Appendix 8

Protected Species Survey Report

A68 SOUTRA SOUTH TO OXTON
ROAD IMPROVEMENT SCHEME

PROTECTED SPECIES SURVEYS

Final

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Date:	**November 2007**
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1. INTRODUCTION

1.1 Background

1.1.1 As part of the A68 proposed road improvement works between Soutra South and Oxton, a desk study of ecological baseline information was completed in May 2004 as part of a Design Manual for Roads and Bridges (DMRB) Stage 1 Environmental Assessment. Subsequently to this, as the proposed scheme options were developed, a DMRB Stage 2 Environmental Assessment was then completed in January 2005, which included the completion of detailed protected species surveys for badger / otter / water vole and initial habitat assessments for red squirrel and bats. Specific surveys of other protected species (such as birds) were not required as a result of the consultation/scoping process. These surveys were completed during the summer of 2004.

1.1.2 A preferred scheme has now been identified and proposed, therefore during July, September and October 2005 the study area (500m boundary around the preferred scheme option) was re-visited to ground-truth and update the previously completed protected species surveys. At this time, certain aspects of the preferred scheme that had not been proposed during the Stage 2 assessment were also surveyed in accordance with the standard protected species methodology and with DMRB guidance (e.g. Hillhouse bypass and associated road improvements / creation of lay-by's). These aspects of the preferred scheme at Hillhouse are no longer under consideration but the addition of a new side road between the C83 and C84 has now been included.

1.1.3 This report presents information on the results of protected species surveys. The report is designed to complement the baseline conditions that have been described within the Environmental Statement.

1.2 Study Area

1.2.1 The proposed road improvement scheme covers a length of approximately 1.8km, extending from the southern limit of the present Soutra South climbing lane to the present Differential Acceleration Lane (DAL) associated with the A68/A697 Carfraemill Roundabout. The road itself will be widened into an area of improved grassland, currently used for cattle and sheep grazing north of the existing A68. Although such habitat is generally poor in terms of protected species, the general survey area contains a number of habitats that potentially support protected species, including three minor watercourses and areas of mature coniferous and mixed plantation woodland.

2. SURVEY METHODOLOGY

2.1 Survey Requirements

2.1.1 Specific surveying was carried out for badger (*Meles meles*), otter (*Lutra lutra*), water vole (*Arvicola terrestris*), red squirrel (*Sciurus vulgaris*) and for bats. Standard survey methodology was applied and a brief description of these methods is provided below. All surveying was completed by an experienced ecologist with detailed bat surveys completed by a licensed bat worker.

2.2 Badger

2.2.1 Due to the persecution of badgers and the sensitive nature of information regarding badger sett locations, all details of badger surveys that were completed as part of this study have been

provided within a separate Badger Annex. This Badger Annex is not freely available to the general public but copies can be obtained from the Scottish Executive, subject to their approval (The Project Manager, Scottish Executive, Trunk Roads Design and Construction Division, Victoria Quay, Edinburgh, EH6 6QQ).

2.3 Otter

2.3.1 The otter is a European Protected Species (EPS), protected by the EC Habitats Directive as implemented by the Conservation (Natural Habitats, &c) Regulations 1994 (and subsequent amendments), making it an offence to:

- Deliberately or recklessly capture, injure or kill an otter;
- Deliberately or recklessly-

  Harass an otter or group of otters.

  Disturb an otter while it is occupying a structure or place which it uses for shelter or protection.

  Disturb an otter while it is rearing or otherwise caring for its young.

  Obstruct access to a breeding site or resting place, or otherwise deny the otter use of the breeding site or resting place.

  Disturb an otter in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species.

  Disturb an otter 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; and
- Damage or destroy a breeding site or resting place of an otter.

2.3.2 In addition, the otter is listed on Appendix I (most threatened species) of the Convention on the International Trade in Endangered Species (CITES) and Appendix II (strictly protected fauna) of the Bern Convention and in the UK Biodiversity Action Plan (BAP). The International Union for the Conservation of Nature (IUCN) list otter as Vulnerable, facing a high risk of extinction in the wild in the medium-term future.

2.3.3 The presence/absence of otters was surveyed for along the watercourses present in the survey area. Presence was identified from field signs of otter activity such as:

- Holts (cavities) & couches (flattened areas on grass) used as resting places;
- Spraints (droppings) left on rocks & banksides as territorial markers;
- Footprints/tracks left in e.g. muddy river banks indicating passage; and
- Slides down grassy/muddy banks in the water.

2.3.4 All field signs were recorded and mapped and standard key parameters, including weather conditions, water levels and habitat suitability were noted. Likewise, any significant absence of otter signs was also noted. Evidence of the presence of other species important to otter ecology such as American mink (*Mustela vison*), which are believed to directly compete with otter for food sources such as fish, birds and small mammals, was recorded. Searches were completed along the watercourse and along the bank covering a minimum corridor of 10 metres on either side of the watercourse.

2.4 Water Vole

2.4.1 Places of shelter used by water vole, including when not in use, are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended), due to drastic declines on numbers. This makes it illegal to intentionally damage, destroy or obstruct access to any structure or place that water voles use for shelter or protection, or disturb water voles while they are using such a place. Water voles themselves are currently not protected, but are listed on the UK BAP.

2.4.2 For water voles the approach was to thoroughly search a strip approximately 5m wide on each side of the watercourse banks for signs of water vole activity, in accordance with the standard survey methodology (Strachan, 1998). Banks with steep sides are most commonly used by water vole, though all areas were searched in this instance. Wider strips were searched where suitable habitat occurred. The survey was conducted at low flow so that the exposed bankside could be carefully searched from the river. Forms of evidence searched for included:

- Sightings of the species itself;
- Tracks/footprints found in soft substrate such as mud along the water-line;
- Droppings and latrines also found along the water-line;
- Burrows, which may be below water or on the bank top;
- Grazed lawns, often associated with the burrows and feeding signs such as piles of cut vegetation.

2.4.3 This evidence was recorded and the location plotted on a map of the site. Evidence of the presence of other species important to water vole ecology such as American mink and brown rat (*Rattus norvegicus*), which affect water vole via direct predation, was also recorded.

2.5 Red Squirrel

2.5.1 Red squirrel is protected under Schedules 5 and 6 of the Wildlife and Countryside Act 1981 (as amended). This makes it illegal to intentionally kill, or injure a red squirrel; or to sell the animal or parts of it; intentionally disturb a red squirrel in its place of shelter and intentionally damage, destroy or obstruct access to a place of shelter. Red squirrel is also listed on Appendix III (protected fauna) of the Bern Convention and the UK BAP.

2.5.2 Searches of potential red squirrel habitat such as coniferous and mixed woodland were carried out and included a search for the following:

- Visual surveys recording sightings (where and when) and behaviour;
- Counting of any nest sites (dreys); and
- Noting any evidence of feeding, droppings, scratched trees and hairs.

2.5.3 The presence of grey squirrels was also recorded, as a species whose presence directly impacts on the ecology of red squirrel through direct competition for food resources.

2.6 Bat

2.6.1 All bat species are listed within Annex IV of the EC Habitats Directive (Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)) and are designated as 'European Protected Species' (EPS) under Regulation 39 (1) of the Conservation (Natural Habitats & c.) Regulations 1994 ('Habitat Regulations') and subsequent amendments. This means that it is an offence to:

(a) deliberately or recklessly capture, injure or kill a bat;

(b) deliberately or recklessly harass a bat or group of bats; disturb a bat while it is occupying a structure or place which it uses for shelter or protection; disturb a bat while it is rearing or otherwise caring for its young; obstruct access to a maternity or wintering roost or deny a bat the use of such breeding or resting places; disturb a bat in a manner that is, or circumstances which are, likely to significantly affect the local distribution or abundance of that particular species; disturb a bat 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; or

(c) damage or destroy a breeding site or resting place of a bat.

2.6.2 There are legal implications for sites with bats present, whereby licences must be obtained for development proposals and works. In order to obtain a licence there is a strict three point test that must be met which includes demonstration that there will be no changes to the species' favourable conservation status.

2.6.3 Common pipistrelle *Pipistrellus pipistrellus* is listed on Appendix III (protected fauna) of the Bern Convention, while other bat species within the Microchiroptera are listed on Appendix II (strictly protected fauna) of this Convention. Brown Long-eared (*Plecotus auritus*) is the only bat species included within the Scottish Borders BAP and pipistrelles are the only bat species occurring in Scotland included within the UK BAP.

2.6.4 A daytime search for roosts was undertaken with features of potential use to bats or holding the potential to support bat populations being recorded. This included any buildings or other structures (bridges/culverts/walls) and mature trees with bat potential. As no buildings require demolition with respect to the preferred option, residential buildings were only examined externally while other structures were searched more thoroughly where safety allowed. Trees with bat potential have cracks, crevices, loose bark flakes or dead limbs, while structures with bat potential have cracks and crevices, or access to cavities within. Signs of bats using a feature may include:

- Chattering noises heard near to dusk if bats are present;
- Droppings and urine stains adjacent to an exit/entrance point or on the flooring, material underneath;
- Grease marks on woodwork etc, from oils deposited as bats enter/emerge; and
- Scratch marks on wood surfaces, though these are much less common.

2.6.5 The presence of suitable bat foraging habitats such as woodland edges, hedgerows, wetland and watercourse was also noted. In all instances of no evidence of bat roost, the feature was accorded a value of potential to roosting bats i.e. medium or high, with a feature of low potential value dismissed.

2.7 Other Protected Species Surveys

2.7.1 In addition to specific detailed surveying for the protected species listed above, habitat assessments and visual recordings of information with respect to amphibians, reptiles and birds were also recorded in order to supplement the responses received during consultations and in order to confirm that these particular species required no further consideration during Stage 3 with respect to the preferred scheme.

2.8 Survey Constraints

2.8.1 Weather conditions were good whilst surveys were undertaken and all survey requirements were completed within appropriate seasons. Where possible and if beneficial, surveying was completed at different times of the year to cover seasonal differences e.g. badger surveys completed in April (spring) and October (autumn). Surveying of watercourses was sometimes constrained due to dense bankside vegetation although it was considered that watercourses were sufficiently accessible to fulfil survey requirements.

2.8.2 A protected species survey provides a snap shot of the presence, location and abundance of a species within a particular survey area at a particular time. Therefore the absence of evidence of a protected species does not necessarily show that this protected species is not present at a certain time. A lack of evidence of a protected species can also result from many factors, such as recent weather conditions washing away droppings or the transient nature of a species.

3. SURVEY RESULTS

3.1 Badgers

3.1.1 The results of badger surveys are provided within the separate Confidential Badger Annex.

3.2 Otter

3.2.1 Surveys for this species were undertaken in April 2004 (Stage 2), July (Stage 3), August (Ground Investigation (GI) works) and in October 2005 (Stage 3). The results confirm that otters are present within the catchment with evidence being recorded to suggest that otters make regular use of the Headshaw Burn and the Leader Water (Figure 8.3, Environmental Statement).

3.2.2 In April 2004, active otter holts were recorded on Headshaw Burn (Target Note 5) and on the Leader Water (Target Note 15 and 17). In addition, spraints were recorded along the Headshaw Burn, at the Headshaw Burn/Leader Water confluence and on the Leader Water. No otter paths, couches or slides were evident at this time.

3.2.3 The Headshaw Burn was re-surveyed at the end of August 2005 as part of the GI pre-works ecological checks. The otter holt on the Headshaw Burn was checked for level of occupancy with respect to establishing acceptable working areas. The holt was still active at this time although there was not enough evidence to suggest that it was an important breeding holt.

3.2.4 During the Stage 3 surveying completed in July 2005 the whole catchment was re-surveyed (Headshaw Burn, Mountmill Burn, Leader Water, Kelphope Burn and Hillhouse Burn) with effort also focussing on previously identified holts to assess any changes in use or levels of activity. No new otter holts were recorded although heavy vegetation growth along the banks of the Leader Water and Headshaw Burn made surveying difficult. Additional otter spraint sites were located on the Headshaw Burn at Annfield Bridge (Target Note 11; recently

deposited spraint) and under the Hillhouse Burn Bridge (Target Note 19) although the low density of otter evidence suggested low otter activity at this time. Due to the presence of heavy vegetation in the summer months, otter surveying was increased by undertaking an additional visit during October 2005. At this time, a check of an otter holt previously recorded on the Leader Water (Target Note 17) indicated that this hole was not suitable in dimension for otters and there was no evidence of any recent use by any animal. No spraints were recorded nearby and it is therefore considered that this was not suitable for otter. The otter holt previously located at Target Note 15 was not located during this visit and no other evidence of otter presence was recorded such as spraints or paths and slides. It is possible that the previously recorded hole had been eroded away/become hidden through lack of use or that it had collapsed. It was therefore concluded that this holt also no longer exists. An otter holt may be used sporadically depending on the requirements of the individual otter.

3.2.5 During the bat survey completed in September 2005, otter spraints (fresh and old) were recorded under the bridge spanning the Kelphope Burn, which carries the D47/5 Hillhouse road.

3.2.6 SBBRC have a recorded sighting of an individual otter and spraint deposits at NT49415451, in February 2004.

3.2.7 Fish fry and larger juvenile/adult salmonids (up to around 20cm) were visually recorded within some of the watercourses (Target Notes 1 and 15), which provide a good food source for otter. The banks and level of cover around most burns, would afford habitat potential to otter, including maternity holts. The burns in and around the survey area offer an extensive network for otter movement throughout the area.

3.3 Water Vole

3.3.1 Survey and desk-based research during the Stage 2 environmental assessment indicated that there is potential for water vole to be present in the area (Target Notes 6, 9, 10 and 18). Suitable water vole habitat includes slow-flowing watercourses, moderately tall bankside and vegetation including grasses and sedges as a food source. Water voles also need steep-sided earth banks where they can excavate their burrow systems.

3.3.2 No confirmed sightings or evidence of water vole (latrines, grazed lawns, tracks) were recorded during any surveying in 2004 and 2005, although suitable habitat was recorded in 2004 at Mountmill Burn, just upstream of its confluence with Headshaw Burn and on Headshaw Burn (Target Notes 9 and 10). Potential burrows were recorded on the Leader Water east of Netherhowden, downstream of the C84 Oxton road (Target Note 18). A further burrow (along with an undistinguishable footprint) was recorded on the Headshaw Burn north of the D47/5 junction to Carfrae (Target Note 6), and small burrows were also recorded in 2005 underneath bank vegetation upstream of the Headshaw Burn and Leader Water confluence, although no evidence of water vole use was recorded, despite searches utilising a suitable level of survey effort. These burrows do not extend far enough into the bank to provide shelter for water vole, while many dipper (*Cinclus cinclus*) have been recorded in the area, particularly close to the Annfield Bridge and have been witnessed flying out from banks containing holes so it is considered most likely that these burrows are related to ornithological interest (as discussed below).

3.3.3 The water vole SAP in the Scottish Borders BAP indicates that the nearest record of this species is several kilometres to the south of the survey area. However, SBBRC has records

(February 2004) of recent water vole activity in the area (grid reference NT49365461), which is close to the existing D47/5 junction to Carfrae.

3.3.4 Habitat judged to have some limited potential for water vole was recorded on the Kelphope Burn, but no evidence of water vole presence was found. Vegetation throughout the survey area offers feeding potential for water vole and there are very small areas of potentially suitable bank along most of the burns, particularly downstream of the C84 Oxton bridge. The flow of the burns is generally moderate to fast and during periods of higher rainfall and winter weather, the flow velocities would be greatly increased. The level of human disturbance is relatively low in the survey area, though all burns are within easy walking distance of human habitation and there is some evidence of dog walking.

3.4 Red Squirrel

3.4.1 Suitable habitat for red squirrel exists at the area of mature coniferous and mixed plantation woodland to the north of the A68 and at a small amount of mixed woodland adjacent to the Hillhouse road from the Carfraemill roundabout.

3.4.2 No sightings or signs of red squirrel were made in any of the woodlands surveyed. One bitten cone, confirming the presence of red or grey squirrels was found in the woodland adjacent to the Hillhouse road. However, no other evidence of either species of squirrel, such as dreys, was recorded.

3.4.3 There are no known records of red squirrel activity within the scheme area itself. The nearest recorded red squirrel activity, as indicated in the red squirrel SAP of the Scottish Borders LBAP, is located approximately 8km south of the survey area around Lauder. There are also records of considerable red squirrel activity to the east of the survey area around Coldstream (approximately 37km) southeast around Kelso (approximately 30km), south around Galashiels and Melrose (approximately 20km) and west around Peebles (approximately 28km) as recorded in the Scottish Borders LBAP.

3.4.4 Although the high canopy woodland of the area provides potential red squirrel habitat, woodland with closed canopy is the most suitable type as it facilitates squirrels movement without recourse to travel along the ground. The lack of definitive woodland corridor and suitable habitat along the Leader Water would not be conducive to red squirrel moving into the immediate area from the known populations in the south.

3.5 Bats

3.5.1 No evidence of current bat roosts or activity (e.g. urine staining, droppings, scratching) was recorded in April 2004 or during 2005. However several structures with the potential to support bat roosts were identified at this time (Figure 8.3 of the Environmental Statement). These structures included the stone bridge (Target Note 7) spanning the Headshaw Burn, which carries the D47/5 to Carfrae (on the northern side of the existing A68), the stone bridge spanning Mountmill Burn, carrying the C83 Oxton road (Target Note 8), the Annfield Bridge, carrying the Headshaw Burn under the existing A68, the bridge spanning the Kelphope Burn and the stone tunnel located close to the Leader Water (Target Note 15). In addition, a mature beech tree with dead wood and crevices/cracks was identified within the fields surrounding Glengelt, which may also potentially be suitable for bats. The mixed woodland within the study area contains some mature trees with cracks and rot holes, which may provide suitable bat roosting habitat and suitable bat foraging habitats are commonplace across most of the area, such as woodland edges and watercourses.

3.5.2 In September 2005, a licensed bat worker visited the structures previously identified as having potential to support bats, in addition to the trees that will be affected by the Hillhouse bypass.

3.5.3 The stone bridge spanning the Hillhouse Burn which carries the D47/5 Hillhouse road is set within hedgerows and is constructed of natural stone and mortar, with rubble fill and dressed stone parapet. The pointing is in good condition, with few gaps on the spandrel either side. The bridge is around 30cm in height over the stream bed. The underside of the bridge arch is not mortared and contains gaps of a size that bats could enter. It is possible that some of these gaps extend sufficiently deep into the structure to provide roost space for bats. Nevertheless, the water level appears often to leave only around 15cm clearance beneath the bridge, making it less likely that conditions will be suitable for bats. The overall evaluation is that the bridge is of low to moderate potential for roosting bats given the above reason and the proximity of better, alternative roost sites.

3.5.4 As this bridge is scheduled for resurfacing works only, any roosting bats are unlikely to be directly affected by the works.

3.5.5 The Annfield Bridge carries the Headshaw Burn underneath the existing A68 and comprises a modern concrete bridge. There are no seams or expansion joints visible, but drainage holes do exist low down in the bridge abutments above the waterline of the river. None of these holes are suitable for use by bats.

3.5.6 A stone bridge is also present on the D47/5 Carfrae road, which spans the Headshaw Burn upstream of the Annfield Bridge. This bridge is surrounded by open fields with woodland present a short distance away. The bridge is constructed of natural stone and mortar with rubble fill and a dressed stone parapet. The pointing is in good condition, with few gaps on the spandrel either side. The underside of the bridge arch is not mortared and contain gaps of a size that bats could enter. It is possible that some of these extend sufficiently deep into the surface to provide roost space for bats. Nevertheless, the bridge is considered of low to moderate potential for bats.

3.5.7 The mature tree at Glengelt along with the bridge over the Mountmill Burn and tunnel on the Leader Water will be unaffected by construction works and are far enough away in distance from the road scheme to be of no significance. There are four mature trees scheduled for felling along the proposed route of the Hillhouse bypass and these trees were subject to a daytime inspection from the ground. The southernmost beech tree appears to be entire with very little dead wood in the crown. It is considered to have low potential for roosting bats. The middle beech tree contains two holes that are not deep enough for roosting bats. The tree is in good condition in general and of low bat potential. The northernmost beech tree and the ash tree are also entire with no potential for roosting bats.

3.5.8 The Scottish Borders records pipistrelle bat (*Pipistrellus sp*.) to the south of the survey area and frequently along the River Tweed. Daubenton's Bat (*Myotis daubentonii*) is recorded north of the survey area and also along the River Tweed. Within the survey area, it is likely that the Leader Water is the most suitable watercourse to provide potential habitat for Daubenton's Bat due to its greater size and width compared to Mountmill Burn and Headshaw Burn.

3.5.9 The owner of Riggsyde Cottage reported the presence of bats within a shed on the property. Upon inspection this was found to be a small corrugated iron animal shed and judged to be of low potential for bats. A single bat dropping was however discovered on the roof of the shed

showing that bats are active in the vicinity. Although no evidence of a roost was observed, it is more likely that bats roost within Riggsyde cottage itself (moderate potential but no external evidence found) or within the line of mature Ash (*Fraxinus excelsior*) trees which stretch across the field between the Cottage and Mountmill Burn, which provide excellent foraging habitat and moderate potential bat roost habitat.

3.6 Other Protected Species

3.6.1 Protected UK amphibian and reptile species include great crested newt (*Triturus cristatus*), common lizard (*Lacerta vivipara*), adder (*Vipera berus*) and slow worm (*Anguis fragilis*).

3.6.2 The great crested newt is a European Protected Species afforded similar protection to otters and bats (see above). Common lizard, adder and slow worm are listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) meaning that it is illegal to deliberately kill, injure, take from the wild or trade in them. The provisions of the Dangerous Wild Animals Act 1976 also prohibit the possession of adders without a licence from an appropriate Local Authority. All three species have Species Action Plans (SAP's) in the Scottish Borders BAP.

3.6.3 No suitable habitats for great crested newt were evident in the area, due to a lack of ponds used by newts for egg laying. Desk-based study reveals that there are no records of great crested newt in the general vicinity, the nearest records being approximately 26km west near Penicuik and approximately 28km south between Melrose and Hawick. No sightings or signs of adder were made, though adder are known to be distributed widely throughout the Borders and thought to be present in the vicinity of the survey area. No sightings or signs of slow worm were made. The nearest recorded site for slow worm is approximately 21km south of the survey area near Galashiels and Melrose (probably the Eildon Hills) and to the east near Duns.

3.6.4 No further evidence of the presence of protected amphibian or reptile species was recorded during the Stage 3 environmental assessment protected species survey.

3.6.5 As mentioned previously, fish species are present within the watercourses surrounding the proposed scheme (Target Notes 1 and 15). A fish habitat assessment has been completed as part of the surveying completed to inform an Appropriate Assessment and this has confirmed salmon spawning (presence of redds and dead adults) occurring during the winter at Annfield Bridge /along the Headshaw Burn and its suitability for lamprey ammocoetes and juveniles.

3.7 Birds

3.7.1 Through scoping and consultation, no specific bird surveying has been required as part of the DMRB environmental assessment for this proposed scheme. However, as a matter of best practice, consideration of the bird resource of the area has been included within this report.

3.7.2 Typically, small riparian bird species are present along the length of the watercourses, particularly dipper (*Cinclus cinclus*) with frequent use of the streams by this species being recorded. This is a reflection of the fast flowing and good water conditions that prevail along the Headshaw Burn. Several burrows exist within the stream banks under vegetation and dipper have been recorded exiting from some of these burrows. Although no nest material or droppings have been found within any of these burrows (most likely washed out) and the burrows do not extend far into the banks, it is possible that these burrows are being frequently used as perches by dipper, as visually recorded in 2005. There is one report of a dipper nesting underneath the Annfield Bridge.

3.7.3 Ornithological records were provided by the SBBRC and these indicate that a large number of bird species have been recorded within the vicinity of the proposed A68 improvement scheme from the late 1980's onwards. Several of these species are likely to use the area for feeding if not breeding, although consultations with SNH and RSPB indicate that the area surrounding the scheme is not considered to be of particular importance or of high nature conservation value for specific bird species.

- Information regarding SBBRC bird records within the vicinity of the A68 improvement scheme area is summarised in Tables 1 and 2 (grid references were not provided) using the RSPB Red and Amber List criteria for birds of conservation concern.

3.7.4 Red List species recorded during the Phase 1 habitat and protected species surveys include grey partridge and song thrush north of Netherhowden. Red-legged partridge (*Alectoris rufa*) was also recorded although this is an introduced species.

3.7.5 Amber List species which were recorded during the Phase 1 habitat and protected species surveys included lapwing and oystercatcher (*Haematopus ostralegus*), both north of the A68 close to Headshaw Burn (Target Note A3). Oystercatcher was also recorded near the Headshaw Burn, south of New Channelkirk and near the Leader Water at Netherhowden. Redshank, snipe and curlew have also been recorded in the area (SBBRC). The SBBRC also records redshank near Netherhowden in 2001 and snipe east of Mountmill in 2003.

3.7.6 The RSPB have confirmed that there is an area by the Headshaw Burn directly north of the D47/5 junction which is used regularly by over wintering oystercatcher, usually averaging around 60 birds, and is also used to a lesser extent at other times of the year. It is likely that this area is used for pair bonding.

3.7.7 Other RSPB Green List species (identified threat to the population's status) observed during surveying include common sandpiper (*Actitis hypoleucos*) and goldfinch (*Carduelis carduelis*) near the Leader Water at Netherhowden. A pair of buzzard (*Buteo buteo*) were recorded in the distance near woodland. The SBBRC also record breeding kestrel (*Falco tinnunculus*) near Netherhowden and Oxton and sparrowhawk (*Accipiter nisus)* near Netherhowden in 1996.

3.7.8 Wildlife & Countryside Act Schedule 1 protected bird species which have been recorded by SBBRC include peregrine falcon (*Falco peregrinus*), barn owl, red kite and the winter visitor, brambling (*Fringilla montifringilla*), recorded east of Mountmill in 2003. SBBRC has confirmed that there are nesting peregrine falcon (*Falco peregrinus*) within the wider area, recorded in 2003 north of Oxton. There are also recent records (2000) of red kite (*Milvus milvus*) near Netherhowden, which it is believed are beginning to colonise the Scottish Borders as a result of release programmes carried out in Dumfries & Galloway and Stirlingshire. Barn owl are also regularly recorded in the wider region with one record near Mountmill (2002).

4. SUMMARY

4.1.1 The survey area has been found to support otters, and to have the potential to support bats, water voles and red squirrels. Other protected species are considered unlikely to use the site. This being the case, in order to minimise potential impacts associated with the proposed road scheme, certain reasonable avoidance measures and/or outline mitigation measures are suggested below.

4.1.2 Otters have been identified as moving along the Headshaw Burn, Kelphope Burn, Hillhouse Burn and the Leader Water and an active holt was identified on the Headshaw Burn and Leader Water. Other burrows exist that may have been or may become occupied by otter in the past or future. Specific mitigation has been required for GI works and similar mitigation will be required for the construction of the road improvement scheme. This species is a European Protected Species and a development licence will most likely be required for construction works. This is addressed within the Environmental Statement.

4.1.3 Several bridge structures and trees have been identified as having low-moderate potential to support bat roosts, although, with the exception of a dropping located on the top of a shed roof that will not be affected by the proposed road scheme, no evidence of roosts or other activity was discovered. Nevertheless, as storm damage could create new roost spaces in trees between now and the commencement of works, or existing holes could deepen, it is suggested that all trees over 10 cm dbh that require felling are subject to reasonable avoidance measures (RAMs) for bats. RAMs should include felling in October or April, soft felling sections that contain splits, cracks or holes, wedging splits prior to felling to prevent them closing and retaining soft felled timber on site in long lengths for 48 hours.

4.1.4 Although some potential water vole habitat is present along the water courses within the area and there is a SBBRC record of their presence from 2004, no evidence of water vole activity or presence has been recorded or observed. However, as there is potential for this species to colonise between now and the start of any construction works additional survey prior to the commencement of any/all bank disturbance is recommended.

4.1.5 No evidence of red squirrel activity was found within the survey area, however a small area of mixed woodland is present and provides suitable habitat. Mixed woodland with the potential to support red squirrel will not be affected by site clearance works, although some individual mature trees will be felled and will require pre-construction checks for red squirrel, bats and birds.

4.1.6 Bird species using the survey area include red list species passerines, utilising the pasture and arable adjacent to the A68. The woodland, agricultural land and watercourses provide a mixture of habitat suitable for a variety of avifauna, for both breeding birds and over-wintering species. Ornithology has not been identified as an area of concern although bird species will be considered appropriately in the Environmental Statement with respect to the Wildlife and Countryside Act, 1981 (as amended) and Nature Conservation (Scotland) Act 2004.

5. REFERENCES

RSPB, NRA & RSNC (1994). The New Rivers and Wildlife Handbook.

Strachan, R. (1998) Water Vole Conservation Handbook. English Nature, Environment Agency and Wildlife Conservation Research Unit.

Young Associates (2004). A68 South Soutra to Oxton Improvement Scheme. Stage 1 Environmental Update Report. Final Report. May 2004. Submitted to the Scottish Executive.

Young Associates (2005). A68 South Soutra to Oxton Improvement Scheme. Stage 2 Environmental Report. Draft submitted to Scottish Executive January 2005.

RSPB (2002). The Population Status of Birds in the UK. Birds of conservation concern: 2002-2007.

Table 1. RSPB Red List Species (SBBRC Records).

Common Name	Scientific Name	Record Date
Grey partridge	*Perdix perdix*	1992
House sparrow	*Passer domesticus*	1988
Linnet	*Carduelis cannabina*	1988
Reed bunting	*Emberiza schoeniclus*	1991
Skylark	*Alauder arvensis*	1992
Song thrush	*Turdus philomelos*	1992
Spotted flycatcher	*Muscicapa striata*	1988
Starling	*Sternus vulgaris*	1988
Tree sparrow	*Passer montanus*	1988
Yellowhammer	*Emberiza citronella*	2000

Table 2 RSPB Amber List Species (SBBRC Records).

Common Name	Scientific Name	Record Date
Barn owl	*Tyto alba*	2002
Black-headed gull	*Larus ridibundus*	1988
Common redpoll	*Carduelis flammea*	1988
Cuckoo	*Cuculus canorus*	1991
Curlew	*Numenius arquarta*	1992
Dunnock	*Prunella modularis*	1988
Goldcrest	*Regulus regulus*	1988
Grey wagtail	*Motacilla cinerea*	1988
House martin	*Delichon urbica*	1988
Lapwing	*Vanellus vanellus*	1992
Lesser black-backed gull	*Larus fuscus*	1988
Mistle thrush	*Turdus viscivorus*	1992
Red kite	*Milvus milvus*	2000
Redshank	*Tringa totanus*	2001
Redstart	*Phoenicurus phoenicurus*	1992
Snipe	*Gallinago gallinago*	2003
Swallow	*Hirundo rustica*	1988
Wheatear	*Oenanthe oenanthe*	1988
Willow warbler	*Phylloscopus trochilos*	1988

Table 3. Protected Species Target Notes 2004 & 2005.

Target Note	Description
1	**NT4868055107**. Headshaw Burn - Salmonid fry and parr in this area. Oystercatcher on wall opposite the burn.
2	**NT4818754825**. Mature beech and hawthorn hedgerow. Beech with cavities and standing dead wood provides suitable summer bat roost and edge for foraging.
3	**NT4884054958**. Otter spraint on rock in Headshaw Burn (more than 1 week old) in April 2004.
4	**NT4912654749**. Otter spraint on rock in middle of Headshaw Burn (1 week old, or less) in April 2004.
5	 **NT4927254675**. Active otter holt in 2004 & 2005. 1.5 m on steep banking above burn (North banking). 15 cm high and 25 cm wide at entrance. The tunnel then narrows 40 cm in. No smell of fox and no evidence of badger hairs, or any other signs in the bedding. Otter path down to burn and up banking.
6	**NT4920354700**. Hole on steep, exposed sandy banking in 2004 but not recorded in 2005. 5 cm x 10 cm and 1.5 m above water level. Footprint 10 m upstream, 2 cm x 3 cm. Potentially water vole but could also be used by dipper. 
7	  **NT4934254608**. Stone built road bridge over Headshaw Burn, 1 m above current water level. Bats may use this as a roost (low to moderate bat potential). Not many cracks underneath and pointing is in good condition, but some suitably deep cracks do exist. The water level is likely to rise to roof level.
8	**NT4932054189**. Stone built road bridge over Mountmill Burn, which is suitable as a bat roost. Not directly impacted by proposed scheme.
9	**NT4947054295**. Burrows (5 cm x 4 cm) just above the water level in banking of Headshaw Burn under an overhang. There is no ledge. May be water vole holes and cannot be ruled out (no evidence) although could also be used by riparian bird species. **NT4947054284**. There is a burrow, potentially water vole, at water level which is the same size as the one above.
10	**NT4948454055**. Burrow (3 x 3 cm) in grass 2 ft from the bank of the burn. There is another at water level in the bank under vegetation. There are no droppings or feeding lawns. Potential water vole habitat.
11	**NT4938754551**. Otter spraints on a rock in the Headshaw Burn under the D47/5 road bridge and prints in soil (April 2004 & July 2005). Concrete bridge with no bat potential.
12	**NT4969054770**. Adult brown hare observed.
13	**NT4952854035**. Regularly visited spraint point for otter at the confluence of the Headshaw and Mountmill Burns with the Leader Water. There are old, relatively

Target Note	Description
	recent and fresh spraints present.
14	  **NT4967553957**. Burrow (field vole) in grass about 1.5 m from the burn. No burrow found in bank. No droppings or animal evidence.
15	**NT4993953652**. In April 2004 an otter holt was recorded on the banking 1.5 m from the burn with a small amount of grass over the entrance. It appeared clean inside and used. It was 20 cm wide and 15 cm high. Subsequent visits in 2005 failed to locate this hole and it is concluded that the hole no longer exits/is now disused. There is an old stone tunnel here which may be suitable as a bat roost although no evidence of recent bat occupancy found. 
16	**NT5007953627**. Otter spraint on a rock in the middle of the Leader Water under the C84 road bridge. There is a weir present. The water is deep before the weir where many fish fry occur. The bridge is composed of concrete and stone and is unsuitable as a bat roost. Oystercatcher, common sandpiper and goldfinch were recorded nearby.
17	 **NT5017653592**. In April 2004 a hole was located on the bank of the Leader Water in a field which was the correct size and shape for an otter. It did not appear to be well used. There were exposed, faint paths leading to it. During surveying in July and October 2005, this hole did not appear to be in use anymore and was considered too small for otter. Possibly previously occupied by a fox.
18	**NT5023953584**. Hole in bank of the Leader Water which is in use. It is 5 cm across and 4 cm high and egg shaped. It may be water vole, but there are no other signs present, so may also be used by a small bird such as dipper (but not characteristic of kingfisher) or bank vole.
19	**NT5078354363.** Recently deposited otter spraint underneath the bridge over the Hillhouse Burn (carrying the D47/5 Hillhouse Road).
20	Burrows recorded in 2005 along bankside, underneath vegetation. Potentially water vole due to location although not typical of water vole in appearance/depth and being used by dipper (no evidence of water vole use).
21	A single bat dropping found on the roof of a timber and corrugated metal shed adjacent to Ryggside Cottage. Identified as pipistrelle. No roost in barn but potential for nearby roost in Ryggside Cottage.