



APPENDIX D1

ECOLOGICAL SURVEYS

ECOLOGICAL SURVEYS

at

THE BARRMILL ROAD PROPOSED ROUNDABOUT SITE

and

THE DEN PROPOSED ROAD REALIGNMENT SITE

on

THE A737 DALRY TO BEITH ROAD

prepared and co-ordinated by



for

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ECOLOGICAL SURVEYS
at
TWO SITES ON THE A737 DALRY TO BEITH ROAD

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1. INTRODUCTION

The Natural Resource Consultancy (NRC) was commissioned by Haskoning UK Ltd to undertake ecological surveys at two sites around the A737 Beith to Dalry road. The two sites were:

1. 'The Den' on the A737, three miles south of Beith, where realignment is proposed.
2. The proposed 'Barrmill Road Roundabout' at the junction of the A737 and B706 on the outskirts of Beith.

The surveys to be carried out initially were:

1. Phase 1 Habitat Survey and walkover to assess potential for notable species – both sites
2. Bat Scoping Study – both sites
3. Mammal survey – both sites
4. Great crested newt survey - on pond system at Barrmill Rd Roundabout site

Following the Phase 1 survey and site walkover in April 2005 and discussions with surveyors it was considered that The Den site had potential to hold notable species of birds and amphibians. Breeding bird and amphibian surveys have been carried out there, at the appropriate time of year, for which reports are expected in July.

This report contains the findings of surveys 1 – 4 above.

2. METHODS

2.1 PHASE 1 HABITAT SURVEY

The Phase 1 Survey and site walkover was undertaken by NRC on 21st April 2005 following standard methodology (NCC, 1990). Habitats were plotted, with standard colours and codes on the drawings provided, which were at larger scales than the standard 1:10,000 Ordnance Survey maps commonly used for Phase 1 habitat survey. Habitat boundaries were mapped with the aid of a recent colour air photograph. Because of the purposes of the survey the number of Target Notes may be higher than on a standard survey. They were taken at most semi-natural areas, areas with potential to hold notable species and other areas of interest.

It should be noted that April is early in the year for botanical survey and the floristic interest of certain areas could not be fully assessed. This was compounded by rainfall in the preceding days and weeks which made some areas too wet to walk on.

2.2 BAT SCOPING SURVEY

The Bat Scoping Survey was carried out by Nocturne Environmental Surveyors Ltd, who are licensed bat workers, on 4th April 2005. The aim of this survey was to determine if areas had potential for roosting or hibernating bats. Two surveyors walked the line of the proposed realignments and visually inspected all trees that could potentially be affected by the road works. The trees were inspected for cracks, crevices, holes and splits.

A search of local Bat Group records was also carried out to ascertain whether any roosts were present.

2.3 MAMMAL SURVEY

The Mammal Survey was undertaken by Jim Green, mammal ecologist on 5th April 2005. It focussed on water vole, badger and otter which, like bats, are legally protected. All habitat within a 250 m wide corridor either side of the road was searched for scats, tracks, paths, food remains and shelters. A selective survey of favourable habitats (watercourses, woods etc.) within 500m of the road was carried out.

A search was also made for previous records of these species in the area.

2.4 GREAT CRESTED NEWT SURVEY

The great crested newt survey was carried out by Starling Learning who employ a licensed great crested newt surveyor. It took place in a wetland south-east of the A737, at Beith, which had been highlighted by Scottish Natural Heritage as having ponds with the potential to hold newts. A day visit was made on 29th April 2005 and an evening visit on 8th May 2005. During the daytime visit the pond was dipped and refuges round the area searched. On the night visit the recommended torching method was used. More details of methods in Appendix 4.

3. RESULTS

3.1 PHASE 1 HABITAT SURVEYS

Plant names below are in English, while Target Notes in Appendices 1A and 1B have Latin plant names (except for trees and shrubs). Appendix 1C is a flora list with both English and Latin names.

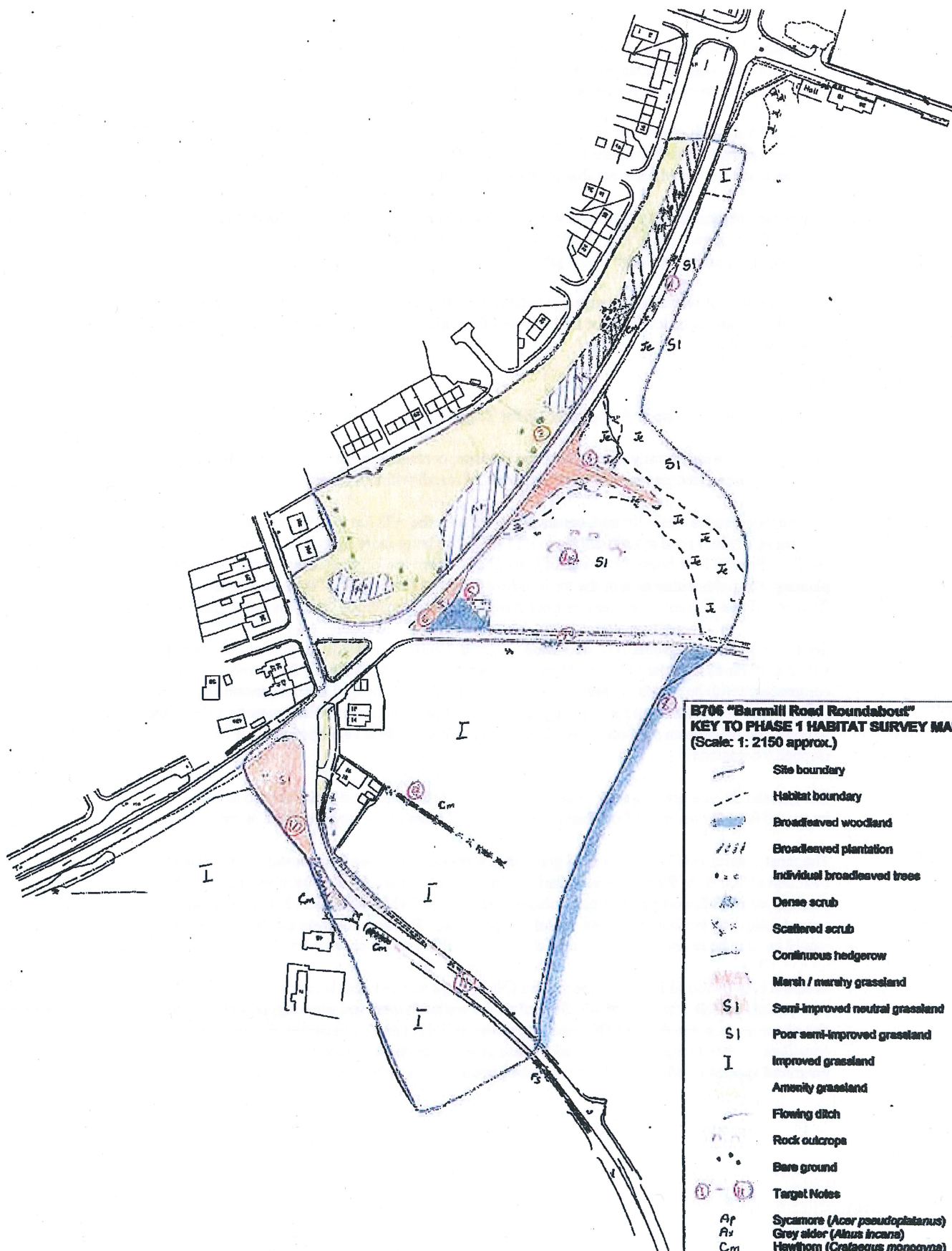
3.1.1 BARRMILL ROAD ROUNDABOUT

Refer to Phase 1 Survey Map and to the Target Notes in Appendix 1A.

The site consists of amenity grass and planting beside a play park, north west of the A737 and large agricultural fields, between Geilston School and sports facilities, east of the A737.

Woodland is limited consisting of a semi-mature plantation by the play park (Target Note 2), where grey alder is the commonest tree, and a tiny birchwood by an electric sub-station (TN9). There are limited remnants of hedges by roads and within one field (TN 9), hawthorn being the dominant species. There is a large woodland between the site and the sports facilities (TN 8).

Within the fields grasslands are generally improved or poor semi-improved, i.e. not floristically rich. There are two exceptions: marshy grassland round the 'ponds' where the great crested newt survey took place and a small hill south of this wetland system.



B706 "Barnmill Road Roundabout"
KEY TO PHASE 1 HABITAT SURVEY MAP
 (Scale: 1: 2150 approx.)

	Site boundary
	Habitat boundary
	Broadleaved woodland
	Broadleaved plantation
	Individual broadleaved trees
	Dense scrub
	Scattered scrub
	Continuous hedgerow
	Marsh / marshy grassland
	Semi-improved neutral grassland
	Poor semi-improved grassland
	Improved grassland
	Amenity grassland
	Flowing ditch
	Rock outcrops
	Bare ground
	Target Notes
	Sycamore (<i>Acer pseudoplatanus</i>)
	Grey alder (<i>Alnus incana</i>)
	Hawthorn (<i>Crataegus monogyna</i>)
	Beech (<i>Fagus sylvatica</i>)
	Soft rush (<i>Juncus effusus</i>)
	Cherry (<i>Prunus</i> sp.)

The wetland is largely rush-dominated with the wettest ground in a T shape perpendicular to the A737. This consists of marsh with areas of open water. The wettest areas are species-rich with species such as brooklime, ivy-leaved crowfoot and water plantain.

The small hill south of this has some rock outcrops and local areas of more semi-natural grassland with species such as field woodrush, sweet vernal grass and ribwort plantain. It was too early in the year to determine whether notable plants are present.

Otherwise the most diverse grassland were the road verges, perhaps because they are less intensively managed (see TNs 6, 7, 10 and 11). Common species include yarrow, ribwort plantain, cow parsley and cock's-foot grass.

Due to the lack of woodland / hedgerow habitat or wetland this area has little potential for birds. The only wetland is of low interest for birds and there are no other areas at this site with potential to hold amphibians.

3.1.2 THE DEN

See Phase 1 Habitat Map and Appendix 1B for Target Notes.

This site is more structurally diverse than the first site, containing a number of small fields, bounded by trees, hedgerows and belts, and areas of marsh within the fields.

Mature woodland is again limited, consisting of belts by the A737 at east end of site (Target Note 15) and by a minor road at right-angles to it (TN11), the latter more open than the former, and a small birchwood by a house near west of site (TN3). There are larger areas of young broadleaved planting: the fields either side of the track to Meadowhead farm (TN8). There are also trees on field boundaries. Commonest mature trees are birch, alder, sycamore, ash, beech and gean.

Scrub is also limited on site. The only dense scrub is a curious stretch of hawthorn and bramble in a field at north-east of site (TN10). There is scattered scrub in the fields at TNs 6 and 14. The commonest scrub habitat is hedgerow. Most field and roadside hedges are not continuous but are still likely to provide habitat for breeding songbirds. Hawthorn is again the commonest shrub and willows and blackthorn are occasional. The undershrub bramble is also common and wild raspberry occasional.

The grasslands here are generally richer than at the first site with most areas classed as semi-improved (usually reverting from being improved) and areas of marshy grassland or rush pasture.

The most species-rich semi-improved grasslands were classed as semi-improved neutral and are to be found at TNs 1, 6, 9 and on some road verges. Common herbs in the sward were pignut, cow parsley, yarrow, ribwort plantain plus mosses and soft rush. The field at TN13 was too short-grazed following lambing to assess its floristic potential. This and the areas at TNs 1, 6 and 9 would have to be revisited in summer to check no notable species are present.

Wetland is to be found in four of the fields (TNs 2, 7, 12 and 14) and there are additional areas of rush pasture at TNs 1, 6, 13 and 14. Several of the wetlands were too waterlogged to walkover on day of survey (e.g. the ditch at TN2 and large areas at TN12) and, with certain ditches, were considered to have amphibian potential. These areas supported a number of wetland or damp grassland species of which the most common were soft rush, tufted hair grass, Yorkshire fog,

**A737 "The Dam"
KEY TO PHASE 1 HABITAT SURVEY MAP
(Scale: 1:3850 approx)**

- Site boundary
- Habitat boundary
- Broadleaved woodland
- Young broadleaved plantation
- Individual mature broadleaved tree
- Scattered young conifer trees
- Dense scrub
- Scattered scrub
- Continuous hedgerow
- Marsh / marshy grassland
- Semi-improved neutral grassland
- Poor semi-improved grassland
- Improved grassland
- Flowing ditch
- Seasonal or dry ditch
- Bare ground
- Buildings
- Target Notes

- Ag Common alder (*Alnus glutinosa*)
- Ap Sycamore (*Acer pseudoplatanus*)
- Cm Hawthorn (*Crataegus monogyna*)
- Ra Ash (*Fraxinus excelsior*)
- Fs Beech (*Fagus sylvatica*)
- Ts Soft rush (*Juncus effusus*)
- Lp Horsetail (*Lonicera periclymenum*)
- N Dog-rose (*Rosa canina*)
- Qx Oak (*Quercus* sp.)
- AL Bramble (*Rubus fruticosus*)
- Wf Willow (*Salix* sp.)
- Sa Gorse (*Ulex europaeus*)
- Ue



creeping buttercup, meadowsweet and hemlock water dropwort. However because of access difficulties and the time of year it would be advisable to revisit these areas in summer to gauge their full floristic value. The wetlands also have potential to hold red or amber list birds of conservation concern (RSPB et al, 2002).

3.2 BAT SCOPING STUDY

See Appendix 2 and maps therein.

There were no previous roost records for this site.

There were no signs that bats were or had previously been using the trees at the Barrmill Rd roundabout site or in the five sections in which the surveyors walked The Den site. Therefore there is no need for further survey work.

However there are two trees to be checked when felling their Section 5 of The Den site; their most easterly section. These are a sycamore with a woodpecker hole and a beech with a split top at NS328514 - see map in Appendix 2. A licensed bat worker should be present prior to and during felling to check for bats.

3.3 MAMMALS SURVEY

Refer to Appendix 3 for full report. The results of otter, badger and water vole surveys are given in turn below.

3.3.1 OTTERS

Otters continued to inhabit Lochwinnoch and Kilbirnie Lochs when the national population and the population in the rest of North Ayrshire and Renfrewshire was in decline. Since then there has been a dramatic recovery in status in this 10 km square (NS35) recorded during surveys in the 1970s, 80s and 90s. This led to an increase in road casualties. The otter is a subject of a specialist section in the Highway Agency's Design Manual for Roads and Bridges to mitigate road traffic impacts. There are no records of road mortalities on the A737 but the five mortalities in NS35 confirm the widespread distribution of otters locally.

There were no signs of otters at either site during the April 2005 visit.

At the Barrmill Rod roundabout site there were no significant watercourses present within 250m of the scheme. The area of marshy grassland (= TN3) had no fixed channel and the field drain beside the wood (= TN8) had no otter potential. There is therefore no habitat suitable for otters at this site.

At The Den drains were discontinuous and sometimes polluted and unlikely to hold otter prey. This site therefore has no habitat with potential for otters.

3.3.2 BADGER

Badger status in Scotland is poorly recorded compared to that of otter. Density is lower than in England and Wales and distribution sporadic. Badger density in North Ayrshire in the 1980s survey was estimated at 0.2 – 0.3 badger clans per km, which is low. Road deaths account for 20% of annual badger mortality. Badger is also the subject of a specialist mitigation section in the

Design Manual for Roads and Bridges. There are no records of badger road casualties round Beith and long-term residents approached during the survey had no recollection of mortalities.

No signs of badger were discerned at either site during the 2005 survey.

At the Barmill Rd roundabout site there was potential badger foraging habitat in the pastures east of the road which was sub-optimal owing to the high water table. Waterlogging and flat topography also make the area unsuitable for otter shelters. The off-site woodland (= TN8) was heavily disturbed owing to its numerous footpaths. In conclusion habitat on this site is of low value for badgers.

At the Den potential badger habitat north of road comprised forage only with a lack of suitable sites for shelter. South of the road was a mixture of forage and shelter potential, the latter among mining residues, but no signs of badger were found.

3.3.3 WATER VOLES

National surveys in the late 1980s and 90s revealed an accelerating decline in water voles. Habitat requirements can be specialised making them vulnerable to negative impacts. Water voles were present in square NS35 in the 1989-90 survey but absent from all sample sites in NS35 in the 1996-98 survey.

No signs of water voles were detected at either road site in 2005.

At the Barmill Rd roundabout site, the marsh (= TN3) had no fixed channel or defined banks and the field drain adjacent to the wood (= TN8) had no water vole potential.

At The Den, minor elements of water vole habitat were present as weeded roadside drains at the south end of survey area. These were discontinuous. A polluted roadside burn had no water vole potential.

3.4 GREAT CRESTED NEWT SURVEY

See Appendix 4.

The habitat investigated was a wet flush sloping downfield to the A737 (= TN3). The pond fluctuates in level and often has lying water at times of heavy rainfall. However a drain below the road prevents water levels from remaining high for long. At the time of survey the water level was low leaving only a few small ponds surrounded by muddy areas.

No great crested newts or other amphibians were recorded during the day or night-time visits. In some respects the habitat is suitable with plants for laying eggs on, e.g. ivy-leaved crowfoot, but the water was too shallow. During the breeding season newts ideally require 50 – 100 cm for displaying. There was only 5 – 10 cm of water in the ponds during the survey.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 HABITATS AND FLORA

4.1.1 BARRMILL ROAD ROUNDABOUT

The majority of this site appears to be of limited floristic interest, except for the road verges and the wetland at TN3. It was therefore considered to have low potential for birds and other fauna not covered during these initial surveys.

Mitigation should include the re-creation of wildflower verges, using local species of grass and herb appropriate for soil conditions, as well as the establishment of tree and shrub areas for birds.

There was one location where the floristic interest could not be fully assessed: the grassland on the hillock at TN4. It should be revisited, in July or August 2005, and botanical records made – either an extended target note or NVC survey depending on level and extent of interest.

4.1.2 THE DEN

Less intensive agriculture and low-lying ground give this site more areas of potential floristic value than Barrmill Road roundabout site. However, because of the time of year and ground conditions, plants could not be fully recorded in the most semi-natural areas. Further botanical survey work is therefore recommended:

- Phase 2 or NVC survey at the semi-improved neutral grassland at TNs 1,6 and 9, in July/August 2005. The field at TN13, which was too short to survey in April, should also be revisited at this time and botanical records made – either an extended target note or NVC survey, depending on level of interest.
- Areas of wetland at TNs 2, 7 and 12, which were too wet to survey in April, should also be visited in July/August 2005, botanical records made and Phase 2 or NVC survey carried out if necessary.

The wetlands and hedgerows may hold some breeding birds of conservation concern and the fields which have recently been planted (TN8) are likely to become more important for birds and plants over time. The wetlands also have potential to hold amphibians therefore. Further surveys for birds and amphibians were therefore commissioned at The Den.

4.2 BATS

Licensed bat workers should be present prior and during felling of the beech and sycamore, mentioned in section 3.2 above and mapped in Appendix 2, to check for bats.

No further survey necessary.

4.3 OTHER PROTECTED MAMMALS

There will be no impacts on badger, water vole or otter from the proposed road scheme

4.4 AMPHIBIANS

No great crested were present at the Barmill Road roundabout site.

Awaiting the results of surveys of wetter habitat at The Den.

CLC

June 2005

5. REFERENCES

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Nature Conservancy Council (1990): Handbook for Phase 1 habitat survey - a technique for environmental audit. NCC, Peterborough.

RSPB et al (2002): The population status of birds in the UK: Birds of Conservation Concern 2002 - 2007. BTO, RSPB, SNH, Joint Nature Conservation Committee, Birdlife International, Countryside Council for Wales, English Nature, The Wildfowl and Wetlands Trust, The Wildlife Trusts, Environmental and Heritage Service (Northern Ireland), The Game Conservancy Trust, The National Trust, The Hawk and Owl Trust, British Ornithologists' Union.

Stace C (1999): New Flora of the British Isles. 2nd Edition. Cambridge University Press.

APPENDIX 1A: Target Notes for Barrmill Road Roundabout Site.

From survey on 21st April 2005. Target Notes numbered from north to south.

1. Fenced corridor parallel to road is rank with frequent *Lolium perenne* and *Cynosurus cristatus* and invasion by *Rumex obtusifolius* and *Ranunculus repens*. More reversion to S with *Rumex acetosa*, *Centaurea nigra* and *Dactylis glomerata* in sward. Becoming damper further south, with *Alopecurus geniculatus* and *Juncus effusus*, and locally waterlogged.
2. The grassland by plantation, SW of play area, is damp with species such as *Cardamine pratensis*, *R repens* and *Holcus lanatus*. NE of play park, the grassland near plantation is drier with *H lanatus* still frequent. Beside play park is dense laurel. Grey alder dominates planting at SW, with only occasional sycamore; planting at NE more diverse.
3. Rush-dominated area, the central part of which was too waterlogged to access on day of survey. Species noted there included *C pratensis*, *Epilobium* sp., *Veronica beccabunga*, *Rumex crispus* *Glyceria* sp. and, at west road verge *Chrysosplenium oppositifolium*. The marsh is surrounded by *J effusus*. Near road, a linear pond was full of water on day of survey and supported *Ranunculus hederaceus*, *Alisma plantago-aquatica* and *V beccabunga*. Abundant *Calliergonella cuspidata* at S end. Muddy bank by road. *J effusus* remains dominant at edges.
4. Local semi-natural areas on sides and near top of hill in S part of field. *Plantago lanceolata*, *Luzula campestris*, *Agrostis capillaris*, *Ranunculus ficaria* and mossy patches noted (mostly *Rhytidiadelphus squarrosus*). Areas above rock outcrops often most diverse. Elsewhere *L perenne*, *Phleum pratense* and *Senecio jacobaea* frequent. Summer survey recommended here.
5. Developing birchwood round sub-station. Some willows and rowan also present. Some of the birch and rowan may have been planted. Ground flora mossy – dominated by *Polytrichum commune* with some *R squarrosus*. *A capillaris* and *Anthoxanthum odoratum* also common.
6. Roadside bank supports tall herbs and grasses including *C nigra* and umbellifers. Narrower verge to N also diverse with *Achillea millefolium*, *L campestris* and *P lanceolata*.
7. Road verges reasonably diverse with mossy old dykes, grass verge extending 1 m into field and, on S, a patch of hawthorn with one holly. Ground flora includes ferns, *Anthriscus sylvestris*, *Aegopodium podagraria*, *Urtica dioica* and *D glomerata*.
8. Woodland edge in which sycamore and hawthorn are common, with some common alder. Ground flora includes *A podagraria*, *R ficaria* and, where damp, *R repens*. Damp near ditch at boundary, which emerges into field at SE, where *Iris pseudacorus* was noted.
9. Hedge remnant in field has occasional herbs below: *A sylvestris*, *R ficaria*, *U dioica*, *Galium aparine* and *Claytonia sibirica*.
10. Occasional willows and dog-rose in hawthorn hedge at S of this area of damp grassland. Grassland species include *J effusus*, *R repens*, *C pratensis*, *L campestris* and *Taraxacum vulgare*. Appears recent.
11. Some diversity in roadside verges including *A sylvestris*, *A millefolium*, *P lanceolata*, *R ficaria*, *D glomerata* and *H lanatus*.

APPENDIX 1B: Target Notes for The Den site

From survey on 21st April 2005. Target notes numbered west to east.

1. *Conopodium majus*, *Rumex acetosa* and *Juncus effusus* common in sward. Owner of restaurant to E saw hares in winter.
2. Ditch at road edge could not be crossed on day of survey. Area dominated by *J effusus* with *Holcus lanatus* common and willows occasional. As wet as Barrmill Rd roundabout wetland. Drier ground with brambles further away from road. Requires more survey. Burn on opposite side of road polluted.
3. Hawthorn hedges either side of side road with occasional blackthorn and bramble, especially on north side. Ground flora includes *Symphytum officinale*, *Aegopodium podagraria* and *Anthriscus sylvestris*, these species also occasional in main road verge to SW. Small birchwood to N with nests in trees.
4. Hedge line by ditch with *Phalaris arundinacea*, *Deschampsia cespitosa*, *J effusus*, *Epilobium* sp. and *R repens*. Rest of field disturbed and, at time of survey, mostly bare with some dumping of rubble and litter. Snowberry, wild raspberry, bramble, broom and hawthorn in hedge. *Symphytum officinale*, *A podagraria* and *Tussilago farfara* at road edge.
5. Wall supports occasional *A millefolium*, *Alchemilla vulgaris* and ferns.
6. Field has *Achillea millefolium*, *Ranunculus ficaria*, *Plantago lanceolata*, *Anthriscus sylvestris*, *H lanatus*, mosses and occasional hawthorn, dog-rose and gorse. *Juncus* in patches particularly in E of field near drainage line. Roadside ditch has shrubs either side, mostly hawthorn – those nearest ditch cut back. *Filipendula ulmaria* at ditch.
7. No hedge on W field boundary owing to wetness. *J effusus* abundant plus *F ulmaria*, *Veronica beccabunga*, *Mentha aquatica*, *Oenanthe crocata*. Full access not obtained owing to wetness – revisit in summer.
8. Recently planted broadleaved trees in fields. Ground flora diversifying but not yet rich. Heavily cut back hedge at NW. Hedges either side of farm track well-trimmed with more diverse verge (*P lanceolata*, mosses). Nests in beech trees at north edge of west field.
9. Field reasonably species-rich with *Conopodium majus*, *Plantago lanceolata* and *Rhytidadelphus squarrosus*. Interest continues to roadside verges where *F. ulmaria*, *Anthriscus sylvestris* and *Heracleum sphondylium* recorded.
10. Central part of field is dominated by bramble with central line of hawthorn. Grassland either side reasonably rich: *H lanatus*, *D cespitosa*, *Dactylis glomerata*, *P lanceolata*. *Oenanthe crocata*, *Centaurea nigra* and *Veronica* sp. among plants recorded.
11. Open woodland of oak, birch, willow, alder, gean, larch, sycamore, willow and hawthorn with bramble and wild raspberry below. Wet where route crosses therefore ID of ground flora restricted. *J effusus*, *O crocata*, *D cespitosa*, ferns and rushes common.

Old wall at road edge with watercourse below in deep channel. *Phyllitis scolopendrium* and other ferns on sides of channel. *Filipendula ulmaria* and *Myosotis* sp. beside.
12. Extensive marshland with pools which could not be visited. As wet as Barrmill Rd roundabout site. *Calliergonella cuspidata* abundant. Frogs present.

Trees along old field boundary could not be reached. Drier at N and W but short sward again restricts ID. Where route crosses at S appears fairly species-rich with *Cirsium palustre* and *O crocata*.

13. Well-grazed field, possibly used for lambing; too short for ID. Large marsh in west of field also close-cropped. Areas of rush elsewhere and abundant moss. Summer survey recommended.
14. West of cross-hedge this narrow field is marshy so access to areas with surface water difficult on date of survey. Species present include *Juncus effusus*, *Oenanthe crocata*, *Galium palustre*, *Myosotis* sp and *Potentilla anserina*.

East of hedge the ground is less wet with *Deschampsia cespitosa* replacing *J effusus* at west and hawthorn within field. Wetter again at E with *J effusus* and bare ground from recent inundation.

15. Narrow zone of woodland in which gean, horse chestnut, sycamore, beech, pine, hawthorn, willow and elder are present. Woodland open in places (e.g. at powerline wayleave). Ground flora includes *J effusus*, *Ranunculus ficaria*, *Chamerion angustifolium* and bramble.

APPENDIX 1C: Spring 2005 Plant Lists For The Den And Barrmill Road Roundabout Sites

Latin and English names of vascular plants are as per Stace (1997). The list is alphabetical by the Latin name within the groups.

Latin	English
<u>Trees and shrubs</u>	
<i>Acer pseudoplatanus</i>	Sycamore
<i>Aesculus hippocastanum</i>	Horse chestnut
<i>Alnus glutinosa</i>	Common alder
<i>Alnus incana</i>	Grey alder
<i>Betula pubescens</i>	Downy birch
<i>Crataegus monogyna</i>	Hawthorn
<i>Cytisus scoparius</i>	Broom
<i>Fagus sylvatica</i>	Beech
<i>Fraxinus excelsior</i>	Ash
<i>Ilex aquifolium</i>	Holly
<i>Larix</i> sp	Larch
<i>Pinus sylvestris</i>	Scot's pine
<i>Prunus avium</i>	Gean, wild cherry
<i>Prunus spinosa</i>	Blackthorn
<i>Prunus</i> spp.	Cherry and Laurel
<i>Rosa canina</i>	Dog-rose
<i>Quercus</i> sp.	An oak
<i>Salix caprea</i>	Goat willow
<i>Salix</i> sp.	A willow
<i>Sambucus nigra</i>	Elder
<i>Sorbus aucuparia</i>	Rowan
<i>Symphoricarpos albus</i>	Snowberry
<i>Ulex europaeus</i>	Gorse
<u>Undershrubs and climbers</u>	
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Rubus fruticosus</i>	Bramble
<i>Rubus idaeus</i>	Wild raspberry
<u>Dicotyledonous herbs</u>	
<i>Achillea millefolium</i>	Yarrow
<i>Aegopodium podagraria</i>	Ground elder
<i>Alchemilla vulgaris</i> agg.	Lady's mantle
<i>Alisma plantago-aquatica</i>	Water plantain
<i>Angelica sylvestris</i>	Wild angelica
<i>Anthriscus sylvestris</i>	Cow parsley
<i>Bellis perennis</i>	Daisy

<i>Cardamine pratensis</i>	Cuckoo flower
<i>Centaurea nigra</i>	Common knapweed
<i>Chamerion angustifolium</i>	Rosebay willowherb
<i>Claytonia sibirica</i>	Pink purslane
<i>Cirsium arvense</i>	Creeping thistle
<i>Cirsium palustre</i>	Marsh thistle
<i>Conopodium majus</i>	Pignut
<i>Chyrsosplenium oppositifolium</i>	Opposite-leaved golden saxifrage
<i>Epilobium</i> sp.	A willowherb
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Galium aparine</i>	Cleavers
<i>Galium palustre</i>	Marsh bedstraw
<i>Heracleum sphondylium</i>	Hogweed
<i>Mentha aquatica</i>	Water mint
<i>Myosotis</i> sp.	A forget-me-not
<i>Oenanthe crocata</i>	Hemlock water dropwort
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Potentilla anserina</i>	Silverweed
<i>Ranunculus ficaria</i>	Celandine
<i>Ranunculus hederaceus</i>	Ivy-leaved crowfoot
<i>Ranunculus repens</i>	Creeping buttercup
<i>Rumex acetosa</i>	Common sorrel
<i>Rumex crispus</i>	Curled dock
<i>Rumex obtusifolius</i>	Broad-leaved dock
<i>Senecio jacobaea</i>	Common ragwort
<i>Taraxacum vulgare</i> agg.	Dandelion
<i>Trifolium repens</i>	White clover
<i>Tussilago farfara</i>	Coltsfoot
<i>Urtica dioica</i>	Common nettle
<i>Veronica beccabunga</i>	Brooklime
<i>Veronica</i> sp.	A speedwell

Grasses

<i>Agrostis capillaris</i>	Common bent
<i>Alopecurus geniculatus</i>	Marsh foxtail
<i>Anthoxanthum odoratum</i>	Sweet vernal grass
<i>Cynosurus cristatus</i>	Crested dog's-tail
<i>Dactylis glomerata</i>	Cock's-foot
<i>Deschampsia cespitosa</i>	Tufted hair-grass
<i>Festuca</i> sp.	A fescue
<i>Glyceria</i> spp.	Flote grass
<i>Holcus lanatus</i>	Yorkshire fog
<i>Lolium perenne</i>	Perennial rye-grass
<i>Phalaris arundinacea</i>	Reed canary-grass
<i>Phleum pratense</i>	Timothy

Other monocots

Iris pseudacorus
Juncus effusus

Yellow flag iris
Soft rush

Ferns and Horsetails

Dryopteris dilatata
Dryopteris filix-mas agg.
Equisetum arvense
Phyllitis scolopendrium

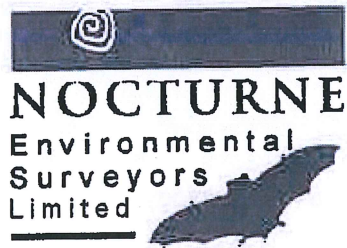
Broad buckler fern
Male fern
Field horsetail
Hart's tongue fern

Lower Plants

Calliergonella cuspidata
Polytrichum commune
Rhytidiadelphus squarrosus

Spear moss
Hair moss
Lawn moss

APPENDIX 2



**Scoping Survey
A737 Beith to Dalry Road Realignment
For The Natural Resource Consultancy**

April 2005

Contents

- 1 Site Information
- 2 Background Information and methodology
- 3 Information relating to bats
- 4 Results
- 5 Contacts and References

Appendix 1 Site Map
Appendix 2 A737 Survey Maps

1 **Site Information**

Survey Area: **Realignment as proposed on drawings provided
Nos: 9P1551 and 9P6627
OS Ref NS 350534 (Beith)
OS Ref NS 322512 (The Den)
Landranger 63**

Client: **Carol Crawford
The Natural Resource Consultancy**

Site Description: **Beith – Mixed amenity grassland with trees and
and grazing
The Den – Grazing, Immature Planted Wood, Marsh,
Mature Trees**

Existing Survey Data: **No roost records were found for this site.**

2 Background Information and methodology

Nocturne was requested by The Natural Resource Consultancy to carry out a Scoping Survey on the areas detailed previously with a view to identifying possible future surveys to identify bat activity in and around the site.

A day survey was carried out to determine if the areas had potential for roosting or hibernating bats.

Methodology

Trees

Trees were assessed during the day to determine suitability. This visual inspection will look for cracks, crevices, holes and splits. The identification of these is not in itself an indication of the presence of bats, only that it may hold potential for bats.

Survey Method

A search of local Bat Group records was carried out to ascertain any roosts and what species may already be present

On Sunday 4 April 2005, the site was visited during the day to ascertain the size of the site and exactly what was to be surveyed. The surveyors walked the line of the proposed realignment at Beith and at The Den, visually inspecting all trees that could potentially be affected by the project area.

3 Information relating to bats

Bats in Scotland

There are nine species of bat found in Scotland; to date four of these have been recorded in the Glasgow area.

The four are: Pipistrelles, commonly referred to as the 55 kHz Pipistrelle (*Pipistrellus pygmaeus*), and the 45 kHz Pipistrelle (*Pipistrellus pipistrellus*). Brown Long Eared (*Plectus auritus*) and Daubenton's (*Myotis daubentonii*). The most common bats are the Pipistrelles and Brown Long Eared, which commonly use houses to roost in. During the summer the females give birth to their young in maternity roosts often in houses and they spend the summer there. Around September they leave the summer roosts to mate and to look for good winter roosts as the summer ones will be too warm. As bats hibernate during the winter they need a cold place with a steady temperature in order to survive a period when their food source, insects are far less abundant.

Bats are very seasonal in their use of roosts. The important maternity roosts are generally close to good insect habitat, e.g. broad-leaved woodland and water. Adult females gather together in maternity roosts in late May to early June to give birth and rear their single young. The bats usually stay in the maternity roost until early September then move on. The young are on the wing in July and they usually leave the roost last. Outside of the period June to August a large variety of roosts are used, some only for a matter of days.

The table below illustrates how during the year bats use different roost types. It is therefore essential that as many possible roost sites are available for roosting bats.

Species	Winter Roost	Summer Roost
Brown Long Eared	Underground & Trees	Old Houses & Trees
Daubenton's	Underground	Stone Structures & Trees
Pipistrelles	Trees, Houses & Underground	Houses and Trees

4 Results

Below are the results of the survey.

Survey 1

Day Survey

4/4/05	Potential for Roosts	Weather Information
Beith Road Realignment	No signs of bat activity	Full Cover Calm Dry 18°C
The Den Section 1	No signs of bat activity	
Section2	No signs of bat activity	
Section 3	No signs of bat activity	
Section 4	No signs of bat activity	
Section 5	No signs of bat activity*	

*Large Sycamore tree on road side as indicated on plan has woodpecker hole to be checked before felling. Beech in same location with split near top should also be checked.

Recommendation

There were no indications that bats were or had previously been using the trees. Therefore, no further surveys are required. However, two trees had features that require to be checked prior to felling. A licensed bat person should be present prior to and during felling to check for bats.

Bats and the Law

All bats are protected by the Wildlife and Countryside Act (Schedule 5) 1981 (WACA 1981). They are also included in Schedule 2 of the Conservation Regulations 1994.

The Act and Regulations include provisions making it illegal to:

- Kill, injure, catch or keep bats
- Damage, destroy or obstruct bat roosts
- Disturb bats whilst they are roosting, for example by entering known roosts or hibernation sites
- Sell, barter or exchange bats live or dead

It is a legal requirement to consult Scottish Natural Heritage (SNH) before you do anything that might affect bats or their roosts. This might include:

- Blocking, filling or installing grilles over old mines or tunnels
- Building, alteration or maintenance work
- Getting rid of unwanted bat colonies
- Removing hollow or dead/dying trees
- Re-roofing
- Remedial timber treatment
- Rewiring or plumbing in roofs
- Treatment of wasps, bees or cluster flies

Remember that because bats can potentially return to the same roost every year, bat roosts are protected even if there are no bats there all year round.

The law allows you to tend disabled bats, kill seriously injured ones and disturb bats, which are in the living area of a house.

Activities such as catching, ringing or photographing bats, or disturbing them whilst roosting, can be licensed by SNH, provided they are for scientific, educational or conservation purposes.

These laws are not designed to prevent work but to minimise its impact on the long-term survival of bats.

For further details see sections 9 – 11, 16 – 27, and 69 of the WACA 1981.

If Bats are found:

If bats are uninjured, allow them to fly out of the way.

If injured or sluggish remove to an empty dark box, only if wearing gloves. Keep box still and cool. Do not give food or drink. Call for assistance.

IN ALL CASES WHERE BATS ARE FOUND TO OCCUPY TREES OR BUILDINGS, INFORM SCOTTISH NATURAL HERITAGE (SNH) IMMEDIATELY. (contact numbers at end of report)

Contacts

Scottish Natural Heritage
Caspian House
Mariner Court
8 South Avenue
Clydebank Business Park
Clydebank
G81 2NR

0141 951 4488

Bat Conservation Trust
15 Cloisters House
8 Battersea Park Road
London
SW8 4BG

020 7627 2629

Clyde Bat Group
Ranger Service
Strathclyde Country Park
366 Hamilton Road
Motherwell
ML1 3ED

01698 266155 ext 131
Email: clydebatgroup @ yahoo.co.uk

Alana Ecology
www.alanecology.com
or telephone 01588 630173 for catalogue

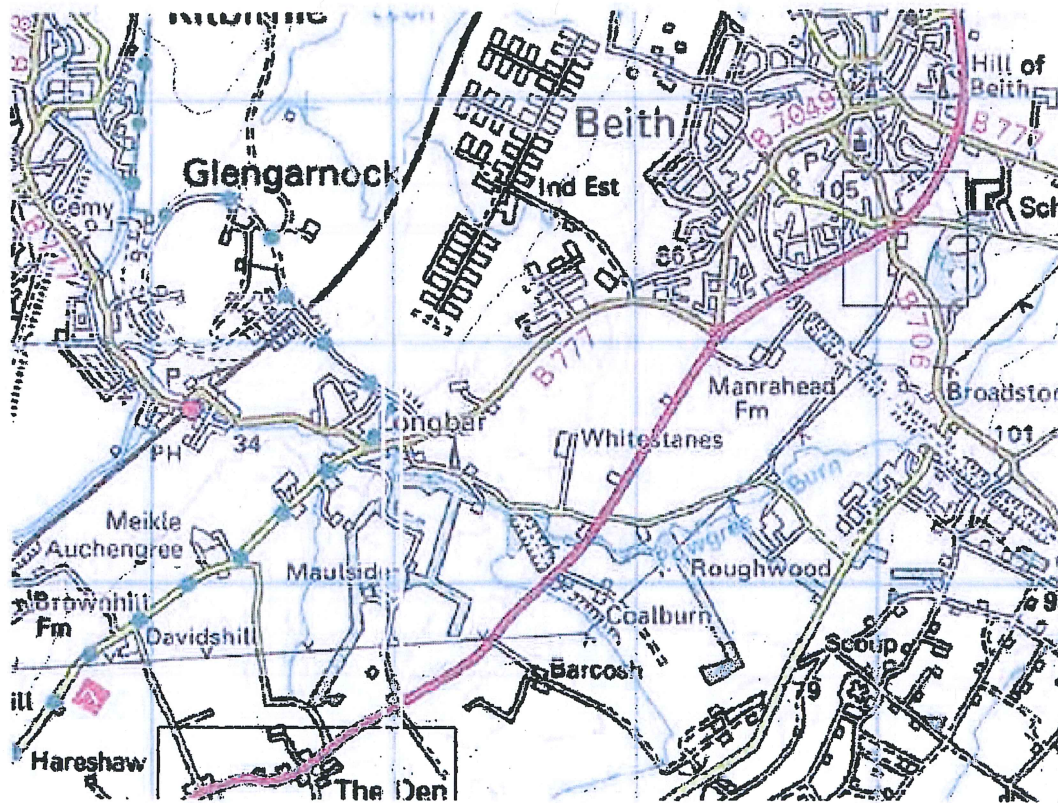
References

Bat Workers Manual
Bats – Biology and Behaviour

Joint Nature Conservation Council
J D Altringham 1996

Appendix 1

Site Plan

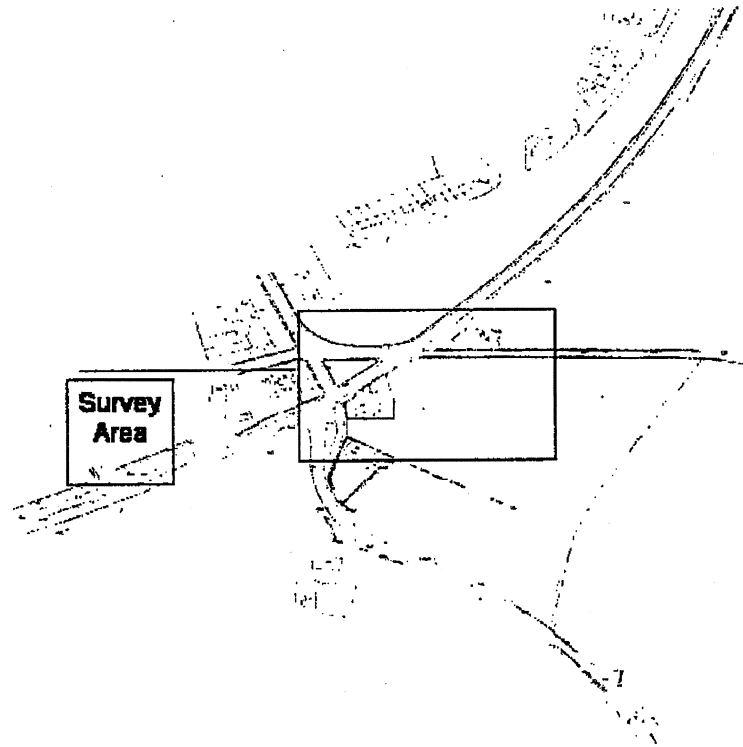


Appendix 2

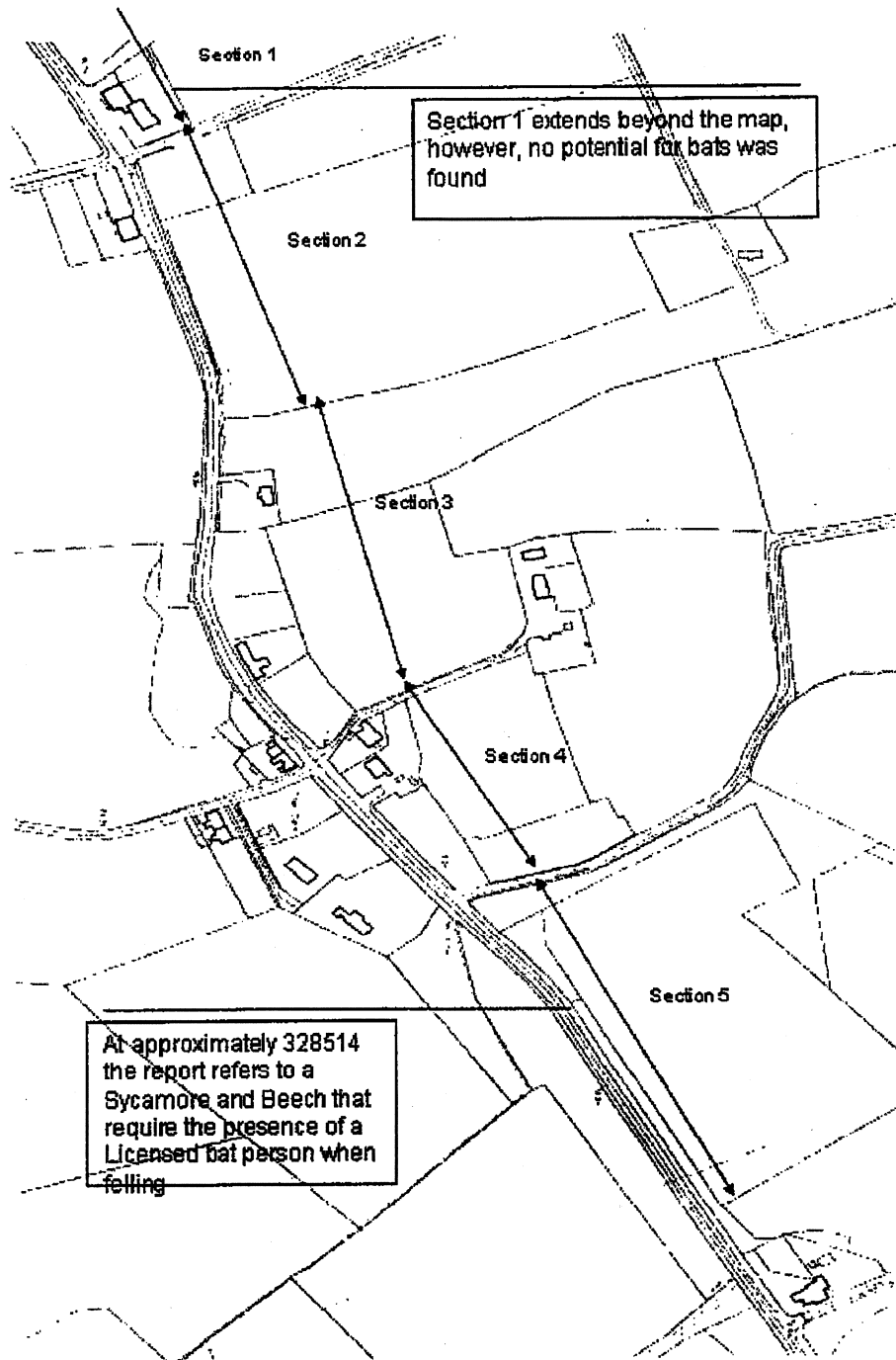
Survey Maps

Barmill, Beith

Barmill



The Den



Mammal
Ecologist

APPENDIX 3

Jim Green
Barjarg
Barrhill
Girvan
KA26 0RB

**MAMMAL SURVEY FOR THE PROPOSED A737
ROAD UPGRADES NEAR BEITH**

Report to: Carol Crawford
Natural Resource Consultancy
4d New Bridge Street
Ayr
KA7 1JX

11th April 2005

Mammal Surveys and Environmental Impact Assessments
jim.green1@talk21.com
Tel : 01465 821225

INTRODUCTION

1. This report presents the results of a mammal survey carried out for two proposed road schemes along the A737 beside Beith and at 'The Den' on 5th April 2005. The target species were otter, badger and water vole. All three mammals are legally protected and are vulnerable to negative impacts arising from road projects.

Otter

2. National otter survey records show that otters continued to inhabit the Lochwinnoch and Kilbirnie Lochs in the 1970s when the national population was still suffering the impacts of organochlorine pollutants. This was in contrast to the situation elsewhere in North Ayrshire and Renfrewshire. Since then there has been a dramatic recovery in status with survey records for the National Grid 10km square containing the proposed road schemes (NS35) recording an increase in percentage distribution at sample sites from 14% in 1977-79 through 29% in 1984-85 to 100% in 1991-94. With this improvement in distribution has come an increase in otter road casualties to the extent where the species has been made the subject of a specialist section in the Highways Agency's Design Manual for Roads and Bridges, with the intention of mitigating road traffic impacts. The significance of these losses is heightened by the relatively low breeding performance of the species and their naturally low density within freshwaters.

3. We have records of five otter road mortalities on our database in square NS35. None occurred along the A737 but their locations confirm the widespread distribution of the species in this locality.

4. The otter is a priority species on the UK Biodiversity Action Plan. It is also classified as near-threatened on the Red List of Threatened Species compiled by the World Conservation Union.

Badger

5. Badger status in Scotland is poorly recorded when compared with the otter. Nationally the species is sporadically distributed, even within habitat which is potentially favourable to it. Locally there are variable indications of both increase and decline. Badger density in Scotland is far lower than in England and Wales and the Scottish population represents only about 10% of the UK total. Badger density in north Ayrshire during a national survey of 1985-88 was estimated at the low figure of 0.2-0.3 badger clans per square kilometre.

6. Like the otter the badger is the subject of a specialist mitigation section in the Design Manual for Roads and Bridges. It is estimated that road casualties account for about 20% of the total badger population annually. As such, they are often the most obvious indicator of the species' presence. We have no records of badger road casualties around Beith on our database and longterm residents approached during this survey had no recollection of such occurrences.

7. The badger is a non-priority species on the UK Biodiversity Action Plan.

Water Vole

8. The water vole has been targeted in two national surveys in 1989-90 and 1996-98. Neither were comprehensive in their coverage but were designed to identify trends rather than precise distribution. Historical data suggests that two-thirds of the UK population had been lost even before surveys began whilst the surveys themselves revealed a continuing, accelerating decline in which, by 1998, voles were present at less than 10% of survey sites. The habitat requirements of a water vole colony can be rather small but are also relatively specialised. Both aspects render them vulnerable to negative impacts if development procedures are not carefully targeted.

9. Water vole presence was confirmed in square NS35 in the national survey of 1989-90 but the species was reported to be localised in distribution. By 1996-98, in common with all surrounding squares where voles had been found, the samples sites in square NS35 were negative.

10. The water vole is a priority species on the UK Biodiversity Action Plan.

LEGISLATION

11. As a European Protected Species the otter is protected by both the Wildlife and Countryside Act (1981) and the Conservation (Natural Habitats etc.) Regulations 1994. Together these make it an offence to intentionally disturb an otter or to damage, destroy or obstruct access to an otter shelter, whether intentionally or otherwise.

12. The badger is protected by the Protection of Badgers Act 1992. It is an offence to recklessly disturb a badger in its place of shelter or to recklessly damage, destroy or obstruct access to a shelter.

13. The water vole is protected by the Wildlife and Countryside Act (1981). It is an offence to recklessly disturb, damage, destroy or obstruct access to a water vole shelter.

METHODOLOGY

14. For all three species all habitat within a 250m wide corridor to either side of the road was searched for scats, tracks, paths, food remains and shelters. In addition, a selective survey of all favourable habitat (watercourses, woodland blocks, overgrown hedges etc.) within 500m of the roadline was investigated.

RESULTS

15. No signs of any of the target species were discovered in either survey area. Habitat parameters at the scheme locations were as follows:-

A737 at Beith

16. No significant watercourses were present within 250m of the scheme. Some surface drainage (probably seasonal) was present in marshy grassland east of the road but with no fixed channel or defined banks. A small section of field drain (running underground to either side) abutted the woodland block set back from the road. Neither feature had otter or water vole potential.

17. East of the road badger foraging habitat in the form of pasture and hedgerow was widespread but suboptimal due to the high water table. Waterlogged soils and the flat topography were also unfavourable for badger shelters. The woodland block set back from the road (managed by Cunninghame Leisure Services Department) was heavily disturbed due to its use as a public amenity and possessed open areas maintained by mowing as well as numerous footpaths.

18. There was no wildlife habitat of any significance in the survey corridor west of the road.

A737 at The Den

19. Minor elements of potential water vole habitat were present as weeded, roadside drains at the south end of the survey area. Totalling c.250m these were discontinuous, re-emerging as a polluted roadside burn which was also intermittent on site. The burn has no water vole potential. It is also unlikely to contain any potential otter prey. Together with its small scale and physical discontinuities this discounts its value as otter habitat.

20. Potential badger habitat to the north of the road scheme comprised forage habitat, only. There was a lack of sites which might be adopted for shelter. To the south of the road there was a mix of forage and shelter potential – the latter amongst coal shales and other mining residues. No badger signs were found in either location.

CONCLUSIONS

21. There will be no impacts upon otter, badger or water vole arising from the proposed road schemes.

REFERENCES

Cresswell P, Harris S & Jefferies DJ (1990). The history, distribution, status and habitat requirements of the badger in Britain. NCC. Peterborough.

Green J & Green R (1980). Otter survey of Scotland 1977-79. The Vincent Wildlife Trust. London.

Green J & Green R (1987). Otter survey of Scotland 1984-85. The Vincent Wildlife Trust. London.

Green J & Green R (1994). Otter survey of Scotland 1991-94. The Vincent Wildlife Trust. London.

Strachan R & Jefferies DJ (1993). The water vole *Arvicola terrestris* in Britain 1989-90 its distribution and changing status. The Vincent Wildlife Trust. London.

Jefferies DJ (2003). The water vole and mink survey of Britain 1996-98 with a history of the long-term changes in the status of both species and their causes. The Vincent Wildlife Trust. London.



APPENDIX D2

BIRD SURVEY

Proposed A737 Road Re-alignment at “The Den”

Bird Survey

REPORT PREPARED FOR *The Natural Resource Consultancy*

Liz Parsons
Starling Learning
July 2005

A737 ROAD RE-ALIGNMENT

BIRD SURVEY

1. Introduction

1.1. *Starling Learning* carried out a breeding bird survey on behalf of *The Natural Resource Consultancy*. The purpose of the survey was to determine the level of bird interest: establishing a baseline of the bird population of the survey area and identifying any concentrations of significant species. The survey is taking place prior to the proposed re-alignment of a section of the A737 between Beith and Dalry referred to as 'The Den'.

1.2 Location and access

The road re-alignment at the Den is two kilometres southwest of Beith and stretches from NS330515 to NS318509.

1.3 General site description

The Den survey area follows the route of the proposed new road alignment and contains a section of the present road. It runs through mainly agricultural land adjacent to a number of houses and farm. It has areas of scrub, hedgerows, small pockets of woodland and marshy fields.

2. Methodology

2.1 The standard mapping census technique (IBCC 1969, Bibby *et al* 1992) as adopted by the British Trust for Ornithology for the *Common Bird Census* was used. Two visits to the Den site were undertaken, one on 16 May and the second visit on 23 June 2005.

2.3 Surveyors were Liz Parsons assisted by Joe Greenlees.

3. Results

3.1 A total of between 76 and 78 breeding territories of 21 species were recorded within the Den survey area. Table 1. and Map 1. show these results. Of these Willow Warbler is the commonest species with 12 pairs, closely followed by Wren with 11 pairs.

Table 1. Breeding Birds, the Den, spring 2005

Species	Scientific name	Breeding Pairs
Willow Warbler	<i>Phylloscopus trochilus</i>	12
Wren	<i>Troglodytes troglodytes</i>	11
Chaffinch	<i>Fringilla coelebs</i>	9
Robin	<i>Erithacus rubecula</i>	8
Blackbird	<i>Turdus merula</i>	7
Reed Bunting	<i>Emberiza schoeniclus</i>	5-6

Song Thrush	<i>Turdus philomelos</i>	5
Blue Tit	<i>Parus caeruleus</i>	4
Dunnock	<i>Prunella modularis</i>	2
Whitethroat	<i>Sylvia communis</i>	2
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	2
Grasshopper Warbler	<i>Locustella naevia</i>	1-2
Greenfinch	<i>Carduelis chloris</i>	1
Goldfinch	<i>Carduelis carduelis</i>	1
Lesser Redpoll	<i>Carduelis flammea</i>	1
Great Tit	<i>Parus major</i>	1
House Sparrow	<i>Passer domesticus</i>	1
Treecreeper	<i>Certhia familiaris</i>	1
Swallow	<i>Hirundo rustica</i>	1
Great Spotted Woodpecker	<i>Dendrocopos major</i>	1

3.2 A further fourteen species were identified within the survey area with no confirmation of breeding.

3.3 Most of the breeding bird populations are scrub and woodland species with a few wetland species.

Table 2. All Bird Species, the Den, spring 2005 (in Voous sequence).

Species	Scientific name
Mallard <i>Anas platyrhynchos</i>	One male flew over the site but did not land.
Buzzard <i>Buteo buteo</i>	A bird hunting over the site on the second visit. Although this area is probably part of the breeding territory, this species is unlikely to be affected in any way by the development.
Lesser Black-backed Gull <i>Larus fuscus</i>	Occasional birds flying over the site.
Woodpigeon <i>Columba palumbus</i>	One bird recorded flying over the site.
Great Spotted Woodpecker <i>Dendrocopos major</i>	One bird calling and a male recorded carrying food at the east end of the site. Although no nest was found, this is considered to be part of the breeding territory and thus recorded as one breeding pair.
Swift <i>Apus apus</i>	Small numbers recorded feeding over the site.
Swallow <i>Hirundo rustica</i>	One nest recorded at Fernside, other birds feeding over the site.
House Martin <i>Delichon urbica</i>	Two birds recorded feeding over the site, appear to be nesting at Meadowhead just outside the survey area.
Pied Wagtail <i>Motacilla alba</i>	One bird recorded flying over the survey area.

Wren <i>Troglodytes troglodytes</i>	One of the commonest species with eleven territories established.
Dunnock <i>Prunella modularis</i>	Two territories were identified.
Robin <i>Erithacus rubecula</i>	A total of eight territories were recorded.
Blackbird <i>Turdus merula</i>	Seven territories were established.
Song Thrush <i>Turdus philomelos</i>	The survey area is a good area for this species with five territories of Song Thrush.
Grasshopper Warbler <i>Locustella naevia</i>	The wet field to the west end of the site held one perhaps even two pairs of breeding Grasshopper Warbler.
Sedge Warbler <i>Acrocephalus schoenobaenus</i>	Two breeding pairs, one in the same habitat as the Grasshopper Warbler but on the other side of the road and another pair in an area of damp grassland just east of Meadowhead.
Whitethroat <i>Sylvia communis</i>	Two breeding territories identified. The territory of one pair extended Fernside to across the road to the hedgerow. The other pair is located further east near the Den.
Willow Warbler <i>Phylloscopus trochilus</i>	The commonest breeding species with twelve pairs.
Blue Tit <i>Parus caeruleus</i>	Four breeding territories were established for Blue Tit.
Great Tit <i>Parus major</i>	Only one pair recorded.
Treecreeper <i>Certhia familiaris</i>	One bird singing in a small area of woodland with a few mature trees adjacent to the road leading up to Auchengree Farm.
Magpie <i>Pica pica</i>	Probably nest in the survey area or nearby as a pair was recorded within the survey area gathering food on both visits.
Jackdaw <i>Corvus monedula</i>	Occasional birds recorded flying over the site.
Carrion Crow <i>Corvus corone corone</i>	Occasional birds recorded flying over the site
Rook <i>Corvus frugilegus</i>	A fairly common bird flying over and feeding on the site. Birds were recorded carrying food and there is probably a rookery somewhere in the adjacent area.

Starling <i>Sturnus vulgaris</i>	Several family parties recorded, probably nesting in the surrounding houses and farms.
House Sparrow <i>Passer domesticus</i>	One territory in a garden around the Den houses.
Chaffinch <i>Fringilla coelebs</i>	Eight territories identified.
Greenfinch <i>Carduelis chloris</i>	One territory of Greenfinch.
Goldfinch <i>Carduelis carduelis</i>	One territory and one more just outside the survey area at Meadowhead.
Linnet <i>Carduelis cannabina</i>	Two pairs of linnet were recorded flying over, calling. They do not appear to nest within the survey area but probably have their territory nearby.
Lesser Redpoll <i>Carduelis flammea</i>	One male displaying over the eastern end of the site, recorded as one breeding territory.
Reed Bunting <i>Emberiza schoeniclus</i>	The wet fields to the west of the site also held between three and four breeding territories of Reed Bunting. There are two more territories in the wet field adjacent to the road leading up to Auchengree Farm.

3.4. Species of Conservation Concern

Bird species recorded breeding within the Den survey area have been categorised as Species of Conservation Concern in the following ways and are listed in Table 3. Details of conservation status are outlined in Appendix I.

RSPB Red and Amber Lists

Birds of Conservation Concern in the UK, Channel Islands and Isle of Man.

RSPB, Birdlife International, WWT, GCT, HOT, Wildlife Trusts, National Trust (2002).

UK Biodiversity Action Plan

Bird species, which qualify as *Priority Species of Conservation Concern* or as *Species of Conservation Concern*.

Local Biodiversity Action Plan (LBAP), Ayrshire

Action plan species and Habitat Action plan key species in the Ayrshire LBAP are included.

Table 3. Breeding Bird Species of Conservation Concern

Species	Status	UKBAP and Ayrshire LBAP status
Reed Bunting	Red listed: BDp	UK BAP Species of conservation concern Ayrshire LBAP Key Species for Fen, Carr, Marsh, Swamp and Reedbed Habitat Action Plan
Grasshopper Warbler	Red listed: BDp	UK BAP Species of conservation concern Ayrshire LBAP Key Species for Fen, Carr, Marsh, Swamp and Reedbed Habitat Action Plan
Song Thrush	Red listed: BDp	UK BAP Priority species of conservation concern Ayrshire LBAP Action Plan species
House Sparrow	Red listed: BDp	UK BAP Species of conservation concern
Willow Warbler	Amber listed: BDMp	UK BAP Species of conservation concern
Lesser Redpoll	Amber listed: BDMr (1) BI	UK BAP Species of conservation concern
Swallow	Amber listed: SPEC 2 or 3	UK BAP Species of conservation concern Ayrshire LBAP Key Species for Fen, Carr, Marsh, Swamp and Reedbed Habitat Action Plan
Dunnock	Amber listed: BDMp	UK BAP Species of conservation concern
Greenfinch	-	UK BAP Species of conservation concern
Blue Tit	-	UK BAP Species of conservation concern
Whitethroat	-	UK BAP Species of conservation concern
Sedge Warbler	-	UK BAP Species of conservation concern Ayrshire LBAP Key Species for Fen, Carr, Marsh, Swamp and Reedbed Habitat Action Plan
Treecreeper	-	UK BAP Species of conservation concern
Great Tit	-	UK BAP Species of conservation concern
Great Spotted Woodpecker	-	UK BAP Species of conservation concern
Goldfinch	-	UK BAP Species of conservation concern

- 3.4 Four red-listed species were recorded breeding within the survey area, Reed Bunting, Grasshopper Warbler, Song Thrush and House Sparrow. Song Thrush is also a UK BAP Priority species of conservation concern and an Ayrshire LBAP Action Plan species. Grasshopper Warbler and Reed Bunting are also Ayrshire LBAP Key Species for Fen, Carr, Marsh, Swamp and Reedbed Habitat Action Plan.
- 3.5 Four amber listed species were also recorded, one of which Swallow is also an Ayrshire LBAP Key Species for Fen, Carr, Marsh, Swamp and Reedbed Habitat Action Plan.
- 3.6 A total of 15 UK BAP Species of conservation concern was recorded breeding.

4. **Bird Habitats**

The habitats described below are not a comprehensive description of all the habitats on the site but simply those of significance for bird populations.

4.1 Scrub and Hedgerow

There are several areas containing mature hedgerows, mainly Hawthorn *Crataegus monogyna*, providing a breeding habitat for fairly good densities of several scrub and woodland species. These mainly run parallel to the roads. The eastern end of the survey site the scrub extends further into some of the fields. Several birds such as Whitethroat, Willow Warbler and Blue Tit were observed moving along the hedgerows collecting food.

4.2 Deciduous Trees

There are a few mature deciduous trees on site mainly around the various houses and at the eastern end of the site. These provided a breeding site for woodland species such as Song Thrush, Great Spotted Woodpecker and Treecreeper.

4.3 Marsh

This habitat occurs at the far western end of the site. The fields on either side of the road are wet and the dominant vegetation is Soft Rush *Juncus effusus*. This habitat occurs right up to the edge of the road. Although this is a small area, these fields provide a breeding habitat for between three and four pairs of Reed Bunting and one to two pairs of Grasshopper Warbler. Beside the road running up to Auchengree Farm there is a wet area with a seasonal pond and willow and Alder scrub surrounding. This held two pairs of Reed Bunting and two pairs of Willow Warbler. Various species of dragonfly and damselfly were also recorded using this area.

4.4 Agricultural Land

A less significant habitat for birds, it was recorded being used for feeding by Woodpigeon, Rook, Carrion Crow and Magpie.

5. Discussion

- 5.1 Due to the linear nature of the development there is little habitat loss for birds. However, work on the road must not commence during the breeding season (March to August) in case of disturbance to nests.
- 5.2 The most significant habitat for birds is the wet field at the western end of the road. Reed Bunting and Grasshopper Warbler are species of conservation concern as discussed above and therefore consideration should be given to not only avoiding disturbing them but to actually improving their habitat. It is therefore recommended that this wetland is not drained during the development. Digging a small pond within this habitat would improve the site for birds.
- 5.3 It is also recommended that as many of the hedgerows and deciduous trees as possible are left. These habitats held good numbers of Song Thrush and several amber listed species. New hedgerows of native species could be planted along the new road. If tree planting is taking place, it is recommended that consideration is given to some scrub species such as Hawthorn, Blackthorn and birch species. Planting of some gorse may encourage more Linnets, a red listed species, to use the area.
- 5.4 Significant winter bird use of the site is likely to be in the same habitats as in spring. The wet areas may be also be used by Snipe and the hedgerows will be used by many of the same species (resident species) and also by species such as Redwing *Turdus iliacus* and Fieldfare *Turdus pilaris*. There is probably no real need for winter survey work.

5. References

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Liz Parsons
Starling Learning
July 2005

APPENDIX I

KEY TO CONSERVATION CONCERN LISTS

Birds of Conservation Concern in the UK, Channel Islands and Isle of Man

RSPB, Birdlife International, WWT, GCT, BTO, HOT, Wildlife Trusts, National Trust (2002-2007).

Red listed

IUCN=Globally threatened

HD== historical decline in the UK between 1800 – 1995

BDp = Rapid (>50%) decline in UK breeding population over the last 25 years

BDr= Rapid(>50%) decline in UK breeding range over the last 25 years

Amber listed

BDMp = moderate decline (25-49%) decline in UK breeding population over the previous 25 years

BDMr = moderate decline (25-49%) decline in UK breeding range over the previous 25 years

SPEC 2 or 3=Species with unfavourable conservation status in Europe

BR = Five year mean of 1-300 breeding pairs in UK

WI = >20% of the north-west European(wildfowl), East Atlantic Flyway (waders) or European (others) non-breeding populations in the UK

BI=>20% of European breeding population in UK

BL= >50% of the UK breeding population can be found in 10 or fewer sites, but not rare breeders

WL=>50% of the UK breeding population can be found in 10 or fewer sites

UK Biodiversity Action Plan

From the *Priority Species of Conservation Concern* containing species, which are, either globally threatened or are rapidly declining in the UK (i.e. by more than 50% in the last 25 years). The *Species of Conservation Concern* qualify for one or more of the following categories:

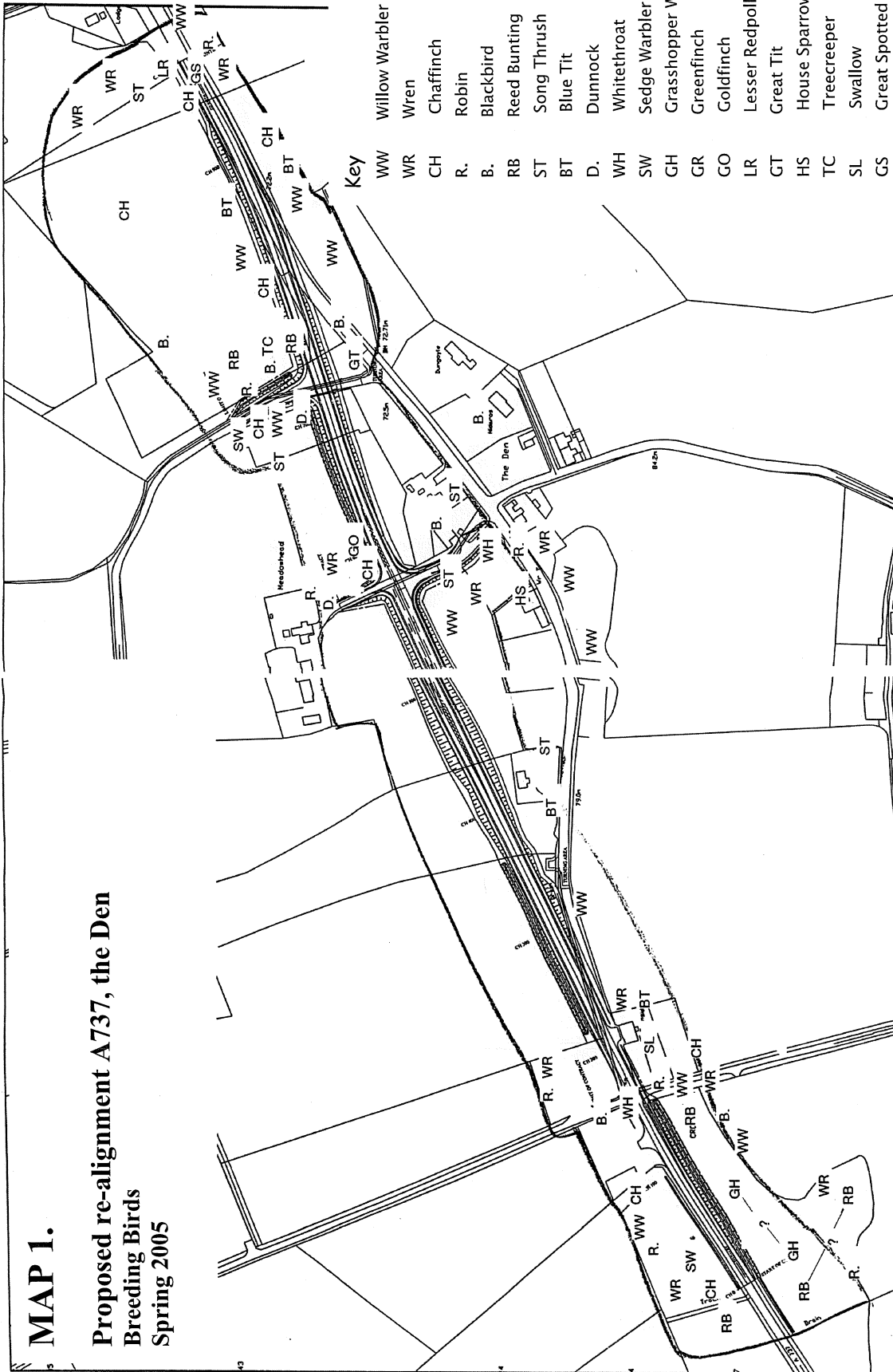
- threatened endemic and globally threatened species
- species where the UK has more than 25% of the world or appropriate biogeographical population
- species where number or range have declined by more than 25% in the last 25 years
- in some instances where the species is found in fewer than 15 ten km squares in the UK.

Local Biodiversity Action Plan, AYRSHIRE

From the *Priority species of conservation concern* containing species, which are, either globally threatened or are rapidly declining in the UK (i.e. by more than 50% in the last 25 years) and the *Species of conservation concern*.

MAP 1.

Proposed re-alignment A737, the Den
Breeding Birds
Spring 2005



TITLE	A737 BEITH TO DALRY ROAD REALIGNMENT AT THE DEN		PROJECT	ROYAL HASKINSON NORTH Ayrshire	
DATE	12/10/04	CHECKED	DATE	12/10/04	SCALE
Job No.	9P1551	ACAO Ref.	Checked	12/10/04	1:2500
Drawn	DRWN	Checked	DRWN	12/10/04	PASSED
Scale	1:2500	Checked	DRWN	12/10/04	REV
Scale	1:2500	Checked	DRWN	12/10/04	0



APPENDIX D3

AMPHIBIAN SURVEY

Proposed A737 Road Re-alignment at The Den

Amphibian Survey

REPORT PREPARED FOR *The Natural Resource Consultancy*

Joseph Greenlees
Starling Learning
May 2005

**A737/B706 PROPOSED BARRMILL ROUNDABOUT AND
ROAD RE-ALIGNMENT A737
AMPHIBIAN SURVEY**

1. Introduction

1.1. *Starling Learning* carried out an amphibian survey on behalf of *The Natural Resource Consultancy* in spring 2005. The survey concentrated mainly on Great Crested Newts *Triturus cristatus*, the purpose of this study to establish presence and use of the site by this species and other amphibians. The survey is taking place prior to the re-alignment of a section of the A737 between Beith and Dalry.

1.2 Location and access

The road re-alignment at the Den is two kilometres southwest of Beith and stretches from NS330515 to NS318509 and is referred to as 'The Den'.

1.3 General site description

The Den site runs through mainly agricultural land adjacent to a number of houses and farm. It has areas of scrub, hedgerows and marshy fields. There are a number of small ditches with running water and a seasonal pond.

2. Methodology

2.1 Visits were made to the Den on 30 April and an afternoon and evening visit on 3 June 2005. The first visit mainly involved establishing suitable habitats for amphibians.

2.2 During the daytime visit a small pond and ditches at the Den were dipped thoroughly using a pond dipping net and refuge searching took place around the site. This involved looking under stones and loose debris. A search also took place at night using the torching method as described in the *Great Crested Newt Conservation Handbook* (Langton et al.). The evening visits consisted of two surveyors walking slowly around each pond and ditch, the aim to count all adult newts of each species. A search was also made for other amphibian species.

2.3 Surveyors were Joe Greenlees assisted by Liz Parsons.

3. Results

3.1 No Great Crested Newts were located at any part of The Den. There was no real suitable habitat available for this species.

At the western end of the survey area there are various small ponds and wet ditches adjacent to the road. Tadpoles of Common Frog *Rana temporaria* were found in two areas of the wet ditches on the south side of the road. No amphibians were located in the ditches on the north side of the road.

There is a wet area in a small triangular field at NS324513 where the water flows through Soft Rush and other wetland plant species to reach a small burn adjacent to the road. This water was flowing too fast to make it suitable for many amphibians.

Adjacent to the road that leads north to Meadowhead, on the right hand side of this road there is a small wetland area with marshy grassland and wet ditches. Tadpoles of Common Frog were also located at this site.

To the eastern end of the site there are wet areas on either side of the road. No amphibians were recorded at either of these sites.

The above wetlands and locations of tadpoles are shown on Map 1.

4. Discussion

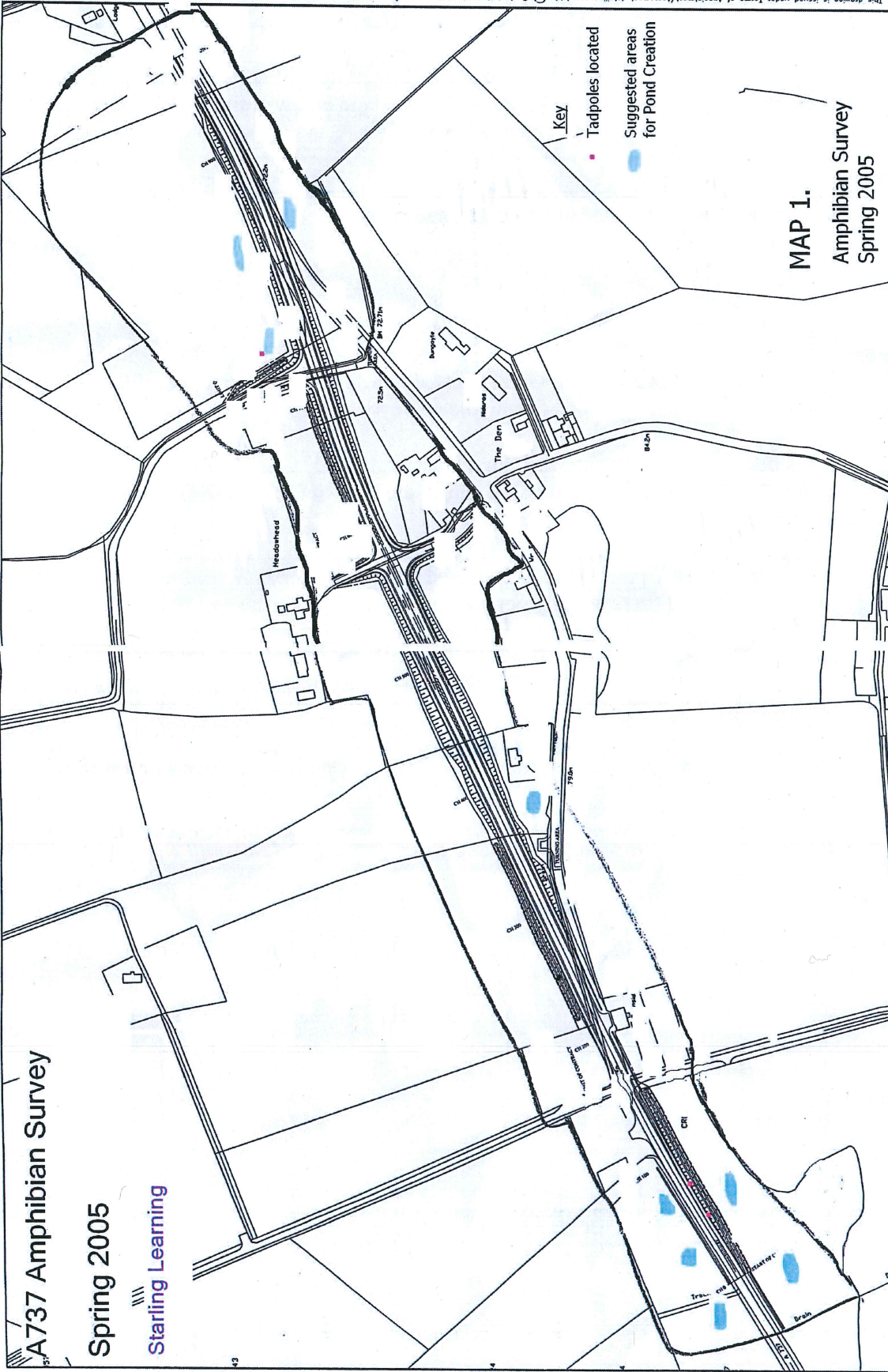
- 4.1 It is believed that there are no Great Crested Newts present at any part of the survey area. The only amphibian recorded during the survey was tadpoles of Common Frog.
- 4.2 It has been suggested in the Bird Survey (Parsons2005) that small ponds are created on either side of the road at the western end of the Den site for birds. This would greatly benefit amphibians as well as birds.
- 4.3 A corridor of small ponds could be created adjacent to the new road to improve the area for amphibians. If there are any populations of great Crested Newt in the area, the chances of them finding a suitable pond is increased if there is a network of wet areas. Suggested areas are shown on Map 1.

5. References

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Parsons L. 2005: *Proposed A737 Road Re-alignment and Barrmill Roundabout*, Bird Survey.

Joseph Greenlees
Starling Learning
May 2005



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MAP 1.
Amphibian Survey
Spring 2005

ROYAL HASKONING <small>ROYAL HASKONING LTD EDINBURGH 15TH EDINBURGH 011 332 0000 011 332 0001 www.royalhaskoning.com</small>	Job No. 9P1551 ACAD Ref. DRAWN	DATE 12/10/04 CHECKED DRC No.	SCALE 1:2500 PASSED	REV 0
	PROJECT A737 BEITH TO DALRY ROAD REALIGNMENT AT THE DEN			



A737 Amphibian Survey
Spring 2005
Stirling Learning



APPENDIX D4

PHASE 1 HABITAT SURVEY



Road Realignment of the A737 at The Den
Phase 1 Habitat Survey

North Ayrshire Council

25 September 2008

Final Report

A COMPANY OF



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Document title Road Realignment of the A737 at The Den
Phase 1 Habitat Survey

Document short title

Status Final Report

Date 25 September 2008

Project name The Den

Project number 9T3653

Client North Ayrshire Council

Reference /R/303352/Edin

Drafted by Jen Trendall/Amy Clark

Checked by Andy Jensen

Date/initials check

Approved by Wendy Johnston

Date/initials approval

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2 METHODS	2
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2.1.2 Phase 1 Habitat Survey	2
3 RESULTS	3
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3.3 Discussion and Conclusions	7
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1 INTRODUCTION

1.1 Project Background

Royal Haskoning have been commissioned by North Ayrshire Council (NAC) to conduct a Record of Determination (ROD) and subsequently an Environmental Impact Assessment (EIA) for a road realignment on a stretch of the A737 trunk road at The Den, between Beith and Dalry. Ecological surveys (phase 1 habitat, bat, mammal, bird and amphibian) were completed within the footprint of the proposed scheme in 2005 by Natural Resource Consultancy and Starling Learning. The phase 1 habitat recommended several land parcels within the proposed footprint to be revisited in the summer months (June/July) to allow a full assessment of floristic value to be made. This report details the results of the summer survey 2008 undertaken by Royal Haskoning.

The footprint of the proposed scheme is shown in Figure 1.1 below. The scheme involves the realignment of the A737 to the north of its existing location to mitigate poor sightlines and reduce the risk of accidents. The existing stretch of road will remain as a side road culdesac for local residents.

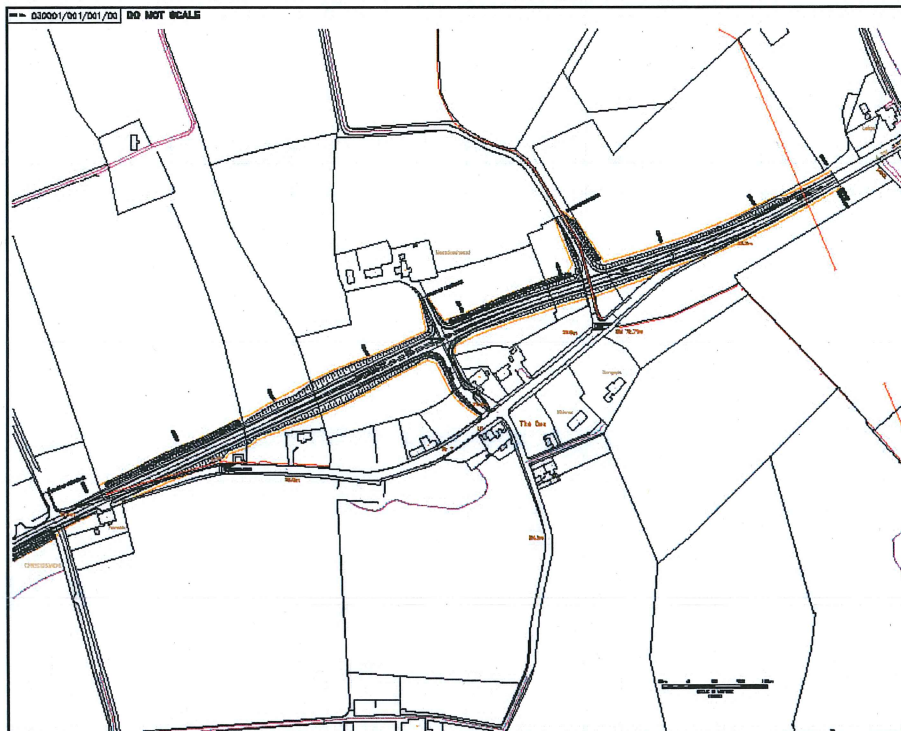


Figure 1.1 Proposed realignment of A737

1.2 Previous Survey Results

The site is structural diverse, containing a number of small fields, bounded by trees, hedgerows, belts and areas of marsh within the field.

The Phase 1 habitat survey undertaken in 2005 indicated that the following areas were highlighted for additional survey and extended target notes:

- Semi-improved neutral grassland (areas 1, 6, 9);
- Grass too short to survey (area 13); and
- Wetlands (areas 2, 7, 12).

1.3 The Survey

The site was revisited on 11th July 2008 by two environmental scientists from Royal Haskoning. Weather conditions were favourable on the day of the survey. Heavy rainfall in preceding weeks had led to much of the site becoming waterlogged and boggy. The site had been recently visited on the 21st May 2008 for a contaminated land assessment, and the ground had been significantly drier.

2 METHODS

2.1.1 Survey Limitations

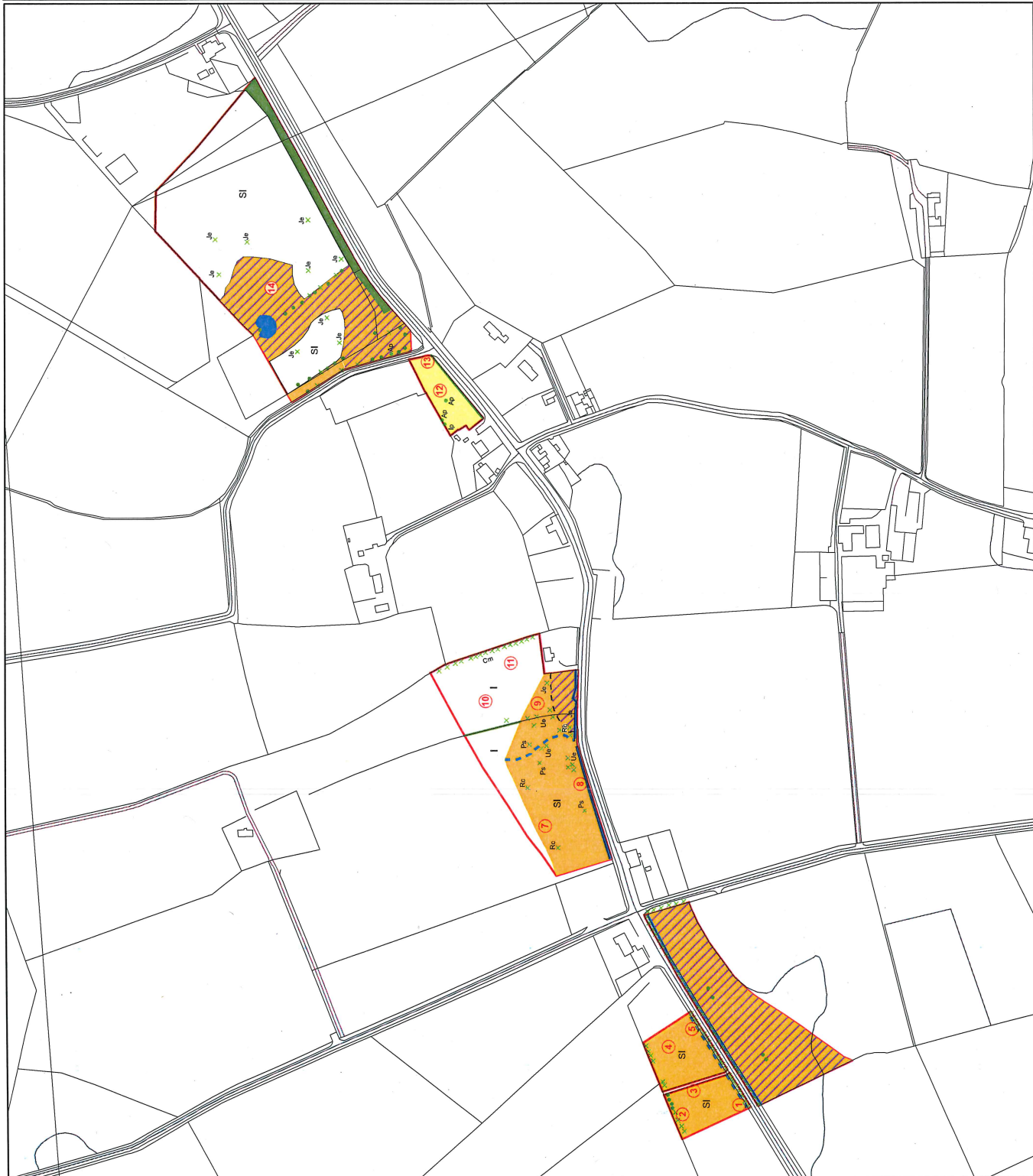
On the day of survey, areas 2 and 12 from the 2005 survey contained ephemeral standing water. Surveyors were able to access the ground up to the ephemeral pond in area 12, however, due to excessive marsh in area 2, only half the parcel of land could be accessed, the remainder being assessed from vantage points along the roadside.

Area 9 was not entered as it appeared to be part of a garden of a nearby property. Species present in this small area were identified and habitat assessed through the fence.

2.1.2 Phase 1 Habitat Survey

Standard methods were used as described in the Joint Nature Conservation Committee (JNCC) Phase 1 Handbook for Habitat Survey (1993).

Where possible, every parcel of land in the entire survey area was systematically visited by trained surveyors and the vegetation was mapped by hand and then digitised. The final habitat map was colour coded with standard symbols and colours with regards to the dominant species codes, and annotated with target notes, detailing the species and communities found in each parcel.



- Legend:**
- Individual Mature Broadleaved Tree
 - ✕ Scattered Scrub
 - Amenity Grassland
 - Broadleaved woodland
 - Marsh/Marshy Grassland
 - Improved Grassland
 - SI Semi Improved Neutral Grassland
 - Standing Water
 - Survey Area
 - Continuous Hedge
 - Flowing Ditch
 - - - Habitat Boundary
 - - - Seasonal/Dry Ditch

Title:

The Den, Phase 1 Habitat Map, Summer 2008

Project:

9T3653 A737 The Den Road Realignment

Source: Main Chart - Not to be used for navigation.
 © Haskoning UK Ltd.
 Inset Map -
 UKHO ARCS Charts reproduced under licence 21413M.
 © Crown copyright 2007. All rights reserved.

Client:

North Ayrshire Council

Drawn by:

SKM

Checked:

TB

Drawing No:

Figure: 5.2

Date: September 2008

Scale:

NOT TO SCALE

Revision No:

002



ROYAL HASKONING

3 RESULTS

3.1 Phase 1 survey

3.1.1 Target notes

The following target notes correspond to the Phase 1 Habitat map (Figure 1) and describe the vegetation found. A full species list of all plants found on the site can be found in Appendix A.

Target Note 1 (2005 TN1)

Southwest corner of field, containing dense vegetation of bramble (*Rubus fruticosus*), nettle (*Urtica dioica*), field horsetail (*Equisetum arvense*), soft rush (*Juncus effuses*), meadow vetchling (*Lathyrus pratensis*), marsh woundwort (*Stachys palustris*), ladys bedstraw (*Gallium verum*), fen bedstraw (*Galium uliginosum*), bracken (*Pteridium aquilium*), hedge bedstraw (*Galium mollugo*), thistle (*Cirsium* spp), broomrape (*Orobanche minor*), curled dock (*Rumex crispus*), cocksfoot (*Dactylis glomerata*), common bent (*Agrostis capillaries*), broader buckler fern (*Dryopteris dilatata*), timothy (*Phleum pratensis*) false oat grass (*Arrhenatherum elatis*), sweet vernal grass (*Anthoxanthum odoratum*), reed sweet grass (*Glyceria* sp), wavy bittercress (*Cardamine flexuosa*).

Target Note 2 (2005 TN1)

Northern side of field, containing broomrape, soft rush, Yorkshire fog (*Holcus lanatus*) common bent, broader buckler fern, timothy, false oat grass, sweet vernal grass, reed sweet grass, wavy bittercress, creeping buttercup (*Ranunculus repens*), red fescue (*Festuca rubra*), annual meadow grass (*Poa annua*), meadow buttercup (*Ranunculus acris*), marsh willowherb (*Epilobium palustre*), common ragwort (*Senecio jacobaea*).

Target Note 3 (2005 TN1)

Rough track bisecting field. Vegetation alongside track included soft rush, daisy (*Bellis perennis*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), meadow vetchling, field horsetail, bramble, annual meadow grass, common bent, broader buckler fern, timothy, false oat grass, sweet vernal grass, reed sweet grass, wavy bittercress, creeping cinquefoil (*Potentilla repens*).

Target Note 4 (2005 TN1)

East of track. Gorse (*Ulex europaeus*), soft rush, common bent, broader buckler fern, timothy, false oat grass, sweet vernal grass, reed sweet grass, wavy bittercress, curled dock, thistle, marsh willowherb, guelder rose (*Viburnum opulus*), smaller conifers at eastern fence.

Target Note 5 (2005 TN1)

Hedgerow by road, including pignut (*Conopodium majus*), hedge by road, hawthorn (*Crataegus monogyna*), beech (*Fagus sylvatica*), guelder rose, cocksfoot and meadow vetchling.

Target Note 6 (2005 TN2)

Marshy grassland, dominated by soft rush and Yorkshire Fog (*Holcus Lanatus*) marsh willowherb, red fescue, creeping buttercup, broomrape, thistle, nettle, marsh

bedstraw (*gallium palustre*), common sorrel (*Rumex acetosa*), annual meadow grass, curled dock, Goosegrass (*Galium aparine*), rosebay willowherb (*Chamerion angustifolium*). Several willows (*Salix sp.*) were present in the middle of the field, by an area of common bulrush (*Typha sp.*). Fields on this side of the road contained cows on the day of survey.

Target Note 7

Semi improved neutral grassland, supporting red campion (*Melandrium rubrum*), common ragwort, pignut, cocksfoot (*Tussilago farfara*), dandelion (*Taraxacum officinale*), thistle, dock, common bent, broader buckler fern, timothy, false oat grass, sweet vernal grass, reed sweet grass, wavy bittercress, dog rose, annual meadow grass, nettle, red fescue, blackthorn (*Prunus spinosa*), lesser celandine (*Ranunculus ficaria*), and rosebay willow herb.

Target Note 8

Ditch with running water alongside A737, supporting tufted vetch (*Vicia cracca*), red clover, marsh willowherb, blackthorn, hawthorn, dog rose, white clover, nettle, pignut, yarrow (*Achillea millefolium*), cow parsley (*Anthriscus sylvestris*), gooseberry (*Ribes uva-crispa*), ribwort plantain (*plantago lanceolata*), bramble, bracken, water forget me not (*Myosotis scorpioides*), dropwort (*Filipendula vulgaris*) and gorse.

Target Note 9

Grassland with patches of soft rush, containing yarrow, buttercup, broomrape, thistle, gorse, annual meadow grass, dog rose, common bent broader buckler fern, timothy false oat grass sweet vernal grass, reed sweet grass, wavy bittercress, red fescue, meadow vetchling, red clover, soft rush, flag Iris (*Iris pseudacorus*), buttercup.

Target Note 10

Hedge of willow (*Salix sp.*), hawthorn. Nettle and marsh bedstraw also present.

Target Note 11

Mown field beyond hedge.

Target Note 12

Mown grass, appearing to be private garden. Sycamore (*Acer pseudoplatanus*) in the centre, with flag iris in north west corner. White clover, buttercup and thistle present in sward, alongside ribwort plantain.

Target Note 13

Roadside verge, containing pignut, thistle, common bent broader buckler fern, timothy, false oat grass, sweet vernal grass, reed sweet grass, wavy bittercress, meadow vetchling, broomrape, tufted vetch, marsh willowherb, pink campion.



Target Note 14

Extensive marshy grassland, containing soft rush, thistle, pignut, marsh willowherb, rosebay willow herb, sycamore, field horsetail, nettle, water forget me not, common dock, broomrape, sorrel, curled dock, marsh bedstraw. An ephemeral pond was found to the north of the site, dominated by soft rush. No signs were noted of amphibians at the site.

3.2 Additional Survey Data

Grassland and marsh areas revisited were noted to be wild and uncut, providing good habit for insects. A pair of six-spot burnet moths (*Zygaena filipendulae*) was found mating within the study area, and butterflies were recorded, however no protected species were noted during the Phase 1 survey.



3.3 Discussion and Conclusions

The survey in July 2008 was undertaken to allow full assessment of wetlands and areas of potential floristic richness. The site was noted to contain a number of small fields, bounded by trees, hedgerows and belts, and areas of marsh within the fields.

Mature woodland is limited on the site, with larger wooded areas comprising young broadleaved planting (e.g. the fields on either side of the Meadowhead farm track). The most common mature trees observed were birch, alder, sycamore, ash, beech and gear.

The only dense scrub observed was a stretch of hawthorn and bramble in a field located at the north-east of the site. The most common scrub habitat recorded was hedgerow predominated by hawthorn with occasional willows and blackthorn. Most field and roadside hedges were not continuous although they are still likely to provide habitat for breeding songbirds (see breeding bird survey information below).

The grasslands are mostly classed as semi-improved (usually reverting from being improved) with areas of marshy grassland or rush pasture. Common herbs in the sward were pignut, cow parsley, ribwort plantain (*Plantago lanceolata*) with mosses and soft rush. Wetland areas were found to support a number of wetland or damp grassland species, the commonest being soft rush, tufted hair grass (*Deschampsia cespitosa*), Yorkshire fog (*Holcus lanatus*), creeping buttercup (*Ranunculus repens*), meadowsweet (*Filipendula ulmaria*) and hemlock water dropwort (*Oenanthe crocata*). In areas of most floristic richness, meadow vetchling and rosebay willowherb were recorded.

The 2008 survey identified ephemeral standing water in the east of the site, which had not been present during the contaminated land investigations two months previously.

The study area is attitudinally low (approximately 80m above ordnance datum), however it is high in relation to the surrounding area. The land is less intensively managed for agriculture than other local areas and these factors give the study area potential floristic value. The wetlands and hedgerows may hold some breeding birds of conservation concern and the fields which have recently been planted are likely to become more important for birds and plants over time.

Invasive species

Neither giant hogweed nor Japanese knotweed were found on site during the survey.

3.4 Recommendations

To preserve or improve habitat for birds in the area, it is recommended that as many of the hedgerows and deciduous trees are left in situ as possible. A planting scheme of native species of local provenance will be included as part of the design post construction. Tree planting should focus on scrub species such as hawthorn, blackthorn, birch and guelder rose species to maintain and improve wildlife corridors. Under the Trunk Road Biodiversity Action Plan for Scotland that is currently under

review, actions for the A737 are still under development. Any actions developed will be incorporated into the replanting scheme.

Wildflower verges will be recreated, using locally sourced native species of grass and herb appropriate for the soil conditions. Reseeding in infertile soil (not topsoil) will include a wildflower mix to maximise potential for insects, and will require several cuts in the first year to control annual weeds, followed by two cuts per annum afterwards. For reseeded on fertile topsoil, careful management is required to combat the problems of arable weeds and competitive grasses, therefore a plain grass amenity mix is recommended by SNH.

The establishment of tree and shrub areas for birds is also included in the landscaping scheme. Trees removed as part of the scheme will be replaced with native local species, chosen to maximise wildlife potential. Fencing will be set 1m away from hedges to protect hedge-bottom plant communities.

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Appendix 1 – Species List

The following species were found during the site visit:

Common Name	Latin Name
Grasses, rushes, ferns and horsetails	
Annual meadow grass	<i>Poa annua</i>
Bracken	<i>Pteridium aquilium</i>
Broader buckler fern	<i>Dryopteris dilatata</i>
Cocksfoot	<i>Dactylis glomerata</i>
Common bent	<i>Agrostis capillaries</i>
Common Bullrush	<i>Typha sp.</i>
False oat grass	<i>Arrhenatherum elatis</i>
Field horsetail	<i>Equisetum arvens</i>
Red fescue	<i>festuca rubra</i>
Reed sweet grass	<i>glyceria sp</i>
Soft rush	<i>Juncus effuses</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>
Timothy	<i>Phleum pratensis</i>
Yorkshire fog	<i>Holcus lanatus</i>
Herbs	
Broomrape	<i>Orobanche minor</i>
Common ragwort	<i>Senecio jacobaea</i>
Common sorrel	<i>Rumex acetosa</i>
Creeping buttercup	<i>Ranunculus repens</i>
Creeping cinquefoil	<i>Potentilla repens</i>
Curled dock	<i>Rumex crispus</i>
Cow parsley	<i>Anthriscus sylvestris</i>
Daisy	<i>Bellis perennis</i>
Dandelion	<i>Taraxacum officinale</i>
Dropwort	<i>Filipendula vulgaris</i>
Fen bedstraw	<i>Galium uliginosum</i>
Flag Iris	<i>Iris pseudacorus</i>
Gooseberry	<i>Ribes uva-crispa</i>
Goosegrass	<i>Galium aparine</i>
Hedge bedstraw	<i>Galium mollugo</i>
Ladies bedstraw	<i>Gallium verum</i>
Lesser celandine	<i>Ranunculus ficaria</i>
Marsh bedstraw	<i>Gallium palustre</i>
Marsh willowherb	<i>Epilobium palustre</i>
Marsh woundwort	<i>Stachys palustris</i>
Meadow buttercup	<i>Ranunculus acris</i>
Meadow vetchling	<i>Lathyrus pratensis</i>
Nettle	<i>Urtica dioica</i>
Pignut	<i>Conopodium majus</i>
Red campion	<i>Melandrium rubrum</i>
Red clover	<i>Trifolium pratens)</i>

Ribwort plantain
 Rosebay willowherb
 Thistle
 Tufted vetch
 Water forget me not
 Wavy bittercress
 White clover
 Yarrow

Plantago lanceolata
Chamerion angustifolium
Cirsium spp.
Vicia cracca
Myosotis scorpioides
Cardamine flexuosa
Trifolium repens
Achillea millefolium

Trees and shrubs

Beech
 Blackthorn
 Bramble
 Gorse
 Guelder rose
 Hawthorn
 Sycamore
 Willow

Fagus sylvatica
Prunus spinosa
Rubus fruticosus
Ulex europaeus
Viburnum opulus
Crataegus monogyna
Acer pseudoplatanus
Salix sp.

=0=0=0=



APPENDIX D5

SNH CONSULTATION



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EH6 6PP

Please quote our reference number on all correspondence

Your Ref: P1551/B3/L003/WJ/Edin

Our Ref: CNS/TR/A737
DB15103

Date: 9 January 2004

Dear Ms Johnston

**A737 ROAD REALIGNMENT AT THE DEN, DALRY
ENVIRONMENTAL IMPACT ASSESSMENT – SCREENING OPINION**

Thank you for contacting my colleague Graeme Walker in relation to the decision over whether an EIA will be required for the above project.

Having considered the maps and supplementary information that you have provided, I can confirm that the project is unlikely to have an impact on any features of significant natural heritage importance.

However, for your information, I note from these maps that a small section of the new road at the eastern end of the contract appears to pass through land previously owned by a Mr J Golder of Mauldside Lodge. As you may be aware from your earlier discussions with Graeme Walker, Scottish Natural Heritage have previously grant-aided hedgerow renovation and pond creation work in this area.

As the road realignment works may have a bearing on the standard conditions associated with this grant, I have written to Mr. Golder to arrange a site meeting with him, in order to determine whether the works will affect any grant-aided plantings, and to investigate the possibility of their relocation if this is the case. I am hopeful that this meeting will take place as soon as possible, and will inform you of the outcome as soon as I am able.

In/

POSFORD HASKONING EDINBURGH	
Project No.	
Reg No.	
File No.	
Received 13 JAN 2004	
Director Reply	
A I	Date



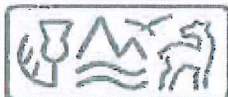
-2-

In the meantime however, please do not hesitate to contact me if there is anything else that you wish to discuss.

Yours sincerely

A handwritten signature in black ink, appearing to read 'David Lang', with a stylized flourish at the end.

DAVID LANG
Area Officer
Ayrshire and Arran



Ms Wendy Johnston
Senior Environmental Scientist
Posford Haskoning Ltd.
10 Bernard Street
Leith
EDINBURGH
EH6 6PP

Project No.	
Reg No.	
File No.	
15 JAN 2004	
Director	
Reply	
A	I

Please quote our reference number on all correspondence

Your Ref: P1551/B3/L003/WJ/Edin

Our Ref: CNS/TR/A737

Date: 14 January 2004

Dear Ms Johnston

A737 ROAD REALIGNMENT AT THE DEN, DALRY

Further to my letter of 9 January 2004, I have since met with Mr. Golder on his land by Mauldside Lodge at the eastern end of the realignment contract area. As a consequence of this meeting, I can confirm that no plantings or other works undertaken by Mr. Golder with the assistance of a grant from Scottish Natural Heritage will be affected by the road realignment.

Some of the operations planned by Mr. Golder, which SNH offered to grant-aid, would originally have been undertaken partially within the area to be covered by the new A737 route - including the creation of a large pond and wetland area. However these particular parts of his programme did not take place at the time intended due to the outbreak of Foot and Mouth disease in 2001. Mr. Golder still intends to complete the remaining operations in the future, but in a revised location. Furthermore, he will not now require any further assistance from SNH, as he has secured Rural Stewardship Scheme funding to complete both this work and to replace and relocate those hedgerows that will require to be removed during the realignment works.

In conclusion, I can confirm that SNH has no concerns over the A737 realignment as proposed. We would however wish to be kept informed of any changes to the proposal that might have an impact on any features of natural heritage interest.

Yours sincerely

DAVID LANG
Area Officer
Ayrshire and Arran

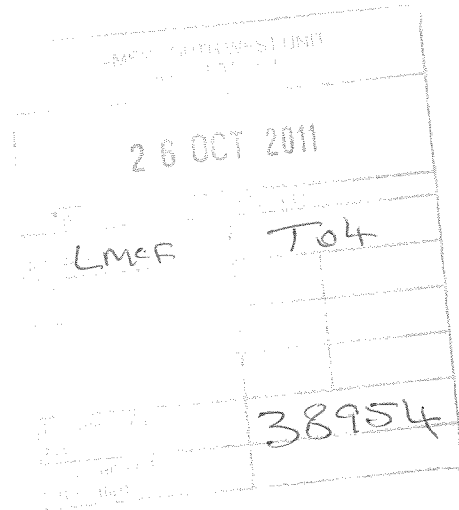




Scottish Natural Heritage

All of nature for all of Scotland

Amey
Scottish Trunk Road
Langmuir Way
Bargeddie
GLASGOW
G69 7RW
For the attention of Mr Colin Mackenzie



Date: 20 September 2011
Our Ref: CNS/TR/A737: DB71348
Your Ref: T04/SW/10/SW/0901/037/CM/HF/23008

Dear Sirs

**TERM CONTRACT FOR THE MANAGEMENT AND MAINTENANCE OF THE
SCOTTISH TRUNK ROAD NETWORK – SOUTH WEST UNIT – A737 THE DEN,
DALRY**

Thank you for consulting Scottish Natural Heritage (SNH) over the above proposals.

Having reviewed drawing No. 10/ssw/0901/037/013, I can confirm the following:-

1. The proposal will have no impacts on any specially protected natural heritage sites.
2. We are unaware of any sites regularly used by specially protected wildlife that may be affected by the proposals.
3. We would however recommend that prior to the commencement of any works that surveys are carried out to investigate the potential for the presence of the following specially protected species.
 - 3.1 Badgers
 - 3.2 Bats
4. The development of mitigation measures for the above species will be dependent on the results of the above surveys.

1/



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Tel 01292 261392 Fax 01292 269493 www.snh.org.uk

-2-

I trust that these comments are useful, should you wish to discuss these comments in further detail, please do not hesitate to get in touch.

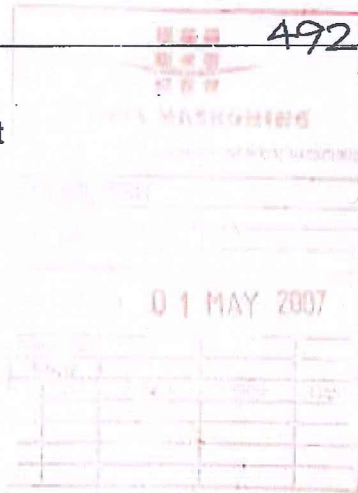
Yours faithfully

A handwritten signature in black ink, appearing to read 'Graeme Walker', with a stylized flourish at the end.

ff GRAEME WALKER
Area Officer
Ayrshire and Arran
Strathclyde and Ayrshire



Ms J Trendall
Environmental Scientist
Royal Haskoning
10 Bernard Street
LEITH
Edinburgh
EH6 6PP



Please quote our reference number on all correspondence

Your Ref: /L/303352/Edin

Our Ref: CNS/TR
DB40386

Date: 30 April 2007

Dear Ms Trendall

**A737 BARMILL AND THE DEN ROAD IMPROVEMENT SCHEMES – SCOPING
OPINION**

Thank you for your letter re the above road proposals. I note that you now have the results of the necessary biological surveys and they have confirmed that there is little interest at both of these sites.

We are therefore content to rest on our initial assessment of these proposals.

If you would like to discuss these proposals further, please do not hesitate to get in touch.

Yours sincerely

GRAEME WALKER
Area Officer
Ayrshire and Arran

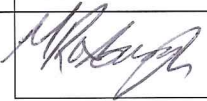
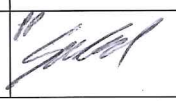
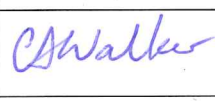




APPENDIX D6

ASSESSMENT OF THE IMPLICATIONS ON EUROPEAN SITES



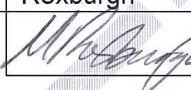


Job Ref.	Report / Version	Date	Prepared by	Checked by	Approved by
10/SW/0901/037	Version 1	December 2012	Melanie Roxburgh	Lois Warnock	Carol Walker
					

A732 Trunk Road – The Den, Dalry

Assessment of Implications on European Sites (AIES)





Scheme No.	Report / Version	Date	Prepared by	Checked by	Approved by
10/SW/0901/037	Version 1	December 2012	Melanie Roxburgh	Lois Warnock	Carol Walker
					

DRAFT



ASSESSMENT OF IMPLICATIONS ON EUROPEAN SITES (AIES) SCREENING REPORT

1.0 INTRODUCTION

1.1 GENERAL

- 1.1.1 The A737 is an important trunk road which provides the main link between the towns Kilbirnie, Dalry, Kilwinning, Ardrossan, Saltcoats, Stevenston, West Kilbride, and Largs within North Ayrshire, to Central Scotland. The proposed scheme is located at The Den, approximately 3km east of Dalry. The scheme location is illustrated in Drawing No. 10/SW/0901/037/101 Rev A, with the scheme extents illustrated on Drawing No. 10/SW/0901/037/102 Rev A.
- 1.1.2 The proposed work will involve the realignment of the carriageway to bypass a series of sub-standard bends, improve traffic flow and introduce road safety benefits. The new section of carriageway will be 0.94km in length and 7.3m wide.
- 1.1.3 A previous Environmental Statement was collated from 2007-2010 by Royal Haskoning in accordance with Environmental Impact Assessment (Scotland) Regulations 1999 as amended and Volume 11 of the Design Manual for Roads and Bridges (DMRB) on behalf of and under contract to North Ayrshire Council Roads Department.
- 1.1.4 Amey have been commissioned by Transport Scotland to review and update the previous environmental statement carried out by Haskoning.
- 1.1.5 Due to the presence of one identified Special Area of Conservation, an Assessment of Implications on European Sites (AIES) process has been undertaken. AIES is a separate assessment required by law to inform the decision making process where a project could have a significant effect on a Natura 2000 site. Natura 2000 sites include Special Areas of Conservation (SAC), candidate Special Areas of Conservation (cSAC), provisional Special Areas of Conservation (pSAC), Special Protection Areas (SPA), provisional Special Protection Areas (pSPA) and Wetlands of International Importance (Ramsar sites).

1.2 PURPOSE OF THE REPORT

- 1.2.1 Under Article 6 of the Habitats Directive (The Conservation (Natural Habitats, &c.) Regulations 1994), an assessment is required where a plan or project may give rise to significant effects upon a Natura 2000 site (also known as 'European Sites'). Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes SAC's designated under the Habitats Directive for their habitats and/or species of European importance and SPA classified under Directive 2009/147/EC on the Conservation of Wild Birds (The Birds Directive).
- 1.2.2 In addition, it is a matter of law that cSAC and Sites of Community Importance (SCI) are considered in this process; furthermore, it is Government policy that Ramsar sites and pSPAs are also considered.



1.2.3 The requirements of the Habitats Directive are transposed into UK law by means of the Conservation of Habitats and Species Regulations 2010.

1.2.4 Paragraph 3, Article 6 of the Habitats Directive states that:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to paragraph 4, the competent national authority shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

1.2.5 Paragraph 4, Article 6 of the Habitats Directive states that:

“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.”

1.2.6 ‘Competent Authorities’ are required to ensure that Appropriate Assessment is undertaken ‘before deciding to undertake, or give consent, permission or other authorisation of the implications for the site’s conservation objectives’ where a project:

- Is likely to have a significant effect on a European Site in Great Britain (either alone or in combination with other plans or projects)
- It is not directly connected with or necessary to the management of the site

1.2.7 The competent authority is Transport Scotland.

1.3 LIMITATIONS OF THE REPORT

1.3.1 This assessment is based on information currently available from previous studies, desk study information and initial consultations.

1.4 PREPARATION OF THE REPORT

1.4.1 This report has been prepared by Melanie Roxburgh of Amey. Melanie is an Associate Member of the Institute of Ecology and Environmental Management (IEEM) and has experience as an environmental assessor working on a wide range of projects involving protected species surveys. Melanie is a skilled ecologist who specialises in protected species surveys including bat, otter, badger and water vole. This report has been prepared with information from the Environmental Statement (ES) prepared by Amey for the project. The scoping report (Royal Haskoning, 2008) includes ecology data collected by the Natural Resource Consultancy, Nocturne Environmental Surveyors Limited and Startling Learning.



2.0 THE PROPOSED SCHEME

2.1 SITE DESCRIPTION

- 2.1.1 The A737 is an important trunk road which provides the main link between the towns Kilbirnie, Dalry, Kilwinning, Ardrossan, Saltcoats, Stevenston, West Kilbride, and Largs within North Ayrshire, to the M8 motorway in Glasgow and to the A78/A77 in the south. The proposed scheme is located at The Den, approximately 3km east of Dalry.
- 2.1.2 Mature woodland consists of belts along the A737 at the east end of the site and along Auchengree Road which is at right angles to the woodland. There are larger areas of broadleaved planting in the fields either side of the track to Meadowhead Farm. The most common mature trees within the survey area consist of birch *Betula sp.*, alder *Alnus sp.*, sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior*, beech *Fagus sylvatica* and cherry *Prunus avium*.
- 2.1.3 Scrub on site is limited to a stretch of hawthorn *Crataegus monogyna* and bramble *Rubus fruticosus* in a field in the north east of the site. The most common scrub on site is hedgerows, which are not continuous boundaries but would provide suitable habitat for breeding birds.
- 2.1.4 The grassland is classed as semi improved with areas of marshy grassland and rush pasture. Common herbs found in the grassland included cow parsley *Anthriscus sylvestris*, yarrow *Achillea millefolium* and ribwort *Plantago lanceolata*.
- 2.1.5 Wetland is also present in four of the fields and many of these, where ditches were present, were considered to have amphibian potential. These areas support a number of wetland grass species such as soft rush *Juncus effusus*, tufted hair grass *Deschampsia cespitosa*, Yorkshire fog *Holcus canatus*, creeping buttercup *Ranunculus repens*, meadowsweet *Filipendula ulmaria* and hemlock water dropwort *Oenanthe crocata*.

2.2 ALTERNATIVES CONSIDERED

Option 1

- 2.2.1 This option passes between Meadowhead Farm to the north and the existing road to the south. The total length of this option is 940m. This option can achieve a desirable stopping sight distance which will improve the safety of the road. There are five departures required due to the distance between junctions being less than 375m.
- Sandy Road
 - Access to Fernside Cottage
 - Road from the Den Cottage
 - Access to Meadowhead Farm
 - Meadowhead Road

Option 2

- 2.2.2 This option travels towards Meadowhead Farm from the Maulside Road Junction and passes directly north of the farm before travelling south west to



Fernside Cottage and the junction with Sandy Road. The total length of this option is 982m which is 125m longer than option 1.

Option 3

- 2.2.3 This option travels south from the Maulside Road Junction and passes to the south of The Den cottage. It then travels west before re-joining the existing road just west of the Graze Restaurant. The local properties will have the existing road and the new road within close proximity. The total length of this option is 1196m which is 339m longer than option 1.

2.3 THE NEED FOR THE SCHEME

- 2.3.1 The A737 exhibits a double bend as it runs through The Den which reduces the safe speed of traffic, reduces sightlines and increases the risk of accidents. There were 38 road accidents in the vicinity of The Den between 2006 and 2010 resulting in two fatalities, five serious and thirty one minor injuries. The frequency of accidents at The Den is high enough to cause concern and lend weight and urgency to any potential improvement.
- 2.3.2 By realigning the A737 to the north of The Den, the road will be straightened and will have improved traffic flow and sightlines. The current section of the A737 at The Den will become a quiet cul-de-sac connected to the realigned A737 by an access road adjacent to No. 27 The Den. Drawing No. 10/SW/0901/037/013 illustrates the existing road and proposed realigned route. The only traffic likely to use the cul-de-sac will primarily be residents entering and leaving their properties and utilities vehicles. As a result of these improvements, the risk of road accidents at The Den will be greatly reduced.
- 2.3.3 An assessment of the traffic flows on the A737 was carried out based on data collected by a long-term monitoring (LTM) station situated between Dalry and The Den that is operated by Transport Scotland. The data assessed consisted of annual traffic flows for the period 2009 – 2010 and resulted in an average annual daily flow (AADF) of 9224 vehicles per day. However, the variation in flow from year to year was such that a trend in the growth/reduction of the AADF from 2000-2005 is not apparent. On this basis, it is surmised that a negligible variation in flow could be anticipated in the medium term, i.e. over a 15-year period.

2.4 PROJECT DESCRIPTION

- 2.4.1 The design of the new route is based upon avoiding the majority of the residential properties. The re-alignment will consist of the following:
- Total length of new road: 0.94km
 - Standard width: 7.3km (1m hard strips and 2.5m verge)
 - Length of embankment: 0.66km
 - Length in cutting: 0.27km
 - Maximum height of embankment: 2.5m
 - Maximum depth in cutting: 4m
 - Total area of improvement: 3.9ha



2.5 CONSTRUCTION MATERIALS AND WASTE

2.5.1 Earthworks plant required:

- Dozer
- Articulated dump truck
- Compactor
- Excavator
- Pecker
- Tractor with hammer
- Tractor with auger
- Cement mixer
- Spreader
- Miller

2.5.2 Excavation and waste:

- Excavation and disposal of unsuitable clay: 8463m³
- Excavation and disposal of peat: 7624m³
- Excavation of suitable material: 6409m³
- Required suitable fill: 14501m³
- Imported suitable material: 8092m³

3.0 CONSULTATION

3.1 PROPOSED CONSULTATION

3.1.1 Scottish Natural Heritage (SNH) has been asked to express their views on the scope of this report. Responses can be found in Appendix B.

4.0 PROTECTED SITES POTENTIALLY AFFECTED BY THE PROPOSALS

4.1 DESIGNATED SITES AND FEATURES

4.1.1 The proposed route corridor is located within 1.65km of Bankhead Moss Special Area of Conservation (SAC).

Bankhead Moss SAC Features of European Importance

4.1.2 The European code for Bankhead Moss SAC is UK0019756 and is 32.5ha in size. It is designated for biological reasons, as it is a raised bog.

4.1.3 A large expanse of the bog remains intact and is remarkably free of disturbance caused by drainage, grazing or burning. It demonstrates a wide range of typical mire features.

4.1.4 The bog originally formed around a waterlogged depression in the undulating plateau above the north-facing slope of the Garnock Valley. The south eastern section of the dome remains intact and is characterised by a pattern of very low ridges and shallow hollows, and supports several species of bog mosses, the most dominant of which are *Sphagnum papillosum* and *Sphagnum magellanicum*. Subtle variations in the microtopography control the distribution of additional species including *Sphagnum tenellum* and *Sphagnum cuspidatum*. *Sphagnum recurvum* and bog asphodel *Narthecium*



ossifragum are restricted to areas where the movement of surface water causes local nutrient enrichment. Above this bryophyte layer the vegetation is dominated by heather *Calluna vulgaris* and cross-leaved heath *Erica tetralix*. Cranberry *Vaccinium oxycoccos* and round-leaved sundew *Drosera rotundifolia* also occur.

4.1.5 The north western section of the main dome has been subject to disturbance in the distant past, but has since recovered to support *Sphagnum papillosum*, *Sphagnum recurvum*, cross-leaved heath and hare's-tail cottongrass *Eriophorum vaginatum*. Parts of the section exhibit an unsteady surface and bogbean *Menyanthes trifoliata* is present.

4.1.6 Around the margins of the bog, the water table is lower. The vegetation is similar to the centre except the heather is more robust and the Sphagnum cover is slightly reduced. A zone of secondary lag vegetation, dominated by *Sphagnum cuspidatum* and *Sphagnum recurvum* to the north, soft rush *Juncus effusus* to the south, surrounds the dome.

5.0 ASSESSMENT METHODOLOGIES AND ASSUMPTIONS

5.1 METHODOLOGY

5.1.1 This assessment comprised a desk study to confirm the qualifying interests of the Bankhead Moss SAC designation.

5.1.2 The information gathered is used to identify potential impacts of the proposed works. The assessment findings are used to complete the screening matrix required by the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 4, Part 1, HD44/09. This describes the proposed works, identifies the proximity of qualifying interest of the designated sites and sets out any potential impacts of the works upon the sites. The significance of the impacts is then assessed.

5.1.3 The outcome of the AIES needs to be agreed with the appropriate statutory consultee, namely Scottish Natural Heritage.

6.0 POTENTIAL IMPACTS ON PROTECTED SITES

6.1 INTRODUCTION

6.1.1 Bankhead Moss SAC lies approximately 1.65km south east of The Den scheme.

6.1.2 The scheme will involve the realignment of the carriageway to bypass a series of sub-standard bends, improve traffic flow and introduce road safety benefits.

6.1.3 Wherever possible ecological considerations will be incorporated into the design in order to avoid impacts and deliver ecological enhancements.

6.1.4 The potential impacts are assessed below. Where appropriate, mitigation measures have been outlined and the residual impacts assessed. Interaction of impacts and cumulative impacts are assessed as appropriate.

6.2 POTENTIAL CONSTRUCTION IMPACTS

6.2.1 Potential construction impacts identified in the environmental statement report include:



- Temporary impact on air quality as a result of dust from construction activities
- Presence of construction plant on site creating a temporary visual intrusion
- Potential noise intrusion to local wildlife resulting from construction activities
- Potential intrusion to local wildlife resulting from the removal of hedgerows

6.3 POTENTIAL OPERATIONAL IMPACTS

6.3.1 Vegetation will be retained where possible.

6.3.2 Existing wildlife will be enhanced by the establishment of tree and shrub areas for birds.

7.0 ASSESSMENT OF IMPACTS

7.1 AIR QUALITY

7.1.1 Construction activities have the potential for negative impact on the local air quality of the area through generation of dust on site and additional air pollution attributed to traffic management and plant activity

7.1.2 Construction sites have the potential to generate significant volumes of dust through soil stripping and the associated movements of these materials to stockpiles or offsite. Additional dust can be generated through the delivery of materials.

7.1.3 It is not considered that dust will be generated in significant volumes on site to cause a statutory nuisance to those receptors outwith 100m of the site.

7.2 NATURE CONSERVATION AND BIODIVERSITY

Designated Sites

7.2.1 The construction of The Den scheme will not adversely affect the habitats present within the Bankhead Moss SAC itself.

7.2.2 The proposed road alignment will bisect two fields of young broadleaved woodland, and several fields of improved and semi-improved grassland. This area is termed under the Ancient Woodland Inventory, however as only a small area of this habitat will be affected, the effects are anticipated to be minimal.

7.2.3 All other designated areas will be unaffected by the scheme realignment.

Plants and Habitats

7.2.4 The proposed road alignment will bisect two fields of young broadleaved woodland, and several fields of improved and semi-improved grassland.

7.2.5 Two trees, a large sycamore and a beech which is split near the top are due to be felled as part of the construction process. These contain potential bat roosts, and although not confirmed, are considered a loss of potential roosting opportunities.



Protected Species

Bats

- 7.2.6 Two trees, a large sycamore containing woodpecker *Picidae* sp. holes and a beech which is split near the top have the potential to provide habitat for bats. These are due to be felled as part of the construction process and have the potential to destroy a bat roost. Although these are not confirmed to contain bat roosts, are considered a loss of potential roosting opportunities.

Birds

- 7.2.7 Birds have been recorded utilising and nesting in the hedgerows and the trees running parallel with the road. Removal of these areas will cause the removal of bird habitat which will result in a slight impact on the local bird population.

Amphibians

- 7.2.8 Tadpoles of the common frog *Rana temporaria* were found in two areas of the wet ditches on the south side of the road. Removal of these areas is not considered to be significant as frogs will go elsewhere to lay frogspawn.

7.3 MATERIALS

- 7.3.1 Construction of the proposed The Den scheme will involve realigning the existing route of the A737. The realignment will consist of the following:

- Standard width: 7.3km (1m hard strip and 2.5m verge)
- Length of embankment: 0.66km
- Length in cutting: 0.27km
- Maximum height of embankment: 2.5km
- Maximum height in cutting: 4m
- Total area of improvement: 3.9ha

- 7.3.2 As there is a history of industrial workings in and around the existing and proposed route, there is a potential for uncovering contaminated soils.

- 7.3.3 During the construction phase a range of materials may be used on site which have the potential to contaminate soils and water through leaks and accidental spillage, e.g. fuels and concrete. There is the potential for surface water run-off from the development to carry sediment and leachable pollutants from ground materials including disturbed ground, exposed stockpiles, un-surfaces / un-seeded surfaces, wheel washing areas and dust suppression zones.

7.4 NOISE AND VIBRATION

- 7.4.1 The road is located within a cutting with embankments specifically sculptured that during construction, there will be minimal noise and vibration effects from plant and activities associated with the scheme.

- 7.4.2 No other developments within the study area have been identified which would increase noise levels at receptors. Therefore, no cumulative noise and vibration impacts are predicted.



7.5 THE WATER ENVIRONMENT

- 7.5.1 There is an unnamed surface water ditch located within the scheme extents. This ditch eventually outfalls into the River Garnock, approximately 1.5km from the scheme extents.
- 7.5.2 The proposed improvement is not within an area prone to flooding and is located some distance from the floodplain of the River Garnock.
- 7.5.3 There is potential for the unnamed surface water ditch to become polluted during construction. This pollution can occur either through a point source pollution incident such as a fuel spillage, but also through more gradual pollution such as siltation through excavation material entering the surface water ditch.
- 7.5.4 Calculations have been carried out which indicated that there is less than 1% annual probability of a serious accidental spillage causing a pollution incident.

8.0 MITIGATION MEASURES

- 8.1.1 More detailed mitigation measures will be included in the Environmental Statement. The following general mitigation measures are to be incorporated within the scheme:

- Fuel, oil and chemical storage will be sited on an impervious base within a bund. The bunded storage will be sited more than 10m from any watercourse to minimise the risk of a spill entering the water environment.
- A spill kit with sand, earth or commercial products that are approved for the stored materials will be kept close to the storage area.
- Any damaged, leaking or empty drums shall be removed from site immediately and disposed of via a registered waste disposal contractor.
- Mobile plant will be refuelled in a designated area, on an impermeable base away from drains or watercourses.
- All refuelling activities will be supervised. This supervision will include carrying out checks on the capacity of the tanks before commencement of refuelling.
- All valves will be turned off after refuelling and all equipment should be stored securely when not in use.
- Drip trays will be positioned under pumps to catch minor spills. Spill kits with sand, earth or commercial products will be held at a designated place on site.
- Accidental spill response training will be provided to all staff and contractors. The location of the drainage outfalls must be identified prior to the commencement of the works, in order to facilitate containment in the event of a spill.

9.0 SUMMARY AND CONCLUSIONS

- 9.1.1 The initial stages of an Assessment of Implications on European Sites (AIES) have been undertaken in accordance with relevant guidance. A draft screening matrix has been completed and is included within Appendix A.



- 9.1.2 The outcome of the screening stage is that A737 The Den Realignment is not likely to result in significance effects on the European Site.

DRAFT



Appendix A: Appropriate Assessment Screening Matrix

Project Name:		A737 The Den Realignment
Natura 2000 Site under Consideration:		Bankhead Moss Special Area of Conservation
Date:	Prepared by:	Approved by:
November 2012	Melanie Roxburgh	Carol Walker
Description of Project:		
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:		
<ul style="list-style-type: none"> Size and scale (<i>road type and probable traffic volume</i>) 	The proposed work will involve the realignment of the carriageway to bypass a series of sub-standard bends, improve traffic flow and introduce road safety benefits. The new section of carriageway will be 0.93km in length and 7.3m wide.	
<ul style="list-style-type: none"> Land-take 	The total area of land take will be 4.3226ha.	
<ul style="list-style-type: none"> Distance from the European Site or key features of the site (<i>from edge of the project assessment corridor</i>) 	The scheme extents are located approximately 1.65km from Bankhead Moss SAC.	
<ul style="list-style-type: none"> Resource requirements (<i>from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts</i>) 	No resource requirements are needed from within the SAC.	
<ul style="list-style-type: none"> Emissions (<i>e.g. Polluted surface water runoff-both soluble and insoluble pollutants, atmospheric pollution</i>) 	Potential exists for accidental pollution through spillages.	
<ul style="list-style-type: none"> Excavation requirements (<i>e.g. impacts of local hydrogeology</i>) 	Excavation will be required for the works.	
<ul style="list-style-type: none"> Transportation requirements 	No impact predicted.	
<ul style="list-style-type: none"> Duration of construction, operation, etc 	20 weeks.	
<ul style="list-style-type: none"> Other. 	N/A	
Description of avoidance and/or mitigation measures		
Describe any assumed (<i>plainly established and uncontroversial</i>) mitigation measures, including information on:		
<ul style="list-style-type: none"> Nature of proposals 	<ul style="list-style-type: none"> Fuel, oil and chemical storage will be sited on an impervious base within a bund. The bunded storage will be sited more than 10m from any watercourse to minimise the risk of a spill entering the water environment. A spill kit with sand, earth of commercial products that are approved for the stored materials will be kept close to the storage area. Any damaged, leaking or empty drums shall be removed from site immediately and disposed of via a registered waste disposal contractor. Mobile plant will be refuelled in a designated area, on an impermeable base away from drains or watercourses. All refuelling activities will be supervised. This supervision will include carrying out checks on the capacity of the tanks before commencement of refuelling. 	



	<ul style="list-style-type: none"> All valves will be turned off after refuelling and all equipment should be stored securely when not in use. Drip trays will be positioned under pumps to catch minor spills. Spill kits with sand, earth or commercial products will be held at a designated place on site. Accidental spill response training will be provided to all staff and contractors. The location of the drainage outfalls must be identified prior to the commencement of the works, in order to facilitate containment in the event of a spill.
<ul style="list-style-type: none"> Location 	The proposed scheme is located at The Den, approximately 3km east of Dalry at National Grid Reference NS 32623 51244.
<ul style="list-style-type: none"> Evidence for effectiveness 	All mitigation measures are tried and tested and in accordance with best practice guidance.
<ul style="list-style-type: none"> Mechanisms for delivery (<i>legal conditions, restrictions or other legally enforceable obligations</i>) 	The following measures would be implemented: construction method statements and toolbox talks to contractors and engineers.
Characteristics of European Site(s) A brief description of the European Site should be produced, including information on:	
<ul style="list-style-type: none"> Name of European Site and its EU code 	Bankhead Moss Special Area of Conservation, EU code: UK0019756.
<ul style="list-style-type: none"> Location and distance of the European Site from the proposed works 	The proposed works are located 1.65km from the European Site.
<ul style="list-style-type: none"> European Site size 	32.5ha
<ul style="list-style-type: none"> Key features of the European Site 	Primary habitat – Active Raised Bog Dominant species – <i>Sphagnum papillosum</i> <i>Sphagnum magellanicum</i> <i>Sphagnum tenellum</i> <i>Sphagnum cuspidatum</i> <i>Sphagnum recurvum</i> <i>Narthecium ossifragum</i> <i>Calluna vulgaris</i> <i>Erica tetralix</i> <i>Vaccinium oxycoccos</i> <i>Drosera rotundifolia</i> <i>Eriophorum vaginatum</i> <i>Menyanthes trifoliata</i>
<ul style="list-style-type: none"> Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways 	N/A
<ul style="list-style-type: none"> European Site conservation objectives – where these are readily available 	To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features. To ensure for the qualifying habitat that the following are maintained in the long term: <ul style="list-style-type: none"> Extent of the habitat on site Distribution of the habitat within the site Structure and function of the habitat



	<ul style="list-style-type: none"> • Distribution of typical species of the habitat • Viability of typical species as components of the habitat • No significant disturbance of typical species of the habitat.
Assessment Criteria	
The following assessment has been undertaken with guidance laid out in the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 4 HD44/09: Assessment of Implications on European Sites.	
Initial Assessment	
The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts.	
• Reduction of habitat areas	No impacts predicted
• Disturbance to key species	No impacts predicted
• Habitat or species fragmentation	No impacts predicted
• Reduction in species density	No impacts predicted
• Changes in key indicators of conservation value (water quality, etc)	No impacts predicted
• Climate change	No impacts predicted
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	No impacts predicted
Interference with key relationships that define the function of the site	No impacts predicted
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	N/A
Disturbance to key species	N/A
Habitat or species fragmentation	N/A
Loss	N/A
Fragmentation	N/A
Disruption	N/A
Disturbance	N/A
Change to key elements of the site (e.g. water quality, hydrological regime etc)	N/A
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
Outcome of screening stage (delete as appropriate).	Not likely to be Significant Effects
<i>Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attach relevant correspondence)</i>	SNH have indicated the proposed works will have no impact on the SAC.



Appendix B: Scottish Natural Heritage Responses

From: Graeme Walker [mailto:Graeme.Walker@snh.gov.uk]

Sent: 22 November 2012 09:29

To: Roxburgh, Melanie

Subject: RE: A737 The Den - AIES

Hi Melanie

I can confirm that proposed works at the Den will have no impact on the Bankhead Moss SAC site.

Should you wish to discuss this proposal in further detail, please do not hesitate to get in touch.

Graeme Walker

Area Officer

Ayrshire and Arran

Russell House, King Street, Ayr. KA8 0BF.

01292 270760

(Direct 01292 270761)

From: Roxburgh, Melanie [mailto:Melanie.Roxburgh@amey.co.uk]

Sent: 21 November 2012 16:08

To: Graeme Walker

Subject: A737 The Den - AIES

Graeme,

Please find attached the AIES for the A737 The Den scheme.

Regards

Melanie

Melanie Roxburgh

Ecologist and Environmental Officer

Amey

t: 01698 730279 | **f:** 01698 833174 | **e:** melanie.roxburgh@amey.co.uk

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ASSESSMENT OF IMPLICATIONS ON EUROPEAN SITES (AIES) SCREENING REPORT

1.0 INTRODUCTION

1.1 GENERAL

- 1.1.1 The A737 is an important trunk road which provides the main link between the towns Kilbirnie, Dalry, Kilwinning, Ardrossan, Saltcoats, Stevenston, West Kilbride, and Largs within North Ayrshire, to Central Scotland. The proposed scheme is located at The Den, approximately 3km east of Dalry. The scheme location is illustrated in Drawing No. 10/SW/0901/101 Rev A, with the scheme extents illustrated on Drawing No. 10/SW/0901/037/102 Rev A.
- 1.1.2 The proposed work will involve the realignment of the carriageway to bypass a series of sub-standard bends, improve traffic flow and introduce road safety benefits. The new section of carriageway will be 0.94km in length and 7.3m wide.
- 1.1.3 A previous Environmental Statement was collated from 2007-2010 by Royal Haskoning in accordance with Environmental Impact Assessment (Scotland) Regulations 1999 as amended by the Environmental Impact Assessment (Scotland) Amendment Regulations 2006 (The 'EIA' regulations) and Volume 11 of the Design Manual for Roads and Bridges (DMRB) on behalf of and under contract to North Ayrshire Council Roads Department.
- 1.1.4 Amey have been commissioned by Transport Scotland to review and update the previous environmental statement carried out by Haskoning.
- 1.1.5 Due to the presence of one identified Special Area of Conservation, an Assessment of Implications on European Sites (AIES) process has been undertaken. AIES is a separate assessment required by law to inform the decision making process where a project could have a significant effect on a Natura 2000 site. Natura 2000 sites include Special Areas of Conservation (SAC), candidate Special Areas of Conservation (cSAC), provisional Special Areas of Conservation (pSAC), Special Protection Areas (SPA), provisional Special Protection Areas (pSPA) and Wetlands of International Importance (Ramsar sites).

1.2 PURPOSE OF THE REPORT

- 1.2.1 Under Article 6 of the Habitats Directive, an assessment is required where a plan or project may give rise to significant effects upon a Natura 2000 site (also known as 'European Sites'). Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes SAC's designated under the Habitats Directive for their habitats and/or species of European importance and SPA classified under Directive 2009/147/EC on the Conservation of Wild Birds (The Birds Directive).
- 1.2.2 In addition, it is a matter of law that cSAC and Sites of Community Importance (SCI) are considered in this process; furthermore, it is Government policy that Ramsar sites and pSPAs are also considered.



1.2.3 The requirements of the Habitats Directive are transposed into UK law by means of the Conservation of Habitats and Species Regulations 2010.

1.2.4 Paragraph 3, Article 6 of the Habitats Directive states that:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to paragraph 4, the competent national authority shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.”

1.2.5 Paragraph 4, Article 6 of the Habitats Directive states that:

“If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.”

1.2.6 ‘Competent Authorities’ are required to ensure that Appropriate Assessment is undertaken ‘before deciding to undertake, or give consent, permission or other authorisation of the implications for the site’s conservation objectives’ where a project:

- Is likely to have a significant effect on a European Site in Great Britain (either alone or in combination with other plans or projects)
- It is not directly connected with or necessary to the management of the site

1.2.7 The competent authority is Transport Scotland.

1.3 LIMITATIONS OF THE REPORT

1.3.1 This assessment is based on information currently available from previous studies, desk study information and initial consultations.

1.4 PREPARATION OF THE REPORT

1.4.1 This report has been prepared by Melanie Roxburgh of Amey. Melanie is an Associate Member of the Institute of Ecology and Environmental Management (IEEM) and has experience as an environmental assessor working on a wide range of projects involving protected species surveys. Melanie is a skilled ecologist who specialises in protected species surveys including bat, otter, badger and water vole. This report has been prepared with information from the Environmental Statement (ES) prepared by Amey for the project. The scoping report (Royal Haskoning, 2008) includes ecology data collected by the Natural Resource Consultancy, Nocturne Environmental Surveyors Limited and Startling Learning.



2.0 THE PROPOSED SCHEME

2.1 SITE DESCRIPTION

- 2.1.1 The A737 is an important trunk road which provides the main link between the towns Kilbirnie, Dalry, Kilwinning, Ardrossan, Saltcoats, Stevenston, West Kilbride, and Largs within North Ayrshire, to the M8 motorway in Glasgow and to the A78/A77 in the south. The proposed scheme is located at The Den, approximately 3km east of Dalry.
- 2.1.2 Mature woodland consists of belts along the A737 at the east end of the site and along Auchengree Road which is at right angles to it. There are larger areas of broadleaved planting in the fields either side of the track to Meadowhead Farm. The most common mature trees within the survey area consist of birch *Betula sp.*, alder *Alnus sp.*, sycamore *Acer pseudoplatanus*, ash *Fraxinus excelsior*, beech *Fagus sylvatica* and cherry *Prunus avium*.
- 2.1.3 Scrub on site is limited to a stretch of hawthorn *Crataegus monogyna* and bramble *Rubus fruticosus* in a field in the north east of the site. The most common scrub on site is hedgerows, which are not continuous boundaries but would provide suitable habitat for breeding birds.
- 2.1.4 The grassland is classed as semi improved with areas of marshy grassland and rush pasture. Common herbs found in the grassland included cow parsley *Anthriscus sylvestris*, yarrow *Achillea millefolium* and ribwort *Plantago lanceolata*.
- 2.1.5 Wetland is also present in four of the fields and many of these where ditches were present were considered to have amphibian potential. These areas supported a number of wetland grass species such as soft rush *Juncus effusus*, tufted hair grass *Deschampsia cespitosa*, Yorkshire fog *Holcus canatus*, creeping buttercup *Ranunculus repens*, meadowsweet *Filipendula ulmaria* and hemlock water dropwort *Oenanthe crocata*.

2.2 ALTERNATIVES CONSIDERED

Option 1

- 2.2.1 This option passes between Meadowhead Farm to the north and the existing road to the south. The total length of this option is 857m. This option can achieve a desirable stopping sight distance which will improve the safety of the road. There are five departures required due to the distance between junctions being less than 375m.
- Sandy Road
 - Access to Fernside Cottage
 - Road from the Den Cottage
 - Access to Meadowhead Farm
 - Meadowhead Road

Option 2

- 2.2.2 This option travels towards Meadowhead Farm from the Maulside Road Junction and passes directly north of the farm before travelling south west to Fernside Cottage and the junction with Sandy Road. The total length of this option is 982m which is 125m longer than option 1.



Option 3

- 2.2.3 This option travels south from the Maulside Road Junction and passes to the south of The Den cottage. It then travels west before re-joining the existing road just west of the Graze Restaurant. The local properties will have the existing road and the new road in close proximity. The total length of this option is 1196 which is 339m longer than option 1.

2.3 THE NEED FOR THE SCHEME

- 2.3.1 The A737 exhibits a double bend as it runs through The Den which reduces the safe speed of traffic, reduces sightlines and increases the risk of accidents. There were 24 road accidents in the vicinity of The Den between 2003 and 2007 resulting in one serious injury and nine minor injuries. The frequency of accidents at The Den is high enough to cause concern and lend weight and urgency to any potential improvement.

- 2.3.2 By realigning the A737 to the north of The Den, the road will be straightened and will have improved traffic flow and sightlines. The current section of the A737 at The Den will become a quiet cul-de-sac connected to the realigned A737 by an access road adjacent to No. 27 The Den. Drawing No. 10/SW/0901/037/013 illustrates the existing road and proposed realigned route. The only traffic likely to use the cul-de-sac will primarily be residents entering and leaving their properties and utilities vehicles. As a result of these improvements, the risk of road accidents at The Den will be greatly reduced.

- 2.3.3 An assessment of the traffic flows on the A737 was carried out based on data collected by a long-term monitoring (LTM) station situated between Dalry and The Den that is operated by Transport Scotland. The data assessed consisted of annual traffic flows for the period 2000 – 2005 and resulted in an average annual daily flow (AADF) of 10,100 vehicles per day. However, the variation in flow from year to year was such that a trend in the growth/reduction of the AADF from 2000-2005 is not apparent. On this basis, it is surmised that a negligible variation in flow could be anticipated in the medium term, i.e. over a 15-year period.

2.4 PROJECT DESCRIPTION

- 2.4.1 The design of the new route is based upon avoiding the majority of the residential properties. The re-alignment will consist of the following:
- Total length of new road: 0.94km
 - Standard width: 7.3km (1m hard strips and 2.5m verge)
 - Length of embankment: 0.66km
 - Length in cutting: 0.27km
 - Maximum height of embankment: 2.5m
 - Maximum height in cutting: 4m
 - Total area of improvement: 3.9ha

2.5 CONSTRUCTION MATERIALS AND WASTE

- 2.5.1 Earthworks plant required:
- Dozer



- Articulated dump truck
- Compactor
- Excavator
- Pecker
- Tractor with hammer
- Tractor with auger
- Cement mixer
- Spreader
- Miller

2.5.2 Excavation and waste:

- Excavation and disposal of unsuitable clay: 8463m³
- Excavation and disposal of peat: 7624m³
- Excavation of suitable material: 6409m³
- Required suitable fill: 14501m³
- Imported suitable material: 8092m³

3.0 CONSULTATION

3.1 PROPOSED CONSULTATION

3.1.1 Scottish Natural Heritage (SNH) has been asked to express their views on the scope of this report. Responses can be found in Appendix B.

4.0 PROTECTED SITES POTENTIALLY AFFECTED BY THE PROPOSALS

4.1 DESIGNATED SITES AND FEATURES

4.1.1 The proposed route corridor is located within 1.65km of Bankhead Moss Special Area of Conservation (SAC).

Bankhead Moss SAC Features of European Importance

4.1.2 The European code for Bankhead Moss SAC is UK0019756 and is 32.5ha in size. It is designated for biological reasons, as it is a raised bog.

4.1.3 A large expanse of the bog remains intact and is remarkably free of disturbance caused by drainage, grazing or burning. It demonstrates a wide range of typical mire features.

4.1.4 The bog originally formed around a waterlogged depression in the undulating plateau above the north-facing slope of the Garnock Valley. The south eastern section of the dome remains intact and is characterised by a pattern of very low ridges and shallow hollows, and supports several species of bog mosses, the most dominant of which are *Sphagnum papillosum* and *Sphagnum magellanicum*. Subtle variations in the microtopography control the distribution of additional species including *Sphagnum tenellum* and *Sphagnum cuspidatum*. *Sphagnum recurvum* and bog asphodel *Narthecium ossifragum* are restricted to areas where the movement of surface water causes local nutrient enrichment. Above this bryophyte layer the vegetation is dominated by heather *Calluna vulgaris* and cross-leaved heath *Erica*



tetralix. Cranberry *Vaccinium oxycoccos* and round-leaved sundew *Drosera rotundifolia* also occur.

4.1.5 The north western section of the main dome has been subject to disturbance in the distant past, but has since recovered to support *Sphagnum papillosum*, *Sphagnum recurvum*, cross-leaved heath and hare's-tail cottongrass *Eriophorum vaginatum*. Parts of the section exhibit an unsteady surface and bogbean *Menyanthes trifoliata* is present.

4.1.6 Around the margins of the bog, the water table is lower. The vegetation is similar to the centre except the heather is more robust and the Sphagnum cover is slightly reduced. A zone of secondary lag vegetation, dominated by *Sphagnum cuspidatum* and *Sphagnum recurvum* to the north, soft rush *Juncus effusus* to the south, surrounds the dome.

5.0 ASSESSMENT METHODOLOGIES AND ASSUMPTIONS

5.1 METHODOLOGY

5.1.1 This assessment comprised a desk study to confirm the qualifying interests of the Bankhead Moss SAC designation.

5.1.2 The information gathered is used to identify potential impacts of the proposed works. The assessment findings are used to complete the screening matrix required by the Design Manual for Roads and Bridges (DMRB) Volume 11, Section 4, Part 1, HD44/09. This describes the proposed works, identifies the proximity of qualifying interest of the designated sites and sets out any potential impacts of the works upon the sites. The significance of the impacts is then assessed.

5.1.3 The outcome of the AIES needs to be agreed with the appropriate statutory consultee, namely Scottish Natural Heritage.

6.0 POTENTIAL IMPACTS ON PROTECTED SITES

6.1 INTRODUCTION

6.1.1 Bankhead Moss SAC lies approximately 1.65km south east of The Den scheme.

6.1.2 The scheme will involve the realignment of the carriageway to bypass a series of sub-standard bends, improve traffic flow and introduce road safety benefits.

6.1.3 Wherever possible ecological considerations will be incorporated into the design in order to avoid impacts and deliver ecological enhancements.

6.1.4 The potential impacts are assessed below. Where appropriate, mitigation measures have been outlined and the residual impacts assessed. Interaction of impacts and cumulative impacts are assessed as appropriate.

6.2 POTENTIAL CONSTRUCTION IMPACTS

6.2.1 Potential construction impacts identified in the environmental statement report include:

- Temporary impact on air quality as a result of dust from construction activities



- Presence of construction plant on site creating a temporary visual intrusion
- Potential noise intrusion to local wildlife resulting from construction activities
- Potential intrusion to local wildlife resulting from the removal of hedgerows

6.3 POTENTIAL OPERATIONAL IMPACTS

6.3.1 Vegetation will be retained where possible.

6.3.2 Existing wildlife will be enhanced by the establishment of tree and shrub areas for birds.

7.0 ASSESSMENT OF IMPACTS

7.1 AIR QUALITY

7.1.1 Construction activities have the potential for negative impact on the local air quality of the area through generation of dust on site and additional air pollution attributed to traffic management and plant activity

7.1.2 Construction sites have the potential to generate significant volumes of dust through soil stripping and the associated movements of these materials to stockpiles or offsite. Additional dust can be generated through the delivery of materials.

7.1.3 It is not considered that dust will be generated in significant volumes on site to cause a statutory nuisance to those receptors outwith 100m of the site.

7.2 NATURE CONSERVATION AND BIODIVERSITY

Designated Sites

7.2.1 The construction of The Den scheme will not adversely affect the habitats present within the Bankhead Moss SAC itself.

7.2.2 The proposed road alignment will bisect two fields of young broadleaved woodland, and several fields of improved and semi-improved grassland. This area is termed under the Ancient Woodland Inventory, however as only a small area of this habitat will be affected, the effects are anticipated to be minimal.

7.2.3 All other designated areas will be unaffected by the scheme realignment.

Plants and Habitats

7.2.4 The proposed road alignment will bisect two fields of young broadleaved woodland, and several fields of improved and semi-improved grassland.

7.2.5 Two trees, a large sycamore and a beech which is split near the top are due to be felled as part of the construction process. These contain potential bat roosts, and although not confirmed, are considered a loss of potential roosting opportunities.



Protected Species

Bats

- 7.2.6 Two trees, a large sycamore containing woodpecker *Picidae* sp. holes and a beech which is split near the top have the potential to provide habitat for bats. These are due to be felled as part of the construction process and have the potential to destroy a bat roost. Although these are not confirmed to contain bat roosts, are considered a loss of potential roosting opportunities.

Birds

- 7.2.7 Birds have been recorded utilising and nesting in the hedgerows and the trees running parallel with the road. Removal of these areas will cause the removal of bird habitat which will result in a slight impact on the local bird population.

Amphibians

- 7.2.8 Tadpoles of the common frog *Rana temporaria* were found in two areas of the wet ditches on the south side of the road. Removal of these areas is not considered to be significant as frogs will go elsewhere to lay frogspawn.

7.3 MATERIALS

- 7.3.1 Construction of the proposed The Den scheme will involve realigning the existing route of the A737. The realignment will consist of the following:
- Standard width: 7.3km (1m hard strip and 2.5m verge)
 - Length of embankment: 0.66km
 - Length in cutting: 0.27km
 - Maximum height of embankment: 2.5m
 - Maximum height in cutting: 4m
 - Total area of improvement: 3.9ha
- 7.3.2 As there is a history of industrial workings in and around the existing and proposed route, there is a potential for uncovering contaminated soils.
- 7.3.3 During the construction phase a range of materials may be used on site which have the potential to contaminate soils and water through leaks and accidental spillage, e.g. fuels and concrete. There is the potential for surface water run-off from the development to carry sediment and leachable pollutants from ground materials including disturbed ground, exposed stockpiles, un-surfaces / un-seeded surfaces, wheel washing areas and dust suppression zones.

7.4 NOISE AND VIBRATION

- 7.4.1 The road is located within a cutting with embankments specifically sculptured that during construction, there will be minimal noise and vibration effects from plant and activities associated with the scheme.
- 7.4.2 No other developments within the study area have been identified which would increase noise levels at receptors. Therefore, no cumulative noise and vibration impacts are predicted.



7.5 THE WATER ENVIRONMENT

- 7.5.1 There is an unnamed surface water ditch located within the scheme extents. This ditch eventually outfalls into the River Garnock, approximately 1.5km from the scheme extents.
- 7.5.2 The proposed improvement is not within an area prone to flooding and is located some distance from the floodplain of the River Garnock.
- 7.5.3 There is potential for the unnamed surface water ditch to become polluted during construction. This pollution can occur either through a point source pollution incident such as a fuel spillage, but also through more gradual pollution such as siltation through excavation material entering the surface water ditch.
- 7.5.4 Calculations have been carried out which indicated that there is less than 1% annual probability of a serious accidental spillage causing a pollution incident.

8.0 MITIGATION MEASURES

- 8.1.1 More detailed mitigation measures will be included in the Environmental Statement. The following general mitigation measures are to be incorporated within the scheme:
- Fuel, oil and chemical storage will be sited on an impervious base within a bund. The bunded storage will be sited more than 10m from a watercourse to minimise the risk of a spill entering the water environment.
 - A spill kit with sand, earth or commercial products that are approved for the stored materials will be kept close to the storage area.
 - Any damaged, leaking or empty drums shall be removed from site immediately and disposed of via a registered waste disposal contractor.
 - Mobile plant will be refuelled in a designated area, on an impermeable base away from drains or watercourses.
 - All refuelling activities will be supervised. This supervision will include carrying out checks on the capacity of the tanks before commencement of refuelling.
 - All valves will be turned off after refuelling and all equipment should be stored securely when not in use.
 - Drip trays will be positioned under pumps to catch minor spills. Spill kits with sand, earth or commercial products will be held at a designated place on site.
 - Accidental spill response training will be provided to all staff and contractors. The location of the drainage outfalls must be identified prior to the commencement of the works, in order to facilitate containment in the event of a spill.

9.0 SUMMARY AND CONCLUSIONS

- 9.1.1 The initial stages of an Assessment of Implications on European Sites (AIES) have been undertaken in accordance with relevant guidance. A draft screening matrix has been completed and is included within Appendix A.



- 9.1.2 The outcome of the screening stage is that A737 The Den Realignment is not likely to result in significance effects on the European Site.



Appendix A: Appropriate Assessment Screening Matrix

Project Name:		A737 The Den Realignment
Natura 2000 Site under Consideration:		Bankhead Moss Special Area of Conservation
Date:	Prepared by:	Approved by:
December 2011	Melanie Roxburgh	
Description of Project:		
Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the European Site by virtue of:		
<ul style="list-style-type: none"> Size and scale (<i>road type and probable traffic volume</i>) 	The proposed work will involve the realignment of the carriageway to bypass a series of sub-standard bends, improve traffic flow and introduce road safety benefits. The new section of carriageway will be 0.93km in length and 7.3m wide.	
<ul style="list-style-type: none"> Land-take 	The total area of land take will be 4.3226ha.	
<ul style="list-style-type: none"> Distance from the European Site or key features of the site (<i>from edge of the project assessment corridor</i>) 	The scheme extents are located approximately 1.65km from Bankhead Moss SAC.	
<ul style="list-style-type: none"> Resource requirements (<i>from the European Site or from areas in proximity to the site, where of relevance to consideration of impacts</i>) 	No resource requirements are needed from within the SAC.	
<ul style="list-style-type: none"> Emissions (<i>e.g. Polluted surface water runoff-both soluble and insoluble pollutants, atmospheric pollution</i>) 	Potential exists for accidental pollution through spillages.	
<ul style="list-style-type: none"> Excavation requirements (<i>e.g. impacts of local hydrogeology</i>) 	Excavation will be required for the works.	
<ul style="list-style-type: none"> Transportation requirements 	No impact predicted.	
<ul style="list-style-type: none"> Duration of construction, operation, etc 	20 weeks.	
<ul style="list-style-type: none"> Other. 	N/A	
Description of avoidance and/or mitigation measures		
Describe any assumed (<i>plainly established and uncontroversial</i>) mitigation measures, including information on:		
<ul style="list-style-type: none"> Nature of proposals 	<ul style="list-style-type: none"> Fuel, oil and chemical storage will be sited on an impervious base within a bund. The bunded storage will be sited more than 10m from a watercourse to minimise the risk of a spill entering the water environment. A spill kit with sand, earth of commercial products that are approved for the stored materials will be kept close to the storage area. Any damaged, leaking or empty drums shall be removed from site immediately and disposed of via a registered waste disposal contractor. Mobile plant will be refuelled in a designated area, on an impermeable base away from drains or watercourses. All refuelling activities will be supervised. This supervision will include carrying out checks on the capacity of the tanks before commencement of refuelling. All valves will be turned off after refuelling and all 	



	<p>equipment should be stored securely when not in use.</p> <ul style="list-style-type: none"> • Drip trays will be positioned under pumps to catch minor spills. Spill kits with sand, earth or commercial products will be held at a designated place on site. • Accidental spill response training will be provided to all staff and contractors. The location of the drainage outfalls must be identified prior to the commencement of the works, in order to facilitate containment in the event of a spill.
<ul style="list-style-type: none"> • Location 	The proposed scheme is located at The Den, approximately 3km east of Dalry at National Grid Reference NS 32623 51244.
<ul style="list-style-type: none"> • Evidence for effectiveness 	All mitigation measures are tried and tested and in accordance with best practice guidance.
<ul style="list-style-type: none"> • Mechanisms for delivery (<i>legal conditions, restrictions or other legally enforceable obligations</i>) 	The following measures would be implemented: construction method statements and toolbox talks to contractors and engineers.
<p>Characteristics of European Site(s) A brief description of the European Site should be produced, including information on:</p>	
<ul style="list-style-type: none"> • Name of European Site and its EU code 	Bankhead Moss Special Area of Conservation, EU code: UK0019756.
<ul style="list-style-type: none"> • Location and distance of the European Site from the proposed works 	1.65km
<ul style="list-style-type: none"> • European Site size 	32.5ha
<ul style="list-style-type: none"> • Key features of the European Site 	<p>Primary habitat – Active Raised Bog</p> <p>Dominant species – <i>Sphagnum papillosum</i> <i>Sphagnum magellanicum</i> <i>Sphagnum tenellum</i> <i>Sphagnum cuspidatum</i> <i>Sphagnum recurvum</i> <i>Narthecium ossifragum</i> <i>Calluna vulgaris</i> <i>Erica tetralix</i> <i>Vaccinium oxycoccos</i> <i>Drosera rotundifolia</i> <i>Eriophorum vaginatum</i> <i>Menyanthes trifoliata</i></p>
<ul style="list-style-type: none"> • Vulnerability of the European Site – any information available from the standard data forms on potential effect pathways 	N/A
<ul style="list-style-type: none"> • European Site conservation objectives – where these are readily available 	<p>To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features.</p> <p>To ensure for the qualifying habitat that the following are maintained in the long term:</p> <ul style="list-style-type: none"> • Extent of the habitat on site • Distribution of the habitat within the site • Structure and function of the habitat • Distribution of typical species of the habitat • Viability of typical species as components of the habitat • No significant disturbance of typical species of the habitat.



Assessment Criteria	
The following assessment has been undertaken with guidance laid out in the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 4: Assessment of Implications on European Sites.	
Initial Assessment	
The key characteristics of the site and the details of the European Site should be considered in identifying potential impacts.	
• Reduction of habitat areas	No impacts predicted
• Disturbance to key species	No impacts predicted
• Habitat or species fragmentation	No impacts predicted
• Reduction in species density	No impacts predicted
• Changes in key indicators of conservation value (water quality, etc)	No impacts predicted
• Climate change	No impacts predicted
<i>Describe any likely impacts on the European Site as a whole in terms of:</i>	
Interference with the key relationships that define the structure of the site	No impacts predicted
Interference with key relationships that define the function of the site	No impacts predicted
<i>Indicate the significance as a result of the identification of impacts set out above in terms of:</i>	
Reduction of habitat area	N/A
Disturbance to key species	N/A
Habitat or species fragmentation	N/A
Loss	N/A
Fragmentation	N/A
Disruption	N/A
Disturbance	N/A
Change to key elements of the site (e.g. water quality, hydrological regime etc)	N/A
Describe from the above those elements of the project, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is not known.	
Outcome of screening stage (delete as appropriate).	Not likely to be Significant Effects
<i>Are the appropriate statutory environmental bodies in agreement with this conclusion (delete as appropriate and attach relevant correspondence)</i>	SNH have indicated the proposed works will have no impact on the SAC.



Appendix B: Scottish Natural Heritage Responses

From: Graeme Walker [mailto:Graeme.Walker@snh.gov.uk]
Sent: 22 November 2012 09:29
To: Roxburgh, Melanie
Subject: RE: A737 The Den - AIES

Hi Melanie

I can confirm that proposed works at the Den will have no impact on the Bankhead Moss SAC site.

Should you wish to discuss this proposal in further detail, please do not hesitate to get in touch.

Graeme Walker

Area Officer

Ayrshire and Arran

Russell House, King Street, Ayr. KA8 0BF.

01292 270760

(Direct 01292 270761)

From: Roxburgh, Melanie [mailto:Melanie.Roxburgh@amey.co.uk]
Sent: 21 November 2012 16:08
To: Graeme Walker
Subject: A737 The Den - AIES

Graeme,

Please find attached the AIES for the A737 The Den scheme.

Regards
Melanie

Melanie Roxburgh
Ecologist and Environmental Officer
Amey

t: 01698 730279 | **f:** 01698 833174 | **e:** melanie.roxburgh@amey.co.uk
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A737 Trunk Road – The Den Dalry

Assessment of Implications on European Sites (AIES)





Job Ref.	Report / Version	Date	Prepared by	Checked by	Approved by
10/SW/0901/037	Version 1	December 2012	Melanie Roxburgh	Lois Warnock	Carol Walker

A737 Trunk Road – The Den Dalry

Assessment of Implications on European Sites (AIES)





Job Ref.	Report / Version	Date	Prepared by	Checked by	Approved by
10/SW/0901/037	Version 1	December 2012	Melanie Roxburgh	Lois Warnock	Carol Walker