are located to the south with the closest being 255 m away. However, the River Churnet, which abuts the southern and western site boundaries, provides a barrier to dispersal as it has a fast flow. Therefore, it was considered unlikely that amphibians will be present on site, and as such they are not a notable consideration in relation to the proposed works.

Reptiles
The desk study provided 20 records of grass snake within a 1 km radius of the survey area, the closest of which is located 10 m to the north. The site provides suitable habitat for reptiles, particularly grass snakes, in the form of unmanaged grassland and scrub which extends along the banks of the adjacent watercourse. However, as the works will be situated within low to negligible value habitat for reptiles, it is considered that any potential risks can be reduced to acceptable levels through the use of precautionary methods of clearance of suitable areas. Therefore, a recommendation is made in Section 7.3.

Birds
The desk study provided numerous records of birds within a 1 km radius of the survey area, including protected species and notable species. The buildings, trees and scrub on site offer suitable nesting opportunities for a range of birds. Therefore, if the proposed works are to be undertaken during the nesting bird season then there is potential for direct impacts upon nesting birds. As such, a recommendation regarding the timing of works has been provided in Section 7.2.

Invertebrates
Terrestrial
The desk study provided numerous records of notable terrestrial invertebrates within a 1 km radius of the survey area, including butterfly and moth Species of Principal Importance. The grassland, trees and scrub on site offer suitable habitat for terrestrial invertebrates, particularly common species. Although the invertebrate species present within the site may be displaced during the proposed works, it is considered that they will recolonise following the completion of the works. Habitat enhancement suggestions are made in Section 7.2 to increase the value of the site for terrestrial invertebrates.

Aquatic
The desk study did not provide any records of aquatic invertebrates within a 1 km radius of the survey area. The adjacent watercourse offers suitable habitat for a range of aquatic invertebrates, including white-clawed crayfish *Austropotamobius pallipes*, but the initial site visit did not allow for a detailed assessment of the River Churnet to support these species. It is not certain whether the banks of the watercourse will be directly impacted by the proposed works, but there is potential for indirect impacts such as increase in pollution and dust during construction which would impact aquatic invertebrates inhabiting the watercourse. A recommendation regarding the protection of the watercourse has been made in Section 7.2 and a precautionary recommendation for further survey work for white-clawed crayfish has been made in Section 7.3, pending confirmation of exact works.

Plants
The desk study did not provide any records of notable plant species within a 1 km radius of the survey area, and no notable plant species were recorded on site during the survey; only species typical of the habitats present were recorded. It is considered that the site is unlikely to support any rare plant species due to the nature of the habitats present, and therefore plants are not a notable consideration in relation to the proposed works.

Other Species
The following protected species are not considered to be material considerations due to the lack of desk study records and absence of suitable habitats within the development site and its surroundings: brown hare *Lepus europeaus*, dormouse *Muscardinus avellanarius*, harvest mouse *Micromys minutus*, pine marten *Martes martes* and red squirrel *Sciurus vulgaris*.

Summary
Species considered to be of relevance to the proposed development are summarised in Table 6.2.

Species / Species Group	Species of Principal Importance?	Summary of Potential Impacts
Bats	#	Loss of suitable habitat, direct harm or injury, fragmentation of suitable habitat due to lighting.
Badger	-	Loss of suitable habitat, direct harm or injury.
Hedgehog	✓	Loss of suitable habitat, direct harm or injury.
Polecat	✓	Loss of suitable habitat, direct harm or injury.
Water vole	✓	Degradation and fragmentation of suitable habitat, direct harm or injury.
Otter	✓	Degradation and fragmentation of suitable habitat, direct harm or injury.
Reptiles	✓	Loss of suitable habitat, direct harm or injury.
Nesting birds	#	Loss of suitable habitat, direct harm or injury.
#: Species dependent		

Table 6.2: Summary of Potential Impacts on Notable Species

6.5 INVASIVE PLANT SPECIES

The desk study revealed no records of invasive species within a 1 km radius. However, Himalayan balsam was extensive along the riverbank associated with the southern site boundary, extending from the south-western corner around the concrete sewage structures up to the small patch of young alder trees in the south-eastern corner. Providing works are not undertaken within 10 m of the known areas of Himalayan balsam, the risk of spreading this invasive species is considered negligible. However, if works are undertaken within 10 m of this species, there is potential for works to cause it to spread. Therefore, a recommendation has been provided in Section 7.4.

7. RECOMMENDATIONS

All recommendations provided in this section are based on Middlemarch Environmental Ltd's current understanding of the site proposals, correct at the time the report was compiled. Should the proposals alter, the conclusions and recommendations made in the report should be reviewed to ensure that they remain appropriate.

The ecological mitigation hierarchy should be applied when considering development which may have a significant effect on biodiversity. The ecological mitigation hierarchy, as set out in the National Planning Policy Framework (NPPF), and the National Planning Practice Guidance (NPPG) should follow these principles:

- **Avoidance** – development should be designed to avoid significant harm to valuable wildlife habitats and species.
- **Mitigation** – where significant harm cannot be wholly or partially avoided, it should be minimised by design or through the use of effective mitigation measures.
- **Compensation** – where, despite whatever mitigation would be effective, there would still be significant residual harm, as a last resort, compensation should be used to provide an equivalent value of biodiversity.

7.1 NATURE CONSERVATION SITES

In line with Policy NE1 – 'Biodiversity and Geological Resources' of the Staffordshire Moorlands Core Strategy, the following recommendations are made regarding nature conservation sites:

R1 **Sites of Special Scientific Interest:** The proposed works could potentially impact upon Saltersford Lane Meadows SSSI and Dimmings Dale and The Ranger SSSI. As such, Natural England should be consulted prior to any works commencing to determine how works may proceed without adversely impacting these sites.

R2 **Ancient Woodland Sites:** The proposed works may indirectly impact upon Barbary Gutter which is designated as an ancient woodland site. As such, consideration should be given to the guidelines set out by the NPPF regarding ancient woodland sites (see Chapter 3). Natural England's Standing Advice regarding ancient woodlands should also be reviewed (see https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences) and Natural England, the Forestry Commission and the Local Planning Authority ecologist consulted.

R3 **Local Wildlife Sites:** The proposed works could potentially impact upon Churnet Valley Railway LWS which is located adjacent to the northern boundary of the site, and three other non-statutory sites which are located within 50 m of the site: Barbary Gutter LWS, Castle Wood LWS and Abbey Wood LWS.. Therefore, a Construction Ecological Management Plan (CEcMP) should be compiled for the site. The aim of the CEcMP is to minimise the potential impact of the construction phase of the development on the existing ecology of the site and off-site receptors, and ensure that works proceed in accordance with current wildlife legislation. This document should be agreed with the Local Planning Authority ecologist prior to any works commencing.

7.2 HABITATS

The following recommendations are made regarding the habitats present on site:

R4 **Habitat Retention and Protection:** The development proposals should be designed (where feasible) to allow for the retention and protection of existing notable habitats including the mature trees and the River Churnet. Protection measures comprise:

- Trees: Any trees on or overhanging the site, which are retained as a part of any proposed works should be protected in accordance with British Standard 5837: 2012 "Trees in relation to design, demolition and construction - recommendations". Protection should be installed on site prior to the commencement of any works on site.

- The River Churnet: Environment Agency Pollution Prevention Guidelines should be adhered to throughout the works. Although formerly withdrawn in December 2015, the guidelines provide a framework for the design of working practices to avoid pollution and siltation. PPG5 (Environment Agency et al, 2007), relating to works and maintenance in or near water, is considered to be of relevance to the proposed project.

If retention is not possible, appropriate replacement planting should be incorporated into the soft landscape scheme in accordance with the ecological mitigation hierachy. Only native and/or wildlife attracting species should be planted.

R5 **Biodiversity Enhancement:** In accordance with the provision of Chapter 15 of the National Planning Policy Framework (Conserving and Enhancing the Natural Environment) and Local Planning Policy, biodiversity enhancement measures should be incorporated into the landscaping scheme of any proposed development to work towards delivering net gains for biodiversity. This will involve, for example:

- Planting of habitats which will be of value to wildlife, such as:
  - native seed/fruit bearing species to provide foraging habitat for mammals and birds;
  - nectar-rich species to attract bees, butterflies and moths;
  - wildflower grassland margins to provide larval food for caterpillars and to attract butterfly and moth species such as wall and small heath; and,
  - species which attract night flying insects which will be of value to foraging bats, for example: evening primrose *Oenothera biennis*, goldenrod *Solidago virgaurea*, honeysuckle *Lonicera periclymenum* and fleabane *Pulicaria dysenterica*.
- Provision of nesting/roosting habitat, such as installation of nest boxes for species such as house sparrow, dense scrub for species such as song thrush, and bat boxes for species such as pipistrelle.
- Creation of deadwood habitat for herpetofauna and invertebrate species (e.g. stag beetle).

R6 **Lighting:** In accordance with best practice guidance relating to lighting and biodiversity (Miles et al, 2018; Gunnell et al, 2012), any new lighting should be carefully designed to minimise potential disturbance and fragmentation impacts on sensitive receptors, such as bat species. Examples of good practice include:

- Avoiding the installation of new lighting in proximity to key ecological features, such as the River Churnet and woodland edges.
- Using modern LED fittings rather than metal halide or sodium fittings, as modern LEDs emit negligible UV radiation.
- The use of directional lighting to reduce light spill, e.g. by installing bespoke fittings or using hoods or shields. For example, downlighting can be used to illuminate features such as footpaths whilst reducing the horizontal and vertical spill of light.
- Where the use of bollard lighting is proposed, columns should be designed to reduce horizontal light spill.
- Implementing controls to ensure lighting is only active when needed, e.g. the use of timers or motion sensors.
- Use of floor surface materials with low reflective quality. This will ensure that bats using the site and surrounding area are not affected by reflected illumination.

7.3 PROTECTED / NOTABLE SPECIES

To ensure compliance with wildlife legislation and relevant planning policy, the following recommendations are made:

R7 **Roosting Bats:** If proposals change to impact the existing brick buildings, then a Preliminary Bat Roost Assessment should be undertaken. This assessment can be completed at any time of year. Dependent upon the results of the preliminary assessment, dusk emergence and dawn re-entry surveys could be required. Surveys should be undertaken in line with best practice survey guidelines (Collins, 2016), during the bat activity season. The bat activity season is considered to extend from May to September (inclusive), with the optimum survey period between mid-May and August (inclusive).

R8 **Terrestrial Mammals including Badger, Hedgehog, Polecat and Otter:** Any excavations that need to be left overnight should be covered or fitted with mammal ramps to ensure that any animals that enter can safely escape. Any open pipework with an outside diameter of greater than 120 mm must be covered at the end of each work day to prevent animals entering/becoming trapped.

R9 **Water Vole and Otter:** If works are to be undertaken within 10 m of the adjacent watercourse, a water vole and otter survey should be undertaken. This survey should include 100 m upstream and downstream of the proposed works area. Water Vole Surveys usually require two visits, one within the early season (March – June inclusive) and one within the late season (July – September inclusive). Otter Surveys can be completed at any time of year.

R10 **Reptiles:** A reasonable avoidance method statement should be compiled detailing how the proposed works will be undertaken in a sensitive manner to avoid any potential breach of legislation. This document should describe working methods, timings and should detail any ecological control measures that will be implemented e.g. vegetation management and ecological supervision.

R11 **Nesting Birds:** Vegetation and building clearance should be undertaken outside the nesting bird season. The nesting bird season is weather dependent but generally extends between March and September inclusive (peak period March-August). If this is not possible then any vegetation/buildings to be removed or disturbed should be checked by an experienced ecologist for nesting birds immediately prior to works commencing. If birds are found to be nesting any works which may affect them should be delayed until the young have fledged and the nest has been abandoned naturally, for example via the implementation of an appropriate buffer zone (species dependent) around the nest in which no disturbance is permitted until the nest is no longer in use.

R12 **White-Clawed Crayfish:** If any disturbance to streams is anticipated, including siltation or site run-off, a White-Clawed Crayfish Survey should be undertaken. White-Clawed Crayfish Surveys can be completed between May and October inclusive, depending on water temperature and survey methodology.

7.4 INVASIVE PLANT SPECIES

The following recommendation is made regarding invasive plant species:

R13 **Himalayan Balsam:** If any works are to be undertaken within 10 m of the Himalayan balsam, then a Method Statement must be developed for the proposed works to ensure that they do not result in the spread of Himalayan balsam. This method statement should reflect established best management practices for the treatment of the species.

8. DRAWINGS

Drawing C130286-08-01 – Phase 1 Habitat Map



C130286-08-01

Legend

- Site boundary
- Scattered broad-leaved tree
- Fence
- Building
- Dense scrub
- Hardstanding
- Improved grassland
- Other habitat
- Running water
- Target note
  - 1 - Log pile
  - 2 - Young alder plantation
  - 3 - Himalayan balsam
  - 4 - Sewage treatment infrastructure

N

Project	Alton STW
Drawing	Phase 1 Habitat Map
Client	Severn Trent Water
Drawing Number: C130286-08-01	Revision: 00
Scale @ A3: 1:750	Date: July 2019
Approved By: VW	Drawn By: VO

MIDDLEMARCH ENVIRONMENTAL
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9. PHOTOGRAPHS



Plate 9.1: Palisade fencing and access road



Plate 9.2: River Churnet



Plate 9.3: Brick building (1)



Plate 9.4: Brick building (2)



Plate 9.5: Portacabin



Plate 9.6: Improved grassland



Plate 9.7: Scattered scrub and trees adjacent to site entrance

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APPENDICES

APPENDIX 1: Summary of Statutory Nature Conservation Sites

APPENDIX 2: Overview of Relevant Species-Specific Legislation

APPENDIX 1

Summary of Statutory Nature Conservation Sites

Site Check Report
Report generated on Thu Jun 13 2019.
Centroid Grid Ref: SK07444264.
The following features have been found in your search area:

Ramsar Sites (England)
No Features found

Proposed Ramsar Sites (England)
No Features found

Special Areas of Conservation (England)
No Features found

Possible Special Areas of Conservation (England)
No Features found

Special Protection Areas (England)
No Features found

Potential Special Protection Areas (England)
No Features found

Sites of Special Scientific Interest (England)
Name: Dimmings Dale & The Ranger SSSI
Reference: 1002235
Natural England Contact: TOM HOLLAND
Natural England Phone Number: 0845 600 3078
Hectares: 23.35
Citation: 1007136
Hyperlink: http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1007136

Name: Saltersford Lane Meadows SSSI
Reference: 1002035
Natural England Contact: JENNIFER THORP
Natural England Phone Number: 0845 600 3078
Hectares: 4
Citation: 1007149
Hyperlink: http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1007149

Ancient Woodland (England)
Wood Name
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1411637
Area (Ha): 2.758702

Wood Name
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1411642
Area (Ha): 5.905584

Wood Name
Theme Name: Ancient Replanted Woodland
Theme ID: 1411636
Area (Ha): 0.308977

Wood Name
Theme Name: Ancient Replanted Woodland
Theme ID: 1411638
Area (Ha): 0.258539

Wood Name
Theme Name: Ancient Replanted Woodland
Theme ID: 1411640
Area (Ha): 6.507089

Wood Name: BARBARY GUTTER
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104521
Area (Ha): 6.603438

Wood Name: BARBARY GUTTER
Theme Name: Ancient Replanted Woodland
Theme ID: 1104521
Area (Ha): 57.631865

Wood Name: BASIN WOOD
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104524
Area (Ha): 2.129303

Wood Name: CRUMPWOOD
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104527
Area (Ha): 3.175144

Wood Name: HOLLY WOOD
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104528
Area (Ha): 10.897708

Wood Name: HOLLY WOOD
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104528
Area (Ha): 3.8624

Wood Name: MOSSS BANK
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104517
Area (Ha): 0.079748

Wood Name: MOSSS BANK
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104517
Area (Ha): 0.138274

Wood Name: MOSSS BANK
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104517
Area (Ha): 0.566358

Wood Name: MOSSS BANK
Theme Name: Ancient Replanted Woodland
Theme ID: 1104517
Area (Ha): 30.873929

Wood Name: LICKS WOOD
Theme Name: Ancient Replanted Woodland
Theme ID: 1104525
Area (Ha): 3.198959

Wood Name: WOOTTON PARK
Theme Name: Ancient Replanted Woodland
Theme ID: 1104529
Area (Ha): 87.861057

Wood Name: MOSSS BANK
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104517
Area (Ha): 0.04145

Wood Name: MOSSS BANK
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104517
Area (Ha): 0.341812

Wood Name: MOSSS BANK
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104517
Area (Ha): 22.464433

Wood Name: MOSSS BANK
Theme Name: Ancient Replanted Woodland
Theme ID: 1104517
Area (Ha): 9.733749

Wood Name: LICKS WOOD
Theme Name: Ancient & Semi-Natural Woodland
Theme ID: 1104525
Area (Ha): 2.863255

Wood Name: WOOTTON PARK
Theme Name: Ancient Replanted Woodland
Theme ID: 1104529
Area (Ha): 1.170379

Local Nature Reserves (England)

No Features found

National Nature Reserves (England)

No Features found

SSSI Impact Risk Zones - to assess planning applications for likely impacts on SSSIs/SACs/SPAs & Ramsar sites (England)

1. DOES PLANNING PROPOSAL FALL INTO ONE OR MORE OF THE CATEGORIES BELOW?
2. IF YES, CHECK THE CORRESPONDING DESCRIPTION(S) BELOW. LPA SHOULD CONSULT NATURAL ENGLAND ON LIKELY RISKS FROM THE FOLLOWING:

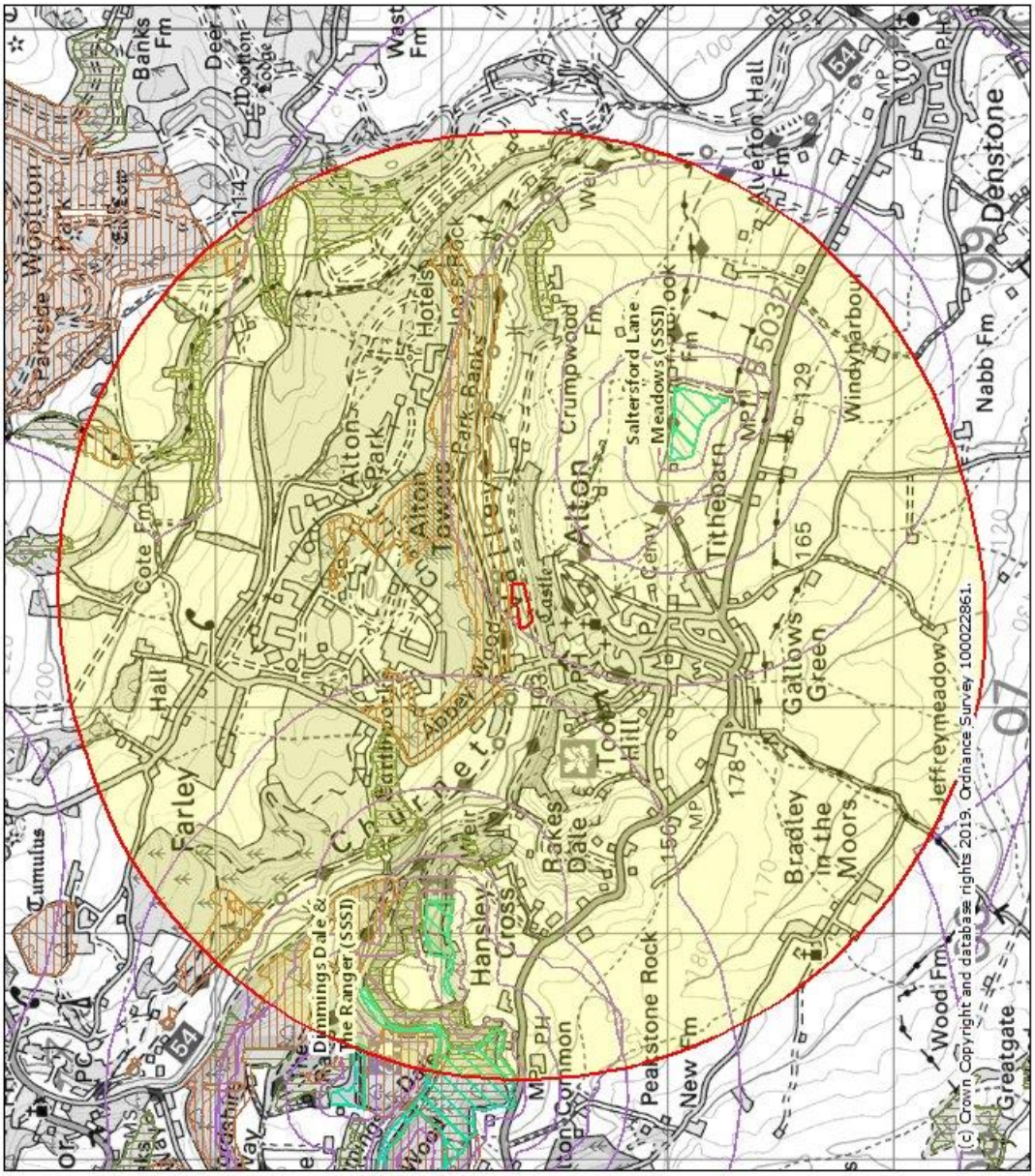
Infrastructure: Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.
Minerals, Oil & Gas: Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
Air Pollution: Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t).
Combustion: General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste: Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.
Composting: Any composting proposal with more than 75000 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.
Water Supply: Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.

Infrastructure: Pipelines, pylons and overhead cables. Any transport proposal including road, rail and by water (excluding routine maintenance). Airports, helipads and other aviation proposals.
Minerals, Oil & Gas: Planning applications for quarries, including: new proposals, Review of Minerals Permissions (ROMP), extensions, variations to conditions etc. Oil & gas exploration/extraction.
Residential: Residential development of 100 units or more.
Rural Residential: Any residential development of 50 or more houses outside existing settlements/urban areas.
Air Pollution: Any industrial/agricultural development that could cause AIR POLLUTION (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons > 200m² & manure stores > 250t).
Combustion: General combustion processes >20MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste: Landfill. Incl: inert landfill, non-hazardous landfill, hazardous landfill.
Composting: Any composting proposal with more than 500 tonnes maximum annual operational throughput. Incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management.
Water Supply: Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply.

GUIDANCE - How to use the Impact Risk Zones
/Metadata_for_magic/SSSI IRZ User Guidance MAGIC.pdf

MAGIC

Magic Map



APPENDIX 2

Overview of Relevant Species-Specific Legislation

The reader should refer to the original legislation for the definitive interpretation.

Badger
Badgers and their setts are protected under the Protection of Badgers Act 1992. The Protection of Badgers Act 1992 is based primarily on the need to protect badgers from baiting and deliberate harm or injury, badgers are not protected for conservation reasons. The following are criminal offences:

- To intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it.
- To wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so.

A badger sett is defined in the legislation as: *'Any structure or place that displays signs indicating current use by a badger'*. 'Current use' is not synonymous with current occupation and a sett is defined as such (and thus protected) as long as signs of current usage are present. Therefore, a sett is protected until such a time as the field signs deteriorate to such an extent that they no longer indicate 'current usage'.

Badger sett interference can result from a multitude of operations including excavation and coring, even if there is no direct damage to the sett, such as through the disturbance of badgers whilst occupying the sett. Any intentional or reckless work that results in the interference of badger setts is illegal without a licence from Natural England. In England a licence must be obtained from Natural England before any interference with a badger sett occurs.

Bats
Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017). They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981, as amended. This protection means that bats, and the places they use for shelter or protection, are capable of being a material consideration in the planning process.

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:

- deliberately capture, injure or kill a bat;
- deliberately disturb bats; or
- damage or destroy a bat roost (breeding site or resting place).

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead bats, part of a bat or anything derived from bats, which has been unlawfully taken from the wild.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:

- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, *or obstruct access to*, any structure or place which a protected species uses for shelter or protection.
- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

As bats re-use the same roosts (breeding site or resting place) after periods of vacancy, legal opinion is that roosts are protected whether or not bats are present.

The following bat species are Species of Principal Importance for Nature Conservation in England: Barbastelle Bat *Barbastella barbastellus*, Bechstein's Bat *Myotis bechsteinii*, Noctule *Nyctalus noctula*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Brown Long-eared Bat *Plecotus auritus*, Greater Horseshoe Bat *Rhinolophus ferrumequinum* and Lesser Horseshoe Bat *Rhinolophus hipposideros*.

Birds
The Conservation of Habitats and Species Regulations 2017 places a duty on public bodies to take measures to preserve, maintain and re-establish habitat for wild birds. Nesting and nest building birds are protected under the Wildlife and Countryside Act WCA 1981 (as amended).

Subject to the provisions of the act, if any person intentionally:
- kills, injures or takes any wild bird;
- takes, damages or destroys the nest of any wild bird while that nest is in use or being built; or
- takes or destroys an egg of any wild bird, he shall be guilty of an offence.

Some species (listed in Schedule 1 of the WCA) are protected by special penalties. Subject to the provisions of the act, if any person intentionally or recklessly**:**
- disturbs any wild bird included in Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird, he shall be guilty of an offence.

Several bird species are Species of Principal Importance for Nature Conservation in England, making them capable of being material considerations in the planning process.

Hedgehog
Hedgehogs receive some protection under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended); this section of the Act lists animals which may not be killed or taken by certain methods, namely traps and nets, poisons, automatic weapons, electrical devices, smokes/gases and various others. Humane trapping for research purposes requires a licence. Hedgehogs are a Species of Principal Importance for Nature Conservation in England and are thus capable of being material considerations in the planning process.

Invasive plants
The Wildlife and Countryside Act 1981 provides the primary controls on the release of non-native species into the wild in Great Britain. It is an offence under section 14(2) of the Act to 'plant or otherwise cause to grow in the wild' any plant listed in Schedule 9, Part II. This list contains 36 plant species and their hybrids, and includes Himalayan balsam. The Infrastructure Act 2015 makes it possible, under certain circumstances, to compel land owners or occupiers to carry out control or eradication operations, or to allow them to be carried out by the issuing authority.

Otter
The otter benefits from world-wide protection under Appendix I of the Convention on International Trade in Endangered Species of Wild Flora and Fauna. It also receives European protection under Appendix II of the Bern Convention and Annexes II and IV of the EU Habitats Directive 94/43/EEC, which is transposed into UK Law by means of The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017).

Regulation 41 of the Habitats Regulations 2017, states that a person commits an offence if they:
- deliberately capture, injure or kill an otter;
- deliberately disturb otters; or
- damage or destroy a breeding site or resting place.

Disturbance of animals includes in particular any disturbance which is likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or in the case of animals of a hibernating or migratory species, to hibernate or migrate; or to affect significantly the local distribution or abundance of the species to which they belong.

It is an offence under the Habitats Regulations 2017 for any person to have in his possession or control, to transport, to sell or exchange or to offer for sale, any live or dead otter, part of an otter or anything derived from an otter which has been unlawfully taken from the wild.

Whilst broadly similar to the above legislation, the WCA 1981 (as amended) differs in the following ways:
- Section 9(1) of the WCA makes it an offence to *intentionally* kill, injure or take any protected species.
- Section 9(4)(a) of the WCA makes it an offence to *intentionally or recklessly** damage or destroy, *or obstruct access to*, any structure or place which a protected species uses for shelter or protection.

- Section 9(4)(b) of the WCA makes it an offence to *intentionally or recklessly** disturb any protected species *while it is occupying a structure or place which it uses for shelter or protection*.

*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

Otters are listed as Species of Principal Importance for Nature Conservation in England.

Polecat
Polecats receive some protection under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended); this section of the Act lists animals which may not be killed or taken by certain methods, namely traps and nets, poisons, automatic weapons, electrical devices, smokes/gases and various others. Humane trapping for research purposes requires a licence. Polecats are a Species of Principal Importance for Nature Conservation in England and are thus capable of being material considerations in the planning process.

Reptiles
All of the UK's native reptiles are protected by law. The two rarest species – sand lizard *Lacerta agilis* and smooth snake *Coronella austriaca* – benefit from the greatest protection; however these two species have a limited geographical distribution and special habitat requirements. Common lizard *Zootoca vivipara*, slow-worm *Anguis fragilis*, adder *Vipera berus* and grass snake *Natrix natrix* are protected under the Wildlife and Countryside Act 1981 as amended from intentional killing or injuring.

In England and Wales, this Act has been amended by the Countryside and Rights of Way Act 2000 (CRoW), which adds an extra offence, makes species offences arrestable, increases the time limits for some prosecutions and increases penalties. The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. All native reptile species are included on these lists.

This is a simplified description of the legislation. In particular, the offences mentioned here may be absolute, intentional, deliberate or reckless. Note that where it is predictable that reptiles are likely to be killed or injured by activities such as site clearance, this could legally constitute intentional killing or injuring.

Water vole
Water voles receive protection under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to:

- Intentionally kill, injure or take (capture) a water vole;
- Possess or control live or dead water voles or any derivatives;
- Intentionally or recklessly* damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection;
- Intentionally or recklessly* disturb water voles whilst occupying a structure or place used for that purpose; or
- Sell, offer for sale or advertise for live or dead water voles.

*Reckless offences were added by the Countryside and Rights of Way (CRoW) Act 2000.

Water voles are listed as Species of Principal Importance on the UK Post-2010 Biodiversity Framework (2012), and as such are capable of becoming material considerations in the planning process.

White-clawed crayfish
White-clawed crayfish are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), making it an offence to take them from the wild or sell them. They are also protected internationally under Annexes II and V of the EC Habitats Directive and listed in Appendix III of the Bern Convention. It is classed as *Globally Threatened* by IUCN/WCMC.

In England and Wales, the WCA has been amended by the Countryside and Rights of Way Act 2000 (CRoW), which adds an extra offence, makes species offences arrestable, increases the time limits for some prosecutions and increases penalties. The Natural Environment and Rural Communities (NERC) Act 2006 places a duty on Government Departments to have regard for the conservation of biodiversity and maintains lists of species and habitats which are of principal importance for the purposes of conserving biodiversity in England and Wales. White-clawed crayfish are included on these lists.

The white-clawed crayfish is a Species of Principal Importance for Nature Conservation in England and a Biodiversity Action Plan (BAP) priority species locally (in the UK).

Schedule 9 of the Wildlife and Countryside Act (1981) makes it an offence to release or allow to escape into the wild all three non-native species of crayfish in the UK. The use of native crayfish as bait is illegal under the Wildlife and Countryside Act (1981). This practice could be further prevented by being made an offence under the fishery bylaws.