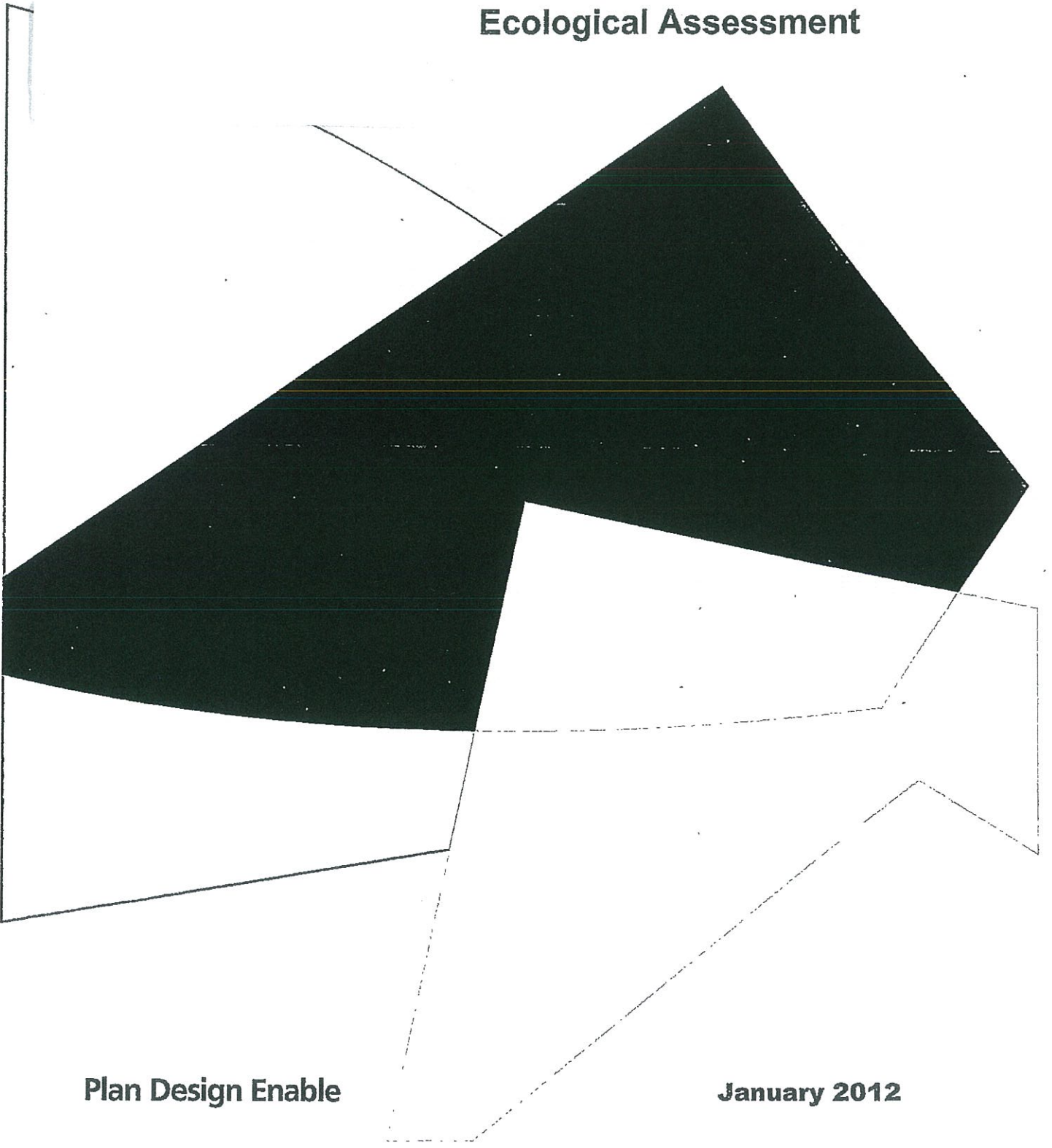


Huntly Flood Alleviation Scheme, Huntly, Aberdeenshire

Ecological Assessment



Planning Application for Huntly Flood Alleviation Scheme, Huntly, Aberdeenshire

Ecological Assessment

On behalf of
Aberdeenshire Council

January 2012

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Plan Design Enable

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Abbreviations

BAP	Biodiversity Action Plan
EIA	Environmental Impact Assessment
EPS	European Protected Species
FAS	Flood Alleviation Scheme
IEEM	Institute of Ecology and Environmental Management
MAGIC	Multi-Agency Geographical Information for the Countryside
NESBreC	North East Scotland Biological Records Centre
OS	Ordnance Survey
SNH	Scottish Natural Heritage
WFD	Water Framework Directive

Glossary

Assessment	An umbrella term for description, analysis and evaluation.
Biodiversity	Biological diversity, or richness of living organisms present in representative communities and populations.
Biodiversity Action Plan – UK and local	The UK BAP is the UK government's response to the Convention on Biological Diversity, signed in 1992. The UK BAP was published in 1994 and sets out a programme for conserving biodiversity in the UK. Conservation priorities are recognised at a local scale through Local Biodiversity Action Plans (LBAP), which detail actions for species and habitats. LBAPs generally conform to local authority boundaries.
European Protected Species	The Habitats Regulations 1994 (as amended in Scotland) provides the protection afforded to European protected species (EPS) of animals and plants (those species listed on Annex IV of the Habitats Directive whose natural range includes Great Britain). EPS are listed on Schedules 2 (animals) and 4 (plants) of the Habitats Regulations 1994 (as amended).
Fauna	All members of the animal kingdom; including vertebrates (e.g. birds, mammals and fish) and invertebrates (e.g. insects).
Flora	All members of the plant kingdom: higher plants, ferns and fern allies, mosses and liverworts, algae and phytoplankton.
Habitat	Term most accurately meaning the place in which a species lives, but also used to describe plant communities or agglomerations of plant communities, as used, for example in a Phase 1 Habitat Survey (see below).
Impact	Any changes attributable to a proposed scheme that have the potential to have environmental effects (i.e. an impact is a cause of an effect).
Phase 1 Habitat Survey	Methodology developed by the JNCC (Joint Nature Conservation Committee) in the 1970s for rapid survey of semi-natural vegetation over large areas of countryside. Uses a hierarchical classification based primarily on vegetation, but also augmented by reference to topography and soil characteristics. The method recognises specific habitat types, each represented by a standard colour code, and supplemented by descriptive target notes which record anything of particular interest in a given habitat.
Tall Ruderal	Tall perennial vegetation, usually more than 25 cm high, typical species include rosebay willowherb and nettle.

Summary of Findings

- An area of ancient woodland will be removed with 17 trees being lost. Although tree planting will be undertaken, the loss of 17 mature trees is considered to be significant at a regional scale as the removal of mature trees cannot be mitigated.
- The other habitats within the Site are important only in a site context and as such the permanent loss of these habitats is not considered to be significant.
- Mitigation and precautionary measures are required with regard to bats, otter, badger, reptiles, nesting birds, red squirrel and water quality. Providing the mitigation and precautionary measures are followed, the proposed works are not considered to have a significant impact on these species or the local ecology.

1. Introduction

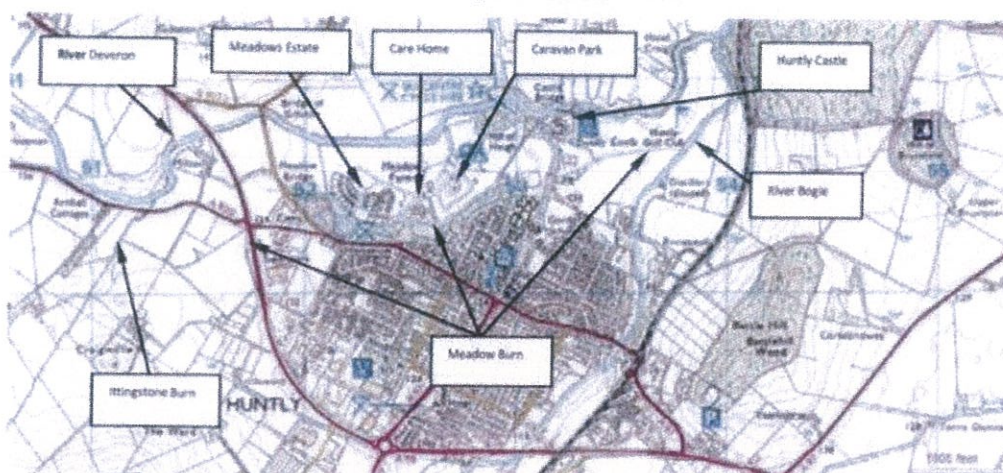
Development Proposals

- 1.1 This ecological assessment is submitted to accompany the application for Full Planning Permission for the proposed engineering works for Huntly Flood Alleviation Scheme (FAS), Aberdeenshire. The proposal is approximately 9.9ha, and as such is deemed a 'major' development under the Town and Country Planning (Hierarchy of Developments) (Scotland) Regulations 2009.
- 1.2 The proposed FAS will be developed under the processes of the Water Environment (Controlled Activities) Regulations 2005 and Flood Risk Management (Scotland) Act 2009. The proposed operations are along sections of the River Deveron, Ittingstone Burn and Meadow Burn, on lands to the north of Huntly. Aberdeenshire Council considers that the operations will substantially reduce flood risk to residential and commercial properties within the area known as the Meadows.

Site Context

- 1.3 The proposed site which the application relates to ('the Site') is located on lands north and west of Huntly, Aberdeenshire. Refer to Figure 1 overleaf. The town of Huntly is situated approximately 65 km north-west of Aberdeen on the main A96 Aberdeen to Inverness Trunk Road.
- 1.4 The origins of the town date back to a settlement serving Huntly Castle. The Castle is located to the north of the town centre on the banks of the River Deveron. The River Deveron flows west-east, forming the northern boundary of the town.
- 1.5 The majority of the town is located on high ground to the south of the Castle. However between the town centre and the River Deveron there is a flat low-lying area called "The Meadows". In the more recent past this area has been developed for housing and leisure purposes, (Meadows Housing estate, a care home, a caravan park and the Nordic Ski centre). There are also two special needs housing units located within the estate.
- 1.6 A number of main rivers and burns are confluent in the vicinity of the town. As well as the River Deveron these include the River Bogie, the Ittingstone Burn and the Meadow Burn.
- 1.7 The Ittingstone Burn joins the River Deveron in the Milton area to the west of the town. The River Bogie has its confluence with the River Deveron about 1km downstream of Huntly Castle and the Meadows Burn flows through 'the Meadows' to a confluence with the River Bogie to the north east of the town.
- 1.8 The Meadows has experienced several significant flood events within living memory, and damage has been caused to many residential and commercial properties. The area was flooded in September 1995, April 2000, October and November 2002, and most recently September and November 2009.
- 1.9 The A96(T) and the A920 are also affected by flooding causing significant disruption to transportation links in the area.
- 1.10 Following the 1995 event, a raised flood defence was built to the north and west of the Meadows Estate. This affords protection against direct inundation from the Deveron. However the flooding mechanisms in the area are complex, with overland flow from the Deveron, the Meadow Burn and from the Ittingstone Burn still posing a significant risk to the Meadows Estate.

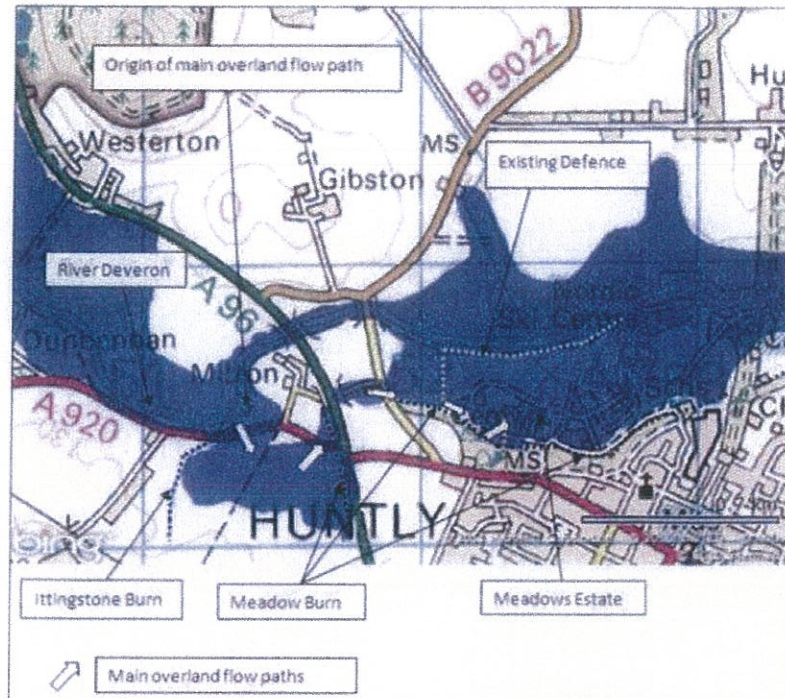
Figure 1 Location Plan



Need for the Development Proposal

- 1.11 Despite the construction of raised defences to the north and west of the Meadow Estate, the area is still at risk from overland flow paths which develop from the west. See Figure 2 below.
- 1.12 Flood waters from the River Deveron overtop the banks in the area of Milton Farm. Overland flow paths develop over the A920 and enter the catchment of the Meadow Burn.
- 1.13 Flows in the Meadow Burn are dramatically increased. It has been estimated that during the November 2009 event, the flow in the burn was 24 cumecs. Without a contribution from the River Deveron we would normally expect a 0.5% (1 in 200) annual chance event in the burn to be in the order of 3 cumecs.
- 1.14 The conveyance available within the channel and existing culverts systems on the Meadow Burn are not even capable of containing the flows generated from within its own catchment.
- 1.15 Flood waters spill from the burn inundating properties within the Meadows Estate, the care home, the special needs units and the caravan park.
- 1.16 Based on detailed modelling studies carried out by our consultants Atkins has concluded that the flood risks to the community are as follows:
 - Overtopping of the banks of the River Deveron in the area of Milton Farm commences at a 20% (1 in 5) annual chance event;
 - The A920 and the A96(T) are affected by flood events greater than the 20% (1 in 5) annual chance event;
 - Property flooding within the Meadows estate commences at the 10% (1 in 10) annual chance event;
 - The care home and caravan park start to be effected at the 10% (1 in 10) annual chance event; and
 - A total of 50 properties are affected during a 0.5% (1 in 200) annual flood event.

Figure 2 SEPA Flood Outline



Source: SEPA <http://go.mappoint.net/sepa/>

Design Process

Options Appraisal

1.17 As part of the optioneering undertaken during the design process and in response to comments received from consultees, various flood defence approaches were considered. Furthermore, different forms of construction of the flood defence were considered and other high-level design options. These options included:

- **Sheet piled walls** – Dismissed: Due to cost, environmental concerns on potential impact of construction noise and vibration, hydrological impact of working within the watercourse, impact on ground water flow and aesthetic appearance and in consideration for the Water Framework Directive (WFD) parameters and objectives for Scottish Water bodies (physico-chemistry, biological elements, specific pollutants, hydromorphology).
- **Concrete walls** – Dismissed: Due to cost, environmental concerns on potential water quality impacts due to possible increased sedimentation; ground water flow impacts, aesthetic appearance, and in consideration of the WFD.
- **Storage** – Dismissed: No areas were available and the volume of storage required was not feasible.
- **Retreat** – Dismissed: Economically unviable nor socially feasible, or practical.
- **Earth embankments** – Progressed: The most cost-effective preference of all of the options with the least environmental impact. The simplest method of construction.

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Detailed Design

- 1.18 Following on from the preliminary options appraisal, Atkins has progressed the FAS from concept design, by taking into account the environmental, physical, legislative, practical and socio-economic feasibility of various flood alleviation options, to detailed design. We have also taken cognisance of comments received from statutory and non-statutory consultees, and the local community, during the 12 week pre-application consultation period referred to below.
- 1.19 The development proposals being taken forward considers the 0.5% annual exceedance probability (1:200 year) event including an allowance for climate change, which was determined through hydraulic modelling developed at concept design stage together with collated topographic information, hydrological modelling of rainfall and available gauging data from SEPA. This has allowed us to determine flood levels for the area.
- 1.20 As part of the proposed works, which are detailed within the Supporting Planning, Design and Access Statement, of these works, vegetation clearance and earthworks will be required at the following locations:
- *The culvert entrance to the Ittingstone Burn that flows south to north. It should be noted that the existing open section of watercourse to the north of the A920 will be culverted but vegetation will be reinstated above the culvert. This would still constitute a change from the existing habitat with the loss of approximately 20 m of open channel. The access track may also be extended from the A920 to the culvert exit (approximately 30 m²).*
 - *The culvert and new embankment at Meadow Burn. There will be permanent removal of woodland habitat where a new embankment is to be installed and habitat along the Meadow Burn will be lost either side of the culvert (area of approximately 15m²). There will also be a proposed access track from the existing access track off, Rowan Avenue to the north-west of the Meadows Estate (approximately 250 m²).*
- 1.21 Atkins proposes to reinforce riverbanks, build the level up to the 0.5 % AEP on the right hand side of the Deveron at Arnhall Cottages and to replace the existing Ittingstone Burn flap valve. Due to the continued erosion of the right hand bank, greenbank protection will be included.
- 1.22 With the exception of the replacement flap valve at the Ittingstone Burn culvert, there will be no work directly within any watercourse and no change to the river regime
- 1.23 The design does not include any perched / hanging structures, nor are there any Irish Pipe Bridges.

Consideration of Environmental Aspects

- 1.24 At the western edge of the development proposals adjacent to the A920, two sub options were considered regarding the position of the flood defence.
- 1 place the embankment on the river bank; or,
 - 2 set back the defence at Milton Farm.
- Due to WFD compliance the set back option was taken forward.
- 1.25 The flood defence was not extended past the Hill of Haugh due to constraints associated with the scheduled area of Huntly Castle. Embankments to the north side of Meadow Burn were removed to avoid potential noise and vibration impact and due to potential construction difficulties and possible degradation to the Meadow Burn.
- 1.26 Atkins has received a Screening Opinion under the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended) that the Huntly FAS is not considered to be EIA development and, therefore, that an Environmental Statement is not required to be submitted with the planning application.

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- 1.27 In respect of this Screening Opinion outcome Atkins has agreed with the Planning Officer at Aberdeenshire Council (Ms. Aude Chaiban) to prepare a number of tailored environmental assessments as appendices to the Supporting Planning Statement, which will accompany the planning application.

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2. Appraisal Methodology

Policies and Guidance

- 2.1 This ecological assessment has been undertaken with reference to current best practice and in particular the Guidelines for Ecological Impact Assessment in the United Kingdom (Institute of Ecology and Environmental Management, June 2006).

Zone of Influence or Spatial Scope

- 2.2 To define the total extent of the study area for ecological assessment the proposed activities were reviewed in order to identify the spatial scale at which ecological features could be affected.
- 2.3 The Zone of Influence is the area encompassing all predicted negative ecological effects from the proposed development proposals, both those which will occur as a result of land-take and habitat loss and those which will occur through disturbance such as noise.
- 2.4 Due to the scale of the proposed works and their location within a rural environment, a zone of 2 km for statutory designated sites and 1 km for non statutory sites is considered appropriate for the gathering of information during the desk study. For the field survey, the Site plus the land immediately adjacent extending to 50 m from the boundary is considered an appropriate area to survey.
- 2.5 The current proposals and site layout along with any ecological constraints are shown in Map 1 and Map 2 Appendix A.1.

Temporal Scope

- 2.6 To define the temporal scope for ecological assessment the proposed activities were reviewed in order to establish when impacts could occur and over what duration.
- 2.7 Impacts have been assessed in the context of the predicted baseline conditions within the zone of influence during the lifetime of the project (i.e. the assessment takes into account how the existing conditions might change between the surveys and the start of construction and/or operation). As the most recent surveys have been undertaken in September 2011 and the proposed works will begin towards late spring 2012, the baseline conditions are not anticipated to change significantly from conditions observed during the surveys.

Data Gathering

- 2.8 A desk study was carried out to identify the presence of any statutory or non-statutory sites within the vicinity of the Site.
- The MAGIC (Multi-Agency Geographical Information for the Countryside) website (www.magic.gov.uk) was used to identify all statutory designated sites of importance for nature conservation within 2 km of the Site;
 - Ordnance Survey (OS) maps were used to identify the presence of ponds within 500 m of the Site and to establish if the site could be used as terrestrial habitat for great crested newts¹;
 - OS maps were also used to identify watercourses or water bodies within 500 m of the Site, with particular emphasis on otter and fishery interests and other notable habitat within 500 m of the Site;
 - The UK and North East Scotland Biodiversity Partnership (Aberdeen Council) Biodiversity Action Plans (BAPs) were reviewed to identify priority habitat and notable species² that may be present within the study area; and,

¹ Great crested newts are a European protected species that can use terrestrial habitat up to 500m from their breeding ponds. (English Nature, Great Crested Newt Mitigation Guidelines, August 2001).

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- The North East Scotland Biological Records Centre (NESBReC) was contacted in September 2011 for information relating to non-statutory designated sites of nature conservation importance, legally protected and other notable species records within 1 km of the Site boundary. Bat species records were requested within 2 km of the survey boundary

Consultation

- 2.9 Scottish Natural Heritage (SNH) and the Environmental Planner at Aberdeenshire Council were consulted at the Options Appraisal Stage (October 2010). Details of consultation responses are provided in the separate Pre-Application Consultation Statement submitted as part of the planning application package.

Walkover Survey

- 2.10 A walkover ecological survey of areas within and adjacent to the Site (including land up to 50 m from the Site boundary) was undertaken in October 2010 following the 'Extended Phase 1' methodology as set out in Guidelines for Baseline Ecological Assessment³. The extended Phase 1 habitat survey provides information on the habitats in the survey area and assesses the potential for notable flora or fauna to occur in, or adjacent to the survey area. Phase 1 habitat maps 1 and 2 show the habitats on Site are provided in Appendix A.1.
- 2.11 A further walkover survey was undertaken on the 12th January 2012 to review the area of woodland to be affected by a design revision, to the south of Meadow Burn. A detailed survey of the woodland was required as additional trees require removal to accommodate the design, the survey assessed the trees to be removed. This survey only looked at the woodland to be removed to the south of meadow burn and a 50 m radius around.

During the walkover surveys, the following preliminary investigations were undertaken in respect of the presence of legally protected species, as follows:

- assessing the suitability of habitats for nesting birds (including any old nests), reptiles, otters, water vole reptiles, and red squirrels;
 - potential roosting sites for bats within trees (identification of suitable cracks and crevices);
 - search for signs of badger activity including setts, tracks, snuffle holes and latrines within survey area;
 - assessing the potential of land within the survey boundary to support amphibians including great crested newts; and,
 - A search was made for the most common invasive species subject to strict legal control (Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam) which are subject to strict legal control.
- 2.12 As red squirrels are known to be found in the local vicinity, the survey included searches for feeding evidence and dreys to ascertain their presence within the application site.

The potential for a tree to support bats was assessed according to the categories given in Table 2-1.

Table 2-1 – Bat potential category descriptions for trees

Category (Potential to support roosting bats)	Description (Categories for Trees)
Negligible potential	Tree contains no suitable features for roosting bats. These can include young trees without ivy and without loose bark and obvious cracks / fissures. Usually saplings, semi-mature specimens with a small girth or mature trees which do not tend to form fissures as readily such as beech.

² The notable species list is currently being updated by the North East Scotland Biodiversity Partnership and a compiling a priority habitat list.

³ Guidelines for Baseline Ecological Assessment (Institute of Environmental Assessment, 1995)

Potential (Probability of Supporting Roosting Bats)	Description (Category of Tree)
Low potential	Tree contains limited features suitable for roosting bats. Usually young (sapling or semi-mature) trees with some dense ivy or loose bark but no obvious deep cracks or fissures. No evidence of bats found (e.g. droppings / staining).
Moderate potential	Tree contains some features suitable for roosting bats. Trees with some cracks or fissures (of depth over 50 mm) and/or large amounts of ivy / loose bark. Usually semi-mature or mature specimens. Trees tend not to have large splits, hollow trunks or woodpecker holes. No evidence of bats found.
High potential	Tree contains features that are highly desirable for roosting bats. Trees with woodpecker holes / large cracks and/or crevices. Often with a hollow trunk. May support very dense ivy. No evidence of bats found.
Confirmed roost	Bats discovered roosting within the tree, or recorded emerging from / entering a tree at dawn and / or dusk. Trees found to contain conclusive evidence of occupation by bats, such as bat droppings. A confirmed roost record (as supplied by an established source such as the local bat group) would also fall into this category.

Bat Surveys

- 2.13 During the walkover surveys trees were identified with suitability to support roosting bats, and as such detailed bat surveys were also undertaken. Bat surveys were conducted by Atkins ecologists during August and September 2011. The survey methodologies followed guidelines provided in the Bat Workers' Manual (Joint Nature Conservation Committee, 2004), Bat Surveys – Good Practice Survey Guidelines (Bat Conservation Trust, 2007), and the Bat Mitigation Guidelines (English Nature, 2004).

Dusk and Dawn Surveys

- 2.14 Surveys were undertaken on the 29th (dusk), 30th August (dawn), 14th (dusk) and 15th September, during suitable weather conditions. Dusk surveys commenced at least fifteen minutes before sunset lasting for at least one and a half hours. The initial dawn survey commenced two hours before sunrise and lasted two hours and the final dawn survey commenced just over one hour before sunrise and lasted over one hour. The trees are situated within the fringes of woodland, accessible from a pedestrian path. The low lighting limited observation after dusk (approximately 1 hour) and pre-dawn, this prevented the surveyors from observing if any bats entered or exited trees when completely dark (i.e. over 1 hour after sunset and over 1 hour before sunrise). Three surveyors were present during the 29th and 30th August. However as tree 2 and tree 3 could be viewed by a single surveyor, only two surveyors were present during the 14th and 15th September surveys, covering all suitable entry and exit points to allow for observation and identification of emerging bats at dusk and dawn. Electronic bat detectors were used during the surveys (Batbox Duet, Stage Electronics).

Otter and Water Vole Surveys

- 2.15 In addition to the walk over survey, a detailed survey of the River Deveron, Ittingstone Burn and Meadow Burn was undertaken for water vole and otter on the 13th and 14th September 2011. The watercourses were accessed during survey.
- 2.16 The otter surveys complied with the methodology detailed in Scottish National Heritage (SNH) 'Guidance for Otter Survey' from the on-line publication, Otters and Development⁴. The objective of the survey was to locate otter holts and resting sites within 30 m and breeding sites within 100-200 m of the Site sites to identify if a European Protected Species (EPS) licence would be

⁴ <http://www.snh.org.uk/publications/on-line/wildlife/otters/default.asp>

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required. The survey included a methodical search for signs of otters such as tracks, spraints (recording whether fresh or old), resting sites including holts or crouches, slides, runs, grooming hollows, sign heaps and feeding remains.

- 2.17 Survey for water voles followed the methodology as set out in the Water Vole Conservation Handbook⁵ and included a search for burrows, feeding stations, footprints, faeces and latrines within 250 m upstream and downstream along watercourses on Site, where access would allow.

Limitations to Survey

- 2.18 Ecological surveys are limited by factors which affect the presence of plants and animals such as the time of year, migration patterns and behaviour. The ecological survey has not therefore produced a complete list of plants and animals and the absence of evidence of any particular species should not be taken as conclusive proof that the species is not present or that it will not be present in the future.
- 2.19 All non native species are now legally controlled under of the Wildlife and Countryside Act 1981 (as amended by the Under the Wildlife and Natural Environment (Scotland) Act 2011) and as such the number of species to be considered is extensive and these plants are found in a range of different habitats, including aquatic habitats. The Extended Phase 1 survey checked, in particular, for the presence of Japanese knotweed, giant knotweed, hybrid knotweed, giant hogweed, rhododendron and Himalayan balsam. There may be other invasive plant species present on the site which were not recorded, but it is considered that this survey is sufficient to identify any significant constraints posed by invasive plants. The results of this ecological survey have allowed an evaluation of the likely use of the site by protected and controlled species and the requirement for mitigation works.
- 2.20 Trees were only surveyed from the ground and as such the tops of the trees could not be clearly viewed during surveys.

Nature Conservation Evaluation Criteria

- 2.21 The nature conservation value or potential value of an ecological feature is determined within the following geographic context:
- International importance (such as Special Areas of Conservation, Special Protection Areas, Ramsar sites);
 - National importance (such as Sites of Special Scientific Interest);
 - Regional/County importance (such as Local Nature Reserves, Sites of Importance for Nature Conservation, ancient woodlands);
 - local importance (undesignated ecological features such as old hedges, woodlands, ponds);
 - the Site and immediate environs (site importance) e.g. habitat mosaic of grassland and scrub within the Site, and;
 - negligible importance would usually be applied to areas of built development, active mineral extraction, or intensive agricultural land.
- 2.22 It is usual to consider habitats and species together when ascribing a value to a feature using this geographic context. However, there are circumstances where an ecologist may feel it necessary to assign a value to a particularly valuable species. In assigning value to species it is necessary to consider the species distribution and status including a consideration of trends based on available historical records and to make use of any relevant published evaluation criteria. For

⁵ Water Vole Conservation Handbook 5 2nd Edition (Strachan and Moorhouse, 2006)

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instance, the presence of a significant population of European protected species such as bats and great crested newts may be worth separate consideration⁶.

Impact Assessment Criteria

2.23 The assessment of the potential impacts of the proposed development takes into account both on-site impacts and those that may occur to adjacent and more distant ecological features. Impacts can be positive or negative. Negative impacts can include:

- Direct loss of wildlife habitats;
- Fragmentation and isolation of habitats;
- Disturbance to species from noise, light or other visual stimuli;
- Changes to key habitat features; and/or
- Changes to the local hydrology, water quality and/or air quality.

2.24 Negative and positive impacts on nature conservation features have been characterised based on predicted changes as a result of the proposed activities. In order to characterise the impacts on each feature, the following parameters are taken account of:

- The magnitude of the impact;
- The spatial extent over which the impact would occur;
- The temporal duration of the impact;
- Whether the impact is reversible and over what timeframe; and
- The timing and frequency of the impact.

2.25 The assessment identifies those positive and negative impacts which would be 'significant', based on the integrity and the conservation status of the ecological feature. Impacts are unlikely to be significant where features of local value or sensitivity are subject to small scale or short-term impacts. However, where there are a number of small scale impacts that are not significant alone, it may be that, cumulatively, these may result in an overall significant impact.

2.26 The integrity of 'defined' sites is described as follows and has been used in this assessment to determine whether the impacts of the proposals are likely to be significant:

The integrity of a site is the coherence of the ecological structure and function across its whole area that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified.⁷

2.27 The conservation status of habitats and species within a defined geographical area is described as follows and has been used in this assessment to determine whether the impacts of the proposals on non-designated habitats and species are likely to be significant:

For habitats, conservation status is determined by the sum of influences acting on the habitat and its typical species, that may affect its long term distribution, structure and functions as well as the long term survival of its typical species within a given geographical area;

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long term distribution and abundance of its population within a given geographical area.²

⁶ Disturbance and protected species: understanding and applying the law in England and Wales, A view from Natural England and the Countryside Council for Wales (24 August 2007).

⁷ Guidelines for Ecological Impact Assessment in the United Kingdom, IEEM, 26 June 2006

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- 2.28 The mitigation measures described have been agreed, incorporated into the design and programme and taken into account in the assessment of impacts. These measures include those required to achieve the minimum standard of established practice plus additional measures to further reduce any adverse impacts of the development proposals. In addition measures to enhance biodiversity within the development proposals are identified.
- 2.29 In addition to determining the significance of an impact on any ecological features, this Ecological Assessment also identifies any legal requirements in relation to wildlife.

3. Appraisal

Baseline Conditions

Designated Sites

Statutory Sites

- 3.1 No statutory sites are located within 2 km of the Site.

Non-statutory sites

- 3.2 No non-statutory designated sites are present within 1 km of the Site.

Notable Habitats

- 3.3 Table 3-1 below contains information obtained from the desk study relating to water bodies within 500 m of the Site and other notable habitats present within 500 m of the Site.

Table 3-1 – Water Bodies within 500 m and other Notable Habitats within 1 km, listed by distance

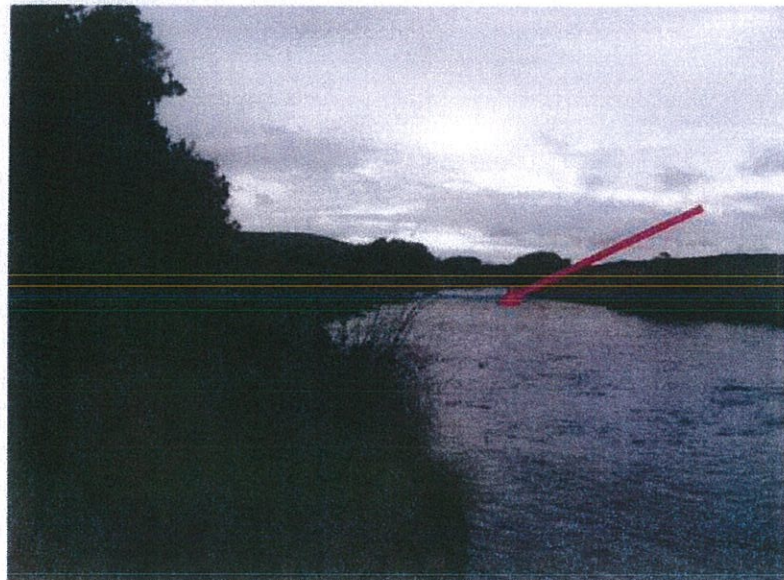
Map (Appendix A.1)	Habitat	Designation (UKBAP, Local BAP)	Approximate distance and direction from the proposed application site
1	Burn	UK BAP (Rivers and Streams)	Meadow Burn is located within the Site
2	Burn	UK BAP (Rivers and Streams)	Ittingstone Burn is located within the Site
3	River	UK BAP (River and Streams)	The River Deveron is located immediately north of the Site
4	Ditch	UK BAP (River and Streams)	Adjacent east of the Site
5	Ditch	UK BAP (River and Streams)	5 m south-west of the Site connected to the Meadow Burn
6	Ditch	UK BAP (River and Streams)	20 m south of the Site
7	Ditch	UK BAP (River and Streams)	25 m north of the Site separated by the River Deveron
8	Ditch	UK BAP (River and Streams)	30 m north-east of Site separated by the River Deveron
9	Ditch	UK BAP (River and Streams)	95 m north-east separated by the River Deveron
10	Ditch	UK BAP (River and Streams)	125 m north of the Site separated by the River Deveron
11	Ditch	UK BAP (River and Streams)	123 m east of the Site
12	Ditch	UK BAP (River and Streams)	132 m east of the Site
13	Ditch	UK BAP (River and Streams)	271 m south-east of the Site
-	Ancient woodland (of semi-natural origin)	No designation	Within the Site

Species and Habitats

- 3.4 A summary of relevant legislation regarding designated sites, habitats and species can be found in Appendix B.
- 3.5 The Site consists of large areas of dense ruderal vegetation and areas of improved grassland, broad-leaved and mixed woodland, scattered trees, scrub, arable fields, amenity mown grassland and hard standing. There are two burn's located within the Site, the Meadow Burn and the Ittingstone Burn. The River Deveron is located adjacent north of the Site, shown in Photograph 1. Within Appendix A.1. Map 1 and Map 2 show the Site and habitats found. To the south of the Meadow Burn is an area of mature broadleaved woodland with mature sycamore, beech, elm and ash. This woodland is listed on the ancient woodland inventory as being ancient of semi-natural origin. Between Meadow Burn and the River Deveron the Site has areas of tall ruderals, dominated by rosebay willowherb on the western side and amenity grassland on the eastern side, which are inter-dispersed throughout with areas of young planted broadleaved woodland.

Photograph 1:
Showing the Site.
The Site is
located south of
the River Deveron
(shown with a red
arrow)

Photograph taken
from the south
bank facing west.



- 3.6 The Meadow Burn is 1 m - 2 m wide with a moderate flow and depth ranging from 20 cm - 1 m, see photograph 2. The substrate consists of silt and gravel. The banks are silty and steeply eroded in places. The banks are generally gently sloping with some steep sections, approximately 50 cm - 2 m in sections. The bank side vegetation is dominated by nettles and frequent hogweed, creeping buttercup and wood avens. There are scattered trees located along the south bank. Some burrows were located within the vertical face banks, most likely belonging to bank vole and four connected cavities/ burrows located on the south bank under a semi mature tree which were thought to be in use by mink.

Photograph 2: Meadow Burn
 Heavily used pedestrian path located on the south of the meadow burn, (shown with red arrow). The area is very disturbed by local residents and dog walkers. The burn is situated south of residential properties.

Photo taken from the south bank facing west.



- 3.7 The Ittingstone Burn is 50 cm – 1 m wide with a slow flow and depth ranging from 20 cm – 1/2 m. The substrate comprised of silt and pebbles. At the time of the survey the banks of the burn were densely vegetated dominated by nettles and reed canary grass with hogweed, soft rush, cocks foot and Yorkshire fog.

Photograph 3:

Ittingstone Burn (shown with red arrow).

Dense vegetation overhangs the burn.

Photo taken from within the improved field facing south.



Photograph 4:
River Deveron.

Steep sided banks with tall ruderal species and grasses.

Photo taken from the southern bank facing east.

**Legally Protected and Notable Species**

- 3.8 The survey identified potential habitat for the following legally protected and notable species within or close to the Site: reptiles, otters, water vole, badgers, nesting birds, red squirrels and roosting, foraging or commuting bats which are further discussed below. The legislation relating to these species is provided in Appendix B.
- 3.9 Giant hogweed and Himalayan balsam are present on site, these are native species and it is an offence to cause them to spread in the "wild". No evidence of any other legally protected or notable species were found within the survey area.

Great crested newts and other amphibians

- 3.10 No records of great crested newts within 1 km of the survey boundary were provided by the North East Scotland Biological Records Centre (NESBReC).
- 3.11 There are no ponds shown on Ordnance Survey plans within 500 m of the Site and the River Deveron, Ittingstone Burn and the Meadow Burn within the site were observed to have flow and are therefore not considered suitable for use by this species (and may in fact act as a barrier to their migration). It is known that two SUDS ponds are located within 500 m of the site, however as new ponds, and with no other ponds in the area from which newts could colonise it is considered that great crested newts would not be present in these. As such this species is not considered any further.

Bats

- 3.12 NESBReC provided 20 records of roosting bats. Sixteen records of common pipistrelle from 1997 to 2006 were provided as a 4 figure Grid reference, 10 km radius. The final four records were provided between 1995 to 1999 for *Pipistrelle pygmaeus* and *Myotis* sp. roost counts. The three *myotis* sp. records were located 200 m east, 300 m east, 600 m south of the proposed development and the pipistrelle roost count was located over 750 m north-east of the Site.
- 3.13 The woodland, watercourses and tall ruderal habitat within the Site provide suitable habitat for commuting and foraging bats. The surrounding habitats including the nearby areas of woodland, hedgerows and grassland will also provide foraging opportunities and commuting routes for bats.
- 3.14 Trees within the mature woodland at the southern extent of the Site and the mature scattered trees located at the eastern extent of the site, adjacent to the castle were identified as having features suitable to support roosting bats.

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- 3.15 To the south of Meadow Burn, seventeen mature ash and beech trees that lie within the ancient woodland boundaries fall within the Site. All of these trees have potential to support roosting bats, with suitable features which could be used and will be lost as a result of the proposals. Due to the dense foliage not all of the trees could be viewed and the survey focused on the three trees with the highest potential which are adjacent to Meadow Burn and the survey also assessed the level of bat activity within that area of woodland. These three trees were the subject of the bat survey work undertaken in August and September 2011. Details of these trees are provided in table 3.2 below. The site was then revisited in January 2012 to assess the trees when not in leaf to allow an assessment of suitable roosting features.
- 3.16 No other trees with roosting bat potential are currently programmed for clearance within the Site.

Table 3-2 -- Trees with high bat roosting potential, subject to detailed survey.

Tree	Description
Tree 1 – Mature Ash	Broken limb with a suitable crack (between the limb and trunk) and the upper limbs of the tree appeared gnarled and broken that may provide entry points; however no visual confirmation could be made.
Tree 2 – Mature Ash	Broken limb a third of the way up with an exposed cavity, and two thirds of the way up another cavity into the main trunk was observed.
Tree 3 – Mature Ash	Rotten within the lower and mid section of the main trunk and provided a large open cavity within the tree trunk. This tree is not suitable for hibernating bats as the trunk is hollow and would be subject to temperature

- 3.17 During the August and September 2011 surveys common pipistrelle, soprano pipistrelle and brown long-eared bats were recorded foraging and commuting over the tall ruderals, Meadow Burn and woodland located to the south of the Site (south of Rowan Avenue).
- 3.18 Table 3.3 below summarises the findings of each of the dusk and dawn survey occasions undertaken in August and September 2011. Bats were observed above tree 1 and it was thought a single pipistrelle may have entered the upper section of the tree, however this could not be confirmed due to the dense vegetation obscuring the view at the top of the tree. No bats were seen entering or leaving Trees 2 or 3 during the 2011 surveys. Detailed survey results are included in Appendix C.1.

Table 3.3 – Summary of Tree Surveys

Timescale	Task / Survey	Outcome
29th August 2011	Dusk Survey (tree 1, tree 2 and tree 3) Weather; dry, 60-100% cloud cover with a gentle breeze. Temp: 12.5-12°C	No bat roosts were identified within any of the trees during the survey. Foraging bats (Soprano and common pipistrelle and brown long-eared) were observed, between trees, over the tall ruderals, Meadow Burn and improved grassland.
30th August 2011	Dawn Survey (tree 1, tree 2 and tree 3) Weather; dry, 60-100% cloud cover with a gentle breeze. Temp: 12.5-12°C	Soprano and common pipistrelle and brown long-eared bats observed foraging between the trees, over the tall ruderals, Meadow Burn and improved grassland. 1-5 soprano pipistrelle bats specifically identified foraging around the top of tree 1 just before dawn, for approximately 30 minutes. At least one soprano pipistrelle bat considered to have roosted within tree 1.
13th September 2011	Dusk Survey (tree 1, tree 2 and tree 3) Weather; dry, 60-100% cloud cover with a slight breeze. Temp: 12.5-12°C	No bat roosts were identified within any of the trees during the survey. Foraging bats (Soprano and common pipistrelle) were observed, between trees, over the tall ruderals, Meadow Burn and improved grassland.

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Time	Time / Survey	Observation
14 th September 2011	Dawn Survey (tree 1, tree 2 and tree 3) Weather; dry, 0-30% cloud cover with a slight breeze. Temp: 9.3-7.8°C	No bat roosts were identified within any of the trees during the survey. Foraging bats (Soprano and common pipistrelle) were observed, between trees, over the tall ruderals, Meadow Burn and improved grassland.

As bat activity was recorded within the woodland with bats flying high in the canopy of the area where the trees are to be removed, it is assumed that bat roosts could be present within any of the trees to be removed from the area of woodland to the south of Meadow Burn.

Reptiles

- 3.19 No records of reptiles within 1 km of the survey boundary were provided by the NESBReC.
- 3.20 The Site provides suitable habitat for common reptiles such as slow worm, with the habitats on Site such as tall ruderals, improved grassland, scrub and woodland providing potential habitat for foraging, refuge and basking for reptiles.

Otter

- 3.21 No records of otters within 1 km of the survey boundary were provided by the NESBReC.
- 3.22 Otter spraints (recent and old), were recorded at intervals along the River Deveron on boulders and grassy ledges, however, no resting sites were found. The River Deveron is subject to disturbance from dog walkers and fishermen. Within the survey reach the banks of the River Deveron are unsuitable for otter resting sites, due to limited cover provided by the vegetation (tall ruderals and young willow) and the disturbance from dogs and walkers. The habitat located downstream (and outside) of the survey area appeared more suitable and less disturbed, with overhanging tree roots and large rocky outcrops providing suitable habitat for resting sites. It is likely that otters commute and forage along the River Deveron where it passes through the survey area and have resting sites located east of the Site outside of the survey area and therefore over 50 m at least from the limit of development proposals.
- 3.23 No otter evidence was located on the Meadow Burn or Burn of Ittingstone. These small burns are unlikely to be attractive to otters as they offer little in terms of shelter or foraging opportunities and are only likely to be infrequently used by the species for commuting.

Water Vole

- 3.24 No records of water vole within 1 km of the survey boundary were provided by the NESBReC.
- 3.25 The River Deveron was considered unsuitable for the species, given the fast flow of the river, and the limited diversity of food plants, furthermore no water vole evidence was recorded during the survey undertaken in September 2011. There is suitability for water vole along the Meadow Burn and the Burn of Ittingstone. The bank structure of these burns provides adequate structure for burrowing and some food plants are also present along the banks; however, no evidence of water vole was found during August/ September 2011 surveys.
- 3.26 Probable mink burrows were recorded along the Meadow Burn, mink is a predator of water vole and where present water voles are unlikely to occur.

Badgers

- 3.27 No records of badgers within 1 km of the survey boundary were provided by the North East Scotland Biological Records Centre (NESBReC).
- 3.28 A main badger sett was recorded over 100 m east of the Site, shown on Map 2 in Appendix A.1. No other badger evidence was recorded during the survey. The badger sett was identified during the optioneering phase of the project. Following the optioneering phase, the scheme was design to avoid any impacts to this sett, located the proposals over 100 m from the sett.

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- 3.29 The improved grassland, River Deveron corridor and woodland provides suitable habitat for badgers to forage, commute with limited suitability for sett habitat found in planted woodland areas.

Nesting Birds

- 3.30 There was one record received from NESBReC of barn owl (sighting) (listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended)) within 1 km of the Site, this was provided as a four figure grid reference (NJ53E) only; this grid square lies partially within the 1 km study area and does not include the Site. The woodland within the Site is generally considered too immature to provide suitable habitat for nesting for this species, and no evidence was located. The ancient woodland to the south of the site provides limited habitat for barn owls. Other bird records received within 1 km of the Site include species such as song thrush, sky lark and house sparrow, which are on the red list of birds of conservation concern⁸ and UK BAP; as well as records that include kestrel which are on the amber list of birds of conservation concern and UK BAP.

- 3.31 Tawny owls were heard during the dusk and dawn bat surveys located in the woodland south of the Site. A sheer bank face was noted on the River Deveron with 14 holes recorded in the bank during the walkover survey which appear to provide suitable habitat for sand martin colonies, shown on Map 1 Appendix A. Another section of the bank appeared suitable for nesting birds, shown on Map 2, however no evidence was found. It is likely that birds will nest within the areas of woodland, scattered trees, scrub, improved grassland, bank face and tall ruderals within and adjacent to the proposed Site.

Red Squirrel

- 3.32 NESBReC hold 6 records of red squirrel within 1 km of the Site. The nearest record is located 100 m east of the Site and was from 2009 in Battle Hill woodland.
- 3.33 As red squirrel are known to be found in the local vicinity, the survey included searches for feeding evidence and dreys to ascertain their presence within the application site. No evidence (e.g. dreys) was recorded during the site visits. However the mixed woodland and scattered trees within the Site provide suitable habitat for red squirrel.

Other notable species

- 3.34 The records provided by (NESBReC) included twenty one records of wych elm within 1 km of the Site, all from 2009. Wych elm is a Local Biodiversity Action Plan species; no wych elm trees will be affected on the Site. None were seen within the survey area.

Other species

- 3.35 No other records of any protected/ notable or invasive species within 500 m of the Site were provided by the NESBReC in the last 20 years.
- 3.36 No other evidence of protected species was recorded within the survey area.
- 3.37 Several plants of giant hogweed were located within the survey area, these are shown on Map 1 in Appendix A.1. Himalayan balsam was also located throughout the River Deveron survey reach.

⁸ Eaton, M.A., Brown A.F., Noble D.G., Musgrove, A.J., Hearn R.D., Aebischer N.J., Gibbons D.W., Evans A., and Gregory R.D. (2009) 'Birds of Conservation Concern 3: The population status of birds in the United Kingdom, Channel Islands and the Isle of Man'. British Birds 102: 296-341.

4. Nature Conservation Evaluation

- 4.1 The following evaluation is based on the results of the data gathering exercise, walkover survey and specialist protected species surveys conducted (bats, otter and water vole) in August and September 2011.
- 4.2 The Site and the zone of influence does not contain any land which is covered by statutory ecological designations.
- 4.3 The woodland to the south of the Meadow Burn is listed on the ancient woodland inventory. An area of 380 m² of this woodland will be lost. This woodland is of regional importance. The area of woodland where trees are to be removed to the south of Meadow Burn is likely to support roosting bats and common pipistrelle were recording foraging within this area of woodland. The River Deveron, Meadow Burn and Ittingstone Burn within the proposed Site are listed UKBAP habitats and are of local importance to nature conservation.
- 4.4 None of the other habitats within the Site are rare, vulnerable or priority habitats listed in the UK or North West Local Biodiversity Action Plan (LBAP) habitats of principal importance for nature conservation. The main habitats and features within the survey area, including the tall ruderals, trees, scrub and improved grassland are considered to be of importance within the Site and its immediate environs. These areas have some potential to support notable species including, roosting, foraging and commuting bats, otter, badger, red squirrel, reptiles and nesting birds.
- 4.5 A probable soprano pipistrelle roost was located within a mature ash tree located south of Meadow Burn within the Site; this roost is of local importance to nature conservation. The amenity mown grassland and hard standing areas are considered to be of negligible importance for nature conservation.

5. Impact Assessment

Habitats

- 5.1 An area of 0.038 ha of ancient woodland located to the south of Meadow Burn is to be lost as part of the development proposals. This loss is considered to be significant as this loss cannot be mitigated.
- 5.2 None of the other habitats within the Site are rare, vulnerable or priority habitats listed in the UK BAP. As such the loss of these habitats is not considered to be significant. However, vegetated habitats have the potential to support notable species and therefore the impact of any loss of habitat on these species is considered in the appropriate sections below.
- 5.3 There are no expected direct effects to the River Deveron on or adjacent to the site, however there could be indirect effects from dust, debris and/ or run-off pollutants entering the watercourse from the works. There will be direct impacts to the Meadow Burn and Ittingstone Burn as works to the banks are required with culvert upgrades, reinforced headwalls and vegetation removal. These water courses may also be indirectly affected through potential pollution risk. Mitigation methods are identified below which will remove this potential pollution risk. Where direct impacts are considered likely to bank habitat from the works culvert it is not considered to be significant due to the size of the area to be affected and as no notable species were present in these areas.

Invasive Plant Species

- 5.4 There are scattered plants of giant hogweed and Himalayan balsam along the banks of the River Deveron. Works adjacent to the river banks may cause the spread of these legally controlled invasive plant species, as such recommendations are provided in section 6 regarding these species to prevent their spread.

Bats

- 5.5 The trees within the ancient woodland area to be lost are likely to support roosting bats and pipistrelle activity was confirmed within this area. The loss of these trees is therefore considered to be significant, although additional surveys will be required to confirm this. These surveys will be required to determine the scale of this significance (i.e. site, local or regional). The scale will be dependent on the types of roost present, the number of bats using the trees and the species present. For the purposes of this assessment, assuming a worst case scenario the impact of the loss of these trees is considered to be significant at a local level. Given the dense nature of the foliage present it was not possible to establish this through emergence and return surveys and as such a detailed visual inspection through tree climbing.
- 5.6 One probable soprano pipistrelle roost located in Tree 1, as a view of the upper section of the tree could be viewed from the edge of the woodland. Providing works are undertaken as per the mitigation detailed in this report (Section 6) there is unlikely to be a significant impact on the roosting bat population within the wider area. As there is suitable alternative habitat present in the area beyond the Site the loss of the trees are unlikely to result in a significant impact on roosting opportunities for bats within the local area, as the Site is situated within an area with many suitable mature trees and buildings in the near vicinity.
- 5.7 The removal of the scrub, tall ruderals, woodland and improved grassland will result in the temporary loss of suitable foraging and commuting habitat. Bat foraging activity was recorded on the Site, however as there is suitable habitat adjacent to the Site the temporary loss of habitat is not considered significant.

Reptiles

- 5.8 The Site provides suitable habitat for common reptiles, with the habitats on the Site such as tall ruderals, scrub and woodland providing potential habitat for foraging, refuge and basking for

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reptiles. Therefore works involving vegetation clearance and earth works have the potential to kill or injure reptiles using the habitats and cause a legal offence. Recommendations to avoid this are provided in Section 6. As alternative suitable habitat is present in the wider area the temporary loss of habitat is unlikely to have a significant impact any local reptile population which may be present.

Otter

- 5.9 There were no otter resting sites located within the survey boundary and the proposed works will not result in the loss of any habitat that could offer potential shelter for otter. Given this, a negligible impact is anticipated from the development proposals on the local otter population.
- 5.10 Recommendations to avoid negative impacts on otters commuting and / or fishing within or adjacent to the proposed works are provided in Section 6.

Badgers

- 5.11 There are currently no badger setts located within the survey boundary therefore the development proposals will not result in damage to setts or disturbance to badgers in their setts. The development proposals could however result in the temporary loss of any habitat that badgers may use for commuting or foraging. This is of particular importance at the western extent of the Site where a main sett was identified 100 m from the Site boundary.
- 5.12 Recommendations to avoid negative impacts on badgers commuting and/ or foraging within the Site are provided in Section 6.

Nesting Birds

- 5.13 Habitats within the Site have the potential to support nesting birds. The loss of trees, tall ruderals and scrub is unlikely to result in a significant impact on nesting or feeding opportunities for birds within the local area, due to the abundance of suitable habitat in the wide area.
- 5.14 The areas marked on Map 1 and Map 2 in Appendix A are suitable for sand martin, however these areas will not be directly affected by the proposals. Works will not occur to the bank face, however works adjacent to the southern bank of the River Deveron may cause disturbance to nesting birds.
- 5.15 Recommendations are provided in Section 6 to ensure that nesting birds are not affected during the vegetation removal.

Red Squirrels

- 5.16 The majority of the plantation woodlands are located on the Site periphery and will be mainly retained; as such there will be no significant loss of suitable red squirrel habitat. A small number of broad-leaved trees and coniferous trees surrounding the ski centre will be removed as will a small area of coniferous plantation at the western extent of the Site. The ancient woodland to the south of Meadow Burn is suitable to support red squirrel but no dreys were seen. This loss is not considered to be significant as there is sufficient habitat in the local vicinity and at the time of survey no red squirrel dreys were seen in these areas. However, there is a small risk that red squirrels could move into the Site in between the time of survey and commencement of site clearance therefore recommendations are provided in Section 6 to ensure that red squirrels are adequately protected during the works.

6. Mitigation Proposals

- 6.1 This section describes the measures considered appropriate to avoid, reduce or mitigate the likely negative ecological impacts of the development proposals on the basis of current information and includes precautionary measures and compensation.

Habitats

- 6.2 Planting and vegetation screening will be undertaken within all areas of the Site subject to vegetation clearance and earth works following completion of the development proposals. Native shrubs and trees will be planted that will provide suitable replacement vegetation to compensate for the loss of the majority of existing habitats. Trees will be replanted to account for the loss of ancient woodland, this replanting will not fully compensate for the loss as ancient trees cannot be replaced. The planting schedule should be discussed and agreed with SNH.
- 6.3 The development proposals will be restricted to the Site only and measures (e.g. fencing) will be implemented where required to ensure that works do not encroach on other habitats.

Invasive Plant Species

- 6.4 There are scattered plants of giant hogweed and Himalayan balsam along the banks of the River Deveron.
- 6.5 It will be necessary to determine whether works would cause the spread of Himalayan balsam and giant hogweed either within or outside of the Site and if so, what measures may be needed to prevent this spread. Due to the rapid spread rate of this species the Site will be walked with an ecologist and the site contractor to identify all areas of Himalayan balsam and giant hogweed that are present. This process should be discussed immediately when the contractor is assigned. These areas will be marked on site and where the development proposals are unlikely to directly affect these areas (or result in the spread of these plants) fenced stand-off zones will be marked on site as good practice to prevent accidental encroachment by staff or machinery. This will include a fenced buffer zone of 3 m placed around Himalayan balsam and a 5 m buffer zone around giant hogweed.
- 6.6 For areas where Himalayan balsam or giant hogweed is likely to be spread as a result of the development proposals, the Environment Agency best practice guidance⁹ will be followed to ensure an offence is not committed.

Bats

- 6.7 The development proposals require the removal of 17 mature trees which are considered to provide potential bat roost habitat (trees range from high to low potential), located south of the Meadow Burn. At least one tree has a probable bat roost. The further survey and mitigation approach outlined below has been discussed with SNH with respect to tree 1 (Juli Comery, SNH Licensing Officer) and also applies to the other 16 trees.
- 6.8 In order to confirm if the trees are used by roosting bats an arborculturalist with a bat licence will climb the trees to be removed to inspect it for roosting bats, or evidence that bats have roosted. This will be undertaken between January 2012 and end of February 2012. In the event that a roost is found to be present then a European Protected Species licence application will be made to SNH to allow the roost to be destroyed.

⁹ <http://www.environment-agency.gov.uk/netregs/63095.aspx>

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- 6.9 In order to mitigate for the loss of roosts or potential roosts within the trees, bat boxes will be installed within the areas of retained broadleaved woodland to the south of Meadow Burn. A bat worker would supervise the tree removal and a mitigation plan would be designed to ensure that no bats were harmed during the tree removal.
- 6.10 If no bat roosts are identified during inspection, all trees will be removed immediately. However bat boxes will still be installed to account for the loss of features which could in the future be used by roosting bats. For each tree removed two bat boxes will be installed in adjacent woodland.
- 6.11 The woodland, scrub, tall ruderal and improved grassland habitat and watercourses on Site provide suitable foraging areas for bats. To minimise any potential for disturbance to foraging and commuting bats that may be using these habitats within and around the Site, works should be timed to avoid night working (taken as one hour before dusk to one hour following dawn within the active season for bats of April to October). This would avoid disruption to bat foraging/commuting activity. If it is necessary to work at night, any artificial lighting used should be kept to a minimum and should be directed downwards and onto the working area only.

Reptiles

- 6.12 Any work likely to affect habitat suitable for reptiles to bask, shelter or forage should be undertaken under the provision of a Precautionary Method of Working (PMW) to prevent harm to reptiles potentially present within the Site. This PMW document will detail measures in order to prevent harm to reptile species such as slow worm and common lizard. This will include a tool box talk to all members of the construction team detailing identification of the species likely to be present and contact details of an ecologist who will be available for advice during the work.
- 6.13 If necessary, the ecologist will train two or three site workers in safe handling and basic identification of reptiles. In the instance of a reptile being found within the working area the noise and vibration will, in most cases, cause the reptile to move away from the area. In cases where this does not happen one of the trained site staff will be able to move the reptile away from the working area into suitable habitat.

Otter

- 6.14 No resting sites will be lost or disturbed as a result of the development proposals. However, as otter are known to be present along the River Deveron and may use the Meadow Burn and Ittingstone Burn to commute along the following measures should be adopted during construction:
- Any excavations will be covered in the evening to prevent animals falling in. Ensure that all trenches, trial pits, excavations and manholes are covered to prevent an otter casualty on Site. Where pits and trenches cannot be closed or filled on a nightly basis, ensure that a plank is placed into the excavation so an animal can use this as a means of escape if necessary.
 - Ensure all rubbish, construction materials and food waste are collected and removed from Site on a regular basis to prevent trapping or injury to otters.
 - If any temporary lighting is used for construction purposes, it shall be fitted with shades to direct the beam exclusively onto the works area. This will prevent illumination of the watercourse and surrounding habitats and minimise the effects of disruption.
 - No pollutants or chemicals will be allowed to enter any water bodies and will be stored over night in a secure, locked container.

Badgers

- 6.15 The measures outlined above for otter will also ensure the risk of harm to any commuting or foraging badgers within the Site is minimised.

Nesting Birds

- 6.16 All vegetation clearance within the Site is likely to affect habitat for nesting birds. Vegetation clearance will be undertaken outside of the nesting bird season, which is taken to run from February to August inclusive, but subject to geographical and seasonal variation. Where this is not possible a detailed inspection for breeding birds should be carried out no more than 24 hours prior to any works being undertaken. This minimises opportunities for nest building between the survey and the start of works. Any nest in use or being built during this inspection will need to be left undamaged, with an appropriate buffer of surrounding vegetation, for the entire nesting period and alternative approaches to the works proposed.
- 6.17 Native shrub/tree species will be planted within the application boundary following completion of the development proposals, this planting will mitigate for the loss of suitable habitat within the Site. This will provide long term nesting and foraging habitat.

Red Squirrel

- 6.18 Under the current wildlife legislation (See Appendix A), developers are required to avoid actions which damage or destroy either squirrels or their places of shelter. As a precautionary measure any mature trees requiring removal will be checked by an ecologist for the presence of red squirrel dreys one month prior to clearance.
- 6.19 In the unlikely event that red squirrel dreys are present in any of the trees that are to be removed work must stop immediately, and SNH must be consulted in order to agree a suitable approach.

Water Quality

- 6.20 As works are occurring adjacent to the River Deveron and along the Meadow Burn and Ittingstone Burn the following measures will be implemented in order to minimise the risk of water pollution:
- Works will be conducted observing standard best practice with regard to preserving water quality and preventing pollution from construction works including the Scottish Environment Protection Agency (SEPA) Pollution Prevention Guidelines (PPGs) <http://www.environment-agency.gov.uk/netregs/businesses/construction/62405.aspx>;
 - Effective pollution prevention measures for siltation/hydrocarbons and other chemicals will be enforced (especially relating to vehicles and machinery where drip trays should be employed for use under mobile plant). Any compounds and plant washing facilities (including oils, bottled gas and fuel storage) will be positioned as far away from the reservoir and watercourses as possible and secured against vandalism. Risk assessments for possible pollutants will be provided in the contractor's Construction Method Statement (CMS);
 - The contractor will employ emergency response procedures in the event of chemical leaks or spills e.g. spill kits should be available and training on their use given to site personnel. Oil-spill cleanup equipment including absorbent material and inflatable booms should be available onsite for use in the event of an oil-spill or leak. Any pollution events will be reported to SEPA immediately; and,
 - All rubbish and construction materials shall be removed from Site and a cleanup of any existing rubbish and non-biodegradable material within the works site will be undertaken as part of the works.

Significance of Residual Impacts

- 6.21 The impact assessment for the proposed development is based on the conclusions drawn from the survey of the Site and from the best available information at the time of writing.
- 6.22 There will be a permanent loss of habitat (tall ruderals) adjacent to the culvert and access track upgrades within the Site. Although compensatory planting will be provided, this will not fully mitigate for these losses; however, these are not considered to be significant due to the relatively

Ecological Assessment

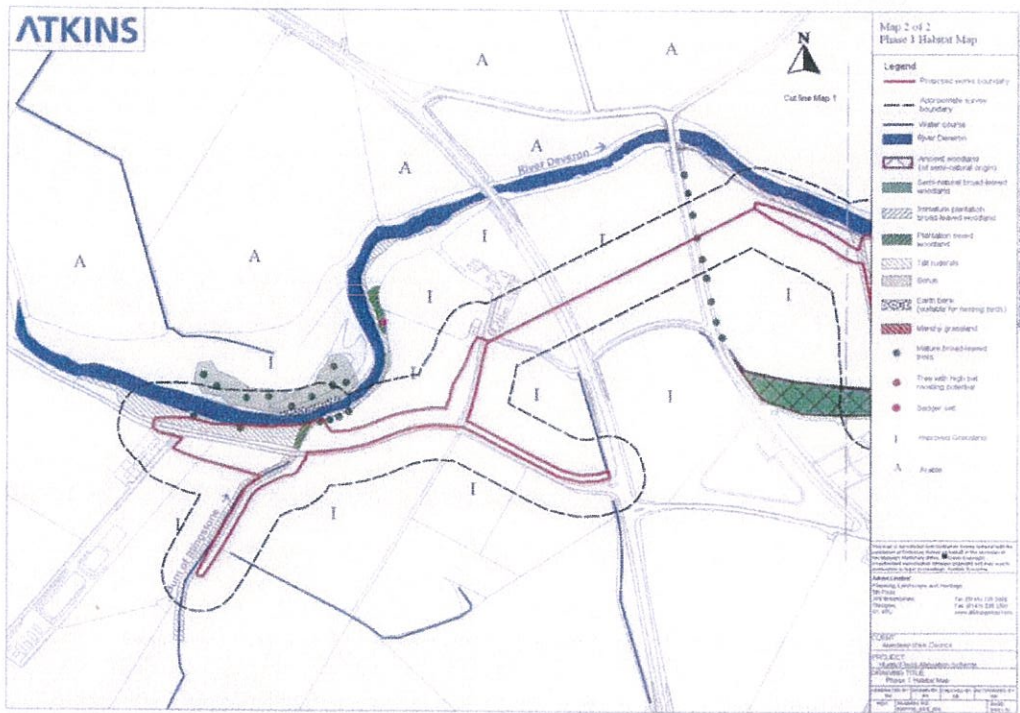
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- low ecological value of the habitats being lost and the presence of abundant similar habitat within the wider landscape.
- 6.23 There will be permanent loss of ancient woodland, this loss cannot be mitigated as ancient woodland cannot be recreated. Although trees will be planted, this replanting will not fully compensate for the loss as ancient trees cannot be replaced.
- 6.24 Temporary loss of habitat is expected for the remainder of the Site and will be reasonably compensated in the longer term, through planting with native species following construction. Once established and in time the vegetation will provide opportunities for wildlife such as bird nesting opportunities and forage resource for birds and reptiles.
- 6.25 There will be adverse impacts on reptiles and bats as a result of the development proposals; however, the mitigation approach outlined above is considered appropriate to minimise the impact on these and other species that may be present within the Site such as nesting birds, red squirrel, otter and badger. The impact on these species is not considered to be significant.
- 6.26 The overall impact of the development proposals on wildlife is therefore not considered to be significant.

7. Concluding Statement

- 7.1 The initial walkover survey undertaken in October 2010 followed the 'Extended Phase 1' methodology and the desk study and protected species surveys of the Site, were undertaken in August and September 2011 and January 2012, following best practice guidance from SNH.
- 7.2 The ancient woodland within the Site is of regional importance, as the loss of the trees from within the woodland cannot be fully mitigated, this permanent loss is considered significant. The other terrestrial habitats within the Site are important only in a site context and as such the permanent loss of these habitats is not considered to be significant. The watercourses on and adjacent to the site are important in a local context however any affect will not be significant provided the mitigation identified is followed. Mitigation and precautionary measures will be implemented with regard to otter, badger, reptiles, nesting birds, red squirrel and water quality. Providing the mitigation and precautionary measures are followed, the overall impact of the development proposals on wildlife is not considered to be significant.
- 7.3 A probable pipistrelle bat roost and other trees with suitability for roosting bats are to be lost. These trees will be subject to detailed inspection prior to felling and in the event that any roosts are present, mitigation measures will be followed and a European Protected Species licence application will be made to SNH to allow the roost to be destroyed. Given the abundance of suitable habitat in the wider area and as bat boxes will be installed within the adjacent woodland to loss of these trees is not considered to have a significant impact on the local bat population.

Appendix A – Figures



Appendix B – Summary of Relevant legislation

Species	Legislation (Scotland)	Offences	Licensing procedures (Scotland)
Bats <i>European protected species</i>	Conservation (Natural Habitats &c.) Regulations 1994 (as amended) Reg.39	Deliberately ¹ or recklessly capture, injure or kill a bat; deliberate or reckless disturbance ² of bats; or damage or destroy a breeding site or resting place used by a bat. [The protection of bat roosts is considered to apply regardless of whether bats are present.]	A Scottish Government licence in respect of development is required. The Scottish Government will consult with Scottish Natural Heritage. <ul style="list-style-type: none"> • <i>Bat Mitigation Guidelines</i> (English Nature 2004) • <i>Bat Workers Manual</i> (JNCC 2004) • http://www.snh.org.uk/pdfs/species/BatsBuildings.pdf
Breeding birds	Wildlife and Countryside Act 1991 (as amended) S.1	Intentionally kill, injure or take any wild bird; intentionally take, damage or destroy the nest of any wild bird while that nest is in use or being built; intentionally take or destroy the nest or eggs of any wild bird. [Special penalties are liable for these offences involving birds on Schedule 1, e.g. most birds of prey, kingfisher, barn owl, black redstart, little ringed plover] Intentionally or recklessly disturb a Schedule 1 species while it is building a nest or is in, on or near a nest containing eggs or young; intentionally or recklessly disturb dependent young of such a species.	No licences are available to disturb any breeding birds in regard to development. Licences are available in certain circumstances to damage or destroy nests, but these only apply to the list of licensable activities in the Act and do not cover development. General licences are available in respect of 'pest species' but only for certain very specific purposes e.g. public health, public safety, air safety.
Badger	Protection of Badgers Act 1992	Intentionally kill, injure or take a badger; disturb a badger in its sett; or intentionally or recklessly damage, destroy or obstruct access to a badger sett. [It is not illegal to carry out disturbance activities in the vicinity of setts that are not occupied.]	Licences for development activities involving disturbance or sett interference or closure are issued by Scottish Natural Heritage. Licences for activities involving watercourse maintenance, drainage works or flood defences are issued under a separate process by Scottish Natural Heritage. A licence may be required for any work within the vicinity of a sett that is likely to cause disturbance to badgers. Licences are not granted from December to June inclusive because cubs may be present within setts. http://www.snh.org.uk/publications/on-line/wildlife/badgersanddevelopment/default.asp
Otter <i>European protected species</i>	Conservation (Natural Habitats &c.) Regulations 1994 (as amended) Reg.39	Deliberately ¹ or recklessly capture, injure or kill an otter; deliberate or reckless disturbance ² of otters; or damage or destroy a breeding site or resting place used by an otter.	Licences issued for development by Scottish Natural Heritage. <ul style="list-style-type: none"> • http://www.snh.org.uk/publications/on-line/wildlife/otters/default.asp

Species	Legislation (Scotland)	Offences	Licensing procedures (Scotland)
Adder Common lizard Slow worm	Wildlife and Countryside Act 1981 S.9(1) (part); S.9(5)	Intentionally kill or injure any common reptile species.	No licence is required in Scotland. However an assessment for the potential of a site to support reptiles should be undertaken prior to any development works which have potential to affect these animals.
Red squirrel	Wildlife and Countryside Act 1981 (as amended) S.9	Intentionally or recklessly kill, injure or take or damage, destroy or obstruct access to any structure or place used for shelter or protection, or to disturb any animal while it is in a drey.	No licence is required for survey. There are currently no licensing purposes that explicitly cover development activities that affect red squirrels. In the event that red squirrels are to be affected, consultation will be required with SNH to agree an approach.
Non Native Species	Wildlife and Countryside Act 1981 S.14 (as amended by the Wildlife and Natural Environment (Scotland) Act 2011)	Plant or otherwise cause to grow in the wild.	Any Japanese knotweed/giant hogweed contaminated soil or plant material is classified as controlled waste and should be disposed of in a suitably licensed landfill site, accompanied by appropriate Waste Transfer documentation, and must comply with section 34 of the Environmental Protection Act 1990. <ul style="list-style-type: none"> • http://www.sepa.org.uk/customer_information/ldoc.aspx?docid=c9451616-c276-4365-aad2-6af888a0c41d&version=-1 • <i>The Knotweed Code of Practice</i> (Environment Agency 2006) http://www.environment-agency.gov.uk/static/documents/L_eisure/laprkot_1_a_1463028.pdf • http://www.netregs.gov.uk/netregs/63095.aspx Under the Wildlife and Natural Environment (Scotland) Act 2011 it is an offence to: <ul style="list-style-type: none"> • Plant in the wild – it is an offence to plant in the wild any plant outwith its native range • Cause to grow in the wild – it is an offence to cause to grow in the wild any plant outwith its native range. The Draft Code of Practice on Non-Native and Invasive Non-Native Species should be followed (http://www.scotland.gov.uk/Publications/2011/03/17115253/0). This Code provides practical guidance in respect of the release, keeping, sale and notification offences contained in the Wildlife and Natural Environment (Scotland) Bill.

¹Deliberate capture or killing is taken to include "accepting the possibility" of such capture or killing

²Deliberate or reckless 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 to affect significantly the local distribution or abundance of the species to which they belong, or to obstruct access to a breeding site or resting place or otherwise to deny the animal use of the breeding site or resting place. Disturbance also includes disturbing an animal while it is occupying a structure or place which it uses for shelter or protection and disturbing an animal while it is rearing or otherwise caring for its young. Lower levels of disturbance, not covered by the Conservation Regulations, remain an offence under the nature Conservation Scotland Act, however a defence is available where such actions are the incidental result of a lawful activity.

Site Designation	Legislation (Scotland)	Protection	Guidance
Biodiversity Action Plan (BAP) Habitats & Species	No specific legislation, unless it is also a species or habitat of principal importance as described above.	The Biodiversity Action Plan (BAP) is the UK's initiative to maintain and enhance biodiversity in response to the Convention on Biological Diversity signed in 1992.	<ul style="list-style-type: none"> The original BAP list of species and habitats, prepared over 10 years ago, was used to form the new list of species and habitats of principal importance. However some of the species have been taken off the new list and additional species and habitats have been included.

Appendix C Dawn and Dusk Survey Results

Table C.1 - Dusk and Dawn Bat Surveys

Date	Sunset/ Sunrise times	Weather conditions	Trees No.	Species	Activity (Time and details provided)
29/08/11 Dusk	Sunset 20:19	Low wind, 100% cloud cover with intermittent drizzle Start temp 12.5°C End temp 12°C	Tree 1	Pipistrelle Sp.	20:15-20:20 4 bats seen commuting from north to south at height past tree.
				Soprano Pipistrelle	20:21 1 bat from field north to south, feeding buzz heard. Flying at height.
				Unknown bat species	20:22-20:34 3 Heard not seen. 1 had slow echo location.
				Pipistrelle Sp.	20:24-20:28 Bat heard high in canopy and foraging.
				Soprano Pipistrelle	20:31-20:52 1-2 bats foraging high in canopy
				Common Pipistrelle	20:45 Feeding buzz heard, above head in woodland.
				Unknown bat species	20:49 2 flew at head height north to south, clear visual, no sound. Medium sized bats.
			Tree 2	Soprano Pipistrelle	20:15-20:20 Bats heard echo locating but not seen.
				Common Pipistrelle	20:20-20:30 Bats heard echo locating but not seen.
				Common Pipistrelle	20:25-20:30 2 bats seen flying from tree to the north, foraging. 2 other bats seen and not heard.
				Unknown bat species	20:30 Flying from woods to the north
				Common Pipistrelle	20:32-20:33 Heard not seen.
				Soprano Pipistrelle	20:35 Very faint, foraging above trees.

Date	Sunset/ Sunrise times	Weather conditions	Tree No.	Species	Activity (Time and details provided)
				Unknown bat species	20:36 Clucking noise at 50 kHz, heard not seen.
				Soprano Pipistrelle	20:40 Flew from tree to the north east, high above trees.
				Soprano Pipistrelle	20:45 Flew from north east back into woods.
				Soprano Pipistrelle	20:50 Flew from tree to the north east.
				Unknown bat species	20:58-21:10 Heard not seen, deep clicking noises. Flew from woods to the north over head and back again.
			Tree 3	Pipistrelle	20:15-20:19 Various bats heard but not seen, commuting.
				Soprano Pipistrelle	20:20-20:30 Faint foraging probably in woods. 4 seen high in canopy.
				Unknown bat	20:39 Chattering at 22 kHz, possibly emerged from the tree.
				Soprano Pipistrelle	20:40-20:50 Foraging high in canopy.
				Unknown bat	20:43 3 Loud clicks, not seen. 25 kHz.
				Soprano Pipistrelle	20:50-20:55 3 heard foraging high in canopy.
				Unknown bat	20:55 31 kHz quietly calling then loud clap.
				Soprano Pipistrelle	20:55-21:05 3 heard constantly foraging above trees.
Unknown bat	21:05 very faint call at low frequency (30 kHz).				
Common Pipistrelle	21:07 Foraging				
30/08/11 Dawn	Sunrise 06:05	Low wind, 100% cloud cover with intermittent drizzle. Start temp 12.7°C	Tree 1	Soprano Pipistrelle	04:10-05:00 Sporadic commuting and foraging with occasional feeding buzzes.
				Pipistrelle	04:29 Very faint on bat detector, probably high in tree canopy.

Date	Sunset/ Sunrise times	Weather conditions	Tree No	Species	Activity (Time and details provided)	
		End temp 13°C		Unknown bat	04:21-04:30 2 bats, very faint and quick pass. 1 heard but not seen.	
				Soprano Pipistrelle	04:45 2/3 passes heard, sporadic foraging/commuting. 1 visual towards the north at the housing.	
					05:00 Less activity however with some visual of Pip.	
					05:30-06:00 1- 4 bats foraging above tree, probable roost in top section of tree; however not confirmed due to obscured visibility from dense foliage.	
				Tree 2	Soprano Pipistrelle	04:21 4 faint calls, heard not seen. Probably Pips commuting.
					Pipistrelle	04:25-04:28 Foraging at height in canopy above head.
					Unknown bat	04:31 30 kHz slow chops, single pass, commuting.
					Soprano Pipistrelle	04:33 Foraging over head, heard not seen.
					Brown long eared	04:34 Very faint, heard at 30 kHz but not at higher frequency.
					Unknown bat	04:38 Only heard around 30 kHz, faint and brief.
					Unknown bat	04:42 Very faint, low frequency, single quick noise (brown long eared?).
					Pipistrelle	04:46 Brief foraging.
					Common Pipistrelle	04:49 Foraging, heard but not seen.
					Soprano Pipistrelle	04:55-04:58 2 foraging, feeding buzz. Heard but not seen.
					Unknown bat	04:59 Quick pass from north to south.
			Soprano Pipistrelle		05:00 Foraging, heard not seen.	
			Unknown bat	05:01 Slow chirps, commuting. 30 kHz.		

Date	Street Sunrise times	Weather conditions	Tree No.	Species	Activity (Time and details provided)
				Soprano Pipistrelle	05:04 Foraging high in canopy.
				Unknown bat	05:09 Faint pass, high up.
				Soprano Pipistrelle	05:11-05:13 3 brief passes, heard not seen. First from north to south, other 2 over head.
				Unknown bat	05:15 30 kHz slow chirp, single pass.
				Soprano Pipistrelle	05:16-05:21 3 passes, 1 from south to north, other 2 foraging in trees above.
			Tree 3	Soprano Pipistrelle	04:25- 04:30 3 heard not seen, foraging.
				Unknown bat	04:32 Heard not seen, clicking noise. 50 kHz.
				Soprano Pipistrelle	04:35-04:55 3 more heard not seen, foraging.
				Unknown bat	05:00 Heard not seen, clicking noise. 50 kHz.
				Soprano Pipistrelle	05:01-05:22 5 heard not seen, foraging and commuting.
13/09/11 7Dusk	Sunset 19.37	Gentle breeze, 60-100% cloud cover with intermittent showers. Start temp 15.9°C End temp 14.6°C	Tree 1	Common Pipistrelle	05:02 Heard but not seen.
				Soprano Pipistrelle	19:44 Commuting north-south at height.
				Pipistrelle	19:47 No visual.
				Soprano Pipistrelle	19:51-20:10 1-2 bats foraging and commuting overhead, within woodland and grassland.
				Pipistrelle	20:13 No visual.
				Unknown Bat	20:13-20:17 Commuting north-south not always visible but heard on bat detector. Echolocation relatively slow.
				Pipistrelle	Commuting east-west along Meadow Burn.
Common Pipistrelle	20.23-20.28 Commuting, several passes observed.				

Date	Sunset Sunrise times	Weather conditions	Tree No.	Species	Activity (Time and details if available)
				Unknown bat	20.28 No visual.
			Tree 2 & 3	Pipistrelle	19.44 No visual.
				Pipistrelle	19.47 Commuting from houses past Tree 2.
				Unknown bat	19.48 No visual
				Soprano Pipistrelle	19.51-19:56 Foraging above head and feeding buzz heard.
				Soprano Pipistrelle	19.57-20.07 Foraging over burn.
				Soprano Pipistrelle	20:09-20:15 No visual.
				Unknown bat	20.18 No visual.
				Pipistrelle	20:19 Commuting (two quick passes)
				Soprano Pipistrelle	20.21 Commuting (quick passes)
				Common Pipistrelle	20:24 Foraging above for a couple of minutes.
14/09/11 Dawn	Sunrise 06:40	Low wind, 0-30% cloud cover and dry throughout survey. Start temp 9.3°C End temp 7.8°C		Tree 1	Unknown Species
			Soprano Pipistrelle		05:41 commuting along path west to east.
			Unknown bat		05:41 Foraging
			Soprano Pipistrelle		05:41-05.50 1-3 bats foraging around woodland and burn (east-west).
			Soprano Pipistrelle		06:09-06.23 Foraging, commuting along burn west-east and south-west flying at height towards housing.
			Tree 2 & 3	Common Pipistrelle	05.35 Foraging at height with multiple passes.
				Soprano Pipistrelle	05:43 Foraging.
				Common Pipistrelle	05:44 No visual but heard on bat detector.

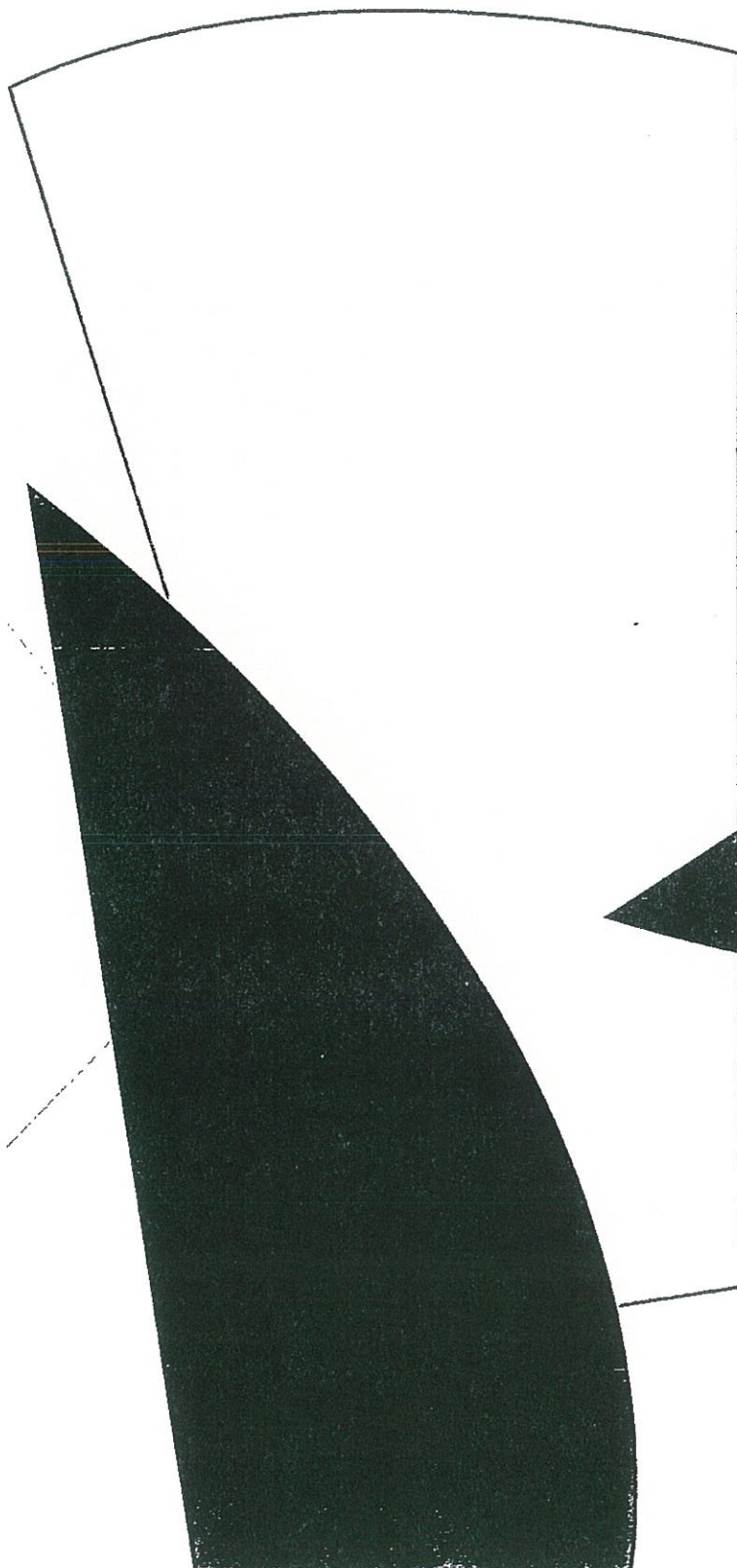
Date	Sunset/ Sunrise times	Weather conditions	Tree No.	Species	Activity (Time and details provided)
				Unknown bat species	05:46 No visual but heard on bat detector.
				Pipistrelle	05:48 - No visual but heard on bat detector.
				Common Pipistrelle	05:51 No visual but heard on bat detector.
				Soprano Pipistrelle	05:52 -06:05 Individual bats seen foraging and feeding buzz heard above burn and head
				Common Pipistrelle	06:11-06:12 No visual but heard on bat detector.
				Soprano Pipistrelle	06:15 No visual but heard on bat detector.
				Pipistrelle	06:21 No visual but heard on bat detector.

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