



EXTENDED PHASE 1 HABITAT SURVEY

ECOLOGY SURVEYS

ASN SCHOOL

06.09.2018

VERSION 1

PREFACE

This document is a report of ecological services carried out by the company.

Direct Ecology Limited
Block 2, Unit 1,
Duckburn Industrial Estate,
Dunblane
FK15 0EW

Tel land: +44 (0) 1786 826865 / +44 (0) 1786 820036
Mob: +44 (0) 7803 587734

info@directecology.co.uk
www.directecology.co.uk

Company Number: SC343106

The Direct Ecology logo is a trademark of Direct Ecology Limited. All other trademarks and registered trademarks are the property of their respective owners.

Copyright © Direct Ecology Limited, 2018. All rights reserved.

REVISION AND SIGN OFF

ISSUE DATE	AUTHORS	CHECKED BY	SIGNED OFF	VERSION	CHANGE REFERENCE
06.09.18	Lacey Urquhart Phoebe Stewart Beccy Osborn	Beccy Osborn	Beccy Osborn	1.0	

EXECUTIVE SUMMARY

This report presents the results of an extended Phase 1 survey undertaken in 2018 on an area of land in Kirkintilloch in East Dunbartonshire. The survey work was undertaken on behalf of Baker Hicks. The proposed works would involve the construction of a new school and associated access road. The site is designated by the Council under Policy 7 Open Space.

An extended Phase 1 habitat survey was undertaken to identify the habitats present on site and included a search for protected species and habitat suitability for protected species within an appropriate survey area. The site is currently used as public parkland. The site is primarily composed of amenity grassland and strips of planted and semi-natural broadleaved woodland which run through and around the site. A single stand of Japanese Knotweed is present. There are small areas of marshy grassland, tall ruderal vegetation and standing water that provide a variety of habitats. A range of bird species are present on site including a number of species of conservation concern such as willow warbler, mistle thrush and dunnoek. There is potential habitat for other species of conservation concern to use the site including house sparrow, starling and tawny owl.

The site will also provide foraging for the bat species (which are all European Protected Species) and the species most likely to be present are pipistrelle bats. At least 24 trees on the site were noted to have bat roost potential. The SUDS pond in the north of the site has good habitat potential for amphibians as well as potential habitat for water vole, although no signs of the latter were noted.

Further surveys required/recommended include:

- Bat roost survey of trees on site following appropriate survey guidance
- Survey for amphibians of the SUDS ponds if this would be affected.
- More detailed survey of the woodland to the south of the site should this have works within 30-50m.
- Breeding bird survey
- Bat survey
- Strategy for control/removal of the Japanese knotweed.

Should construction proceed on the site, recommended best practice methods/timings in relation to ecological features of the site are given

Design Recommendations

The following design recommendations are made.

- **Habitats:** Green corridors of habitat (trees, shrubs etc) should be maintained through and around the site. A range of habitat types should be maintained on site.
- **Planting:** Any species planted should be native and suitable for the site. They should be chosen in part for their potential for cover, for attracting night flying insects, for nesting and foraging of birds and small mammals.
- **Bird and Bat Boxes:** Boxes for birds and bats should be installed on the site, these should include integral boxes in the building as well as boxes on trees on the site.
- **Lighting:** Lighting should be avoided close to site boundaries of vegetation that could be used by bats for foraging (e.g. woodland, rough grassland). The use of low-level, low intensity lighting is recommended close to areas of vegetation.

CONTENTS

PREFACE	1
REVISION AND SIGN OFF	2
EXECUTIVE SUMMARY	3
CONTENTS	4
1 PROJECT INFORMATION	6
1.1 SCOPE	6
1.2 SITE LOCATION, DESCRIPTION AND PROPOSALS	6
1.3 RELEVANT LEGAL FRAMEWORK	6
2 METHODOLOGY	7
2.1 DESK STUDY	7
2.2 EXTENDED PHASE 1 HABITAT SURVEY	7
2.3 BIRD SURVEY	7
2.4 BAT SURVEY	7
2.5 BADGER SURVEY	8
2.6 OTTER AND WATER VOLE SURVEY	8
2.7 OTHER SPECIES	9
2.8 EVALUATION	9
2.9 SURVEY INFORMATION	9
3 SURVEY RESULTS AND EVALUATION	11
3.2 PHASE 1 HABITATS	11
3.3 HABITAT EVALUATION	15
3.4 BIRDS	16
3.5 BATS	17
3.6 BADGER	18
3.7 OTHER NOTABLE OR PROTECTED SPECIES	18
3.8 NON-NATIVE INVASIVE SPECIES	19
3.9 ECOLOGICAL EVALUATION OF THE SITE	19
4 RECOMMENDATIONS and CONSTRAINTS	20
4.1 INTRODUCTION	20
4.2 NATURE CONSERVATION SITES	20
4.3 HABITATS	20
4.4 BIRDS	20

4.5	BATS	21
4.6	OTHER FURTHER SURVEY	22
4.7	GENERAL MITIGATION FOR SITE WORKS.....	22
	REFERENCES.....	23
	APPENDIX 1 – RELEVANT LEGISLATION	24
	EUROPEAN PROTECTED SPECIES	24
	WILDLIFE AND COUNTRYSIDE ACT 1981	25
	PROTECTION OF BADGERS ACT 1992	26
	NON-NATIVE SPECIES	26
	APPENDIX 2 – SURVEY RESULTS	27
	APPENDIX 3 - MAPS.....	50

1 PROJECT INFORMATION

1.1 SCOPE

This report presents the results of an extended Phase 1 habitat assessment undertaken at an area of land just off the A806 in Kirkintilloch centred at NS 65973 72730. A feasibility assessment of the site for a new school is being undertaken, as part of this an ecology survey is required to understand any potential constraints. The work was commissioned by Baker Hicks.

The survey work included:

- Desk study;
- An Extended Phase 1 Habitat survey; and
- Reporting of the survey results, recommendations and highlighting any likely constraints.

1.2 SITE LOCATION, DESCRIPTION AND PROPOSALS

The proposed development site is based in Kirkintilloch, to the north east of Glasgow (centred on grid reference NS 65973 72730; Appendix 3, Figure 1). The site is in an urban residential area, surrounded on three sides by housing. The A806 road runs along the length of the site to the north-east with commercial buildings and areas of trees on the other side. Within the site there are mature trees, a small burn and large areas of grass parkland.

On the East Dunbartonshire Council website, the site is designated under Policy 7 Open Space. The proposed development could be contrary to the Policy at it would result in a reduction of the areas of useable open space.

1.3 RELEVANT LEGAL FRAMEWORK

This assessment has taken into account relevant legislation, guidance and policy including:

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended);
- The Conservation (Natural Habitats, &c) Amendment Scotland Regulations 2007;
- Wildlife and Countryside Act 1981 (as amended);
- Nature Conservation Scotland Act 2004 (as amended);
- The Wildlife and Natural Environment (Scotland) Act 2011;
- The Protection of Badgers Act 1992 (as amended);
- Planning for Natural Heritage: Planning Advice Note 60 (2000); and
- The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017.

Further details are provided in Appendix 1.

2 METHODOLOGY

2.1 DESK STUDY

A desk study was undertaken to determine the presence of any designated nature conservation sites and protected species that have been recorded.

The following were consulted:

- SNH site link
- NBN Atlas
- Records held by Direct Ecology Ltd

2.2 EXTENDED PHASE 1 HABITAT SURVEY

An Extended Phase 1 Habitat survey was conducted within the site boundary, following the methodology of the Joint Nature Conservation Committee (JNCC, 2010). 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.

Any invasive plant species (covered by the Wildlife and Natural Environments (Scotland) Act 2011 (WANE) present on site, were noted, but it was not a specific survey for these species.

2.3 BIRD SURVEY

An assessment was made of the suitability of the habitat for birds for nesting and foraging and all birds seen on site were recorded. A full breeding or wintering bird survey was not undertaken.

2.4 BAT SURVEY

An assessment was made of the suitability of the habitats on site and within a minimum 10m of the site boundary (where access was possible) to support roosting or foraging bat species.

There are a number of mature trees throughout the site and woodland to the west, south and east. Trees within the site were surveyed (from ground level) to identify potential roosting features for bats (PRFs). A visual assessment of the trees was undertaken to identify evidence of possible bat presence. It is possible to carry out tree assessment for bats at any time of the year; but the initial assessment from ground level is best undertaken when the tree is not in full leaf. Reference has been made to the Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016) regarding the categorisation of trees, structures and habitats (see Table 1 below).

An assessment of the habitat suitability for foraging bats was also undertaken, as per BCT guidance (see Table 1 below).

Table 1: BCT Categories of roosting habitats, and commuting and foraging habitats

BCT Categories	Roosting habitats	Commuting and foraging habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats	Negligible habitat features on site likely to be used by commuting or foraging bats
Low	A structure with one or more potential roost sites that could be used by the individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.	Habitat that could be used by small numbers of commuting bats such as gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for commuting, such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

2.4.1 BAT SURVEY LIMITATIONS

The assessment of bat roost potential of the trees was limited to a ground level assessment only; no nocturnal activity surveys or aerial surveys were undertaken.

The trees were in full leaf during the survey, which may have obscured some features.

2.5 BADGER SURVEY

A thorough search for badger *Meles meles* evidence was undertaken including within the surrounding area, where accessible. All evidence of badger was recorded, including setts (including their status) bedding, scratch marks, paths, prints, guard hairs, latrines, dung and signs of foraging.

2.6 OTTER AND WATER VOLE SURVEY

There are no suitable watercourses within the site for otter, although there is a SUDS pond and some semi-dry ditches. In addition, the Bothlin Burn, Luggie Water and Forth and Clyde Canal all run within 1km of the site boundary. A search for signs of otter *Lutra lutra* and water vole *Arvicola amphibious* was therefore included within the survey in areas of suitable habitat.

2.7 OTHER SPECIES

The presence, or potential presence, of any other species of note (*i.e.* Scottish Biodiversity species, reptiles, amphibians, butterflies etc.) was recorded.

2.8 EVALUATION

Based on the site survey and desk study an evaluation has been undertaken to identify important ecological features. A detailed assessment is not undertaken of other features that for example are sufficiently widespread, unthreatened and resilient to project impacts. However, recommendations are made to safeguard biodiversity as emphasised in the EU Biodiversity Strategy 2020. Consideration when assessing importance is given to designated sites, Local Biodiversity Action Plan species, red list species and legally protected species. Table 2 is used as a guide when identifying important ecological features.

Table 2: Guidance nature value levels

Level Of Value	Examples (not definitive and often dependent on professional judgement)
International	Internationally-designated or proposed sites (such as SACs) meeting the criteria for international designation; or non-designated sites meeting the criteria for international designation. A significant area of a habitat type listed in <i>Annex I of the Habitats Directive</i> . Sites supporting populations of internationally-important numbers of species/assemblages.
National	Nationally-designated sites (such as SSSIs, National Nature Reserves, Marine Nature Reserves, Nature Conservation Review Grade 1 sites); or non-designated sites meeting SSSI selection criteria. Sites supporting populations of nationally-important numbers, and/or supplying critical elements of their habitat requirements. A site supporting 1 % or more of a national population.
Regional	Sites containing viable areas of threatened habitats of importance within a regional context. A significant area of habitat type listed on the <i>Scottish Biodiversity List</i> (SBL). Sites supporting viable breeding populations of nationally-scarce species on account of their rarity, or supplying critical elements of their habitat requirements. Any regularly-occurring population of a nationally-important species that is threatened or rare in the region (e.g. >1 % of the regional population).
Local	Sites meeting the criteria for council area designation (such as Site of Importance for Nature Conservation (SINC)) which may include amenity and educational criteria in urban areas. Designated Local Nature Reserves. Sites containing significant areas of any priority habitat listed on the <i>LBAP</i> . Sites supporting significant populations of species known to be council rarities or included on the <i>LBAP</i> , and/or supplying critical elements of their habitat requirements. A site supporting 1 % or more of a county population.
Site	Undesignated sites, or features or species considered to appreciably enrich the resource within the context of the local area (<i>i.e.</i> approx. 5 km radius from the site area). Examples include species-rich hedgerows and ponds. Individual or small numbers of protected species common to the area. Small areas of <i>LBAP</i> habitat or other habitats of note.
Negligible	Low-grade and widespread habitats or species. A widespread species with minimal use of an area that does not form a significant element of its habitat requirements.
Negative	Invasive, alien species (<i>i.e.</i> those covered by legislation within the <i>Wildlife and Natural Environments (Scotland) Act 2011</i>).

2.9 SURVEY INFORMATION

All survey work and reporting was overseen by Beccy Osborn. She is an experienced ecologist and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) with over 17

years' ecological consultancy experience. She has an SNH bat licence, great crested newt licence, freshwater pearl mussel survey licence and badger development licence. She has been the BREEAM ecologist on many recent construction projects throughout Scotland and is a suitably qualified ecologist (SQE) in terms of BREEAM.

The extended Phase 1 Habitat survey was undertaken on 24.07.2018 by Beccy Osborn and Phoebe Shaw Stewart (Consultant Ecologist, GradCIEEM).

3 SURVEY RESULTS AND EVALUATION

3.1.1 DESIGNATED SITES

The following designated sites are found in proximity to the site.

Table 3: Designated sites

Protected Area	Designation	Proximity to Survey Area
Lenzie Moss	LNR	Within 1km to the south-west
Merklands	LNR	Approximately 1.6 km to the north-east
Oxgang (Woodilee Hospital Woods)	LNCS and AWI	Approximately 0.25km south-east.
Luggie Water	LNCS	Approximately 0.5km to the north-east
Key: LNR – Local Nature Reserve LNCS – Local Nature Conservation Site AWI - Ancient Woodland Inventory Scotland		

3.2 PHASE 1 HABITATS

The results of the Phase 1 habitat survey are shown on the Phase 1 habitat map (Appendix 3, Figure 2). This map illustrates the location and extent of all habitat types recorded within the survey area.

3.2.1 HABITAT DESCRIPTIONS

The following habitat types were recorded within the survey area during the field survey:

- Semi – natural broad-leaved woodland (A1.1.1)
- Planted broad-leaved woodland (A1.1.2)
- Scattered broad-leaved trees (A3.1)
- Semi-improved neutral grassland (B2.2)
- Marshy grassland (B5)
- Tall ruderal (C3.1)
- Standing water (G1)
- Amenity grassland (J1.2)
- Dry ditch (J2.6)
- Defunct species poor hedge (J2.2.2)
- Bare ground (J4)

These habitats are described below. They are listed in the order found within the *Handbook for Phase 1 Habitat Survey* (JNCC, 2010), not in order of ecological value.

Semi-natural broad-leaved woodland (A1.1.1)

Semi-natural broad-leaved woodland runs in a corridor through the centre of the site bordering a public footpath from north to west and also around the south-east and north-east edge. The woodland provides a shelterbelt and green corridor through the site. Species recorded include frequent hawthorn *Crataegus monogyna* and willow *Salix* sp. Other species present include cherry *Prunus* sp., occasional ash *Fraxinus excelsior*, silver birch *Betula pendula*, holly *Ilex aquifolium* and elder *Sambucus nigra*. An understorey of raspberry *Rubus fruticosus*, rose *Rosa* sp., bramble *Rubus fruticosus* and occasional honeysuckle *Lonicera periclymenum* is present. Ground cover is from species such as ground elder *Aegopodium podagraria*, stitchwort *Stellaria* sp., nettle *Urtica dioica* with occasional hogweed *Heracleum sphondylium* and grasses present include cocksfoot *Dactylis glomerata*.

Planted broad-leaved woodland (A1.1.2)

A corridor of planted semi-natural broad-leaved woodland extends along the western edge of the site. Species present in this area include silver birch, willow, beech *Fagus sylvatica*, poplar *Populus* sp., field maple *Acer campestre*, elder *Sambucus nigra*, hornbeam *Carpinus betulus*, Italian alder *Alnus cordata* with frequent hazel *Corylus avellana* and shrubs including red currant *Ribes rubrum*, raspberry and bramble.

Scattered broadleaved trees (A3.1)

Scattered semi-mature to mature trees are present in the north of the site and along the north edge of the woodland to the south of the site. Species present are poplar, birch, sycamore, ash and hawthorn.

Semi-improved neutral grassland (B2.2)

A sloping verge of semi-improved neutral grassland exists along the north-east boundary that looks to have been planted with the relatively recent road development works. Species noted were: Yorkshire fog *Holcus lanatus*, creeping buttercup *Ranunculus repens*, sneezewort *Achillea ptarmica*, creeping thistle *Cirsium arvense*, broad-leaved dock *Rumex obtusifolius*, ribwort plantain *Plantago lanceolata*, Timothy grass *Phleum pratense*, oxeye daisy *Leucanthemum vulgare*, birdsfoot trefoil *Lotus corniculatus*, bedstraw *Galium* sp. sweet vernal grass *Anthoxanthum odoratum* and *Agrostis* sp.

Marshy grassland (B5)

Two sections of marshy grassland exist within wetter areas that have not been cut within the middle of the site and an area around the SUDS pond to the north of the site. Species included in the two patches in the main site area are occasional horsetail *Equisetum* sp., Timothy grass *Phleum pratense*, meadow foxtail *Alopecurus pratensis*, crested dogs-tail *Cynosurus cristatus* and frequent soft rush *Juncus effusus*. Occasional species include oval sedge *Carex leporine*, bulbous rush *Juncus bulbosus*, sweet vernal grass and Yorkshire fog. Also present are occasional cleavers *Galium aparine*, birdsfoot trefoil *Lotus corniculatus*, creeping buttercup, meadow buttercup *Ranunculus acris*. Species present in the marshy grassland around the SUDS ponds are listed below.

Tall ruderal (C3.1)

There is a narrow strip of tall ruderal that runs along the ditch, species included in this habitat are nettle, rosebay willowherb, raspberry, cleavers, broadleaved dock., occasional ragwort *Jacobaea vulgaris*. Meadow sweet *Filipendula ulmaria* was also recorded along the ditch with hoary willowherb, bindweed, bramble, broadleaved dock, rose and creeping buttercup.

Standing water (G1) surrounded by Marshy Grassland

A sustainable urban drainage (SUDs) pond is present to the north of the site, that is surrounded by marshy grassland. Around the SUDS ponds area, species present include soft rush *Juncus effusus*, compact rush *Juncus conglomeratus*, purple vetch *Vicia sativa*, knapweed *Centaurea nigra*, yellow iris *Iris pseudacorus*, redshank *Persicaria maculosa*, reed sweet-grass *Glyceria maxima*, *Agrostis* sp., creeping thistle, oxeye daisy, watermint *Mentha citrata*. Other species present include birdsfoot trefoil, Timothy grass, lady's mantle, meadow vetchling *Lathyrus pratensis*, hairy tare *Vicia hirsuta*, sweet vernal grass, brooklime *Veronica beccabunga* and smooth lady's mantle *Alchemilla glabra*. Occasional young willow trees are present.

Amenity grassland (J1.2)

The site is mainly composed of large areas of cut amenity grassland. Species include: frequent perennial ryegrass *Lolium perenne*, annual meadow grass *Poa annua*, white clover *Trifolium repens* and occasional common mouse-ear *Cerastium fontanum*, Yorkshire fog, hawkweed *Hieracium vulgata*, self-heal *Prunella vulgaris*, ribwort plantain *Plantago lanceolata*, black medic *Medicago lupulina* and rarely broadleaved dock.

Species poor defunct hedge (J2.2.2)

A small section of defunct hawthorn hedge exists along the edge of the dry ditch with the tall ruderal vegetation.

Dry ditch (J2.6)

A ditch (that was dry at the time of the survey) runs through the western half of the site from north to south that is bordered by the tall ruderal vegetation. The ditch itself was bare mud in some places and also grassy with species present including reed sweet-grass *Glyceria maxima*.

Bare ground (J4)

A carpark is present at the north-west corner of the site which is accessed from Parkview Court. This provides access to the hardstanding path around the site.

In addition, footpaths run through and around the site. These are too small in terms of Phase 1 habitat types to have been mapped.

Fence (J2.5)

A tall metal fence borders the eastern side of the playing field and runs along the foot of the road embankment.



Photo 1: Semi-natural broadleaved woodland



Photo 2: Planted broadleaved woodland



Photo 3: Semi-improved neutral grassland



Photo 4: Marshy grassland



Photo 5: Tall ruderal



Photo 6: Standing water



Photo 7: Amenity grassland



Photo 8: Defunct hawthorn hedge

3.2.1 BORDERING HABITATS

The semi-nature broad-leaved woodland extends out to the south-east and surrounds a residential area, residential housing extends out to the north, west and south with associated gardens. To the east just beyond the site is a new road.

3.3 HABITAT EVALUATION

The value of Phase 1 habitats is given in the table below with reference to the East Dunbartonshire Local Biodiversity Action Plan (LBAP) and Guideline Nature Value levels (Table 2).

Table 5: Areas of Phase 1 Habitat types and their assessed value

Phase 1 Habitat	Area (m ²)	Biodiversity Value	Habitat notes	Potential for other species
Semi-natural broadleaved woodland (A1.1.1)	7,007	Site	Semi-mature and mature trees that form strips along the south and west of the site. Provides a green corridor and links to more extensive woodland to the south.	Provides nesting and foraging potential for birds and small mammals. Multiple trees with bat roost potential were noted.
Planted broadleaved woodland (A1.1.2)	995	Site	Shelter belt area of planted trees to the north west of the site. Common, widespread species present. Provides a green corridor.	Provides nesting and foraging potential for birds and small mammals. Multiple trees with bat roost potential were noted.
Scattered broadleaved trees (A3.1)	n/a	Site	Semi-mature and mature trees scattered throughout the site. Mature trees would not be readily replaceable if lost.	Provides nesting and foraging potential for birds and small mammals. Multiple trees with bat roost potential were noted.
Semi-improved neutral grassland (B2.2)	5,654	Negligible	Bordering the site. Relatively species rich, recently planted. Provides a green corridor along the east side of the site.	Some foraging and nesting potential for small birds and mammals and foraging for insects.
Marshy grassland (B5)	1,944	Negligible	Small areas of habitat but provide habitat diversity within the amenity grassland.	Some foraging and nesting potential for small birds and mammals and insects.
Tall ruderal (C3.1)	887	Negligible	A strip that borders the dry ditch. Common, widespread species present.	Some foraging and nesting potential for small birds and mammals and insects.
Amenity grassland (J1.2)	25,610	Negligible	Comprises the majority of the survey area. Common, widespread species present.	Foraging potential for birds such as gulls, oystercatcher and starling.
Species poor defunct hedge (J2.2.2)	n/a	Negligible	Small species poor defunct hedge adjacent to dry ditch.	Nesting potential for small birds and mammals.
Dry ditch (J2.6)	n/a	Negligible	A single ditch that runs through the centre along the entire length of the site. Short stretch likely culverted at either end.	Some foraging and nesting potential for small birds and mammals.

Phase 1 Habitat	Area (m ²)	Biodiversity Value	Habitat notes	Potential for other species
Bare ground (J4)	316	Negligible	A small area of bare ground at the north of the site that forms a car park and access to paths.	No other species associated.
Standing water (G1)	123	Site	A small pond surrounded by marshy grassland at the north end of the site. Extends beyond the site.	Some suitability for amphibians and foraging for birds and insects.
Total	42,536			

3.4 BIRDS

The table below outlines all birds recorded on or close to the site during the survey, as well as their conservation status (red, amber or green, as given in Eaton *et al.*, 2015). A variety of habitats on site provides habitat for a range of species. The habitat on site provides foraging for seed eating species such as goldfinch which were seen frequently on the site. There is also potential for the site to be used by other species such as linnet, house sparrow and tree sparrow. Species of conservation concern including song thrush could use the mix of habitats on site and species such as house martin could forage over the site. Tawny owl could use the woodland areas and an owl box was noted in trees off site. Gulls and corvids (including the red list species starling) could use the playing fields for foraging.

Table 6: Birds recorded on site

Species	BTO Code	Notes	Conservation Status (BoCC)/ Legislation/ LBAP
Lesser black-backed gull <i>Larus fuscus</i>	LB	Flock flying over the site. May use the amenity grassland area for loafing.	Amber
Blackbird <i>Turdus merula</i>	B	Heard calling in shelter belt and will be nesting within the woodland and scrub areas.	Green
Mistle thrush <i>Turdus viscivorus</i>	M	Family group recorded on grass and will be nesting within the woodland and scrub areas.	Red
Goldfinch <i>Carduelis carduelis</i>	GO	Large flock observed foraging over site and birds regularly flying across the site. The areas of rough grass and marshy grassland provide good foraging.	Green
Dunnock <i>Prunella modularis</i>	D	On site and will be breeding in areas of scrub and woodland.	Amber. Scottish biodiversity list (SBL)
Magpie <i>Pica pica</i>	MG	On site and will be breeding in trees on site.	Green
Swallow <i>Hirundo rustica</i>	SL	Flying and foraging over the site	Green
Wood Pigeon <i>Columba palumbus</i>	WP	On site and likely to be breeding in trees on site.	Green
Wren <i>Troglodytes troglodytes</i>	WR	Alarm calling in hawthorn hedge and will be breeding on site.	Green

Robin <i>Erithacus rubecula</i>	R	Robin with young on site and will be a number of pairs breeding within areas of scrub and woodland.	Green
Sparrowhawk <i>Accipiter nisus</i>	SH	Recorded flying over site carrying prey and likely to use the site for foraging.	Green
Jackdaw <i>Corvus monedula</i>	JD	Flying over the site and may forage on the amenity grassland areas.	Green
Blue tit <i>Cyanistes caeruleus</i>	BT	On site and likely to be nesting in areas of woodland and scrub.	Green
Great tit <i>Parus major</i>	GT	On site and likely to be nesting in areas of woodland and scrub.	Green
Willow warbler <i>Phylloscopus trochilus</i>	WW	On site and will breed in areas of scrub.	Amber
Key: BoCC: Birds of Conservation Concern, as given in Eaton <i>et al.</i> (2015)			

3.5 BATS

Within this area of central Scotland the following bat species are also known to be present (Richardson, 2000; Harris and Yalden, 2008):

- Common pipistrelle *Pipistrellus pipistrellus*;
- Soprano pipistrelle *Pipistrellus pygmaeus*;
- Daubenton's bat *Myotis daubentonii*;
- Natterer's bat *Myotis nattereri*;
- Brown long-eared bat *Plecotus auritus*; and
- Leisler's bat *Nyctalus leisleri* (rarely).

Therefore, it is thought possible that any of the regularly occurring species could be present on site or within the surrounding landscape. All species listed above (with the exception of Leisler's bat) are Scottish Biodiversity list species (Scottish Government, 2012).

Table 4: Bat records within a 2km area as recorded on NBN Atlas

Species	No. of records	Most recent	Proximity of nearest record to study area	Legislation / conservation status
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	10	2016	Within 2km of the site boundary	ECH 4, HR
Common pipistrelle <i>Pipistrellus pipistrellus</i>	4	2016	Within 2km of the site boundary	ECH 4, HR
Daubenton's bat <i>Myotis daubentonii</i>	5	2004	Within 2km of the site boundary	ECH 4, HR
Key: ECH 4: Annex IV of the European Communities Council Directive on the Conservation of Natural Habitats and Wild Fauna and Flora. Animal; WCA: Wildlife and Countryside Act 1981 as amended. HR: Conservation Natural Habitats & C Regulations 1994 as amended. Datasets: The Mammal Society, Scottish Natural Heritage, Biological Records Centre				

Table 7 in Appendix 2 provide details of trees recorded on site with bat roost potential (BRP). Of 24 trees that were noted to have some level of BRP, 9 were classified as having moderate BRP, 7 as low/moderate BRP and 8 as low BRP. The semi-mature to mature trees within the woodlands and scattered through the site provide bat roost potential within features such as cracks and splits in main trunks and branches, rot holes and delaminated bark.

The woodland, marshy grassland and remnant hawthorn hedge provide foraging and commuting potential throughout the site. The woodland on the site provides connection into the wider habitat as it connects into trees which line the railway and Bothlin burn.

The most likely species to use the site are pipistrelle bats (soprano and common pipistrelle) and it is possible that species such as Daubenton's bats could forage on the site or commute through.

3.6 BADGER

No badger setts, potential setts or badger activity were noted within the area of potential development. The habitats present do provide foraging potential for badger. The woodland area to the south of the site would have potential for badger setts.

3.7 OTHER NOTABLE OR PROTECTED SPECIES

The small area of pond surrounded by marshy grassland provides good potential habitat for amphibians such as common frog, common toad and palmate newts. As it is relatively isolated from other water bodies and recently constructed it is unlikely to be suitable for great crested newts.

There are known records of both otter and water in the nearby Luggie Water LNCS and Bothlin burn. There was no good habitat suitability for otter. Both the SUDs pond and short stretch of ditch appeared to be relatively isolated and culverted. A ditch surrounded by woodland to the south of the site could have more potential for otter. This ditch looks to eventually flow into the Bothlin burn.

The only potentially suitable habitat on the site for water vole is around the SUDS pond. However, no signs of water vole were noted. The pond is relatively newly constructed. However, with known water vole records in this area of East Dunbartonshire it is possible that the species could use the site in the future.

The areas of rough grassland (including marshy grassland and semi-improved grassland) provide good habitat for insects. The small white *Pieris rapae* butterfly was frequently seen. Bee species present include the red-tailed bumble *Bombus lapidarius*.



Photo 9: Red-tailed bumble bee

3.8 NON-NATIVE INVASIVE SPECIES

Japanese knotweed was noted during the survey in area of scrub just off the amenity grassland (see TN 7, Table 8). It looked as though the stand had been partially treated, although an area of approximately 20m by 5m was still present some showing signs of dying.

3.9 ECOLOGICAL EVALUATION OF THE SITE

The individual habitat types within the site boundary are of relatively low ecological value. However, they provide habitats for a number of species including those of conservation concern.

For example, the scattered scrub/trees provide nesting and foraging sites for birds and foraging and potentially roosting bats. Bat species that are likely to use the site include common and soprano pipistrelle bats.

The grassland, woodland and scrub provide foraging habitat for red list bird species such as mistle thrush, starling and potentially song thrush, bullfinch and house sparrow. Amber list species that may use the site include tawny owl, house martin and willow warbler. The areas of rough grassland provide good habitat for invertebrates and small mammals.

In addition, the site provides an important green corridor (in particular along the woodland corridors) and habitat in an area largely surrounded by residential housing.

4 RECOMMENDATIONS and CONSTRAINTS

4.1 INTRODUCTION

This section assesses the likely constraints for the proposed works. No consideration has been given to cumulative impacts with other potential local developments. In addition, this section of the report makes recommendations to minimise impacts should the development proposals be taken forward. Recommendations are provided for further survey work that may be required to adhere with wildlife legislation.

4.2 NATURE CONSERVATION SITES

The works proposed will not directly affect any areas beyond the construction site boundary (apart from increased traffic on the existing roads). The site is already in a busy area and therefore no impacts beyond the site boundary are predicted. There are no constraints predicted in relation to Nature Conservation Sites.

4.3 HABITATS

The developments within the site will likely result in the clearance of areas of amenity grassland. Smaller areas of marshy and neutral grassland, tall ruderal vegetation and the probable loss of some trees is also likely.

Linking habitat corridors should be retained through and around the site.

Trees within and surrounding the site should be retained wherever possible.

Any trees on site or overhanging the site, which are not to be removed 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. This should include protection from construction traffic and personnel as well as material storage and the trees should be protected by physical barriers.

The stand of Japanese knotweed will require appropriate further treatment and likely removal off site to a licensed land-fill site. A buffer (at least 7m) should be maintained around the stand prior to its removal or further treatment.

Any areas of new planting should be of native species.

4.4 BIRDS

Due to the range of birds noted on the site, a breeding bird survey of the site would be recommended.

A mix of habitat types should be retained within the site to provide habitat for the range of bird species present, including those of conservation concern.

Any new building should contain integral bird boxes for species of conservation concern such as swift, house sparrow and house martin. Nest boxes should be positioned ideally at a minimum of 3m high and in an area with uncluttered air space. The boxes should be placed away from areas of high footfall, doors and windows, and ideally not facing into the prevailing south-westerly wind.

The following would be possible options for boxes and/or others could be chosen to tie in with the finish on the proposed building:

- The 1SP Schwegler Sparrow Terrace, suitable for house sparrows (e.g. <http://www.nhbs.com/title/174850/1sp-schwegler-sparrow-terrace>)
- The Schwegler brick nest box , with different hole sizes available for different species (e.g. <http://www.nhbs.com/title/173236>)
- 1B Schwegler Nest Box, suitable for a wide variety of species, including great tit, blue tit and house sparrow (see e.g. <http://www.nhbs.com/title/158587/1b-schwegler-nest-box>)
- 3S Schwegler Starling Nest Box (e.g. <http://www.nhbs.com/title/177925/3s-schwegler-starling-nest-box>).
- No. 16 Schwegler Swift Box (e.g. <http://www.nhbs.com/no-16-schwegler-swift-box>).

To comply with the Wildlife and Countryside Act 1981 (as amended), vegetation clearance should be undertaken outside the nesting bird season (which is weather dependent but generally extends between March and September inclusive, dependant on species). If this is not possible, then any vegetation that will be impacted by the works should be checked by an experienced ecologist for nesting birds immediately prior to works commencing.

4.5 BATS

Roosting bats

The initial survey found at least 24 trees to have some kind of bat roost potential (BRP). Of these, 9 were classified as having moderate BRP, 7 as low/moderate BRP and 8 as low BRP. It is possible that some of these trees may be affected by the development. Trees that have been identified as having moderate to high bat roost potential will require further survey for bat roosts following appropriate Bat Conservation Trust survey guidance and standard methods (Collins, 2016).

Bat boxes or bat roost bricks should be integrated into the new building to provide enhancement to the site. Where bat boxes are used these should be placed at least 4 or 5 m above ground, as close to the eaves as possible, and out of strong winds, and at a location that receives sun for part of the day, facing south or southwest.

The following could be considered and/or others could be chosen to tie in with the finish on the proposed buildings:

- Schwegler 1FR bat tube: suitable for crevice dwelling bats such as pipistrelle species (e.g. <http://www.nhbs.com/browse/search?title-type-facet%5B%5D=&term=schwegler+1fr>)
- Habitat bat box: suitable for crevice dwelling bats such as pipistrelle species (e.g. <http://www.nhbs.com/browse/search?title-type-facet%5B%5D=&term=habibat+box>).

Foraging bats

The development would likely affect foraging by bats by both loss of habitat and a change in light levels on the site.

Survey should be undertaken to ascertain the bat species and levels of activity on the site.

The use of low-level, low intensity lighting is recommended and this should not shine towards site boundaries where these are areas of habitat (woodland or rough grassland) that could be used for bats to forage. For advice on bats and lighting, more information is available in the BCT guidance “Bats and Lighting in the UK” (BCT, 2009).

4.6 OTHER FURTHER SURVEY

Depending on the extent of works, further survey should take place for amphibians in the SUDS pond. Water vole should be surveyed for if the works start more than 12 months from this survey.

A more detailed protected species survey should take place in the woodland to the south of the site if the proposed works would be within 30m of this woodland area.

4.7 GENERAL MITIGATION FOR SITE WORKS

- All workers should receive a 'toolbox' talk during which contractors will be informed of any potential issues with regard to protected species on site. This will ensure that all site workers are inducted in relation to the ecological requirements on the site.
- An emergency procedure should be in place should any protected species or their resting site (e.g. active bird nest) be encountered during operations. All work should cease in the area immediately and a suitably experienced ecologist should be consulted to determine any mitigation requirements i.e. suitable set-backs or buffer zones, and consultation with statutory bodies or licence applications if required.
- 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. Excavations should be backfilled as soon as possible to minimise the potential for animals to become trapped
- Should other species of note be encountered during works which do not receive enhanced statutory protection, a suitably experienced ecologist should be consulted.

REFERENCES

Bat Conservation Trust (2009) *Bats and Lighting in the UK*. Bat Conservation Trust: London.

Available online at

http://www.bats.org.uk/data/files/bats_and_lighting_in_the_uk_final_version_version_3_may_09.pdf

Bat Conservation Trust (2013) *Encouraging Bats – A Guide for Bat-friendly Gardening and Living*. Bat Conservation Trust: London. PDF available online at

http://www.bats.org.uk/pages/encouraging_bats.html.

Chartered Institute of Ecology and Environmental Management (2006) *Guidelines for Ecological Impact Assessment in the United Kingdom* (version 7 July 2006). <http://www.cieem.net/ecia-guidelines-terrestrial-freshwater-and-coastal->

Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)*. Bat Conservation Trust, London.

Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, 708–746. Available online at [british birds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf](http://britishbirds.co.uk/wp-content/uploads/2014/07/BoCC4.pdf)

JNCC (2010) *Handbook for Phase 1 Habitat Survey: A technique for environmental audit*. Joint Nature Conservation Committee, Peterborough.

JNCC (no date) UK BAP priority habitats and species. <http://jncc.defra.gov.uk/page-5705>. Accessed January 2017.

APPENDIX 1 – RELEVANT LEGISLATION

EUROPEAN PROTECTED SPECIES

All bat species found in the UK are European Protected Species. European protected species are those that are protected by the EC Habitats and Species Directive 92/43/EEC. The Conservation (Natural Habitats, &c.) Regulations 1994 translates this European legislation into UK law. This has been amended in Scotland by The Conservation (Natural Habitats, &c.) Amendment (Scotland) Regulations 2004 and 2007 and the Conservation (Natural Habitats, &c.) Amendment (No. 2) (Scotland) Regulations 2008. EPS includes bats (all species), otter, wildcat and great crested newt. These Regulations make it an offence to deliberately or recklessly:

- Capture, injure or kill an EPS
- Harass a wild animal or group of wild animals of EPS
- To disturb such an EPS while it is occupying a structure or place it uses for shelter or protection
- To disturb an EPS while it is rearing or otherwise caring for its young
- To obstruct access to a breeding site or resting place of an EPS or to otherwise deny an EPS use of a breeding site or resting place
- To disturb an EPS in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs
- To disturb an EPS in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young
- To disturb such an animal while it is migrating or hibernating

It is also an offence to:

- Damage or destroy a breeding site or resting place of such an animal
- Keep transport, sell or exchange or offer for sale or exchange any wild animal or plant EPS or any part or derivative of one

In relation to protected species of animal, licences can be issued under Regulation 44 to permit, for specific purposes, certain actions that would otherwise be against the law. Scottish Natural Heritage (SNH) is responsible for all EPS licensing under the Habitats Regulations (with the exception of some areas of licensing for whales and dolphins).

There is no provision for development licences as such, however, under Regulation 44 (2e) of the Conservation (Natural Habitats, &c.) Regulations 1994 licences may be granted for:

- Preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment.

However a licence will not be granted unless, importantly under 44 (3), the appropriate licensing authority is satisfied:

- That there is no satisfactory alternative; and

That the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

WILDLIFE AND COUNTRYSIDE ACT 1981

The Wildlife and Countryside Act 1981 provides protection to species and habitats. The Nature Conservation (Scotland) Act 2004 amends the Wildlife and Countryside Act 1981 in Scotland.

BIRDS

All wild birds receive general protection to their nest and eggs under the Wildlife and Countryside Act 1981, as amended by the Wildlife and Natural Environment (Scotland) Act 2011. Some species receive enhanced statutory protection due to their listing in schedule 1 of the Wildlife and Countryside Act 1981. It is an offence to disturb a Schedule 1 species while it is building a nest or is in, on, or near a nest containing eggs or young.

There are obligations within the Birds Directive 1979 relating both to protection of species and maintenance of habitats. Birds on Annex 1 to the Birds Directive, regularly occurring migratory species, and birds on Schedule 1 to the Wildlife & Countryside Act are recognised in statute as requiring special conservation measures.

A number of bird species have been highlighted in non-statutory lists as priorities of Conservation Concern in the United Kingdom. This includes those listed in Birds of Conservation Concern 3: and *Priority Species* listed in the UK *Biodiversity Action Plan*. Eaton *et al.* (2009) assigns all birds according to three categories:

- Red List Species - those birds whose populations or range is rapidly declining (recently or historically), and those of global conservation concern;
- Amber List Species - those birds whose populations are in moderate decline, rare breeders, internationally important and localised species and those of an unfavourable conservation status in Europe; and,
- Green List Species - those other birds occurring in the United Kingdom not included in the Red or Amber Lists above. Further details of the appraisal can be found in Eaton *et al.* (2009).

SCHEDULE 5 ANIMALS

Enhanced protection is provided for species listed on Schedule 5, including red squirrel, water vole, pine marten and freshwater pearl mussel. It is an offence to recklessly kill, injure or take animals listed on Schedule 5, with the exception of water vole. Water voles are protected in respect of section 9(4) only (in Scotland), meaning that water vole habitat is protected, although the animals themselves are not.

It is also an offence to recklessly damage, destroy or obstruct access to any place used for shelter or breeding. Licences are available for development purposes if certain conditions are met. Licences should be applied for from SNH.

HABITATS AND PLANTS

The protection of habitats and plants of national importance is provided under the provisions of the Wildlife & Countryside Act 1981 (as amended). This designates key sites that fulfil the habitat designation criteria as Sites of Special Scientific Interest (SSSI). Certain plant species receive enhanced statutory protection under Schedule 8 of the Act.

AMPHIBIANS AND REPTILES

Great crested newts are EPS (see 2.3.2). Grass snake, slow worm, common lizard and adder receive partial legal protection under part of sub-section 9(1) and all of sub-section 9(5) and it is illegal to kill or

injure these species. Other native amphibian species (common frog, common toad, palmate newt and smooth newt) are subject to protection with regard to collecting and sale under the Act. The Bern Convention (1979) (Convention on the Conservation of European Wildlife and Natural Habitats) prohibits use of all indiscriminate means of capture and killing of reptiles and amphibians.

PROTECTION OF BADGERS ACT 1992

The Protection of Badgers Act (1992) provides full legal protection to badgers. In Scotland, this legislation was amended by the Nature Conservation (Scotland) Act 2004 and more recently by the Wildlife and Natural Environment (Scotland) Act 2011. It is an offence to recklessly take, injure or kill a badger (or knowingly cause or permit such an offence), or destroy or cause disturbance to their setts. This includes underground holes and other places of shelter occasionally used by badgers, such as sheds, concrete pipes or culverts etc. *A sett is defined in the Act as any structure or place which displays signs indicating current use by a badger.* Updated guidance has recently (September 2014) been provided by SNH and can be found on the SNH website at: <http://www.snh.gov.uk/docs/A1391121.pdf>. In addition, badgers are afforded protection from cruel ill treatment. As the definition of 'ill treatment' has not been clearly defined; this is likely to include preventing badgers access to their setts as well as causing the loss of significant foraging resources within a badger territory. Licences are available for the disturbance or destruction of setts. SNH must be consulted prior to any works which could cause disturbance to badgers.

NON-NATIVE SPECIES

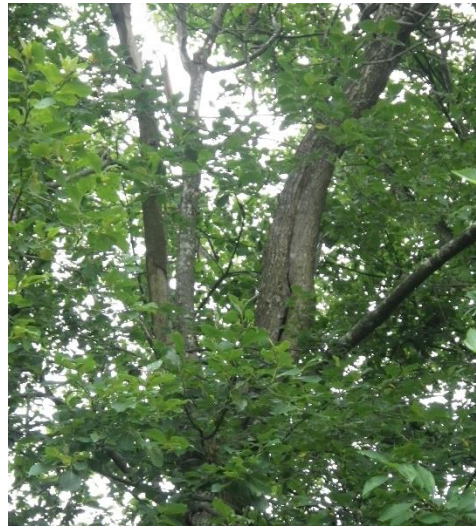
The Wildlife and Countryside Act 1981 (WCA) (as amended) provides the primary controls on the release of non-native species into the wild in Great Britain. The Wildlife and Natural Environment (Scotland) Act 2011 (WANE Act) made amendments to section 14 of the WCA. It is now an offence to 'plant' or 'otherwise cause to grow in the wild' a number of non-native plant species including species such as Japanese knotweed and giant hogweed. In Scotland there is a legal presumption against releasing any animal or plants in the wild out with their natural range. This supersedes Schedule 9 of the WCA which lists animal and plants which may not be released into the wild.

APPENDIX 2 – SURVEY RESULTS

Table 7: Tree Survey Results

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
1.	000148	NS 65883 72140	Crack willow <i>Salix fragilis</i>	Mature tree with potential to have bat roost features, no features recorded during ground survey, however some may have been missed due to size and tree being in full leaf.	L	

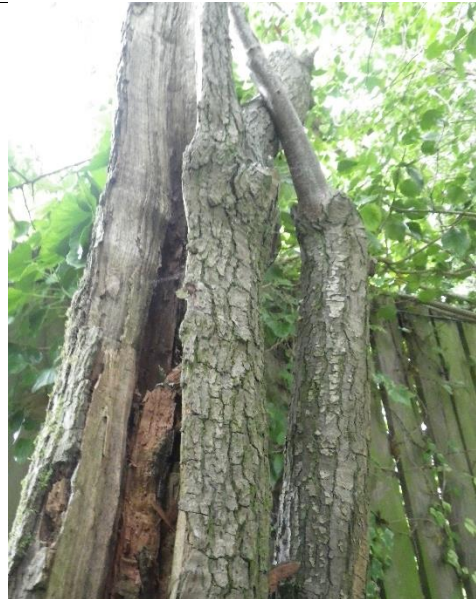
¹ N = Negligible; L = Low; M = Moderate; H = High.

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
2.	1995	NS 65890 72764	Crack willow <i>Salix fragilis</i>	Mature tree with a split all the way through trunk that has moderate bat roost potential.	M	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
3.	1994	NS 65885 72760	Hornbeam <i>Carpinus betulus</i>	Crossed limbs and branches. Low potential for bats to roost in between the branches. Diameter at breast height (DBH) 60cm	L	
4.	1993	NS 65913 72802	Crack willow <i>Salix fragilis</i>	Narrow split in trunk that runs up much of the length of the trunk that could provide bat roost potential.	M	

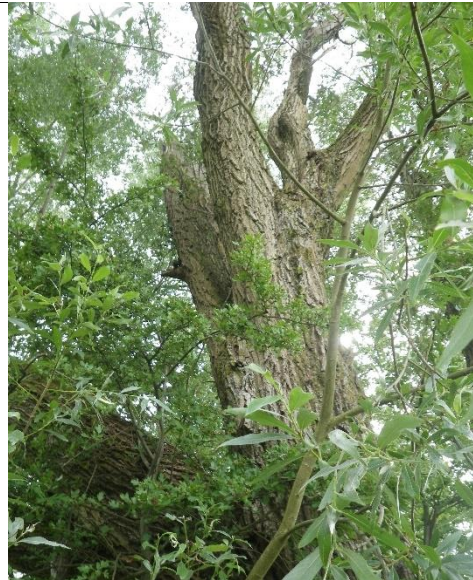
Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
5.	1992	NS 65902 728633	Hornbeam <i>Carpinus betulus</i>	Double trunk which crosses creating gaps in between the features. Potential for there to be further unseen features.	L/M	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
6.	1991	NS 65899 72867	Hawthorn <i>Crataegus monogyna</i>	Multi-stemmed tree. Large cracks and splits in trunks and broken limbs. Delaminated bark. Shaded location and small DBH.	M	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
						
7.	20368 & 000121	NS 655891 72876	Alder <i>Alnus glutinosa</i>	Two trees with crossed limbs with low bat roost potential between the branches.	L	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
						
8.	20381	NS 65882 72897	Silver birch <i>Betula pendula</i>	Rot hole and small broken limb	L	

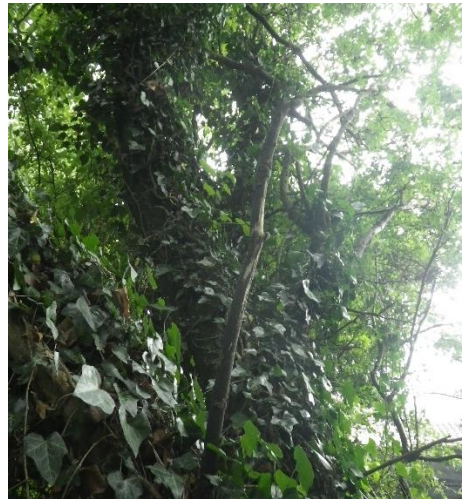
Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
9.	000116	NS 65885 72907	Birch <i>Pendula sp.</i>	Dead limbs which may hold bat roost potential although could be shallow and open to the elements	L/M	
10.	1990	NS 65965 72843	Willow <i>Salix sp.</i>	Broken limbs and crevices between limbs.	M	

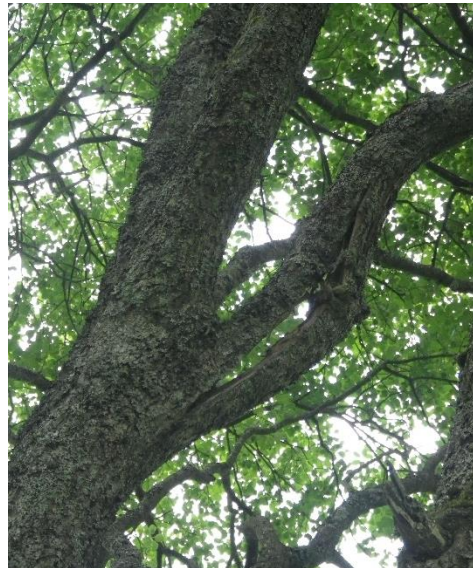
Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
						

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
11.	1889	NS 65960 72855	Willow <i>Salix sp.</i>	Peeled and lifted bark and split in trunk at approximately 8 metres. Further potential crevices higher up.	M	 

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
12.	20406	NS 65971 72841	Sycamore <i>Acer pseudoplatanus</i>	Potential small rot holes high within the tree	L	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
13.	1988	NS 66096 72661	Willow <i>Salix sp.</i>	Rot holes and a broken limb at approximately 8 metres high. Potentially further features higher up.	M	 

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
14.	N/A	NS 66126 72632	<i>Unknown</i>	Heavily covered in ivy which may be potentially obscuring features. Potential features created by ivy.	L/M	
15.	N/A	NS 66135 72637	Elder <i>Sambucus nigra</i>	Small rot hole	L	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
16.	20654	NS 65864 72610	Willow <i>Salix sp.</i>	Split in trunk at approximately 6 metres.	M	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
17.	20601	NS 65949 72585	Silver birch <i>Betula pendula</i>	Rot hole at approximately 7 metres on west side and split further up.	L/M	
18.	20613	NS 65969 72643	Silver birch <i>Betula pendula</i>	Split at approximately 8 – 10 metres	L/M	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
19.	Not tagged	NS 66036 72752	Willow <i>Salix sp.</i>	Various splits and cracks. Difficult to fully survey due to being in full leaf.	L/M	
20.	20411 20409 20408	NS 65972 72833	Poplar <i>Populus nigra</i>	No features recorded, however they are large and in full leaf.	L/M	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
21.	20407	NS 65967 72837	Silver birch <i>Betula pendula</i>	Rot hole in trunk from 0.5 – 2.5 metres	L	

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
22.	20418	NS 66051 72676	Poplar <i>Populus nigra</i>	Lifted bark and lots of fungus on tree.	L	 

Target Note	Tag No.	Grid Reference	Tree	Survey Results	Value ^{1*}	Photo
23.		NS 66081 72674	Alder <i>Alnus glutinosa</i>	Several trees with bat roost potential. Cavities and rot holes.	M	
24.	Not tagged	NS 66032 72644	Willow <i>Salix sp.</i>	Fallen/ leaning tree. Large stump with rot holes.	M	

Table 8: Target Notes

Target Note	Species	Feature	Grid Reference	Description	Photo
1.	Mammal	Fox print	NS 66071 72660	Fox prints in dry ditch	
2.	Bird	Owl box	NS 65974 72558	On tree in woodland, next to garden	
3.	Mammal	Deer prints	NS 65962 72567		

Target Note	Species	Feature	Grid Reference	Description	Photo
4.	Bird	Nest	NS 65885 72760	Old birds' nest at approximately 1.5m height in a small field maple	
5.	Bird	Nest	NS 65908 72834	In hazel tree approximately 3m high	

Target Note	Species	Feature	Grid Reference	Description	Photo
6.	Bird	Nest	NS 65965 72845	Twiggy nest in sycamore tree approximately 3m high	
7.	Japanese Knotweed	Invasive species	NS 65932 72625	Stand of Japanese knotweed within hawthorn hedge approximately 20 metres by 5 metres. Stand has potentially been partially treated.	

APPENDIX 3 - MAPS

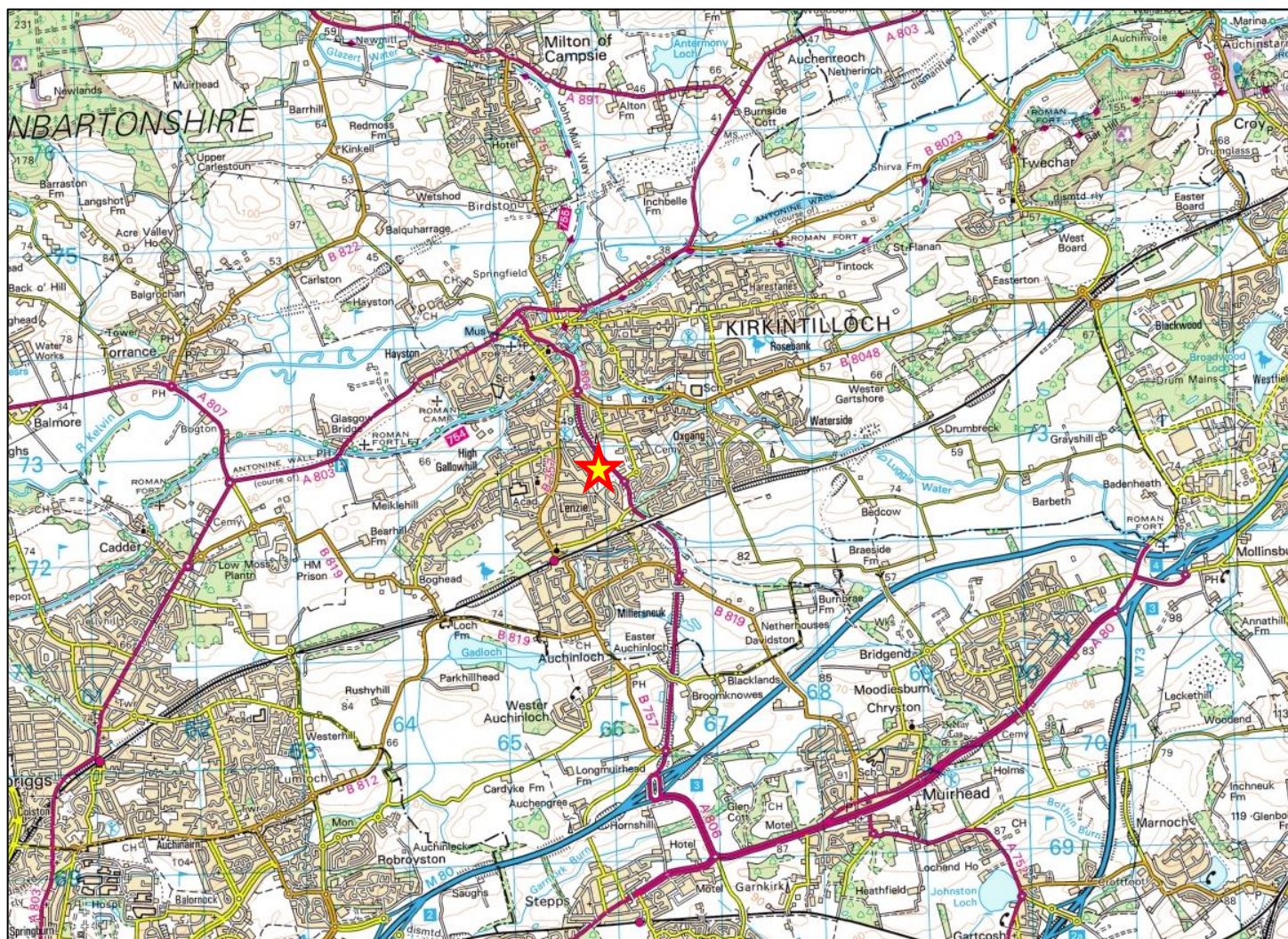


Figure 1: Site location (contains open source OS map data)

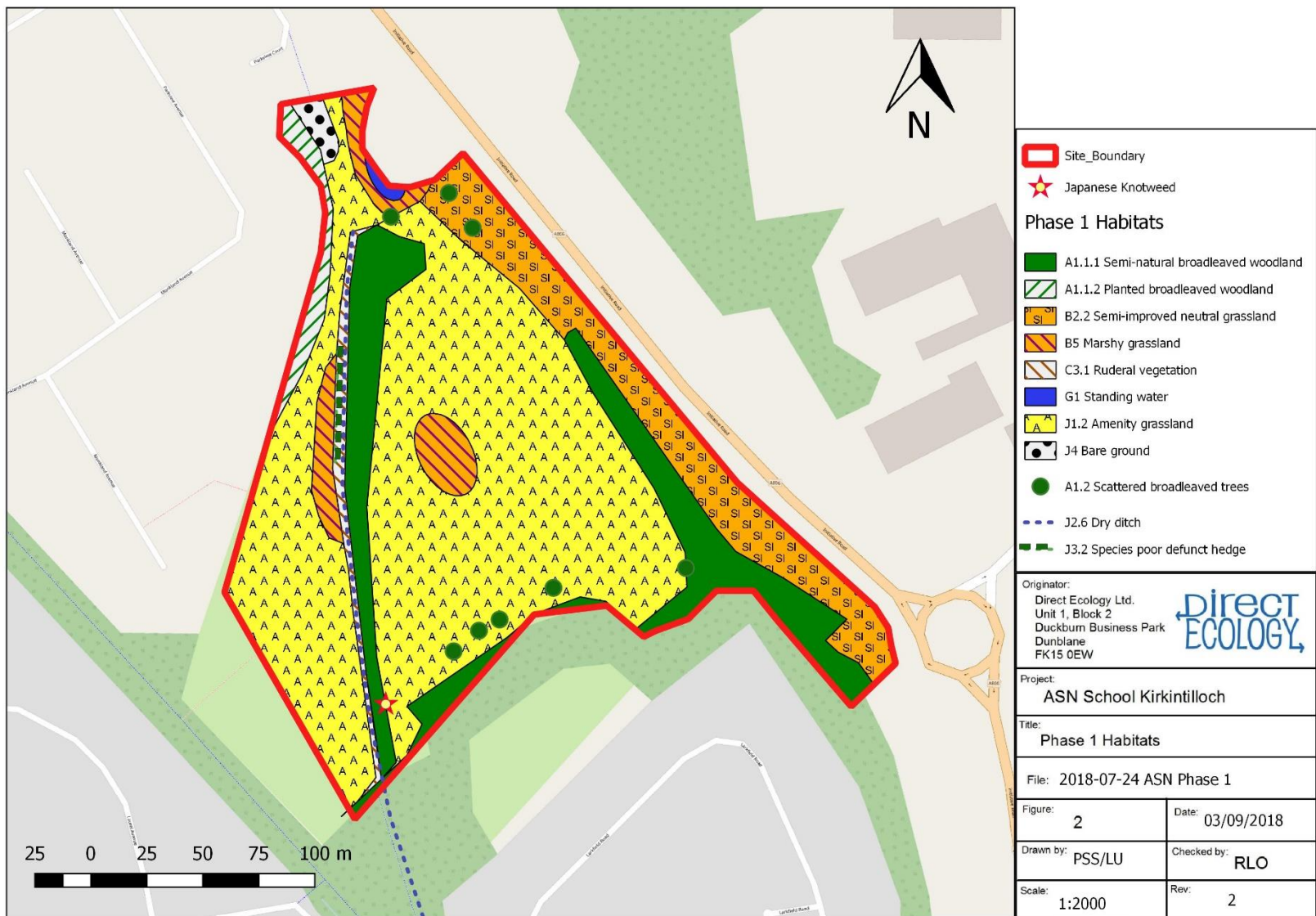


Figure 2: Phase 1 habitat map



Figure 3: Bat roost potential map