Ecological Impact Assessment

BE-.718.1a

Penistone Grammar School, Huddersfield Road, Penistone, Sheffield S36 7BX

Bagshaw Ecology Ltd
Unit 1, The Town Hall, St George's Street
Hebden Bridge, West Yorkshire HX7 5NN
Registered in England and Wales number 9211547
Telephone: 01422 417310
Email: info@bagshawecology.co.uk
Website: www.bagshawecology.co.uk

Report title	Ecological Impact Assessment
Report reference	BE718.1
Revision	A
Site address	Penistone Grammar School, Huddersfield Road, Penistone, Sheffield S36 7BX
Grid reference	SE 24338 03953
Report composed by	Amy Reddick BSc (Hons) GradCIEEM
Report reviewed by	David Watts BSc (Hons) FdSc MArborA MCIEEM
Client	10Architect Ltd
Date	26th July 2018

Bagshaw Ecology

CONTENTS

1. INTRODUCTION 4

1.1. Background 4
1.2. Site Details 4
1.3. Development Proposals 4

2. LEGISLATIVE CONTEXT 5

2.1. Legislation 5
2.2. Policy 5

3. METHODS 6

3.1. Ecological Data Search 6
3.2. Phase 1 Habitat Survey 6
3.3. Bat Survey 7

4. RESULTS 9

4.1. Constraints 9
4.2. Designated Sites 9
4.3. Habitats 9
4.4. Bats 11
4.5. Other Mammals 11
4.6. Reptiles and Amphibians 12
4.7. Bird Species 12
4.8. Invertebrates 12

5. IMPACT ASSESSMENT 13

5.1. Habitats 13
5.2. Species 13

6. CONCLUSION AND RECOMMENDATIONS 14

6.1. Avoidance of Ecological Impacts 14
6.2. Mitigation and Enhancement 14

7. REFERENCES 15

APPENDICES 16

TABLES AND FIGURES

Figure 1. Aerial imagery of site and surrounding area (Google Earth Pro, 2017) 4
Table 3.1 Importance of Ecological Features 6
Table 3.2 Bat roost suitability classes, the corresponding TI scores and the percentage of structures found to have evidence of bats during the testing phase. 8
Table 4.1 Habitats as defined by JNCC (2010) on the site 9
Table 4.1 HSI Calculation for pond on the site 12

Executive Summary

Bagshaw Ecology Ltd have been requested by 10 Architect to undertake an Ecological Impact Assessment of development of Penistone Grammar School, Huddersfield Road, Penistone, Sheffield S36 7BX, in relation to an application for planning. The development proposals are to construct a new extension adjoined by a corridor to the south of the building.

The survey found the habitats on the site to be of negligible to low ecological importance.

An inspection found no buildings affected by the developments on the site. Three sycamore *Acer pseudoplatanus* trees with bat boxes were observed to the west of the development area. To prevent disturbance to roosting bats it is recommended that any outdoor lighting used as part of the development follows guidelines prescribed by the Bat Conservation Trust.

The pond located to the south of the site was assessed using the great crested newt *Triturus cristatus* Habitat Suitability Index (HSI) and was found to provide below average habitat for great crested newts. Due to this and the development affecting habitats unsuitable for amphibians, it is not considered likely that the development proposals will have any negative impacts on great crested newts.

House martins *Delichon urbicum* were observed nesting under the southeast eaves of the building adjacent to the site. This is not due to be affected by the developments however if any work is required on this building then further nesting bird surveys will be required.

The trees and hedges on site provide suitable habitat for nesting birds. It is recommended that no works are carried out to the trees or hedges within bird nesting season (1st March – 31st August), unless a further survey can confirm that the nests are no longer occupied.

As several trees are due to be removed due to the development proposals, it is recommended that this is suitably mitigated through further planting. Full recommendations are included within the Arboricultural Impact Assessment.

In accordance with the National Planning Policy Framework, it is recommended that the ecological value of the site is enhanced through the incorporation of two bird boxes into the development proposals.

1. Introduction

1.1. Background

1.1.1. Bagshaw Ecology Ltd have been requested by 10 Architect to undertake an Ecological Impact Assessment in regard to a proposed development of Penistone Grammar School, Huddersfield Road, Penistone, Sheffield S36 7BX hereafter referred to as 'the site'.

1.1.2. The purpose of the report is to identify the habitat types on the site, along with the presence or absence of any protected or notable species. The ecological impact of any proposed development is assessed, and mitigation, management and aftercare proposals are suggested when appropriate.

1.2. Site Details

1.2.1. The site is located at grid reference SE 24338 03953, and is accessed off the east of Huddersfield Road. The site is bordered by Huddersfield Road to the west, agricultural farmland to the south and east and residential properties to the north.

1.2.2. The site comprises a large school complex and an adjacent area of amenity grassland and planted trees.

Figure 1. Aerial imagery of site and surrounding area (Google Earth Pro, 2017)

1.3. Development Proposals

1.3.1. The development proposals are to construct a new extension adjoined by a corridor to the south of the building.

2. Legislative Context

2.1. Legislation

2.1.1. The Wildlife and Countryside Act 1981 (as amended), makes it an offence to:

- Deliberately or recklessly injure, kill or capture any animal species protected under Schedule 5 of the act.
- Deliberately or recklessly kill, injure or take any wild bird; to take, damage or destroy the nest of any wild bird while occupied or being built, or to take or destroy the egg of a wild bird. Additional protection is afforded to bird species listed under Schedule 1 of the Act.
- Intentionally pick, uproot or destroy any wild plant included in Schedule 8 of the act.

2.1.2. The Conservation of Habitats and Species Regulations 2010 makes it an offence to deliberately capture, kill or disturb any animal protected under Schedule 2 of the regulations. It is also an offence to damage or destroy a breeding site or resting place of an animal, even if the animal is not present at the time.

2.2. Policy

2.2.1. The UK Biodiversity Action Plan (UKBAP) includes a list of 943 national priority species and 56 habitats of principal importance, with all species and habitats having specific action plans defining the measures required to ensure their conservation. Although the UKBAP has since been superseded by County Biodiversity Plans, it remains a useful point of reference.

2.2.2. Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006 requires that any public bodies take into consideration any species and habitats listed in the UKBAP when implementing their duty and exercising any normal functions.

2.2.3. The National Planning Policy Framework (NPPF) states that planning decisions should aim to protect or enhance biodiversity and conservation interests, and where possible any development should aim to increase net gains in biodiversity.

3. Methods

3.1. Ecological Data Search

3.1.1. Due to the small size of the site and development proposals being predominantly contained within the existing building footprint, the local biological record centre was not consulted as to any protected/notable species within the site.

3.1.2. The Department for Environment, Food and Rural Affairs' (DEFRA) Magic Maps website was consulted as to any land-based designations within 1km of the site.

3.1.3. Aerial imagery was assessed to give an appraisal of the surrounding land use.

3.2. Phase 1 Habitat Survey

3.2.1. The habitat survey and mapping exercise was carried out on 18th June 2018.

3.2.2. The survey was undertaken by Amy Reddick BSc (Hons) GradCIEEM, an ecologist and licenced bat surveyor (Class Licence 2017-32206-CLS-CLS) with experience of carrying out habitat surveys.

3.2.3. The study area was surveyed in accordance with JNCC (2010) guidelines. Habitat types were assigned an alphanumeric code, and target notes were made identifying important species, along with the presence of potential habitats for any protected or notable species.

3.2.4. Habitats and species present on or adjacent to the site were assessed using CIEEM's (2016) guidelines. Ecological features were classed as being of either international, national, regional, district, local, low or of negligible importance (see table 3.1).

Table 3.1 Importance of Ecological Features

Value of feature	Key examples
International	Internationally designated sites (SPA, pSPA, SAC, cSAC, pSAC, Ramsar site, Biogenetic Reserve, or an area which meets designation for such sites. Internationally significant and viable areas of a habitat type listed in Annexe 1 of the Habitats Directive. Any regularly occurring, globally threatened species. A regularly occurring population of an internationally important species, which is threatened or rare in the UK.
National	A nationally designated site (SSSI, NNR), or an area which has met the published selection criteria. A regularly occurring significant number/population of a nationally important species (e.g. listed on the Wildlife and Countryside Act 1981 (as amended)). A feature identified as being of critical importance in the UK BAP.
Regional/County	Viable areas of key habitat identified in the regional or county BAP. A regularly occurring significant population/number of any important species important at regional/county level. Sites of conservation importance which exceed the district selection criteria but which fall short of SSSI selection guidelines.

Value of feature	Key examples
District	Areas of habitat identified in District/City/Borough BAP. Sites that the designating authority has determined meet the published ecological selection criteria for designation. Sites/features which are scarce within the District/City/Borough. A regularly occurring significant population/number of any important species important at District/City/Borough level.
Local	Areas identified in a Local BAP. Sites/features which are scarce in the locality or which are considered to appreciably enrich the habitat resource within the local context (e.g. species-rich hedgerows). Local Nature Reserves. Any populations, species or habitats of local importance.
Low/Site	Habitats of moderate to low diversity which support a range of locally and nationally common species, the loss of which can be easily mitigated.
Negligible	Habitats of no ecological value, the removal of which requires no mitigation.

3.3. Bat Survey

3.3.1. The bat survey was based upon methodologies prescribed by Collins (2016), Mitchell-Jones (2004) and Mitchell-Jones and McLeish (2004). This involved an inspection of the exterior and interior of the building. Any structural features with potential for use by roosting bats were recorded and any suitable access points were identified. Any direct evidence of bats, such as scratch marks, oil stains, droppings and feeding remains were also identified.

3.3.2. Taking account of the structural features of the building, and the surrounding habitat, the building was assigned a level of roost suitability based upon professional judgement (see table 3.1) and evaluation using the Bat Roost Trigger Index (TI) (Underhill-Day, 2017).

3.3.4. The Bat Roost Trigger Index (TI) is a tool that assesses the features known to influence roost selection to assign a roost suitability class to a building or structure. The list includes 28 features that reflect A) the location and environment around the building, B) the exterior features such as roof materials, and C) the interior features particularly those within the roof void. By summarising the condition of each feature and assigning it a numerical score between a maximum of 1 and a minimum of 0.2, a geometric mean TI score between 0 and 1 is generated automatically. This score corresponds to one of the four bat roost suitability classes given in the Bat Conservation Trust guidelines (see table 3.1).

3.3.5. It should be note that the Bat Roost TI is still a work in progress, and while it should be viewed as a useful tool to assess bat roosts suitability, it should not be used in lieu of professional judgement.

Table 3.2 Bat roost suitability classes, the corresponding TI scores and the percentage of structures found to have evidence of bats during the testing phase.

Bat Roost Suitability Class	Description	Corresponding TI score	Percentage of structures found to contain evidence of bats
High	Buildings that have many areas suitable for roosting with a large number of potential access points.	>0.7	98%
Medium	Buildings with a smaller number of areas suitable for roosting, but still supporting features that could be attractive to bats and potentially support maternity roosts.	0.6 – 0.7	56%
Low	Buildings with limited roosting opportunities but which could be used on a sporadic or occasional basis which are unsuitable for maternity roosts.	0.5 – 0.6	31%
Negligible	Buildings which appear unsuitable for roosting bats due to a clear lack of roosting spaces such as voids etc. and/or absence of suitable access points.	<0.5	3%

4. Results

4.1. Constraints

4.1.1. The site survey was conducted inside the optimum period for Phase 1 Habitat surveys. Some species are only visible at certain times of the year and may not have been present during the survey.

4.2. Designated Sites

4.2.1. A search on Magic Maps (DEFRA, 2018) found several designated and notable habitats within 1km of the site including;

- Five Good Quality Semi-Improved Grassland Priority Habitats, the closest of which was located 507m to the west of the site.
- Nine Deciduous Woodland Priority Habitats, the closest of which was located 121m to the west of the site.

4.2.2. A search on Magic Maps (DEFRA, 2018) found no records of designated sites within 1km of the site.

4.3. Habitats

4.3.1. The land use in the nearby surrounding area is a mixture of rural and residential land use, with intermediate levels of tree cover and good terrestrial connectivity to and from the site. There are several small areas of trees in residential gardens within 1km of the site, providing limited habitat for foraging and commuting bats.

4.3.2. The site is composed of an area of amenity grassland adjacent to a complex of modern school buildings. Table 4.1, below, summarises the habitat types found on the site. A map of the habitats can be viewed in the appendices.

Table 4.1 Habitats as defined by JNCC (2010) on the site

JNCC Habitat Type	Description	Ecological Value	Image of Habitat
A3 Scattered trees	Several scattered trees were located within the development areas of young planted trees. These included balsam poplar *Populus balsamifera,* cherry sp. *Prunus sp.* and several species of birch *Betula sp.* A group of mature sycamore were located to the west of the development. Several linear stands of trees bordered the southeast and south aspects of the site; species observes included ash *Fraxinus excelsior*, pedunculate oak *Quercus robur*, alder *Alnus glutinosa*, goat willow *Salix caprea*, Norway spruce *Picea abies*, elder *Sambucus nigra*, hazel *Corylus avellana*, horse chestnut *Aesculus hippocastanum*, silver birch *Betula pendula* and hawthorn *Crataegus monogyna*.	Low	 

JNCC Habitat Type	Description	Ecological Value	Image of Habitat
A2 Scrub	A small area of scrub was located to the south of the site outside of the development area. Species observed include Yorkshire fog *Holcus lanatus*, annual meadow grass *Poa annua*, common bent *Agrostis capillaris*, common nettle *Urtica dioica*, rose-bay willowherb *Chamaenerion angustifolium*, common bramble *Rubus fruticosus*, hogweed *Heracleum sphondylium*, sheeps sorrel *Rumex acetosella* and yarrow *Achillea millefolium.*	Low	
G1 Standing water	A regularly drying small pond located to the southeast of the site. Vegetation in and around the pond included creeping thistle *Cirsium arvense*, bulrush *Typha latifolia*, montbretia *Crocosmia sp*., Yorkshire fog, creeping buttercup *Ranunculus repens*, ribwort plantain *Plantago lanceolata* and soft rushes *Juncus effuses.*	Low	
J1.2 Amenity grassland	The majority of the site was well-maintained amenity grassland with low forb species. Observed forbs included; common daisy *Bellis perennis* and red clover *Trifolium pratense.*	Negligible	
J1.4 Introduced shrub	Several areas to the east of the site were planted with ornamental species including; buddleia *Buddleja davidii*, cotoneaster *Cotoneaster sp*., Pampas grass *Cortaderia selloana*, lavender *Lavandula sp*. and St Johns wart *Hypericum sp.*	Low	

JNCC Habitat Type	Description	Ecological Value	Image of Habitat
J2.1 Intact hedge	Several well-maintained beech hedgerows bordering the hardstanding paths and amenity grassland areas. Marginal vegetation included creeping buttercup, broadleaf willow herb *Epilobium montanum*, common dandelion *Taraxacum officinale* and creeping bent.	Low	
J4 Hardstanding	Hard standing areas including walkways, areas adjacent to the building and a basketball court.	Negligible	

4.4. Bats

4.4.1. DEFRA (2018) hold records of three granted European Protected Species Licences for bats within 1km of the site.

- One which allowed damage to the resting place of brown long eared bats and common pipistrelle, the license start date was the 9th of May 2-14 and the license end date was the 30th of August 2014.
- One which allowed the destruction a brown long eared and common pipistrelle resting place, the license start date was the 9th of March 2011 and the licence end date was the 1st of February 2013.
- One which allowed the destruction of a common pipistrelle breeding and resting place, the license start date was the 14th of October 2009 and the license end date was the 31st of August 2011.

4.4.2. The scoping survey found a large complex of modern school buildings on the site which were unaffected by the developments and therefore not assessed for roosting bats.

4.4.3. Three large sycamore trees which were fitted with bat boxes were located to the west of the development area. The bat boxes were not inspected during the survey.

4.5. Other Mammals

4.5.1. No signs of any other notable mammal species were observed on the site.

4.6. Reptiles and Amphibians

4.6.1. DEFRA (2018) holds no records of granted European Protected Species Licences for great crested newts *Triturus cristatus* within 1km of the site.

4.6.2. The habitats on site which are affected by the development are considered unsuitable for reptiles and amphibians, consisting predominantly of amenity grassland and hard standing.

4.6.3. A search on aerial imagery (Google Earth Pro, 2018) revealed no ponds within 250m of the site. It is possible that there were ponds located in residential gardens which could not be viewed via aerial imagery.

4.6.4. A pond was located on school grounds approximately 65m to the southeast of the development area. An assessment using the HSI found the pond to provide average habitat for great crested newts, indicating a 20% chance of great crested newts being present.

Table 4.1 HSI Calculation for pond on the site

HSI Indices	
SI_1 Location	0.5
SI_2 Pond area	0.2
SI_3 Pond drying	0.1
SI_4 Water quality	0.67
SI_5 Shade	1
SI_6 Fowl	0.67
SI_7 Fish	1
SI_8 Pond count	0.8
SI_9 Terrestrial habitat	0.67
SI_{10} Macrophytes	0.8
HSI Score	(Below average) 0.54

4.6.5. As the pond provides below average habitat for great crested newts and the habitats affected by the developments are comprised of amenity grassland and hardstanding, it is not anticipated that the developments will have any negative impacts on great crested newts.

4.7. Bird Species

4.7.1. House martins *Delichon urbicum* were observed nesting under the southeast eaves of the building adjacent to the development area.

4.7.2. The trees and hedgerows on site provide suitable habitat for nesting birds. All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended).

4.8. Invertebrates

4.8.1. The habitats on the site provide suitable pollination opportunities for invertebrates consisting of areas of trees and ornamental plant species.

5. Impact Assessment

5.1. Habitats

5.1.1. The habitats on site are considered to be of low ecological importance. The habitats affected by the developments consist predominantly of hardstanding surfaces and amenity grassland of negligible ecological value.

5.2. Species

5.2.1. There were several bat boxes fitted to the mature sycamore trees to the west of the site outside of the development area. Any lighting included within the development or used during construction could have negative impacts on roosting and foraging bats.

5.2.2. House martins were observed nesting on the southeast aspect of the building adjacent to the development area. These are not due to be affected by the proposed developments.

5.2.3. The trees and hedgerow on site provide suitable habitat for nesting birds. All nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended). The removal or trimming of any of the trees or hedges on site during bird nesting season could disturb nesting birds and potentially kill or injure their young.

5.2.4. The development proposals will result in a number of young trees and ornamental plants being removed. These provide potential pollination opportunities for invertebrates however, there is considered to be an abundance of similar habitat both within the site and in the surrounding area.

6. Conclusion and Recommendations

6.1. Avoidance of Ecological Impacts

6.1.1. The buildings on site are not affected by the development proposals and therefore there are no further considerations regarding bats for the buildings. If any work is required on the buildings then further surveys may be required.

6.1.2. Several mature sycamore trees located to the west of the development area were fitted with bat boxes. To prevent disturbing foraging and roosting bats is recommended that outdoor lighting used as part of the proposed development will follow recommendations prescribed by the Bat Conservation Trust (2014):

- The spread of light should be at, or near horizontal level.
- The times that lights are used should be limited to provide some dark periods.
- Light sources to be used should emit minimal ultra-violet light.
- Lights should peak higher than 660nm.
- White and blue wavelengths of the spectrum should be avoided

6.1.3. In the unlikely event that a bat is encountered during any construction works, all works should cease immediately, and a licensed bat worker should be consulted.

6.1.4. Several house martins were observed nesting under the southeast eaves of the building adjacent to the development area. This area is not affected by the developments however if any work is required in this area then further nesting bird surveys are recommended.

6.1.5. No tree removals or hedge trimming should be undertaken during bird nesting season (1st March – 31st August). If this is not possible, a nesting bird check should be carried out within 48 hours prior to removal, and works should only commence if it has been established that no nesting birds are present.

6.1.6. As several trees are due to be removed due to the development proposals, it is recommended that this is suitably mitigated through further planting. Full recommendations are included within the Arboricultural Impact Assessment.

6.2. Mitigation and Enhancement

6.2.1. In accordance with the National Planning Policy Framework, it is recommended that the ecological value of the site is enhanced through the incorporation of two bird boxes into the development proposals. These should be of type No. 13 Schwegler Modular House Martin Nest, these should be installed under the eaves of a building preferably away from the prevailing wind direction.

7. References

Bat Conservation Trust (2014). Bats and Lighting. Bat Conservation Trust, London

CIEEM (2016). *Guidelines for Ecological Impact Assessment in Britain and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition.* Winchester: Chartered Institute of Ecology and Environmental Management

Collins, J. (2016). Bat Surveys Good Practice Guidelines – 3rd Edition. London: Bat Conservation trust
Conservation of Habitats and Species Regulations 2010

DEFRA (2017) *Magic Maps* [online]. Available at >www.magic.gov.uk< [accessed 23rd July 2018]

Google Earth Pro (2017). *Google Earth* [online]. Available at: >www.earth.google.com< [accessed 23rd July 2018]

Harris, S., Yalden, D. (2008). *Mammals of the British Isles.* Southampton: The Mammal Society

Joint Nature Conservation Committee (2010). *Handbook for Phase 1 Habitat Survey.* Peterborough: JNCC

Mitchell-Jones, A.J. (2004). *Bat Mitigation Guidelines*. English Nature

Mitchell-Jones, A.J., McLeish, A.P. (2004). *Bat Workers Manual*. Joint Nature Conservation Committee

Oldham, R.S., Keeble, J., Swan, M.J.S., Jeffcote, M. (2000*). Evaluating the suitability of habitat for the Great crested Newt (Triturus cristatus).* Herpetological Journal 10 (4): 143-155

Wildlife and Countryside Act 1981 Ch. 69

Appendices

Appendix 1: Photographs

Plate 1: Southeast of building adjacent to proposed development where house martin nests were observed under the eaves

Plate 2: South aspect of the adjacent building and amenity grassland with bordering hedge

Plate 3: Amenity grassland and young trees

Plate 4: Hardstanding and bordering hedge to the west of the development area

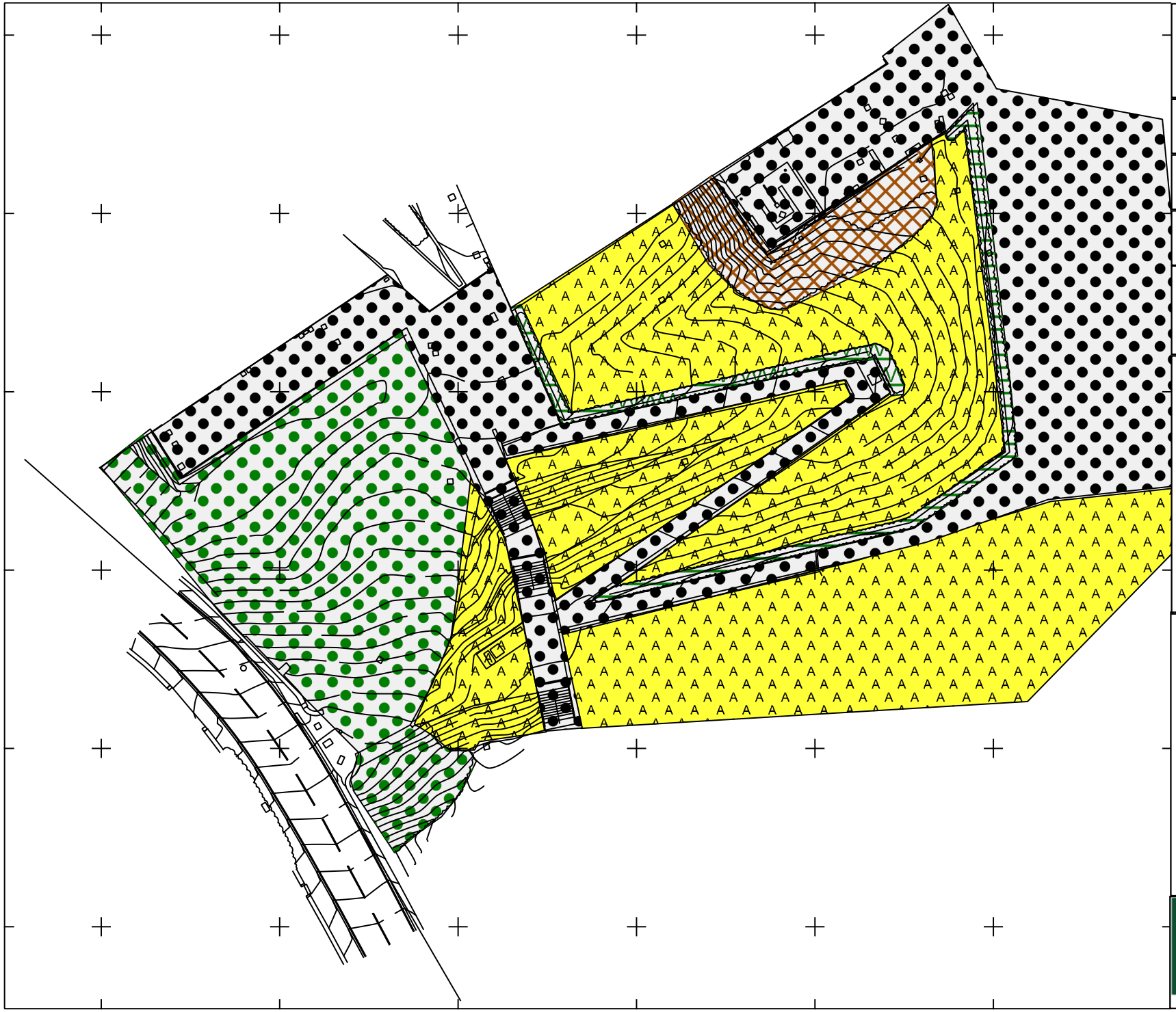
Plate 5: Amenity grassland and young trees to the south of the site

Plate 6: Pond to the southeast of the site

Plate 7: Area od scrub and trees to the south of the site

Plate 8: Mature sycamore trees to the west of the development area

Plate 9: Bat boxes fitted to the sycamore trees



Appendix 2: Phase 1 Habitat Map

Project:	Penistone Grammer School
Drawn by:	Amy Reddick
Date:	23rd July 2018

0 10 20 30 m

Key:

Phase 1 habitats:

- A3.1 - scattered trees
- J1.2 - Amenity grassland
- J1.4 - Introduced shrub
- J2.1.2 - Intact hedge
- J4 - Bare ground

N

Bagshaw Ecology